



*National Institute for Economic Research*



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*“Economy and Sociology”* is a high-level scientific platform that discusses the most current economic and social issues at the regional and national levels. Over the years, the Journal has proven to be an academic publication that announces the results of original scientific research with added value to the development of economic and sociological science. By involving a large research community in a peer-review process, the Journal aims to provide an access to quality research papers covering theoretical and applied aspects of economics and sociology.

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**National Institute for Economic Research**

**Ion Creangă Street, 45,**

**Chişinău, MD-2064**

**e-mail:** [incemd.redactie.es@gmail.com](mailto:incemd.redactie.es@gmail.com)

**website:** <https://economy-sociology.ince.md/>

# DEMOGRAPHIC CHANGE AND THE FUTURE OF RESILIENCE PLANNING IN MOLDOVA

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## Nicholas GAILEY

PhD, Wittgenstein Centre for Demography & Global Human Capital, International Institute for Applied Systems Analysis, Austria

<https://orcid.org/0009-0002-7176-5505>  
[gailey@iiasa.ac.at](mailto:gailey@iiasa.ac.at)

## Olga GAGAUZ

PhD habilitation in sociology, associate professor, National Institute for Economic Research, Academy of Economic Studies of Moldova

<https://orcid.org/0000-0002-1175-1008>  
[gagauz\\_olga@ince.md](mailto:gagauz_olga@ince.md)

## Irina PAHOMII

PhD student, Charles University in Prague, Faculty of Sciences, Department of Demography and Geodemography, National Institute for Economic Research, Academy of Economic Studies of Moldova

<https://orcid.org/0000-0002-6595-9146>  
[pahomii.irina@ase.md](mailto:pahomii.irina@ase.md)

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## SUMMARY

Demographic transformation is a defining global trend, and Moldova is undergoing profound structural shifts that reflect this broader pattern. The country's population is shrinking, aging, becoming more educated, and more economically active—trends that carry wide-ranging implications for public policy, economic resilience, and long-term development. This paper analyzes how these demographic changes will affect the future demand for critical services and infrastructure by 2050. Using scenario-based population projections, the study estimates population-based demand across four key sectors: education, health, social protection, and physical infrastructure. The analysis distinguishes between a baseline scenario, where current population-to-infrastructure or population-to-service ratios are maintained, and a continued development scenario, where the ratios improve over time. The results reveal that demographic decline creates opportunities to enhance efficiency in sectors like education and housing, while also generating pressure to restructure services in health care and social protection due to population aging. The study highlights the importance of 'demographic resilience' as a policy framework—defined as a society's capacity to anticipate, absorb, and adapt to demographic change through strategic planning and human capital investment. By integrating demographic evidence into cross-sectoral policymaking, Moldova can best position itself for achieving lasting demographic resilience. This study advances the concept of demographic resilience by demonstrating how strategic investment in human capital can offset the challenges of population decline and aging.

**Keywords:** *population projections, public service demand, demographic resilience*

## INTRODUCTION

Across the globe, countries are undergoing complex demographic transformations that challenge the foundations of economic planning, social protection systems, and public service delivery. Moldova is no exception. With a population that is shrinking, aging, and increasingly mobile, the country is experiencing structural shifts that will fundamentally reshape future demand for services, infrastructure, and human capital investment. These demographic trends—especially when compounded by ongoing external shocks such as regional instability, economic migration, and energy crises—demand timely, evidence-based responses and integrated resilience strategies.

In recent decades, Moldova has seen steady increases in life expectancy, gradual improvements in health indicators, and rising educational attainment. At the same time, the country is marked by low fertility, a high rate of out-migration—particularly among youth and professionals—and a rapidly ageing population. The projected decline in the number of residents, especially in rural areas, combined with pronounced generational imbalances, will have far-reaching consequences for the sustainability of public services and potentially the country's economic competitiveness.

In response to these challenges, we developed national population projections for the period 2023–2050. These projections serve as a critical tool for informing long-term policy decisions across several key sectors: education, health, social protection, and physical infrastructure. The present article builds on these projections and introduces the concept of demographic resilience—defined as the capacity of a society to anticipate, absorb, and adapt to demographic change through informed governance and investment in human capital.

This study has three interrelated objectives:

1. To assess Moldova's medium-term demographic outlook using scenario-based population projections;
2. To estimate future demand for public services and infrastructure under both baseline and improving assumptions;
3. To explore the policy implications of these projections for enhancing Moldova's demographic resilience.

Unlike traditional demographic analyses that focus narrowly on fertility, mortality, and migration trends, this study adopts a systems perspective, recognizing the interdependence between demographic dynamics and sectoral planning. The review explores how age structure transformations affect demand for schools, health service needs, pension system sustainability, and infrastructure demand. It also discusses how changes in human capital composition—particularly rising levels of education and labor force participation—can act as counterweights to a shrinking population size.

The review argues that demographic change should not be viewed solely as a threat but also as a window of opportunity for smart adaptation, if anticipated and managed well. There is a need to rethink the economy and society, adjust social and health, and develop new approaches to social care (Warner et al., 2025). In this context, the demographic resilience approach provides a roadmap for Moldova to align its investments, policies, and institutional capacities with the population of tomorrow.

## LITERATURE REVIEW

The demographic transition observed in Moldova reflects broader patterns documented in Eastern Europe and globally, where declining fertility, increased longevity, and sustained emigration are reshaping the population structure (Lutz & KC, 2011; UN DESA, 2022). Moldova's contemporary demographic outlook is broadly in line with the predictable patterns seen worldwide in post-Demographic Transition countries, with additional nuances from the legacies of the post-Soviet economic instabilities and interactions with other economies in the region. At the same time, Moldova's demographic outlook is also a product of unfavourable trends, such as ongoing "brain drain" with many Moldovans searching for work in other economies (Tabac, 2021; Gagauz, Tabac & Pahomii, 2023). Fertility also remains moderately low (1.6), with couples having notably fewer children than they desire (Grigoraș & Gagauz, 2022).

These shifts generate complex challenges and opportunities for social and economic development, requiring robust, evidence-based strategies to ensure demographic resilience (Bloom et al., 2011). The concept of demographic resilience has emerged as a multidimensional policy framework that moves beyond population numbers to incorporate structural adaptability, human capital investment, and institutional preparedness (UNFPA, 2021). In this context, population projections are not only technical tools but also strategic instruments for anticipating change and guiding long-term public planning (Wilson & Rees, 2005).

Moldova's demographic context is shaped by both general transition trends and unique contextual features, such as its historical exposure to post-Soviet disruptions, economic migration, and limited fiscal space for reforms (World Bank, 2023). International assessments have consistently highlighted the importance of aligning demographic foresight with investment in education, health, and social protection to ensure sustainable development (OECD, 2019; WHO, 2021). Sectoral analyses, particularly in the fields of education and health, reaffirm that population aging and childbearing declines demand strategic realignment rather than simple expansion or contraction of services (Lee & Mason, 2011). Education system adaptation, labor force participation, and healthy aging are key levers in transforming demographic vulnerability into long-term opportunity (Cuaresma et al., 2014b; Cylus & Al Tayara, 2021).

While a growing number of high-income countries have adopted policy innovations to link retirement age to life expectancy and reduce generational imbalances in social spending, similar reforms in low- and middle-income countries often face constraints due to informality, political cycles, and lower institutional trust (Esping-Andersen, 1999; Holzmann et al., 2019). In this regard, Moldova offers a compelling case study of how demographic evidence, when systematically integrated into national planning, can contribute to both fiscal responsibility and social sustainability.

## DATA AND METHODS

The methodological framework of this study comprises two core components: the development of a national population projection for the period 2023–2050 and

the construction of a scenario reflecting future service demand.

### POPULATION PROJECTION

The analytical approach is grounded in the cohort-component method, a widely recognised demographic technique for population forecasting (Mazzucco & Keilman, 2020; Vanella, Deschermeier, & Wilke, 2020). This method allows for systematic projections by applying age- and sex-specific assumptions on fertility, mortality, and migration.

The base data used in this study derive from official sources provided by the National Bureau of Statistics (NBS) of Moldova. These include detailed data on population size and structure, as well as vital statistics concerning fertility, mortality, and migration. The use of official statistical data ensures consistency and reliability in the projection exercise.

The population projection is deterministic in nature and does not represent an official forecast. Rather, it serves as a scenario-based exercise that illustrates the demographic implications of a hypothetical, yet plausible, path informed by current trends. The purpose of this scenario is not to predict future demographic developments per se, but to simulate conditions under which policy responses may be evaluated in a sustainability-oriented context.

In this study, a single scenario was presented, reflecting an optimistic view, but grounded in the observed trends in data trajectory. The following assumptions were applied:



- *Fertility:* The Total Fertility Rate (TFR) begins at 1.7 children per woman in 2023, decreasing to 1.6 by 2040 in alignment with observed regional trends. By 2050, a modest increase to 1.8 is assumed. These values are supported by findings from the Generations and Gender Survey, which indicate that fertility intentions in Moldova remain relatively high compared to EU averages.
- *Mortality:* Life expectancy at birth for females increases from 76.0 years in 2023 to 83.6 years in 2050, while for males, it rises from 67.5 to 76.7 years. These assumptions imply a gradual reduction in the gender gap in life expectancy, from 8.5 years to 6.9 years.
- *Migration:* Migration assumptions are based on pre-pandemic patterns, excluding data for the years 2020–2022, which were affected by exceptional circumstances. A progressive decline in net migration is assumed—60% for males and 70% for females—by 2040. In addition, the age profile of migration is adjusted to reflect lower net emigration among young children and working-age adults, alongside stabilisation of immigration among older returnees (aged 60+). This profile remains constant between 2040 and 2050.

All calculations were performed using the DAPPS software (Demographic Analysis and Population Projection System), a tool developed to facilitate cohort-component projections and demographic analysis. DAPPS offers a user-friendly environment suitable for constructing both national and sub-national projections and is widely used in demographic planning and policy evaluation.

This projection provides the demographic foundation for the assessment of future service demand. While not exhaustive, the chosen assumptions aim to reflect the most relevant demographic processes shaping Moldova's medium-term outlook.

## SCENARIOS FOR FUTURE DEMAND

Future demand for various services, infrastructure, and resources has a direct relationship with demographic change (including specific sub-populations, e.g. age cohorts). As such, population projections are a tool that can be used to guide the government's planning and allocation of public funds. This review explores that relationship for subsets of the following sectors:

- Childcare & Schooling;
- Health Services;
- Social Protection;
- Physical Infrastructure & Resource Consumption.

Drawing from available official data, specific indicators of interest were selected for each sector. In most cases, the indicators included in the study were chosen based on the availability of up-to-date statistical data and their relevance to fulfilling the basic needs of the population or advancing strategic policy objectives.

For the Childcare & Schooling sector, the following indicators were selected: child care facilities, kindergartens, early education staff, primary schools, secondary schools, and primary and secondary school teachers. Data for these indicators, corresponding to the base year, were retrieved from the National Bureau of Statistics (NBS).

For the Health Services sector, the analysis included the following indicators: total number of hospital beds, maternity ward beds, geriatric beds (with a therapeutic profile), geriatricians, total number of doctors, nurses, midwives, paediatricians, neuropathologists, and pharmacists. Data were sourced from the NBS, except for the number of geriatric beds (therapeutic profile), which was obtained directly from the competent institutions.

For the Social Protection sector, the indicators used were: parental leave benefits (2-year option), parental leave benefits (3-year option), pension benefits, and unemployment benefits. Information on child-related allowances and pensions was extracted from the records of the National Office of Social Insurance of Moldova, while data on unemployment benefits were obtained from budget expenditure documents by category of social transfers.

For the Physical Infrastructure & Resource Consumption sector, the selected indicators included: public transport (buses and minibuses), private transport (cars and taxis), housing units, electricity consumption (in millions of kWh), total energy consumption (in tons of oil equivalent – TOE), CO<sub>2</sub> emissions (in millions of tons), solid waste generation (in tons), volume of water supplied to the population through public infrastructure (in thousand m<sup>3</sup>), and volume of wastewater discharged into the public sewage system (in thousand m<sup>3</sup>). The primary source for all base year data in this sector was the National Bureau of Statistics (NBS).

Based on the observed current values for the indicators of interest, this research explores two distinct scenarios for their future development.

- **Baseline (maintaining current ratios):** The current proportion of indicator X (social and physical infrastructure) to population (in the relevant age group) is held constant through 2050. *E.g., The number of teachers declines proportionately with the population of school-aged children, maintaining the teacher-to-pupil ratio.*
- **Continued Development (improving ratios):** The current proportion of indicator X (social and physical infrastructure) to population (in the relevant age group) is improved by 0.5% per year through 2050. *E.g., The number of teachers declines slower than the population of school-aged children, gradually improving the teacher-to-pupil ratio.*

Once the future demand is estimated, the research moves on to consider implications for policy. Specifically, it presents challenges and opportunities in the various sectors considered, explicitly in terms of ongoing

demographic change. Policy options are considered to strengthen human capital and lean into the potential for a Demographic Dividend, and by extension achieve demographic resilience.

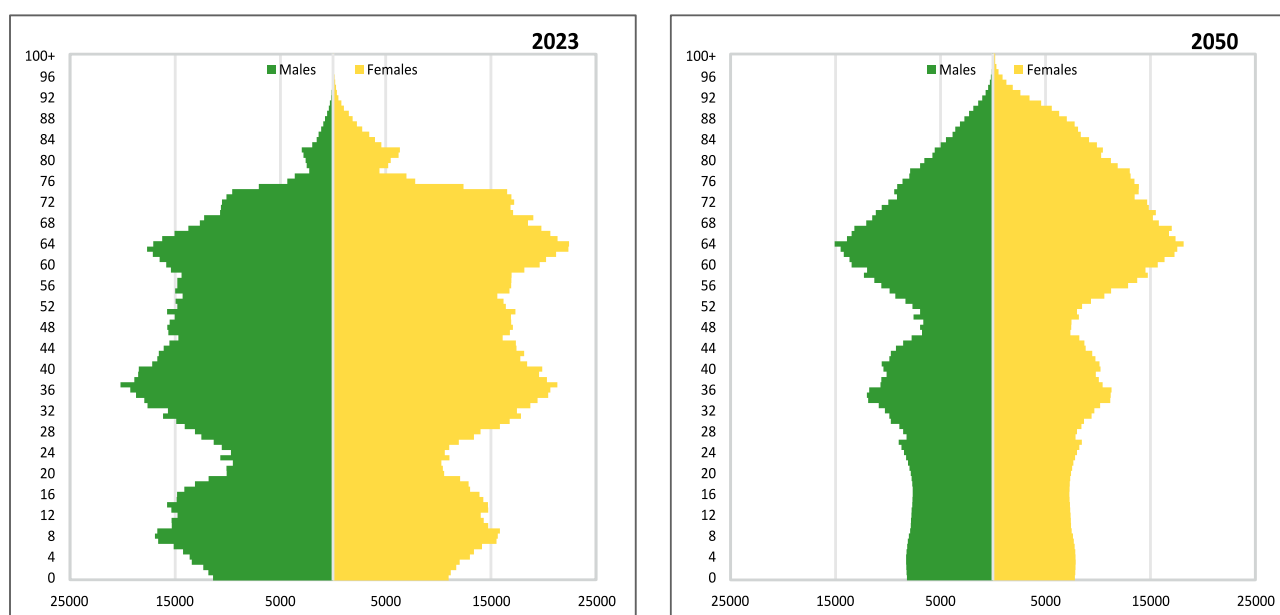
## DEMOGRAPHIC BACKGROUND

Results of the projection indicate that Moldova's actual resident population (excluding emigrants and seasonal workers) declines from 2.42 million in 2024 to 1.7 million in 2050, assuming fertility remains moderately low, and emigration remains relatively high (*Figure 1*). This decrease is 20% faster than what is projected for the Eastern European region (UN, 2024) during the same period. In highly developed, post-Demographic Transition settings, the consequences of population decline are complex. It brings the potential to free up more resources per capita (natural and social) and facilitate higher standards of living, but it also can be associated with reduced economies of scale and provision of services in rural areas.

Compounding the challenges of population decline, Moldova also faces significant generational imbalances. The cohorts born around the year 2000 are about half the size of that born in 1990, and three-fourths of that born in 2010. These variations stem from a combination of effects from historical events (World War II casualties and post-Soviet repatriations), ongoing emigration of Moldovans (disproportionately young), and social changes (delayed childbearing). While Moldova has adapted to past fluctuations in the size of generations by condensing (and then expanding again) services in the last 30 years, the imbalances continue to pose obstacles for planning and resource allocation, particularly in education and healthcare.

**Figure 1.**

*Population Age-Sex Pyramids, 2023 and 2050*



Source: NBS data for 2023 and projection for 2050.

Moldova's population is also at the forefront of the aging global megatrend (Gagauz et al., 2024). In recent decades, population aging has advanced with longer lifespans, particularly among men who previously died quite young by international standards. At the same time, Moldova has the second factor of emigration, which has remained disproportionately made up of the youth amid waves of those leaving since independence. Still, Moldovans today are younger than Western Europeans on average, and roughly on par with their Eastern European peers. However, the pace of aging is comparatively quick. The results of the projection suggest that the share of Moldovans aged 65+ will grow from 17.4% (2023) to 30.4% (2050), and the median age rises from 40.4 (2023) to 50.3 years (2050).

Population aging and decline are two noteworthy trends captured by the projections used in this review, but these trends are not unfolding in isolation. Simultaneously, Moldova is seeing gains in its human capital, as the population becomes more educated and more active in the labor force over time. By 2050, the proportion with upper secondary or higher education is projected to jump to 77.3% up from 14.8% in 1970 (Wittgenstein Centre for Demography and Global Human Capital, 2023). Similarly, labour force participation is on the rise,

increasing from an overall rate of 42% in 2019 to 45% in 2023, with participation approximately 20 percentage points higher for Moldovans with post-secondary education compared to the overall participation rate. While these suggest positive signals for human capital, the 'quantity' of education or labour force participation is not enough in itself to secure a resilient society. Human capital must also be of high quality; otherwise, its significance and potential as a force for socio-economic development are diluted.

Ultimately, what makes a country successful depends on much more than the simple population size or age structure. The characteristics of its people, including their skills and abilities, are of great consequence. Many of today's most prosperous, safe, and livable societies do not have particularly large population sizes, or even external sources of wealth (e.g. natural resources), but rather a cultivated population. Put another way, demographic change doesn't always require demographic solutions. Much of the broad demographic change, with the momentum behind it, is essentially inevitable in any case. The degree to which governments can plan accordingly, and leverage human capital, will determine the resilience of societies.

## MAIN RESULTS

### CHILDHOOD & SCHOOLING

In life's most formative years, childcare and childhood education are expected to equip the next generation with essential skills for excelling in life. How children fare in these settings often carries with them well into adulthood, showing a clear association, if not causal relationship, with higher education, income, sociability, criminality, and many other life outcomes (OECD, 2023). Education is even found to have a strong relationship with health, as mortality reduces by 2% with every year of schooling (Institute for Health Metrics and Evaluation, 2018). Therefore, it is clearly in the public interest to invest in

education and help children reach their fullest potential.

Table 1 shows the future demand for such services in Moldova. Since the country's population decline is disproportionately among children and women in their childbearing years, it creates a comparatively quick drop in demand for the child-focused infrastructure. This demand is about 30% to 50% lower in 2050, compared to 2023 in the 'baseline' scenario. For example, maintaining current student-to-teacher ratios means Moldova would need 13,280 primary and secondary teachers by 2050, compared to 25,994 in 2023 (**Table 1**).

**Table 1.**  
*Projected Demand for Childcare and Schooling*

Indicator	2023	2030	2040	2050
<b>Baseline (Current Ratios) Scenario</b>				
Child care facilities	774	625	543	530
Kindergartens	687	511	409	406
Early education staff	12,568	9,590	7,886	7,778
Primary schools	87	57	44	42
Secondary schools	1,105	1,034	682	579
Primary & secondary school teachers	25,994	21,696	15,038	13,280

Indicator	2023	2030	2040	2050
<b>Continued Development (Improving Ratios) Scenario</b>				
Child care facilities	774	647	597	616
Kindergartens	687	530	449	472
Early education staff	12,568	9,938	8,665	9,045
Primary schools	87	59	49	49
Secondary schools	1,105	1,071	749	673
Primary & secondary school teachers	25,994	22,483	16,525	15,442

Source: data for 2023 – see source in Data and methods paragraph; data for projected period – author estimations.

By contrast, if Moldova follows the ‘continued development’ scenario (*Table 1*), the number of teachers, educational staff, and facilities would still see a reduction, but at a slower pace than the rate of population change, thereby improving the ratios over time.

## HEALTH SERVICES

The health of a country is a source of wealth and is essential to building a truly resilient society. Setting up the next generation for long, healthy lives require parents and the education system to encourage health-affirming habits. In a similar spirit, the health system can place greater emphasis on preventive medicine, rather than primarily focusing on treatments once an illness is detected, widely acknowledged as preferable for individual outcomes and state budgets. The relative benefits of preventative medicine are only set to grow as the population ages and chronic lifestyle-related diseases such as cardiovascular disease, cancer, and dementia gain prominence. Currently, Moldova has one of the highest age-standardized premature mortality rates, with cardiovascular diseases a particularly widespread problem (Penina & Raevschi, 2017; Raevschi, Obreja & Penina, 2019). Data on Disability-Adjusted Life Years

(DALYs) in 2019 shows that after cardiovascular disease and strokes, liver cirrhosis was the third most common cause of poor health among men, and fourth among women (Raevschi, Obreja & Penina, 2019).

According to the projections, Moldova can expect fewer childbirths and more need for geriatric care in the coming decades. In the ‘baseline’ scenario (*Table 2*) the demand for child-focused medical services and infrastructure – maternity ward beds, midwives, and pediatricians – drops by almost 48%. On the other hand, demand for certain medical specialties is set to grow by 16.8%. The NBS reported 66,831 cancer patients in 2022. If the prevalence of this primarily aging-related illness grows proportionally with the population aged 65+, the number of patients would rise to 78,078 by 2050 (in spite of population decline), reinforcing the need for an expansion in the services.

**Table 2.**

*Projected Demand for Health-Related Indicators*

Indicator	2022	2030	2040	2050
<b>Baseline Scenario</b>				
Hospital Beds (Total)	16,672	14,283	12,646	11,394
Maternity Ward Beds	710	558	418	375
Geriatric Beds (Therapeutic profile)	748	800	822	874
Geriatricians	29	30	31	33
Doctors (Total)	12,600	10,794	9,557	8,611
Nurses	18,964	16,246	14,384	12,960
Midwives	500	393	294	264
Pediatricians	532	400	295	271
Neuropathologists	358	444	461	487
Pharmacists	1,761	1,509	1,336	1,203

Indicator	2022	2030	2040	2050
<i>Continued Development Scenario</i>				
<b>Hospital Beds (Total)</b>	16,672	14,878	13,896	13,249
<b>Maternity Ward Beds</b>	710	581	459	436
<b>Geriatric Beds (Therapeutic profile)</b>	748	833	903	1,016
<b>Geriatricians</b>	29	32	35	39
<b>Doctors (Total)</b>	12,600	11,244	10,502	10,013
<b>Nurses</b>	18,964	16,923	15,807	15,070
<b>Midwives</b>	500	409	323	307
<b>Pediatricians</b>	532	416	324	315
<b>Neuropathologists</b>	358	462	507	566
<b>Pharmacists</b>	1,761	1,572	1,468	1,399

Source: data for 2023 – see source in Data and methods paragraph; data for projected period – author estimations.

Even if Moldova gradually improves its ratios of health professionals and beds, the ‘continued development’ scenario suggests the country will need fewer services focused on the general population than today (Table 4). As in neighboring Romania, many Moldovan doctors have been recruited by Western European medical systems, which seek to fill their own shortages. Furthermore, many of Moldova’s medical professionals are concentrated at older ages, with 28% of doctors and 18% of nurses at retirement age in 2018 (WHO, 2022). Similar to patterns seen in many countries around the world, including those with high income, Moldova has an older medical labor force in rural settings compared to Chisinau, other cities, or towns.

Nevertheless, for the time being, Moldova has a relatively high number of doctors, well above the minimally recommended standards, slightly below the European average, and near the high-income country average (WHO, 2025). This finding comes from a global database on physicians (of all specializations) to population produced by WHO, which relies on the UN WPP for the base populations. If Moldova’s population size is corrected with the National Bureau of Statistics’

latest data, the current ratios look even stronger, above the European average.

The multi-dimensional nature of ongoing demographic change means that the concept of aging itself also requires updating. Today’s retirees have better health prospects than previous generations, underscoring how chronological age and biological age are distinct concepts (Scherbov & Sanderson, 2020). As longevity increases and functional capacities are maintained into later life, the traditional markers used to define ‘old age’ become less relevant for policy and planning purposes. This reconceptualization is essential in fostering demographic resilience, as it enables a more nuanced understanding of the potential and needs of ageing populations beyond simplistic age thresholds (Cuaresma et al., 2014a).

Recent data on life expectancy and premature mortality levels indirectly suggest an improvement in the overall health status of the population. Therefore, contrary to common fears, population aging is not (and will not become) the major driver of healthcare spending – instead service delivery models, prices of care, and technology as shown to be the decisive factors (Williams et al., 2019).

## SOCIAL PROTECTION

In 2023, 14% of Moldovans fell below the upper-middle income poverty line of US\$6.85 per day (2017 PPP), as they were confronted with ongoing jumps in food and energy prices undercutting purchasing power (World Bank, 2025). According to Moldova’s national poverty measure, which uses a stricter standard, the share of Moldovans living in poverty reaches around a quarter of the population. Social protection, which aims to alleviate poverty and protect vulnerable groups, will see major shifts in demand over the coming decades, driven by demographic change.

The projections indicate that Moldova will have a growing share of retirees relative to children in the future. As a

consequence, spending on social protection in Moldova is expected to further shift in favor of pension benefits compared to parental benefits (the popular 2- and 3-year options) – from about 13:1 (2023) to 21:1 (2050). All else equal, the total value spent on parental leave benefits shows a decline (between -30.6% and -32.2%), while the value of pension benefits increases (+8.5%), shown in Table 3. For pensions, the eligible age threshold is assumed to increase to age 63 (for both men and women) by 2028, according to the current legislation. The eligible retiree population in 2050 is projected to increase by 55k compared to 2023 despite overall population decline, due to population aging and large fluctuations in birth cohorts.



**Table 3.***Demand for Social Benefits |**Total public spending in Moldovan Lei (All values = 2023 MDL)*

Indicator	2023	2030	2040	2050
<b>Baseline (Constant Ratios) Scenario</b>				
Parental Leave Benefits (2-year option)	11,982,767	9,759,964	8,568,657	8,319,603
Parental Leave Benefits (3-year option)	115,378,744	92,502,365	80,289,118	78,274,700
Pension Benefits	1,664,806,984	1,642,527,015	1,690,253,204	1,807,138,901
Unemployment Benefits	4,138,000	3,639,736	3,126,402	2,581,596
<i>Note: Average per capita benefit in Lei held constant throughout the projection, not adjusted for future inflation</i>				
<b>Further Development (Improving Ratios) Scenario</b>				
Parental Leave Benefits (2-year option)	11,982,767	10,166,629	9,416,106	9,673,957
Parental Leave Benefits (3-year option)	115,378,744	96,356,630	88,229,800	91,017,094
Pension Benefits	1,664,806,984	1,710,965,641	1,857,421,103	2,101,324,303
Unemployment Benefits	4,138,000	3,791,391	3,435,606	3,001,856
<i>Note: Average per capita benefit in Lei increased by 0.5% per year throughout the projection, not adjusted for future inflation</i>				

*Source:* data for 2023 – see source in Data and methods paragraph; data for projected period – author estimations.

The baseline scenario focuses purely on the implications of demographic change for the social benefit system. However, potential adjustments to the eligibility requirements, for example tying retirement age to life expectancy as done in a growing number of developed countries, would alter the expected demand considerably. Besides alterations to eligibility, the value of benefits themselves can be adjusted – which is the premise behind the ‘improving ratios’ scenario.

If Moldova expands the value of its future benefits by half a percent per year, the difference in yearly pension costs would require an additional 294 million Moldovan Lei in 2050 (Table 3). Similarly, this rate of improvement would mean parental leave benefits (for the 3-year variant) require an extra 1.32 billion Lei in 2050.

In the long-run, stable and effective social benefits depend on human capital investments. A highly educated and skilled population is inevitably tied to general economic development, tax revenues, and reducing reliance on social benefits in the first place. However, Moldova’s ongoing human capital flight (brain drain) and emigration-dependent growth have been labelled as a weakness (Augusztin, et. al., 2023), exposing the country to an oversized risk of external economic shocks. Both high rates of emigration and informal work contribute to deceptively low unemployment and lost state investments in human capital. While resolving issues with human capital offers multiple avenues for expanding social benefits, in any future scenario, the costs of social benefits to the national budget will heavily depend on the shifting population size and composition.

## PHYSICAL INFRASTRUCTURE & RESOURCE CONSUMPTION

Skyrocketing energy prices gained national attention in recent times, with an estimated 60% of Moldovans living in ‘energy poverty’, where more than 10% of the household budget goes to covering energy bills UNDP (2023). Such hardships have been brought about by supply constraints and a reliance on imports to meet 80% of the country’s needs, but also due to lack of modern energy infrastructure. In addition to energy, this section considers how projected demographic change will influence future resource consumption and demand

for physical infrastructure. Unlike the previous sections in this review, total population is used to determine demand due to limited data on usage disaggregated by age, sex, or other characteristics.

In the baseline scenario, where current population-to-resource ratios are held constant, Moldova predictably sees a decline in demand for resources due to the smaller future population (*Table 4*). For example, total energy consumption falls from 2,521 Tons of Oil Equivalent (TOE) in 2022 to 1,723 TOE in 2050.

**Table 4.**

*Demand for Infrastructure & Resource Consumption*

Indicator	2022	2030	2040	2050
<i>Constant Ratios Scenario</i>				
Public Transport (buses + minibuses)	21,055	18,038	15,970	14,389
Private Transport (cars + taxis)	745,970	639,074	565,808	509,795
Housing units	1,324,500	1,201,073	1,063,378	958,107
Electricity (millions of kWh)	4,042	3,463	3,066	2,762
Energy consumption (tons of oil equivalent - TOE)	2,521	2,160	1,912	1,723
CO <sub>2</sub> emissions (millions of tons)	5.42	4.64	4.11	3.70
Solid Waste (tons)	53,906	46,182	40,887	36,839
Water supplied to the population by public infrastructure (thous. m <sup>3</sup> )	69,929	59,908	53,040	47,789
Wastewater disposal into public sewage system (thousands of cubic meters)	70,939	60,774	53,807	48,480
<i>Improving Ratios Scenario</i>				
Public Transport (buses + minibuses)	21,055	18,789	17,549	16,731
Private Transport (cars + taxis)	745,970	665,702	621,767	592,785
Housing units	1,324,500	1,251,118	1,168,548	1,114,078
Electricity (millions of kWh)	4,042	3,330	2,813	2,423
Energy consumption (tons of oil equivalent - TOE)	2,521	2,077	1,754	1,511
CO <sub>2</sub> emissions (millions of tons)	5.42	4.46	3.77	3.25
Solid Waste (tons)	53,906	44,405	37,511	32,315
Water supplied to the population by public infrastructure (thous. m <sup>3</sup> )	69,929	57,604	48,660	41,920
Wastewater disposal into public sewage system (thousands of cubic meters)	70,939	58,436	49,364	42,526

*Note:* ‘Improvement’ is defined as greater conservation or reduced usage per capita for the indicators of resource consumption. For the indicators of physical infrastructure (housing and transportation), ‘improvement’ is defined as a gradual increase in supply to reflect common policy goals.

*Source:* data for 2023 – see source in Data and methods paragraph; data for projected period – author estimations.

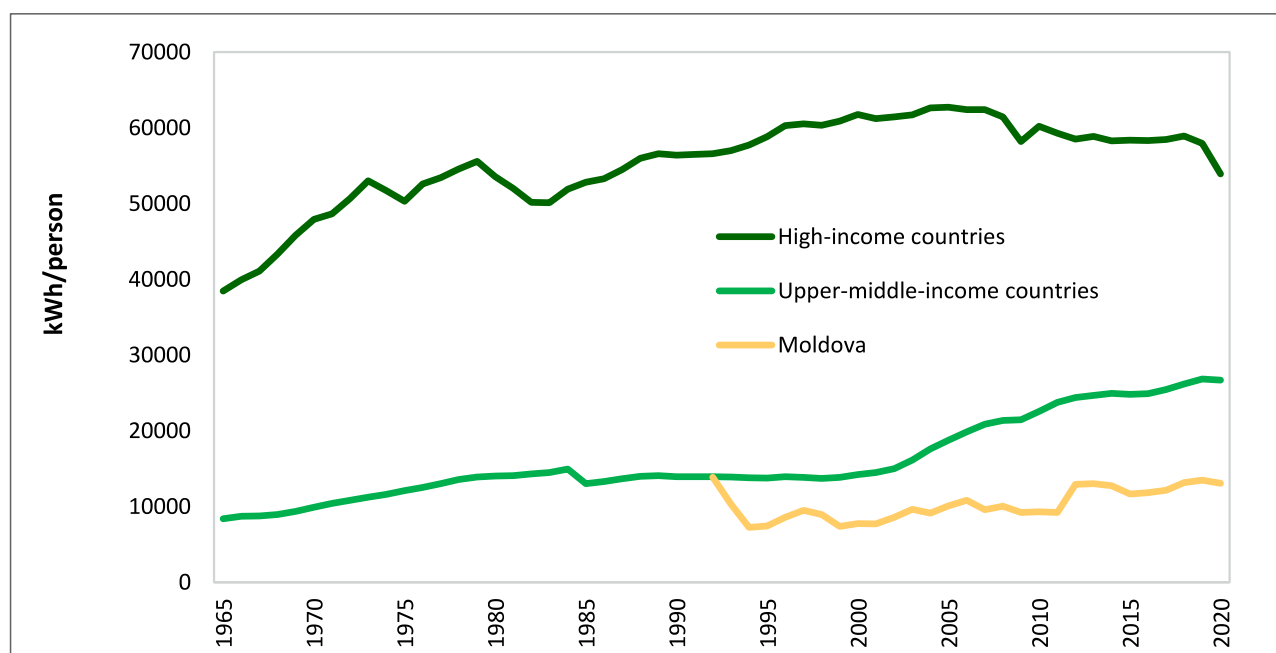
Generally, Moldova's smaller population will allow for strategic reductions in physical infrastructure and the resources consumed. However, some infrastructure is more directly tied to population (e.g. electricity) than others (e.g. public transportation), which can have far from a simple 1-to-1 relationship and involve various tipping points that require a critical mass of people in a given locality. Besides potential population-driven reductions, there is also the independent prospect of upgraded technological efficiencies. Table 4 also shows an 'improved ratios' scenario, where the resources consumed, for most indicators, gradually reduce at a rate faster than population decline (-0.5% per year). In this case, for example, the total amount of solid waste produced by Moldova falls from nearly 54k tons in

2022 to 32k tons in 2050 (about 5k tons less than in the baseline scenario).

Although Moldova's population (and therefore number of consumers) is projected to fall, a real possibility exists for a simultaneous rise in per capita consumption. The opposing forces at work may still end with higher total demand for resources. Figure 1 illustrates the observed upward trend in per capita primary energy consumption, and how it compares to Moldova's current and aspirational income group averages, both of which are notably higher. While per capita energy consumption in high-income settings appears on the decline, a holistic view of energy consumption of the population is partially concealed by the import of manufactured goods in the increasingly service-based high-income countries.

**Figure 1.**

*Primary Energy Consumption (per capita)*



Source: Our World in Data - Energy; Country Profiles

While demographics clearly influence infrastructure and consumption, the opposite is also true. The quality of Moldova's infrastructure is inseparably linked to questions of quality of life, environment, and economy, which in turn have demographic consequences for ability to start families, intentions to emigrate, and other

life decisions. Investing in infrastructure can benefit Moldova's human capital, which in turn, puts society in a better position for adaptation to changes in demand for infrastructure and resource use through increased administrative and technological capacities, in line with the broader vision for demographic resilience.



## DISCUSSIONS

The findings reveal that demographic decline and aging in Moldova will not affect all public services equally. The steepest declines in demand are projected in education and early childhood care, reflecting low fertility and a shrinking youth cohort. These results support and refine earlier international assessments (e.g., [OECD, 2019](#)) by demonstrating how, in Moldova's case, a declining student population can serve as a policy window to improve education quality—assuming strategic resource reallocation.

Conversely, demand for healthcare services is projected to shift rather than decline—decreasing in maternal and pediatric care, while increasing for age-related and chronic disease services. This aligns with international evidence ([Williams et al., 2019](#); [WHO, 2022](#)), though our results emphasize Moldova's relatively accelerated shift due to emigration of younger cohorts. Importantly, the study acknowledges that population aging is not the dominant driver of healthcare expenditure growth, highlighting the role of service delivery models and care prices ([OECD, 2023](#)).

In social protection, projections indicate a growing imbalance in spending, with pensions increasingly dominating the system. These results diverge slightly from global studies that suggest aging's impact is often overstated ([Holzmann et al., 2019](#)). In Moldova's case, the high proportion of informal employment and labor migration creates a more acute challenge for sustainability. Additionally, this study adds empirical weight to concerns about Moldova's generational equity in benefit allocation, showing that under current structures, intergenerational imbalance may worsen.

In terms of infrastructure and resource consumption, both scenarios suggest that population decline will lead to a reduction in overall demand. However, the study emphasizes that per capita consumption may increase, particularly in the case of energy, resulting in total usage patterns that do not necessarily decline in proportion to population. This challenges intuitive assumptions and aligns with regional findings. Other research indicates that in many areas, per capita energy consumption may rise due

to changing settlement patterns and higher infrastructure costs. While shrinking populations may reduce aggregate demand, fixed infrastructure and established behavioral patterns can cause total resource use to remain stable—or even increase ([ESPON, 2023](#)).

Compared to earlier demographic studies focused primarily on population decline (e.g., [UN DESA, 2022](#)), this analysis introduces a more integrated approach that includes implications for fiscal policy, infrastructure planning, and labor market strategy. The present study also extends the demographic resilience framework proposed by UNFPA ([2021](#)) by applying it empirically across multiple sectors using Moldova-specific projections.

Unlike macro-level European comparisons that often generalize about Eastern Europe's vulnerability (e.g., [OECD, 2019](#)), this review differentiates Moldova's profile by its distinctive migration trends, delayed fertility rebound, improving human capital, and early-stage institutional reforms. This specificity provides a more nuanced understanding of resilience potential.

The study opens several avenues for future research and policymaking. First, integrating population (and human capital) projections with budget simulations could refine fiscal sustainability analyses, particularly for pensions and healthcare. Second, further research should investigate how Moldova's human capital flight interacts with labor market automation, especially in health and education sectors. Third, qualitative studies of household adaptation to shrinking services—especially in rural areas—would help explain behavioral responses to demographic shifts.

Finally, Moldova could benefit from exploring comparative institutional models from countries with similar trajectories, such as Latvia or Estonia, to evaluate which governance structures have effectively absorbed demographic shocks. These comparisons could support the development of a national resilience dashboard—combining demographic, fiscal, and human capital indicators—to monitor and guide adaptive strategies over time.

## CONCLUSIONS

This study provides a scenario-based analysis of how Moldova's projected demographic changes to 2050 will reshape sectoral demands in education, healthcare, social protection, and infrastructure. The key conclusions of this study emphasize the need for integrating population projections into sectoral planning. Importantly, the education and childcare systems in Moldova will face a substantial decline in absolute demand due to demographic contraction. This decline offers a strategic opportunity to improve service quality and modernize delivery by optimizing pupil-teacher ratios, among others. At the same time, the healthcare sector is expected to undergo a shift in demand toward chronic and age-related conditions, highlighting the urgent need for health

workforce reforms and greater investment in preventive care. In the realm of social protection, the study identifies a growing imbalance, as pension expenditures increasingly dominate public spending. Without comprehensive parametric reforms and stronger contributory mechanisms, the long-term fiscal sustainability of the system may be compromised. Lastly, while overall infrastructure usage and resource consumption are projected to decline in tandem with population size, per capita consumption, especially of energy, may continue to rise. This suggests that population loss does not inherently reduce environmental pressures and calls for careful management of resource efficiency and infrastructure planning.

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## Authors' contributions

- Conceptualization: Nicholas Gailey, Gagauz Olga, Pahomii Irina
- Methodology: Nicholas Gailey
- Formal analysis: Nicholas Gailey
- Investigation: Gagauz Olga, Pahomii Irina
- Writing – original draft: Nicholas Gailey, Gagauz Olga, Pahomii Irina
- Writing – review & editing: Nicholas Gailey, Gagauz Olga, Pahomii Irina
- Supervision: Gagauz Olga
- Project administration: Gagauz Olga

# ANALYSIS OF INTANGIBILITY DEGREE IN COMPANIES LISTED ON THE BUCHAREST STOCK EXCHANGE

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## Ioana ANDRIOAIA

PhD student, Stefan cel Mare University of Suceava, Romania,  
Academy of Economic Studies of Moldova

<https://orcid.org/0009-0007-3493-5911>

[ioana.andrioaia99@gmail.com](mailto:ioana.andrioaia99@gmail.com)

## Veronica GROSU

PhD, Associate professor, Stefan cel Mare University of Suceava, Romania,

<https://orcid.org/0000-0003-2465-4722>

[veronica.grosu@usm.ro](mailto:veronica.grosu@usm.ro)

## Svetlana MIHAILA

PhD, Professor, Academy of Economic Studies of Moldova

<https://orcid.org/0000-0001-5289-8885>

[svetlana.mihaila@ase.md](mailto:svetlana.mihaila@ase.md)

## Ana-Carolina COJOCARU (BĂRBIERU)

PhD student, Stefan cel Mare University of Suceava, Romania,  
Academy of Economic Studies of Moldova

<https://orcid.org/0000-0001-9271-5932>

[carolinabarbieru@gmail.com](mailto:carolinabarbieru@gmail.com)

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## SUMMARY

The purpose of this research is to analyse the influence of the financial indicators Return on Equity, Leverage, Liquidity, size on intangibility degree of companies listed on the Bucharest Stock Exchange (BVB). The intangibility degree is important because it signals the existence of valuable intangible resources that are not quantified by traditional accounting, but which contribute significantly to the market value and growth potential of the company. The intangibility degree has been determined in this paper using Tobin's Q ratio, determined as the ratio between the market value of companies and the total replacement cost of their assets. This was achieved through a literature review. It was used to identify the financial indicators recommended by various researchers as determinants of the intangibility degree, as well as the working hypotheses of the paper. Another objective of the paper was to create an econometric multiple linear regression model to explain the influence of the previously selected financial indicators on the intangibility degree of companies listed on the BVB. The results obtained show that the Sig. value for the variables Return on Equity, Leverage, Liquidity is lower than the statistical threshold of 0.05, which reveals their positive influence on the intangibility degree, while size does not influence this degree because the Sig. value exceeds the mentioned threshold. We believe that the results of this paper can support companies that have as a strategy to increase the intangibility degree by maximising the influence of the variables that contribute to this increase.

**Keywords:** *intangibility degree, companies listed, return on equity, leverage, liquidity, size*

## INTRODUCTION

Due to technological and economic changes, value standards have undergone changes, which is why stakeholders need to thoroughly understand the composition and structure of intangible assets and their impact on company value. Several works, including Kovalev (2014) demonstrate that intangible assets are the main source of sustainable development. Also, Gu and Lev (2011) are of the opinion that 40% of the value of a company is not reflected in the balance sheet, which is attributed to intangible assets, and the growth can reach up to 90%, which is why they are of the opinion that the main drivers of growth and value of companies in most sectors of the economy are intangible assets.

Determining the value of intangible assets analyses the extent to which their accounting treatments are related to stock market values. Assessing the value of intangibility degree is still a controversial and hotly debated issue in literature.

The value of intangible assets has gained importance for stakeholders due to the shift from a tangible asset-based economy to an intangible asset-based economy (Güleç, 2021). Although there are contrary opinions, some researchers argue that intangible assets, interpreted with the help of financial statement data, can credibly justify the market value of a company, the possession of competitive advantage and the contribution to the long-term sustainability of the company, thus exerting a positive influence (Milala et al. 2021).

Therefore, the aim of this research is to analyse the influence that certain financial indicators exert on intangibility degree of companies listed on the Bucharest Stock Exchange (BVB). The intangibility degree was determined by means of Tobin's Q ratio determined as the ratio between the market value of companies and the total replacement cost of assets. This was achieved by means of a literature review which identified the financial indicators that were used by the researchers to analyse this topic and with which the working hypotheses were formulated. Subsequently, the database was constructed, and the data was analysed to make it complete, useful and relevant for the calculation of financial indicators. The last objective is to create an econometric multiple linear regression model that can explain the influence of the four financial indicators on intangibility degree of companies listed on the BVB.

The results of the study take the form of an econometric model analysing the influence of four independent variables: Return on Equity, Leverage, Liquidity, Size on the dependent variable the intangibility degree of companies determined by Tobin's Q ratio. According to the results, Return on Equity, Leverage and Liquidity positively influence the intangibility degree, while Size does not influence the dependent variable.



