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# Development of a Mission-Oriented Performance Management Model in the Digital Transformation Context: A Hybrid Approach Based on Literature Synthesis and Fuzzy Delphi

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## ABSTRACT

This study proposes a comprehensive Mission-Oriented Performance Management (MOPM) model within the context of digital transformation, employing a mixed-methods exploratory design to bridge the gap between abstract organizational missions and measurable performance indices. The research unfolded in two distinct phases: first, a systematic literature review (SLR) was conducted to establish a theoretical foundation. Following the screening of 371 articles against rigorous inclusion criteria, 34 high-impact studies were analyzed, leading to the extraction of 237 conceptual codes, which were subsequently synthesized into an initial framework comprising 17 components and 51 indicators. In the second phase, the Fuzzy Delphi Method (FDM) was utilized to refine this framework and achieve expert consensus. A panel of 15 specialists—comprising academic scholars and industry professionals—evaluated the indicators through two rounds of assessment. Linguistic responses were converted into triangular fuzzy numbers (TFNs), aggregated, and defuzzified, while the Kendall coefficient of concordance was calculated to ensure inter-rater reliability. The process yielded a validated, stable MOPM model, offering a robust, data-driven architecture that aligns day-to-day operational metrics with broader socio-economic and mission-driven objectives. This model serves as a strategic roadmap for organizations navigating the complexities of the digital era, providing a scalable framework for performance governance. **©authors**

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## Introduction

Digital transformation in recent decades has fundamentally altered patterns of organizational performance management and evaluation. Modern organizations not only focus on efficiency and effectiveness but also strive to redefine their grand missions within the framework of new technologies, digitalization, and data-driven approaches (Salvi & Spagnoletti, 2022). In this context, mission-oriented performance management emerges as a novel approach emphasizing the alignment of individual, unit, and organizational performance with the mission and long-term goals of the organization (Sikora & Arna, 2022). However, many traditional performance evaluation frameworks are static and non-interactive, lacking the ability to respond to the dynamics of the digital environment (Mahmoud & Othman, 2023; Tavakoli & Safavi, 2022).

In an era of increasing complexity, volatility, and data-driven challenges, there is an urgent need to revisit performance models based on organizational missions and digital requirements. The literature on mission-oriented policy and innovation reveals that attention to public and social missions can transform the orientation and logic of organizational actions, playing a crucial role in enhancing performance (Mazzucato, 2018; Tok, 2023). Despite this, a review of existing research indicates that few models have successfully established a systematic link between mission-oriented management components and digital transformation capabilities, especially in public and strategic sectors such as the oil industry (Tavakoli & Safavi, 2022). Furthermore, research evidence suggests that aligning performance management with organizational missions can influence the setting of operational goals and organizational behaviors, but this connection is often not presented in clear and integrated operational frameworks (Mas-Machuca et al., 2024; Shahmehr et al., 2014, 2015; Katashvili et al., 2025).

At the same time, performance management literature has increasingly moved toward leveraging big data, data mining, and smart information systems; transformations that underscore the role of digital infrastructure in designing and implementing performance assessment systems (Hu et al., 2022; Pasha & Jacobson, 2023). However, many of these systems still rely on functional and financial metrics, paying less attention to mission-focused mechanisms and long-term public goals (OECD, 2023; Wittmann et al., 2025).

Based on this, it appears that there is a significant gap in the literature: a lack of integrated mission-focused performance management models that simultaneously address the requirements of digital transformation, the logic of mission-driven innovation, and the specific conditions of public organizations (Mendonça, 2018; Santos & Mazzucato, 2025). This gap is particularly pronounced in strategic and capital-intensive organizations, such as the oil and gas sector, where decisions and performance have long-term economic, social, and technological implications (Tavakoli & Safavi, 2022).

In response to this gap, the present research aims to develop a comprehensive mission-oriented performance management model within the context of digital transformation. To achieve this goal, two complementary approaches have been employed. First, by utilizing meta-synthesis and based on Sandelowski and Barroso’s seven-stage model, the relevant theoretical and empirical background related to performance management, mission-ism, and digital transformation was reviewed, and key factors were extracted. In the second step, to refine and validate the proposed model’s expertise, the Fuzzy Delphi technique was used; a method that allows for combining expert linguistic judgments and achieving gradual consensus on indices and components (Pill, 1971; Mazzucato, 2025).

In addition to providing a native and up-to-date model of mission-oriented performance management, this research seeks to create a theoretical and practical foundation for the convergence of performance management, mission-ism, and digital transformation domains. The outcomes of this study are expected to assist managers and policymakers in designing intelligent, agile, and mission-aligned performance assessment systems in the digital age, while also opening new avenues for future research in the field of mission-oriented performance management (Wittmann et al., 2025; Sikora & Arna, 2022).

