PUBLISHING INSTITUTE
Journal Website

Article history:
Received 24 July 2025
Revised 30 October 2025
Accepted 03 November 2025
Published online 01 January 2026

International Journal of Innovation Management and Organizational Behavior

Open Peer-Review Report

E-ISSN: 3041-8992

Machine Learning Identification of Innovation Bottlenecks: A Behavioral Analytics Approach Using Gradient Boosting Models

Ji-Hoon. Park[1], Giorgi. Beridze[2*], Farah Nadia. Zulkifli[3]

[1] Department of Technology and Innovation Management, KAIST Business School, Daejeon, South Korea
[2] School of Business, Tbilisi State University, Tbilisi, Georgia
[3] Department of Organizational Leadership and Management, Universiti Sains Malaysia, Penang, Malaysia

*** Corresponding author email address**: giorgi.beridze@tsu.ge

Editor	Reviewers
Rey Segundo Guerrero-Proenza Departamento de Inteligencia Computacional, Facultad 4, Universidad de las Ciencias Informáticas, La Habana, Cuba reysgp@uci.cu	**Reviewer 1:** Masoud Hoseinchari Associate Professor, Department of Educational Sciences, Shiraz University, Shiraz, Iran. Email: hchari@shirazu.ac.ir **Reviewer 2:** Alinaghi Amiri Professor, Management Department, Tehran University, Tehran, Iran. Email: anamiri@ut.ac.ir

1. Round 1

1.1. Reviewer 1

Reviewer:

In the opening paragraph beginning with “Innovation has emerged as the principal engine…”, the term innovation bottlenecks is not conceptually defined. A concise operational definition introduced here would improve conceptual clarity and theoretical coherence.

The statement “innovation failures are rarely attributable to technological deficiencies alone” would be strengthened by providing a concrete organizational example or brief contextual illustration relevant to the study’s empirical setting.

The phrase “feature engineering was conducted to generate interaction terms” is insufficiently detailed. The authors should specify which interactions were created and how these reflect the study’s theoretical assumptions.

After Table 1, the manuscript describes levels as “moderate to high” without defining interpretive benchmarks. Clarifying these thresholds would improve analytical precision.

When interpreting Table 2, the manuscript claims improvement of the ensemble model but does not quantify the magnitude of improvement over the best single algorithm. Reporting percentage gains would strengthen this claim.

Authors revised the manuscript and uploaded the new document.

1.2. Reviewer 2

Reviewer:

The claim that most existing studies rely on linear statistical techniques would benefit from explicitly naming common methods (e.g., regression, SEM) to substantiate the critique.

In the paragraph describing the Georgian organizational context, the manuscript should provide a clearer justification for the theoretical and empirical relevance of this setting beyond its classification as a post-transition economy.

The description of the multi-stage sampling strategy should include the number of organizations contacted, participation rates, and any non-response analysis to allow assessment of sampling bias.

While numerous constructs are listed, the manuscript does not present sample items or scale origins. Including representative items or citing the foundational scales would significantly improve measurement transparency.

The statement that Cronbach's alpha exceeded 0.81 for all constructs should be supplemented with exact reliability coefficients for each major construct.

Authors revised the manuscript and uploaded the new document.

2. Revised

Editor's decision after revisions: Accepted.
Editor in Chief's decision: Accepted.

IJIMOB
E-ISSN: 3041-8992