




Machine Learning–Based Discovery of Hidden Behavioral Profiles Underlying High-Performing Innovation Teams

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1. Round 1

1.1. Reviewer 1

Reviewer:

The manuscript states that traditional models “fail to capture the emergent, non-linear, and multi-dimensional nature of team behavior.” Please strengthen this methodological critique by providing a concrete example of how a linear model would misrepresent innovation dynamics relative to your proposed machine-learning framework.

When asserting that machine learning “enables the discovery of natural groupings and behavioral archetypes,” it would be useful to explain why unsupervised learning is particularly suitable for this task compared to conventional cluster-based organizational research methods.

The statement “Cronbach’s alpha coefficients for all multi-item scales exceeded 0.82” should be supplemented with either a range or the lowest and highest values to provide a clearer picture of scale reliability.

Your procedural remedies for common method bias are strong. Please explicitly state whether any statistical diagnostics (e.g., Harman’s single factor test or CFA marker variables) were performed as additional safeguards.

The justification for selecting Gaussian mixture models as the optimal clustering solution should be expanded. Consider briefly explaining why GMM outperformed k-means and hierarchical clustering in terms of theoretical interpretability, not only statistical fit.

Authors revised the manuscript and uploaded the new document.

1.2. Reviewer 2

Reviewer:

The rationale for selecting Singapore is well-articulated; however, the paragraph would be stronger if you explicitly identified which institutional features of Singapore's innovation ecosystem are most likely to influence team behavior (e.g., regulatory climate, industry structure, talent mobility).

The stated aim is clear, but it would improve theoretical precision to explicitly define what you mean by "hidden behavioral profiles" in operational terms, ideally referencing the later clustering methodology.

The description of the multi-stage sampling strategy is thorough; however, the criteria used by the Singapore Economic Development Board to classify "sustained innovation output" should be briefly described to improve transparency and replicability.

You report that 612 participants were recruited and 574 retained after screening. Please clarify the exact thresholds used for defining "statistical outliers" and incomplete responses.

Authors revised the manuscript and uploaded the new document.

2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.