In this research, it is attempted to answer: How can a mission-oriented performance management model be developed in the context of digital transformation through a hybrid approach based on literature synthesis and the Fuzzy Delphi technique?

## Literature Review

A systematic review of previous studies reveals that the literature on performance management and mission-ism can be categorized into three main analytical streams (Robinson et al., 2025). The first stream focuses on identifying performance dimensions and indicators in public organizations and human resources areas. These groups of studies have attempted, through quantitative methods such as factor analysis, modeling, and data envelopment analysis, to frame performance components within process, developmental, behavioral, and outcome dimensions (Sheikh, 2023; Pamplona et al., 2026; McLaren et al., 2025; Bahr al-Alam et al., 2025). The findings suggest that modern performance assessment approaches are effective only when they can simultaneously and integrally consider processes, capabilities, and performance outcomes.

The second stream of literature emphasizes the relationship between organizational mission and performance. In this line of research, the role of mission statement quality, mission-oriented motivation, incentive systems, internal stability, and leadership in shaping the impact of mission on employee and organizational performance has been examined (Shahmar et al., 2014; Mazzucato et al., 2025; Frangenheim et al., 2025). The results indicate that an organizational mission influences innovation, efficiency, and organizational impact when it is embedded in incentive structures, employee behaviors, and organizational culture (Zhao et al., 2026). This highlights the complexity of the mission-performance relationship and the necessity of designing more precise frameworks to operationalize mission within performance management systems.

The third stream of literature focuses on mission-oriented policy and innovation studies, providing theoretical and macro-level frameworks to understand mission, set mission goals, involve stakeholders, schedule actions, and assess impact (Tok, 2023; Al Feghali et al., 2026; Mazucato, 2018; Schandl et al., 2026). These resources provide the theoretical foundation required for developing mission-oriented performance models and emphasize that mission-focused policies can be effective when performance evaluation systems, mission goal monitorability, and continuous feedback mechanisms are in place (Ekaristi et al., 2025; Misrahayu et al., 2026).

Beyond these three streams, a significant portion of studies has explored the practical application of mission-oriented performance management across different industries. Research in sectors such as oil and gas, water and wastewater, education, banking, and the public sector demonstrates that performance management is most effective when aligned with industry structure, organizational culture, and technological and environmental requirements (Yan Na & Zhao, 2020; Oyamada et al., 2025; Ayres et al., 2025; Villamil et al., 2025; Khan et al., 2024). These findings underscore the need for context-based models and show that general performance management models are not sufficiently responsive to the complexities of mission-oriented organizations, especially in strategic industries.

Overall, the literature shows that performance management rests on dimensions such as process, development, behavior, and outcomes, while mission-orientation plays a crucial role in setting organizational direction and momentum. Nevertheless, there is still no comprehensive and integrated model that combines the logic of mission-orientation with performance management mechanisms and the needs of dynamic digital environments, particularly in strategic sectors such as the oil industry.

Knowledge gap and contribution of the present study: The main gap in the literature lies in the absence of an integrated and validated framework that connects mission-oriented logic, digital transformation requirements, and performance management dimensions in a coherent operational model tailored to public and strategic organizations. This article seeks to fill that gap by developing a mission-oriented performance management model through a hybrid approach based on literature synthesis and Fuzzy Delphi, thereby providing both a conceptual foundation and a practically applicable framework for performance management in digitally transforming mission-driven organizations.

## Method

The present research was conducted with a mixed and exploratory approach to integrate existing qualitative evidence from the literature and then reach expert consensus, providing a credible framework for mission-oriented performance management in the context of digital transformation. Initially, a meta-synthesis approach based on the Sandelowski and Barroso (2007) model was employed. Therefore, a systematic search was conducted in reputable scientific databases including Scopus, Web of Science, ScienceDirect, Springer, Emerald, SID, and ISC. In this stage, 371 studies were initially identified using keywords related to performance management, mission-orientation, and digital transformation. After content evaluation, removing duplicates, assessing scientific quality, and examining direct conceptual relationships, 23 articles were selected for the final analysis.

The selected texts were analyzed using content analysis, and through open, axial, and selective coding, a total of 237 conceptual codes were extracted. These concepts were continuously compared and categorized into 17 thematic components and 51 indicators. Subsequently, these components were organized using a theoretical framing approach into four broad dimensions: processual, developmental, behavioral, and outcome-oriented. The outcome of this stage was an initial model describing the conceptual structure of mission-oriented performance management; however, the content validity and importance weights of the components required expert confirmation. Thus, the second stage of the research was conducted using the Fuzzy Delphi method.