## LITERATURE REVIEW

In the current state of the economy, the role of strategic resources has been shifted from tangible assets to intangible assets as their importance for value creation for companies as well as for its performance has increased (Qureshi & Siddiqui, 2020). Intangible assets are those resources that companies utilise for the purpose of creating value (Yallwe & Buscemi, 2014). According to IFRS 38, “an intangible asset is an identifiable non-monetary asset without physical substance”. This category of assets corresponds to the acquisition, development, maintenance and improvement of items that lack physical substance, such as: technical and scientific knowledge, practical integration of new systems, licences, intellectual property, intellectual capital, market intelligence, marketing, customer relationships, name, reputation, brand and trade dress. To be recognised in accounting, intangible assets must be identifiable, controllable and generate future economic benefits for the company (Medrado et al. 2016).

Several authors (Sullivan Jr & Sullivan Sr, 2000; Lev, 2001; Steenkamp & Kashyap, 2010) have analysed the influence of intangible assets on value creation for companies in different economic environments. Lev (2001) demonstrates that in many companies, the contribution of intangible assets exceeds the contribution of tangible assets in companies' value and value growth, stating that “for every six dollars of market value, one dollar is recorded as tangible assets and the rest is intangible assets”. This contribution is often recognised as an expense in financial statements and the true value of intangible assets is not recognised in companies' balance sheets. For this reason, the author analysed in a workshop the statement “What is not reported is not measured and not managed”. Thus, a key determinant of a company's value, competitive advantage and strategy is its intangibility degree (Mackie, 2010). Other researchers such as Perez and Famá (2015) in their study analysed the relevance of intangible assets for the value of companies investing in intangible assets and demonstrated their importance for high performance and value growth strategies.

*H1: ROE is positively correlated with companies' intangibility degree*

Reflecting on leverage, previous studies argue that the relationship between intangible assets held by companies and leverage is negative (Sen & Oruc, 2008). Gamuyani (2015) explains this relationship based on the risk held by intangible assets, as they cannot be used as collateral, while tangible assets can. Also, in their paper, Lim Macias et al (2018) showed that there is a strong relationship between identifiable intangible assets and financial leverage (Qureshi & Siddiqui, 2020). The results are also supported by Takano, H. (2023) who

At the same time, studies conducted so far point to a dearth of literature on the value of intangible assets, their contribution to the value of companies, and how tangible assets or financial indicators influence intangibility, most of which focus on the role of intangible assets over tangible assets. In the literature, many specialised studies use Tobin's Q coefficient as a proxy to determine the intangibility degree of companies. This coefficient quantifies the difference between the market value and the replacement cost of the total assets held by a company, which is why it is considered as a proxy for intangibility. For this reason, in this paper, the intangibility degree of companies will be calculated by the ratio of the market value to the total replacement cost of assets, an approach used by Martins & Lopes (2016). The ratio of the two types of values shows how many times the market value is higher or lower than the book value.

Reflecting on the relevant financial indicators, ROE is a key indicator for investors as it measures the efficiency with which shareholders' capital is utilised by the company (Ibrahim, 2023). According to Damodaran (2009) both profit and invested capital are affected by the capitalisation of intangible asset expenses. Thus, the high value of ROE after capitalisation of these expenses can be viewed as a rough indicator that the return earned by the company from investing in intangible assets is higher than the return on traditional investments (Damodaran, 2009). Similarly, Keter et al (2023) examined the influence of ROE on the value of companies listed on the Nairobi Stock Exchange (NSE) in Kenya, which value was determined using Tobin's Q parameter. The results of the study confirmed the positive influence of financial performance on company value. Thus, financial surplus provides companies with the opportunity to reinvest in intangible assets such as research and development, innovation, capital growth and intellectual property, which contribute to value growth.

Therefore, based on the literature, we state the first working hypothesis of this paper:

in his research finds that the leverage ratio is positively associated with identifiable intangible assets. However, the type of relationship varies depending on the level of financial development of the country for which the influence is analysed, as “the correlation of intangibles with leverage ratio is less positive for countries with stronger financial development, and the correlation becomes negative when financial development is sufficiently strong” (Takano, 2023). Therefore, according to the literature, we can state the following hypothesis:

*H2: Leverage ratio is not correlated with asset intangibility*

Further, in a seminal paper, Pham et al (2018) examined the effects of asset liquidity on innovation investments, showing that highly liquid firms focus more on investments in intangible assets because liquidity is meant to mitigate the effects of uncertainty created by lack of cash flows or external financing. Liquidity helps the following:

*H3: Current liquidity positively influences the intangibility degree of companies*

Another important factor is the size of these companies. This is a variable that the literature finds can affect company value. (Setiadharm & Machali, 2017; Medrado et al. 2016). We believe that the size of a company is a positive indicator of its development for current and future investors, which over time increases the value of the company. However, some results, such as in the study by Molodchik et al. (2016), demonstrate

that unlike large companies, SMEs have a higher level of human resource development, innovation and internal capabilities. This is also supported by Saunila & Ukko, (2014) whose results reveal that firm size does not have a significant effect on innovativeness, which includes the intangibility degree through employees' skills, technology used, customer and supplier relationships. Based on these we state our last study hypothesis:

*H4: Company size does not influence the intangibility degree of companies*

## RESEARCH METHODOLOGY

The database formed and used in this research is quantitative and consists of data presented in the financial statements of companies listed on the Bucharest Stock Exchange (BVB), as well as stock market data from the official website <https://www.bvb.ro/>.

The population analysed is represented by a total of 87 companies listed on the BVB during the 2019-2023 time period. The research sample consists of a number

of 56 companies in the same time frame. The main inclusion criterion was the availability of data necessary to determine the variables used.

The dependent variable for this research is the intangibility degree of companies' value, which was measured in excel using Tobin's Q formula. As for the independent variables, they are Return on Equity, Leverage, Liquidity, Size, presented in Table 1.

**Table 1.**  
*Model variables*

Symbol	Name	Description	Formula
<b>Dependent variable</b>			
<b>TQ</b>	Tobin's Q ratio	Assesses whether a firm's shares are properly valued in comparison with its tangible assets.	$\frac{\text{Market Value}}{\text{Total assets replacement cost}}$
<b>Independent variables</b>			
<b>ROE</b>	Return on Equity	It shows the net return on each monetary unit invested by shareholders in the form of capital.	$\frac{\text{Net Income}}{\text{Equity}}$
<b>LEV</b>	Leverage	Shows how much of a company's assets are financed by debt	$\frac{\text{Total Debt}}{\text{Total Equity}}$
<b>LC</b>	Liquidity	Reflect the firm's ability to honour its short-term obligations by transforming current assets.	$\frac{\text{Current Assets}}{\text{Current Debt}}$
<b>SZ</b>	Size	Indicates the size of assets held by a company.	$\ln(\text{total assets})$

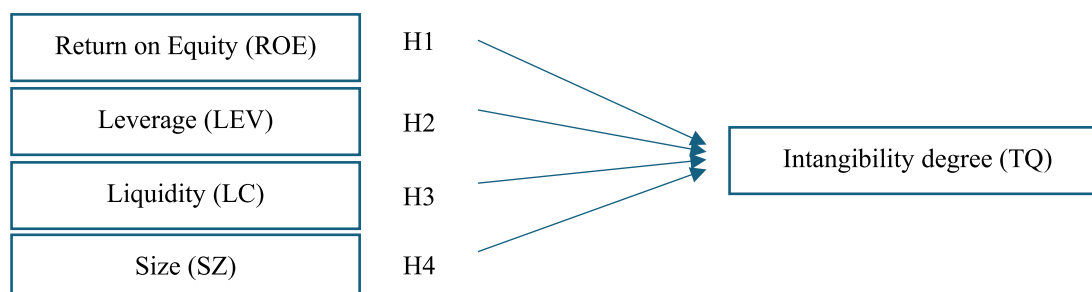
Source: Author's own processing based on specialised literature

As the main method of analysis, this study uses multiple linear regression. The aim is to determine the influence as well as the strength of the relationship between the independent variables and the dependent variable. The

conceptual framework of the realised econometric model based on the working assumptions can be observed in the figure below.

**Figure 1.**

*Variables in the research model*



*Source: Author's own processing*

It should be noted that the data were collected and processed in Excel, and the econometric modelling was carried out using SPSS Statistics 26.

## RESULTS AND DISCUSSIONS

This section presents and analyses the results obtained by applying econometric modelling to the research sample. The study aimed to analyse the relationship between Return on Equity, Leverage, Liquidity, Size and Tobin's Q, used as an indicator of intangibility. Subsequently, the results obtained will be correlated with the hypotheses formulated based on the specialised literature, providing an interpretation of the statistical and economic significance of the influences identified.

**Table 2.**

*Model Summary<sup>b</sup>*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,488	0,251	0,238	0,494142847871829	1,981
Predictors: (Constant), SZ, ROE, LC, LEV					
Dependent Variable: TQ					

*Source: Results SPSS output*

According to Table 2, there is a correlation of 48.8% between the independent variables and the dependent variable. The coefficient of determination (R Square) measures how much of the variation in the dependent variable can be explained by the independent variable. Thus, the R Square value is 0.251, which means that 25.1 per cent of the variation in the intangibility degree is influenced by ROE, LEV, LC and SZ. Next, we present the level of collinearity in Table 3.



**Table 3.***Test Results Multicollinearity*

Variable	Statistic Collinearity		Information
	Tolerance	VIF	
ROE	0,423	2,367	Non Multicollinearity
LEV	0,415	2,409	Non Multicollinearity
LC	0,999	1,001	Non Multicollinearity
SZ	0,953	1,049	Non Multicollinearity

*Source: Results SPSS output*

The above table demonstrates that the independent variables ROE, LEV, LC and SC have a tolerance value greater than 0.1 and VIF less than 10. Thus, it can be concluded that the independent variables belonging to the multiple linear regression model do not have multicollinearity problems.

In the following we present the results with respect to the coefficients of the econometric model realised, which can be observed in Table 4.

**Tabel 4.***Regression Analysis*

Variable	Multiple Linear Regression			Conclusion
	B	t	Sig.	
ROE	0,649	5,577	0,000	Significant
LEV	0,067	5,561	0,000	Significant
LC	0,028	2,414	0,016	Significant
SZ	0,026	1,610	0,109	Not significant
R	0,488			
R <sup>2</sup>	0,251			
Test F	12,203			
Sig.	0,000 <sup>b</sup>			

*Source: Results SPSS output*

First, according to Table 4 we can state the model equation, which is as follows:

$$TQ = 0,014 + 0,649 \cdot ROE + 0,067 \cdot LEV + 0,028 \cdot LC + 0,026 \cdot SZ + \varepsilon$$

Also, in Table 4 we observe that the Sig. value of the F-test is less than 0.05, which demonstrates that the regression model created explains the dependence between the

two categories of variables by a linear relationship, considered significant, in a proportion of at least 95%.

## EFFECT OF ROE ON INTANGIBILITY DEGREE

According to the above table, ROE is positively correlated with the intangibility degree of the companies, which confirms the first hypothesis, the value of the coefficient of influence being 0.649 units and the Sig value less than 0.05. According to the model equation, if ROE increases by one unit, the intangibility degree will increase by 0.649 units. This positive influence is due to the fact that the high level of ROE provides companies with financial

resources to invest in the acquisition or development of intangible assets. Companies with high ROE that tend towards innovation strategies based on intangible assets can gain a competitive advantage due to the influences created: ROE can contribute to increasing the ability to invest in intangible assets, which in turn can contribute to the future profitability of companies.

## EFFECT OF LEV ON INTANGIBILITY DEGREE

We observe that LEV is also positively correlated with the intangibility degree of companies. According to Table 4, the value of the coefficient of influence of 0.067 units and the Sig value is less than 0.05, thus the first hypothesis is satisfied. Therefore, according to the model when LEV increases by one unit, the intangibility degree will increase by 0.067 units. In the absence of available own resources, leverage gives companies the possibility to have the necessary resources in the context

of the knowledge economy to invest in intangible assets such as R&D, information technology, human capital training. As intangibility is positively associated with the potential to generate value, companies oriented towards this kind of strategy can utilise borrowed resources due to expectations of future profitability. However, in the absence of traditional tangible assets, lenders are sceptical when deciding whether to lend to this type of company.

## EFFECT OF LC ON INTANGIBILITY DEGREE

The third hypothesis, that current liquidity significantly influences the intangibility degree of companies is confirmed. The value of the influence coefficient is 0.028 units, and the Sig value is 0.016. Given that investments in intangible assets have a high degree of risk with long-term effects, companies need to ensure that they have

sufficient cash reserves to honour their obligations. High liquidity reduces companies' financial constraints and provides them with their own resources to finance the development of intangible property, thus contributing to the intangibility of companies.

## EFFECT OF SZ ON INTANGIBILITY DEGREE

According to our model, the fourth hypothesis that company size does not influence the intangibility degree of companies is also confirmed. The value of the coefficient of influence is 0.026 units, but the Sig value is 0.109, above the relevant statistical threshold. The lack of influence of company size on the intangibility degree is due to the fact that, unlike large companies,

which have sources of financing, profits, fixed assets, a large number of employees, small companies are oriented towards maximising the use of internal capabilities such as intellectual capital, divided into human capital, structural capital and relational capital, in order to increase the value of companies, to which the intangibility degree also contributes.

## CONCLUSIONS

The present study analyses the effect of four independent variables; Return on Equity, Leverage, Liquidity, Size on the intangibility degree of BVB listed companies between 2019-2023. These variables were selected based on literature review. They were calculated based on the information from the financial statements present on the BVB website. As for the intangibility degree of companies, it was calculated by relating the market value to the total replacement cost of assets.

According to the econometric modelling, the results show that the Sig. value of Return on Equity, Leverage, Liquidity is lower than the threshold of 0.05, which proves that these variables have a positive impact on the intangibility degree, while the Size variable does not influence this degree because the Sig. value exceeds the mentioned threshold. Therefore, according to the model equation, the increase by one unit of Return on Equity, Leverage, Liquidity increases the intangibility degree by 0.649, 0.067 and 0.028 units respectively.

These results can provide corporate management with practical implications for increasing the intangible value perceived by the market through concrete strategies. For example, to increase the influence of ROE companies can focus on optimising operational efficiency, carefully controlling costs and making strategic investments with superior returns. The positive influence of leverage can

also be maintained, even amplified, by the strategic use of leverage to finance growth projects, often perceived as a favourable factor by investors. At the same time, optimising liquidity requires effective management of cash flow and working capital to provide market confidence that companies are financially stable and able to capitalise on new opportunities.

The main limitation of this paper is the use of a single method to quantify the degree of intangibility due to the lack of financial data directly measuring intangible assets. In addition, the results of the study may be limited by potential biases away from the mean values not covered by the analysis due to market instability and volatility. The research may also be limited by the omission of variables that directly contribute to intangible value creation, such as R&D expenditures or the quality of corporate governance. Identifying the limitations helps us to outline future research directions. Future studies could use alternative indicators to determine the degree of intangibility of companies, such as R&D expenditure or marketing and innovation expenditure. In addition, integrating qualitative approaches such as content analysis of annual reports, analysis of human, structural and relational capital and brand strategy can contribute to a more nuanced understanding of the mechanisms through which companies create intangible value.

## AUTHORS' CONTRIBUTIONS

- Conceptualization: Ioana Andrioaia, Veronica Grosu, Svetlana Mihaila, Ana-Carolina Cojocaru (Bărbieru)
- Methodology: Ioana Andrioaia, Ana-Carolina Cojocaru (Bărbieru)
- Formal analysis: Veronica Grosu
- Investigation: Ioana Andrioaia, Ana-Carolina Cojocaru (Bărbieru)
- Writing – original draft: Ioana Andrioaia, Veronica Grosu, Svetlana Mihaila, Ana-Carolina Cojocaru (Bărbieru)
- Writing – Ioana Andrioaia, Veronica Grosu, Svetlana Mihaila, Ana-Carolina Cojocaru (Bărbieru)
- Supervision: Svetlana Mihaila

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# UKRAINE'S POST-WAR SOLIDARIZATION BASED ON INTERNATIONAL AND EU APPROACHES

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## Tetiana BURLAI

Doctor of Sciences (Economics), Assistant Professor, Leading Researcher, Institute for Economics and Forecasting, National Academy of Sciences of Ukraine

<https://orcid.org/0000-0003-4530-9151>

btv2008@ukr.net

## Vasyl KOSTRYTSIA

Member of the National Academy of Social Insurance (USA), Deputy Head of the Association of Employers' Organizations of Ukraine

kostrytsya2@gmail.com

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## SUMMARY

The relevance of this article stems from the urgent need to strengthen social solidarity within Ukrainian society, recognized as a key factor in enhancing the country's socio-economic resilience during martial law and in the post-war period. The aim of the study is to develop a strategic framework for reinforcing post-war solidarity in Ukraine, along with identifying the prerequisites for its tactical implementation, drawing on contemporary international and pan-European approaches. The research adopts an interdisciplinary methodology, incorporating tools from sociology, economic theory, and public administration. The authors have obtained the following key findings: a discernible decline in the level of solidarity among Ukrainians amid the prolonged full-scale war; identification of the primary endogenous risks linked to diminishing societal cohesion; analysis of the post-conflict recovery experiences of various European states, highlighting critical challenges they encountered in restoring solidarity—insights that are highly relevant for Ukraine; and substantiation of the most effective strategic and tactical public governance approaches for fostering national unity. Within the frameworks of economic theory and public administration, the study substantiates that, in alignment with Ukraine's European integration goals and post-conflict recovery agenda, and in pursuit of a synergistic effect through integrative policy application, the most suitable public governance approaches include: the “Humanitarian Aid–Development–Peace Nexus”, the formation of a “social quality perspective”, and principles derived from modern EU cohesion policy. The scientific contribution of the article lies in its potential to inform the formulation of strategic directions for Ukraine's state policy in the context of post-war recovery and comprehensive integration into the European Union.

**Keywords:** *dissociation, European integration, institutional trust, post-war recovery, Russian-Ukrainian war, social dynamics, societal processes, solidarity*

## INTRODUCTION

The full-scale Russian-Ukrainian war, now in its fourth year, continues to inflict severe and multifaceted damage on Ukraine's national economy and society as a whole. According to consolidated international assessments, by the end of 2024, nearly 40,500 Ukrainian civilians had become victims of the war; 6.1 million Ukrainians remain at risk due to explosive remnants of war. Direct losses to Ukraine's socio-economic system have amounted to \$176 billion, while the estimated cost of reconstruction over the current decade (2025–2035) is projected at \$524 billion—almost 2.8 times the country's nominal GDP for 2024 (UNDP, 2025).

However, beyond the need for financial, material, and human resources, the effective post-war reconstruction of Ukraine also requires specific institutional conditions. One of these conditions is the solidification of Ukrainian society, which rests on the phenomenon of solidarity. According to one international definition, solidarity embodies a spirit of unity among individuals, social groups, nations, and states. It implies a shared set of interests, aspirations, and actions, along with the recognition of diverse needs and rights aimed at achieving common goals (OHCHR, n.d.).

In the academic definition provided by Ukrainian sociologists, *solidarization* refers to the process of establishing, maintaining, and reproducing solidaristic social interactions, while *solidarity* represents the social characteristic and quality of such interactions. Solidarity

as a quality of social relations and solidarization as the process of achieving it should be considered in two main dimensions: vertical—as the relationship between citizens and the state, and horizontal—as the relationship among citizens themselves (Stepanenko, 2024).

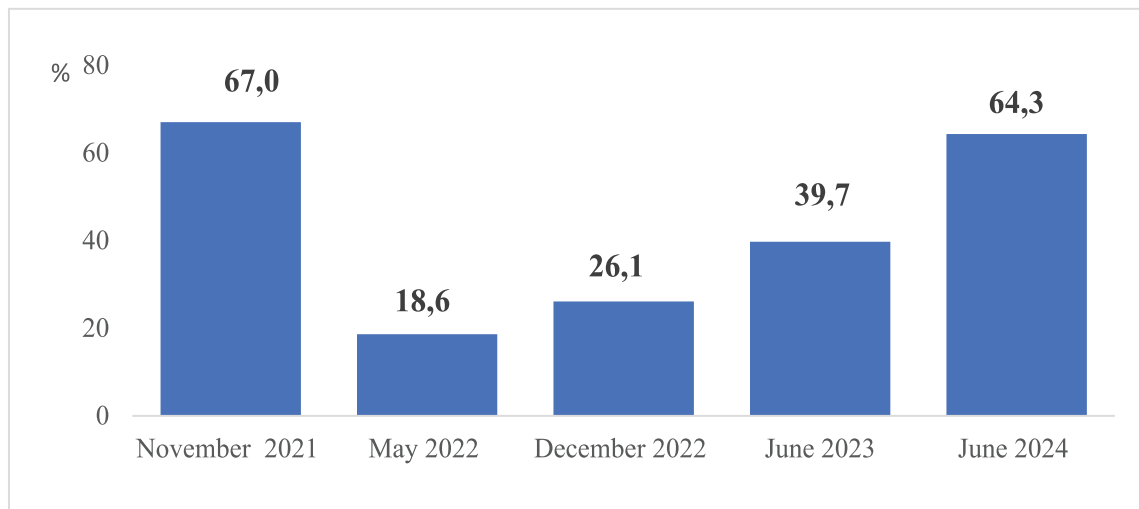
The issue requiring scholarly attention is the emerging trend of declining solidarization within Ukrainian society amid the prolonged military confrontation, which risks leading to the development of internal social divides and growing societal tension.

Thus, a recent study conducted by the Institute of Sociology of the National Academy of Sciences of Ukraine (ISNASU, 2024) provides grounds to assert that there have been significant negative shifts in the dynamics of solidarization among Ukrainians over the three years (2022–2024) of the full-scale war. Sociologists express genuine concern regarding the data from representative surveys carried out in territories controlled by the Ukrainian government, particularly with respect to the evolving public perception of the functioning of the Ukrainian state—one of the key indicators of the state of vertical solidarization within Ukrainian society. As illustrated in Figure 1, the level of socio-political negativism (the combined share of respondents with strongly and moderately negative overall attitudes toward the functioning of the state) among Ukrainian citizens has undergone substantial changes.



**Figure 1.**

*Level of socio-political negativism among Ukrainian citizens: combined share of respondents with strongly and moderately negative overall attitudes toward the functioning of the state, %*



Source: Compiled by the authors based on data from: ISNASU (2024), pp. 17–20.

According to Figure 1, the significant level of socio-political negativism among Ukrainians regarding the functioning of the state—indicating weak vertical public solidarization—had already returned to its pre-war level by mid-2024. A similar downward trend is observed in the indicator of civic identity, which had risen sharply from 62.6% in December 2021 to nearly 80% by December 2022, after ten months of war, but then declined to 73.8% by June 2024 (ISNASU, 2024, pp. 151–158).

Since 2023, academic sociological research has documented negative developments not only in vertical but also in horizontal (interpersonal) solidarization in Ukraine. Notably, emerging lines of social division have been observed between Ukrainian citizens who left the country and those who remained, between military personnel and veterans on one side and civilians in the rear on the other, as well as across a number of other groups. According to sociological surveys conducted in 2024, only 10.5% of Ukrainians stated that they “definitely can” rely on solidaristic support from neighbours or community members in the event of serious difficulties, while 32.7% responded that they “cannot rely at all” on such support. Consequently, a societal threat is seen in the fact that *the prolonged full-scale war has “intensified the conflict-prone social potential and increased the risks of social conflict in Ukrainian society,”* which, in turn, may undermine Ukraine’s domestic political and social stability during the post-war recovery period (NASU, 2025).

In light of the above, the issue of strengthening public solidarization in Ukraine during and after the war—and developing appropriate approaches to state policy—gains renewed relevance. In this context, it is necessary first and foremost to define a suitable strategic foundation for such a policy. It should be noted that,

even under conditions of martial law, the Ukrainian government has undertaken specific steps guided by key programmatic documents such as the *Ukraine Facility Plan*, the *Memorandum of Cooperation* between Ukraine and the IMF under the *Extended Fund Facility (EFF)*, and the *Ukraine Recovery Plan (2025)*, which is based on recommendations from the annual High-Level International Conferences on Ukraine’s Recovery. These efforts are accompanied by the public monitoring and analysis tool “*Ukraine Reform Matrix*” (<https://reformmatrix.mof.gov.ua/en/index/>).

However, the aforementioned documents provide only a general framework for ongoing and future reforms, while a comprehensive national strategy for Ukraine’s post-war recovery and development remains, to date, a topic of discussion within academic, expert, and political circles.

In addition, as a tactical foundation for strengthening public solidarization in Ukraine, it is advisable to consider the approaches of the European Union’s Cohesion Policy and the potential for their adaptation to the national context. This would align with Ukraine’s European integration objectives, particularly following the official approval granted by the European Union in June 2024 to begin accession negotiations. Given the current geopolitical and military-economic environment, as well as the resistance from Eurosceptic politicians within the EU, this negotiation process is expected to be objectively complex and relatively lengthy.

Thus, the objective of this study is to substantiate a strategic framework for reinforcing post-war solidarization in Ukrainian society and to identify the prerequisites for its tactical implementation, drawing on modern international and pan-European approaches in the fields of macroeconomics and public governance.

## LITERATURE REVIEW

The topic under investigation has been the subject of numerous in-depth and well-structured scholarly studies. For instance, Palahnyuk (2021), through an interdisciplinary analysis, argues that social solidarity emerges from the integration of the personal solidarity potentials of the majority of society's members, which in turn leads to the convergence of societal processes toward common goals. A valuable overview of academic literature examining the phenomenon of solidarity through the lenses of sociology, as well as social and political psychology, can be found in the works of Miller (2017) and Sangiovanni & Viehoff (2023).

In his work, Garbe (2024) examined the phenomenon of solidarity within the framework of contemporary global inequality, while Sidenko (2024) explored the impact of global contexts on the prospects for solidaristic and inclusive development in Ukraine. Of particular scholarly interest are studies focused on the concept of social cohesion. Manca (2014) considers it a prerequisite for ensuring quality of life and well-being in modern society, while Green & Janmaat (2011) view it as a consequence of social attitudes and behaviours shaped by the institutional characteristics of societies. An analysis and synthesis of findings from several studies on social cohesion in countries that have experienced armed conflict is provided by Fiedler & Rohles (2021).

## THEORETICAL FRAMEWORK

The theoretical foundation of our study is grounded in the concepts of social solidarity developed by prominent figures in the field of sociology such as É. Durkheim ([1933] 1960), A. Comte ([1853] 2009), F. H. Giddings (1922), A. Touraine (2000), J. Habermas (2015), and P. A. Sorokin (1962). To substantiate the strategic framework of public governance aimed at strengthening post-war solidarization in Ukraine, several theoretical constructs and applied macro-governance approaches have also been employed.

Firstly, the conceptual approach known as the *Humanitarian–Development–Peace Nexus* (or *Triple Nexus*), introduced by the United Nations at the World Humanitarian Summit in 2016 and later expanded by the OECD (OECD, 2022; 2024). This approach is aimed at the rapid recovery of countries and territories situated in so-called *fragile contexts*—including states affected by armed conflict and post-conflict states—and envisions the coordinated collaboration of international organizations, national governments, civil society, and local communities across three interconnected dimensions: humanitarian assistance, socio-economic development, and peacebuilding.

Taking into account, among other factors, the large-scale Russian-Ukrainian war, the European Union has adopted a comprehensive Triple Nexus approach to foster synergy between its humanitarian, development, and security policies—both within the EU and in relation to its partner countries (Pichon, 2025).

The article by Fonseca et al. (2018) contributes to the renewed scientific understanding of the phenomenon of social cohesion and its determinants. Cox et al. (2023) examine the opportunities and barriers to strengthening social cohesion in conflict-affected societies. The current EU Cohesion Policy and its potential transformations are analysed in the works of Rubio et al. (2024) and Margaras & Alvarez (2025). The findings of Bericat et al. (2019) confirm the importance of the social quality of life of citizens as a key factor in fostering solidarity within modern European societies.

Strategic frameworks for peacebuilding and solidarization in post-conflict societies are substantiated in Fischer's work (2004). The study by Czerska-Shaw & Dunin-Wąsowicz (2025) focuses on constructing such frameworks based on the *Humanitarian–Development–Peace Nexus* approach, with specific consideration of the ongoing Russian-Ukrainian war. In the study by Kostrytsia et al. (2024), it is argued that, under martial law, the desolidarization of Ukrainian society is exacerbated by pre-war distortions in the institution of tripartite social dialogue as defined by the ILO. Grytsenko (2024) demonstrates that post-war solidarization in Ukraine should be grounded in the national rooting of the country's socio-economic resilience.

Secondly, our study draws on *Social Quality Theory*, developed by Van der Maesen & Walker (2012), as well as its application to the analysis of societal dynamics in post-Soviet countries (Abbott et al., 2016). As a unifying foundation for Ukraine's post-war development, we consider the approach of forming a *Social Quality Perspective*, recently proposed by the International Association on Social Quality (IASQ) Board (2024).

Thirdly, this study also focuses on international and EU practices of applied implementation of the concept of social cohesion, the origins of which trace back to the work of French sociologist Émile Durkheim, *The Division of Labour in Society* ([1933] 1960), originally published in 1893 (Fiedler & Rohles, 2021). In applied contexts—particularly within global or national policy frameworks—the multidimensional concept of social cohesion began to gain traction in the 1990s, including within the work of institutions such as the OECD (2011), UNDP (2020), UNECE (2023), and the European Union (European Commission, 2024a; 2025), which has more than 30 years of experience implementing cohesion policy.

Notably, Articles 174–178 of the *Treaty on the Functioning of the European Union* (European Union, 2012) explicitly define the goal of economic, social, and territorial cohesion among member states. Based on the Maastricht Treaty, the EU established the *Cohesion Fund* in 1993—one of the most important pan-European structural funds.



## METHODOLOGY AND DATA

The methodological foundation of this study is an interdisciplinary approach that integrates research methods from the fields of sociology, economic theory—particularly social economics and institutionalism—and public administration. This methodology enables the examination of the sociological phenomenon of societal solidarization while accounting for the influence of economic, social, and institutional factors, such as interpersonal and institutional trust, quality of life, public policy, full-scale military conflict, post-war peacebuilding, and others. Additionally, general academic methods were employed, including analytical, systematization, comparative, statistical, and graphical methods, among others.

Alongside other sources, the study used the following data: results from the sociological monitoring conducted

by the Institute of Sociology of the National Academy of Sciences of Ukraine (ISNASU, 2024); data from the State Statistics Service of Ukraine (with consideration of the objective limitations in collecting many official reports under martial law); data from the European Commission on the current EU cohesion policy and its reform in light of emerging socio-economic and geopolitical challenges (European Commission, 2024a; 2025); data from the UNDP Office in Ukraine (2024) regarding sociological assessments of the level of social cohesion among Ukrainians during the full-scale war with the Russian Federation; and assessments by the International Association on Social Quality (IASQ Board, 2024; Van der Maesen et al., 2023) concerning the application of the *Social Quality Perspective* approach in Eastern European countries, including Ukraine.

## MAIN RESULTS

As part of the conducted research, we obtained the following key results:

### **(1) A downward trend in the level of solidarization within Ukrainian society has been demonstrated in the context of the prolonged full-scale war.**

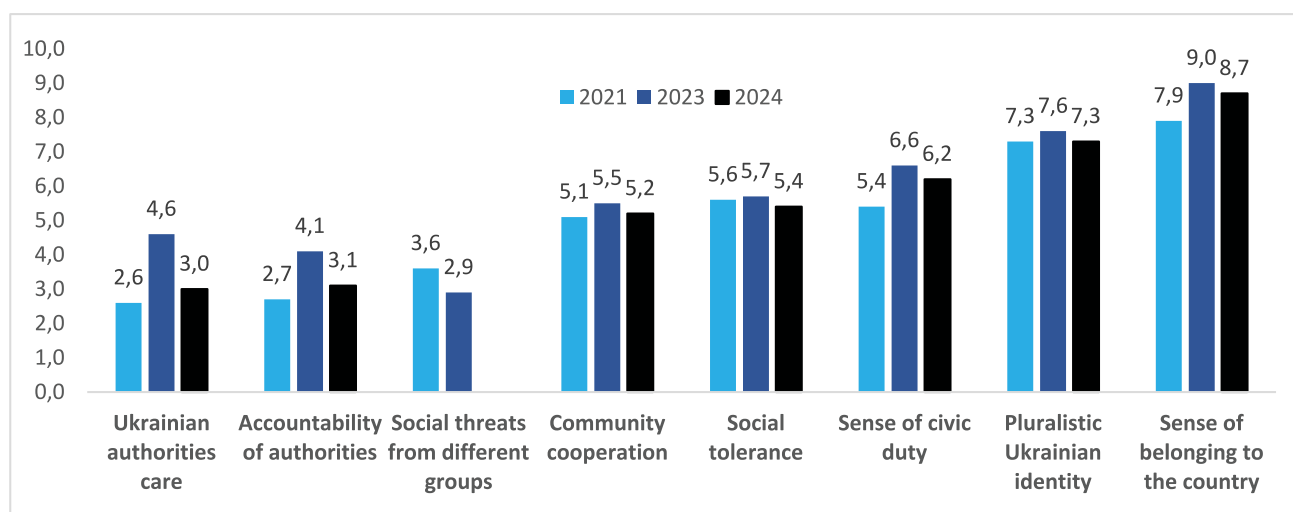
This trend was identified based on monitoring data from the Institute of Sociology of the National Academy of Sciences of Ukraine (ISNASU, 2024) and confirmed by comprehensive assessments from the UNDP Office in Ukraine (2024), which emphasized that “*social cohesion, defined broadly as the strength of relationships and solidarity among different groups and between citizens*

*and institutions, is a fundamental element of the stability and prosperity of nations.*” The assessments were based on eight composite indicators of social cohesion in Ukrainian society (Figure 2), calculated using a special formula and ranging from [0; 10], depending on the intensity of expression.

The current level of social cohesion in Ukraine (as of 2024) reflects both strong feelings of national identity and belonging among Ukrainians (the highest indicators), and a noticeable decline in public confidence in governing institutions and their actions (the lowest indicators) (UNDP Office in Ukraine, 2024, pp. 8–10).

**Figure 2.**

*Composite indicators of social cohesion in Ukrainian society in 2021, 2023 and 2024*



Source: UNDP Office in Ukraine (2024), p. 29.

However, the analysis of the dynamics of composite indicators in 2021, 2023, and 2024 (Figure 2) reveals a number of socially concerning developments in the solidarization process of Ukrainian society, namely:

- All composite indicators of social cohesion among Ukrainians (with the exception of the “perceived social threat from other groups” component) showed a significant increase at the onset of the full-scale war, but began to decline by the third year of the prolonged conflict. Several of these indicators are now approaching their pre-war (2021) levels;
- The indicator of perceived social threat from other groups (e.g., people from other regions, or from different linguistic, religious, etc., backgrounds), which was not even assessed in the pre-war period, has shown an upward trend throughout the war. This indicates a growing sense of threat among the majority of Ukrainians;
- A comparison of indicator values shows that the current level of social tolerance in Ukraine is lower than it was before the war, suggesting a rise in social intolerance—most often directed toward LGBT individuals, people with substance dependencies, and Roma communities;
- By the end of the third year of full-scale war, sociological data record a decline in both horizontal (interpersonal) and vertical (institutional) cohesion, reflecting diminished trust and mutual accountability—both among individuals and between citizens and state institutions.

All of the above points to a clear downward trend in societal solidarization under the harsh conditions of wartime, which poses potential societal risks and underscores the urgent need to develop a coherent state strategy and tactical measures to reinforce the cohesion of Ukrainian citizens.

**(2) It has been determined that the main risks arising from the decline in solidarization among Ukrainians are of an endogenous socio-economic and socio-political nature. These risks are closely linked to Ukraine’s resilience under martial law and its post-war reconstructive recovery.** Ensuring multidimensional resilience of Ukrainian society—including through enhanced social inclusivity and cohesion—plays a critical role in preserving the Ukrainian nation within the context of the modern global hybrid “war–peace” system (Heyets et al., 2023) and under the influence of global transformations driven by geopolitical confrontation, the fragmentation of the world economy, demographic shifts, and digitalization challenges (Kostytsia & Burlai, 2023). This is further compounded by the ongoing and urgent need to reduce inequalities within Ukrainian society (Blyzniuk et al., 2024).

In the context of Ukraine’s post-war recovery, it is important to take into account the repeatedly demonstrated positive correlation between social cohesion and economic growth. For instance, the World Bank, in its study of 27 transition economies, concluded

that social cohesion is closely linked to two key elements necessary for socially equitable economic growth: an inclusive civil society and adequate political institutions (Ritzen & Woolcock, 2000). Based on the experience of fast-growing developing countries, the OECD (2011) demonstrated that social cohesion is a societal value that supports long-term economic growth—among other mechanisms—through variables such as social capital, social mobility, and social inclusion.

Research conducted by the German Institute of Development and Sustainability (Sommer, 2019) substantiates the mutually reinforcing relationship between social cohesion and inclusive economic growth—defined as growth that benefits all social groups in society, in line with the UN’s interpretation for the Sustainable Development Goals (SDGs) through 2030. The study showed that not only does social cohesion institutionally contribute to economic growth, but that inclusive growth also positively correlates with social cohesion through factors such as job creation, reduction of inequality, and expanded access to education and educational outcomes.

In light of the above, the following assertion appears entirely justified: *“Societies with higher levels of social cohesion are healthier, more resilient to external shocks, and experience greater economic growth”* (UNECE, 2023, p. 28).

**(3) Two key features of the current process of solidarization in Ukraine have been identified: the country’s prolonged full-scale military confrontation with the Russian Federation and its advancement along the path of European integration.** The impact of the ongoing large-scale war with Russia on societal cohesion in Ukraine has been examined earlier in this study, including through characteristic sociological indicators (ISNASU, 2024; UNDP Office in Ukraine, 2024).

Equally significant is the influence of the European integration factor, particularly given that the Constitution of Ukraine enshrines the “European identity of the Ukrainian people and the irreversibility of Ukraine’s European and Euro-Atlantic course” (preamble to the Basic Law), as well as the implementation of the *“strategic course of the state toward full membership of Ukraine in the European Union and in the North Atlantic Treaty Organization”* (Articles 85 and 102).

Given these specific features, our study emphasizes the need to analyze the relevant experience of post-conflict states—primarily within the European region—as well as to examine the European Union’s experience in designing and implementing cohesion policy. This will allow us to identify key directions and opportunities for adapting such experience to the realities of Ukraine.

**(4) Based on the analysis of relevant experiences from post-conflict European states, a number of challenges in ensuring post-war recovery and societal solidarization were identified—challenges that are important for Ukraine to**

**take into account.** Given Ukraine's path toward European integration, particular attention was paid to the experiences of Croatia (an EU member state since 2013) and Bosnia and Herzegovina (an EU candidate country since 2022). On this basis, the main components of these processes were outlined, specific issues encountered were identified, and the rationale for adapting country-specific approaches to the Ukrainian context was demonstrated (see Table 1 in the appendix).

Of particular interest is the example of Bosnia and Herzegovina, which currently holds the same EU integration status as Ukraine. This post-conflict country has been included in the Reform and Growth Plan for the Western Balkans, adopted by the European Commission in 2023. The plan is structured around four pillars: gradual integration into the EU single market; fundamental reforms; enhanced financial support; and regional economic integration. With the exception of the latter, Ukraine is currently progressing along comparable reform directions through the EU's Ukraine Facility—a financial assistance program for the period 2024–2027 with a total volume of €50 billion.

It is worth noting that by 2024 – Q1 2025, Ukraine had already received €19.5 billion from the Ukraine Facility fund, having fulfilled its reform commitments to the EU (Ministry of Economy of Ukraine, 2025). In contrast, Bosnia and Herzegovina—unlike Albania, Kosovo, Montenegro, North Macedonia, and Serbia—has not yet received funding from the **Reform and Growth Facility for the Western Balkans**, as it has yet to submit to the European Commission a national reform plan covering business environment development, the green and digital transition, human capital, and the fundamentals of EU accession (European Commission, 2024b).

Nevertheless, for Ukraine, it is crucial to consider Bosnia and Herzegovina's experience in post-war recovery and societal solidarization. Notably, this experience illustrates that the continuous reliance on war-related narratives and the perpetual expectation of international aid can fragment society and contribute to the formation of an electorate with high tolerance for corruption and institutional inefficiency (Barbarić, 2023).

**(5) The most effective strategic and tactical approaches for strengthening the cohesion of Ukrainian society have been substantiated**, with the aim of enhancing the country's socio-economic resilience, ensuring effective post-war recovery based on sustainable economic growth, and achieving full European integration. In the context of these objectives, the most appropriate course for Ukraine—considering coherence with European integration goals and post-conflict recovery priorities, as well as the need to achieve a synergistic effect through integrative application—appears to be the combination of the following public governance approaches:

(I) the *Humanitarian–Development–Peace Nexus* approach;

(II) the approach of forming a *Social Quality Perspective*;

(III) approaches within the framework of the *EU Cohesion Policy*.

More detailed discussion of the proposed approaches for implementation in Ukraine follows below.

**(I)** The conceptual Humanitarian–Development–Peace Nexus (Triple Nexus) approach envisions the integration of efforts across three key areas—humanitarian assistance, socio-economic development, and peacebuilding—in war-affected and post-conflict states. This integration is achieved through cooperation among international organizations, national governments, civil society organizations, and local communities.

For Ukraine, it is essential not only to strategically develop this approach with consideration for national realities under martial law and the challenges of post-war recovery and solidarization, but also to ensure its institutional alignment with EU structures, which are already generating synergies between humanitarian policy, development policy, and security policy (Pichon, 2025). In doing so, Ukraine must also take into account the core challenges and opportunities faced by the EU in implementing this approach (Land et al., 2022).

In the post-war period, particular attention must be given to peacebuilding in Ukraine—understood as the process of healing war-related social trauma and supporting social cohesion through the instruments of state policy and non-governmental organizations (NGOs) (Fischer, 2004).

**(II)** The Social Quality Perspective approach, developed by the International Association on Social Quality (IASQ Board, 2024) as an alternative framework for understanding and shaping social development in contemporary conditions, is based on the configuration of four structural dimensions reflecting key global challenges:

- (1) the transformation of communication technologies;
- (2) the expansion of production and financial systems, along with the resulting socio-cultural disruptions;
- (3) inadequate modern urban policies and the need to humanize urban and rural relations; and
- (4) the development of new strategies to address environmental change.

Ensuring social quality in societal development—particularly in the context of a united Europe—based on this framework is seen as a forward-looking goal that requires the involvement of both national and international mechanisms (Van der Maesen et al., 2023).

The relevance of implementing the Social Quality approach within Ukraine's public governance system remains high—particularly during the phase of post-war reconstructive recovery (Burlay et al., 2022). This is partly due to the intensifying problem of poverty reduction amid ongoing military-economic shocks—a challenge that, even under peaceful conditions, is closely linked to improving quality of life through increased

employment, social inclusion, and real household income (Pisica & Crudu, 2024).

Beyond the shock effects of the full-scale war, a significant potential increase in poverty in Ukraine is also being driven by the government's practice of "freezing" social

standards for the coming years. Officially, this freeze is declared for a period of three years (as stated in the national Budget Declaration for 2025–2027), but in practice it may last nearly four years, given that the minimum wage in Ukraine is expected to remain at its April 2024 level at least until early 2028 (see Table 2).

**Table 2.**

*Dynamics of Selected Social Standards in Ukraine in 2024 (Actual) and 2025–2027 (According to the Budget Declaration approved by the Resolution of the Cabinet of Ministers of Ukraine No. 751 dated June 28, 2024)*

Nr.	Indicator	2024	2025	2026	2027
1	Monthly subsistence minimum per person for the following categories:				
1.1	for working-age individuals, UAH	3028 <sup>#</sup>	3028	3028	3028
1.2	for individuals who have lost work capacity, UAH	2361 <sup>#</sup>	2361	2361	2361
2	Minimum wage, UAH	8000 <sup>*</sup>	8000	8000	8000
3	Minimum pension, UAH	2361 <sup>**</sup>	2361	2361	2361
4	Consumer Price Index, Average Annual Change, %	105,2 <sup>#</sup>	109,7	109,9	108,0
5	Real Value (Adjusted for Inflation):				
5.1	Minimum Wage, % Relative to April 2024	94,8	86,4	78,6	72,8
5.2	Minimum Wage, % Relative to March 2024	94,8	86,4	78,6	72,8
6	Average Exchange Rate of the Hryvnia to the US Dollar over the Period, UAH per 1 USD	40,7 <sup>#</sup>	45,0	46,5	46,4
7	Value in Foreign Currency Equivalent:				
7.1	Minimum Monthly Wage, USD	196,6 <sup>*</sup>	177,8	172,0	172,4
7.2	Minimum Monthly Pension, USD	58,0 <sup>**</sup>	52,5	50,8	50,9

\* as of April 1, 2024; \*\* as of March 1, 2024; # as stipulated in the State Budget of Ukraine for 2024.

Source: Resolution of the Cabinet of Ministers of Ukraine No. 751 dated June 28, 2024; authors' calculations.

As can be seen from the data in Table 2, Ukraine is expected to experience a deepening trend of declining real incomes and growing impoverishment among a significant portion of the population in the coming years. This will result from the reduction of social standards when assessed in foreign currency equivalent: the minimum wage is projected to fall from \$196.6 in 2024 to \$172.4 in 2027, while the minimum pension will decrease from \$58.0 to \$50.9, respectively.

