A Functional vs Projectized approach in Oil and Gas Industry: The added value of Projectized approach

Mounir El Khatibi, Abdulaziz Al Hammadi, Karim Oraby, Azza Al Hamar

1 Associate Professor, Hamdan bin Mohamad Smart University, School of Business & Quality Management, Dubai, UAE
2 Graduate Business Management, Hamdan bin Mohamad Smart University, School of Business & Quality Management, Dubai, UAE.

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ABSTRACT

The development of the oil & gas sector is associated with the constant search for new solutions to challenges facing companies that operate in the industry. One of the major challenges for the future development of the business is the need to increase the level of flexibility and adaptiveness. This conclusion is especially relevant for the oil & gas sector, which is likely to face the risks of energy transition and rising environmental regulations. To address this source of risk, the current study aimed to assess the perspectives of the project management approach used in the oil & gas sector. The specific company selected for the aims of analysis was the ADNOC company, also including a case study of a set of international businesses from different regions of the world. The qualitative research design was applied that was based on interviews and a case study. The findings of the study demonstrated the high relevance of using the project management approach. Specific technologies that could bring benefits to the industry included production project management, advanced analytics, digitalization, and agile project management. It was found that studying the potential sources of resistance to change and sources of mistakes in terms of project management approach integration in the oil & gas sector was crucial.

1. INTRODUCTION

One of the relevant questions for the development of the oil & gas sector included the need for integration of the project management approach into companies' managerial processes (Thesing et al., 2021). The current study aimed to assess the applicability of the project management approach in the industry, together with the potential benefits of such a strategy to employees and executives (Ciric et al., 2021). Previous studies considered the advantages and limitations of the traditional functional approach to company management and compared this strategy to the project management approach (Ciric Lalic et al., 2022). It was argued that the project management approach can deliver rising flexibility and adaptiveness to the organization's business processes, while the functional approach could guarantee increased productivity of the business. It was important to determine the advantages of both approaches from the perspective of executives and employees of the ADNOC, supporting the findings with the results of case study analysis (Chin et al., 2012).

The scope of the study included the analysis of the
benefits and limitations of the project management and functional approaches to the organization of business processes in the oil & gas sector (Thiry, 2002) (M. T. Alshurideh et al., 2023b). This question was addressed in the literature review, followed by the analysis of primary and secondary qualitative data for the ADNOC and other case organizations (Apaolaza et al., 2020) (Abudaqa et al., 2021; El Khatib et al., 2023b). The findings of the study determined the perspectives of the project management approach utilized in the target industry.

1.1. Research Objectives
The study problem determined the need for addressing the following research objectives:

- To determine the advantages and limitations of a functional approach to business processes management in the oil & gas sector;
- To characterize the advantages and limitations of the project management approach to business processes management in the oil & gas sector;
- To provide recommendations for applicability of the project management approach to business processes management in the oil & gas sector;

1.2. Research Hypothesis
The objectives were associated with the review of the following hypotheses:

H1: The application of project management approach makes a significant contribution to the increased flexibility in operations of the oil & gas sector;
H2: The application of project management approach does not provide a significant contribution to increased flexibility in operations of the oil & gas sector;
H3: The benefits of the project management approach have a significant influence on management' motivation for its use in the oil & gas sector;
H4: The benefits of the project management approach do not have a significant influence on management's motivation for its application in the oil & gas sector.

2. LITERATURE REVIEW

The literature review section served for the summarization of the existing knowledge in the target field of study. The study problem determined high interest in the comparison of the effectiveness of functional organizational approach and project management approach in the context of the contemporary oil & gas sector [62], [63]. It was important to analyze the findings of the relevant studies considering these two managerial approaches. In the final step of the literature review, the author assessed the challenges faced by the oil & gas sector, which had to demonstrate the requirements for the future transformation of the management format in the industry.