In the Delphi phase, the goal was to refine and stabilize the extracted indicators from the synthesis stage, in consultation with experts in performance management, digital transformation, and mission policy. To this end, 15 qualified and targeted experts were selected. The selection criteria included over 10 years of managerial or research experience, specialized knowledge in performance management or digital transformation, and experience in mission-oriented organizations. A questionnaire containing qualitative stage components and indicators was sent to these individuals, and they were asked to assess the importance of each indicator using a three-point Likert scale. The resulting data were aggregated using triangular fuzzy numbers and then de-fuzzyfied using the center of gravity method to calculate the actual importance of each indicator.

The Delphi process was conducted in two rounds. Comparing the results of the first and second rounds showed that the changes were less than 5%, indicating a stable consensus among the experts. Indicators with a de-fuzzyfied value of at least 0.5 were retained in the final model, while others were removed. Ultimately, the combination of the synthesis and Delphi fuzzy results provided a refined and consensual framework of dimensions and components of mission-oriented performance management, which forms the basis of the findings and discussion of this research.

The selected studies included 34 articles. Due to page and word limits, only some of them will be presented.

***Table 1.*** *Initial concepts extracted from selected studies in the synthesis approach*

| Initial Concepts | Researcher |
|---|---|
| Level of commitment to achieving goals, Identifying contextual causes of goal unattainment, Recognizing high-impact interventions in goal unattainment, Understanding the sacredness of mission-defined goals, Perceived distinction between mission statement nature and job tasks, Adaptability capacity to mission-focused work environment, Intrinsic capacity of individuals to adapt to desired changes | Flanigan (2024) |

| | |
|---|---|
| aligned with mission statement, Level of perceived contradictions related to mission statement goals, Continuous interaction with work environment to achieve goals. | |
| Integrating activities, Integration capacity of processes, Organizational sensitivity to achieve performance goals, Encouraging employees in performing assigned tasks, Linkage between employees and organizational mission, Linkage between employees and expected performance, Impact of mission statement on human resources, Identifying internal barriers to employee goal internalization, Developing performance goal measurement tools, Establishing valid measurement scales for performance goals. | Mas-Machuca e al., (2024) |
| Providing solutions for complex environmental conditions, Offering innovative approaches to performance challenges, Organizational performance sustainability level, Adherence to a main idea by the organization, Adherence to a main idea by employees, Environmental opportunity creation level. | Lake and Duke (2023) |
| Increasing employee participation in organizational processes, Expanding organizational perspective, Developing employee training programs, Training modern techniques for job performance, Employee recognition, Creative intra-organizational collaborations, Expanding intra-organizational participation network, Forming mission statement think tank, Mission statement as a catalyst for generating new ideas, Mission statement as a catalyst for creating new solutions, Goal prioritization, Organizational mission prioritization, Managing complex systems, Better implementation of job evaluation policies, Adaptability to new approaches, Supporting organizational capabilities, Providing technical feedback, Feedback improvement level, Revising organizational strategies. | Adishid et al.(2023) |

Initially, the primary extracted concepts are examined to identify those that share semantic similarities. Then, based on its representative concept, a sub-category is created. In fact, the researcher identifies common semantic codes in order to establish a framework for entering the categorization process at higher levels. By examining the primary extracted concepts, 237 common codes were identified and categorized into 17 components and 51 indicators. In the next stage, dimensions were constructed. The optimized surface dimensions are derived from the components. The results are presented in Table 2.

***Table 2.*** *Dimensions and Components of Mission-Oriented Performance Management Derived from Meta-Analysis Studies*

| Dimensions | Mission-driven performance management components | Studies |
|---|---|---|
| **Behavioral** | Commitment to mission and strategic goals<br>Teamwork and inter-unit collaboration<br>Innovation and acceptance of change<br>Accountability and responsiveness<br>Adherence to safety and environmental standards | Lee, S. B., & Suh, T. (2023), Leick et al., (2023), Carballo (2023), Chen et al., (2024), Qiyan et al. (2024)<br>Seventh Five-Year Development Plan of the Country |
| **Developmental** | Technology Development and Energy Innovation<br>Private and Cooperative Sector Investment and Engagement<br>Human Capital Development and Specialized Competencies<br>Energy Diplomacy and International Presence<br>Environmental Sustainability and Green Development<br>Balanced Regional Development and Energy Equity<br>Diversification of Energy Portfolio and Resilient Economy<br>Organizational Learning and Intergenerational Knowledge Transfer | Lee, S. B., & Suh, T. (2023), Leick et al., (2023), Carballo (2023), Chen et al., (2024)<br>Seventh Five-Year Development Plan of the Country |
| **Processual** | Design and Engineering of Mission-Oriented Processes<br>Contract and Financial Relationship System<br>Data Integration and Performance Monitoring<br>Optimization of Production and Operational Processes<br>Inter-Departmental Collaboration and Synergies<br>Sustainability and Environmental Considerations in Processes<br>Continuous Improvement and Process Feedback | Carballo (2023)<br>Chergai and colleagues (2022)<br>Leick et al., (2023)<br>Chau et al (2022)<br>Chen et al., (2024)<br>Seventh Five-Year Development Plan of the Country |
| **Consequential** | Oil and gas production<br>Productivity and cost reduction<br>Export development and foreign exchange earnings<br>Innovation and value-added<br>Environmental and social sustainability<br>Stakeholder satisfaction, domestic and international<br>National energy security<br>Achieving mission-driven goals | Leick et al., (2023), Adshead et al., (2023), Lee, S. B., & Suh, T. (2023), Beak et al., (2023), Carballo (2023), Cannon et al., (2018), EFQM 2020<br>Komatsu Cipriani et al. (2020)<br>Lighty and colleagues (2022)<br>Chau et al (2022)<br>Seventh Five-Year Development Plan of the Country |

