

# Measuring and Scaling the Trans-Arabic Technological Model in the Iranian Packaging Industry

Rahimbakhsh Parandoosh , Zahra Dashtlaali , Sayyed Mohammadreza Davoodi 

Department of Management, Deh.C., Islamic Azad University, Isfahan, Iran

**Receive:**

03 July 2025

**Revise:**

10 September 2025

**Accept:**

23 September 2025

**Keywords:**

Technological breakthrough, Saffron packaging, window of opportunity, Innovation, research and development

**Abstract**

The present study aims to measure and scale the trans-Industrial technological model in the Iranian packaging industry (case study: saffron packaging). The method of this research is applicable in terms of purpose, and is of a mixed type (qualitative-quantitative) and descriptive-analytical type in terms of implementation. The statistical population in the interpretative structural section includes university experts and managers of saffron packaging companies, the number of statistical samples was selected purposefully as 15 people, and the number of statistical samples in the confirmatory factor analysis section was estimated to be 384 people based on random stratified sampling using the Cochran formula. The research tools in the qualitative section are semi-structured interviews, and in the quantitative section include the ISM questionnaire and a researcher-made questionnaire taken from the qualitative section. The analysis method in the qualitative section is an interpretative structural approach with the Miqmac software, and in the quantitative section, confirmatory factor analysis was carried out with the IMOS software. The findings of the interpretive structural section showed that the identified factors were categorized into seven levels, with the factor of “new technologies and smart packaging” being identified as the most important factor, and the results of the confirmatory factor analysis section showed that the causal paths and relationships between external and internal constructs in the structural model were confirmed by the confirmatory factor analysis method.

**Please cite this article as (APA):** Parandoosh, R., Dashtlaali, Z. and Davoodi, S. M. (2025). Measuring and Scaling the Trans-Arabic Technological Model in the Iranian Packaging Industry. *Journal of value creating in Business Management*, 5(3), 471-487.



<https://doi.org/10.22034/jvcbm.2025.544821.1621>



Authors retain the copyright and full publishing rights.

Published by Research Center of Resource Management Studies and Knowledge-Based Business. This article is an open access article licensed under the Creative Commons Attribution 4.0 International (CC BY 4.0)

**Publisher:** Research Center of Resource Management Studies and Knowledge-Based Business

**Corresponding Author:** Zahra Dashtlaali

**Email:** zahradashtlaali@iau.ir

## Extended Abstract

### Introduction

During several decades of rapid and extraordinary growth of some economies around the world, especially in East Asia, a concept called technological leapfrogging was formed in the economic development literature. (Ponomarev & Gareev, 2025) The concept of leapfrogging has been defined as reducing the gap between countries in productivity and income with leading countries and, in general, convergence and reducing the difference in productivity and income in the whole world. Leapfrogging can be measured by different indicators such as income, productivity, and technological capability. The measurement method should be selected based on the research objective and the levels of study at the firm, industry, and national levels (Li et al., 2022). In addition, the similarity of production methods, technologies and institutions of developed countries helps developing countries. In research, different reasons such as geographical advantages, human capital, development of science and technology, cultural or political institutions, trade and international blocs have been proposed for convergence (Li et al., 2025).

The packaging industry, as one of the main pillars of the supply chain and marketing of products, plays a key role in maintaining quality, increasing shelf life, safety and attracting customers (Yao et al, 2024). Appropriate packaging not only prevents damage to products during transportation and storage, but also creates added value for producers and increases competitiveness in domestic and international markets (Wang et al., 2024). Saffron, as one of the main export products of Iran, despite its competitive advantage, still faces packaging problems and requires special attention in this area. Saffron has been used in fields such as cooking, medicine, cosmetics and dyeing since ancient times due to its special aroma and color. Iran has long been one of the most important producers and exporters of saffron in the world, and proper packaging of this product is of great importance for maintaining its quality and increasing its export value. Packaging plays a decisive role in protecting the aroma, flavor and color of saffron and preventing its contamination; while improper packaging can reduce quality and damage the reputation of the manufacturer. Considering the importance of the packaging industry in Iran, considering the weaknesses in this industry, and considering the technological trans-Arab solution, this study seeks to answer the question: how to measure and scale the technological trans-Arab model in the Iranian packaging industry?

### Theoretical Framework

#### Technological trans-Arab

Technological trans-Arab means filling the gap in technological capabilities that are measured qualitatively or quantitatively, for example, the number of patents and the ratio of research and development to GDP. The policy of trans-Asianization says that we should not necessarily follow the path that others have taken; rather, we should use the experiences of others along the shortest development path. Although developing countries are technologically behind developed countries, they can take advantage of their new arrival advantages to develop technology (Liu et al., 2025).

Shi et al. (2025) conducted a study on China's technological catch-up through foreign intellectual property acquisition: disentangling the effects of international distance. The results show that: (1) different sub-dimensions of distance have different direct effects on foreign intellectual property acquisition, (2) the positive effect of knowledge distance on intellectual property acquisition interacts with the other three forms of distance, (3) the most aggressive foreign intellectual property acquisition strategies are associated with only three forms of distance, and (4) the effect of disentangling distance depends on the type of intellectual property asset and whether the buyer is in the manufacturing or service sector.

Karbasi et al. (2025) examined the role of innovation in the development of saffron processing and transformation industries. They acknowledged that product innovation and process innovation have a positive effect on the development of saffron processing and transformation industries. Accordingly, strengthening smart packaging infrastructure and digital marketing can pave the way for sustainable and export-oriented development of these businesses.

### Research Methodology

The method of this research is applicable in terms of purpose and is of mixed type (qualitative-quantitative), and descriptive-analytical type. The statistical population in the interpretative structural section includes university experts and managers of saffron packaging companies, the number of statistical samples was selected purposefully as 15 people, and the number of statistical samples in the confirmatory factor analysis section was estimated to be 384 people based on random stratified sampling using the Cochran formula. The research tools in the qualitative section are semi-structured interviews, and in the quantitative section include the ISM questionnaire and a researcher-made questionnaire taken from the qualitative section.

### Research findings

The analytical method in the qualitative section is an interpretative structural approach with the MICMAC software; and in the quantitative section, confirmatory factor analysis was carried out with the Imus software. The findings of the interpretive structural section showed that the identified factors were categorized into seven levels, with the factor of "new technologies and smart packaging" being identified as the most important factor, and the results of the confirmatory factor analysis section showed that the paths and causal relationships between external and internal constructs in the structural model were confirmed by the confirmatory factor analysis method.

### Conclusion

The present study was conducted with the aim of measuring and scaling the technological trans-Arabic model in the Iranian packaging industry (case study: saffron packaging). The results of this study are consistent with the results of Shi et al. (2025), Nayerhoda et al. (2025), Karbasi et al. (2025), Jafari Toye & Noruzi (2024), Soltanzadeh et al. (2024), Matsuo et al. (2024), Yun et al (2023), Alizadeh et al. (2023), and Safdari Ranjbar (2022). Karbasi et al. (2025) showed that product innovation and process innovation have a positive effect on the development of saffron processing and transformation industries. Accordingly, strengthening smart packaging infrastructure and digital marketing can pave the way for sustainable and export-oriented development of these businesses.

According to the results of the study, the following suggestion was made:

- Launching advanced and automatic production lines in line with global standards; especially in export packaging according to the requirements of target market customers.
- Continuous monitoring and analysis of market developments and international competitors to predict new trends and demands using data mining tools.