An additional factor exacerbating the risk of widespread poverty in Ukraine is the reduction in public spending on social protection. In 2025, compared to the previous year, Ukraine's state budget expenditures for social protection were cut by 40.4 billion UAH, or 8.8%.

A significant social concern associated with the situation described above is that, in practice, it implies a substantial decline in the real incomes of Ukrainians and, ultimately, leads to a noticeable increase in poverty and further social stratification within society. The heavy burden of martial law has expanded the scale of poverty in Ukraine. According to the United Nations Office for the Coordination of Humanitarian Affairs (2025), since the onset of the military invasion, the poverty rate in Ukraine has nearly doubled, currently affecting around 9

million Ukrainians—more than a quarter of the country's population.

At the same time, the level of extreme poverty in Ukraine, according to researchers from the Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine, increased sevenfold over the first two years of the full-scale war—rising from 1.3% in 2021 to 8.8% in 2023. This form of poverty is measured as the share of the population on the brink of physical survival (Reznychenko, 2025).

As a result, these trends create additional preconditions for the desolidarization of Ukrainian society, since a key indicator of social cohesion is the well-being of the vast majority of citizens (Blyzniuk et al., 2024).

**(III)** The pan-European Cohesion Policy, which integrates approaches from regional, economic, social, environmental, and employment policies, can be viewed as the European Union's applied implementation of the concepts of cross-country integration and social cohesion. As emphasized by the European Commission, "cohesion policy is at the heart of European solidarity" and encompasses all EU regions and cities with the aim of supporting job creation, business competitiveness,



economic growth, environmentally sustainable development, and improved quality of life for citizens.

The application of econometric modeling has repeatedly demonstrated the significant positive impact of EU cohesion policy on economic growth and convergence among member states (Pieńkowski & Berkowitz, 2016). This policy has proven especially effective for countries that joined the EU between 2004 and 2013.

In particular, among Central and Eastern European (CEE) member states, GDP per capita increased from 52% of the EU-27 average in 2004 to nearly 80% in 2021. For the 2021–2027 period, €392 billion has been allocated for the implementation of EU Cohesion Policy—representing one-third of the Union’s total budget—distributed across 398 different projects at national, regional, and transnational levels. The bulk of this funding is concentrated in less developed EU countries and regions to foster their real convergence with more developed areas (European Commission, 2025).

According to the European Commission, this policy direction ensures substantial investment returns: every euro invested through cohesion funds during 2014–2027 is expected to generate €1.30 in GDP by 2030, and

nearly triple by the end of 2043 (European Commission, 2024a). While the effectiveness of cohesion policy as a tool for development and solidarization within the EU has been time-tested, certain evolving factors—including EU enlargement plans—have created the need for its adjustment and further improvement.

For Ukraine, as a candidate country, the experience of its cross-border and interregional cooperation with the EU is of critical importance. Currently, the key principles of this cooperation are defined in Chapter 27 of the Association Agreement between Ukraine and the European Union and are being implemented in practice, including through the Interreg NEXT cross-border and transnational cooperation programs: Poland–Ukraine, Hungary–Slovakia–Romania–Ukraine, Black Sea Basin, Romania–Ukraine, as well as the Danube Regional Programme, all funded by the EU.

However, a notable issue is that Ukraine is currently only partially covered by EU Cohesion Policy at the intergovernmental level, while little attention is given to implementing corresponding approaches at the intra-state level. This points to clear gaps within the country’s system of public regulation.

## DISCUSSION AND FURTHER RESEARCH

Future academic research, grounded in institutional methodology, should focus on substantiating the directions and mechanisms necessary for strengthening the solidarization of Ukrainian society based on nationally rooted economic development. According to academic justification provided by Grytsenko (2024), nationally rooted economic development refers to the advancement of national production that relies

primarily on existing domestic resources while fully utilizing international economic cooperation to serve the country’s own interests.

However, there remains an objective need for the scholarly conceptualization of how this approach can be practically integrated with the model of national development within the framework of supranational unions such as the European Union.

## CONCLUSIONS

Despite the severe human and economic losses and the deep social traumas inflicted on Ukrainian society by the full-scale war, solidarization remains a vital factor in its socio-economic resilience.

Both domestic and international sociological studies have recorded a high level of national self-awareness and a strong sense of belonging to the country among Ukrainians since the onset of the large-scale military invasion in February 2022. However, sociologists also point to the emergence of a clear downward trend in interpersonal trust, social tolerance, and horizontal solidarity in Ukraine—factors that generate additional risks for the country’s post-war reconstructive recovery.

Thus, the need to develop public governance approaches becomes increasingly relevant—approaches capable of simultaneously addressing several of Ukraine’s most critical challenges: strengthening societal solidarization, ensuring the effective reconstructive recovery of the country’s socio-economic system in the post-war period, and achieving full European integration.

In light of these objectives, the most appropriate course of action for Ukraine—considering coherence with the goals of European integration and post-conflict recovery, as well as the need to achieve a synergistic effect through integrative application—appears to be the combination of the following approaches: (I) the *Humanitarian–Development–Peace Nexus* approach; (II) the *Social Quality Perspective* approach; and (III) approaches within the framework of the modern EU Cohesion Policy.

Proper adjustments in the implementation of EU Cohesion Policy approaches can be carried out through the refinement and detailing of the National Programs included in Ukraine’s Recovery Plan (Cabinet of Ministers of Ukraine, 2025). These programs have already been presented at the International Conferences on Ukraine’s Recovery held in 2022–2024 in Lugano, London, and Berlin, respectively, as well as those to be presented at the upcoming conference in Rome in July 2025.

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## ANNEX

**Table 1.**

*The experience of selected European states in societal solidarization and post-conflict recovery: lessons for Ukraine*

Country	Status	Components of experience	Problems	Adaptation in Ukraine
Bosnia and Herzegovina	post-conflict state (1992–1995 war period);  EU candidate country (2022)	<p>The foundation of post-war recovery was formed by international assistance programs aimed at:</p> <ul style="list-style-type: none"> <li>(i) restoring physical assets;</li> <li>(ii) accelerating economic recovery;</li> <li>(iii) facilitating the return of refugees and internally displaced persons;</li> <li>(iv) laying the groundwork for sustainable economic growth.</li> </ul> <p>For post-war societal solidarization:</p> <ul style="list-style-type: none"> <li>– with the support of the EU and international donors, various programs and projects were implemented:</li> <li>• to align the national educational, scientific, and cultural space with the European framework;</li> <li>• to eliminate ethnic and ethno-political discrimination;</li> <li>• to support national reforms aimed at combating corruption, poverty, and social exclusion;</li> </ul> <p>– the activities of national and international NGOs aimed at post-war societal cohesion were intensified, with a focus on supporting women, youth, and children affected by war-related violence, as well as individuals with disabilities resulting from the war.</p>	<p>The post-war order in Bosnia and Herzegovina created an unstable state with the constant presence of military and civilian international organizations, effectively rendering it a permanent international (semi-) protectorate.</p> <p>There was a lack of strong state institutions capable of effectively managing the country's post-war reconstruction process, as well as an absence of institutional mechanisms to coordinate the actions of international donors and the national government.</p> <p>Post-conflict governance practices have shown that the continuous reliance on war-related narratives and the ongoing expectation of international aid contribute to societal fragmentation and foster an electorate with high tolerance for corruption and institutional inefficiency.</p> <p>Attempts to implement structural economic, social, educational, and institutional reforms have been insufficiently successful.</p> <p>As of the end of 2024, there is no nationwide strategic framework in place to regulate cooperation with pan-European structural funds for cohesion and regional development upon EU accession.</p> <p>The national social protection system remains institutionally underdeveloped and financially unstable.</p>	<p>Adaptation is advisable primarily in the following areas:</p> <ul style="list-style-type: none"> <li>– avoiding mistakes in the planning and implementation of structural and institutional reforms;</li> <li>– aligning the national educational, scientific, and cultural space with the broader European framework;</li> <li>– eliminating manifestations of various forms of discrimination;</li> <li>– focusing on ensuring the financial sustainability of the national social protection system.</li> </ul> <p>The conclusions of the European Commission (European Commission, 2024c) regarding Ukraine's European integration process should also be taken into account:</p> <ul style="list-style-type: none"> <li>– Ukraine's request to allocate adequate support under the EU <i>Ukraine Facility</i> financing mechanism for the recovery, reconstruction, and modernization needs of subnational authorities—particularly local self-government—must be implemented in line with the principles of cohesion policy, namely subsidiarity, efficiency, accountability, and the role of subnational authorities in decision-making regarding the use of such support.</li> </ul>

Country	Status	Components of experience	Problems	Adaptation in Ukraine
Croatia	post-conflict state (1991–1995 war period);  EU member state (2013); Eurozone member (2023)	<p>The foundation of post-war recovery consisted of international assistance programs and national budgetary resources.</p> <p>For post-war societal solid a r i z a t i o n : – the national government implemented macroeconomic reforms aimed at increasing income and living standards as a basis for enhancing social justice and institutional trust; – with the support of the EU and international donors, various programs and projects were implemented:</p> <ul style="list-style-type: none"> <li>• to align the national educational, scientific, and cultural space with the European framework;</li> <li>• to build a financially sustainable national social protection system and establish a three-tier pension insurance system;</li> </ul> <p>– national and international NGOs intensified their efforts to promote societal cohesion, with a focus on supporting women, youth, and children affected by war-related violence, as well as the social and professional reintegration of demobilized individuals.</p>	<p>To accelerate accession to NATO and the EU, Croatia ensured only partial democratization of the post-war recovery and societal solidarization processes. International reports published after 2013 note the re-emergence of problems in Croatian society related to ethnic discrimination and the regression of democratic processes. Experts suggest that progressive changes in this area were pursued primarily to meet NATO and EU accession requirements, and once these goals were achieved, the government showed reduced interest in addressing issues related to the guaranteed protection of human rights.</p> <p>One of the key issues involved the organized return of Croatian citizens of Serbian ethnicity, complicated by the fact that their properties had been seized or occupied by other Croatian citizens under the Law “On the Temporary Use and Management of Certain Property.” This law allowed displaced persons and refugees to use such properties as residences.</p> <p>Amendments to the Law on Areas Under Special State Concern, adopted in 2002, made property restitution possible by setting deadlines within which temporary occupants were required to vacate the premises to return homes and apartments to their rightful owners. Since evictions progressed slowly, in 2003 the government offered compensation to those owners whose properties were not returned within the designated timeframe.</p>	<p>– The distribution of the received funds should be linked to local, regional, and sectoral development strategies and must also take into account the need for medium-term budget planning, while ensuring a reliable system for tracking and reporting expenditures.</p>

Source: compiled by the authors based on: Barbarić (2023); Danylyshyn (2022); European Commission (2024b; 2024c); Haliv & Illytskyi (2025); Mygal (2022); Puljiz, et al. (2019).

# FUTURE-READY PUBLIC INSTITUTIONS: RETHINKING DATA GOVERNANCE THROUGH MATURITY ASSESSMENT

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## Veronica CRETU

Consultant with UNFPA and World Bank, Austria

<https://orcid.org/0009-0003-5802-6545>

[veronicacretu@gmail.com](mailto:veronicacretu@gmail.com)

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## SUMMARY

This paper introduces a comprehensive maturity assessment framework for public sector data governance, aimed at supporting governments in building future-ready institutions. Grounded in institutional theory, sociotechnical systems thinking, and public value theory, the framework spans five pillars: governance and institutions, data and knowledge value creation, infrastructure and standards, trust and security, and digital preparedness and soft skills. Drawing on global models (DAMA DMBOK2, OECD, World Bank), it provides a structured, context-sensitive diagnostic tool to identify institutional strengths, gaps, and reform priorities. Certain elements of the framework were piloted in Moldova, Azerbaijan, and Kosovo using a mixed-methods approach, revealing that public sector data governance generally remains at a nascent to emerging stage, with notable progress in data protection and trust, but persistent weaknesses in foundational infrastructure and skills. The results highlight the importance of institutional ownership, regular assessments, and alignment with broader digital transformation and AI governance goals. The paper proposes an expanded model with 36 sub-components, incorporating emerging needs such as AI literacy, ontologies, and cloud computing. It positions data governance not as a technical exercise but as a strategic imperative for public value creation, accountability, and resilience in an increasingly data-driven world.

**Keywords:** data governance, maturity assessment, public sector, digital transformation, institutional capacity, evidence-based policymaking, artificial intelligence

## INTRODUCTION

Over the past two decades, data has emerged as a central resource in public governance, often referred to as “the new oil.” It was launched by Clive Humby, a British mathematician, in 2006. This term has since been echoed by numerous leaders and industry experts. However, it only sparked widespread discourse following a 2017 article by *The Economist* (2017) titled “The world’s most valuable resource is no longer oil, but data.”

Since then, this catchphrase has grown to be emblematic of the Fourth Industrial Revolution era. Yet, while the metaphor underscores the immense value of data, it oversimplifies the complex dynamics involved in governing it responsibly, equitably, and strategically. In the public sector, data is not merely an asset to be monetized, but a tool to drive better services, better decisions, inclusive policies, and democratic accountability. This shift requires robust data governance systems, especially as governments adopt artificial intelligence (AI) to modernize services and decision-making.

Despite the growing importance of data governance, the field lacks a unified definition or universally accepted framework, particularly for the public sector. Existing literature has primarily focused on data governance approaches developed in the private sector, often emphasizing technical efficiency and compliance, with limited attention to the specific challenges of institutional readiness and governance maturity in public administration (Janssen, et al. 2020; Alhassan, et al. 2016; Benfeldt, et al. 2020).

Studies that do address public sector data governance often emphasize legal compliance, open data, or interoperability (OECD, 2019; World Bank, 2021), without providing tools to systematically measure the maturity of data governance ecosystems or support

phased reform processes. Moreover, the theoretical landscape is fragmented, with limited synthesis between institutional theory, public administration modernization, and sociotechnical systems approaches.

This paper addresses these gaps by proposing a maturity framework for public sector data governance, grounded in both theory and practice. Drawing on established models such as DAMA DMBOK2 (DAMA International, 2017), OECD’s data-driven public sector framework (Ooijen, et. al. 2019), the World Bank’s Open Data Readiness Assessment (World Bank, 2015), and the Global Data Barometer (Davies & Fumega, 2022), the framework evaluates maturity across five interdependent pillars: governance and institutions, data and knowledge value creation, infrastructure and standards, trust and security, and digital preparedness and soft skills.

The paper also incorporates field-testing insights from Moldova, Azerbaijan, and Kosovo to validate and refine the framework in diverse governance settings.

By introducing this maturity framework, the paper offers a structured, adaptable, and context-sensitive tool that enables governments to conduct a rapid yet comprehensive diagnosis of their current data governance ecosystem. It allows public institutions to pinpoint specific strengths and gaps across critical pillars such as leadership, trust, infrastructure, and institutional skills. More than just an assessment tool, the framework provides strategic guidance for prioritizing reforms, allocating limited resources effectively, and sequencing actions in a way that aligns with national digital transformation goals. In doing so, it supports public sector leaders in advancing evidence-based policymaking, enhancing service delivery, and ensuring ethical and responsible adoption of AI technologies.

The growing importance of data governance in the public sector is driven by several interrelated factors, including regulatory compliance, cybersecurity risks, rapid technological advancements, the imperative to improve public services, and the growing economic and social value of data. Frameworks such as the EU's General Data Protection Regulation (European Union, 2016), the European Data Strategy (European Commission, 2020), the EU AI Act (European Union, 2024), and the Open Data Directive (European Union, 2019) have underscored the need for legal clarity, trust, and interoperability. At the same time, rising cybersecurity threats and the proliferation of AI and cloud computing call for better control over how data is collected, stored, and used. Robust data governance ensures not only legal compliance and ethical use of data but also enhances transparency, enables cross-border collaboration, supports innovation, and improves public trust. In this context, national data governance efforts are increasingly expected to align with global norms while addressing country-specific challenges and institutional capacities.

Furthermore, a data governance framework is crucial for sustainable development and achieving the Sustainable Development Goals (United Nations, 2015). It enables the effective measurement of progress, guides the development of informed policies, and ensures that sustainable practices are backed by solid evidence. By addressing data gaps and investing in robust data systems, it is possible to turbocharge progress

towards achieving the Sustainable Development Goals. *The State of Global SDG Data in 2023 Report* (Goessmann et al. 2023) states, ensuring effective and equitable development worldwide. The report states that significant data gaps exist, particularly for SDG 5 (Gender Equality), SDG 13 (Climate Action), and SDG 16 (Peace, Justice, and Strong Institutions). The same report finds that investment in stronger national data systems can yield substantial economic returns (up to USD 32 for every dollar invested). However, despite high returns on investment, data and statistics are underfunded, especially in developing countries. Donors should increase their Official Development Assistance (ODA) allocated to data to at least 0.7% by 2030.

Across governments, data governance operates at different levels: whole-of-government, sector-specific, and local level, highlighting its adaptability to diverse policy contexts and institutional capacities. When implemented effectively, it becomes a cornerstone of sustainable development and democratic governance.

Finally, data governance is a critical framework for ensuring the effective, ethical, and secure management of data. It enhances data's value, promotes institutional accountability, and builds trust among stakeholders. While there is no single, universally accepted definition of data governance, most authoritative sources agree on several core principles: the need for lifecycle management of data (from creation to disposal), the importance of ensuring data quality, security, and privacy, and the role of inclusive stakeholder collaboration.

## THEORETICAL FRAMEWORK

The maturity assessment framework developed in this study is rooted in a multidisciplinary theoretical foundation, integrating insights from institutional theory, sociotechnical systems thinking, and public value theory. These perspectives provide the analytical lens for understanding how data governance functions within complex public administration systems and why context-specific maturity models are essential. This framework is also grounded in institutional theory (DiMaggio and Powell, 1983); sociotechnical systems thinking (Trist & Bamforth, 1951), and public value theory (Bryson, Crosby, and Bloomberg, 2014), which explains how public sector institutions often adopt similar governance practices due to coercive, mimetic, and normative pressures rather than purely performance-based considerations. By providing a structured tool for self-assessment, the proposed maturity framework aims to support intentional, context-specific reform, rather than superficial compliance with global trends.

Traditional data governance models often focus on technical capabilities such as data infrastructure, security protocols, and standards, while neglecting the social dimensions that determine their effective use: leadership, institutional trust, administrative culture, and skills. Socio-technical theory challenges

this imbalance by emphasizing joint optimization, where the success of a system depends on aligning both technological and social subsystems (Trist & Bamforth, 1951). Built on the open systems perspective (Bertalanffy, 1950), socio-technical theory underscores that public institutions operate in dynamic environments, where legal frameworks, political will, administrative cultures, and external pressures shape their data practices. This theoretical lens reinforces the need for a context-sensitive, non-prescriptive maturity framework, one that acknowledges multiple, evolving paths to effective data governance.

In addition to the above, the paper also draws on Herbert Simon's theory of bounded rationality and his three-stage model of decision-making: intelligence, design, and choice. The framework proposed in this paper supports each of these phases. It helps public institutions collect and assess data (intelligence), explore and strengthen their organizational and technical capacities (design), and prioritize reforms and AI-readiness actions (choice). Simon's insights into the cognitive and institutional limits of decision-making reinforce the need for structured diagnostic tools, such as maturity assessments, to guide public sector actors toward informed and adaptive governance choices.

In translating these theoretical insights into a practical model, this paper also draws upon leading frameworks in the field of data governance. The *DAMA Data Management Body of Knowledge (DMBOK2)* provides principles for managing data as a strategic asset, emphasizing governance roles, processes, and accountability mechanisms (DAMA International, 2017). The OECD's data-driven public sector framework supports the integration of data governance into public value creation and policy delivery, offering dimensions such as leadership, capability, and infrastructure (OECD, 2019). Similarly, the World Bank's Open Data Readiness Assessment (ODRA) provides a diagnostic structure focused on institutional enablers, stakeholder engagement, and data accessibility (World Bank, 2015).

Given the conceptual diversity of data governance, it was essential to explore various definitions to clarify the scope and principles that guide this assessment. A review of existing definitions reveals several common themes, and several sources offer definitions that highlight different aspects of data governance.

- Well-designed data governance, according to the World Bank, can be defined as the framework that allows capturing the central values and purposes of an entity (country, international body, region, etc.) to leverage the synergies with multiple stakeholders while creating trust and promoting the use of data.
- OECD (2019): Data governance refers to diverse arrangements, including technical, policy, regulatory or institutional provisions, that affect data and their cycle (creation, collection, storage, use, protection, access, sharing and deletion) across policy domains and organizational and national borders.
- Davies (2022): Data governance concerns the rules, processes and behaviors related to the collection, management, analysis, use, sharing and disposal of data - personal and/or non-personal. Good data governance should both promote benefits and minimize harms at each stage of relevant data cycles.
- Holdsworth and Kosinski (2024) define data governance as “the data management discipline that focuses on the quality, security and availability of an organization's data”
- Microsoft (n.d.): The definition of data governance includes the collection of processes, policies, roles, metrics, and standards that ensures an effective and efficient use of information. This also helps establish data management processes that keep your data secured, private, accurate, and usable throughout the data life cycle.
- DAMA International (2017) defines it as “the exercise of authority and control (planning, monitoring, and enforcement) over the management of data assets”. Its primary goals include defining, approving, and communicating data strategies, policies, standards, architecture, procedures, and metrics. It also involves tracking and enforcing regulatory compliance

and conformance to these policies and standards, sponsoring and overseeing data management projects and services, managing and resolving data-related issues, and understanding and promoting the value of data assets. Through these activities, data governance ensures the effective, secure, and compliant use of data within an organization, driving both operational efficiency and strategic value.

- US Health Policy Perspective (2021): Data governance is defined as the process by which stewardship responsibilities are conceptualized and carried out, that is, the policies and approaches that enable stewardship. Data governance establishes the broad policies for access, management, and permissible uses of data; identifies the methods and procedures necessary to the stewardship process; and establishes the qualifications of those who would use the data and the conditions under which data access can be granted.
- Benchmarking Perspective (Marcucci et al. 2023): A comparative analysis of global data governance frameworks is presented by Marcucci et al. (2023) in *Informing the Global Data Future: Benchmarking Data Governance Frameworks*. The study highlights how definitions and approaches to data governance diverge significantly depending on institutional roles, regulatory environments, and national contexts.

Despite the lack of a unified definition, common themes emerge across the various definitions:

- Many definitions emphasize that data governance involves a framework or a set of processes that manage the lifecycle of data from creation to disposal.
- Data governance includes rules, policies, and standards that ensure data is used effectively and securely.
- Effective data governance involves the participation and collaboration of multiple stakeholders, including regulatory bodies, institutions, and individuals.
- Good data governance aims to maximize the benefits of data use while minimizing potential harms.

Similarly, institutions leading efforts in the field of data governance, highlight various aspects: for example, the World Bank emphasizes leveraging synergies among stakeholders and promoting trust in data use. OECD focuses on diverse arrangements (technical, policy, regulatory) that affect the data lifecycle across borders. IBM stresses the importance of data quality, security, and the policies that govern data use (Holdsworth & Kosinski, n.d.), while Microsoft focuses on the collection of processes and standards that ensure data's effective and efficient use.

At the same time, many definitions highlight the importance of managing data throughout its entire lifecycle, from collection to disposal, ensuring that data is kept secure, accurate, and usable. Several definitions underline the importance of establishing trust among

stakeholders and ensuring the security and privacy of data. Definitions often include the purpose and goals of data governance, such as enhancing data quality, promoting data sharing and reuse, ensuring compliance with regulations, and protecting individual privacy rights.

These practices indicate that there is no one-size-fits-all, and the varied definitions and elements of data governance suggest varied needs of organizations (private, public, not-for-profit), that there is no universal approach that fits all contexts. Different sectors and organizations may have unique requirements and priorities. Accordingly, Governments should seek to tailor their data governance frameworks to the specific needs and maturity levels of different sectors and departments. Public sector institutions need to prioritize data driven initiatives based on regular internal maturity assessments which can help identify strengths and weaknesses and enable targeted improvements.

Literature and practice emphasize that data governance is not monolithic but rather multi-level, context-sensitive, and highly adaptable. Instead of adhering to a one-size-fits-all model, data governance frameworks are increasingly designed to operate across distinct levels: whole-of-government, municipal/local, sector-specific, and institutional/organizational, each with its own priorities, stakeholders, and governance arrangements.

- At the whole-of-government level, central governments may adopt unified standards, shared platforms, and overarching data governance strategies that promote interoperability and coherence across ministries. This aligns with system-level governance theories that view the state as a coordinated data steward. An example is Singapore's government-wide use of analytics to optimize public service delivery.
- The local/municipal level adapts data governance to the specificities of communities, often focusing on smart city initiatives, localized service delivery, and participatory data practices. This reflects the subsidiarity principle in governance theory, placing decision-making at the most immediate or local level consistent with its resolution (Hooghe & Marks, 2003). Vienna's "Data Capital City" initiative is a case in point (Data Excellence Strategy of the City of Vienna, 2024).
- Sector-specific models recognize that certain policy domains such as health, education, and finance require tailored data governance arrangements due to regulatory, ethical, or operational demands (Alhassan, et.al. 2016). For instance, the Ministry of Education of Malaysia has implemented a customized Data Governance Model to guide the management and use of education data in alignment with national priorities and sectoral requirements (Ministry of Education Malaysia, 2021).
- Organizational-level data governance focuses on internal policies, stewardship roles, and data literacy

within institutions. It operationalizes concepts from micro-governance and internal accountability theory (Benfeldt, et.al. 2020). Notable examples include Stats NZ's operational Data Governance Framework and Airbnb's internal data education program (Data governance NZ, 2021; Jabes, 2020).

These levels are not mutually exclusive but interconnected. This multilevel governance perspective enables more nuanced assessments of institutional maturity, stakeholder engagement, and policy coherence within data ecosystems.

This paper also draws on the interrelated concepts of *measurement* and *maturity*, which are essential to understanding the evolution and assessment of systems, including data governance frameworks. Measurement as a concept is at least as old as civilization, with various systems and units evolving based on natural objects. It is fundamental in every aspect of our daily life, from modern science, engineering, commerce, education, health, etc. Generally, measurement involves interacting with a system to represent its aspects in abstract terms such as numbers or vectors.

Philosophical discussions about measurement date back to antiquity, with foundational concepts such as magnitude and quantity central to early mathematics and logic. Euclid's definitions imply that measurement entails being divisible by another quantity, though in some cases a number may also measure itself (Euclid, 1956). Aristotle distinguished quantity as a measurable attribute from quality, the nature of what is being measured (Aristotle 1941, 1053a). In modern thought, Helmholtz argued that measurement requires some properties to remain invariant during transformations (Helmholtz, 1977), and Russell described measurement as the assignment of numbers to non-numeric entities (Russell, 1903).

The term *maturity* generally refers to "the state of being complete, perfect, or ready" (Simpson & Weiner, 1989), or to a stage at which something has reached full development. Initially used in engineering contexts, such as the maturity method for concrete curing (Nawy, 2001), following structural failures like the Skyline Plaza collapse, the concept has since been widely adopted across domains including IT governance, corporate compliance, and, more recently, data governance (Becker, et.al, 2009).

Combined definitions of the terms 'measurement' and 'maturity' lead to *maturity measurement or maturity models*, which have been increasingly approached by researchers, experts, consultants across various fields during the past decades, from across private, public an academia, for their ability to assess the strengths and weaknesses of systems and processes, and to create improvements. Maturity models aim to develop processes with desirable goals, such as resources or practices, leading to a more mature organization or system.



Finally, this framework is both theoretically and empirically grounded. Throughout its development, practitioner insights and implementation experiences played a critical role in shaping the framework's structure and ensuring its practical relevance. Workshops and structured engagements with public servants in Moldova, Azerbaijan, and Kosovo helped

identify context-specific gaps, validate theoretical assumptions, and adapt the initial framework by expanding the elements under each of the five pillars. This iterative, participatory process embodies the core principles of socio-technical design and open systems thinking, reinforcing the framework's capacity to support meaningful institutional transformation.

## DATA AND METHODS

This analysis employed a mixed-methods, iterative research design combining qualitative and quantitative techniques. The objective was to develop and validate a maturity assessment framework for public sector data governance across five key dimensions: governance and institutions, data and knowledge value creation, infrastructure and standards, trust and security, and digital preparedness and soft skills.

The framework was initially conceptualized through a desk review of global data governance models (e.g.,

DAMA DMBOK2, OECD's data-driven public sector framework, World Bank ODRA), and then refined through face-to-face and remote assessments in three countries: Moldova, Azerbaijan, and Kosovo between 2022 and 2024, as part of various initiatives aiming to understand the various aspects of data governance in the public sector. Respondents included: public sector officials at central levels, civil society representatives, international development partners, independent experts.

**Table 1.**

*Core Components and Subcomponents of the Data Governance Maturity Framework*

Key component	Sub-components
<b>Governance and Institutions</b>	<ul style="list-style-type: none"> <li>• Leadership</li> <li>• Vision</li> <li>• Linkages to other national and government strategies</li> <li>• Data Policy</li> <li>• Management practices at the institutional level and across the Government for data governance</li> <li>• Stakeholder Engagement</li> <li>• Communication and Collaboration</li> <li>• KPIs and MEL (Monitoring, Evaluation and Learning)</li> <li>• Accountability</li> </ul>
<b>Value</b>	<ul style="list-style-type: none"> <li>• Data Sharing</li> <li>• Open Data</li> <li>• Data Analytics</li> </ul>
<b>Trust</b>	<ul style="list-style-type: none"> <li>• Data Security</li> <li>• Data protection and privacy</li> <li>• Data Controls</li> </ul>
<b>Foundations</b>	<ul style="list-style-type: none"> <li>• Data Standards</li> <li>• Data Quality</li> <li>• Base Registers</li> <li>• Data catalog and discoverability</li> <li>• Data Lifecycle Management</li> <li>• Data Infrastructure</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Institutional digital readiness</li> <li>• Digital readiness of employees across the public sector</li> <li>• Data Literacy</li> </ul>

*Source: developed by the author*

The assessment framework in two countries was structured around five key components, each comprising multiple interrelated subcomponents, as per breakdown provided below:

To assess the maturity of each subcomponent, a five-level scoring system was applied. This system captures varying degrees of institutional readiness, from non-existent to fully mature practices. Each level corresponds to a numerical score from 0 to 4, as described below:

- 0 signifies *absent*,
- 1 indicates a *nascent stage*,
- 2 indicates an *emerging stage*,
- 3 represents an *expanding stage*, and
- 4 denotes a *mature stage*.

**Table 2.**

*Maturity levels for assessing data governance pillars and sub-components*

<b>Level 0 - Absent</b>	There is no evidence of the component in any significant way.
<b>Level 1 - Nascent</b>	There is evidence of isolated use of the component in a few individual institutions, probably as a result of local initiatives, but there are no wider policies or standards for it.
<b>Level 2 - Emerging</b>	There is evidence of some policies and standards for the component and the use of these in some specific projects, but the policies are incomplete and implementation of them is not widespread.
<b>Level 3 - Expanding</b>	There is evidence of a largely complete and credible set of policies and standards for the component, and that these are being applied widely, especially for new projects, but achievement is requiring continuing management intervention and there are significant remaining areas of non-compliance.
<b>Level 4 - Mature</b>	The component is fully functioning and sustainable, with policies and standards being applied across all institutions without requiring continuing interventions, with regular monitoring of compliance and corrective action, and with all stakeholders involved in improving and optimizing the component on an on-going basis.

Source: developed by the author

The scores from each subcomponent were aggregated to generate average scores for the five main pillars. Additionally, specific benchmarks and guiding questions were developed for each maturity level per subcomponent. To illustrate how the framework was applied in practice, the following example outlines the maturity levels, benchmarks or *characteristics*, evaluation questions, and stakeholder engagement strategy for the *Leadership* subcomponent under the *Governance and Institutions* pillar.

This example demonstrates how nuanced assessment criteria were paired with targeted data collection tools to ensure a comprehensive understanding of institutional maturity. All 24 subcomponents across the five pillars were assessed using the 0–4 maturity scale.

**Table 3.**

*Assessment matrix for evaluating leadership maturity for data governance*

Indicators or benchmarks	Evaluation Questions	Key Stakeholders to be approached and the data collection tool used
<b>Level 0 - Absent</b>		
Leadership in this area is absent.	Is there evidence of leadership for Data Governance in the public sector? <ul style="list-style-type: none"> <li>• Yes.</li> <li>• No.</li> <li>• Difficult to answer this question.</li> <li>• Other:</li> </ul>	Surveys.  Stakeholders to complete the survey: Decision makers, heads of units/departments in line ministries, tasked with strategy/vision/mission setting for their sector, etc.  Based on the results of the survey, define Qs for in-depth interviews.



Indicators or benchmarks	Evaluation Questions	Key Stakeholders to be approached and the data collection tool used
<b>Level 1 - Nascent</b>		
There is awareness among public sector leaders (in a few leading sectors) vis-à-vis the need to have some leadership/authority on data governance.	<p>How often is data governance topic discussed in the public sector?</p> <ul style="list-style-type: none"> <li>- Often</li> <li>- Rarely.</li> <li>- Never.</li> <li>- Difficult to answer this question.</li> <li>- Other:</li> </ul> <p>Are there any leading Ministries/Public Agencies raising awareness about the importance of data governance in the public sector? (this can happen as part of broader vision for digital transformation or linked to ongoing discussions on national development agenda; or digital transformation).</p> <ul style="list-style-type: none"> <li>- Yes</li> <li>- No</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details;</li> </ul>	<p>Surveys.</p> <p>Stakeholders to complete the survey: Decision makers, heads of units/departments in line ministries, tasked with strategy/vision/mission setting for their sector, etc.</p> <p>Based on the results of the survey, define Qs for in-depth interviews.</p>
<b>Level 2 - Emerging</b>		
<p>There are informal communities of public servants interested in the data governance framework, with no specific mandate or responsibilities. There are emerging 1-2 champions in particular sectors.</p> <p>Sporadic events are organized for potential data champions in the public sector, usually with support from international development partners.</p>	<p>Are you aware of any information communities of public servants working on data governance, interested in data governance, promoting data governance as a topic/theme in the public sector?</p> <ul style="list-style-type: none"> <li>- Yes.</li> <li>- No.</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details.</li> </ul> <p>Are you aware of public events during which data governance is being addressed?</p> <ul style="list-style-type: none"> <li>- Yes.</li> <li>- No.</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details.</li> </ul> <p>Who are the most active organizers of events which address data governance or data in general?</p>	<p>Surveys.</p> <p>Stakeholders to complete the survey: Decision makers, heads of units/departments in line ministries, tasked with strategy/vision/mission setting for their sector, etc.</p> <p>Based on the results of the survey, define Qs for in-depth interviews.</p>
<b>Level 3 - Expanding</b>		
There are inter-institutional coordination bodies in place, focusing on capacity building initiatives, collaboration and knowledge sharing on data. For ex. Knowledge Alliance on data governance; Community of Practice on Data Governance, or anything similar.	<p>Are you aware of any inter-institutional coordination efforts, aiming to promote ongoing capacity building activities, knowledge sharing on data, data governance in the public sector?</p> <ul style="list-style-type: none"> <li>- Yes.</li> <li>- No.</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details.</li> </ul> <p>To what extent, public servants exercise the role of the 'mentor' for entry level servants, particularly around emerging topics such as data or data governance?</p>	<p>Surveys.</p> <p>Stakeholders to complete the survey: Decision makers, heads of units/departments in line ministries, tasked with strategy/vision/mission setting for their sector, etc.</p>

Indicators or benchmarks	Evaluation Questions	Key Stakeholders to be approached and the data collection tool used
<b>Level 3 - Expanding</b>		
<p>There is potential for more experienced public servants (leads in the field) to act as mentors for entry level servants working on data governance.</p> <p>There are established roles for officers responsible for the provision of public data; or data managers; or data coordinators in line Ministries. Clear TORs are in place for the established roles.</p> <p>Costs associated with these roles are included in the fiscal planning/budgeting.</p>	<p>Are there currently formal roles/unit/person in place, in public institutions, responsible for the provision of public data; or data managers; or data coordinators?</p> <ul style="list-style-type: none"> <li>- Yes.</li> <li>- No.</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details.</li> </ul> <p>Are there TORs are in place for such a position?</p> <ul style="list-style-type: none"> <li>- Yes.</li> <li>- No.</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details.</li> </ul> <p>Are costs associated with these roles included in the annual planning/budgeting?</p> <ul style="list-style-type: none"> <li>- Yes.</li> <li>- No.</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details;</li> </ul>	<p>Based on the results of the survey, define Qs for in-depth interviews.</p>
<b>Level 4 - Mature</b>		
<p>There is a strong political leadership which provides high level support needed to advance the data policy agenda, and although changes might occur at this level, the top management ensures that the transition does not impact the efforts and helps implement, steer policy design and implementation, increases continuity and sustainability.</p> <p>There are formalized leadership roles in the existent administrative structures, i.e.</p> <p>Government Chief Data Steward. He/she leads data policy in the country.</p> <p>Or, Unit Head (within the Office of the Prime Minister); or consensus-based leadership model is in place (in form of a data taskforce with leading public sector agencies part of it). Or Chief Data officers' positions are in place, with relevant financial support, clear roles and portfolio.</p>	<p>Is there evidence of strong political leadership to advance data policy agenda in the public sector?</p> <ul style="list-style-type: none"> <li>- Yes.</li> <li>- No.</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details.</li> </ul> <p>If yes, how is continuity ensured when/if there is a change at the level of top management?</p> <p>Do you have any of the following positions/structures in the Government? Tick any that applies:</p> <ul style="list-style-type: none"> <li>- Government Chief Data Steward.</li> <li>- Unit Head (within the Office of the Prime Minister) in charge of Data Governance.</li> <li>- Data taskforce.</li> <li>- Chief Data officers.</li> <li>- National Coordination body on data governance.</li> <li>- Other (provide details).</li> </ul>	<p>Surveys.</p> <p>Stakeholders to complete the survey: Decision makers, heads of units/departments in line ministries, tasked with strategy/vision/mission setting for their sector, etc.</p>

Indicators or benchmarks	Evaluation Questions	Key Stakeholders to be approached and the data collection tool used
<b>Level 4 - Mature</b>		
<p>There is a national body tasked to coordinate data governance in the public sector (across sectors).</p> <p>High level leadership is visible and serves as the key authority in the field.</p> <p>Digital leadership – public institutions demonstrate ability to develop a vision for digital.</p>	<p>What evidence is there in place to demonstrate high level leadership and authority for data governance agenda?</p> <p>Are public institutions able to develop a vision for digital? Do such capacities exist within all public entities?</p> <ul style="list-style-type: none"> <li>- Yes.</li> <li>- No.</li> <li>- Difficult to answer this question.</li> <li>- If yes, provide details.</li> </ul>	<p>Based on the results of the survey, define Qs for in-depth interviews.</p>

Source: developed by the author

This approach enabled the inclusion of scenario-based multiple-choice questions in the surveys, allowing respondents to select the option that best reflected the current situation in their context. Each scenario corresponded to a maturity level on a 0–4 scale (from Absent to Mature).

For example, under the *Governance & Institutions pillar*, the *Vision* subcomponent included five narrative options ranging from Level 0 (no discussions or initiatives exist) to Level 4 - data is treated as a public good with a shared long-term vision and inclusive governance (Table 4).

**Table 4.**

*Maturity assessment scale for vision sub-component of Governance and Institutions Pillar*

Level of development	Indicators or benchmarks
<b>0</b>	No discussions or initiatives around developing a vision on data governance exist.
<b>1</b>	Sporadic discussions about data governance occur without specific measures taken for vision development, primarily initiated by external stakeholders.
<b>2</b>	A fragmented approach to data governance exists among some institutions. Some develop data registers, but not necessarily for improving inter-institutional data sharing or a broader vision.
<b>3</b>	Different public sector organizations lead parts of data governance, leading to confusion and data integration barriers. The incomplete vision emphasizes technology over people and is discussed in closed circles.
<b>4</b>	Data is treated as a public good with a shared long-term vision. A holistic data governance vision is in place, emphasizing people first in technology, managing data throughout its life cycle, and ensuring inclusivity.

Source: developed by the author

In Azerbaijan, data was collected through a multi-method approach combining desk research, online surveys, interviews, and validation workshops. A kick-off workshop launched the process by informing key stakeholders about the methodology and engagement plan. This was followed by a comprehensive desk review of national policies, strategies, and regulatory documents. Seven targeted online surveys (via Google Forms) were distributed to public officials across roles, yielding responses from senior, mid-level, technical, and HR personnel, with each survey aligned to a specific component of the framework. Above 80 respondents

completed the surveys. To deepen understanding, 12 key informant interviews were conducted with selected respondents. Finally, two validation workshops were held to collectively review and refine preliminary findings and scores, ensuring alignment with institutional realities and stakeholder insights.

In Kosovo, data collection was conducted through a two-day, face-to-face capacity-building workshop involving 25 participants, primarily from civil society organizations and international organizations present in the country, with limited public sector representation.

During the workshop, each sub-component of the maturity framework was assessed individually, in pairs, and through group deliberation to reach consensus on maturity levels. This participatory process was followed by two online follow-up sessions, where participants used the results to identify priority areas for future action and institutional development.

In Moldova, the assessment process was primarily qualitative and exploratory in nature. Several components of the framework were addressed through expert interviews (15 interviews conducted) and a structured survey completed by 26 respondents. A follow-up validation survey was also distributed, though it received only two responses. Notably, a structured maturity scoring system was not applied in this case, which limited the ability to generate comparative or quantitative benchmarks. Instead, the process focused on capturing expert perspectives and generating forward-looking insights. As a result, the analysis focused more on forward-looking recommendations than on measuring the current level of institutional maturity. While stakeholder participation was significant, the lack of quantified benchmarks limited the ability to identify precise gaps or determine proximity to a mature state. The findings serve as an initial diagnostic and highlight the potential value of a future, more data-driven assessment.

Survey results were analyzed using descriptive statistics to calculate average scores for each sub-component, component, and pillar. Open-ended responses were coded thematically to identify institutional strengths, weaknesses, and recurring barriers. Interview transcripts were manually coded to extract qualitative insights that contextualized quantitative scores. Two scoring iterations were conducted in Azerbaijan to account for response bias and validate initial findings. In Kosovo, consensus scoring was used in group sessions. In Moldova, due to a more qualitative orientation, there were no scores attributed to the main pillars.

The analysis acknowledges certain limitations. In Azerbaijan for example, some responses reflected social desirability bias, with participants either overstating

institutional practices or, in some cases, underestimating the actual level of development. This variability underscored the importance of validation workshops and triangulation through interviews to refine and contextualize the maturity scores. In Kosovo, limited public sector participation meant results primarily reflected civil society perspectives. In Moldova, the absence of a structured maturity scoring system limited the ability to quantify current capacities or compare them to an ideal state.

One important aspect is related to the reliance on self-reported data in all three countries, which limited the ability to verify how data governance is operationalized in practice. While not applied in the current assessment, direct observation is identified as a promising methodological addition for future research. This approach might offer the potential to capture actual behaviors, informal routines, and decision-making dynamics: insights that are often missed in interviews and surveys. Observation is particularly valuable in hierarchical public sector environments, where formal responses may not fully reflect operational realities. Incorporating observational methods in future assessments would strengthen data triangulation, enrich contextual understanding, and provide a more nuanced and grounded view of institutional data governance maturity.

The following principles guided the design and implementation of data collection activities across all country contexts:

- Equality and non-discrimination: All participants were treated equitably, regardless of role, background, or affiliation.
- Informed consent and confidentiality: Each respondent participated voluntarily, with assurances of anonymity and privacy, in line with ethical standards and interview protocols.
- Gender equality: Efforts were made to ensure balanced participation of women and men at every stage of the assessment, including workshops, surveys, and interviews.

## MAIN RESULTS

To protect institutional confidentiality and respect the sensitivities of ongoing reform processes, detailed findings are presented in aggregated form without attributing results to specific countries or institutions.

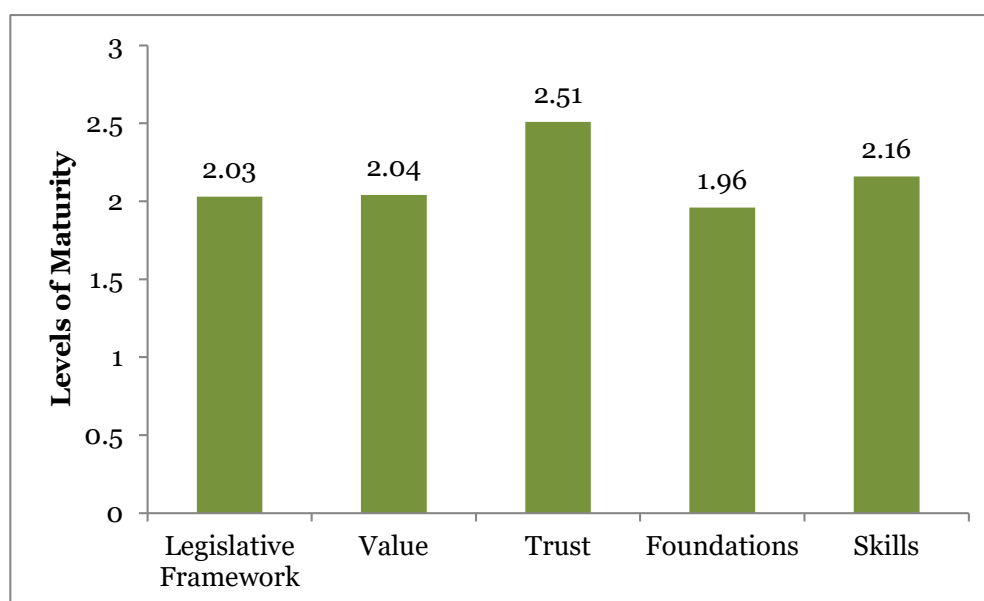
In one country where the full maturity scoring system was applied, average scores were calculated across five core domains of the data governance assessment and was found to be at the emerging stage, with an average maturity score of 2.14 out of 4 across the five evaluated components: Governance and Institutions, Value, Trust, Foundations, and Skills. All components scored within the nascent to emerging range, with none reaching the expanding or mature level. The Trust component

registered the highest average score, while Foundations had the lowest. Common gaps identified across the data governance landscape included:

- The absence of a whole-of-government data governance strategy.
- Fragmented institutional approaches to data management.
- Lack of a centralized or high-level data governance body.
- Limited practices around data discoverability and cataloging.
- Weak institutional capacity in data literacy and analytics.

