



LIETUVOS RESPUBLIKOS SEIMO  
VALSTYBĖS VALDYMO IR SAVIVALDYBIŲ KOMITETAS  
VIEŠOJO VALDYMO KOMPETENCIJŲ TINKLAS  
LIETUVOS RESPUBLIKOS VIDAUS REIKALŲ MINISTERIJA  
MYKOLO ROMERIO UNIVERSITETO  
VIEŠOJO VALDYMO IR VERSLO FAKULTETAS  
GENEROLO JONO ŽEMAIČIO LIETUVOS KARO AKADEMIJA

13-OJI TARPTAUTINĖ MOKSLINĖ–PRAKTINĖ  
VIEŠOJO VALDYMO POKYČIŲ KONFERENCIJA  
**DUOMENIMIS GRĮSTAS IR DIRBTINIŲ  
INTELEKTU ĮGALINAMAS VIEŠASIS  
VALDYMAS**

2026 m. gegužės 13 d.

Vilnius



**COMMITTEE ON STATE ADMINISTRATION AND LOCAL AUTHORITIES  
OF THE SEIMAS OF THE REPUBLIC OF LITHUANIA  
EXCELLENCE NETWORK OF PUBLIC GOVERNANCE  
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**THE 13TH INTERNATIONAL SCIENTIFIC-PRACTICAL  
CONFERENCE ON CHANGES IN PUBLIC GOVERNANCE**

**DATA-DRIVEN AND AI-ENABLED  
PUBLIC GOVERNANCE**

13 May 2026

Vilnius

**4F INDEX FOR MEASURING FINANCIAL RESILIENCE  
OF TERRITORIAL COMMUNITIES AND BUILDING  
STRATEGIES UNDER WARTIME CONDITIONS / 4F INDEKSAS  
TERITORINIŲ BENDRUOMENIŲ FINANSINIAM ATSPARUMUI  
VERTINTI IR STRATEGIJOMS KARO SĄLYGOMIS FORMUOTI**

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The full-scale war in Ukraine has fundamentally transformed the financial environment of territorial communities, exposing structural vulnerabilities in local budgets and governance systems. Under conditions of disrupted revenue flows, increased expenditure pressures, and high uncertainty, the need for an integrated methodological approach to assessing financial resilience becomes critical. This study proposes the 4F Index as a multidimensional tool for measuring financial resilience of territorial communities and supporting strategic decision-making under wartime conditions.

The conceptual foundation of the 4F Index (“four foundations for financial resilience”) is based on the understanding of financial resilience as the ability of a community to absorb shocks, adapt to changing conditions, and transform its financial system while maintaining core functions. The index integrates four key dimensions: economic, institutional, social, and technological. Each dimension is operationalized through a system of indicators and aggregated into sub-indices using taxonomic methods. The economic block reflects budget balance, revenue autonomy, and expenditure structure; the institutional block captures the quality of budget planning and execution through deviations between planned and actual indicators; the social block represents demographic pressures and social demand; and the technological block measures the level of digitalization and infrastructure readiness.

Methodologically, the study combines taxonomic analysis, normalization of indicators, and correlation modeling to validate the explanatory power of each block. The results demonstrate strong relationships between the sub-indices and financial outcomes, particularly for institutional ( $r = 0.93$ ),

economic ( $r = 0.88$ ), and technological ( $r = 0.85$ ) components, while the social dimension shows moderate correlation ( $r = 0.54$ ), reflecting the complexity of quantifying social dynamics.

The empirical application of the 4F Index is conducted using the case of the Kharkiv territorial community for the period 2021–2024, capturing pre-war, shock, and adaptation phases. The results indicate a significant increase in the overall 4F Index (0-1) from 0.30 in 2021 to 0.58 in 2023, followed by a partial decline to 0.45 in 2024. This trajectory reflects the initial shock of war, subsequent institutional adaptation, and ongoing structural challenges. The institutional component demonstrates the strongest growth, up-to 0.79, highlighting the critical role of budget discipline and management quality under crisis conditions. The technological dimension also shows steady improvement, indicating the importance of digital transformation as a resilience multiplier. In contrast, the economic and social components exhibit higher volatility, reflecting dependency on external conditions and demographic pressures.

The findings confirm that financial resilience is not solely determined by resource availability but is strongly influenced by institutional capacity and technological development. The 4F Index provides both diagnostic and predictive value, enabling the identification of weaknesses in community financial systems and supporting the design of targeted resilience strategies. In the context of wartime and post-war recovery, the proposed approach offers a practical analytical framework for local governments to balance short-term crisis response with long-term sustainable development.

*Keywords: financial resilience, territorial communities, wartime governance, public finance, local budgets.*