Given the mixed-methods nature of this research, the study was conducted in two phases: a qualitative phase and a quantitative phase. In the qualitative stage, which itself consisted of two phases, we initially utilized the seven-step Sandelowski method to gather information and develop an initial model. Subsequently, a 47-item Delphi fuzzy questionnaire was constructed by the researcher and distributed to experts in the field of performance management. The valuable insights of the esteemed experts were obtained in three rounds.

This study, in terms of its objective, is developmental and applied, and its data collection method is descriptive. In the qualitative phase, we first identified relevant indices through the Delphi fuzzy method and a review of previous literature on performance management and mission-oriented approaches, and then developed an initial questionnaire. The Delphi method is one of the most effective approaches for gathering expert opinions and supporting organizational decision-making. The implementation stages of this method are based on a theoretical framework, including:

1. Developing and distributing the Delphi questionnaire
2. Collecting and averaging expert opinions
3. Setting thresholds and refining indices
4. Preparing the second round questionnaire along with the first round results
5. Analyzing rounds and repeating until consensus is reached
6. Determining the mechanism for ending rounds (Habibi et al., 2014).

The statistical population is defined as a group of individuals with common characteristics. In this study, the statistical population consisted of senior managers in the oil industry during the formation of the expert panel.

In the qualitative section, the statistical population included all research conducted in the field of performance management, and sampling was done theoretically.

In the qualitative section, the statistical community includes university and professional experts knowledgeable in performance management. Unlike traditional surveys, the selection of specialists is non-random and based on their specialized knowledge. In cases where the researcher is unfamiliar with all suitable individuals, chain sampling or judgment sampling is used, where the selection of samples begins with identifying the first knowledgeable individuals and then moves on to other experts.

Given the existing knowledge of experts and the oil industry, sampling was conducted in a judgmental and non-probabilistic manner. When there is sufficient knowledge, the homogeneity of experts within the expert panel is appropriate for 10 to 20 members. The study community included 15 experts from the oil industry. According to Table 7, the selected experts were required to possess at least one of the following three characteristics: 1) Be a researcher in the field of performance management; 2) Have more than 10 years of experience in the Iranian oil industry; 3) Have work experience in related organizations and industries. Therefore, the members of the Delphi panel were selected through non-probabilistic (purposeful) sampling from among academic staff, experienced individuals, and researchers with a Ph.D. in public administration.

***Table 7.*** *Expert Features*

| (Delphi Fuzzy) | Expertise Features |
|---|---|
| 15 | Number of Individuals |
| 8 | Doctorate |
| 7 | Master's Degree |
| 12 | Employed in the Oil Industry |
| Performance Management, Strategic Planning | Specialization |

The appropriate number of members is another important consideration in panel formation. As with any other sampling method, sample size depends on factors such as accessibility of individuals, time required, and the cost of gathering information. In Delphi methods and multi-criteria decision-making techniques, where panel members are supposed to be experts in the research subject, these limitations become more pronounced. On the other hand, achieving consensus among members, as the goal of using this method, becomes more challenging with an increased number of members.

***Data Collection Methods***

***Library Studies***

Every researcher, before starting and when they become interested in a specific topic for research, is inevitably involved in library studies. By studying books, articles, and other research in their area of interest, researchers can better understand their research, visualize its dimensions, and refine their research objectives. Library studies for this research include both primary sources, such as studies and writings of original theorists and researchers, research reports, and theses, and secondary sources, including books, articles, and... For this purpose, the following references and sources were consulted.

- Studying books, publications, and specialized texts through information databases search.
- Studying books, publications, and specialized texts.
- Examining documents related to performance management of the National Iranian Oil Company.