**Figure 1.**

*Average maturity scores across five pillars of data governance assessment*



*Source: developed by the author*

**Figure 2.**

*Overall data governance maturity assessment score*

Level 0: Absent	Level 1: Nascent	Level 2: Emerging (2.14/4)	Level 3: Expanding	Level 4: Mature
There is no evidence indicating the presence or impact of a data governance framework in the public sector.	While some individual institutions have implemented data policies in isolated cases, these seem to be driven mainly by ad-hoc initiatives, and there is a lack of wider policies or standards in place.	There is evidence of some policies and standards related to data governance, which have been utilized in certain projects and initiatives. However, these policies are incomplete, and their implementation is not widespread.	The evidence suggests that a comprehensive and reliable set of policies and standards for data governance is in place, which is being extensively applied, particularly in new projects and across multiple sectors. However, continued management intervention is necessary to achieve compliance, and there are still areas of non-compliance that need to be addressed.	The data governance framework is operating at full capacity and is sustainable, with policies and standards being consistently applied throughout all institutions and sectors. There is regular monitoring of compliance and the enforcement of measures taken where necessary. All stakeholders are actively involved in improving and optimizing data governance policies on an ongoing basis.

*Source: developed by the author*



The assessment conducted in the second country revealed that the overall data governance framework remains at an early stage of development, with notable disparities across its five core components:

- *Governance and Institutions:* While some coordination structures exist, governance is fragmented. There is no unified legal framework or clear institutional ownership of the data agenda, particularly at the local level.
- *Value:* Infrastructure exists to support data sharing and reuse, but it remains underutilized. Open data practices are limited, and public trust in platforms is low. The strategic value of data is not yet fully recognized or leveraged.
- *Trust:* Legal alignment with data protection standards is progressing, but enforcement is weak. Emerging technologies raise additional regulatory gaps, and cross-border data flow policies remain underdeveloped.
- *Foundations:* Foundational infrastructure is in place, yet issues persist with data quality, duplication, and inconsistent standards. Integration and interoperability across systems are hindered by both technical and governance barriers.
- *Skills:* Capacity building is insufficient and uneven. Digital and data literacy remain low across the public sector, with outdated HR practices limiting the recruitment and development of skilled personnel.

Finally, in the third context, the assessment concluded that:

- *Governance and Institutions:* absence of a comprehensive data governance roadmap and the need for clearly defined roles, responsibilities, and institutional leadership. There was strong interest in establishing a legal and regulatory framework and institutional mechanisms such as a Chief Data Officer.
- *Value:* The understanding of how data can drive value, from service delivery improvements to policymaking, was essential. However, actual implementation of such practices was perceived as limited. Respondents emphasized the need to embed data governance in broader digital transformation efforts.
- *Trust:* Concerns about data privacy, protection, and ethical use were commonly raised. Data privacy and security were among the top-rated competencies respondents wished to see prioritized in future capacity-building efforts.

## DISCUSSION

A cross-cutting observation from all three country contexts is that the maturity assessments were initiated and carried out with external donor support. While this facilitated high-quality design, expert input, and methodological consistency, it also highlights a structural weakness: the absence of domestically anchored

- *Foundations:* Feedback revealed persistent gaps in metadata use, data quality assurance, and the availability of base registers. Respondents lacked practical familiarity with interoperability mechanisms and data cataloging practices.
- *Skills:* The strongest thematic priority identified by respondents was building digital and data literacy across government. There was particular interest in competency-based curricula and more structured training programs. Respondents expressed a need for expanded professional development, and some considered career paths in data governance or analysis as a result of the assessment and direct impact of participation in the assessment.

Additional insights:

- Respondents valued the maturity assessment exercise, which encouraged reflection and comparison of perspectives across sectors.
- Participation in the assessment helped clarify how open data fits within a broader data governance ecosystem.
- Recommendations emerged to include more public officials in such exercises and to institutionalize training through partnerships with civil service academies or universities on the topic of data governance, or assessment frameworks for data governance in the public sector.

Across all three cases, stakeholder feedback supported the relevance of the assessment and in two contexts, respondents highlighted the maturity framework usefulness as a diagnostic and planning tool.

From the methodological standpoint, the implementation of the assessment revealed practical challenges related to participant engagement, difficulties in broadening stakeholder representation, and language-related barriers, particularly during the survey phase. Open-ended responses often lacked depth, either due to limited time, knowledge, or interest. Additionally, social desirability bias distorted initial results in some settings, requiring further rounds of data collection and triangulation to approximate a more realistic picture of maturity.

The findings also point to opportunities for more nuanced and longitudinal research on data governance maturity. Participatory methods may be better suited to capture day-to-day governance realities than survey instruments alone. Moreover, cross-country comparative studies could identify political, institutional, or cultural variables that accelerate or inhibit data governance reforms.

and institutionalized mechanisms for assessing and improving data governance.

Relying on external funding for core governance diagnostics, especially in an area as foundational as data governance, is not sustainable in the long term. It risks



assessments being perceived as one-off exercises rather than integral parts of country's digital transformation agenda. Without national ownership and budgetary commitment, there is a real danger that findings will not be operationalized, lessons will be lost, and momentum will stall after donor engagement ends.

Embedding such assessments into routine government performance processes, supported by national statistical offices, digital transformation agencies, or civil service training institutes, could help institutionalize these efforts. Long-term sustainability also calls for developing internal capacity to lead assessments, interpret results, and act upon them: including in policy, technology, and organizational change.

The assessment revealed that across the different contexts examined, public sector data governance maturity generally resides in the nascent to emerging range (*Table 5*). While no component reached a mature stage, the consistency of scores across all five pillars: Governance and Institutions, Value, Trust, Foundations, and Skills, suggests that foundational elements are in place and that there is potential for coordinated progress. Rather than wide disparities that might indicate isolated or siloed development, the balanced scoring pattern points to broad-based, albeit early-stage, activity in data governance across institutions.

Among the five pillars, the Trust component, which includes data protection, privacy, and security, tended

to score relatively higher. This reflects the increasing visibility of privacy and data protection related regulations and public discourse around data protection, likely driven by international norms and donor influence or the need to harmonize national legislation with the EU one.

In contrast, the Foundations component, which includes critical elements such as data standards, cataloging, base registries, consistently lagged. This suggests that while awareness of data security and rights may be increasing, the technical and infrastructural backbone necessary to enable effective data governance is underdeveloped. The disparity between Trust and Foundations highlights a policy environment where legal or normative frameworks may be evolving faster than institutional and infrastructural capabilities.

This gap is especially relevant in environments where data policies exist in principle but are not implemented systematically, often due to fragmented governance structures or a lack of designated accountability. Furthermore, the limited progress in the Skills component, particularly in terms of data literacy and institutional readiness, indicates a pressing need for capacity building, without which progress in the other areas may stall. Taken together, these findings emphasize the importance of integrated, cross-pillar interventions, to ensure that policy, practice, infrastructure, and skills advance in a balanced manner.

**Table 5.**

*Piloted and proposed new subcomponents in the Data Governance Maturity Framework*

Component: Governance and Institutions		
Vision, Leadership, Accountability, Alignment with other national strategies and programs; Alignment with emerging global governance on AI; Data Policy; Communication and Collaboration; Stakeholder engagement; KPIs and MEL; Management practices.		
Component: Data and Knowledge value creation	Component: Trust and security	Component: Infrastructure and standards
Data Sharing; Open Data; Data Analytics; Knowledge representation and reasoning (KRR); Knowledge Organization Systems (KOSs); Ontologies.	Data security; Data controls; Privacy and Data protection.	Base registers; Data standards; Data quality; Data infrastructure; Data Lifecycle management; Data catalogue and discoverability; Cloud computing and data lakes.
Component: Digital preparedness and essential soft skills		
Institutional digital readiness; Data literacy; AI literacy; Career planning and development; Organizational development; Facilitation and moderation; Critical thinking; Design thinking; Communities of practice (CoP); Certification for digital skills and adaptive learning platforms.		

*Source: developed by the author.*

While the assessments conducted in the presented cases focused on core data governance components (highlighted in yellow), the findings also revealed critical gaps that are becoming increasingly significant in the

context of digital transformation and AI adoption. To address these, several additional sub-components (highlighted in blue) are proposed for inclusion in future assessments.

Specifically, elements such as *AI governance alignment*, *cloud computing*, *knowledge representation and reasoning (KRR)*, *Knowledge Organization Systems (KOS)* and *ontologies*, and *cloud computing* are not yet systematically integrated into data governance frameworks, despite their growing relevance.

For example, the absence of AI governance considerations may hinder readiness for algorithmic accountability and ethical AI use, while the lack of standardized approaches to *data ontologies* or *knowledge systems* limits semantic interoperability. Similarly, emerging practices such as *certification for digital skills* and *communities of practice (CoP)* are essential to foster long-term institutional capacity and cultural change, particularly in low-trust

or resource-constrained environments. Integrating these forward-looking elements into future versions of the framework will help public sector institutions build resilience, improve cross-border interoperability, and ensure alignment with global digital governance norms.

Key principles of the revised proposed maturity framework: the adoption of an innovative approach that captures and nurtures best practices in terms of the “bigger picture” or “data ecosystem.” By considering all the elements, the maturity assessment framework can provide insights into the most and least mature dimensions, leading to a comprehensive understanding of the current state of data governance.

## CONCLUSIONS

This paper reflects on the assessments carried across three distinct public sector contexts using a structured, multi-component framework. The findings demonstrate that, while foundational efforts are underway in all three cases, public sector data governance remains largely at the nascent to emerging stages of maturity. A key takeaway is the relative balance across the five pillars: Governance & Institutions, Value, Trust, Foundations, and Skills, with no component consistently reaching mature levels.

However, “Trust” emerged as the strongest pillar, highlighting the influence of regulatory efforts and cybersecurity measures, while “Foundations” and “Governance & Institutions” remained the weakest, underscoring persistent fragmentation, lack of coordination, and weak data infrastructure.

Crucially, the assessments surfaced methodological and systemic limitations. The reliance on donor-driven initiatives, the challenges in engaging public sector actors meaningfully, and the predominance of self-reported data raise concerns about sustainability and reliability. These challenges point to the need for greater institutional ownership, localized capacity-building, and investment in independent, regular assessments.

The paper also advocates for a more forward-looking and adaptive data governance framework: one that reflects the rapid pace of technological change driven by AI, big data, and digital transformation. While the piloted assessments covered foundational elements, a

total of 24 sub-components across 5 pillars, the analysis reveals emerging needs for integrating additional sub-components such as AI literacy, alignment with global AI governance, knowledge representation systems (KRR, KOS, ontologies), and adaptive digital skills in future assessments. Thus, the improved framework contains 36 sub-components across 5 main pillars. Integrating these dimensions into future frameworks is essential to ensure that data governance remains robust, ethically grounded, and resilient in the face of emerging digital and algorithmic risks.

The results of this work contribute to the field by:

- Situating public sector data governance within a structured maturity model.
- Proposing an expanded framework responsive to technological and governance shifts.
- Demonstrating the value of participatory and mixed methods approaches in uncovering deeper institutional behaviors and gaps.

In sum, data governance is not just a technical exercise but a strategic imperative.

For governments aiming to become truly data-driven and citizen-responsive, building coherent, inclusive, and future-ready governance structures is fundamental. This analysis serves as a practical and conceptual foundation for public institutions and development partners seeking to move from fragmented initiatives to systemic, high-impact data governance reforms.

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# CONTRADICTIONS BETWEEN GLOBALIZATION AND LOCALIZATION AS A STRUCTURING FACTOR OF CYCLICALITY IN SOCIETAL AND ECONOMIC DEVELOPMENT

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## Andrii GRYTSENKO

Academician of the National Academy of Sciences of Ukraine,  
Doctor of Economic Sciences, professor, State Organization "Institute for Economics and Forecasting of the  
National Academy of Sciences of Ukraine"

<http://orcid.org/0000-0002-5030-864X>  
[and.gryt@gmail.com](mailto:and.gryt@gmail.com)

## Vasylyna PODLIESNA

Doctor of Economic Sciences, associate professor, State Organization "Institute for Economics and Forecasting of  
the National Academy of Sciences of Ukraine"

<https://orcid.org/0000-0002-8435-1013>  
[podlesnw2019@gmail.com](mailto:podlesnw2019@gmail.com)

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## SUMMARY

This article substantiates the central role of the contradiction between globalization and localization in shaping the cyclical nature of socio-economic development. It demonstrates that the most acute manifestation of this contradiction in the current phase of global development is the local-global conflict in Ukraine. The study argues that the contradictions between globalization and localization, once resolved at a certain level and in a specific form, become embedded in the foundation of subsequent phenomena and processes, thereby serving as structure-forming pillars. This mechanism underpins the cyclicity of public-economic development, including its military-economic dimensions. The essence of the contradiction is explored through its characterization as the most developed form of the distinction inherent in jointly-divided labor, alongside the identification of the main historical forms in which these economic contradictions have manifested. It is established that key manifestations of the globalization-localization contradiction include the competition among leading countries for global dominance and the persistence of inter-country inequality. During the crisis-militaristic phases of global cycles, such as long cycles of world politics, Kondratieff cycles, and cycles of hegemony - partial resolutions of these contradictions occur, accompanied by a reconfiguration of the global geopolitical system. The cyclical dynamics of globalization and localization align with long cycles of world politics and cycles of hegemony, particularly their crisis-militaristic phases: during “thirty-year world wars,” globalization processes decelerate and become disorganized; following their conclusion, globalization intensifies once again. It is justified that in the modern world system, the deployment of crisis-militaristic phases of global cycles is beginning, taking on hybrid forms, which is primarily manifested in the unleashing of local-global conflicts, the combination of which forms a hybrid form of “global war”, after the completion of which a new world order will be established.

**Keywords:** globalization, localization, contradictions, jointly-divided labour, world-system, military-economic cycles, crisis-militaristic phases

## INTRODUCTION

The central contradiction of modernity lies in the tension between globalization—driven by advances in information and financial technologies—and the localization of material and labor resources, which cannot move through space at the same speed as financial and informational flows. This contradiction manifests and is resolved in various forms and spheres, including tensions between transnational corporations and nation-states, unipolar and multipolar world systems, globalization and regionalization, and between the individual as a biological being—bounded by space and time—and as a social being—unlimited by spatiotemporal constraints (e.g., Aristotle, Hegel, Marx, Keynes, and others continue to participate in contemporary philosophical and economic discourse, despite no longer existing physically or biologically). The global network allows any local entity to connect with all other components of the system.

The most acute manifestation of the contradiction between globalization and localization is evident in the Russian-Ukrainian war. Although geographically localized on Ukrainian territory, the conflict has acquired a global character due to the provision of military, diplomatic, economic, financial, and informational support from the USA and EU. It represents a local embodiment of a global conflict.

The purpose of this paper is to reveal how the contradictions between globalization and localization act as structure-forming forces driving the cyclicity of socio-economic development. The central hypothesis is that these contradictions, once resolved at a certain level and in a specific form, become embedded in the

foundation of societal development, transforming into structural pillars that shape subsequent phenomena and processes—including military-economic cycles. To address this aim, it is first necessary to understand the structure of this contradiction and its main historical forms of development.

The various manifestations of the contradiction between globalization and localization have increasingly become the subject of targeted research. For example, this tension is examined within multinational enterprises, where globalization entails standardized operations aimed at cost efficiency and brand consistency, while localization involves adapting strategies to cultural and market-specific conditions—impacting both economic outcomes and marketing effectiveness (Turchaninova, 2025). The relationship between globalization processes and the degree of localization of economic activity has also been explored (Baris et al., 2022). Other studies assess the impact of globalization on local entities, including individuals, businesses, and states (Alkharafi & Alsabah, 2025), as well as the current state and consequences of globalization (Jakubik & Van Heuvelen, 2024).

Further research investigates the economic contradictions of globalization and localization through the lens of their historical development and resolution (Economic Contradictions of Globalization and Localization: Forms of Movement and Solutions, 2024). Related studies focus on military-economic cycles in the context of these contradictions, emphasizing the critical role of crisis-militaristic phases in the cyclical development of the world-system and the reconfiguration of the global geopolitical order (Podliesna, 2024).

This study employs the method of ascent from the abstract to the concrete as its overarching methodological framework. This approach incorporates dialectical, logical-historical, and systemic methods, along with institutional, cyclical, world-systems, and problem-chronological analytical perspectives.

Sometimes globalization is analysed as an independent phenomenon, without relation to the manifestations of localization. However, globalization is only one side of the process, which always and everywhere has its other, opposite side, without which neither the process nor its sides exist. This opposite and integral side of globalization is localization. Formally, it is possible to describe various manifestations of globalization, as well

as localization, without reference to their opposites, but it is impossible to understand the essence, internal logic and regularities of their development without this. The essence always consists in contradiction and is revealed through it. “Essence,” wrote G. Hegel, “is, *firstly*, a simple correlation with itself, pure *identity*. This is its definition, according to which it is rather the absence of definitions.

*Secondly*, the true definition is *difference*, partly as an external or indifferent difference, *distinction* in general, and partly as an opposite distinction, or *opposition*.

*Thirdly*, as contradiction, opposition is reflexed into itself and returns to its ground” (Hegel, 1971, p. 29).

## STRUCTURE AND FORMS OF MOVEMENT AND RESOLUTION OF CONTRADICTIONS

Contradiction follows logical stages of development, which are most fundamentally articulated by Hegel. Its movement begins with identity, which already contains an internal difference. For example, a commodity embodies the contradiction between exchange value and use value. A more accessible illustration for non-economists is that of a pregnant woman: she is identical with herself, yet within her exists a difference—her unborn child.

This internal difference then transforms into distinction. In the commodity example, distinction is represented by money, which stands near the commodity and represents its value, rather than being part of it. Both the commodity and money retain within themselves the duality of exchange value and use value—although in the case of money, its use value lies in its capacity to serve as exchange value.

At a further stage, difference—containing identity—and identity—containing difference—relate to each other not merely as distinction, but as opposites, wherein each negates and presupposes the other. As Hegel observed: “Distinction, whose indifferent sides are, just as the essence wholly, only moments as moments of one negative unity, is the opposite” (Hegel, 1971, p. 44).

Returning to the example of the pregnant woman, the distinction becomes the opposition between mother and child after birth. Their subsequent life experiences—upbringing, conflicts, reconciliation, marriage—represent the ongoing movement and resolution of that contradiction.

Hegel summarizes the development of contradiction as follows: “In general, difference contains both its sides as moments; in distinction, they indifferently disintegrate; in contradiction, as such, they are the sides of difference, defined only through each other—hence only as moments—but also defined in themselves, indifferent to and excluding each other: they are independent reflective determinations...

Since an independent reflective determination excludes the other in the same relation in which it contains the other (and therefore is independent), it, possessing independence, excludes from itself its own independence, as the latter consists in containing its opposite determination within itself. The independent reflective definition is thus a contradiction” (Hegel, 1971, p. 55).

The resolution of contradictions is a dynamic process—a mutual transformation of opposites. It is “the continuous disappearance of the opposite [moments] in themselves” (Hegel, 1971, p. 57). This, in general, is how real contradictions are resolved (Marx & Engels, 1955–1983, pp. 113–114). Once resolved, a contradiction becomes the ground for new processes and contradictions. As Hegel wrote: “The resolved contradiction is, consequently, the ground—the essence as the unity of the positive and the negative” (Hegel, 1971, p. 60).

Contradictions are resolved naturally through the emergence of new formations in which opposites find channels for movement, transformation, and synthesis. For instance, the contradiction between use value and exchange value is resolved in money and in the development of commodity-money circulation. Similarly, the contradiction between real money as a measure of value and monetary tokens that lack intrinsic value is resolved through the creation of central banks, which ensure the stability of the monetary system. When contradictions remain unresolved, the subject (along with its contradictions, which constitute its essence) collapses.

Thus, any development begins with identity, which contains internal difference; this difference, once it extends beyond the bounds of identity, becomes distinction, and eventually evolves into opposition. The mutual mediation of opposites—contradiction—serves as the driving force behind the development of the subject of study. Contradiction is the unity of identity and difference. It is identity mediated by difference and

difference mediated by identity—both aspects of the same entity. Unity, in this sense, is identity enriched and transformed through difference.

This transformation—identity → difference → contradiction—is the fundamental form of all development. It reproduces itself like a cell within every subsequent elaboration of the subject. The internal movement of contradiction through the dialectic of identity and difference takes on the forms of absolute difference, distinction, and opposition.

These regular stages of contradiction are inherent in all integral phenomena and express the unfolding of their essence. However, they do not function as a mechanical key that can be applied universally without context. Rather, they serve as a spotlight, illuminating the subject of research in its real, dynamic complexity and allowing us to grasp its various transformed forms without becoming lost in their multiplicity and contradictions.

This methodological approach will now be applied to the study of the contradictions between globalization and localization as a structure-forming factor in the cyclical development of public-economic systems.

## JOINTLY-DIVIDED LABOUR AS A STARTING POINT AND MAIN HISTORICAL FORMS OF THE DEVELOPMENT OF ECONOMIC CONTRADICTIONS OF GLOBALIZATION AND LOCALIZATION

The contradiction of globalization and localization is the most developed form of the difference of jointly-divided labour as a cell from which the socio-economic history of mankind begins (Grytsenko, 2014, pp. 264-269, 323-346). It is from it, as it is proved by social science, that man, division of labour and localization historically develop from the side of division, and society, cooperation of labour and globalization from the side of jointness. As a result of development, jointness reaches its highest historical result in globalization, and division - in localization.

The development of relations of jointness to the global and division to the local level is an interconnected process passing through logic stages. Labour as an activity of people aimed at adaptation and processing of objects of nature for satisfaction of human requirement also historically develops. It has two fundamental elements in its internal structure (in the aspect of delimitation between the public-human and natural-technical moments): 1) goal-setting and 2) work. Goal-setting remains a purely human activity which underlies human subjectivity, while work is an energetic process that can be separated from man and, thanks to the mechanization and automation of production processes, placed near to him. Human activity, therefore, largely loses the characteristics of labour as work, remaining predominantly activity as purposefulness. The cybernetization of management processes brings automation to the level of formal-logical operations, but does not touch the fundamental - goal-setting. A human person remains a human person as long as he is a actor subject setting his own goals, including artificial intelligence. If he loses this, he ceases to be a subject, turning into a tool, a means of achieving the goals of another subject.

From the point of view of the development of the correlation of jointness and division in connection with technological progress can distinguish: simple cooperation, manufactory and machine production. In simple cooperation, the correlation of jointness and division is an identity that includes difference. People

work jointly collectively. This means that all labour is divided among them, and each performs only a part of the labour which must be coordinated, combined with other parts. The compatibility of labour at the same time means its division. It is one and the same labour, which in definition of jointly-divided labour is an identity that includes difference. In manufactory, which is based on the division of labour and the production of a partial product by different workers, the division of labour and its jointness are different relations, separated in space and time. Their jointness is not achieved directly, as in cooperation, but indirectly - through the produced partial product. Jointness and division here remain at the stage of distinction. Finally, when the development of the division of labour and exchange reaches the point of establishing of the dominance of commodity-money relations, which corresponds to the capitalist mode of production and the transition to large-scale machine production, the division represented by the produced commodity and its public jointness (the possibility of its inclusion in the general process of public reproduction through sale on the market) represented by money as a universal equivalent., become opposites, mutually exclusive and presupposing each other.

The emergence of large-scale machine production in this process, as is known, becomes the material basis for the periodicity of crises, the main cause of which is the contradiction between the public character of labour, as a manifestation of globalization, and private-capitalist appropriation, as a manifestation of localizations. Since that time, the movement of the contradictions between globalization and localizations in the sphere of the economy acquires a natural cyclical character. Although cyclicity is not limited to this. Its manifestations are diverse.

The above-described movement of the relationship of jointness and division occurs on the basis of division: on the basis of division of labour and market development. But there is an opposite process of movement of the relationship of jointness and division on the basis of jointness. It begins with the subjectivization of the

function of representing common interests and ensuring their jointness, which is a process of management. Initially this is expressed in the selection of leaders in the process of cooperative labour. Leaders had more experience and were better at ensuring coordination and success of actions. Then councils of leaders and similar formations arise, which had to better ensure the realization of common interests of the members of the corresponding social formation. And, finally, the state arises as a special institution for representing the common interests of the members of society.

These two lines of development of the ratio of jointness and division have their own history of relationship. In primitive society, the lines of development of jointness and division are practically identical; they are in a state of syncretism. In further history, the development of the state, as a representative of common interests and a subject of society management, is separated from the development of simple commodity production and commodity-money relations, which have private interest as their ground. These processes become different, only externally interacting with each other. In principle, commodity production can exist without the state, and the state - without commodity production.

Finally, in the conditions of capitalist society, where market relations acquire a universal character and the state relies on a market economy, the market and the state become complementary opposites, excluding and presupposing each other. The market penetrates the state as its own element, because the revenues and expenses of the state budget, which financially ensure all activities of the state, are formed in monetary form, and the state is present in the market not only as a regulator, but also as a guarantor of the legality of each market agreement and the rights of its subjects.

Therefore, long-standing discussions about how much government should be in the economy are based on almost untrue abstractions. First, the market is attributed the ability to solve all economic problems, and when it's revealed that it cannot, it is called a market failure. This is the same as calling the failure of a hippopotamus the inability to fly. Such a property is not in its nature, as well as the market is only a mechanism for coordinating private interests, not for representing the interests of society as a whole, which by its nature the state should do. The market and the state must fully perform their own functions. Therefore, instead of discussing how

much the state should be in the economy, should proceed from the necessity of their complementary interaction (Grytsenko, 2021).

Thus, the market and the state became opposite embodiments of jointly-divided labour. Further, the division of labour goes beyond national states and forms a global market, while states always remain national and, in this sense, local entities limited by certain territories, material and human resources.

The contradiction of globalization and localization is the most developed form of the difference of jointly-divided labour. Before the development of the international division of labour and economic development of the world space, the contradiction of globalization and localization developed in an implicit form, and only the era of major geographical discoveries and the formation of the world market transformed this contradiction into an open and very intensive process, which also has natural stages of development.

The development of globalization in its explicit and clearly defined forms began with trade and the migration of human resources, both of which altered spatial localization within the global economic landscape. Subsequently, the migration of capital—as a form of value that generates surplus value—took precedence. Capital, moving through economic space, either locates the necessary localized resources or relocates them. At this stage, globalization shifted from the movement of tangible resources to the financial sphere.

Eventually, with the rise of the information-network economy and the gradual transformation of information into the primary resource and output of production, globalization entered the virtual sphere, where conventional notions of space and time are redefined. Information and financial resources—though physically localized and temporally dispersed—can now be integrated into a single production process that occurs here and now in virtual space. This represents the localization of global space-time, the local manifestation of the global, and the realization of the local within the global.

At the same time, the cyclical manifestations of the contradiction between globalization and localization across different societal spheres have grown increasingly complex.

## THE MILITARY-ECONOMIC COMPONENT OF CYCLICALITY IN SOCIETAL AND ECONOMIC DEVELOPMENT IN THE CONTEXT OF THE CONTRADICTION BETWEEN GLOBALIZATION AND LOCALIZATION

Since the emergence of the capitalist world-system (the “long” 16th century, i.e., around 1450) and throughout its development to the present day, there has been a cyclical alternation between periods of intensified globalization and phases of disintegration, during which localization processes strengthen. The cyclical dynamics of the

development of the capitalist world system were most clearly manifested in the military-political and economic situation of the leading countries of Western European civilization, which had a decisive influence on the pace and direction of development of other civilizations.



Under capitalism, global cycles are shaped by the dynamics of the contradictory interaction between the political and economic systems of the most developed countries at the core of the capitalist world system. This dynamic inevitably influences the development of the rest of the world, setting its cyclical rhythm, which has individual characteristics in each country on the semi-periphery and periphery of the capitalist world system. This creates the basis for the formation and periodic partial resolution of contradictions between globalization processes and localization.

Globalization, which primarily benefits the leading countries of Western civilization, often clashes with localization, which provides a basis for developing and emerging market countries to assert their political and economic interests. Thus, inter-country inequality is not only a core driver but also a manifestation of the contradiction between globalization and localization. The partial resolution of the contradiction between globalization and localization, and as a result, the reformatting of the global geopolitical system, is taking place in the process of the unfolding of the crisis-militaristic phases of global cycles, among which long cycles of world politics, Kondratiev cycles, and cycles of hegemony play a decisive role.

In the course of inter-civilizational competition (between Western European, Slavic, Chinese, Hindu, Islamic, Latin American, Japanese, and African civilizations), there are periodic periods of profound intensification of contradictions between their leading countries, caused by the struggle for world leadership, and thus also between the allies and satellite countries of the opposing sides.

Historically, the resolution of such contradictions has occurred through military means, in the form of “proto-global” and “global” wars. The totality of military-political and socio-economic processes arising during the aggravation and resolution of these contradictions defines the crisis-militaristic phases of global military-economic cycles. These unfold through military conflicts whose outcomes shape the partial resolution of inter-civilizational contradictions and determine the balance of power within regional and global geopolitical systems (Podliesna, 2024).

The main result of the crisis-militaristic phases of global military-economic cycles is the establishment of the hegemony of a new leader of the global geopolitical system, or the systemic transformation of the old leader who has retained its dominance (Podliesna, 2022). The hegemon of the global geopolitical system determines the long-term direction of civilization’s development. Each historical form of geopolitical domination by the leader of the world system, which was established as a result of a “proto-global” or “global” war, gave rise to the preconditions for the next war - contradictions caused by inter-civilizational, inter-country, and, at the deepest level, inter-class inequality. Inter-civilizational and inter-country inequality is generated, first and foremost, by the hierarchical nature of the world system, in which,

according to I. Wallerstein, hegemonic state sets the rules of the game for the entire inter-state system, dominates the world economy, is the leader in production, trade, and finance, achieves political decisions that are convenient for it, using military force minimally, while being militarily strong, and forms the cultural lexicon used by the whole world (Wallerstein, 2004).

The allies of the hegemon also enjoy certain privileges in conducting economic and political activities at the global level, which prompts other countries, deprived of such advantages, to form formal and informal local coalitions. Thus, inter-country inequality is generated by the hierarchical nature of the global geopolitical system and largely expresses and determines the contradiction between globalization and localization.

In the unfolding of military-economic cycles as a mechanism for expressing and resolving this contradiction, not only socio-economic and military-political, but also civilizational value-based contradictions play a critical role. Although capitalism seeks to dissolve civilizational boundaries by imposing institutional uniformity and subordinating all societies to its economic logic, many non-Western civilizations, though integrated into Westernized globalization, retain essential civilizational characteristics. This persistence reinforces the globalization-localization contradiction—even amid comprehensive digitalization, which enhances global connectivity and increases the soft power potential of technologically advanced states.

Within the capitalist world-system, information confrontation has become a core dimension of geopolitical rivalry. This periodically escalates into active information wars, often coinciding with the crisis-militaristic phases of global cycles. These confrontations tend to intensify prior to and during such phases, providing the ideological groundwork for military conflict, which in the 21st century increasingly takes hybrid forms.

Today, with the completion of the “coalition building” phase in the unfolding of the current long cycle of world politics and the approach of the “macrodecision” phase, the information confrontation between the leading actors in geopolitics is becoming a global information war, in which inter-civilizational value conflicts are becoming increasingly pronounced and vivid.

The cyclical dynamics of globalization and localization under industrial capitalism (18th century – first half of the 20th century), as well as under the formation of the post-industrial economy (1960s to the present day) is coordinated with the unfolding of cycles of hegemony and long cycles of world politics. This coordination is manifested, first and foremost, in the slowdown and disorganization of globalization processes in the context of prolonged intensification of global military-political confrontation – the “thirty-year world wars” – and in the subsequent wave of intensified globalization processes following the end of each successive “thirty-year world war.”



For instance, the “macrodecision” phases of the 8th and 9th long cycles of world politics (1792–1815 and 1914–1945, respectively) (Modelski, 1995) correspond to the chronology of two “thirty-year world wars” 18–20th century that resulted in British hegemony in the 19th century (following the Napoleonic Wars) and U.S. hegemony in the mid-20th century (following the Euro-Asian wars of 1914–1945) (Wallerstein, 1983).

During the Napoleonic Wars, the Continental Blockade – a system of economic and political sanctions imposed by Emperor Napoleon I in 1806 against Great Britain – The Treaty of Tilsit (June 25, 1807) and the decision by the United States to close its market to all parties involved in the war in Europe led to the disruption of international trade due to the artificial disruption of trade relations. The end of the 19th century and the beginning of the 20th century were a period of culmination of globalization processes. This was due to the scientific and technological revolution, which stimulated an increase in world trade, capital flows, and

migration flows between Western Europe and America.

Between the First and Second World Wars, international trade reduced significantly. The Great Depression of the 1930s led to increased government regulation. Free trade and the free movement of capital were replaced by trade protectionism, the need to form a new international financial system became apparent. The period between the two world wars in the 20th century was characterized by a significant slowdown in globalization processes.

The cyclical nature of global political and economic development is clearly reflected in the cyclical change of international trade regimes, coordinated with the unfolding of geopolitical processes in such a way that during the crisis-militaristic phases of global cycles, foreign trade relations are conducted in accordance with protectionist policies, and after their completion, the capitalist world system enters another wave of free trade, in a form that is adequate to the specific historical conditions (Table. 1).

**Table 1.**

*Coordination of international trade regimes with geopolitical cyclicity in the context of globalization and localization*

Period	Form of international trade regime dominating the world-system	Phases of long cycles of world politics
mid-19th century – 1914	Free Trade Transitioning into “The Imperialism of Free Trade”	- “Agenda - setting” (1850-1873) <i>of the ninth long cycle of world politics</i> , - “Coalition-building” (1873-1914) <i>of the ninth long cycle of world politics</i>
<b>1914 – mid-XX century</b>	<b>Protectionism</b>	- <b>“Macrodecision” (1914-1945) of the ninth long cycle of world politics</b>
mid-XX century – early 2020s	Globalization	- “Execution” (1945-1973) <i>of the ninth long cycle of world politics</i> , - “Agenda - setting” (1973-2000) <i>of the tenth long cycle of world politics</i> , - “Coalition-building” (2000-2026) <i>of the tenth long cycle of world politics</i>
Since 2022 – beginning 2050s -?	<b>Strengthening Protectionism Tendencies</b>	<b>“Macrodecision” (2026-2050) of the tenth long cycle of world politics</b>

Source: Compiled on the basis of: Modelski, G. (1995). The Evolution of Global Politics. *Journal of World-Systems Research*, 1(7), 424-467. <https://doi.org/10.5195/jwsr.1995.38>

The British Empire, as the hegemon of the world-system in results the “macrodecision” phases of the 7th and 8th long cycles of world politics (1688–1714 and 1792–1815, respectively) (Modelski, 1995), and having achieved undisputed industrial leadership by the mid-19th

century, transitioned from a protectionist trade policy to the global promotion of free trade principles, which proved highly advantageous given its technological superiority.

In the 20th century, during the crisis-militaristic phase of the world-system's cyclical development—encompassing the First World War, the Great Depression, and the Second World War—protectionism once again prevailed, driven by the desire of opposing geopolitical blocs to achieve relative autarky. Following the conclusion of the “macrodecision” phase of the ninth long cycle of world politics, the United States emerged as the dominant force in the capitalist world-system, establishing political-economic, cultural-ideological, and technological leadership. It was the U.S. that initiated and became the primary driver of a new wave of globalization, characterized by the liberalization of international trade.

Today, the “macrodecision” phase of the tenth long cycle of world politics is beginning to unfold, and the global economy is entering a renewed period of protectionism. One of the most significant drivers of this trend is the tariff and sanctions policy of the United States, which is now actively engaged in a struggle to retain its status as global leader. Local-global conflicts—new (Ukraine) and ongoing or reignited (Syria, , the armed conflict in Gaza, India–Pakistan)—constitute components of a hybrid “global war”, which is expected to bring about the resolution of aggravated geopolitical contradictions and the emergence of a new global geopolitical hierarchy. Following this, and consistent with the historical pattern of cyclical alternation between free trade and protectionism, a new phase of liberalized international trade is likely to begin, reigniting globalization in forms suited to the information-network society.

The local-global conflict in the European region, which is currently unfolding in the form of a large-scale Russian-Ukrainian military-political conflict, has the potential to initiate a military confrontation of antagonistic military-political blocs at the global level.

In many respects caused by the fact that, according to Z. Brzezinski (2016), in Eurasia, which occupies an axial position in geopolitical terms and plays the role of a chessboard on which the struggle for world domination takes place, Ukraine is such a geopolitical center, without control over which Russia is not able to recreate the Eurasian empire.

Based on the chronology of the deployment of the “macrodecision” phases of long cycles of world politics, which in historical retrospect lasted at least 30 years, in 2026-2050 there will be a militarization of the economies and societies of countries - active participants in the geopolitical standoff.

It was the local-global conflict in Ukraine that initiated a new cycle of economic militarization, which is primarily reflected in the growth of arms sales on a global scale, as well as in the adoption by leading geopolitical actors of long-term strategic plans for the development of the defense industry and the enhancement of defense capabilities. In particular, the EU has adopted an ambitious action plan to strengthen its security and defense policy until 2030 – the defense concept “Strategic Compass for Security and Defense”, as well as

the “Strategic Agenda for 2024-2029”, which addresses improving conditions for the expansion of the European defense industry (European Parliament, 2024).

The war in Ukraine has also triggered significant disruptions in global financial, food, and energy flows, slowing the pace of globalization (Stanley, 2023) and laying the groundwork for another wave of protectionism in the cyclical development of the global economy.

After World War II, a bipolar world emerged, existing in a state of “cold war” and consisting of the capitalist world system and the geopolitical bloc of socialist countries. Despite the hostility of the Cold War, globalization continued, shaped by the economic and political interaction between these opposing blocs. The capitalist component of globalization evolved within the capitalist world-system, driven by the expansion of transnational capital, while within the socialist bloc, globalization took a different form—one rooted in the economic integration of centrally planned economies, but also in their need for trade with the capitalist world.

The necessity for inter-bloc trade was primarily driven by scientific and technological progress, whose implementation required both resources and knowledge exchange. Thus, despite ideological confrontation and constant geopolitical rivalry, the cyclical civilizational process necessitated a degree of cooperation.

The USSR and its allies played a significant—and at times decisive—role in shaping the cyclical dynamics of the capitalist world-system. Their influence was most pronounced during the Second World War, the outcome of which redefined the global geopolitical structure and shaped the economic environment of the ninth long cycle of world politics. According to J. Modelski (1995), the “macrodecision” phase of this ninth cycle concluded with the establishment of U.S. global hegemony.

However, this hegemony was fully realized only after the collapse of the USSR—the leading power of the Eastern bloc—and lasted until the onset of the 2008 global economic crisis (the Great Recession). That crisis marked the beginning of a series of political and economic developments that have since contributed to the current domestic instability in the United States and the gradual erosion of its uncontested leadership in the global system.

Structural Demographic Theory (SDT) offers tools to forecast future dynamics of social unrest and political violence within specific societal systems. In 2010, using SDT, P. Turchin predicted that “the next decade is likely to be a period of growing instability in the United States and Western Europe.” This forecast was based on a model that quantified structural drivers of socio-political instability, such as stagnating or declining real wages, a widening gap between rich and poor, overproduction of university graduates, rising public debt, and declining trust in public institutions. According to this model, the year 2020 was expected to mark a sharp spike in instability—a prediction that was fully realized (Turchin, 2021).

In general, P. Turchin's works suggest that the modern political and economic system of the United States exists in conditions where the century cycle, the cycle of fathers and children, the "youth hump", and the Kondratiev cycle overlap in such a way that their pressure on the structure of society will peak around 2020. Under such conditions, internal instability has intensified and internal contradictions within the leader of the modern world system, the US, have become more acute, leading to the total destabilization of the global geopolitical system and the beginning of a crisis-militaristic stage in its cyclical development, which is what we are witnessing today.

The onset of this crisis-militaristic phase is also shaped by demographic processes—particularly record global population growth—and the escalating competition for resources, including those essential to the Fourth Industrial Revolution's core innovations.

In this context, J. Goldstone's Structural Demographic Theory is particularly relevant. Goldstone argues that population growth, while not directly causing state crises, destabilizes states by straining economic, political, and social institutions (Turchin, 2003). The theory of "structural-demographic cycles" suggests that periods of crisis in their unfolding are primarily resource crises, one of the determining factors in their formation being increased competition for resources, primarily factional struggle among elites.

At the global level, this resource competition manifests in cyclical rivalries among major geopolitical actors for spheres of influence. Today, one of the factors exacerbating global geopolitical confrontation is the rapid development of the digital economy, which is becoming increasingly resource-intensive.

As digital devices become more complex, they require a broader range of mineral inputs: in 1960, phones were made with 10 elements from the periodic table; in 1990, 27; and by 2021, 63. Consequently, demand for critical minerals—essential to both digital and low-carbon technologies—is rising dramatically. For instance, the World Bank projects that demand for cobalt, graphite, and lithium could increase by 500% by 2050. Access to these minerals is now a strategic priority for many nations, intensifying global competition and elevating the risk of geopolitical conflict (UNCTAD, 2024).

Today, global instability has reached a level of turbulence. The USA, UK, and EU countries, on one side, and post-Soviet states—particularly Russia—and China, on the other, act as catalysts for escalating geopolitical rivalry to the point of hybrid warfare. In the most general sense, there is currently an intensification of contradictions between the civilization of the global West and the civilization of the global East, which means that the project of Westernized globalization is undergoing a profound crisis. In the context of global cyclicity, this likely marks the end of the long-standing dominance of Western European civilization.

Such phases of long cycles of world politics as "coalition building" and "macrodecision" are periods of slowdown in globalization processes and intensification of localization trends. In conditions of "coalition building," the decentralization of the world system intensifies, the weakening of the global leader becomes increasingly apparent, states that are potential contenders for global leadership grow stronger, and geopolitical alliances are reformatted. All of which affects the global economy and the cultural and information space, where the unquestionable authority of the global leader is being undermined.

Historically, macrodecision phases have taken the form of 30-year global confrontations between opposing coalitions—though today more than two such coalitions may be involved. In these prolonged "global wars," geopolitical blocs aim for relative economic self-sufficiency (to the extent possible under capitalism) and erect ideological and cultural "iron curtains." These trends not only slow down globalization but may also reverse it. Within each of the phases of "coalition building" and "macrodecision", which slow down globalization and promote localization, contradictions arise between the interests of capital, whose ability to accumulate is enhanced by globalization in non-military spheres of public life, and the interests of capital that profits from militarization.

No matter how powerful military-industrial capital may be, non-military spheres of social production are more important for the process of social reproduction and, in general, for ensuring the viability of society. Therefore, crisis-militaristic phases of global cycles are inevitably followed by phases of post-war recovery and economic growth, and thus by a revival and subsequent intensification of globalization processes, which renews the position of non-militaristic capital.

From the beginning of the "long 16th century" to the present day, Western civilization has achieved the greatest success in inter-civilizational competition, implementing a globalization project since the Age of Discovery, in which it occupied a dominant position, was a technological and economic leader, and set ideological and cultural benchmarks for development for the whole world and Western European values have generally become the benchmark for civilizational progress.

However, now that the world system has entered another crisis-militaristic period of its cyclical development, Slavic, Chinese, and Hindu civilizations, based on the mobilization and synergy of their collective actions, are capable of creating an alternative to the dominance of Western civilization and, therefore, to the Westernized model of globalization.

## CONCLUSIONS

Thus, the contradictions between globalization and localization—historically rooted in the development of the jointly divided labor system serve as a source of progressive societal development and underlie its cyclical nature. These contradictions manifest across different stages of societal evolution in various forms, including the cyclical dynamic of the “peace-war” system, which has now acquired a hybrid character due to the growing significance of the military-economic dimension of global cycles.

Today, the intensification of the contradictions between globalization and localization has led to a critical escalation in the geopolitical confrontation among leading global actors vying for world leadership. Since the onset of the “long 16th century”, the dominant powers of the world-system have been countries of Western European civilization. In the current circumstances, at the beginning of the “macrodecision” phase of the 10th long cycle of world politics, the leading countries of all other — non-Western — civilizations are entering the struggle for world leadership, and this struggle will continue for about 20-30 years.