2.1. Description of Functional Organizations
The current study aimed to define the applicability of the project management approach to the optimization of the oil & gas sector performance (H. M. Alzoubi et al., 2022h; El Khatib et al., 2020; Gulseven and Ahmed, 2022; Nuseir, 2020). To answer this question, the researcher would have to compare the implications of the project management approach with the outcomes of traditional functional organizational structure in companies (Ahmad Ibrahim Aljumah et al., 2022a; Khan et al., 2022). The functional structure is considered one of the traditional organizational structures used to group employees based on specific functions or tasks inside organizations (H. Alzoubi et al., 2020; M. El Khatib et al., 2023a; Hani Al-Kassem, 2021; Sakkthivel et al., 2022). This model of performance organization was found to be useful in cases of organizations operating in a stable environment (I. A. Akour et al., 2022; Al-Kassem et al., 2022). It allowed employees to gain professional skills and competencies in their major area of specialization (AlDhaferi et al., 2023; M. El Khatib et al., 2023c; Taher M. Ghazal et al., 2023). One of the main strengths of the functional approach in the organization of company performance was the operational efficiency and enhanced productivity of the staff (H. M. Alzoubi et al., 2022g; M. El Khatib et al., 2023b). The concentration of people with similar functions in a single department reduces the risks of misunderstanding, the loss of motivation, and productivity of the personnel (Al-Dmour et al., 2023; Mat Som and Kassem, 2013).

The functional approach to the organization of the company's performance has specific limitations.
One of the main challenges for organizations relying on such a model of management is the lack of coordination and flexibility in performance (M. T. Alshurideh et al., 2023c). The organizational structure is highly formalized, and different functional departments exist independently from each other (M. T. Alshurideh et al., 2023a; Nuseir et al., 2020). Under such conditions, it can be difficult to set and develop common goals for the organization in general (Al-Marco et al., 2022a). The research by (Joslin and Müller, 2015) argued that the functional structure of an organization in the company could reduce the quality of control, which was one of the main managerial functions in modern business. Another study by (Nadzri et al., 2023) determined the following limitations of the functional structure in organizations: low flexibility and adaptiveness to changes and low overall development efficiency (Abudaqa et al., 2022; Ahmad Ibrahim Aljumah et al., 2022b; Lee et al., 2023b). Altogether, the functional approach to the organization of work in the oil & gas sector could have serious limitations (H. M. Alzoubi et al., 2022d; Nuseir and Aljumah, 2022). It is important to determine whether the project management approach could offer reliable solutions to these challenges.

2.2. Project Management Approach

The previous discussion demonstrated limitations of the functional approach to the organization of work in the oil & gas sector. It is crucial to consider the arguments for and against the project management approach (Aljumah et al., 2022a; Alzoubi and Ahmed, 2019). The research by (Aljumah et al., 2023; Gaytan et al., 2023; E. Khatib et al., 2021) the rising role of projects as a format of work organization in the oil & gas sector. Modern companies face the need to implement unique sequences of tasks in separate projects, different from the traditional functional model of performance (Alzoubi et al., 2019; Nuseira and Aljumahh, 2020). The research by (H. M. Alzoubi et al., 2022e; M. El Khatib et al., 2021) demonstrated opportunities for increased flexibility in the performance of companies operating in the oil & gas sector based on the project management approach (H. M. Alzoubi et al., 2022a; M. El Khatib et al., 2023f; M T Nuseir et al., 2022a). It was argued that the application of modern project management methods could raise the level of forecasting the quality and help organizations adapt to future challenges (H. M. Alzoubi et al., 2020; Blooshi et al., 2023; Nuseir and Elrefae, 2022).

One of the main arguments in favor of using the project management approach in the oil & gas sector was related to the improved flexibility and adaptiveness of the managerial processes in companies. The research by (Al-Kassem, 2017; M. M. El Khatib et al., 2023; Louzi et al., 2022a) considered the role of agile project management methods for improving the performance of the oil & gas companies in Kuwait. It was argued that the agile and hybrid project management methods could have a significant positive influence on the development of the oil & gas sector under conditions of the Middle-East region (M. T. Alshurideh et al., 2023d; H. M. Alzoubi et al., 2022f; M. El Khatib et al., 2023d). Altogether, the project management approach demonstrated an ability to address the main challenge existing for the traditional functional organization model (Ahmed and Nabeel Al Amiri, 2022; R. S. Al-Marco et al., 2021b; Muhammad Turki Alshurideh et al., 2022a; H. M. Alzoubi et al., 2022c; El Khatib and Ahmed, 2018), namely the lack of flexibility and adaptiveness to the ever-changing environment (Muhammad Turki Alshurideh et al., 2022b; El Khatib et al., 2021a). It is important to determine whether this opportunity is the relevant requirement for modern companies in the oil & gas sector.

