

# A systematic VIKOR approach to measure the dynamic capabilities driving innovation transformation in the restaurant industry

Sheng-Fang Chou, Jeou-Shyan Horng, Chih-Hsing Liu, Tai-Yi Yu, Yung-Chuan Huang, Quoc Phong La

## Abstract

The purpose of this study is to investigate the relationships among restaurants' postepidemic innovation and transformation efforts, dynamic capability, organizational culture, absorptive capacity, innovation adoption, and performance to adapt to changes in consumer preferences. Thirty experts with effective expertise in innovation transformation were contacted for discussion. Using the multicriteria decision-making (MCDM) method together with VIKOR techniques, the interrelationships between multiple dimensions and criteria were examined, revealing that dynamic capabilities exert a stronger influence over other dimensions. The MCDM method provided more comprehensive insights, setting this study apart from others. Recommendations for strategic development aimed at addressing new transformation challenges were given.

## Samples

- An open-ended questionnaire and in-depth interviews with 7 selected industry experts were conducted to validate the core parameters and establish evaluation criteria for the research model.
- Interviews with 30 restaurant entrepreneurs, senior managers, government officials, and scholars with proven innovation transformation experience were carried out to gather practical insights.
- The demographic distribution of the expert panel is as follows: 43% are male; 57% are female; 67% hold master's or doctoral degrees; 86% have over 10 years of industry experience; and 50% serve as CEOs, chairpersons, or managers.

## Research gaps

- Few studies offer a comprehensive analysis of how the restaurant industry has adapted and innovated in response to postpandemic challenges (Li et al., 2021).
- Tan et al. (2025) highlighted the absence of integrated research employing multivariable and multicriteria analysis to enhance understanding in this field.
- By incorporating dynamic capabilities, organizational culture, absorptive capacity, performance metrics, and innovation adoption, it identifies key strategic priorities for decision-makers seeking to strengthen their adaptive capacities and sustain long-term innovation.

**Table 1. The performance evaluation by VIKOR**

Dimensions/criteria	Local weight (based on DANP)	Global weight (based on DANP)	Performance	Gap(by VIKOR)
<b>A. Absorptive capacity</b>	0.171		8.299	0.170 (2)
a1 exploratory learning	0.056	0.324	8.414	0.159
a2 transformative learning	0.057	0.330	8.455	0.155
a3 exploitative learning	0.059	0.346	8.029	0.197
<b>B. Organizational culture</b>	0.161		7.956	0.204 (6)
b1 Crisis management	0.050	0.309	8.098	0.190
b2 People involved	0.057	0.353	8.039	0.196
b3 Contingency culture	0.054	0.338	7.732	0.227
<b>C. Innovation adoption</b>	0.162		8.042	0.196 (5)
c1 Relative advantage	0.042	0.262	7.572	0.243
c2 Compatibility	0.038	0.237	8.337	0.166
c3 Complexity	0.040	0.246	8.146	0.185
c4 Trialability	0.041	0.254	8.113	0.189
<b>D. Innovation transformation</b>	0.18		8.093	0.191 (4)
d1 Service Innovation	0.046	0.253	8.648	0.135
d2 process innovation	0.046	0.253	8.215	0.179
d3 marketing innovation	0.045	0.250	7.738	0.226
d4 organizational innovation	0.044	0.243	7.771	0.223
<b>E. Dynamic capability</b>	0.17		8.409	0.159 (1)
e1 perceived needs	0.043	0.252	9.033	0.097
e2 Integrate knowledge	0.042	0.249	8.533	0.147
e3 effective learning	0.042	0.248	8.069	0.193
e4 employee participation	0.043	0.251	8.000	0.200
<b>F. Performance</b>	0.155		8.248	0.175 (3)
f1 return on sales	0.054	0.350	8.310	0.169
f2 market share	0.050	0.325	8.000	0.200
f3 net profit	0.051	0.325	8.433	0.157

## Methodology

- Building on expert insights from Taiwan's restaurant sector regarding dynamic innovation capabilities, the VIKOR method generates near-optimal solutions from predefined benchmark alternatives (Wu et al., 2019).
- The evaluation criteria are then ranked according to their proximity to the positive-ideal solution, where closer alignment indicates superior performance.
- Through systematic VIKOR analysis, this study quantifies performance metrics for innovation transformation's key drivers in the restaurant sector after the epidemic.
- This synthesis enables decision-makers to diagnose challenges from both particular dimensions and overall criteria perspectives, allowing them to prioritize interventions by increasing VIKOR gap values.

## Results

- As shown in Table 1, the results indicate that if the strategic goal of the decision-maker is to identify the best solution for postpandemic restaurant innovation and transformation, the priority order is E. dynamic capability, A. absorptive capacity, F. performance, D. innovation transformation, C. innovation adoption, and B. organizational culture.
- According to these experts, dynamic capability is the most important component when restaurants undergo innovation transformation after the pandemic.
- As Chou et al. (2022) emphasized, the postpandemic landscape demands acute environmental sensing and adaptive agility from restaurateurs. Rapid shifts in consumption patterns necessitate dynamic capabilities as critical enablers for operational and service innovation, justifying their top-ranking status among transformation factors.

## Conclusion

- This study presents a systematic framework for examining the key drivers of innovation transformation in the restaurant sector through MCDM analysis.
- By employing the VIKOR method, the research identifies optimal solutions that effectively balance competing criteria, moving beyond the limitations of conventional single-objective optimization approaches prevalent in traditional quantitative research.
- Unlike studies that examine variables in isolation, this approach enables decision-makers to navigate complex business environments where satisfying multiple stakeholder requirements is paramount (Erol et al., 2023).
- The results provide restaurant executives with comprehensive insights to understand emerging transformation challenges, formulate strategic decisions, and align stakeholder communication capabilities that conventional quantitative methods often lack due to their tendency to examine simple, linear relationships between individual variables.
- Compared with traditional analytical approaches, this multidimensional perspective offers organizations a more robust foundation for achieving sustainable innovation outcomes.