

**MODELING THE CREATIVE ECONOMY AS A COMPLEX SYSTEM:
INTEGRATING SOCIOCULTURAL DIMENSIONS THROUGH
IT-BASED APPROACHES**

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Abstract: *This study investigates the application of sociocultural indicators to the modeling of the creative economy as a complex system. The integration of cultural dimensions, particularly based on Hofstede’s framework, offers valuable insights into the dynamics of innovation, human capital, and creative industry growth. Drawing upon recent cross-country studies and modeling approaches, this paper proposes a theoretical structure where sociocultural variables act as key system components influencing long-term development. Composite indices, structural modeling, and system dynamics models demonstrate that cultural values such as individualism, tolerance, and performance orientation significantly impact creative sector outcomes. The research highlights how cultural governance models and information technologies can be combined to monitor and predict trends in the creative economy. The proposed approach contributes to interdisciplinary economic modeling and supports strategic planning for countries aiming to develop innovation-driven, culturally grounded economic systems.*

Keywords: *creative economy, sociocultural indicators, Hofstede’s model, economic modeling, cultural dimensions, complex systems, innovation, human capital, cultural governance*

Introduction. The creative economy has emerged as a strategic vector for sustainable growth, encompassing industries where value is primarily generated through intellectual capital, cultural expression, and innovation. Despite its growing global importance, theoretical frameworks for modeling the creative economy remain underdeveloped, especially regarding the integration of sociocultural dimensions. This paper proposes a model-oriented perspective where cultural indicators, drawn from validated theoretical frameworks such as Hofstede’s

dimensions, are used to describe, analyze, and forecast the development of creative sectors within national economic systems.

Theoretical Background. Cultural dimensions have been increasingly linked to innovation capacity and economic complexity. Previous researches show that individualism positively correlates with innovation and long-term economic performance [1]. Additionally, it confirms that performance-oriented cultures achieve better innovation outcomes [2]. Hofstede's framework, widely applied in cross-cultural studies, provides a basis for quantifying values such as uncertainty avoidance, individualism, indulgence, and power distance — each of which influences economic behavior, knowledge generation, and creative potential. These indicators form the basis for integrating cultural variables into economic modeling [3].

Modeling Approach. The creative economy is modeled here as a multi-layered complex system. Drawing on recent studies, the system incorporates sociocultural, economic, and institutional parameters [4]. Core variables include public cultural expenditure, tolerance indices, cultural participation rates, and performance orientation. Through composite indices and system dynamics modeling, this approach explores how shifts in cultural attitudes affect creative sector growth, innovation output, and national economic performance [5]. Recent studies further demonstrate how modeling tools like structural equation modeling (SEM) can operationalize such indicators for policy development [6]. While SEM and composite indices have proven effective for integrating sociocultural indicators into models, challenges remain. Cultural variables are often subjective, and many countries lack consistent datasets on creativity-related behaviors or policies. Despite these limitations, applying adaptive modeling tools makes it possible to reflect not only economic patterns but also evolving cultural dynamics that shape innovation.

Despite the promise of sociocultural modeling, significant methodological challenges remain. One major issue is data availability and standardization. In many emerging economies, including Ukraine, reliable statistics on cultural participation, creative employment, and value-based indicators are limited or fragmented [7]. Moreover, national datasets often fail to reflect regional specificities or informal

cultural production, which are critical components of the creative economy. This raises the need for flexible modeling frameworks that can incorporate mixed data types — such as combining survey-based sociocultural indicators with official economic data. As open data and digital platforms continue to develop, future models must also account for dynamic, time-sensitive cultural trends that influence innovation outcomes. These limitations do not diminish the potential of the proposed approach but rather underscore the importance of data governance and interdisciplinary integration

Findings and Implications. The integration of sociocultural indicators into economic models improves the explanatory power and adaptability of forecasts in creative sector development. National-level studies indicate that cultural governance, digitalization, and education policies are most effective when aligned with a country's cultural profile. For countries like Ukraine, understanding how cultural values interact with innovation ecosystems offers a valuable tool for strategic planning, EU integration, and sustainable creative industry expansion. Information technologies such as data mining, SEM, and system modeling platforms enable practical implementation of this approach.

Future research could apply the proposed modeling structure to real-time regional datasets in Ukraine to identify local drivers of cultural innovation. Integration with geospatial data or time-series analysis platforms would enhance policy targeting and funding allocation for cultural infrastructure and talent development.

Conclusions. This paper proposes a theoretical and methodological foundation for modeling the creative economy as a complex system influenced by sociocultural dimensions. By synthesizing insights from Hofstede's model and contemporary economic modeling practices, the study offers a framework for integrating cultural factors into creative sector policy and planning. Future applications may include national forecasting systems and decision support tools for cultural policy design.

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МОДЕЛЮВАННЯ КРЕАТИВНОЇ ЕКОНОМІКИ ЯК СКЛАДНОЇ СИСТЕМИ: ІНТЕГРАЦІЯ СОЦІОКУЛЬТУРНИХ ВИМІРІВ ЧЕРЕЗ ІТ ПІДХОДИ

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Анотація. У науковому дослідженні розглядається підхід до моделювання креативної економіки як складної системи, в якій соціокультурні індикатори виступають ключовими параметрами. На основі моделей культурних вимірів Гофстеда та сучасних підходів до економічного прогнозування обґрунтовано необхідність інтеграції культурних змінних у стратегічне планування креативного сектору. Показано, що значення таких факторів, як індивідуалізм, толерантність, орієнтація на досягнення, є визначальними для інноваційного розвитку. Запропоновано методологічну основу для застосування інформаційних технологій — системної динаміки, структурного моделювання та композитних індексів у процесі аналізу і прогнозування стану креативної економіки.

Ключові слова: креативна економіка, соціокультурні індикатори, моделювання, культурні виміри, Гофстед, інформаційні технології, інновації, стратегічне планування.

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