It is worth noting that library studies and document reviews are often used in identifying the necessity and importance of the subject and in providing background literature for research and exploratory studies to complement the literature, develop a theoretical framework, and design the research.

In designing the mission-oriented performance management model for the National Iranian Oil Company, the composite method was used.

***Exploratory Interviews***

Exploratory interviews are considered the first step in implementing the fuzzy Delphi method. This stage is the most critical in identifying the dimensions and variables under investigation and forms the foundation of the entire research.

In the fuzzy Delphi method, exploratory interviews play a vital role in the initial phase of developing and structuring the initial questionnaire before starting the Delphi rounds. These interviews can be highly structured and efficient, especially when software like MAXQDA is used for qualitative data analysis.

***Data Collection Tools for Research***

The primary data collection tools for this research include note-taking in the qualitative phase and a questionnaire in the quantitative phase.

### *Delphi Questionnaire*

The Delphi questionnaire was utilized in the second and third phases to finalize the research variables, where the items were based on the final indicators of the proposed model. A total of 17 components were included in the Delphi questionnaire. The expert design of the questions involves respondents selecting a rating from 1 to 5 for each option. However, considering the use of fuzzy logic, these numbers are converted into a triangular fuzzy number scale.

***Validity and Reliability in Qualitative and Quantitative Sections***

Given the use of fuzzy Delphi technique, and considering the nature of the Delphi method, which is based on expert consensus, validity is established through expert screening and selection of professionals active in the industry. The level of agreement among them is calculated using Kendall's coefficient in various rounds, ensuring the method's reliability.

***Fuzzy Delphi Technique***

In complex issues, topics often lie on a spectrum and cannot be clearly categorized. Using discrete numbers in decision-making can lead to unrealistic outcomes. The Fuzzy Delphi technique, introduced by Ishikawa and colleagues in 1993, is suitable for group decision-making under uncertainty and vague objectives (Ishikawa et al., 1993). It provides a flexible framework that covers ambiguities arising from incomplete information and expert subjectivity. In Fuzzy Delphi, data is expressed using triangular fuzzy numbers instead of discrete numbers, and experts' opinions are recorded in terms of minimum, most probable, and maximum values. The average of the opinions and their deviation from the calculated average is then computed and fed back to the experts until convergence is achieved. (Azar & Faraji, 2013) The Delphi method is particularly valuable in identifying and screening research indicators, gathering expert insights through structured surveys (Pill, 1971). It preserves the quality of group judgments and facilitates agreement on the importance of indicators. After interviews, the components were presented to experts in the form of a questionnaire, and their agreement was measured using a verbal scale from "Very Low" to "Very High." The definition of the domain of qualitative variables led experts to answer questions with a uniform mindset.

Fuzzy Delphi helps in decision-making under uncertainty by employing fuzzy logic. In this logic, each element has a membership degree between zero and one, indicating its degree of belonging to the target set. Zero represents no membership at all, while one indicates full membership of the element in the set.

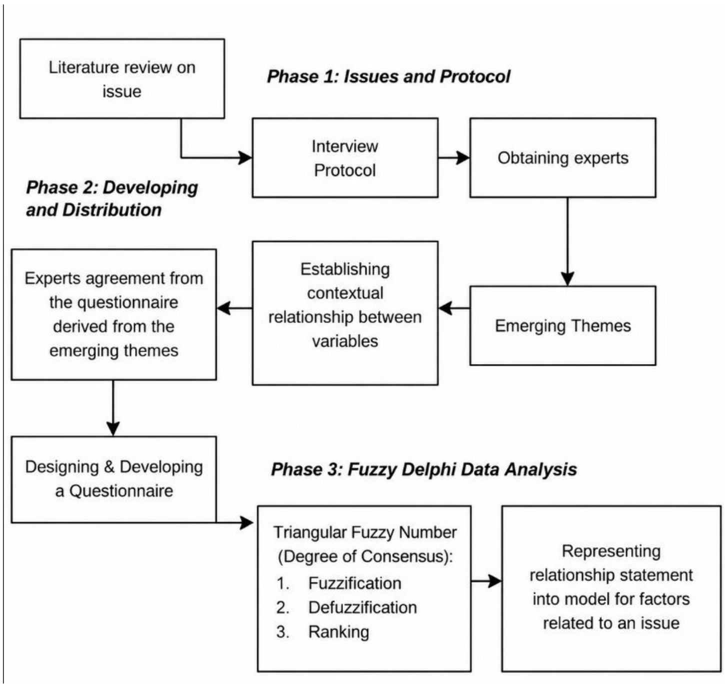


***Figure 1.*** *The Delphi technique algorithm in research*

## Findings

In the present research, fuzzy numbers are used as follows in the table below.