The present crisis-militaristic stage of the world-system’s cyclical development is driving greater integration within military-political blocs, thereby reinforcing processes of localization. At the same time, under the conditions of transnational capitalism, even opposing blocs are compelled to maintain trade and economic relations to prevent the collapse of their political-economic systems. Therefore, economic globalization is slowing down but not stopping, even amid the unfolding of another crisis-militaristic phase in the cyclical development of the world system, while transnational capital increases its profits through militarization and benefits from the redistribution of spheres of influence. In other words, today globalization, like localization, is taking place in hybrid forms.

The increasing complexity of the modern capitalist world-system, the expansion of information-network forms of interaction among geopolitical actors, and the mounting instability resulting from systemic

contradictions—particularly between globalization and localization—have led global cyclical processes to acquire emergent forms. These are characterized by unpredictable interactions among geopolitical actors and the use of unconventional methods for resolving contradictions and conflicts.

Currently, the deployment of crisis-militaristic phases of global cycles is taking place in hybrid forms, already evident in the emergence of local-global conflicts whose cumulative effect constitutes a hybrid form of “global war.” This serves as the expression of the “macrodecision” phase of the long cycle of world politics.

The most significant influence on global cyclical dynamics today is exerted by the local-global conflict in Ukraine, which is unfolding in the form of a large-scale Russian-Ukrainian military-political conflict, the intensified hybrid conflict in Syria, and the Israeli-Palestinian conflict, which alternates between escalation and de-escalation. In April 2025, another escalation of the Indo-Pakistani conflict began, followed by the Iranian-Israeli conflict in June 2025.

These military-political conflicts are both a concentrated expression of the intensification of geopolitical contradictions generated by the struggle of leading geopolitical actors for hegemony in the world system, which allows them to derive the greatest benefit from globalization, and a means of partially resolving them. The localization of military actions is used as a tool to reduce the scale of the negative consequences of the military method of resolving contradictions that have intensified in the global geopolitical system. At the same time, the concentration of military violence and its consequences in specific countries creates a global information effect in the context of global information connectivity, which influences to one degree or another the political processes and economic conditions of all countries in the world. In other words, there is a completely contradictory, interdependent, cyclical unfolding of global and local processes that shapes the development of civilization as a whole.

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## AUTHORS' CONTRIBUTIONS

- Conceptualization: Andrii Grytsenko, Vasylyna Podliesna
- Methodology: Andrii Grytsenko, Vasylyna Podliesna
- Formal analysis: Andrii Grytsenko, Vasylyna Podliesna
- Investigation: Andrii Grytsenko, Vasylyna Podliesna
- Writing – original draft: Andrii Grytsenko, Vasylyna Podliesna
- Writing – review & editing: Andrii Grytsenko, Vasylyna Podliesna
- Supervision: Andrii Grytsenko
- Project administration: Andrii Grytsenko



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# SPIRITUALITY AND QUALITY OF LIFE: THE ROLE OF NEW AGE MOVEMENTS IN POST-COMMUNIST ROMANIA

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**Mihaela DRAGOMIR**

PhD Candidate, Moldova State University, Doctoral School of Social Sciences

<https://orcid.org/0009-0000-1667-3152>

[mihaeladragomir@gmail.com](mailto:mihaeladragomir@gmail.com)

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## SUMMARY

This paper investigates the intersection of spirituality and quality of life in post-communist Romania, emphasizing the rise of New Age movements such as yoga, Reiki, astrology, and energy healing. Drawing on existing academic literature, historical accounts, and sociological theory - complemented by an original quantitative survey conducted in June 2025 - the research explores the socio-cultural implications of these spiritual practices. Romania's spiritual evolution is examined across three historical phases: the interwar period marked by Orthodox dominance and esoteric experimentation, the communist era characterized by religious repression, and the post-1989 era defined by spiritual liberalization and global wellness culture. The article is grounded in multiple theoretical frameworks: Secularization Theory, Subjective Well-Being Theory, Social Identity Theory, and Postmodern Consumer Culture Theory. These models contextualize the emergence of spirituality as a tool for psychological resilience and social affiliation amid institutional erosion and neoliberal transitions. Data from a June 2025 online survey on a sample of 102 respondents engaged in spiritual practices, including yoga, meditation, and energy healing, reveal high levels of participation among women with higher education from urban area, with notable associations between spiritual engagement, perceived emotional resilience, and overall life satisfaction. This interdisciplinary, mixed-methods analysis contributes to understanding how post-communist societies negotiate well-being, belonging, and personal meaning in an era shaped by rapid cultural and economic transformations.

**Keywords:** *New Age movement, quality of life, social identity, spirituality, well-being*

## INTRODUCTION

The transformation of Romania's social and spiritual landscape following the fall of communism has given rise to new avenues for self-exploration and well-being. Among these, New Age spiritual movements have emerged as prominent alternatives to both traditional religion and secularism, offering individuals pathways to meaning, self-development, and social belonging. The present article aims to examine how such movements contribute to quality of life of the participants in Romania, addressing both their psychological and sociological implications. The decision to focus on this subject, stems from the growing popularity of New

Age practices in Romanian cities, alongside a broader global trend in wellness culture. Existing literature on post-communist transitions, secularization, and alternative spirituality highlights the impact of such movements on identity construction and well-being. However, little research has specifically examined their role in Romania within the broader historical context of religious suppression, neoliberal expansion, and cultural transformation. The analysis seeks to fill this gap by providing an interdisciplinary analysis that connects historical shifts, social identity, and quality of life.

## METHODOLOGY AND THEORETICAL FRAMEWORK

The inquiry was conducted using a secondary research methodology, incorporating historical analysis, sociological theories, and discourse analysis of media representations of New Age spirituality in Romania. The study reviewed academic sources, historical records, and qualitative research findings to assess how New Age movements shape perceptions of quality of life in post-communist urban settings. The paper begins by exploring the historical and sociological evolution of spirituality in Romania, tracing its transformation across different periods and cultural shifts. It then delves into the research approach, highlighting the theoretical perspectives and methodologies that shape the analysis. The discussion that follows examines the intricate relationship between spirituality, well-being, and identity, revealing how New Age movements have influenced personal fulfillment and social belonging. In the final section, the paper reflects on the broader impact of these spiritual practices on quality of life and considers potential directions for future research in this evolving field. Complementing the theoretical exploration, a quantitative survey was conducted in

June 2025 on a sample of 102 participants engaged in New Age spiritual practices in Romania.

A mixed-methods design is employed, combining a literature-based qualitative analysis with original quantitative data to examine the role of New Age spirituality in shaping quality of life in post-communist Romania. The qualitative dimension draws on an extensive interdisciplinary literature review, incorporating historical, sociological, and cultural perspectives to trace the evolution of Romanian spirituality across three key periods: the interwar era, shaped by Orthodox hegemony and emerging esoteric thought; the communist period, marked by state-imposed atheism and suppression of religious expression; and the post-1989 phase, characterized by spiritual liberalization, global wellness culture, and the increasing visibility of alternative spiritual movements.

This conceptual foundation is informed by several theoretical frameworks. Secularization Theory provides a lens to understand how modernity and political transition have reshaped spiritual expression in

Romania. Following the fall of communism, the spiritual landscape did not revert solely to Orthodox religiosity but diversified to include personalized, non-institutional forms of spirituality. As argued by Dungaciu (2004), the Romanian case reflects broader Eastern European trends where the weakening of institutional religion has created space for pluralistic and experience-based spiritual engagements. The rise of practices such as yoga, Reiki, astrology, and neopaganism signals a shift from doctrinal adherence to individualized belief systems embedded in global cultural flows.

Complementing this, Subjective Well-Being Theory (Diener, 1984) frames spirituality as a potential contributor to life satisfaction, emotional stability, and psychological health. Particularly in post-communist societies where socio-economic upheavals have disrupted traditional identity structures, individuals may turn to spiritual practices as tools for self-regulation, meaning-making, and stress management. These practices align with the theory's emphasis on internal perceptions of well-being over material or structural conditions, offering pathways to resilience and personal fulfillment.

In addition, Social Identity Theory (Hogg, 2016) offers insights into how participation in spiritual groups, whether online or in-person, shapes individual and collective identities. New Age communities often emphasize belonging, shared values, and personal growth, providing psychological and social benefits comparable to those of traditional religious institutions. Meanwhile, Postmodern Consumer Culture Theory helps illuminate the commodification of spirituality within Romania's neoliberal context, where wellness and self-care are increasingly marketed as consumable experiences. Practices once rooted in mysticism or healing are now packaged in coaching sessions, mindfulness apps, and spiritual retreats, reflecting the broader cultural logic of individual optimization and lifestyle branding.

To reinforce the theoretical exploration with empirical evidence, a structured online survey was conducted between 18–25 June 2025 on a sample of 102 respondents from Romania who engage in New Age spiritual practices, including meditation, yoga, Reiki, and astrology. While not statistically generalizable, the survey aimed to explore patterns of spiritual engagement, perceived emotional and psychological benefits, and institutional trust, offering empirical support to the broader conceptual analysis and adding measurable insights into the subjective dimensions of well-being. The questionnaire, disseminated via social media platforms, wellness blogs, and Facebook groups, gathered information on demographics (age, gender, education, residence), the type and frequency of spiritual practices, perceived benefits such as life satisfaction and emotional resilience, and levels of trust in both institutional religion and alternative spiritual communities.

The respondents were predominantly urban (92%), female (91%), and highly educated, with 80% holding university or postgraduate degrees. Most participants practiced spirituality weekly or more often, and more than half had been involved for over three years. Survey data revealed significant associations between frequent spiritual practice and enhanced subjective well-being, including reduced stress and greater emotional balance. These empirical insights enrich the theoretical discussion by illustrating how contemporary spiritual practices operate not only as personal coping mechanisms but also as culturally embedded responses to post-communist transformation and existential uncertainty.

The research is exploratory in nature, aiming to investigate underexamined aspects of spiritual engagement and its perceived impact on well-being in contemporary Romanian society. The goal is not to produce generalizable results, but to map tendencies and raise questions for future empirical testing.

## HISTORICAL AND SOCIOLOGICAL CONTEXT OF SPIRITUALITY IN ROMANIA

### *The Interwar Era (1918–1947): Orthodox Dominance and Esoteric Influences*

The interwar period in Romania was marked by a strong national identity intertwined with Orthodox Christianity, which played a central role in shaping both societal values and state ideology. Following the unification of Greater Romania in 1918, religion became a key pillar in reinforcing a sense of national unity and cultural continuity. The Romanian Orthodox Church held considerable influence over education, politics, and public morality, maintaining a close relationship with the state. In rural communities, which made up the majority of the population, religious rituals and church attendance remained fundamental aspects of daily life. Spirituality was deeply embedded in folklore, traditional beliefs, and local customs, blending Orthodox teachings with older, pre-Christian superstitions. However, despite this dominance, the interwar period also

witnessed the rise of esoteric and mystical movements, particularly among Romania's intellectual and artistic circles. Inspired by global trends in theosophy, Eastern philosophies, and Western esotericism, these movements introduced alternative perspectives on spirituality that contrasted with institutionalized religion. One of the most notable figures of this era was Mircea Eliade, who explored the study of mysticism, yoga, and comparative spirituality (David, 2012). Eliade's works, influenced by his personal experiences in India, helped introduce Eastern spiritual practices such as meditation and asceticism to a Romanian audience. Similarly, other scholars and writers, particularly those involved in avant-garde cultural movements, began integrating esoteric and occult elements into their philosophical and literary explorations.

A pivotal figure in this esoteric landscape was Marcel Avramescu. In 1934, he founded *Memra*, the only Romanian esoteric periodical of the time (Buleu, 2012), which served as a platform for discussions on mysticism, Kabbalah, and other esoteric subjects. Beyond his editorial work, Avramescu was an avant-garde poet and writer, publishing articles under pseudonyms like Jonathan X., Uranus and Mark Abrams. His writings, featured in Tudor Arghezi's magazine *Bilete de Papagal*, showcased his engagement with contemporary artistic movements and his exploration of esoteric themes. Later in life, Avramescu experienced a spiritual transformation, converting to Orthodox Christianity. He graduated from the Theology College in 1948 with a thesis on the New Testament and Kabbalah, reflecting his continued interest in mystical traditions. Subsequently, he became an Orthodox priest, serving in various locations including Bucharest, Tulcea, Văliug, and Jimbolia. Avramescu's multifaceted contributions, ranging from his editorial endeavors and literary works to his spiritual journey, underscore his significant role in shaping Romania's esoteric and religious landscape during a period of cultural transformation.

Concurrently, the Symbolist movement in Romania, active since the late 19th century, continued to influence the cultural milieu during the interwar years. This movement, characterized by its cosmopolitanism and endorsement of Westernization, promoted a distinctly urban culture that often incorporated esoteric themes. Romanian Symbolists assimilated elements of France's Symbolism, Decadence, and Parnassianism, contributing to a rich tapestry of literature and visual arts that subtly challenged traditional religious narratives. These developments indicate that, despite the overarching influence of Orthodox Christianity, there was a vibrant undercurrent of esoteric exploration in Romania's interwar period. Intellectuals and artists sought alternative spiritual expressions, contributing to a diverse and dynamic spiritual landscape. For a more comprehensive understanding of this period, the article "Esotericism in Romanian Religious History" (Băncilă, 2023) provides an in-depth analysis of the indigenization of various esoteric currents in Romania.

These esoteric currents, while not mainstream, played a crucial role in diversifying the spiritual and cultural expressions of interwar Romania, leaving a lasting impact on its religious and intellectual history. While Orthodox Christianity dominated public life, emerging esoteric movements among elites created a parallel spiritual discourse that warrants further comparative analysis with Western European trends. Despite these intellectual developments, mainstream Romanian society remained deeply rooted in Orthodox traditions, and alternative spiritual movements never gained mass appeal during this period. However, they laid the groundwork for later developments in Romanian spirituality, particularly in the post-communist era, when New Age movements and Eastern philosophies resurfaced as tools for self-discovery and well-being. The interwar period thus represents a complex

intersection of religious conservatism and intellectual experimentation, where Orthodox Christianity maintained its grip on the general population while esoteric ideas quietly influenced a subset of Romania's cultural elite.

### *The Communist Era (1947–1989): Suppression and Underground Spirituality*

During the Communist era in Romania (1947–1989), the state pursued an aggressive anti-religious campaign aimed at eradicating religious faith and practice from society. Under the doctrine of Marxist–Leninist atheism, religion was viewed as an ideology of the bourgeoisie, incompatible with the principles of socialism. Consequently, the regime sought to suppress religious institutions and promote atheism as the state ideology (Pascan, 2023).

The Romanian Orthodox Church, as the predominant religious institution, faced significant challenges during this period. While the church was not officially abolished, it was subjected to strict state control and surveillance. Clergy members were often coerced into collaboration with the regime, and those who resisted faced persecution. The state's interference extended to the appointment of church leaders, censorship of religious publications, and restrictions on religious education. This produced a dual response from within the Church: while some leaders passively adapted to state directives in order to preserve institutional continuity, others engaged in subtle or overt forms of resistance, attempting to safeguard spiritual integrity and autonomy. Despite these pressures, the church endeavored to maintain its religious practices and community services, navigating a complex relationship with the communist authorities (Turcescu & Stan, 2015). In response to the suppression of official religious institutions, underground spiritual movements emerged as alternative avenues for religious expression. These clandestine groups often operated in secret, conducting religious services, study groups, and other spiritual activities away from the prying eyes of the state. The state's secret police, actively sought to infiltrate and dismantle these underground networks, viewing them as subversive elements that threatened the socialist order. Despite the risks, these underground movements provided a sense of community and spiritual solace for many individuals during this oppressive period (Kapaló & Povedák, 2022). The state's anti-religious campaign was not limited to the Orthodox Church but extended to other religious groups as well. For instance, Jehovah's Witnesses faced severe persecution due to their refusal to comply with state mandates, such as compulsory military service, and their international connections, which aroused suspicion during the Cold War era. Many members were arrested, and their activities were driven underground. These forms of resistance, both institutional and grassroots, illustrate the spectrum of opposition that religious communities mounted against the state's secularizing pressures. It wasn't until after the fall of communism in 1989 that Jehovah's Witnesses



and other suppressed religious groups were able to practice their faith openly and legally.

Throughout the communist period, the Romanian state's efforts to suppress religious expression were met with both compliance and resistance. While some religious institutions and individuals acquiesced to state demands, others sought covert means to preserve their spiritual practices. This era left a complex legacy on Romania's religious landscape, influencing the nature of religious practice and belief in the post-communist period.

#### *The Post-1989 Era: Spiritual Liberalization and the Rise of New Age Movements*

Following the 1989 revolution, Romania experienced a significant transformation in its religious and spiritual landscape. The fall of the communist regime led to the lifting of restrictions on religious practices, resulting in a resurgence of interest in both traditional religions and alternative spiritual movements. This period of spiritual liberalization saw the Romanian Orthodox Church regain prominence, while simultaneously, New Age movements and other forms of spirituality began to flourish.

The newfound religious freedom allowed for the establishment and growth of various spiritual organizations. The International Society for Krishna Consciousness, commonly known as the Hare Krishna movement, established communities in cities like Bucharest and Timișoara, organizing cultural festivals and programs such as the annual Rath Yatra, which attracted thousands of participants (Bordaș, 2020).

Transcendental Meditation, which had been prohibited during the communist era, also experienced a revival, particularly among intellectuals in urban centers like Bucharest and Cluj-Napoca. Additionally, the Sahaja Yoga movement, led by Sri Mataji Nirmala Devi, gained a substantial following in Romania, with thousands of practitioners across multiple cities. The movement's focus on self-realization and spiritual awakening appealed to those exploring new forms of spirituality beyond traditional religious frameworks. This era also witnessed the emergence of neopagan movements, such as Zalmoxianism, which sought to reconstruct ancient Dacian and Thracian spiritual practices (Palaga, 2022). Organizations like the Gebeleizis Society aimed to reconnect Romanians with their pre-Christian roots, reflecting a broader interest in indigenous spirituality and cultural identity.

The proliferation of these New Age and alternative spiritual movements in post-1989 Romania can be attributed to several factors. The collapse of the communist regime left a spiritual vacuum, as the enforced atheism of the previous decades had eroded traditional religious structures. In this context, many individuals sought new forms of spiritual expression to fill the void. The global spread of New Age philosophies and the increased accessibility of information through media and travel also facilitated the introduction and adoption of diverse spiritual practices. This period saw an explosion of spiritual experimentation, yet the regulatory and institutional responses to these movements remain underexplored.

## THE INTERSECTION OF SPIRITUALITY, WELL-BEING, AND IDENTITY

One of the central findings of the June 2025 survey is that New Age spirituality functions as a coping mechanism for individuals navigating the socio-economic and psychological transitions of post-1989 Romania. The uncertainty associated with the shift from communism to capitalism, compounded by globalization and increasing individual pressures, has fostered a collective desire for emotional regulation, inner peace, and existential clarity. Practices such as yoga, meditation, Reiki, and astrology, reported by the majority of participants, are widely adopted as tools for mental well-being, self-healing, and empowerment.

From the perspective of Subjective Well-Being Theory, these spiritual practices support personal happiness and life satisfaction by enhancing self-awareness, mindfulness, and emotional balance, rather than depending on material or external conditions (Gupta, et.al., 2016). A large majority of respondents in the present study reported that engaging in spiritual practices contributed to reduced stress levels and enhanced emotional resilience, aligning with existing research on the psychological benefits of contemplative and holistic approaches. Additionally, participants

expressed high levels of life satisfaction, suggesting that spirituality functions as an important mechanism for fostering subjective well-being by promoting inner balance and a sense of purpose (Chiesa & Serretti, 2009).

Beyond personal well-being, the data also illustrate the role of spirituality in identity construction. New Age movements provide a fluid and self-directed framework for identity development, contrasting with the rigidity of institutional religious affiliation. This dynamic is particularly evident among the study's predominantly educated female participants, many of whom engage in spiritual practices not as fixed belief systems, but as evolving pathways of self-discovery and expression. According to Social Identity Theory, spiritual participation contributes to a sense of group belonging and shared values. In this context, 72% of respondents reported participating in spiritual communities, both online and in-person, suggesting that these movements fulfill the collective identity function traditionally associated with organized religion (Chin, 2006).

The survey also revealed a distinct trust shift: while only 6% of participants expressed high trust in the Orthodox Church, 75% reported moderate to high trust



in New Age communities. This finding aligns with Secularization Theory, which posits that institutional religion declines as societies modernize, giving way to individualized and pluralistic spiritualities. However, in the Romanian context, this shift does not indicate a full rejection of traditional religion but rather a transformation. Many respondents combine Orthodox rituals with alternative practices like astrology or Reiki, creating hybrid spiritual systems, a phenomenon consistent with the concept of religious bricolage (Heelas, 2006). A noteworthy shift was observed in religious self-identification. Participants practicing for one to three years were more likely to maintain a traditional religious identity, with 35.5% identifying as “religious.” In contrast, those with longer involvement - four to six years or more than seven years - tended to adopt more individualized or hybrid spiritual identities, often identifying as “somewhat religious” or distancing themselves from institutional religion altogether. This shift may reflect a process of spiritual individuation that occurs as practitioners integrate alternative practices more deeply into their lives.

Another major pattern concerns the commodification of spirituality, which reflects broader dynamics described in Postmodern Consumer Culture Theory. The increasing availability of spiritual services, such as yoga retreats, mindfulness coaching, and energy healing, points to a marketplace where spiritual fulfillment is packaged and sold as part of a wellness lifestyle (York, 2001). Romanian media representations and online platforms often frame spirituality in terms of productivity, personal success, and optimization (Hodge & Turner, 2024), indicating how spiritual engagement intersects with neoliberal values.

Finally, spirituality appears to offer a form of healing from both historical trauma and ideological disillusionment. The repression of religion during communism, followed by the destabilization caused by abrupt democratization and neoliberal expansion, left many individuals with a spiritual void and weakened collective identities. In line with recent research on identity and belief reconstruction (Mavor, Ysseldyk, 2020), spirituality in contemporary Romania provides a mechanism for regaining existential orientation, rebuilding personal agency, and forming new communal bonds.

### *Spirituality as a Pillar of Quality of Life*

Quality of life encompasses both objective factors (such as economic stability, healthcare, and education) and subjective experiences (such as life satisfaction, emotional fulfillment, and a sense of meaning). Over the past decade, Romania has experienced notable improvements in its quality of life according to official statistics. According to data from the National Institute of Statistics (INS), Romania's Human Development Index increased from 0.74 in 2012 to 0.85 in 2024, reflecting gains in health, education, and income dimensions (UNDP, 2023; CountryEconomy, 2024). In 2024, average life expectancy at birth reached 76.6 years, comprising 72.9 years for men and 80.5 years

for women (Eurostat, 2024). Meanwhile, subjective life satisfaction - assessed on a 0–10 scale - also trended upward. In 2012, individuals with tertiary education in Romania reported an average satisfaction of approximately 7.3, compared to around 6.9 among those with only secondary education. By 2023, these averages had risen to 8.4 and 7.8, respectively (Eurostat, 2024). This consistent gap highlights both a general increase in well-being across educational levels and the persistent advantage held by higher-educated groups. Together with improvements in health and socio-economic indicators from 2012 to 2024, these findings suggest a broad-based, multidimensional enhancement of Romania's socio-economic landscape.

Despite improvements in several quality-of-life indicators since 2012, Romania continues to face demographic challenges. That year, the country recorded a birth rate of 9.2 per 1,000 population and a death rate of 12.4 per 1,000, with a total fertility rate of approximately 1.59 children per woman, according to data from the INS and Eurostat. By 2018, the birth rate had dropped to 8.7, while the death rate remained high at 12 per 1,000, and the fertility rate slightly increased to 1.71. Most recently, 2023–2024 figures indicate a birth rate of 9.3, a death rate of 13.4, and a fertility decline to 1.65 children per woman (INS, Eurostat, 2024).

These trends highlight Romania's ongoing natural population decline and sustained fertility rates below the replacement level. These statistics illustrate Romania's ongoing journey toward enhancing the quality of life for its citizens, highlighting both progress made and areas requiring continued attention. While these statistical indicators provide an essential framework for understanding the material and structural aspects of quality of life in Romania, such as economic stability, life expectancy, and education levels, they do not fully capture the subjective and existential dimensions that contribute to overall well-being. Beyond financial security, healthcare access, and demographic shifts, individual perceptions of happiness, life satisfaction, and personal fulfillment play a crucial role in shaping the lived experience of quality of life.

In this context, spirituality emerges as a parallel and complementary factor influencing how individuals define and pursue well-being. As Romania has transitioned through decades of political upheaval, economic restructuring, and globalization, the search for meaning, emotional stability, and identity has intensified. While objective improvements in quality of life are measurable, the inner experience of well-being, rooted in personal beliefs, social connections, and a sense of purpose, remains deeply subjective.

New Age spirituality, with its emphasis on self-discovery, emotional healing, and holistic well-being, provides an alternative lens through which many individuals navigate these complexities. Whether through meditation, energy healing, or personal growth practices, spirituality offers a means of interpreting personal struggles, coping with uncertainty, and

fostering a deeper connection to oneself and the world.

Spiritual engagement has evolved beyond the boundaries of traditional religious institutions, emerging as a comprehensive approach to personal development, emotional resilience, and social connection. Unlike the structured doctrines of institutional religion, modern spirituality, particularly within the New Age movement, emphasizes individual experience, personal transformation, and emotional well-being. In post-1989 Romania, these alternative spiritual practices have become fundamental pillars in shaping individuals' perceptions of quality of life, responding to deep-seated psychological, existential, and social needs that traditional institutions may no longer fully address. The intersection of spirituality, well-being, and identity in Romania reflects a profound transformation in belief systems and self-perception. New Age movements are more than just lifestyle trends, they represent a deeper societal shift toward self-directed spirituality, psychological well-being, and fluid identity formation. While institutional religion remains a cultural pillar, its monopoly on spiritual meaning has weakened, giving rise to diverse, personalized approaches to existential fulfillment. The findings of this study suggest that, in the post-1989 era, spiritual pluralism has become a defining characteristic of Romania's evolving socio-religious landscape, shaping the way individuals seek happiness, connection, and purpose in an increasingly complex world.

Spirituality, particularly in the context of New Age movements, enhances subjective well-being and contributes to individuals' overall life satisfaction in several important ways. First, spirituality acts as a psychological coping mechanism, helping individuals manage stress, anxiety, and uncertainty in the post-communist era. Practices like yoga, meditation, Reiki, and mindfulness are associated with reduced stress levels, improved mental clarity (Channawar, 2023), and greater emotional balance, aligning with Subjective Well-Being Theory, which emphasizes that happiness is influenced by internal perceptions and emotional resilience rather than solely by external conditions. Second, spirituality plays a crucial role in identity formation and social belonging, as Social Identity Theory suggests that a sense of community is essential for well-being (Scheepers & Ellemers, 2019). New Age movements provide alternative social spaces where individuals can engage in self-directed spiritual growth and foster a sense of belonging, particularly for those disillusioned with institutionalized religion. Third, spirituality serves as a source of meaning and purpose, offering alternative existential frameworks that help individuals navigate personal struggles and find greater life satisfaction. Additionally, spirituality has emerged as a tool for emotional healing, particularly in Romania's post-communist landscape, where individuals continue to process economic instability, social fragmentation, and historical trauma. Many find that spiritual engagement allows them to regain a sense

of control, process past hardships, and build emotional resilience. Lastly, the commodification of spirituality has transformed well-being into a marketable product, making self-improvement tools such as wellness retreats, coaching programs, and online spiritual communities widely accessible. While some critique this trend as inauthentic, it reflects a modern, individualized approach to happiness, where people actively curate their own spiritual journeys as a means of enhancing personal growth and life satisfaction. Collectively, these findings demonstrate that New Age spirituality in Romania is not merely a trend but a multifaceted force that enhances well-being, shapes identity, and redefines quality of life in an evolving socio-cultural landscape.

One of the most significant aspects of spirituality's impact on quality of life is its role in enhancing emotional and cognitive resilience. Spiritual practices such as meditation, energy healing, and yoga cultivate mindfulness, self-awareness, and a greater sense of control over one's thoughts and emotions. Unlike rigid dogmatic frameworks, these practices allow for a dynamic and evolving approach to personal development, fostering adaptability in the face of social uncertainty, economic struggles, and existential anxiety. The rise of self-help literature, spiritual coaching, and wellness retreats in Romania further reinforces the idea that spirituality is no longer solely about metaphysical beliefs - it is actively sought out as a practical tool for psychological well-being. Additionally, spiritual engagement plays a crucial role in fostering a sense of purpose and existential fulfillment. Traditional religious institutions once provided overarching narratives of meaning, offering individuals a sense of belonging within a structured cosmic order. However, with the decline of institutionalized religion, many Romanians, particularly younger generations, have turned toward New Age philosophies and self-discovery frameworks to construct their own meaning-making systems. Concepts such as energy alignment, karma, and universal consciousness offer alternative ways of understanding life's challenges, allowing individuals to perceive personal struggles as part of a larger transformative journey rather than as isolated setbacks.

From a sociological perspective, spirituality also reinforces social cohesion and communal identity in an era where traditional collective structures have weakened. Many New Age movements function as modern spiritual communities, providing spaces for individuals to interact, share experiences, and build relationships based on shared values and practices. Whether through local meditation groups, online spiritual forums, or holistic healing workshops, these communities serve as vital sources of emotional support, encouragement, and social belonging. In post-communist Romania, where historical shifts have fragmented collective identity, such spaces play an essential role in rebuilding interpersonal trust and fostering a sense of connection beyond institutional frameworks.

To better understand how spirituality contributes to subjective well-being in post-communist Romania, survey results were analyzed in relation to broader quality-of-life indicators. Respondents widely reported that spiritual practices, such as meditation, yoga, Reiki, and astrology, played a meaningful role in managing stress, enhancing emotional resilience, and increasing life satisfaction. These subjective outcomes, as reflected in the empirical data, complement objective indicators like educational attainment and life expectancy. The findings suggest that for many Romanians, particularly women from urban environments with higher education, spirituality has become a personalized strategy for navigating the psychological demands of modern life, echoing key insights from subjective well-being theory and contemporary identity frameworks. The majority of respondents were female (91%). The distribution of education levels among respondents confirms a strong academic profile: 51% had completed university studies, and an additional 29% held postgraduate degrees, indicating a strong presence of highly educated individuals increasingly drawn to non-traditional spiritual frameworks. In contrast, only a minority reported completing only high school (11%) or post-secondary non-university education (9%). This educational landscape likely shapes how participants approach spirituality, favoring individualized, reflective, and eclectic practices over inherited religious dogma.

This demographic pattern can be interpreted through postmodern consumer culture theory, which emphasizes the appeal of individualized, experiential approaches to meaning-making among populations with higher educational attainment. Participants reported frequent spiritual engagement: 80% practiced at least once per week, and more than half had maintained their practices for over three years. These consistent patterns of involvement suggest that spiritual practice serves not merely as a passing trend, but as a long-term strategy for managing psychological and existential challenges.

The respondent profile mirrors global patterns in contemporary spirituality, where educated women are among the most actively engaged in wellness-oriented practices. Theories such as Postmaterialist Value Shift (Inglehart, 2018) suggest that individuals whose basic material needs are met tend to seek fulfillment through self-actualization and personal development. In this context, spiritual practices like meditation, yoga, or Reiki are not merely symbolic but function as tools for emotional regulation, identity construction, and existential meaning-making. Subjective Well-Being Theory also supports this trend, emphasizing that psychological well-being is enhanced by perceived agency and intentional emotional self-care, attributes closely tied to mindfulness-based and embodied spiritual practices. In the Romanian post-communist context, these patterns further reflect how historical disillusionment with institutional ideologies has fueled the search for alternative, individualized systems of meaning and healing. This pattern reflects a broader

post-secular cultural shift, where rational-scientific worldviews coexist with renewed spiritual exploration. Education plays a central role in this shift, not by suppressing spirituality, but by enabling individuals to deconstruct religious dogma and reconstruct meaning through eclectic, self-directed spiritual engagements. In this sense, education acts as a catalyst for reflexivity, encouraging critical evaluation of inherited beliefs and fostering openness to alternative spiritual paradigms.

Educational attainment also correlates with specific spiritual choices. Respondents with university or postgraduate degrees report the highest levels of engagement in yoga and meditation, each surpassing 35%. This supports the notion that such practices appeal to those with access to wellness culture and resources associated with self-development. Conversely, energy healing appears more frequently among individuals with secondary education, pointing to a broader, more diverse appeal of certain New Age modalities across educational backgrounds.

Popular activities included yoga (38%), meditation (33%), and energy healing (13%), often practiced in combination, highlighting the eclectic and personalized nature of spiritual engagement. An expanded analysis of practice combinations reveals that a significant portion of respondents engage in multiple spiritual activities simultaneously, indicating a holistic and integrative approach to New Age spirituality. For example, 23.5% of participants reported practicing both yoga and meditation, forming the most frequent pairing. Additionally, 17.6% practice a triad of yoga, meditation, and astrology, while 9.8% combine yoga and astrology. These figures suggest that New Age spirituality is not practiced in isolation but rather as a composite system, where different modalities are selected to serve diverse personal needs - ranging from physical wellness (yoga) to emotional balance (meditation) and metaphysical guidance (astrology). A detailed analysis of the distribution of spiritual practices reveals clear patterns linked to age, education level, and gender. Among younger participants (under 45), meditation emerges as the most frequently practiced method, with approximately 41% engaging in it regularly. This cohort also shows strong interest in yoga (40%), indicating a preference for practices associated with mindfulness, stress reduction, and physical wellness. In contrast, older participants (over 45) report lower levels of engagement in meditation (22%), while showing a higher tendency toward crystal therapy (28%), suggesting an orientation toward symbolic or metaphysical approaches to healing. The empirical data offer a descriptive overview of participants' engagement with spiritual practices and their perceived psychosocial benefits. When situated within a broader analytical framework, these responses suggest that spirituality operates not merely as a system of belief, but as an embodied mechanism for emotional regulation, identity formation, and social affiliation. Such interpretative findings correspond with established theoretical models concerning subjective well-being,

community dynamics, and the commodification of spiritual experience in contemporary Romanian society. The original survey data offer a nuanced view of how New Age spiritual practices are integrated into daily life and perceived to impact well-being among urban Romanians. Several clear patterns emerge.

From the perspective of Subjective Well-Being Theory, these practices function as mechanisms for enhancing emotional regulation and life satisfaction. When asked to rate overall life satisfaction on a 5-point scale - where 1 represents very low satisfaction and 5 very high - 82% selected scores of 4 or 5. Similarly, 89% reported that their spiritual practices helped reduce stress and anxiety, and 92% stated that they enhanced emotional resilience. These findings illustrate how spirituality contributes to subjective well-being, particularly among individuals navigating the complexities of post-communist societal transformation.

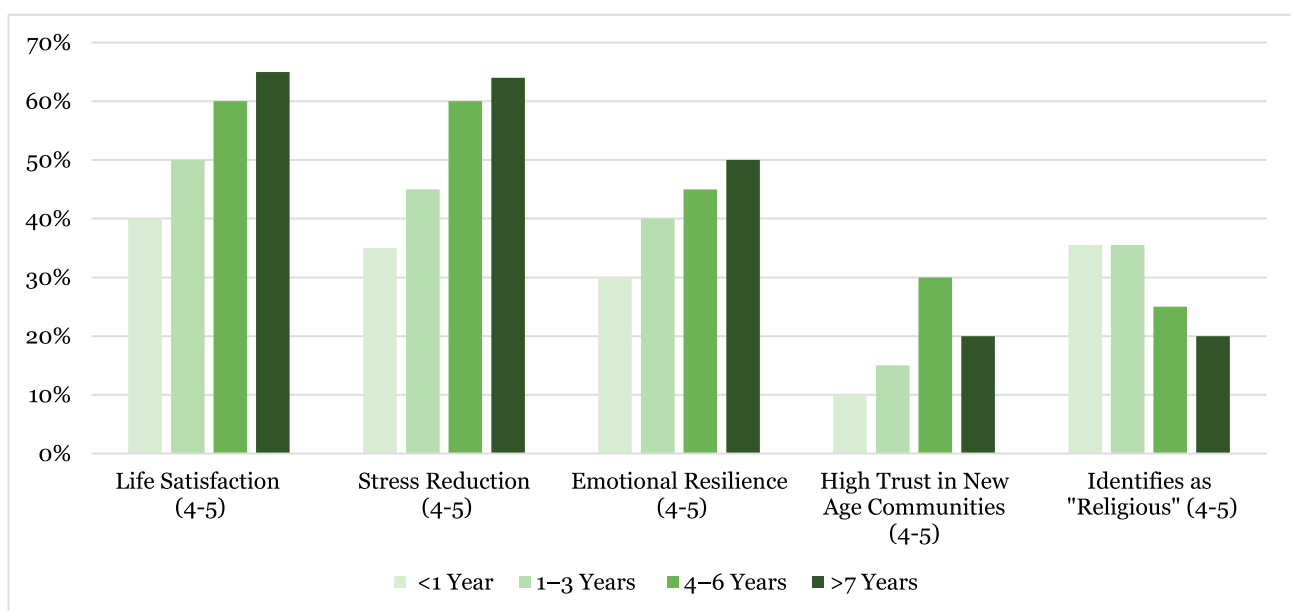
An analysis of the duration of spiritual engagement reveals important correlations between the length of practice and various aspects of subjective well-being. Participants who have been involved in spiritual practices for longer periods, especially those practising for four to six years or more than seven years, report

the highest levels of life satisfaction. Over 60% of respondents in these groups selected scores of 4 or 5 on a 5-point scale, indicating a strong perceived impact on their overall quality of life. Conversely, individuals who have been practising for less than one year are more likely to report moderate satisfaction levels, suggesting that the transformative effects of spirituality may develop gradually over time (Figure 1).

Similar trends emerged in responses related to stress and anxiety reduction. The most consistent and positive outcomes were reported by participants practicing spirituality for four to six years (60%) and those with more than seven years of experience (64%), both of whom rated stress reduction at the highest level. Conversely, those newer to spiritual practices showed greater variability in their responses and were less likely to select the maximum score. This pattern was mirrored in responses about emotional resilience. Nearly half of those practicing for more than seven years rated their emotional resilience as significantly improved (score of 5), while those with one to three years of experience also reported strong benefits. Newer practitioners, however, expressed lower confidence in these benefits.

**Figure 1.**

*Perceived Benefits of Spiritual Practices and Trust in New Age Communities by Duration of Practice*



Source: own survey 2025

Respondents with over seven years of experience expressed considerably more trust in New Age communities, with 20% reporting very high trust and nearly half reporting moderate trust. In contrast, those newer to spiritual practices (less than one year) demonstrated greater skepticism, with many indicating little or no trust. This suggests that trust in alternative spiritual communities may deepen with continued engagement and exposure. Together, these patterns

suggest that prolonged engagement in spiritual practices is not only associated with enhanced well-being but also plays a role in reshaping trust, identity, and communal affiliation.

Open-ended responses within the survey indicated that many participants view spirituality as a strategy for personal transformation and emotional healing. Several participants described using meditation, yoga, or energy healing to navigate emotional challenges, establish inner



balance, or regain a sense of control over their lives. In this context, spirituality acts as both a coping mechanism and a framework for identity construction, particularly relevant in post-communist Romania's landscape of ideological rupture and institutional distrust.

From a sociological perspective, these findings resonate with theories of late modern individualization (Giddens, Beck), where identity is no longer inherited but constructed. The educated urban Romanian is no longer bound to tradition or institution, but free to assemble a "spiritual toolkit" that aligns with personal values, psychological needs, and lifestyle preferences. This aligns with Postmodern Consumer Culture Theory, where individuals behave as spiritual consumers, navigating between global practices and local cultural norms.

The expanding role of spirituality in enhancing quality of life is not without its tensions. As spiritual practices become increasingly accessible, they are also being absorbed into a market logic that commodifies personal transformation. Meditation apps, coaching programs, and lifestyle retreats now circulate as consumer

products, often promoted through wellness influencers and monetized platforms. While this democratization broadens participation, it raises concerns about superficial engagement, the erosion of spiritual depth, and the exploitation of vulnerable seekers under the guise of self-improvement.

In post-1989 Romania, spirituality has clearly moved beyond its institutional religious framework to become a dynamic resource for emotional resilience, self-actualization, and social connection. For many, it offers a path toward healing in the aftermath of collective trauma, economic instability, and dislocation from traditional values. However, the rise of New Age movements also introduces ethical and psychological challenges, particularly as practices are reframed through the lens of capitalist ideals of optimization and success. Moving forward, deeper inquiry is needed to understand how these evolving spiritual forms will influence Romania's cultural identity, mental health landscape, and the collective pursuit of meaning in an increasingly individualized and commercialized society.

## DISCUSSIONS

The present findings align with a growing body of international research that views spirituality as a significant factor in subjective well-being, especially in transitional or destabilised societies. For example, a study conducted in the Netherlands and Belgium demonstrated that baseline levels of spirituality, particularly those related to meaning-making and existential coherence, predicted improved emotional well-being and reduced distress after four weeks (Huijs et al., 2024). This aligns with the Romanian context, where participants engaged in New Age practices and reported enhanced emotional resilience and life satisfaction, especially after sustained engagement. The research also highlighted a distinction between spirituality rooted in trust and connectedness, which produced positive outcomes, versus transcendental or mystical experiences, which in some cases were linked to increased psychological distress. This bifurcation offers a useful perspective to interpret a tension also evident in the Romanian data: while spirituality facilitates emotional self-regulation and subjective well-being, it can also introduce ontological instability for individuals navigating competing belief systems and hybrid identities.

A complementary perspective arises from qualitative studies on spirituality within immigrant populations, highlighting the adaptive and identity-shaping roles of religious and spiritual practices in transitional settings. A 2022 study examining Sri Lankan immigrants in Italy found that engagement with religious rituals and meditative practices acted as psychosocial anchors, helping to reduce the disorientation caused by cultural displacement (Jayawardana & Esposito, 2022). Participants frequently reported using New Age practices

not only for emotional regulation but also as tools to reclaim agency and coherence amid socio-economic changes. This aligns with broader patterns seen in the literature, where spirituality supports existential resilience through meaning-making, ritual organisation, and community connection.

Further support for the connection between spirituality and well-being comes from research on adolescent populations in religious societies. Gavaruzzi et al. (2022) examined Italian adolescents and discovered a strong positive link between religious importance, emotional well-being, and life satisfaction, especially when religious commitment was internalised as a personal value rather than imposed from outside. This finding is reflected in the current Romanian sample, where participants reported higher life satisfaction through voluntary and self-directed spiritual practices. Notably, although institutional religion was less prominent among Romanian respondents—particularly women with higher education—the pursuit of existential coherence and moral orientation remained central. These patterns suggest that the psychosocial benefits of spirituality do not rely solely on formal religious affiliation but can also arise through personalised and eclectic spiritual pathways, especially when such practices offer emotional grounding and affirmation of values (Gavaruzzi et al., 2022).

Furthermore, recent meta-analytic research in environmental psychology has highlighted the mental health benefits of nature-based spirituality and mindfulness. Ivtzan and Papantoniou (2023) report that individuals engaging in nature-connected spiritual practices experience increased vitality, autonomy, and positive affect, which are closely linked to subjective



well-being. Participants in the current study frequently referenced outdoor meditation, energy healing with natural elements, or symbolic reconnection with nature as part of their spiritual practices, reinforcing this broader association. Additionally, the role of spirituality as a coping resource during adversity is well established in the psychology of religion literature. Pargament et al. (2021) demonstrate that spiritual coping, especially practices rooted in acceptance, meaning-making, and transcendence, can significantly buffer the impacts of trauma and existential anxiety. These findings further support the Romanian data, where spiritual engagement often functioned as a personalised strategy for managing stress and disillusionment, particularly among those with sustained spiritual involvement (Ivtzan & Papantoniou, 2023; Pargament et al., 2021).

The patterns of the widespread shift towards

individualised spiritual practices, the decline in trust in institutional religion, and the pursuit of existential clarity, as identified in this study, closely mirror the dynamics described by Curşeu and Ilies (2022). In their cross-cultural analysis of post-communist societies, the authors contend that the ideological collapse of communism in Eastern Europe created a long-lasting identity vacuum characterised by weakened collective narratives and diminished institutional authority. Within this vacuum, spirituality appears as an adaptive framework for meaning reconstruction, personal agency, and psychosocial continuity. The Romanian data presented here supports this regional perspective: participants increasingly turn to New Age practices as tools for managing uncertainty, expressing personal growth, and fostering emotional resilience in a fragmented social environment.

## CONCLUSIONS

New Age spiritual practices have become a key part of Romania's changing psychological and cultural scene, offering adaptable ways to manage emotions, find existential meaning, and build social connections in the post-communist era. This study shows that practices such as yoga, Reiki, astrology, and energy healing are not just fleeting trends but are deeply rooted responses to the weakening of institutions, ideological shifts, and the psychosocial challenges brought by rapid modernisation.

Rather than replacing traditional religious affiliations entirely, contemporary spirituality in Romania often acts as a complementary or hybrid system. Many participants maintain symbolic ties to Orthodox Christianity while engaging in personalised rituals and beliefs that mirror global spiritual influences. This blending of institutional and non-institutional elements exemplifies a broader trend of spiritual bricolage, supporting theoretical models of religious pluralism in late modernity.

