

The role of national culture in creating innovation ecosystems: A global study

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Article Info	Abstract
Original Article Main Object: Culture Scope: World Studies Received: 24 September 2025 Revised: 01 October 2025 Accepted: 04 October 2025 Published online: 12 October 2025 Keywords: cross-cultural analysis, global innovation index, Hofstede's cultural dimensions, innovation, national culture.	Culture and innovation are intricately interdependent, and analyzing them simultaneously is essential for effective policymaking and understanding technological progress. This study aims to explain the role of Hofstede's cultural dimensions in cross-country differences in innovation ecosystem performance. The research data consists of the Global Innovation Index (GII) and Hofstede's six cultural dimensions— Power Distance, Individualism, Masculinity vs. Femininity, Uncertainty Avoidance, Long-Term Orientation, and Indulgence— in countries with available overlapping data. The study employs a secondary data analysis at the national level, using descriptive statistics, Pearson correlation coefficients, and multiple linear regression. Prior to analysis, the data were cleaned and normalized to ensure comparability. The results indicate that Individualism, Long-Term Orientation, and Indulgence have a significant and positive relationship with the GII and most of its components. In contrast, Uncertainty Avoidance shows a significant negative impact on innovation and several of its key pillars. The Masculinity vs. Femininity dimension does not show a statistically significant effect on innovation. Countries characterized by higher levels of Individualism, long-term perspectives, and greater power distance tend to have higher innovation capacity, whereas a strong sensitivity to ambiguity is associated with lower technological outputs. The findings underscore the importance of fostering a culture of experimentation, teaching skills to cope with uncertainty, and institutionalizing long-term perspectives in research and development investments. These cultural strategies can create a more supportive environment for enhancing national innovation performance.

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Extended abstract**1. Introduction**

Innovation is a vital driver of economic development, competitiveness, and national well-being. While investment in R&D, infrastructure, and education is often viewed as the foundation for successful innovation, these material inputs alone cannot fully explain the variation in innovation performance across nations. A growing body of research highlights the role of national culture— especially shared values and social norms— in shaping how societies approach risk, uncertainty, autonomy, and long-term goals, all of which are central to innovation processes (Herbig & Dunphy, 1998; Kwan et al., 2018; Ahern, 2025). Simultaneously, technological innovation can influence and reshape cultural attitudes and institutional norms over time (Howells, 2005; Fagerberg et al., 2010).

Previous studies on the culture–innovation relationship can be classified into three strands. One examines psychological and organizational factors at the individual or team level, showing how autonomy and reward systems enhance creativity (Amabile et al., 1986). Another focuses on national innovation systems and institutional structures (Freeman, 1995; Lundvall, 2007). A third strand investigates how differences in cultural values— such as those captured by Hofstede’s framework— explain cross-country disparities in innovation performance (Hofstede, 2001; Tian et al., 2021; Williams & McGuire, 2010).

However, not all scholars agree on the cultural explanation. Critics argue that structural factors like GDP, governance, and market size are more robust predictors of innovation (Henderson et al., 2005; Fagerberg & Srholec, 2008). Others highlight methodological challenges such as measurement inconsistency, reverse causality, and collinearity among cultural dimensions (Khan & Cox, 2017). Many existing studies also rely on aggregated innovation indices and fail to capture how cultural traits may impact different components of innovation differently.

2. Objective

This study aims to re-examine the culture–innovation relationship by focusing on the differentiated effects of cultural dimensions on distinct components of innovation performance. Using Hofstede’s six cultural dimensions and the Global Innovation Index (GII), the study investigates how culture explains innovation performance across countries in a more granular and mechanism-sensitive way.

3. Methodology

The research employs a quantitative, cross-sectional design based on secondary data from 149 countries. Cultural indicators are drawn from Hofstede’s six dimensions: power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence.