***Table 7.*** *Triangular fuzzy number table*

| Response Variability | Triangular fuzzy numbers |
|---|---|
| Very High | (0.75, 1, 1) |
| High | (0.5, 0.75, 1) |
| Average | (0.25, 0.5, 0.75) |
| Low | (0, 0.25, 0.5) |
| Very Low | (0, 0, 0.25) |

After identifying the components, the Delphi fuzzy technique was employed to reach consensus among experts regarding the validity of the identified variables. Given that consensus was achieved in the second round, the questionnaires were completed in two rounds (runs). In the first round, the identified variables were presented to the experts through interviews in the form of a questionnaire, and based on the proposed option and linguistic variables, the results obtained from reviewing the responses entered in the questionnaire were examined to derive the fuzzy mean of the variables. The following relationships were used for calculating the fuzzy mean.

Relationship 1:

$$A_i = \left(a_1^i\,,\, a_2^i\,,\, a_3^i\right), \qquad i = 1,2,3,\ldots,n$$

$$A_{ave} = (m_1, m_2, m_3) = \left(\frac{1}{n}\sum_{i=1}^{n} a_1^{(i)}\,,\, \frac{1}{n}\sum_{i=1}^{n} a_2^{(i)}\,,\, \frac{1}{n}\sum_{i=1}^{n} a_3^{(i)}\right)$$

In the above relationship, Ai represents the expert view and $A_{ave}$ represents the views of experts. After collecting the questionnaires, the number of responses given to each factor was counted and examined, which are the results of the first round survey as mentioned below.

The elements or components of performance management were examined based on text analysis with the opinion of 15 oil industry experts. The frequency of responses provided in two rounds of the survey is shown in Table 8. Questionnaires were provided to experts in two rounds, and since no new variable was added and the Kendall's concordance coefficient was obtained in the SPSS software. According to the calculated Kendall's coefficient in Table 9, the agreement of experts with a difference of less than 0.1 in two rounds was confirmed. The agreement in the second round became more convergent and no new variable was added, and therefore the Delphi rounds were stopped.

***Table 8.*** *Results of counting the first and second round survey responses*

| Mission-focused performance management components | Very Low | | Low | | Average | | High | | Very High | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Second Round | First Round | Second Round | First Round | Second Round | First Round | Second Round | First Round | Second Round | First Round |
| Mission-oriented commitment | 0 | 0 | 1 | 0 | 1 | 2 | 6 | 2 | 7 | 11 |
| Adherence to professional ethical principles | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 2 | 9 | 12 |
| Teamwork and inter-unit collaboration | 0 | 0 | 0 | 2 | 4 | 3 | 7 | 6 | 4 | 4 |
| Innovation and accountability | 0 | 0 | 0 | 0 | 3 | 5 | 10 | 5 | 2 | 5 |
| Development of technical and managerial competencies | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 6 | 8 | 6 |
| Development of indigenous technologies | 0 | 0 | 1 | 1 | 2 | 2 | 5 | 5 | 7 | 7 |
| Succession planning | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 7 | 6 | 5 |
| Investment in research and development | 0 | 1 | 0 | 2 | 0 | 2 | 5 | 6 | 9 | 4 |
| Optimization of operations | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 12 | 9 |
| Digitalization of processes and field intelligence | 0 | 0 | 0 | 1 | 1 | 2 | 8 | 6 | 6 | 6 |
| Improving data quality and data-driven decision-making systems | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 7 | 9 | 5 |
| Cost control and operational efficiency enhancement | 0 | 0 | 1 | 1 | 2 | 2 | 5 | 5 | 7 | 7 |
| Sustainable internal energy supply and reliable oil and gas exports | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 7 | 6 | 5 |
| Resource conservation and increased reservoir recycling rate | 0 | 1 | 0 | 2 | 1 | 2 | 5 | 6 | 9 | 4 |
| Creation of national added value through downstream development and petrochemicals | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 12 | 9 |
| Environmental sustainability | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 3 | 8 | 11 |
| National and international stakeholder satisfaction | 0 | 0 | 1 | 2 | 4 | 3 | 6 | 6 | 4 | 5 |

***Table 9.*** *Calculated Kendall's Coefficient in Two Runs*

| Round2 | Round1 | Item |
|---|---|---|
| 17 | 17 | Number |
| 0.939 | 0.822 | Kendall’s coefficient |
| 37.558 | 37.521 | Chi-square value |
| 10 | 10 | Degrees of freedom |
| 0.000 | 0.000 | Significance level |

The criteria for assessment is also the amount of fuzziness reduction. A fuzziness reduction greater than 0.7 is acceptable, and any index with a score less than 0.7 is rejected (Wu & Fang, 2011).