The findings also highlight a gendered and educational pattern of spiritual engagement, with urban, highly

educated women exhibiting the highest levels of involvement and perceived benefits. These patterns imply that New Age spirituality functions not only as a coping mechanism but also as a means for identity formation and self-actualisation, particularly in contexts where institutional trust is low and individual agency is emphasised. The commodification of spiritual services, while increasing accessibility, raises important concerns about authenticity, spiritual depth, and socioeconomic inequality in the pursuit of well-being.

Future research should investigate how spiritual engagement develops across various Romanian regions and age groups, how online spiritual communities influence meaning-making, and whether sustained participation in such practices is linked to measurable psychological health outcomes. A cross-cultural comparison could also reveal whether the Romanian pattern is unique or part of a broader reconfiguration of spirituality in Eastern Europe. In an era increasingly characterised by uncertainty, individualisation, and digital mediation, understanding the socio-psychological effects of spiritual pluralism will continue to be a crucial interdisciplinary task.

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# AN ANALYTICAL FRAMEWORK FOR CEMETERY MANAGEMENT: ECONOMIC AND ORGANISATIONAL PERSPECTIVES IN ITALIAN MUNICIPALITIES

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## Mirko MOZZILLO

PhD, Research Fellow in Business Administration, Department of Law, Economics,  
Management and Quantitative Methods (DEMM), University of Sannio, Benevento, Italia

<https://orcid.org/0009-0001-4471-836X>

mozzillo@unisannio.it

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## SUMMARY

Cemetery management in Italy is complex and delicate due to the social and cultural aspects involved. Cemeteries can be managed directly by municipalities or private individuals, with varying costs and levels of service. Urbanisation and population ageing increase the pressure on cemeteries, creating planning problems. Current legislation is confusing and often complicated. The pandemic has increased the number of deaths, leading to overcrowding and the need to find solutions. The study, therefore, analyses the various aspects of cemetery management for local administrations. The research focuses on three main questions: which laws and resources manage cemeteries in Italy? What is the financial impact of cemeteries on municipalities' budgets, and which have higher costs? Which new funeral facilities are in development, and how do they affect the organization of funeral spaces? The study, beginning with an international analysis, aims to provide an overview of the current situation and trends in cemetery management, with a particular focus on the economic and innovative effects on Italian municipalities.

**Keywords:** *management, cemetery, public sector, public accounting, Italy*

## INTRODUCTION

For every human society, death has always represented the ultimate cognitive frontier, and through techniques, rites, and symbolic elaborations, societies have interpreted the phenomenon of mortality by integrating it into their systems of values, transforming it into a criterion for self-representation and management (Galletti, 2018). For individuals of any culture and religious belief, death is a delicate and complex moment (Mancini, 2015). Death is a topic that must be approached with due sensitivity, and it is evident that different visions have developed among various Western and Eastern cultures and religions. From the Christian perspective, death is seen as the beginning of a journey that will lead to an encounter with Jesus and the attainment of eternal life (Cullman, 1971); from the Muslim perspective, death equalises all human beings in the face of the ultimate destiny and is regarded as the entry point into another world (Cucciniello, 2020). Finally, in the Jewish faith, there is a belief in the existence of an afterlife, Olam habah (Taub, 2008). Death and funeral rituals vary among religions. There are three stages for Catholics: the wake, the mass, and the burial. Muslims observe four stages: purification (Ghusl), drying (Kafan), collective prayer (Salatul Janazah), and burial. The Jewish rite comprises three moments: purification, funeral ceremony, and burial. The notable cultural and operational differences between the various monotheistic religions are clear, but a common point also emerges burial. Both religions require the body of the deceased to be buried in a cemetery

or sacred place. Cemeteries are essential for society because they hold cultural, historical, architectural, and ecological-environmental value (Devecchi, 2020). They serve as a melting pot of identities and cultural expressions, with people of all races and beliefs buried side by side or nearby (Zavattaro, 2021). A cemetery is the appropriate sacred space where the living and the dead are separated yet symbolically united through transition and commemoration rites (Francis, 2003). In Italy, cemeteries are present in all municipalities, varying in design, size, and management. Many municipalities outsource management to private firms. During the pandemic, the increase in deaths led to overcrowding, prompting municipalities to seek sustainable solutions. Cultural traditions and regulations from Europe and around the world have a significant influence on cemetery management. Innovative practices such as cremation and eco-burials are proposed as alternatives. Intervention is necessary to maintain cemetery functions, and simple guidance tools could assist local planners (Calzolari, 2023). The primary objective of this article is to analyse the various types of cemetery management across Italy. It begins with a review of relevant literature, followed by an assessment of how these management approaches impact municipal budgets. Additionally, the structural challenges faced by cemeteries are discussed, with potential solutions proposed for issues that have long troubled Italian cemeteries.

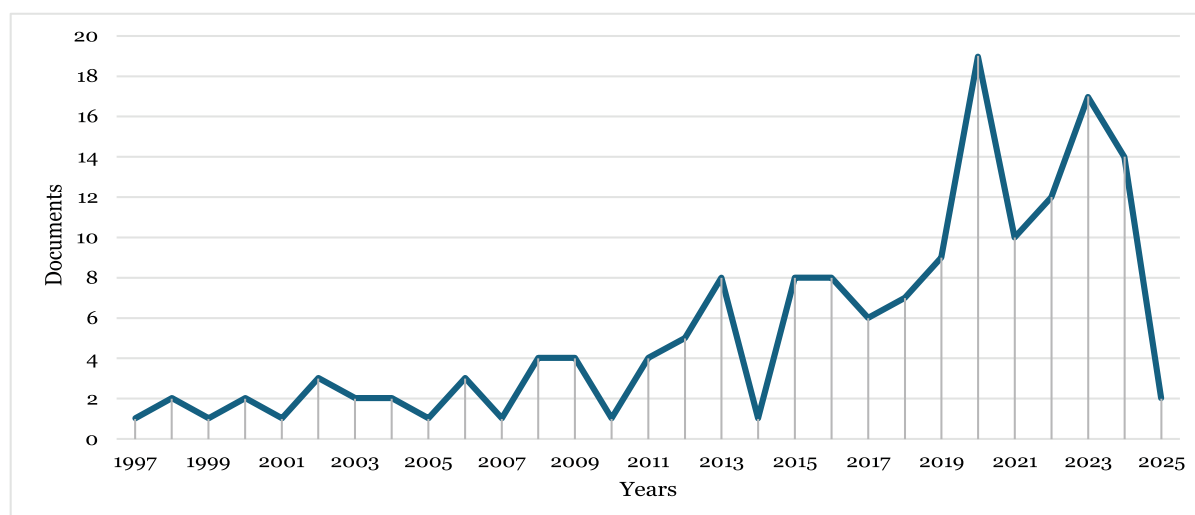
## BIBLIOMETRIC ELEMENTS

The current research systematically reviewed the literature to identify main theoretical strands and emerging areas of study related to cemetery management within the context of public administration and urban

planning. A preliminary check on Scopus, dating back to March 2025 and limited to "Article, title, Abstract, Keywords," identified 158 documents using only the word "cemetery."



**Figure 1.**  
Scientific documents on cemeteries

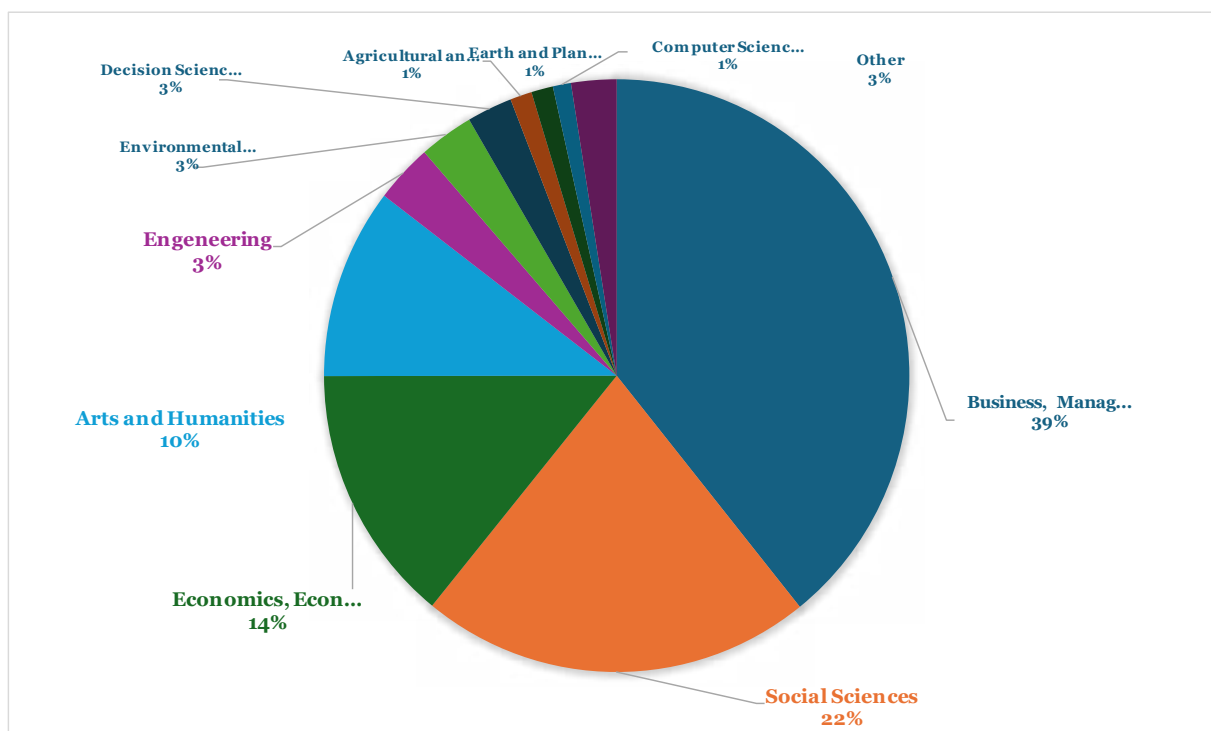


Source: developed by the author.

Figure 1 shows the rise in interest in this sector since 2019, with 9 publications, reaching a peak in 2020 with 19 documents. The topic covers multiple areas of interest, as depicted in Figure 2; the most significant

area is business and management, accounting for 39.2% of the study sectors, followed by social sciences at 21.8% and economics at 14.1%.

**Figure 2.**  
Study areas

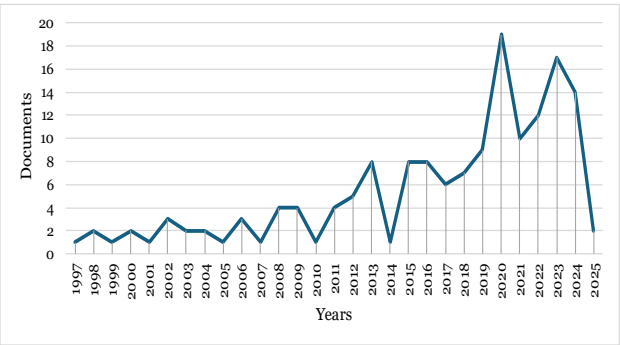


Source: developed by the author.

The analysis highlights four main themes related to cemeteries. First, cemeteries are regarded as public goods that require protection and management due to their cultural importance. Second, their management is shaped by legal frameworks and may involve a combination of management styles. Third, financial sustainability is a concern, particularly regarding management costs and funding approaches. Lastly, there

is emphasis on the social, cultural, and environmental aspects of burials, including the shift towards cremation and eco-friendly burial methods (Olufemi et al., 2024). If “cemetery” is added to “management,” the number of documents reduces to 31. This significant decline indicates that the cemetery sector receives limited attention within academic research. Figure 3 clearly illustrates the two primary areas of study.

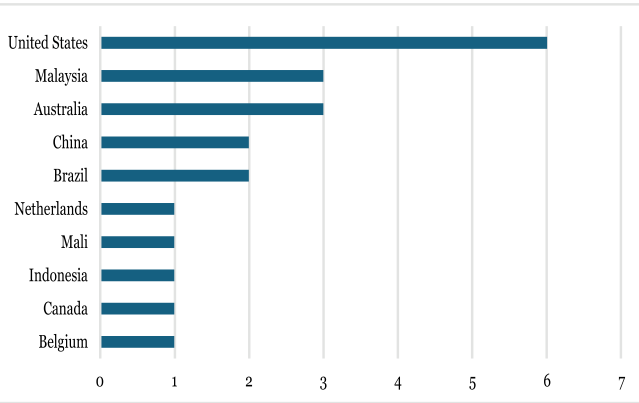
Figure 3.1. Analysis of “cemetery” publications



Source: developed by the author.

Let’s analyze, instead, the nations that study this sector the most. In both areas of study, the United States of America is in first place, followed by Australia with a notable gap, while Malaysia and Poland share third

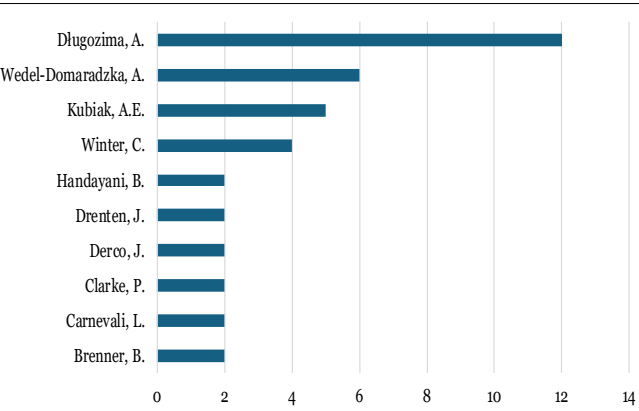
Figure 4.1. Analysis of “cemetery” nations



Source: comparison between nations

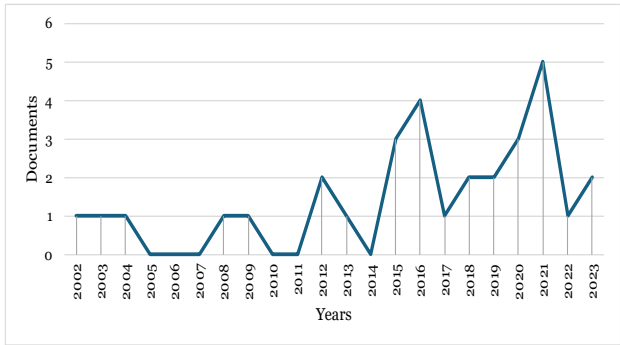
Figure 5,1, 5.2, instead, highlights the authors who have presented the highest number of citations related to the areas under study.

Figure 5.1. Analysis of “cemetery” authors



Source: developed by the author.

Figure 3.2. Analysis of publications “cemetery and management”



place (figure 4.1, 4.2). From the study of the nations, this sector is not studied in depth in the countries of the European Union, despite the presence of the main international cuisines on the European continent.

Figure 4.2. Nation analysis “cemetery and management”

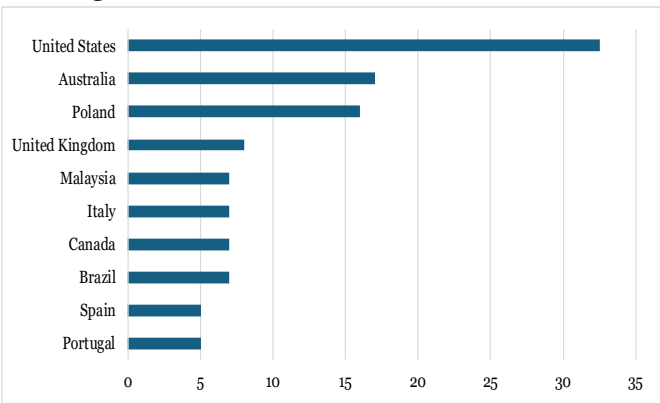
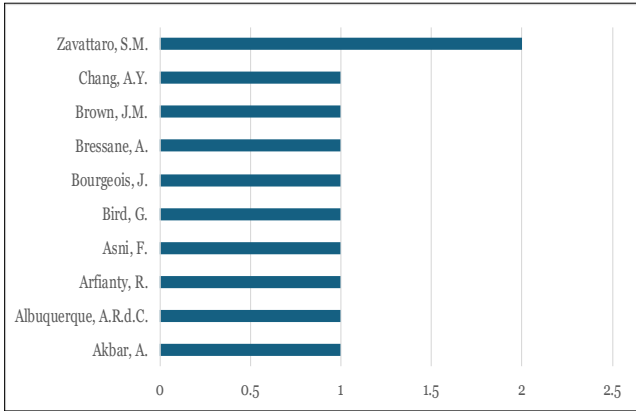


Figure 5.2. Analysis of authors’ “cemetery and management”



Despite the increasing importance of cemetery management in urban planning and the social, cultural, and economic sustainability of communities, there is a lack of academic studies on the subject. Cemeteries play a vital role in city planning and public services; however, research on them remains limited, particularly in terms of local governance, economic impacts, and management innovations. A model was developed to

explore the relationships among key factors in cemetery management. This model comprises five components: management type, regulations, financial effects, social and cultural aspects, and innovation levels. It links theory with real-world analysis to demonstrate how governance affects economic sustainability and service quality. This paper addresses the research gap by providing a current comparison of the situation in Italy.

## LITERATURE ANALYSIS

Public property originated when the legal system acknowledged the existence of assets capable of satisfying public needs, entrusted them to public bodies, and assigned them to the care of the relevant interests. Public assets are tools through which public administrations can perform their functions (Cassese, 2000). The regulation of public assets has undergone various historical phases before reaching its current form. There are four main phases to consider. The first phase lasted until the mid-1960s. During this period, the primary goal was to transfer ownership of assets from the State to private individuals. In this phase, the concept of state property was closely linked to sovereignty (Meucci, 1892). The second phase spans the period from 1865 to 1942, during which assets belonging to the State were classified and redefined within the concept of public property (Guicciardi, 1934). The third phase, spanning from 1942 to 1970, witnessed the adoption of constitutional norms regarding property. During this period, the State aimed to utilise public goods to achieve productive goals of common interest (Benvenuti, 1965). The fourth phase, from 1970 to the present, saw public goods increasingly associated with environmental regulation and protection (Guess, 2005). In the 1990s, Italy's system of public goods was influenced by its membership of the European Community and, subsequently, the European Union. There was a need to reduce the public budget deficit and respect the limits of the 1997 Stability Pact for a common economic policy. (Virgilio, 2005). This need has led to the discovery of a significant amount of public assets that are not instrumental to public services of an economic nature, mainly of a real estate nature. These assets had two effects: they did not generate income and consumed wealth (Panaciulli, 2022). Recently, we have seen a move towards privatisation aimed at raising funds quickly through direct sales or more complex methods. Some public assets have been improved by creating public or mixed companies. There have been significant management changes, including administrative decentralisation and a shift towards federalism, following the principles of subsidiarity (Longo, 2005), externalisation of services and benefits (Amatucci, 2007), overcoming the boundaries between public, private, and non-profit sectors (Borgonovi, 2006), and, finally, the introduction of new, stringent systems of economic accountability (Pezzani, 2000). Since the modern State was born from the French Revolution, the twentieth century has seen a clear distinction between political and administrative choices.

Political choices determine how the resources collected through taxes are allocated. Political functions include representing the community through electoral systems, interpreting community ideals and needs, managing common goods, overseeing the territory, and valuing historical, artistic, and cultural heritage (Borgonovi, 2020). Today, in Italy, legislation regarding public goods is regulated by Article 42 of the Constitution (Police, 2008). Capital goods are privately owned by the administration and are classified as available or unavailable. State-owned goods belong to the State or public bodies, including roads, railways, and historic buildings. Municipal markets and cemeteries are state-owned if owned by municipalities or provinces. Assets of local governments are categorised as state-owned, unavailable capital goods, and available assets (Iaselli, 2014). Available capital goods are assets not connected to an entity's core activities and must generate income through rental agreements. Conversely, state-owned or unavailable assets are managed by authority and typically entrusted through administrative management, often via a concession contract (Madeddu, 2019). Managing the real estate assets of the Public Administration requires specific policies. Rules regarding the concession of public assets comply with national and European Union laws. Concessionaires must be selected through a public comparative procedure (Amatucci, 2009). State-owned assets can be subject to rights between private individuals, enabling rental contracts even if the lessor occupies the land illegally. This does not invalidate the rental contract. If the asset is state-owned, enjoyment is granted through a concession; if the asset is available, a rental agreement is used. The concession is the only form compatible with state-owned public assets, as a standard rental contract does not apply (Loro, 2019).

Cemeteries are public assets that require concessions from the public administration. The concession grants new rights to private individuals without transferring ownership (Lucca, 2021), allowing them to enjoy public goods reserved for authorities, which cannot be the subject of private acts (Sandulli, 2003). Cemetery concessions manage the use of public goods and adhere to specific rules for burial; they may be perpetual or limited in duration. Both private individuals and the Public Administration must act in good faith and with integrity, respecting the terms of the contract (Lucca, 2024). Each municipality is required to have a cemetery to accommodate the deceased, with a contract regulating the use of the land (Campione, 2011).

Consequently, the municipality grants the public good to the private individual through an administrative concession contract, transferring a real right of surface ownership (Centofanti, 2007). Cemetery concessions pertain to land for tombs or niches. The parties may include clauses regarding the use of the asset, which is transferable *inter vivos*, creating the right of sepulcher for the private individual (Gianfreda, 2018). The limited transfers and restrictions on investment budgets have prompted many European entities to utilise real estate as a means of financing, often through privatization or sale via public-private partnerships (Savas, 2005). Recent European public-private partnership projects include highways, bridges, buildings, and various services (Manganelli, 2014). Public-private partnerships (PPPS)

involve cooperation between public and private entities to finance and manage public services (Amatucci, 2014). The PPP model can be traced back to three cases: public accounting, which focuses on end users and benefits to the private sector (Vecchi & Leone, 2020). Over time, PPPS have evolved considerably. The new Contract Code of 2023 has simplified their implementation. Today, public-private cooperation is vital for financing and creating social value. This advancement, known as PPP 2.0, enhances services and fosters innovation (Vecchi & Leone, 2024). The management of cemeteries by local governments is an under-researched area within public administration. This article aims to address this gap by examining how cemeteries are managed in Italy and assessing their effects on municipal budgets.

## METHODOLOGY

The present work aims to answer the following questions:

- RQ1: How are cemeteries managed in Italy?
- RQ2: What is their weight in municipal budgets? And which municipalities spend the most?
- RQ3: What are the new forms of cemetery construction?

The management of local government cemeteries remains an underexplored area of public administration, and this paper begins to address this gap by examining the role of cultural competence. Cultural competence manifests in various forms: racial segregation even in death, intersectional identities, and funerary economics (Zavattaro, 2020). The answers to the research questions are analysed using the primary bibliography to develop a theoretical framework. Management and budget data were collected from all Italian provincial capitals, focusing on expenditure for the “Necroscopic and Cemetery Service.” The analysis concentrates on the past five years to ensure the data’s relevance and accuracy. A quantitative assessment of the economic impact on

municipal budgets, alongside a qualitative review of management practices, was conducted. Official sources, interviews, and statistical data from Istat were utilised to provide a comprehensive overview of cemetery management in Italy. The research addresses the management of state-owned assets, linking investments and the administration of public assets to the recent issue of cemetery overcrowding.

Cemetery management research is limited and disorganised, despite growing interest in urban sustainability and public service reform. Most studies focus on descriptions or regulations without strong theoretical frameworks or comparisons. There are gaps in understanding how governance, laws, and finances interplay for local governments. This article aims to combine practical analysis, normative observations, and theoretical perspectives. It proposes a unified model that links management systems, regulations, and their influence on public spending, offering valuable insights for scientific discourse and policy development in urban contexts.

## CEMETERY MANAGEMENT AROUND THE WORLD: A COMPARATIVE VIEW

Cemetery management is crucial for respecting a community’s funerary traditions and honouring its memories. It is crucial to balance preserving these memories with sustainable space management, especially as populations grow and urban areas expand. Management must also address environmental sustainability since burial facilities can harm the environment. The cemetery industry is an integral part of the global economy and faces challenges such as waste management, pollution, and inadequate regulation (Wu, 2008). Cultural and religious traditions shape burial practices, creating varied needs and expectations, which makes cemetery management a complex task worldwide. Lack of available burial land is a problem caused by rapid urban growth (Sulaiman & Daud, 2014). The COVID-19 pandemic has exposed challenges within public funeral services. Currently, there is a reluctance

to discuss and plan for death, mainly because cemetery managers often lack funding and are excluded from planning processes. Although there are good practices for managing the pandemic, cemetery managers are not involved in planning (Zavattaro, 2020). The management of cemetery services varies according to cultural traditions, religious practices, and local legislation. In Italy, municipalities oversee cemeteries that the Catholic Church often influences. Cemeteries often contain symbolism and monuments, with traditional burial methods remaining prevalent, though cremation is increasing. Local authorities establish rules regarding distances and access to graves. In the UK, cemeteries are managed independently by religious foundations. Cremation is widely practised, particularly in urban areas, and cemeteries are generally well-maintained.

The practical approach emphasises urban planning (Rugg, 2018). In Scandinavian countries, management is public and prioritises environmental sustainability. Cemeteries are often designed as nature parks, focusing on efficiency and adherence to ecological regulations (Olufemi, 2024). In the United States, cemeteries can be either public or private, with a strong presence of funeral companies. Cremation rates are rising, and there

is a prominent culture of personalising graves (Schmidt, 2020). In Japan, management is closely tied to Buddhist and Shinto religions, with small cemeteries often located near temples and featuring communal cremation. Families are responsible for maintaining graves, reflecting strong cultural ties (Gould, 2024). Table 1 summarises the differences in cemetery management across the countries analysed.

**Table 1.**

*International comparison of cemetery management*

Country	Management	Types of Burial	Additional Features
Italy	Municipalities and religious bodies	Traditional burial prevailing, cremation increasing	Monumental and well-kept cemeteries, regulated locally
United Kingdom	Local authorities and religious foundations	High prevalence of cremation, less traditional burial	Integration of the cemetery with the community, care of monuments
Scandinavian countries	Public services with a strong ecological component	Cremation prevalent, less space for burial	Cemeteries as natural parks, high ecological attention
United States	Public and private, many funeral companies	Increase in cremation, personalization of graves	Private cemeteries widespread, strong influence of the private sector
Japan	Religiously managed temples and cemeteries	Almost exclusively cremation, collection of bones in urns	Small, highly symbolic and spiritual cemeteries

Source: developed by the author.

In this context, finding balanced solutions that honour the memory of the deceased and address contemporary needs is a challenge faced by every nation and

community. An in-depth analysis of Italian cemeteries and their management services is then conducted.

## CEMETERIES IN ITALY

Despite differences in funeral rituals between northern and southern Italy, the most common way of remembering the deceased is through walled cemeteries (Bartolomei, 2012). Starting with a brief historical overview, before 1804, it was common to bury the dead inside churches or nearby, almost to emphasise their proximity (Canella, 2002). The only exception was the Cemetery of Sant'Orsola in Palermo, designed as a separate complex and recognised as the first cemetery in Europe accessible to all social classes (Marcenaro, 2008). Changes occurred in 1804 with the publication of the Edict of Saint Cloud, issued by Napoleon at Saint Cloud on 12 June 1804 (Augias, 2013). This edict mandated that tombs be placed in isolated, ventilated areas away from cities, citing health and political reasons. In 1806, the edict was extended to Italy (Selvafolta, 2007). Following its enforcement, Italian cities began establishing large cemeteries. Bologna, in 1799, repurposed the cloisters of the Certosa as a monumental cemetery, prefiguring Napoleonic laws. Other cities such as Genoa, Brescia,

Parma, Turin, Naples, Rome, and Florence followed suit (Selvafolta, 2005). The Saint Cloud edict in Italy influenced a Regulation on Medical Police, marking the start of constructing cemeteries away from urban areas to improve deceased management and prevent disease. The earliest funeral laws in Italy include RD 10/01/1891, n. 42 and RD 25/07/1892, n. 442 (Vaj, 2010). The cemetery system in Italy primarily relies on inhumation, though entombment is more common today due to increased space demands and long-term concessions. Despite entombment creating more space, it has not boosted municipal revenues, with costs borne by local budgets. Italy hosts approximately 15,384 cemeteries managed by municipalities or dedicated companies (Utilitalia Sefit, 2008). Globally, cemeteries vary, including rural, marine, secular, municipal, and monumental types. In Italy, municipal and monumental cemeteries are most prevalent. Notably, monumental cemeteries hold cultural significance in Europe, symbolising the link with death. They serve not just as burial sites but also



as artistic landscapes depicting life after death (Balduzzi, 2019). The first European monumental cemetery was Père Lachaise in Paris, established in the early nineteenth century, inaugurating modern cemeteries. Meanwhile, rural cemeteries emerged in England and the United States, emphasising landscape beauty and resembling traditional English gardens (Denkler, 2018). Renowned European monumental cemeteries include Paris's Montparnasse and Montmartre, Marseille's Saint-Pierre, Madrid's San Isidro, London's Highgate and Brompton, Berlin's Dorotheenstadter and Russischer, and Budapest's Kerepesi Temeto. Italy's monumental cemeteries are celebrated for their art and design, including Genoa's Staglieno, Milan's

Monumental Cemetery, Rome's Verano, and Bologna's Certosa Monumental Cemetery (Sefti, 2018). Managed by public entities associated with Utilitalia - SEFIT, these cemeteries have, for five years, operated a Technical Table dedicated to their historical-artistic and touristic enhancement (Utilitalia, 2020). In Italy, cemeteries are owned by the State and managed by local authorities, either directly or via external companies, maintaining oversight. Services provided include burials, funerals, cremation, and maintenance, using either unified or varied management models based on economic reasons and user needs. Management specifics in provincial capitals are summarised in Table 2.

**Table 2.**

*Management mode of Italian cemeteries*

Management model	City
Concession	Avellino, Foggia, Lucca, Piacenza, Pisa, Potenza, Ravenna, Rimini, Rovigo, Sassari, Savona, Siena
Outsourcing	Agrigento, Andria, Aosta, Bologna, Brindisi, Ferrara, Grosseto, Lecce, Lecco, Livorno, Mantova, Messina, Monza, Pistoia, Taranto, Vicenza
Direct management	Alessandria, Ancona, Arezzo, Ascoli Piceno, Bari, Barletta, Belluno, Benevento, Bergamo, Biella, Bolzano, Brescia, Cagliari, Caltanissetta, Campobasso, Carbonia, Caserta, Catania, Catanzaro, Cesena, Chieti, Como, Cosenza, Cremona, Crotone, Cuneo, Enna, Fermo, Firenze, Forlì, Frosinone, Genova, Gorizia, Imperia, Isernia, La Spezia, L'Aquila, Latina, Lodi, Matera, Milano, Napoli, Novara, Nuoro, Oristano, Palermo, Parma, Pavia, Perugia, Pesaro, Pordenone, Prato, Ragusa, Reggio Calabria, Reggio Emilia, Rieti, Roma, Salerno, Siracusa, Sondrio, Terni, Torino, Trani, Trento, Treviso, Udine, Urbino, Varese, Vercania, Vercelli, Verona, Vibo Valentia, Viterbo
Partnership	Asti, Macerata, Massa, Modena, Padova, Pescara, Teramo, Trapani, Trieste, Venezia

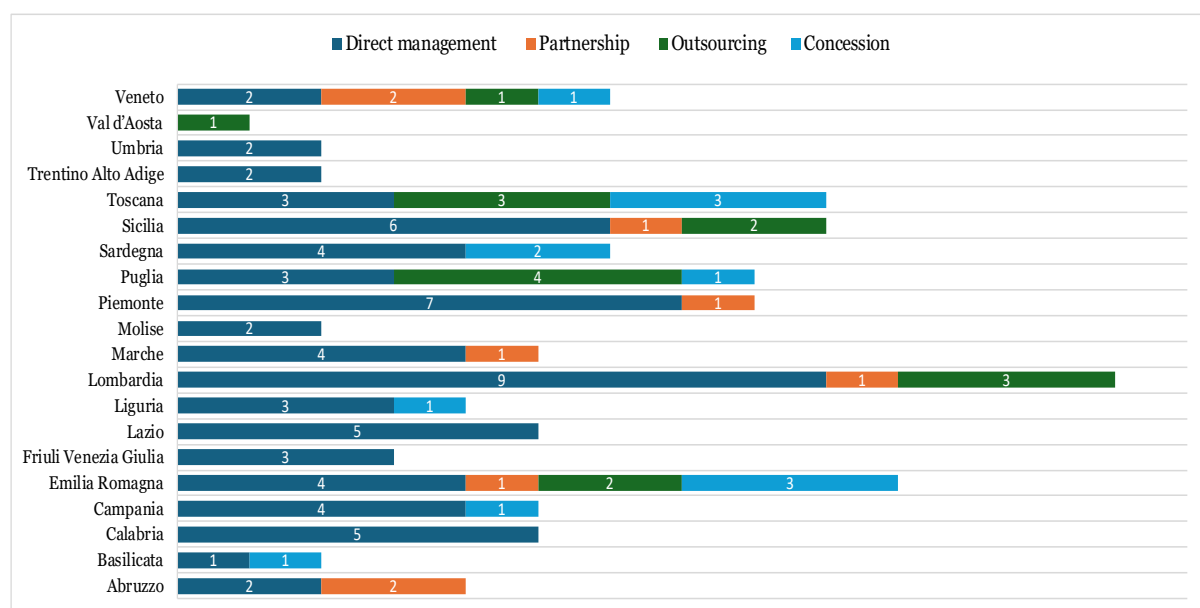
Source: developed by the author.

The regional distribution of cemetery services varies greatly. There is a strong preference for direct management. However, provincial capitals within the same region may select different management methods.

Only Basilicata, Campania, Molise, Trentino-Alto Adige, and Val d'Aosta show a unified choice, with four out of five preferring direct management, while only Val d'Aosta opts for outsourcing (Figure 6).

**Figure 6.**

*Territorial distribution*



Source: developed by the author.

## THE BURDEN OF CEMETERIES ON MUNICIPALITIES: EXPENDITURE ANALYSIS

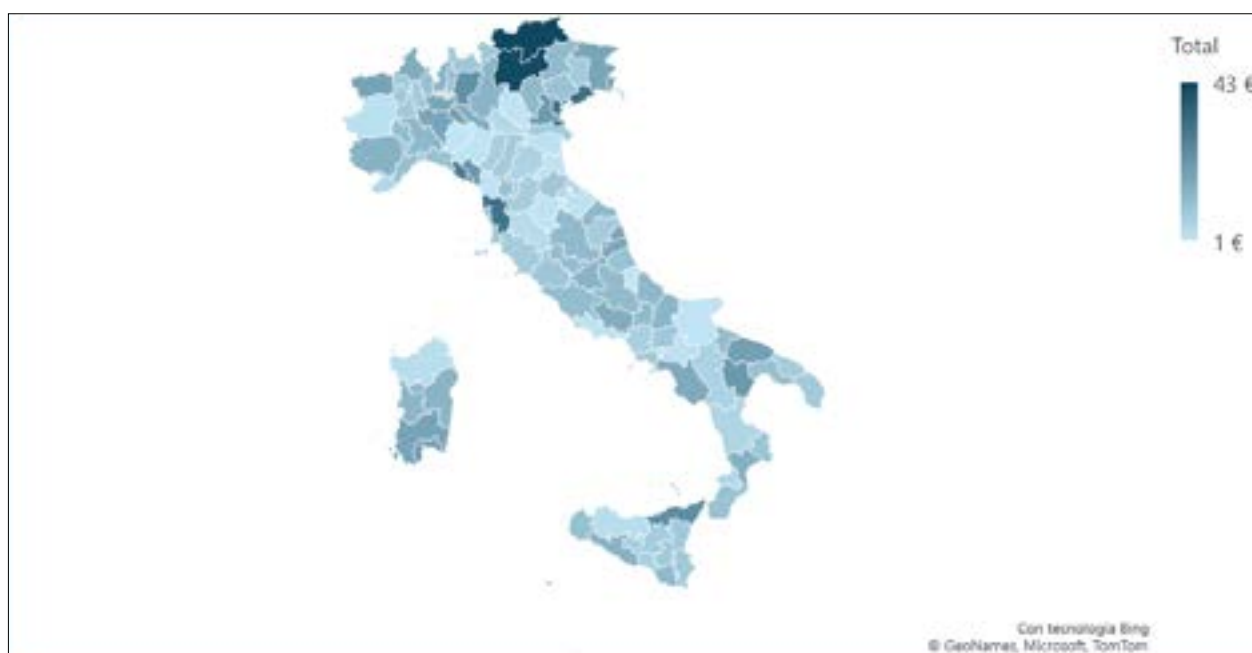
- Choosing a burial site for the deceased is crucial for social, environmental, and health reasons. This service is managed by local authorities and funded through their budgets. In our community, ensuring a dignified burial for hygienic reasons requires adherence to specific regulations. Cemeteries are constructed in accordance with two regulations: the mortuary police regulation and the cemetery master plan of the Municipality, which help prevent health issues related to decomposition. During the recent pandemic, concerns about cemetery space have become more prominent, influenced by rising mortality rates. According to Presidential Decree 285/1990, the management of cemeteries falls to local authorities, which are responsible for their monitoring and maintenance, with costs varying based on their size, history, and population.

Municipal expenditure on cemeteries generally covers four main areas:

- routine and special maintenance;
- staff expenses;
- management of funeral operations;
- investment in new facilities.

The management of cemetery services in the municipal budget is governed by Mission 12 and Program 9, which cover expenses for maintenance, cemetery surveillance, green spaces, and the regulation of funeral services. It also includes burial concessions and health and hygiene inspections. A five-year analysis of the budgets of provincial capitals compared the costs of cemetery services. Bolzano has the highest per capita expenditure, capita expenditure (€43), while several municipalities spend less than €3 per person (figure 7).

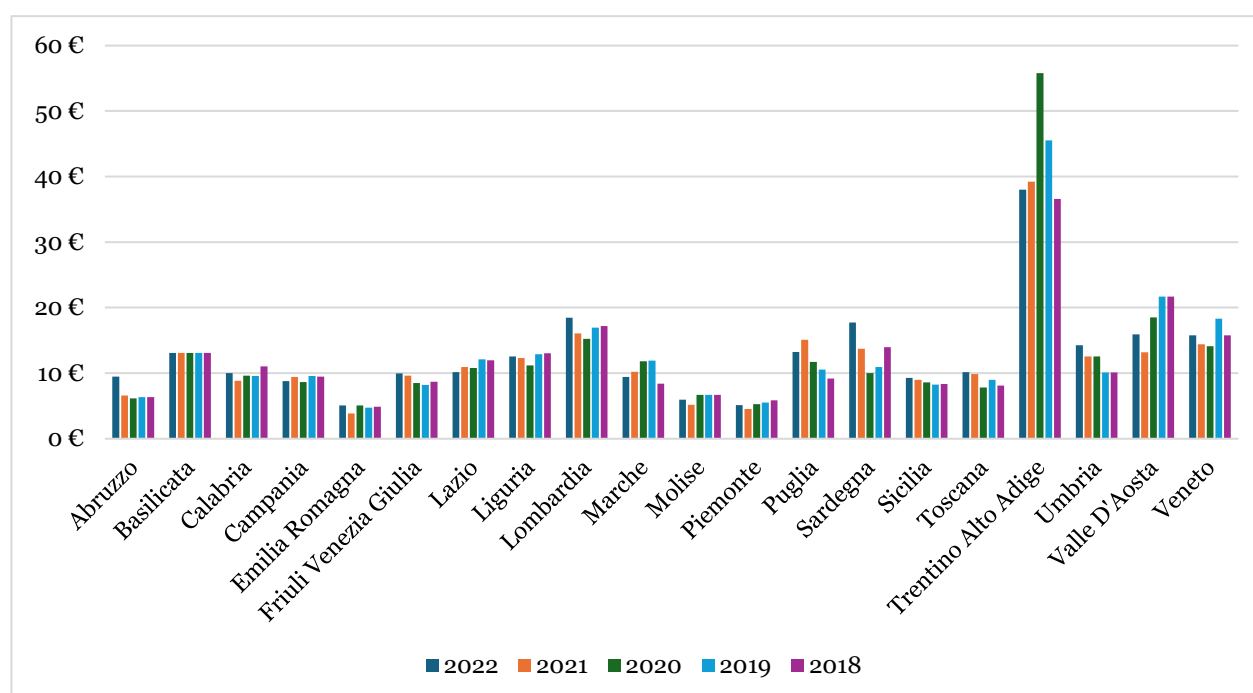
**Figure 7.**  
*Capitals by per capita expenditure*



Source: developed by the author.

Considering all Italian municipalities (Figure 8), however, the average expenditure on cemetery services amounts to €12 per person. The administrations that spend the most on average are those of Trentino-Alto Adige (€ 38), followed by Sardinia and Lombardy

(€18), and Veneto (€16). Conversely, the regional administrations with the lowest averages are Emilia-Romagna (€5 per person), Piedmont (€5), and Molise (€6).

**Figure 8.***Average spending by region*

Source: developed by the author.

The analysis indicates that cemetery services spending affects municipal budgets, with variations depending on the size and population of the municipalities. In municipalities with fewer than 50,000 residents, costs are lower, but there are financial challenges related to fixed costs. Densely populated cities require more cemetery space and need to find innovative solutions. Historic cemeteries demand significant investment. The expenses related to complying with health and safety

regulations are rising. Municipalities, such as those in China, are exploring options like cremation. Project financing, already utilised in the United Kingdom and the United States, can offer investment opportunities and reduce costs. In Italy, it has been adopted for various cemetery services, as exemplified by Brescia, with costs of around 21.5 million euros and a municipal contribution of 3 million. The economic impact will be evaluated over time.

## CONCLUSIONS

Many cemeteries were established in the 19th century, with some being monumental. In Italy, inhumation remains the primary burial method, but entombment accounts for two-thirds of requests. This has led to space issues in cemeteries, shifting from a rotational to an accumulation approach (Mari, 2022). The problems associated with entombment worsen due to congestion, resulting in saturation and abandonment. Cemetery revenues are mainly derived from concessions, operational fees, and votive light charges. Expenses include management, construction, and upkeep. These fees do not cover ongoing costs and fail to ensure sustainability. Until 2001, burials were free for users and funded by local authorities (Filipovic, 2013). This policy resulted in concession fees that do not reflect maintenance costs, making them significantly lower than their actual value. Additionally, the rise in cremation has decreased concession revenues, prompting cemetery management to revise fees for sustainability. Some

municipalities have outsourced cemetery services to reduce costs and staff shortages, often turning to private companies for low-cost services. This has led to a decline in service quality. Cemetery management is an attractive sector for private firms due to its steady demand, which remains unaffected by economic fluctuations. Main activities funded include the construction of crematoria and fee management. However, managing cemeteries is a complex process, involving private, health, and administrative considerations. Public authorities must ensure quality services but often face delays in creating burial spaces. Proper planning and continuous funding are essential, as municipalities struggle financially and cannot cover all expenses. Municipal management of cemeteries risks excessive demand. Over the next thirty years, an increase in burials and cremations is anticipated (Breschi, 2017). During the 1960s and 1970s, Italy experienced rapid population growth, a phenomenon known as the “baby boom” (Istat Report, 2022). Between

1963 and 1965, over 3 million children were born in good living conditions. As the “baby boom” generation ages and birth rates decline, Italy’s average age is rising, creating a greater need for cemetery space. Cremation could be a solution, as many crematoria—mainly in the north—were scarce in 2016. Promoting cremation will be essential in the coming years to meet the increasing demand for cemetery spaces. Although more common in Europe, cremation rates are rising in Italy. Future Implications: The complexities of the Italian cemetery system necessitate a national law that elevates cemetery services to an advanced level, aligning them with the best local public services (Leotta, 2024). Funeral services have become multifaceted and industrialised, beyond basic

hygiene and health roles. Recognised as priorities of general economic interest, these services require proper management. Thanks to the Consolidated Law on Local Public Services, municipalities can integrate services, especially within metropolitan areas. Events like Tanexpo 2024 demonstrate that approaches to mourning and remembrance are evolving in Italy, striking a balance between digital innovation and traditional cemetery practices. Funeral services encompass social and cultural dimensions and should be viewed as opportunities for civil development. A reform is necessary to enhance management and legal frameworks. Future research should involve more municipalities and comparisons with other European nations.

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# INTEGRATING CYBERSECURITY INTO INTERNAL AUDIT THROUGH A SELF-ASSESSMENT TOOL BASED ON A SYSTEMATIC LITERATURE REVIEW

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## Cristina-Raluca CERNOVSCHI

PhD students, Ștefan cel Mare University of Suceava, Romania

<https://orcid.org/0009-0001-6548-2608>

[cristina.cernovschi09@gmail.com](mailto:cristina.cernovschi09@gmail.com)

## Marius-Sorin CIUBOTARIU

PhD in economics, Ștefan cel Mare University of Suceava, Romania

<https://orcid.org/0000-0002-8560-9223>

[marius.ciubotariu@usm.ro](mailto:marius.ciubotariu@usm.ro)

## Svetlana MIHAILA

PhD in economics, Academy of Economic Studies of Moldova

<https://orcid.org/0000-0001-5289-8885>

[svetlana.mihaila@ase.md](mailto:svetlana.mihaila@ase.md)

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## SUMMARY

In an era where technological innovations are reshaping organisations' operational strategies and introducing new challenges related to data protection and privacy, internal auditing is compelled to expand its scope to address the risks associated with cybersecurity. In this context, we propose a systematic review of 16 studies indexed in the Web of Science database, covering the period from 2017 to 2025. These studies were selected based on clear inclusion and exclusion criteria, with the aim of capturing the interdependence between the internal audit function and an organisation's cybersecurity, in order to assess the contribution of internal auditors to mitigating cyber risks. The results are presented in two forms: first, a categorization of the reviewed studies according to the key ideas addressed by the authors; and second, a company-level selfassessment tool for integrating cybersecurity into the internal audit process. These results have dual relevance: firstly, they serve academics, who can more easily track the main interests in this area as well as the existing gaps in the literature; secondly, they help companies diagnose the maturity level of cybersecurity integration into internal audit processes. However, these results are limited by the analysis of a small number of studies, as restricted access to some articles prevented their inclusion in the analysis.