(Hofstede, 2021). Innovation performance is measured using the 2024 Global Innovation Index, which captures multiple pillars of innovation capacity including institutions, infrastructure, human capital, research, market sophistication, and creative outputs (Cornell University, INSEAD, & WIPO, 2024).

Data were cleaned and normalized to ensure comparability. The study uses Pearson correlation and multiple linear regression analyses to assess the relationships between cultural traits and various GII components. Ten regression models were estimated, each corresponding to a key innovation dimension.

4. Findings

The analysis reveals consistent and significant positive associations between three cultural traits— individualism, long-term orientation, and indulgence— and both overall innovation performance and specific GII sub-indices.

Individualism emerges as a strong predictor across most models. Cultures that emphasize autonomy and personal responsibility are more conducive to both creating and adopting innovative ideas (Taylor & Wilson, 2012; Gorodnichenko & Roland, 2011).

Long-term orientation is also positively associated with innovation outcomes. Forward-looking cultures exhibit greater patience for delayed rewards, more stable R&D investment, and higher tolerance for experimentation and failure (Fang et al., 2025; Anderson et al., 2014).

Indulgence, which captures societal openness and tolerance for diversity, is positively linked to creative outputs and business sophistication. Such cultures tend to foster psychological safety and reduce the stigma of failure, encouraging experimentation and idea generation (Kwan et al., 2018).

In contrast, uncertainty avoidance shows a significant negative effect on several dimensions, particularly in knowledge and technology outputs, market success, and business complexity. High uncertainty-avoidance societies tend to discourage risk-taking, enforce rigid rules, and penalize failure—factors that suppress innovation potential (Waarts van & Everdingen, 2003; Henderson et al., 2005).

The cultural dimensions of masculinity and power distance generally display weak or insignificant effects. This may be due to overlapping influences, measurement limitations, or their lower relevance to innovation processes, as noted in previous studies (Fagerberg & Srholec, 2008).

Regression models confirm these relationships quantitatively. For example, in the infrastructure model ($R^2 = 0.568$), individualism ($\beta = 0.436$), long-term orientation ($\beta = 0.407$), and indulgence ($\beta = 0.232$) show strong positive effects. The GII overall model ($R^2 = 0.717$) reflects a similar pattern with uncertainty avoidance contributing negatively ($\beta =$

-0.226). The same trends are evident in models for business complexity, creative outputs, and market success.

5. Conclusion

This study demonstrates that culture plays a critical, multidimensional role in shaping national innovation ecosystems. Specifically, cultures that encourage autonomy, long-term planning, and social tolerance tend to foster stronger innovation performance across multiple domains. Conversely, cultures characterized by high uncertainty avoidance may hinder innovation by promoting conservatism and penalizing risk-taking.

The findings offer key implications for policy. Promoting innovation requires more than financial or regulatory reforms—it calls for alignment with cultural values that support experimentation, long-term thinking, and resilience to ambiguity. Recommended strategies include reward systems that tolerate failure, regulatory simplification to reduce uncertainty, and institutional mechanisms that secure long-term investment in R&D.

The study also has limitations. The cross-sectional design prevents causal inference and does not control for structural factors such as GDP or governance quality. Future research should adopt longitudinal designs, explore interaction effects, and incorporate additional cultural frameworks like Schwartz, Gelfand, or Inglehart. Integrating macro-level cultural data with micro-level firm and industry data could also enrich understanding of how culture drives innovation mechanisms.

In summary, culture matters for innovation—not as a single overarching determinant but through distinct pathways. Nations that cultivate individual agency, future orientation, and openness to diversity are better positioned to generate, sustain, and scale innovative capacity.

Conflict of interest

The authors declared no conflicts of interest.

Authors' contributions

All authors contributed to the original idea, study design.

Ethical considerations

The authors have completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or falsification, double publication and/or redundancy, submission, etc. This article was not authored by artificial intelligence.

Data availability

The dataset generated and analyzed during the current study is available from the corresponding author on reasonable request.

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