The questionnaires were presented to experts in two rounds, and since no new variable was added and the Kendall's coefficient of concordance was obtained as per Table 9 in the SPSS software, the experts' consensus was confirmed based on the calculated Kendall's coefficient. The agreement in the second round became more convergent, and no new variable was added. 17 components were validated.

After determining the number of responses given to each variable and calculating the triangular fuzzy mean for the variables using the converted discrete numbers and the Minkowski formula for calculating each variable, the obtained discrete mean indicates the level of experts' agreement with each identified variable. The results from the fuzzy mean and component defuzzification are presented in Table 10.

***Table 10.*** *Experts' average views obtained from the second-round survey*

| Components | Index Status ($\geq 0.7$) | Definite Amount | Fuzzy Value |
|---|---|---|---|
| Mission-oriented commitment | Confirmed | 0.78 | (0.57, 0.82, 0.95) |
| Adherence to safety principles and professional ethics | Confirmed | 0.85 | (0.65, 0.9, 1) |
| Teamwork and inter-unit collaboration in upstream and downstream projects | Confirmed | 0.73 | (0.5, 0.75, 0.93) |

| Components | Index Status (≥ 0.7) | Definite Amount | Fuzzy Value |
|---|---|---|---|
| Innovation, accountability, and a spirit of jihad in field operations | Confirmed | 0.72 | (0.48, 0.73, 0.95) |
| Development of technical and managerial competencies of oil forces | Confirmed | 0.84 | (0.63, 0.88, 1) |
| Development of indigenous technology in exploration, drilling, and production | Confirmed | 0.76 | (0.55, 0.8, 0.93) |
| Succession planning and training of new generation oil industry managers | Confirmed | 0.77 | (0.55, 0.8, 0.95) |
| Investment in research and development | Confirmed | 0.83 | (0.63, 0.88, 0.98) |
| Optimization of production and transportation operations (reducing downtime, increasing utilization factor) | Confirmed | 0.88 | (0/7, 0/95, 1) |
| Digitalization of processes and field intelligence | Confirmed | 0.80 | (0.58, 0.83, 0.98) |
| Improving data quality and data-driven decision-making systems | Confirmed | 0.82 | (0.62, 0.87, 0.97) |
| Cost control and increasing operational efficiency | Confirmed | 0.31 | (0/8, 0/3, 0/55) |
| Sustainable domestic energy supply and reliable oil and gas exports | Confirmed | 0.42 | (0.18, 0.42, 0.65) |
| Preservation of resources and increasing reservoir recovery rates | Confirmed | 0.80 | (0.58, 0.83, 0.98) |
| Creating national added value through downstream development and petrochemicals | Confirmed | 0.77 | (0.55, 0.8, 0.95) |
| Environmental sustainability | Confirmed | 0.76 | (0.55, 0.8, 0.93) |
| Stakeholder satisfaction at the national and international levels | Confirmed | 0.73 | (0.5, 0.75, 0.93) |

Based on the obtained results, the performance management pattern in the National Iranian Oil Company is shown in Figure 2. This pattern includes four dimensions: behavioral, process, developmental, and outcome. Additionally, 17 main components and 47 indicators are presented in this model, which lead to the implementation of the performance management system in the National Iranian Oil Company.

*Figure 1. Illustrates the dimensions, components, and indicators of mission-oriented performance management.*


***Figure 1.** Mission-Oriented Performance Management Model in the National Iranian Oil Company*

## Discussion

The aim of this research was to develop and validate a mission-oriented performance management model within the context of digital transformation. Based on the results of the meta-synthesis, existing literature indicates that traditional performance management systems, due to their focus on static and short-term indicators, lack the capability to support mission-driven policymaking. Analysis of previous studies revealed that successful mission accomplishment requires a set of dynamic, participatory, agile, and data-driven mechanisms that can cover the complexity of the digital environment and the innovative needs of mission-oriented policymaking. In line with this, the meta-synthesis conducted in this research identified four macro dimensions and 17 components as the initial framework of a mission-oriented performance management system.

The fuzzy Delphi results also showed that experts had a high level of agreement regarding the initial model extracted from the meta-synthesis. However, the weight and importance of some components, such as "decision agility," "data integration and predictive analytics," "inter-organizational alignment," and "learning-based monitoring system" were evaluated higher than others. This indicates that in the digital environment, missions cannot be achieved solely through precise performance measurement; rather, they require continuous learning processes, network collaborations, and quick responses to environmental changes. Additionally, indicators with highly operational or repetitive nature were removed in the Delphi process, and the final model exhibited more conceptual dynamics and coherence compared to the initial model.