**Keywords:** *internal audit, cybersecurity, inovative technology, assurance, cyber risks*

## INTRODUCTION

With the increasing assimilation of manual processes by intelligent technologies, cybersecurity is becoming an emerging topic among internal audit committees. The main risk factor of cyber-attacks is the misappropriation of a company's assets or the manipulation of data on a computer through the illegal use of hacking knowledge (Dutchak, R., et. al., 2021) and differs from other illegalities in that it takes place in cyberspace, not requiring the offender to move physically to the scene of the action. According to a report by IBM (2024) analyzing the financial impact of data breaches globally, in 2024 cyberattacks cost companies an estimated \$4.88 million, up 10 percent from the previous year, and on top of that this was the highest since the pandemic. Cybercriminals operate with complicated and difficult to intercept schemes, and in these situations to which all entities that have included artificial intelligence in their business are involuntarily exposed, internal audit is seen as a savior, due to the assurance role and independence

of this department within an organization. Our study focuses on the challenges faced by internal auditors while integrating cybersecurity into their assignments and their chances of success. Through a careful literature review, we tried to summarize the added value that the internal audit department brings to the organization in minimizing cyber risks. The results of our work materialized in a thematic framing of the research available to the general public so far in the Web of Science database, identifying three areas of interest: the role and updated competencies of internal auditors, risk minimization solutions developed following security breaches, and the factors leading to a quality cyber audit. This paper contributes to the literature, in addition to providing support to internal audit professionals, and aims to draw the attention of regulators to the lack of clear and up-to-date regulatory frameworks for the current context.

## LITERATURE REVIEW

Currently, most organisations store their information on IT infrastructures, from business partner details to financial data, leading to a reliance on virtual environments and thus increasing the vulnerability of companies to cybersecurity threats. In addition, the latest technological innovations, while offering multiple benefits, expose organisations to the risk of compromise of sensitive information. All this means that internal audit has to reconsider its mode of action and proactively engage in minimizing cybersecurity risks. In this context, the literature tries to cover as broad a scope as possible on the relationship between internal audit and cybersecurity.

Professionals in the field provide us with studies that trace the ways in which internal auditing can help prevent data

breaches; internal auditing should consider in its activity what cyber threats the company is facing, then it should propose the implementation of special programs for monitoring the company's digital behavior and develop a set of procedures for the use of cyberspace (Dutchak, et. al., 2021). Moreover, some authors (Usman, et. Al., 2023) attempt to characterize internal auditors and assess their risk awareness, citing professional ethics, personality traits and rewards as influential factors in detecting cybersecurity issues. Similarly, (Jiang, 2024). statistically demonstrates that auditors' rewards grow directly proportional to the company's exposure to attacks.

Also, to support internal auditors, researchers analyze the level of vulnerability of business sectors to risks associated

with IT infrastructure, according to (Arcuri, et. al., 2018), the financial sector is considered the most prone to cyber-attacks because banks are additionally tasked with defending their financial assets. Analogously, (Gulyas & Kiss, 2023), manage to identify the most common attack methods that cybercriminals use on financial institutions (social engineering and phishing, ransomware attacks) and propose customized solutions for this industry (blockchain technology implementation) which in their opinion should be treated differently from the others for the direct impact it has on the economy. Furthermore, (Kelton, & Yang, 2025) find that if a company operating in a particular industry suffers a cyber attack, the whole industry is affected and the effects are usually reflected on reputation (Fotis, 2024). In addition to reputation, the directly affected company faces costs related to IT repairs, legal expenses or business continuity disruptions. We can even find in the literature a guide proposed by Sánchez-García which he calls CRAG, and which contains 7 steps and 28 activities, accompanied by practical applications and implementation examples, as well as aspects to be taken into account when writing

the audit report. Ferreira et al. (2025) based on risk management theory, presents processes and tools used in internal audit to assess and continuously improve cyber controls. such as interdepartmental cooperation, continuous audit or real-time monitoring. Consistent with the other context of smart technology development, Chin et al. (2025) built a cybersecurity auditing model based on an autonomous agent using Large Language Model, which can identify breaches of security policies such as password violations.

After reviewing the scientific sources dealing with cybersecurity and internal audit, we can conclude that although the main issues are touched upon, the dynamics of the subject mean that they cannot cover all aspects in depth. This conclusion stems from the fact that cybersecurity is a constantly evolving field, influenced by technological innovations, and the speed with which cyber attackers act. Therefore, in the following, we will give a complete overview of all the topics discussed at the moment to see in which areas there is still work to be done and where the literature has reached saturation point.

## METHODOLOGY

An important step in achieving the proposed goal is the choice of an appropriate research method, so in order to be able to present an overview of the involvement of internal auditors in reducing the threat of cybersecurity breaches, we considered it appropriate to use the SLR (systematic literature review) method, which consists

of an analysis of all existing studies in a database on a given topic. In our case, we chose Web of Science as the documentation space and the search expression was „cybersecurity in internal audit”. As to how the relevant studies were selected, we have included all the details in Table 1.

**Table 1.**  
*Selection criteria for studies included in the analysis*

Database	Web of science
Query	Cybersecurity in Internal Audit
Time period	2017-2025
Initial result	37 studies
Exclusion criteria:	
• - Language	English=> 37 studies
• - Document type	Article => 30 studies
• - Availability	OpenAccess => 16 studies available
Final result	16 studies analysed

Source: own processing

As can be seen in the table above, the studies included in the analysis were conducted over a period of 9 years, we also preferred to focus only on articles, 4 proceeding papers, 3 review articles and 2 early access were excluded. Our search was limited by open access to papers, 14 studies dealing with the topic of adopting cybersecurity risks in annual internal audit plans, conducted in the years 2024 and 2025, were eliminated. Limiting open access influences the results as more recent studies that

certainly contain novel approaches could not be included because they could not be fully analyzed. Refinement of the database resulted in 16 available studies that met all criteria, each study was subjected to critical interpretation and thematically categorized. Specifically, we read all articles in their entirety, identified the purpose and outcomes, first extracted them all into a table, then based on keywords identified common purposes, and then created three thematic categories:

the role of internal auditors in ensuring cybersecurity, determinants of effective cyber auditing, and practical examples of breach or audit. Each individual study has been classified into one of the three categories and discussed, so that in the end we can synthesize the current knowledge on integrating cyber risks into internal audit activities. The thematic coding process may include an inherent degree of subjectivity as it was done manually and not with the help of any computerized system. Based on the main findings of the 16 thoroughly analyzed studies, we constructed a self-assessment sheet on the need for integrating cybersecurity into internal audit processes addressed to the board of directors. The sheet is divided into 4 points of 5 questions each, the answer to which can be yes or no, in case those who fill in the form feel the need to explain the answer, we have also created an explanation box. The structure and interpretation are drawn from the risk-based audit theory according to

which the audit should correspond to the organisation's exposure and the effectiveness of control measures. The first item looks at the degree of exposure, the more yes answers, the more exposed the company is, criterion number 2 looks at the measures a company takes to protect itself from cyber risks, and the last two criteria look at the positioning of the internal audit function and the qualities that the internal auditor should possess. A majority of yes answers in these last three sections means that the entity has understood the current context and has adapted to the new requirements, and a negative answer means that the internal audit function urgently needs to be reconfigured. Briefly, after analyzing the 16 studies, based on the scopes, we managed a thematic grouping of the trends in the field, and based on the extracted results we developed a self-assessment sheet on the understanding of the need to adapt internal audit processes in the context of cybersecurity.

## RESULTS AND DISCUSSION

The omnipresence of cyber risk and the major financial losses created by data privacy breaches have led to the expansion of the work of internal auditors who are charged with providing independent assurance on the quality of information systems, procedures and strategy to mitigate cyber threats. In addition, the increasing pressures generated by the contagion of damage to other organisations operating in the same environment are driving the audit department to mobilize to prevent threats. In order to gain a clearer understanding of the

trends in research on this topic, we conducted a literature review and then grouped the relevant studies according to thematic areas, to be able to make comparisons between findings, but also proposals. Table 1 below lists studies that focus on the roles that internal auditors play in maintaining strong cybersecurity, the changes that have occurred in the work of auditors, and how three-dimensional internal auditing models have evolved from compliance to proactive engagement.

**Table 2.**

*Studies based on identifying the role of internal audit in cybersecurity*

Author	Title	Aim, Objectives	Results
Bozkus Kahyaoglu, S., & Caliyurt, K. (2018)	Cyber security assurance process from the internal audit perspective	The study examines the issues, vulnerabilities and limitations of the internal audit function in ensuring cybersecurity	The authors note that the role of auditors should be expanded from support to strategic advice, they should provide assurance not only on compliance but also on the methods adopted to manage cybersecurity risks, and cybersecurity should be included in annual audit plans
Stafford, T., Deitz, G., & Li, Y. (2018)	The role of internal audit and user training in information security policy compliance	The study focuses on the role of internal auditors in identifying non-compliance with information security policies, focused on the organisation's human resources.	Research has shown that improving a company's cybersecurity depends on internal audits that identify both non-compliance in the application of procedures and the underlying reasons for breaches.



Author	Title	Aim, Objectives	Results
Betti, N., & Sarens, G. (2021)	Understanding the internal audit function in a digitalised business environment	The study investigates the changes that have occurred in the internal audit function with the digitization of business	The researchers emphasize the need for increased attention to cybersecurity risks on the part of internal auditors and the need to hone digital literacy. They also emphasize the advisory role and changing the way internal auditors work.
Elmaasrawy, H. E., & Tawfik, O. I. (2025)	Impact of the assertive and advisory role of internal auditing on proactive measures to enhance cybersecurity: evidence from GCC	This paper aims to determine the impact that the internal auditor's assurance and advisory role has on improving cybersecurity	The results of the study show that the proactive organisational, human and technical measures taken to improve cybersecurity are positively influenced by the assurance and advisory role of internal audit, while the traditional role influences only technical measures.
Guohong, Z., Zhongwei, X., Feng, H., & Zhongyi, X. (2025)	The audit committee's IT expertise and its impact on the disclosure of cybersecurity risk	The research aims to assess how the internal auditor's IT skills influence the extent to which internal auditors identify and report cybersecurity risks	The findings of the study state that internal audit with IT skills report cybersecurity risks more often, and for entities with weak corporate governance and weak internal controls, the influence of internal auditors with IT skills is greater

Source: own processing based on literature

The following table summarizes 6 studies indexed in the Web of Science database that emphasize the importance of internal auditing in maintaining cybersecurity in an organisation. The authors of these papers use mixed research methods, both conceptual analysis, interviews and surveys or questionnaires. All results have at their center the role of the internal auditor and the idea that traditional duties have become insufficient for today's user requirements. The common themes show that it is not enough for internal auditors to focus only on compliance with entity, state or other internationally mandated policies and procedures, but that they need to be actively involved in evaluating the organisation's strategies and to acquire technical skills. This means assessing password generation policies, how passwords are managed, whether antivirus applications are up to date and working, and if signs of a cyber-attack occur, how employees respond. In addition, they need to conduct cyber-attack simulations to assess the resilience of prevention plans and come up with recommendations. In short, today's internal auditors need to do more than just check what's already been done; they need to help

prevent problems before they occur. If we were to look at when the first studies on the role of the internal auditor in preventing cyber risks originated, the first year of publication is 2018. Coupled with the fact that in the same year the General Data Protection Regulation was also implemented and interpreted through or say that this research emerged as a response to coercive pressures that forced organisations to comply with these rules. With the implementation of this regulation, a number of new responsibilities have been placed on internal auditors, given that the subject of personal data is a sensitive topic that needs to be dealt with at the moment, the role of auditors is starting to tend towards strategic partner.

After having identified all the research that is only on the role of internal auditors in maintaining cybersecurity, the next aspect addressed by specialists in the field is related to practical examples, which present with the help of case studies both audit models tested in organisations and data breaches. These papers have been grouped in Table 3 for easier visualization.

**Table 3.***Studies based on organisational measures and response models*

Author	Title	Aim, Objectives	Results
Sabillon, R. (2018)	A Practical Model to Perform Comprehensive Cybersecurity Audits	This paper presents a cybersecurity audit model that can be used by internal auditors regardless of the type or size of the organisation.	The results materialize in the development of a Cybersecurity Security Audit Model (CSAM). This CSAM has 18 domains; domain 1 is specific to national cybersecurity and domains 2-18 can be implemented in any organisation.
Bakarich, K. M., & Baranek, D. (2020)	Something Phish-y is Going On Here: A Teaching Case on Business Email Compromise	This study aims to draw attention to the need to include cybersecurity risks in the audit plan by illustrating a real case	The authors draw attention to the large financial losses that a cyber-attack has caused due to the lack in implementing internal controls and correlate this problem with the deficiencies discovered in company financial reporting
Le, T. D., Le-Dinh, T., & Uwizeyemungu, S. (2024)	Search engine optimization poisoning: A cybersecurity threat analysis and mitigation strategies for SMEs	The research addresses the vulnerability of SMEs to cyber attacks and proposes solutions to mitigate the risks in relation to the resources available to them.	The results of the study emphasize the need to adopt an organisational culture based on cyber-risk awareness and the need for cybersecurity audits to combat cyber-attacks.

*Source: own processing based on literature*

Examining the papers summarized above, we note the focus on situations that already exist in practice, ranging from evaluating cybersecurity audit models, to calculating financial losses from cyberattacks, to presenting methods of operating small and medium-sized businesses. Given that only three studies were included in this category, there is less emphasis on what already exists in practice. This disproportion indicates that the literature provides an overview but fails to identify implementation methods for varied operational environments. While the focus is on sophisticated cybersecurity auditing methods, it does not take into account the limited resources of SMEs and the fact that these methods can only be implemented by

large enterprises. In addition, as regulations are not clear enough and internal auditors are new to cybersecurity auditing, there are few examples of models and none are customized to business sectors. We therefore see a need for studies targeted at real areas of application and believe that we need to pay more attention to already known incidences in order to learn from them.

The third and broadest category comprises 8 papers that share the common goal of identifying factors that influence the quality of an internal cybersecurity audit. The details have been summarized in Table 4, and in the following we aim to extract from the table the elements that add value to the cyber audit.

**Table 4.***Factors Influencing the Effectiveness of Internal Audit in Ensuring Cybersecurity*

Author	Title	Aim, Objectives	Results
Islam, M.S., Farah, N. and Stafford, T.F(2018)	Factors associated with security/ cybersecurity audit by internal audit function	This study aims to see whether certain characteristics of the audit committee and firm management are positively associated with cybersecurity risk reduction.	The authors found that the degree of involvement of internal auditors determines an effective security audit, the active presence of the Board of Directors helps internal audit in identifying cybersecurity risks, and additional certifications do not increase the effectiveness of cybersecurity audit.
Slapničar, S., Vuko, T., Čular, M., & Drašček, M. (2022).	Effectiveness of cybersecurity audit	The purpose of this paper is to measure the effectiveness of internal cybersecurity auditing in terms of several determinants.	The results of the research materialize in a Cybersecurity Audit Index composed of three dimensions: planning, conducting the audit activity, and reporting; the index scores vary between companies, is positively associated with the quality of risk management, and does not significantly correlate with reducing the likelihood of a cyber attack.
Masoud, N., & Al-Utaibi, G. (2022)	The determinants of cybersecurity risk disclosure in firms' financial reporting: Empirical evidence	The research aims to analyze the relationship between reporting deficiencies and the degree of disclosure of cybersecurity risks	The study results show that organisations that have suffered cyber-attacks increase the quality of their financial reporting, and auditors intensify the audit process by focusing on information breach risks
Slapničar, S., Axelsen, M., Bongiovanni, I., & Stockdale, D. (2023)	A pathway model to five lines of accountability in cybersecurity governance	This paper examines the influence of the relationship between the management and internal audit in ensuring a cybersecurity.	The study argues that the role of internal auditors is under-emphasized in ensuring cybersecurity in organisations. Furthermore, the researchers believe that managers and employees should be more involved and communicate with the internal audit department so that the latter can include a cybersecurity audit in its plan.
Zhou, F., & Huang, J. (2024)	Cybersecurity data breaches and internal control	The purpose of the research is to analyze how organisations that have experienced cybersecurity incidents respond through the lens of internal control.	The researchers find that management change is positively correlated with improved internal controls based on preventing cyber-attacks, and usually after an organisation faces such a problem it tends to improve its policies to avoid a recurrence.

Author	Title	Aim, Objectives	Results
Hérroux, S., & Fortin, A. (2024)	How the three lines of defense can contribute to public firms' cybersecurity effectiveness	The paper focuses on how public entities manage cybersecurity issues with an emphasis on the three lines of defense	The results of the study emphasize the need for collaboration between internal audit and IT departments to strengthen the data security system as well as the fact that effective internal audit alone does not eliminate problems, but that each line of defense must be actively involved.
Calvin, C., Eulerich, M., & Holt, M. (2025)	Characteristics of cybersecurity and IT involvement by the IA activity	The study tracks the level of involvement of internal audit in cybersecurity assurance activities	The study argues that the role of internal auditors is under-emphasized in ensuring cybersecurity in organizations. Furthermore, the researchers are of the opinion that managers and employees should be more involved and communicate with the internal audit department so that the latter can include a cybersecurity audit in its plan.
Vuko, T., Slapničar, S., Čular, M., & Drašček, M. (2025)	Key drivers of cybersecurity audit effectiveness: A neo-institutional perspective	The research analyzes how coercive forces, normative forces and mimetic forces contribute to cybersecurity assurance	The authors emphasize that cybersecurity is ensured by the training of internal auditors and the support of the board of directors, and is not influenced by international regulations and the outsourcing of IT audit services.

Source: own processing based on literature

Upon further analysis of the information summarized in the table above, we conclude that several research studies highlight a gap between senior management's awareness of cyber risks and the actual level of integration of these risks into audit processes. Although boards of directors state that cybersecurity is a priority, they are not sufficiently engaged and there is a lack of adequate communication between management and the audit department. Also, another factor influencing the integration of cybersecurity into audit is the lack of technical skills of auditors, which contrary to expectations, is not given by certifications, as internal auditors who hold these certifications are not trained to assess IT systems, encryption, firewalls or responses to attacks. At the same time, we see that companies that have had at least one cyber-crime are more attentive and more open to accepting the idea that internal auditors should also take on the issue of cybersecurity. These companies are also willing to offer more to internal audit professionals to be more vigilant in their work. Therefore, the determinants of effective internal cyber internal audit mentioned in the studies are: the level of involvement of senior management, the existence of communication between internal audit and IT departments, the level

of rewards given to internal auditors and the skills of internal auditors.

In order for our study to have practical, not just theoretical, applicability, starting from the three thematic categories discussed by experts in the field: the role of the internal auditor in cybersecurity, organisational measures and response models as well as the determinants of an effective cybersecurity audit, we thought it would be relevant to develop a self-assessment tool to evaluate the degree of integration of cybersecurity in the internal audit process, a checklist type, with binary answers: yes or no, which we considered relevant to divide into 4 dimensions. The first dimension concerns how exposed the company is to risk, and the next three are themes identified in the literature. The questions were formulated by analysing the results and recommendations from each study, considering the challenges faced by companies, the construction of integration models, the elements breached during cyber attacks, and translating theoretical findings into practical applications. This self-assessment sheet will help organisations to see where they stand in relation to the guidelines, advices and models found in the literature.

**Table 5.***Self-Assessment sheet on the need to integrate cybersecurity into internal audit processes*

Nr.	Assessment criteria	YES	NO	EXPLAIN
<b>THE COMPANY'S EXPOSURE TO CYBERSECURITY RISK</b>				
1.	Is the organisation dependent on information systems to run its day-to-day business?			
2.	Does the company's business requires the processing and storage of personal data?			
3.	Does the company allow employees or collaborators to remotely access the organisation's systems?			
4.	Does the organisational culture encourage reporting security issues?			
5.	Have data leaks or IT incidents been identified in recent years?			
<b>CYBERSECURITY MEASURES IMPLEMENTED BY THE COMPANY</b>				
1.	Does the company have guidelines for the use of information systems and the protection of sensitive data?			
2.	Is access to sensitive data restricted to certain individuals who are trained annually on cyber risks, and is employee access regularly reviewed?			
3.	Are IT systems regularly updated and monitored for signs of attack or unusual activity?			
4.	Are anti-virus applications and multi-factor authentication installed?			
5.	Is there a tested cyber attack response plan?			
<b>THE POSITIONING OF THE INTERNAL AUDIT FUNCTION</b>				
1.	Does the internal auditor have access to all company IT systems?			
2.	Is the internal auditor familiar with global regulations for assessing cybersecurity (COBIT, NIST, ISO27001)?			
3.	Does the internal auditor have ongoing discussions with the IT team or person responsible for security?			
4.	Are cybersecurity audits included in the annual audit plan?			
5.	Have there been concrete proposals from internal audit related to the company's cybersecurity?			
<b>LEVEL OF TRAINING OF INTERNAL AUDITORS</b>				
1.	Is the internal auditor IT literate and qualified?			
2.	Is the internal auditor able to assess whether the technical controls implemented are relevant to the risks to which the company is exposed?			
3.	Does the internal auditor have the ability to prioritize cyber risks based on the amount of damage to the organisation?			
4.	Is the internal auditor involved in assessing risk control systems as they are being developed, not retrospectively?			
5.	Does the auditor in turn use smart technologies for continuous monitoring?			

Source: own processing



In setting the scores, we propose three appropriate levels for each dimension: low, medium, high, which are set according to the number of affirmative answers. We consider a low level when negative answers predominate, a medium level when the number of yes answers is 3, and a high level is equivalent to 4 or 5 yes answers. To interpret the per-set table, we will correlate the answers given for the first dimension with those for the other dimensions. According to these levels of each dimension, we logically interpreted the results, deriving 6 organisational profiles described in the following paragraphs:

*Unexposed and unprepared organisation* (0 positive answers at first dimension) Although their field of activity does not force them to protect themselves from cyber-attacks and they have not suffered any incidents, the lack of current exposure creates a false security, and in the current context, this profile is the most vulnerable to becoming the target of attackers if they do not invest in prevention measures and internal audit training.

*Unexposed and Prepared Organisation* (0 positive answers at first dimension) These companies are the most secure, although the risk is low, they have still chosen to protect themselves and involve internal audit in cybersecurity.

*Exposed and unprepared organisation.* (0-6 positive answers) - This type of entity is susceptible to cyber risks, lacking technical measures and internal audit involvement. In this case urgent decisions should be taken to integrate cybersecurity into the audit processes; the internal auditor should actively participate in the development of procedures and rules, should strengthen

the relationship with the IT department in the shortest possible time and invest heavily in technical knowledge training.

*Protected organisation but without governance:* (7-11 positive answers). Entities that fall into this category are exposed to cybersecurity risks, have integrated measures, but internal audit is not actively involved. Therefore, organisations at this stage need to consider integration internal audit into cybersecurity, as the existence of measures does not guarantee their effectiveness. Although the fact that the IT department is in charge of risk prevention, they do not provide independent assurance but are subjective. Auditors may point out that risks are not properly assessed Although not as urgent as in the first case, the reorganisation of the internal audit function needs to be done.

*Exposed but aware organisation:* (12-16 positive answers) For these organisations, a relationship between cybersecurity and internal audit is already starting to take shape, but it is still developing, it does not meet all the requirements and there is space for improvement. Internal auditors need to take their role more seriously, consolidate relations with the IT department, improve their security knowledge and continuously evolve a training plan.

*Mature integrated organisation:* (17-20 positive answers) The companies that are in this category have already integrated cybersecurity into their internal audit, trained auditors, well-developed measures and a high level of exposure. Internal auditors must continue to improve; procedures and controls require regular review and optimisation.

## CONCLUSIONS

The present study aimed to analyze the integration of cybersecurity into the internal audit process through a systematic review of the literature. The first finding is related to the novelty of the topic; the relevant studies were published after 2017, and there are enough aspects not yet discussed. Starting from the 16 identified studies, in our research, we managed to compile the topics into three thematic categories, as we wanted to provide a more structured view of what it means to integrate cybersecurity into the internal audit process. Following this categorization, we could clearly see that the researchers' interests are focused on the reorganisation of the audit function, the skills needed by future professionals, and the financial impact that cyber criminals can cause to companies that neglect cybersecurity risk.

Based on the rankings we have developed a checklist with 20 questions to assess the level of integration of cybersecurity in the internal audit process. For its interpretation we resorted to the creation of 6 organisational profiles that help to self-assess the current status and to identify weaknesses that require

intervention to strengthen the relationship between internal audit and cybersecurity.

This study contributes to the literature by thematically structuring the research on internal audit and cybersecurity in three directions: role, measures, determinants that can be starting points for future analysis. On the application side, the self-assessment sheet and the 6 organisational profiles support organizations in understanding their own positioning and in implementing improvements in the relationship between internal audit and cybersecurity. In contrast to a simple checklist, the proposed tool has a comparative function as the questions are drawn from international literature reviews and organizations can benefit from an assessment against existing global trends and recommendations.

This research was constrained by open access to scholarly materials on the Web of Science platform, and since this study was conducted on the basis of critical thinking, we consider the risk of arbitrary categorization, as some research included in the analysis was on the borderline between one category and another.

After examining the existing topics, we found that the issue of cybersecurity in underdeveloped or developing countries is treated superficially, for example in Romania, such a topic has not yet been addressed, therefore we propose as future research directions to investigate the challenges faced by Eastern European countries. The factors that determine the effectiveness of a cyber audit

should be studied individually and, last but not least, the need to update the regulatory frameworks should be emphasized. Also, in order to refine the proposed tool, future studies could focus on the practical application of the checklist and the comparison of profiles by business sectors.

## AUTHORS' CONTRIBUTIONS

- Conceptualization: Cristina-Raluca Cernovschi, Marius-Sorin Ciubotariu, Svetlana Mihaila
- Methodology: Cristina-Raluca Cernovschi
- Formal analysis: Marius-Sorin Ciubotariu
- Investigation: Cristina-Raluca Cernovschi
- Writing – original draft: Cristina-Raluca Cernovschi, Marius-Sorin Ciubotariu, Svetlana Mihaila
- Writing – Cristina-Raluca Cernovschi, Marius-Sorin Ciubotariu, Svetlana Mihaila
- Supervision: Svetlana Mihaila

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# GENDER VULNERABILITY INDEX AND CLIMATE LINKAGES IN MOLDOVA

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## Tatiana GUTIUM

Doctor of Economic Sciences, associate professor, National Institute for Economic Research,  
Academy of Economic Studies of Moldova

<https://orcid.org/0000-0002-8884-3269>  
[gutium.tatiana@ase.md](mailto:gutium.tatiana@ase.md)

## Elmira GOJAEVA

Doctor of Philosophy in Economic Sciences, Azerbaijan State University of Economics

<https://orcid.org/0009-0008-1064-3209>  
[elmira\\_qocayeva@unec.edu.az](mailto:elmira_qocayeva@unec.edu.az)

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## SUMMARY

Gender equality is a pressing issue on the agenda of many countries. Climate change is a global problem that cannot be solved without joint efforts. In Moldova, the problem of climate change is particularly acute, as the country is agrarian. Over the past six years, every second year, due to climate cataclysms, the volume of agricultural production has fallen. First of all, crop production volumes declined by an average of 30% in 2020, 2022, and 2024. On the other hand, Moldova strives to mitigate gender inequality, which manifests itself in various spheres of life (economy, health care, participation in decision-making bodies). This study tests the hypothesis about the impact of climate change on gender vulnerability. The authors suggest that in Moldova, climate change is exacerbating existing gender vulnerability, widening gender gaps in income, employment, poverty, and political participation. The research methodology is based on correlation analysis of publicly available data from the National Bureau of Statistics. The novelty of this study lies in the development of the Gender Vulnerability Index (GVI), consisting of six sub-indices that reflect the gender gap in income, employment, absolute poverty level, life expectancy at birth, representation in Parliament, and ministerial positions. The results of the study showed that there is a statistically significant relationship between climate change and the level of gender vulnerability. Gender gaps in employment and income exert the most significant impact on the GVI. These two indicators reflect women's limited opportunities in the labor market and wages compared to men, and their value has been higher in the last five years than in the previous period. The developed equations of multiple linear regression not only confirmed the proposed hypothesis but also proved that to mitigate gender vulnerability, it is necessary to promote strategies and programs aimed at reducing female unemployment and increasing the level of women's education.

**Keywords:** *climate change, gender vulnerability, gender inequality, gender gap, vulnerability assessment scale*

## INTRODUCTION

In recent years, Moldova has increasingly faced climate cataclysms and is one of the most vulnerable countries in Europe to climate change. Temperatures in Moldova have registered long-term warming trends (Taranu et al., 2024). Moldova's vulnerability is inherent, as agriculture remains one of the main sectors of the economy. The contribution of agriculture, forestry and fishing to GDP is 7.1% in 2023 and 2024, and the share of the population employed in this sector is 20.9% in 2023 and 18.1% in 2024. Thus, for every fifth citizen, the agricultural sector is the primary source of income, which makes their well-being directly dependent on climatic conditions.

The increase in the frequency and intensity of extreme weather events leads to a rise in the country's climate vulnerability (Gutium & Taranu, 2021). Droughts in 2012, 2015, 2020, 2022, 2024, and frosts during the growing season caused significant damage. Since 2020, climate cataclysms have become more frequent. Gross

agricultural production fell by 27.2% in 2020, 29.2% in 2022, and 14.6% in 2024, including crop production by 35.7% in 2020, 35.9% in 2022, and 22.9% in 2024 (NBS, 2025).

Gender inequality remains a significant challenge for countries worldwide. Moldova is no exception; in 2023, the Gender Income Gap stood at 15.57%. Climate change is not gender neutral, so one of the aims of this study is to examine the hypothesis regarding the impact of climate change on gender vulnerability. Since the National Bureau of Statistics does not calculate the Gender Vulnerability Index, the second aim is to develop this index for Moldova, taking into account the country's specific characteristics.

*The novelty of this study lies in the development of an Index that reflects the degree of aggregate gender vulnerability in Moldova, as well as a vulnerability assessment scale.*

## LITERATURE REVIEW

Most studies examining the link between climate change and gender vulnerability focus on the agricultural sector (Walker et al., 2022a). Researchers have identified a cause-and-effect relationship: natural disasters lead to higher costs and unemployment, as well as reduced food security. Due to inequality, men and women experience different levels of vulnerability to climate change (Adeola et al., 2024; Walker et al., 2022b), and women are more prone to food insecurity (Moon, 2024).

There are significantly fewer studies focusing on climate change adaptation policies that consider gender

vulnerability (Lawson et al., 2020). Empirical research on male- and female-headed households indicates a gender gap in climate change adaptation (Aryal et al., 2022). Madhuri argues that gender mainstreaming in climate policy can address women's vulnerability (Madhuri, 2025). X. Li demonstrated that social investment in climate change adaptation is necessary to reduce gender inequality (Li et al., 2025).

Most of the works on the topic of gender-climate vulnerability are narrative (Dasgupta, 2024). There are very few scientific articles that develop regression models



with fixed effects (Kumar & Maiti, 2025). Such studies require large open-access databases across multiple countries. The model developed by Sanchez-Olmedo et al. proves that improvements in the Global Gender Gap Index (GGGI) reduce CO<sub>2</sub> emissions per capita (Sanchez-Olmedo et al., 2025). Valls Martínez et al., using a regression model with panel data, demonstrated that the ratio of women to men on boards of directors is inversely proportional to the CO<sub>2</sub> emissions of these companies (Valls Martínez et al., 2022). A similar study was conducted by Allison Wu, who used the least squares method to test the hypothesis that “female governors

have a negative impact on state-level CO<sub>2</sub> emissions per capita” (Wu, 2025).

One of the gaps in the scientific literature is that the Gender Vulnerability Index has not been developed. This index would include, alongside the indicators in the Gender Inequality Index (health, education, and employment) (UNDP, n.d.), additional indicators such as those reflecting poverty and income levels. Another gap is the absence of a developed scale for assessing gender vulnerability. Therefore, as mentioned above, one of the two aims of the study is to develop the Gender Vulnerability Index for Moldova.

## METHODOLOGY: HYPOTHESIS AND GENDER VULNERABILITY INDEX CONSTRUCTION

To prove the hypothesis that there is a statistically significant relationship between climate change and the level of gender vulnerability of the population of the

Republic of Moldova, the following multiple regression models were developed (Models 1 and 2):

$$GVI_t = \beta_0 + \beta_1 \times AAT_t + \beta_2 \times AQP_t + \beta_3 \times FUR_t + \beta_4 \times WE_t + s_t \quad (1)$$

Where:

*GVI* – Gender Vulnerability Index, %;

*AAT* – Annual average air temperature, Celsius degrees;

*AQP* – Annual quantity of precipitation, m;

*FUR* – Female unemployment rate, %;

*WE* – Proportion of women with tertiary education, % (or *SF* – Average years of schooling for females, years);

$\beta_i$  – Parameters;

*s* – Stochastic term;

*t* – Year.

To verify the model's accuracy tests for autocorrelation and heteroscedasticity were performed using EViews 9.5 software. Suppose the coefficients for the climate variables ( $\beta_1$  and  $\beta_2$ ) are statistically significant and positive in the case of annual average air temperature. In that case, this will confirm the hypothesis that climate change affects gender vulnerability. The value of the parameter  $\beta_2$  can be positive or negative. If the annual quantity of precipitation is very low, this indicates a drought and leads to increased vulnerability. Conversely, if this indicator is very high, it demonstrates that heavy rains and floods are likely to occur, which also increases vulnerability. Therefore, this regression equation will

indicate the statistical significance of the impact of annual precipitation on gender vulnerability.

To determine the sign of the effect of precipitation on gender vulnerability (positive or negative), we will develop another regression model (Model 3) in which the climate change indicators will be replaced by the indicator “growing season precipitation anomalies (% of the norm 1991-2020).” Since this indicator exhibits both negative and positive values (non-linear effect), a U-shaped relationship is observed between precipitation anomalies and gender vulnerability. Therefore, we introduced the square of the precipitation anomalies into the regression equation.

$$GVI_t = \beta_0 + \beta_1 \times AP_t^2 + \beta_2 \times FUR_t + \beta_3 \times WE_t + s_t \quad (2)$$

Where:

*AP* – Growing season precipitation anomalies (% of the norm 1991-2020), %;

The National Bureau of Statistics (NBS, n.d.) doesn't estimate the Gender Vulnerability Index. Therefore, this study proposes an algorithm for calculating this index, taking into account the specific characteristics of Moldova and the availability of relevant indicators in open-access gender statistics. The Gender Vulnerability Index (GVI) is a composite indicator that measures the vulnerability of women relative to men, comprising six sub-indices. This index considers the gender

income, employment, and poverty gaps, the gender life expectancy gap at birth, and the gender gap in representation in government and parliament. The closer the value of this index is to 100%, the higher the gender vulnerability. Data from 2014 to 2023 were used to calculate the GVI. Gender statistics were explicitly revised for this period, as the NBS switched from estimating the stable population to assessing the usually resident population.

$$GVI_t = \frac{1}{6}(GIG_t + GEG_t + GPG_t + GLEG_t + GGM_t + GGP_t) \quad (3)$$

Where:

*GIG* – Gender Income Gap, %;  
*GEG* – Gender Employment Gap, %;  
*GPG* – Gender Poverty Gap, %;  
*GLEG* – Gender Life Expectancy Gap at Birth, %;  
*GGM* – Gender Gap in Ministerial Positions, %;  
*GGP* – Gender Gap in Parliamentary Representation, %;

The formulas for calculating gender gaps are not identical for all six sub-indices, as they differ in their impact on gender vulnerability (positive or negative). Equations 4–9 present their calculation formulas.

$$GIG_t = \left( \frac{ASM_t - ASW_t}{ASM_t} \right) \times 100 \quad (4)$$

Where:

*ASW* – Average monthly gross (or net) salary of women, lei;  
*ASM* – Average monthly gross (or net) wage of men, lei.

The *GIG* reflects gender disparities in earnings. When calculating this sub-index, the net value of wages can be used in place of the gross value, as the tax rates are identical for both women and men.

$$GEG_t = \left( \frac{MER_t - FER_t}{MER_t} \right) \times 100 \quad (5)$$

Where:

*FER* – Female employment rate, %;  
*MER* – Male employment rate, %.

A higher value of *GEG* indicates greater vulnerability to female employment.

$$GPG_t = \left( \frac{PRW_t - PRM_t}{PRM_t} \right) \times 100 \quad (6)$$

Where:

*PRW* – Absolute poverty rate of women, %;  
*PRM* – Absolute poverty rate of men, %.

If the *GPG* is positive, then the vulnerability of women is higher. Thus, the higher the *GPG*, the greater the gender inequality in poverty affecting women.

$$GLEG_t = \left( \frac{LEBW_t - LEBM_t}{LEBM_t} \right) \times 100 \quad (7)$$

Where:

*LEBW* – Life expectancy at birth for women, years;  
*LEBM* – Life expectancy at birth for men, years.

In Moldova, as in most countries worldwide, women live longer than men. Therefore, to avoid negative values in case of the *GLEG*, female life expectancy at birth is subtracted from male life expectancy in the numerator. This sub-index reflects the vulnerability of men in the health sector.

$$GGM_t = \left( \frac{SMM_t - SWM_t}{SMM_t} \right) \times 100 \quad (8)$$

Where:

*SWM* – Share of women ministers, %;

*SMM* – Share of men ministers, %.

The GGM signals the extent of underrepresentation of women in executive political roles.

$$GGP_t = \left( \frac{SMD_t - SWD_t}{SMD_t} \right) \times 100 \quad (9)$$

Where:

*SWD* – Share of women deputies in parliament, %;

*SMD* – Share of men deputies in parliament, %.

A higher value of GGP indicates greater gender inequality in legislative power. Two sub-indices were included in the gender vulnerability calculation algorithm because, if women are underrepresented in decision-making bodies, their specific needs are not taken into account when developing adaptation policies.

The focus was placed on these indicators because women are more vulnerable to the impacts of climate change due to lower income, underrepresentation in decision-making processes, less formal employment, and higher participation in the informal sector. The index includes not only indicators where the gap favours men but also those where it favours women, such as life expectancy at birth. It does not include indicators reflecting the education gap, as the ‘Share of women with tertiary education’ is used as a control indicator (exogenous variable) in Model 1, and ‘Average years of schooling for females’ in Model 2.

A comparative analysis of the Gender Vulnerability Index created by the authors and the Gender Inequality Index (GII) (United Nations Development Programme, n.d.) showed both similarities and differences. Both indices include indicators related to employment in the labour market, health status, and representation in parliament. However, the GVI covers more areas, including gender income and the poverty gap, which the GII does not address. When developing this index, the authors focused particularly on economic vulnerability. This broader coverage enables the GVI to more accurately reflect the socio-economic aspects of gender inequality in Moldova. Global indices do not always capture the specific realities of individual countries, so the authors designed a GVI tailored to Moldova’s particular context. The created index complements existing global indices and provides a more detailed perspective on gender vulnerability.

## ASSESSMENT AND EVOLUTION OF THE GENDER VULNERABILITY INDEX

The gender indicators needed to calculate the GVI and its six sub-indices were sourced from the official website of the NBS (National Bureau of Statistics of the Republic of Moldova, n.d.). The results of the evaluation are shown in Table 1. The trend of the GVI fluctuates; the highest level of gender vulnerability was recorded in 2019, while the lowest, within the analysed period, was in the following year. The 6.43 percentage point rise in the GVI in 2019

is attributed to the largest gender gap in the poverty rate between women and men during 2014-2024, as well as gender disparities in government leadership roles. A notable decline in gender vulnerability in 2021 was caused by a low level of the gender income gap, the gender life expectancy gap at birth, and the gender gap in parliamentary representation.

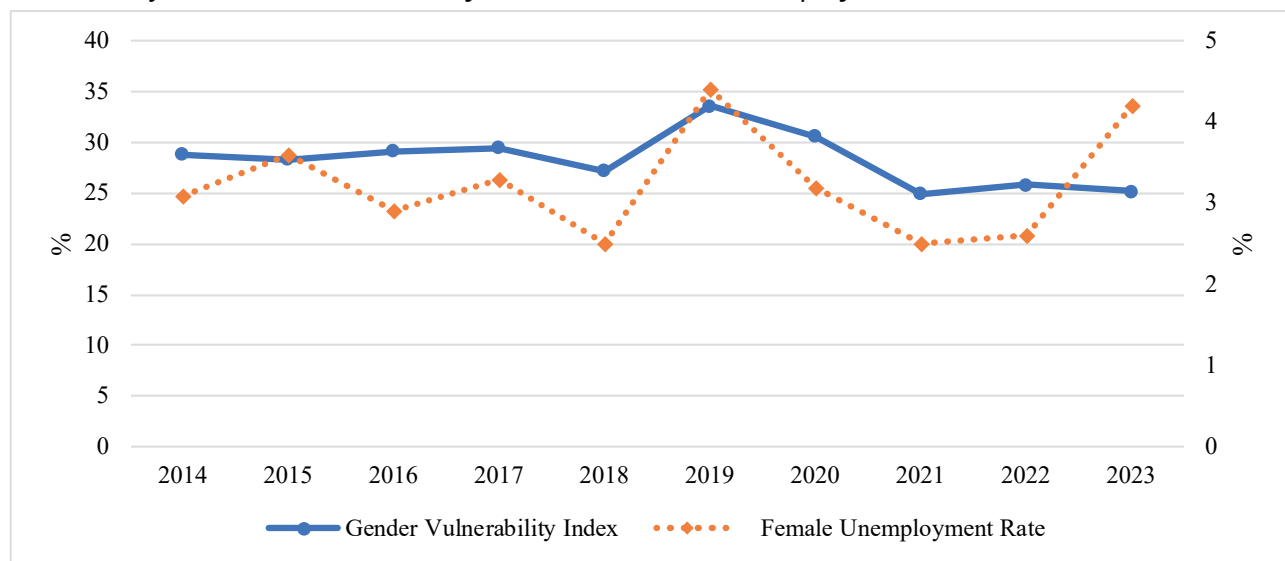
**Table 1***Evolution of the Gender Vulnerability Index and Climatic Indicators in Moldova, 2014-2023*

Year	Gender Vulnerability Index, %	Annual average air temperature, Celsius degrees	Annual quantity of precipitation, mm
2014	28.82	10.5	635
2015	28.34	11.5	426
2016	29.11	11.0	626
2017	29.45	10.8	596
2018	27.19	10.9	531
2019	33.62	11.8	482
2020	30.61	12.2	545
2021	24.94	10.3	587
2022	25.83	11.4	399
2023	25.19	12.3	426

Source: The GVI calculation by the authors and the BNS data

To ensure that the developed Gender Vulnerability Index accurately reflects differences in the socio-economic positions of women and men, we will first perform a comparative analysis of the trends in the GVI and the female unemployment rate. As shown in Figure 1, from 2016 to 2022, the trends of these two indicators align,

with their periods of increase and decrease matching. The highest level of gender vulnerability (33.62%) and the highest female unemployment rate (4.4%) were both recorded in the same year (2019), while the lowest levels occurred in 2021.

**Figure 1.***Evolution of the Gender Vulnerability Index and Female Unemployment Rate in Moldova, 2014-2023*

Source: The GVI calculation by the authors and the BNS data

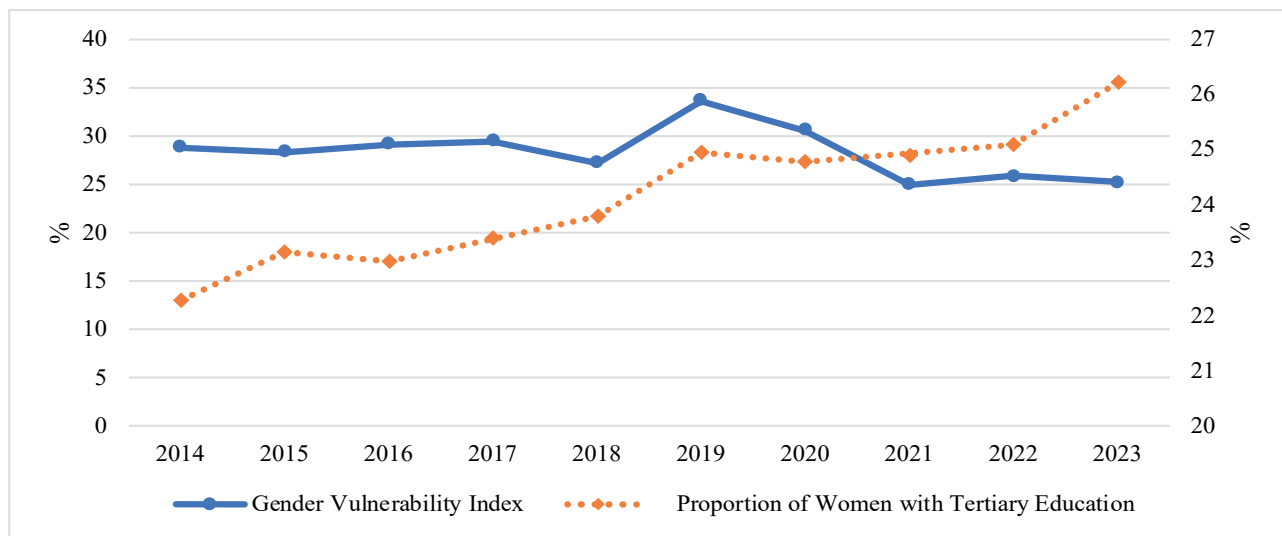
Although 2019 marks the fourth consecutive year of real Gross Domestic Product (GDP) growth, the position of women in the labour market has worsened this year, indicating non-inclusive GDP growth concerning women and an increase in the gender employment gap. Therefore, it can be concluded that economic development without gender equality can increase women's vulnerability even during periods of macroeconomic stability.

A comparative analysis of the dynamics of the Gender Vulnerability Index and the proportion of women with tertiary education showed an inverse relationship

between these indicators (Figure 2). The exception is 2019. Education fosters social mobility. Following the COVID-19 pandemic, an increasing number of women have chosen to pursue higher education to enhance their social mobility. It is clear that a rise in the proportion of women with higher education correlates with a decrease in gender vulnerability. In conclusion, we observe that after 2020, there has been a trend towards reduced gender vulnerability, due to a narrowing of the gender gap in parliamentary representation (GGP).

**Figure 2.**

*Evolution of the Gender Vulnerability Index and Proportion of Women with Tertiary Education in Moldova, 2014-2023*



Source: The GVI calculation by the authors and the BNS data

For the developed and calculated Gender Vulnerability Index, considering that the range of values varies between 24 and 34, we propose the following interpretation scale (Table 2). The scale is based on the principle of grading risk levels, also recognizing that a higher index indicates

greater inequality and vulnerability. Typically, scientific literature uses logical intervals of 5, 10, or 20. Since our GVI values fall within the range of 20-35, we chose an interval of 5 percentage points  $((35-20) \div 3 = 5)$ .

**Table 2.**

*Gender Vulnerability Index interpretation scales*

GVI Value Range (%)	Level of gender vulnerability	Interpretation
$GVI < 20$	Very low degree of gender vulnerability	There is almost no gender gap. Gender equality in key areas of life (economic, social, political).
$20 \leq GVI < 25$	Low degree of gender vulnerability	Minor gender vulnerability.
$25 \leq GVI < 30$	Medium degree of gender vulnerability	There are noticeable but not critical differences that need to be corrected.
$30 \leq GVI < 35$	High degree of gender vulnerability	Gender vulnerability is expressed in several areas.
$GVI \geq 35$	Very high degree of gender vulnerability	Systemic gender vulnerability that requires government intervention.

Source: Elaborated by authors

The scale developed in this way uses a five-percentage-point interval, starting from the GVI level of 20%, below which the vulnerability level is considered very low. This scale helps us identify years with low, moderate, or high levels of gender vulnerability. The lowest vulnerability level was recorded in 2021, when Moldova began to recover from the COVID-19 lockdown, while the highest levels occurred in 2019 and 2020.

At the start of 2019 (on 24 February), parliamentary elections took place in Moldova. Since no party won a majority of seats, the process of forming a coalition was very prolonged. As a result, 2019 became a year of

political upheaval in Moldova, with two parallel centers of power emerging within the year. The following year, 2020, was marked by an economic recession caused by the COVID-19 lockdown and climate catastrophes, which led to a 27.2% decline in the agricultural sector compared to the previous year, including a 35.7% reduction in crop production. Women working in agriculture are comparatively more vulnerable than women in the service and industrial sectors.

The indices assessing gender vulnerability used in Eastern Europe and the Commonwealth of Independent States (CIS), as well as the index developed in this



article, differ in their methodologies. Nevertheless, it is possible to perform a comparative analysis and identify common patterns of gender inequality. In Bulgaria, similar to Moldova, the pay gap between women and men increased from 2021 to 2023. The Gender Income Gap in Moldova rose from 13.64% in 2021 to 15.57% in 2023, while in Bulgaria, the Gender Pay Gap (GPG) increased from 11.9% in 2021 to 13.5% in 2023 (Eurostat, 2025, March). Although Romania's GPG in 2023 is slightly lower than in 2022, it remains relatively high at 21.6% (PwC Romania, 2024, March). The wage gap between women and men in Georgia was 18% in

2022 and decreased to 11.5% in 2023 (U.S. Bureau of Labour Statistics, 2023). According to the World Bank report, in recent years, women's gross wages in Armenia have been 25-30% lower than men's (World Bank, 2023). The data analyzed from 2021 to 2023 indicate that women in Moldova and in Eastern Europe and the CIS countries occupy lower-paid jobs than men. A comparative analysis of other indicators revealed a similar pattern. The study's findings demonstrate that, in Eastern European and CIS countries, the patterns of gender inequality are consistent with those observed in Moldova.

## TESTING THE CLIMATE-GENDER HYPOTHESIS: THE CASE OF THE REPUBLIC OF MOLDOVA

Moldova is an agricultural country, so its economy is susceptible to climate change. Climate disasters impact not only the economy but also the standard of living of the population and increase gender vulnerability

by placing a heavy burden on women, especially in rural areas. To test the hypothesis about the influence of climate on gender vulnerability, the following two multiple linear regression models were developed.

Model 1:

$$GVI_t = 1.6677 \times AAT_t + 11.4974 \times AQP_t + 3.0696 \times FUR_t - 0.2382 \times WE_t - 6.9194 \times D23 \quad (10)$$

Model 2:

$$GVI_t = 2.0563 \times AAT_t + 14.9512 \times AQP_t + 3.0449 \times FUR_t - 0.9779 \times SF_t - 7.4611 \times D23 \quad (11)$$

Where:

$D23$  – Dummy variable that takes the value 1 in 2023 and 0 in 2014-2022.

Using the least squares method, the coefficients of the regression equations were calculated, and Table 3

presents the results of testing the null hypothesis ( $H_0$ ) that these coefficients are equal to zero.

**Table 3.**

*Testing the null hypothesis that the regression coefficients are equal to zero (Models 1 and 2)*

Variables	Model 1			
	Coefficient ( $\beta_i$ )	Standard error	t-value	p-value
AAT	1.667715	0.673745	2.475292	0.0562
AQP	11.49736	3.195948	3.597479	0.0156
FUR	3.069621	0.638881	4.804681	0.0049
WE	-0.238183	0.098221	-2.424965	0.0598
D23	-6.919409	1.170570	-5.911147	0.0020
	Model 2			
	Coefficient ( $\beta_i$ )	Standard error	t-value	p-value
AAT	2.056252	0.683549	3.008198	0.0298
AQP	14.95119	4.121880	3.627274	0.0151
FUR	3.044922	0.555855	5.477910	0.0028
SF	-0.977937	0.372048	-2.628524	0.0466
D23	-7.461087	1.036684	-7.197068	0.0008

Source: Authors' computations

If we set the significance level at 5%, the null hypothesis is rejected for Model 2 and accepted for Model 1. However, if we set the significance level at 10% when testing the developed regression equations 10 and 11, the hypothesis

$H_0$  is rejected for both models. To make a final decision regarding the choice of model, the quality of the models was assessed, and the results are shown in Table 4.

**Table 4.**

*Quality test results of Model 1 and Model 2*

Indicators	Model 1	Model 2
<i>R-squared</i>	0.938671	0.949961
<i>Adjusted R-squared</i>	0.889608	0.909930
<i>Standard Error of the Regression</i>	0.887313	0.801489
<i>Sum of Squared Residuals</i>	3.936621	3.211923
<i>Log likelihood</i>	-9.528073	-8.510810
<i>Durbin-Watson statistic</i>	1.661879	1.769226
<i>Akaike info criterion (AIC)</i>	2.905615	2.702162
<i>Schwarz criterion</i>	3.056907	2.853454
<i>Hannan-Quinn criterion</i>	2.739647	2.536194

Source: Authors' computations

Comparing the obtained results, we conclude that Model 2 demonstrates a better fit to the empirical data. R-squared and Adjusted R-squared are higher, and the values of the Akaike criterion, Schwarz criterion, and Hannan-Quinn criterion are lower in Model 2 than in Model 1. Since the Durbin-Watson statistic for Model 2 falls in the uncertain zone ( $0.88 < 1.769226 < 1.86$ ), an

additional test is required. The results of the Breusch-Godfrey LM Test (lag 2) are presented in Table 5, which indicate the absence of autocorrelation of the first- and second-order residuals. The results of the Breusch-Pagan-Godfrey test (Table 5) prove that the residuals of the model are homoscedastic. Thus, Model 2 successfully passed all tests.

**Table 5.**

*Results of testing for autocorrelation and heteroscedasticity of residuals of Model 2*

Breusch-Godfrey Serial Correlation LM Test†			
<i>F-statistic</i>	0.583225	<i>Prob. F (2,3)</i>	0.6110
<i>Obs×R-squared</i>	2.799625	<i>Prob. Chi-Square (2)</i>	0.2466
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
<i>F-statistic</i>	0.572848	<i>Prob. F (5,4)</i>	0.7237
<i>Obs×R-squared</i>	4.172698	<i>Prob. Chi-Square (5)</i>	0.5248
<i>Scaled explained SS</i>	0.713640	<i>Prob. Chi-Square (5)</i>	0.9822

Source: Authors' computations

Model 2 of multiple linear regression confirmed our hypothesis that there is a relationship between climate change and the level of gender vulnerability of the population of Moldova. The value of the regression coefficients shows that this relationship is statistically significant, since  $\beta_1 = 2.0563$  and  $\beta_2 = 14.9512$ . An increase in the female unemployment rate by one

percentage point leads to a rise in gender vulnerability by three percentage points. An increase in average years of schooling for females by one year will lead to a decrease in gender vulnerability by one percentage point.

Below is a multiple linear regression model that should confirm or refute the hypothesis that growing season precipitation anomalies influence gender vulnerability.

Model 3:

$$GVI_t = 55.6728 + 0.0014 \times AP_t^2 + 1.0592 \times FUR_t - 1.3355 \times WE_t + 6.037 \times D19 \quad (12)$$

Testing the null hypothesis (Table 6) showed that the coefficients of the regression equations are nonzero.

**Table 6.**

Testing the null hypothesis that the regression coefficients are equal to zero (Model 3)

Variables	Coefficient ( $\beta_i$ )	Standard error	t-value	p-value
$\beta_o$	55.67280	8.510190	6.541898	0.0012
$AP^2$	0.001390	0.000517	2.690822	0.0433
$FUR$	1.059217	0.316777	3.343729	0.0205
$WE$	-1.335450	0.366276	-3.646017	0.0148
$D19$	6.036993	1.646006	3.667662	0.0145

Source: Authors' computations

The coefficient of determination is 0.8824 (Table 7), indicating that 88.24% of the variation in gender vulnerability is explained by the variables included in Model 3. Probability (F-statistic) is 0.015203, and this

value is less than 0.05. This proves that the regression model as a whole is statistically significant at the 5% level.

**Table 7.**

Quality test results of Model 3

Indicators	Value
<i>R-squared</i>	0.882407
<i>Adjusted R-squared</i>	0.788333
<i>Standard Error of the Regression</i>	1.228669
<i>Sum of Squared Residuals</i>	7.548142
<i>Log likelihood</i>	-12.78297
<i>F-statistic</i>	9.379883
<i>Probability (F-statistic)</i>	0.015203
<i>Akaike info criterion (AIC)</i>	28.31084
<i>Schwarz criterion</i>	2.670595
<i>Hannan-Quinn criterion</i>	3.556593

Source: Authors' computations

According to the results of the Breusch-Godfrey test, no 1st or 2nd order autocorrelation was detected in the residuals (Table 8). Heteroscedasticity of the residuals was also not detected.

**Table 8.**

Results of testing for autocorrelation and heteroscedasticity of residuals of Model 3

Breusch-Godfrey Serial Correlation LM Test			
<i>F-statistic</i>	1.550990	<b>Prob. F (2,3)</b>	0.2638
<i>Obs×R-squared</i>	3.844800	<b>Prob. Chi-Square (2)</b>	0.1463
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
<i>F-statistic</i>	1.590687	<b>Prob. F (4,5)</b>	0.3083
<i>Obs×R-squared</i>	5.599656	<b>Prob. Chi-Square (4)</b>	0.2311
<i>Scaled explained SS</i>	0.807537	<b>Prob. Chi-Square (4)</b>	0.9374

Source: Authors' computations

Multiple linear regression (equation 12) confirms the hypothesis of a direct impact of precipitation anomalies on gender vulnerability. It proves that to

reduce gender vulnerability, it is necessary to reduce female unemployment and increase the level of women's education.

## LIMITATIONS

The number of observations is limited—only 10 for the period 2014–2023—because the methodology for calculating most socio-economic and demographic indicators has changed. Since 2014, the NBS has been calculating the usually resident population, whereas previously it provided information about the stable

population. In this regard, testing Model 2 for robustness is necessary. The results of the test are presented in Table 9. After excluding 2019 (the peak of the Gender Vulnerability Index evolution), the results confirm the robustness of all model variables.

**Table 9.**

*Results of robustness tests for Model 2*

Variables	Coefficient ( $\beta_i$ )	Standard error	t-value	p-value
AAT	2.226533	0.627195	3.549983	0.0238
AQP	16.13885	3.803901	4.242711	0.0132
FUR	2.204309	0.763117	2.888561	0.0342
SF	-0.987701	0.341220	-2.894613	0.0444
D23	-6.417732	1.174807	-5.462799	0.0055

Source: Authors' computations

A comparative analysis of research results presented in Tables 3 and 9 showed that after excluding 2019, “Annual average air temperature,” “Annual quantity of precipitation,” and “Average years of schooling for females” remain significant and stable at the same level.

In parallel, the significance of the variable “Female unemployment rate” decreased, but remained within the acceptable values ( $p\text{-value} < 0,05$ ). Thus, Model 2 is stable.

## CONCLUSIONS

The novelty of this study is in developing the Gender Vulnerability Index for Moldova, which considers vulnerability across economic, social, and political sectors. The GVI is a composite indicator composed of six sub-indices (GIG, GEG, GPG, GLEG, GGM, GGP). To interpret the Index values, a gender vulnerability assessment scale was introduced. This scale functions both as an analytical tool and as a means to set priorities in gender policy and to monitor the implementation of strategies and programmes aimed at promoting gender equality.

Gender vulnerability in the Republic of Moldova generally remains at a moderate level, averaging 28.31% from 2014 to 2023. This indicates noticeable but not critical disparities in women's and men's access to economic, political, and social resources that require attention. A high level of gender vulnerability was only observed in 2019 and 2020 due to political and economic instability in the country. A comparative analysis between the Gender Vulnerability Index and the female unemployment rate, as well as between the GVI and the proportion of women with tertiary education, revealed that the GVI calculation method is highly sensitive to economic and social changes, confirming its usefulness for tracking progress towards gender equality goals.

The study's results confirmed the hypothesis that climate change increases gender vulnerability. A one-degree Celsius rise in average air temperature results in a two-percentage point increase in the gender vulnerability index. The developed models of multiple linear regression demonstrate that women's education serves as a resource for adapting to climate change, and higher education levels are associated with decreased gender vulnerability. Another factor that may help reduce gender vulnerability is a decline in female unemployment.

To support women engaged in agriculture, it is important to develop and implement financial and technical support programmes that include specific measures. First, establish grant schemes, enhance access to soft loans for women investing in drip irrigation, and buy drought-resistant seed varieties. Second, organize training sessions for women through the National Rural Development Agency (ACSA) on topics such as crop diversification and conservation agriculture. Another promising area for reducing gender vulnerability is decreasing the energy poverty faced by rural women. Therefore, it is essential to execute a national programme to subsidize the installation of solar panels, solar water heaters, and energy-efficient stoves (biomass stoves) in households headed by low-income women.

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## AUTHORS' CONTRIBUTIONS

- Conceptualization: Tatiana Gutium
- Methodology: Tatiana Gutium
- Formal analysis: Tatiana Gutium
- Investigation: Elmira Gojaeva
- Writing – original draft: Tatiana Gutium, Elmira Gojaeva
- Writing – review & editing: Tatiana Gutium, Elmira Gojaeva
- Supervision: Tatiana Gutium
- Project administration: Tatiana Gutium

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# GENDER EQUITY IN MOLDOVA: TRENDS, DRIVERS OF CHANGE AND EMERGING CHALLENGES

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**Diana CHEIANU-ANDREI**

PhD in sociology, associate professor, Moldova State University, Sociopolis Consultancy SRL

<https://orcid.org/0000-0001-5637-8211>

[diana.cheianu@sociopolis.md](mailto:diana.cheianu@sociopolis.md)

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## SUMMARY

This article explores recent developments and key factors influencing gender equity in Moldova from 2015 to 2024, set against a backdrop of institutional reforms, international pressures, and internal cultural resistance. Based on data analysis from the International Men and Gender Equality Survey (IMAGES), conducted in 2015 and 2024, the author offers a comprehensive overview of the dynamics of gender relations, starting with the theoretical distinction between equality and equity and employing an intersectional sociological approach. Using a multi-theoretical framework—comprising gender role theory, family decision-making theory, social change theory, and institutional theory—the article highlights substantial progress in strengthening the legislative framework, promoting female leadership, and enhancing the flexibility of family policies in Moldova. The analysis examines the interconnectedness of cultural norms, institutional processes, and civil society initiatives, exploring both the advances made and the ongoing systemic resistances. The findings show positive progress in gender equity but also reveal ongoing structural challenges: deeply rooted gender stereotypes and economic inequalities. They also offer opportunities for developing evidence-based programmes on gender equality and guidelines for designing public awareness campaigns.

**Keywords:** *gender equity, gender equality, gender roles, family decision-making, social change, public policies*

## INTRODUCTION

The issue of gender equity has, in recent decades, become a central normative and analytical standard in assessing democratic progress, sustainable development, and social cohesion. In a context marked by significant political, economic, and cultural changes, Moldova provides a fertile ground for a multidimensional analysis of how gender relations are built, negotiated, and transformed. Although public discourse and the legal framework on equal opportunities between women and men have experienced notable growth, social reality remains burdened by structural inequalities, enduring

traditionalist norms, and subtle symbolic barriers.

Within this dynamic, gender equity – understood not merely as the equal distribution of resources and opportunities, but as the differentiated recognition and valorisation of each individual's needs and aspirations – emerges as a valuable analytical framework for understanding social transformations. The conceptual distinction between “equality” and “equity” is essential to grasp the subtle dimensions of social inclusion processes, the redistribution of power, and the reconfiguration of gender roles in Moldova.

## CONCEPTUAL AND THEORETICAL FRAMEWORK

The analysis of gender equity requires a clear conceptual framework and a strong theoretical basis. In the scientific literature, gender equity is described as a normative principle that involves differentiated treatment to achieve a just outcome, in contrast to gender equality, which calls for identical treatment for all individuals, regardless of sex (UNICEF, 2017). From a sociological perspective, gender equity pertains to the fair distribution of resources, responsibilities, and opportunities, considering the historical inequalities, power imbalances, and institutional and cultural barriers that differentially impact women, men, and individuals with diverse gender identities.

To understand the trends and drivers of change in the field of gender equity, this article employs an interdisciplinary approach that combines gender role theory (Eagly & Wood, 2016), family decision-making theory (Paolucci, Hall, & Axinn, 1977), social change theory (Durkheim, 1956; Paoletti, 2022), and institutional theory (Scott, 2008).

Gender role theory helps analyse how social norms and expectations about gender shape behaviours and responsibilities within family and modern society. According to this theory, gender roles are created through socialisation, influencing the actions of men and women in ways that maintain and strengthen the division of labour.

Family decision-making theory offers a thorough, ecosystemic analysis of how men and women negotiate each partner's involvement in household activities, based on factors such as education, occupation, and income. This theory provides the conceptual tools needed to interpret how both daily and strategic family decisions are systematically influenced by existing policies as well as power dynamics within the couple.

Social change theory, as applied by the renowned French sociologist Émile Durkheim in both sociological and pedagogical works, posits that education received within the family is a key mechanism of socialisation and social transformation. This aspect is beneficial for understanding normative and institutional changes in contemporary societies.

Institutional theory identifies three pillars – regulative, normative, and cultural-cognitive – which vary in the type of constraint they impose and the legitimacy mechanisms they activate. The regulative pillar, comprising laws, regulations, and public policies, functions through coercion; the normative pillar, involving values, moral standards, and socially prescribed expectations, operates via moral pressure and social obligation; while the cultural-cognitive pillar, made up of mental interpretative frameworks that influence perceptions and actions, functions through shared understanding and cultural internalisation.

## DATA AND METHODS

The theoretical perspectives outlined above are combined with data from the Gender Equitable Men (GEM) Scale (Nanda, 2011, pp. 13–16), developed by the Population Council and Promundo, and widely utilised in IMAGES surveys (Promundo-US, 2021; Equimundo, 2022). The GEM Scale is a crucial methodological tool for measuring attitudes towards gender norms in intimate relationships, reproductive health, gender-based violence, family responsibilities, and household decision-making. This instrument allowed the assessment of changes in gender attitudes in Moldova during the period 2015–2024, as well as the extent to which these attitudes influence actual family decision-making.

To examine trends in gender equity and the factors driving change in Moldova, this article relies on data from the IMAGES-2 survey (Cheianu-Andrei, et. al., 2024), which was conducted using internationally applied complex methodology. It is important to highlight that data interpretation involved a comparative analysis of the changes in men's and women's knowledge, attitudes, and behaviours between 2015 and 2024, with the IMAGES-1 survey (Cheianu-Andrei, et. al., 2015) serving as a reference point. The following hypotheses were proposed:

- H1: Equitable attitudes increased from 2015 to 2024, with larger gains among younger, urban, and higher-educated respondents.*
- H2: Women report consistently more equitable perceptions than men across domains.*
- H3: Exposure to enabling policies correlates with more egalitarian household decision-making.*

In accordance with the international methodology, the IMAGES survey includes two separate samples – one for men and one for women. In Moldova, IMAGES-2 involved a primary sample of 1,014 men (1,515 in IMAGES-1) and a secondary sample of 515 women (503 in IMAGES-1), allowing for the analysis of differences in perceptions, attitudes, and practices. Both samples were probabilistic and stratified. They are nationally representative, with a margin of error of  $\pm 3.1\%$  for men ( $\pm 2.5\%$  in IMAGES-1) and  $\pm 4.3\%$  for women (the same for IMAGES-1), at a 95% confidence level. Minor updates and additions were made in questionnaires in 2024. Quantitative data were analysed using the SPSS statistical software. However, the following limitations should be acknowledged: (i) the IMAGES-1 data were collected using the pen-and-paper interviewing (PAPI) method, and those from IMAGES-2 – computer-assisted personal interviewing (CAPI); (ii) attitude items are sensitive to social desirability bias, especially on violence and caregiving, potentially inflating pro-equity responses.

The data obtained from the IMAGES-2 survey were complemented by findings from the qualitative study Trends, Good Practices, and High-Impact Initiatives in the Context of IMAGES (Cheianu-Andrei & Zaporozan-Pîrgari, 2024), which gathered the views of 17 experts working in public institutions, international organisations, and non-governmental organisations in the field of gender equality. Together, these studies provided a comprehensive approach and a rigorous, nuanced analysis aimed at understanding the trends, drivers of change, and existing challenges, thus enabling the formulation of policy and strategy recommendations grounded in clear empirical evidence.

## MAIN RESULTS

### TRENDS IN GENDER EQUITY AT THE NORMATIVE AND INSTITUTIONAL LEVEL

Between 2015 and 2024, Moldova has experienced a series of significant changes in gender equality, evident both in laws and institutions as well as in social perceptions and daily practices. However, these changes have not been consistent, with some areas making progress, others stagnating, and some even regressing.

The trend analysis shows a complex shift, including clear progress in economic and political participation, alongside the ongoing resilience of patriarchal norms and gender stereotypes. The Global Gender Gap Report

(2025) confirms Moldova's advancements in gender equality. Between 2015 and 2025, the country improved its global position from 26th to 7th out of 148 countries, becoming the leading nation in the Eurasia and Central Asia region, with a score of 0.813 out of 1 (Table 1). The Global Gender Gap Index assesses four main areas: economic participation and opportunity, education, health, and political empowerment. Moldova performs best in economic participation and opportunity, followed by health and political empowerment, while education remains the most challenging area.

**Table 1.***Global Gender Gap Index in Moldova, 2015–2025*

	2015	2024	2025
Economic participation and opportunity	18	5	4
Education	50	37	44
Health	42	40	26
Political empowerment	58	38	23
Overall Index	<b>26</b>	<b>13</b>	<b>7</b>

*Source:* compiled by the author based on data from the Global Gender Gap Reports (<https://www.weforum.org/publications>)

A consolidation of Moldova's legislative and normative framework is evident. The adoption of the Programme for the Promotion and Assurance of Equality between Women and Men (2023–2027) (Government Decision No. 203, 2023), along with the gradual transposition of European Union directives related to gender equality, demonstrates a strong political commitment to align with European standards. In this context, analytical notes were prepared to identify the requirements for transposing: (i) Directive 2004/113/EC of 13 December 2004, which implements the principle of equal treatment between men and women in access to and supply of goods and services; (ii) Directive 2010/41/EU of 7 July 2010 on applying the principle of equal treatment between men and women engaged in self-employment; (iii) Directive 79/7/EEC of 19 December 1978 on the progressive implementation of equal treatment in social security matters; and (iv) Directive 2022/2381/EU of 23 November 2022 aimed at improving gender balance among directors of listed companies and related measures.

Another notable progress has been made in policies aimed at reconciling family and work life. The Government of Moldova, together with Parliament, has launched several public policies to broaden options for families with children and support them in achieving a work-life balance: (i) the National Programme for Child

Protection 2022–2026, which focuses on strengthening parents and families' capacity for child-rearing and care by providing access to accredited parenting education services and programmes (Government Decision No. 347, 2022); (ii) the National Programme for Expanding Alternative Childcare Services 2023–2027, which seeks to nearly double the number of children in early education to allow working parents – especially women – to re-enter the labour market actively, considering that the employment rate of women aged 20–44 who care for children is relatively low (Ministry of Labour and Social Protection, 2023); (iii) amendments to the legal framework requiring employers to provide care services for employees' children under the age of three (Parliament Law No. 46, 2022); (iv) the reform of parental leave and the extension of paternity leave (Government Decision No. 572/2023), among others. These measures symbolically reconfigure parental roles and represent a vital step towards redistributing family responsibilities.

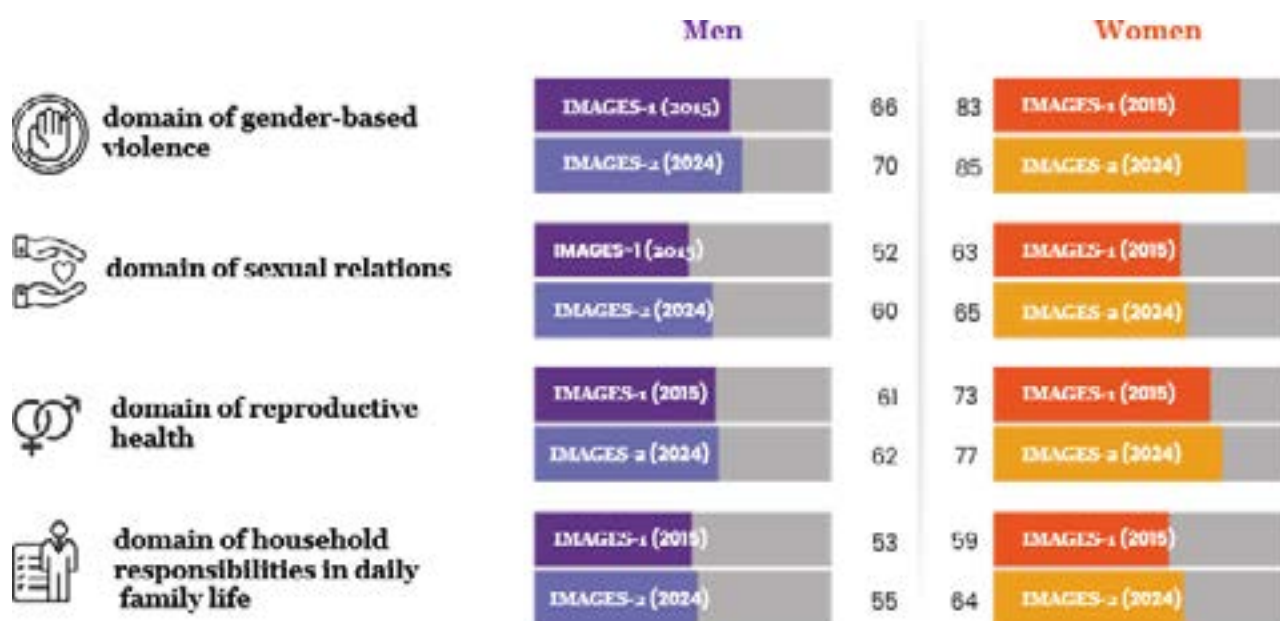
In public and institutional discourse, there is a noticeable rise in the use of gender-sensitive language and increased visibility of initiatives aimed at changing behaviours. The GirlsGoIT initiative, Fathers' Clubs, and various awareness campaigns help shape new representations and normalise the presence of women in traditionally male-dominated fields – and vice versa.

## PERCEPTION OF GENDER EQUITY

The IMAGES-2 data act as an indicator of how the public perceives and cognitively and normatively affirms the concept of equity across four areas: gender-based violence, reproductive health, sexual relations, and

household responsibilities. In all these sectors, women exhibit higher rates of correct perception than men, indicating an asymmetric awareness process linked to varied life experiences and social positions (Figure 1).



**Figure 1.***GEM Perception and Acceptance Rates by Gender, 2015 and 2024, %*

100 represents full understanding and acceptance of gender equity

Source: IMAGES-2, p. 63

The strongest convergence between norms and perceptions is seen in the area of gender-based violence, where 85% of women and 70% of men correctly identify the issue. This aligns with social change driven by education and public debate – key factors in Durkheimian socialisation and norm change – and with recent observations on the pace of cultural shifts. However, the continued existence of tolerant attitudes towards violence – 13% of women and 21% of men believe women should accept violence to keep the family united; 23% of men and 12% of women say “there are situations when a woman should be beaten” (Cheianu-Andrei, et. al., 2024, p. 57) – shows the resilience of informal rules that clash with current legal and moral standards. In terms of institutional theory, the cultural-cognitive pillar still produces resistance to the regulatory pillar, even when public policies are clear. The social profiles linked with these beliefs – men with lower-secondary education and low income; women aged 50–59 with low income – imply that socio-economic stratification influences both the internalisation of norms and openness to pro-equity messages.

In the field of reproductive health and associated rights, the difference in accurate perception (77% women, 62% men) can be explained through the lens of gender role theory. Traditional socialization has assigned women responsibilities related to reproduction and caregiving, and men the role of providers; this division of domestic labor influences both access to information and cognitive interest in reproductive rights. At the same time, family decision-making theory helps interpret the tension between individual autonomy and couple

practices: where patriarchal norms legitimize male monopolies over women’s bodies, correct perceptions of reproductive equity decrease. The fact that urban men, younger and with higher education levels, tend to disagree more with hierarchical statements suggests the emergence of more cooperative decision-making models, where negotiation and reciprocity replace one-way authority.

Perceptions of fairness in sexual relations are more aligned between genders (65% women, 60% men), which may indicate a normative field in flux, where egalitarian values are introduced through formal education, mass media, and social networks but still coexist with expectations of “appropriate” roles for each gender. From a Durkheimian perspective, this reflects a partly “anomic” state characteristic of periods of rapid transformation in collective rules: old codes of conduct no longer hold a moral monopoly, while new norms are not yet fully adopted. At the same time, the institutional logic of family and educational spheres – including curricula, health services, and religious discourses – shapes “windows of opportunity” or, alternatively, symbolic “vetoes” over new norms.

The lowest level of correct perception is seen in household responsibilities (64% women, 55% men), highlighting the ongoing influence of the traditional domestic labour order. Gender role theory attributes this to the persistent social expectations linking caregiving with women and productive activities with men, which have cumulative effects on available time, careers, and income. According to family decision-making theory, task sharing is negotiated based on resources and

constraints—such as education, income, occupational status, and access to public care services—but these negotiations occur within a normative framework that often upholds the status quo. Therefore, even when public policies promote work–life balance, the cultural-cognitive pillar (norms, gender stereotypes) restricts their practical realisation.

Another sign of the persistence of a hierarchical normative order is the relatively high agreement among men that they should have the final say in family decisions (64%, compared to 43% of women). This pattern suggests that decision-making authority in families often remains with men, and its legitimacy is more rooted in tradition than in the couple's affective–rational contract. The observation that acceptance of this hierarchy decreases among young urban men with higher education and income points to an intergenerational shift, which can be seen as an effect of exposure to alternative cultures and the accumulation of symbolic and material resources that support egalitarian partnerships (Cheianu-Andrei, et. al., 2024, p. 52).

Taken together, the IMAGES-2 data describe an ecology of social change where education, socio-economic status, and residential environment interact with public policies and cultural norms. In Durkheimian terms, the internalisation of new rules happens through socialising institutions – family, school, media – and the speed and depth of internalisation depend on the coherence of normative messages and the ability of institutions to provide positive sanctioning mechanisms for fair behaviours. In institutional terms, the alignment of the regulatory, normative, and cultural-cognitive pillars remains incomplete: legislation and strategies are in place, but traditional cultural stereotypes still provide justifications for maintaining an unequal distribution of power and labour within the family.

The practical value of IMAGES-2 data is twofold. Firstly, it shows that public policies should focus on social groups

where normative resistance is strongest – men with low education and income, older women facing economic vulnerabilities – through a combination of educational initiatives, material support, and care infrastructure. Secondly, daily “life scripts” need to be transformed: relational and sexual education programmes centred on reciprocity and consent; measures that facilitate the redistribution of domestic labour (such as balanced parental leave effectively utilised by fathers, accessible care services for children and dependents); strengthening women's reproductive autonomy via information and user-friendly services; and public campaigns that explicitly challenge the legitimacy of violence. From the perspective of family decision-making theory, such efforts expand couples' “negotiation space,” while, according to gender role theory, they modify social expectations of what is “appropriate” for women and men. Ultimately, as per institutional theory, only the alignment of law, professional standards, and cultural representations can turn correct perceptions into consistent everyday practices.

Moldova is currently experiencing increased awareness of gender inequalities, particularly regarding violence; however, issues such as the distribution of household responsibilities and decision-making within families remain crucial points. The observed trends—differences across genders, generations, education levels, and socio-economic statuses—confirm that gender equity is not merely a result of policies but an emergent property of the social system, reliant on the interaction of institutions, norms, and resources. Basing interventions on gender role theory, family decision-making theory, social change theory, and institutional theory offers not only a clear explanatory framework but also a plan for action: the simultaneous transformation of rules (laws), expectations (norms), and everyday practices. Only through this integrated approach can the proper understanding of gender equity—currently more common among women—become widespread knowledge and a routine part of social life.

## DRIVERS OF CHANGE IN THE FIELD OF GENDER EQUITY

Transformations in the field of gender equity must be understood within the broader framework of structural and cultural processes that have reshaped power relations, social norms, and institutional architecture. In Moldova, change has resulted from a complex interaction between external pressures, internal mobilization, and emerging dynamics.

From an institutional theory perspective, the process of European integration has served as a catalyst for change, promoting the adoption and harmonisation of the legislative framework with international standards, including through the ratification of major conventions on women's rights and combating gender-based violence. The regulatory pillar evolved from commitments to international conventions (Convention on the Elimination of All Forms of Discrimination

against Women, 1979; Council of Europe Convention on Preventing and Combating Violence against Women and Domestic Violence, 2011), as well as the implementation of EU directives on equal treatment, which exerted compliance pressures on administrative bodies and political actors, prompting reforms in key areas such as protection against violence, non-discrimination, and work-life balance. However, the effectiveness of these measures was influenced by the cultural-cognitive pillar: traditional norms and cultural resilience shaped the pace and scope of change.

The role of civil society actors can also be examined from the perspective of institutional theory and social change theory. Civil society organisations have served not only as providers of services but also as agents of symbolic transformation, gradually shaping collective

norms through public campaigns, professional training, and the promotion of alternative models of masculinity and female leadership. In Durkheimian terms, these initiatives have functioned as mechanisms of secondary socialisation, establishing educational contexts that reshape community values and norms.

The period 2019–2024 was characterised by increased institutional openness to gender equality issues, partly due to the involvement of women in decision-making roles. In family decision-making theory, this is significant because macro-level policies influence how power and responsibilities are distributed within family microstructures. For example, extending paternity leave or making care services more adaptable alters the parameters of couple negotiation, providing women and men with new resources to share reproductive and productive work.

Changes in public discourse were facilitated by the rise of independent media and online platforms, which enabled the dissemination and validation of egalitarian narratives. Social campaigns such as “16 Days of Activism against Violence,” “Different Models, Different Discourses,” („Altfel de modele, altfel de discursuri”), and storytelling initiatives featuring women in leadership or community roles have transformed the public conversation, previously dominated by patriarchal and stigmatising narratives. From a gender role theory perspective, these campaigns gradually diminish traditional expectations that assign men dominant roles in the public sphere and women caring-focused roles. Alternative models presented in the media help reshape social perceptions.

Another driver of change has been younger generations socialised in diverse educational and cultural contexts, including through migration. Transnational families and the transfer of behavioural models from the diaspora have produced hybrid forms of gender relations, in which the coexistence of traditional and egalitarian values creates both tensions and opportunities for

transformation. From an institutional perspective, this phenomenon can be seen as an informal import of norms; from a social change theory perspective, it is an example of socialisation reshaped by global mobility.

The formal education system and non-formal programmes have gradually incorporated the gender dimension into curricula, both through optional subjects such as “Education for Health” and “Harmonious Family Relations,” and through community initiatives like Fathers’ Clubs and GirlsGoIT. From a Durkheimian perspective, schools serve as institutional frameworks for primary and secondary socialisation, and the inclusion of egalitarian content helps internalise norms that, over time, can transform societal gender role structures. Simultaneously, these educational interventions can be understood through family decision-making theory, as they prepare future adults to negotiate domestic responsibilities and spousal decisions more equitably.

Overall, changes in gender equity in Moldova result from a dynamic interplay of institutional pillars, international pressures, internal mobilizations, and cultural shifts. Institutional theory explains the tensions between legislation and informal norms; social change theory highlights the role of education and socialisation in transforming values; gender role theory accounts for the persistence and erosion of traditional divisions of labour; and family decision-making theory demonstrates how public policies and shifts in mindset lead to concrete practices in daily life.

However, although these processes have achieved visible progress – particularly in areas like combating violence and increasing women’s participation in public life – their nature remains delicate. The sustainability of change relies on the capacity of institutions to integrate gender equity principles across sectors, the resilience of civil society, and the strengthening of egalitarian cultural values among new generations.

## EMERGING CHALLENGES

The analysis of IMAGES-2 data reveals a significant gap between formal norms, institutionalised through legislation and public policies, and informal norms, maintained in everyday life. This gap, common in many transitional contexts, can weaken the sustainability and irreversibility of reforms in gender equality. Although awareness of the concept of gender equity has grown theoretically, its practical application remains fragmented and inconsistent. From an institutional theory perspective, this tension can be explained by the conflict between the regulatory pillar, which enforces egalitarian norms via law, and the cultural-cognitive pillar, which sustains traditional gender patterns. Data show that 27% of men and 29% of women believe that granting rights to women results in losses for men, and 37% of men and 38% of women think that women’s rights gains diminish men’s rights. These perceptions

reflect a competitive view of rights, typical of societies where the redistribution of power is seen as a zero-sum game, as if resources, power, or opportunities were fixed. Such views overlook the reality that protecting one group’s rights can produce social and economic benefits for society as a whole.

In the labour market context, stereotypes are even more evident: 53% of men and 59% of women believe that women’s employment “takes” jobs away from men (Table 2). From the perspective of gender role theory, such perceptions arise from the traditional division of labour, whereby men hold a monopoly over the productive sphere, while women are associated exclusively with the reproductive and domestic spheres. The persistence of these beliefs is reinforced by differentiated socialisation, through which career skills and expectations are distributed unequally from early childhood.

**Table 2.***Perceptions of gender equality, %*

	Men		Women	
	Total agreement	Partial agreement	Total agreement	Partial agreement
Granting rights to women means that men lose	10	17	12	17
When women gain rights, they take away men's rights	15	22	17	21
When women are employed, they take some jobs away from men	22	31	30	29

Source: IMAGES-2, p. 47 (Differences up to 100% represent responses: partial disagreement, total disagreement).

Data on family responsibilities confirm that traditional norms regarding gender roles remain widely shared. 86% of men and 71% of women agree that “for a woman, the most important thing is to take care of the home and cook for the family.” Moreover, 66% of men and 61% of women believe that changing nappies, washing, and feeding children are exclusively the mother’s responsibility. These findings can be interpreted through family decision-making theory, which emphasises that the distribution of duties results from negotiations influenced by education, income, stereotypes, and traditions. In a cultural framework that legitimises male authority, such negotiations are structurally unbalanced.

Another sign of ongoing asymmetry is the high proportion of men – 64% – who believe they should have the final say in family decisions, compared to 43% of women who agree with this idea (Table 3). From a Durkheimian perspective, this highlights the resistance to change of rules internalised through primary socialisation, transmitted via the family and reinforced by the community. According to social change theory, changing these rules involves not only targeted interventions but also a sustained process of reconfiguring socialisation mechanisms – particularly in formal and non-formal education – to establish a new shared value base.

**Table 3.***Attitudes toward family responsibilities, %*

	Men		Women	
	Total agreement	Partial agreement	Total agreement	Partial agreement
For a woman, the most important thing is to take care of the home and cook for her family	56	30	41	30
Changing diapers, washing, and feeding children are the mother’s responsibility	34	32	30	31
The man should have the final say in family decision-making	38	26	18	25

Source: IMAGES-2, p. 52 (Differences up to 100% represent responses: partial disagreement, total disagreement).

The current analysis shows that, on one hand, a strong formal structure promotes gender equality; on the other hand, informal norms and deeply ingrained stereotypes still influence individual behaviours and choices. Without alignment among the three pillars of institutional theory – regulatory, normative, and cultural-cognitive –

reforms risk remaining merely declarative. Sustainable change, therefore, requires simultaneous actions within the legislative framework, support infrastructure, and social culture to ensure that egalitarian perceptions become stable everyday practices.



## DISCUSSION

Despite the notable progress made over the past decade, gender equity in Moldova remains in a transitional stage, marked by the complex interaction of external pressures, internal mobilisation, and the evolution of cultural norms. International commitments and the process of European integration have supported the gradual realignment of legislation and public policies with the principles of gender equality, leading to significant reforms in areas such as political participation, family policies, and the prevention of gender-based violence. However, IMAGES-2 data indicate that this formal framework encounters considerable resistance at the level of informal norms, which hampers the translation of reforms into enduring social practices.

From the perspective of institutional theory, there is a clear imbalance between the regulatory pillar – reinforced through legislation and sectoral strategies – and the cultural-cognitive pillar, where gender stereotypes and traditional beliefs continue. According to social change theory, these findings indicate a stage of normative transition where old codes of conduct coexist with emerging egalitarian norms. However, a profound transformation of mentalities requires long-term efforts

aimed at reconfiguring the mechanisms of primary and secondary socialisation, including through formal education and community-based initiatives. Without a systemic approach that aligns legislation, support infrastructure, and the transformation of social norms, there is a risk that gender equity will remain more of a stated goal than an everyday reality.

Recent crises – regional conflict spillovers, inflationary pressure on household budgets, and intensified migration flows – create intersecting risks and opportunities for gender equity. Economic stress may re-traditionalize household bargaining, while displacement and uncertainty are associated with heightened gender-based risks. Conversely, labour shortages and flexible work arrangements can open entry points for women's employment and for men's greater caregiving involvement. We therefore interpret attitudinal shifts alongside these shocks and recommend "crisis-aware" equity measures: targeted income support for low-income families, guaranteed access to affordable childcare, proactive gender-based violence services, and campaigns that normalize shared caregiving for men in times of stress.

## CONCLUSIONS

Gender equity is a crucial condition for social cohesion, sustainable development, and democratic resilience. In the long run, enhancing gender equity demands:

1. Alignment of the three institutional pillars (regulatory, normative, and cultural-cognitive) so that egalitarian social norms support legislation and public policies.
2. Integrated educational interventions that address gender stereotypes from early childhood and promote egalitarian role models in the family, school, and media.

3. Concrete measures for redistributing material and symbolic power, including through equitable family policies, equal access to economic resources, and support for shared childcare.
4. Sustained involvement of civil society and local communities in processes of cultural change through awareness campaigns, community programs, and mentoring initiatives.

Only through long-term collective engagement – grounded in knowledge, solidarity, and institutional courage – can Moldova transform gender equity from a normative goal into a widely shared social practice, with lasting effects on the development of society.

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