One notable aspect of this research is the importance of digital transformation infrastructure in mission-oriented performance management. Experts emphasized that missions, especially at national and inter-organizational levels, cannot be managed without integrated data, intelligent monitoring systems, and advanced analytical tools. This finding aligns with global literature, as many studies demonstrate that organizations' ability to steer missions depends on the utilization of digital technologies, data management, and advanced analytics.

In general, the combination of qualitative and fuzzy results indicates that performance management with a mission-oriented approach requires moving beyond the traditional view based on fixed KPIs and adopting a dynamic, data-driven, collaborative, and learning-oriented approach. The final research model also reflects this logic and can be useful for mission-driven organizations, technology industries, and policy-making institutions.

The proposed model bridges the gap between conventional performance management systems and the requirements of the digital age. Unlike traditional models that prioritize siloed operational productivity, this mission-oriented framework emphasizes the integration of technological, behavioral, and sustainability dimensions to achieve broader organizational and national goals. The findings reveal that digital transformation in the oil industry is not merely a technical upgrade but a strategic shift towards “market-shaping” and “public value creation.”

When compared to classical performance models, this approach demonstrates superior efficacy in addressing the complexities of mission-driven organizations. Specifically, the inclusion of “Environmental and Social Sustainability” and “Mission Commitment” dimensions ensures that the organization remains aligned with contemporary national policy trends—a feature often overlooked in standard industrial models. Furthermore, the hybrid application of literature synthesis and the Fuzzy Delphi method has provided a robust, data-backed foundation for these dimensions. This validates that organizational performance is highly contingent upon a synergetic relationship between digital maturity and human-centric competencies.

The results indicate that mission-oriented performance management differs fundamentally from traditional performance evaluation patterns and should adapt to mission characteristics such as multidimensionality, high uncertainty, intra-organizational dependencies, and the need for rapid decision-making. This research demonstrates that designing a successful performance management system for missions is impossible without relying on digital infrastructure, data-driven approaches, advanced analytics, and continuous learning (Misrahayu et al., 2026; Katashvili et al., 2025). The proposed model in this study can be used by policy-making institutions, mission-driven organizations, technology industries, and researchers as a practical framework for planning, monitoring, and evaluating missions.

Despite the research achievements, there are limitations; for instance, the study's focus on internal experts' opinions and the sample diversity limitations (Schandl et al., 2025; Salvi et al., 2022). It is recommended that future research evaluate the current model through experimental studies, simulations, or field tests in mission-driven organizations to facilitate external and operational validation.

## Conclusion

This study has introduced a comprehensive performance management model tailored for mission-driven organizations, specifically within the oil industry. By identifying 17 key components across four strategic dimensions—Developmental, Behavioral, Process-based, and Outcome-based—this research provides a multi-faceted tool for operational and strategic governance. The primary contribution of this work lies in transforming abstract mission statements into measurable, data-driven indices suitable for the digital transformation context. While the model is currently optimized for the oil sector, its modular structure allows for adaptability across other mission-oriented sectors. For future research, it is recommended to conduct longitudinal studies to evaluate the long-term impact of implementing these indices on organizational agility. Ultimately, this model serves as a strategic roadmap, enabling organizations to navigate the digital era by aligning day-to-day operations with long-term socio-economic imperatives.

This research aimed to design and validate a mission-oriented performance management model in the context of digital transformation, utilizing a combination of aggregate and Delphi fuzzy methods. The aggregate phase findings revealed that achieving missions in dynamic and digital-centric environments requires a set of components that cover organizational structural and process dimensions and emphasize learning, agility, data integration, and network collaboration. Then, in the Delphi fuzzy phase, these components were refined and validated by consensus among 15 experts, leading to the final model with four dimensions, 17 components, and a set of valid indicators.

In light of the identified dimensions for a Mission-Oriented Performance Management Model, it is recommended that organizations operating within the oil industry transition from traditional output-focused metrics toward an integrated, mission-driven framework. Practically, this entails establishing a dynamic dashboard that bridges the gap between 'operational efficiency' and 'national value creation' by utilizing real-time digital analytics to monitor the 17 key components identified in this study. To ensure the model's viability in the digital transformation context, leadership must implement a feedback-loop mechanism that periodically recalibrates organizational performance indicators based on the evolving requirements of stakeholders and external environmental sustainability targets. Furthermore, to mitigate stakeholder bias, it is crucial to institutionalize a collaborative performance evaluation committee comprised of industry experts, academic researchers, and national policymakers, ensuring that the performance management system serves both organizational objectives and broader socio-economic goals, thereby fostering a 'market-shaping' role rather than mere descriptive reporting.

## Declaration of Competing Interest

The author declares that he has no competing financial interests or known personal relationships that would influence the report presented in this article.

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