A prominent trend in contemporary project management research revolves around Agile methodologies (Bawaneh et al., 2023; M. El Khatib et al., 2023e). Studies highlight Agile’s iterative and adaptive approach, fostering enhanced collaboration, flexibility, and rapid response to changing project requirements. Agile frameworks, such as Scrum and Kanban, are recognized for their efficacy in dynamic project environments (M T Alshurideh et al., 2022; T M Ghazal et al., 2023c; Yasir et al., 2022). Contrasted with Agile, traditional project management methodologies, exemplified by the Waterfall model, continue to be subjects of research interest. Studies examine their structured and sequential nature, assessing their applicability in scenarios where project requirements are well-defined and stability is paramount (Kassem and Martinez, 2022; Nuseir, 2021). Research increasingly explores hybrid
project management approaches, which integrate elements of both Agile and traditional methodologies (Tariq et al., 2022b). This reflects an acknowledgment of the diverse project landscapes organizations encounter, requiring tailored approaches that balance flexibility and structure (H. Alzoubi et al., 2022; M T Nuseir et al., 2022b). The establishment and role of Project Management Offices (PMOs) are extensively studied. Research delves into how PMOs contribute to standardizing project management practices, providing oversight, and aligning projects with organizational objectives (Aljumah et al., 2020; Khatib et al., 2022). The evolving nature of PMOs, from traditional to strategic entities, is a subject of ongoing investigation (A. Al-Marooof et al., 2021; Al Aljumah et al., 2022b; T M Ghazal et al., 2023b). The human dimension of project management is a focal point in research, emphasizing the role of leadership and team dynamics (Tariq et al., 2022a). Studies explore leadership styles, communication strategies, and the influence of team cohesion on project success, recognizing the pivotal impact of effective leadership in project outcomes (El-khatib et al., 2023a; Louzi et al., 2022b). Risk management within project environments remains a key research area. Studies delve into proactive risk identification, assessment, and mitigation strategies (Akour et al., 2021; Nuseir et al., 2021). The integration of risk management with overall project planning is emphasized to enhance an organization's resilience in the face of uncertainties (Akour et al., 2023; El Khatib et al., 2019).

Project Portfolio Management is explored as a strategic approach to aligning projects with organizational goals (Alhamad et al., 2021; Farrukh et al., 2023). Research investigates how PPM enables effective resource allocation, prioritization of projects, and overall optimization of the project portfolio to maximize organizational value (M. Alzoubi et al., 2021; Mubeen et al., 2022). The infusion of technology into project management is a recurring theme. Studies examine the impact of digital tools, artificial intelligence, and data analytics on project planning, execution, and monitoring (Muhammad Alshurideh et al., 2022; El Khatib and Ahmed, 2020). The evolution towards virtual project teams and the utilization of collaborative platforms are areas of growing interest. Sustainability considerations in project management are gaining prominence (H. M. Alzoubi et al., 2022b). Research explores how organizations integrate environmental, social, and economic sustainability principles into project planning and execution, aligning with global trends toward responsible business practices (Aljumah et al., 2021a; T M Ghazal et al., 2023a).

The literature reveals a dynamic landscape of project management approaches, reflecting the diverse needs of contemporary organizations (R. S. Al-Marooof et al., 2021a). From Agile methodologies to the strategic role of PMOs and the infusion of technology, the research underscores the need for organizations to continually adapt their project management practices to align with evolving project landscapes and organizational goals (Aljumah et al., 2021b). As the field continues to evolve, a nuanced understanding of these approaches is critical for organizations seeking to navigate the complexities of project execution successfully.

2.3. Global Challenges for the Oil & Gas Sector

The previous comparison of the functional and project management approaches in the oil & gas sector demonstrated that these models could complement each other's limitations from the perspective of managerial interests (L. Akour et al., 2022; El Khatib et al., 2021b; Mohammed T. Nuseir et al., 2022). Still, it is crucial to define whether the application of the project management approach can be relevant to the modern management teams of the oil & gas companies (Aityassine et al., 2022; Al-Kassem, 2014; Almasaeid et al., 2022). To address this question, the author analyzed the future trends in the oil & gas sector development. The (Al-Kassem et al., 2012; Aziz et al., 2023) strives to study risks for the oil & gas sector under conditions of the energy transition. The restrictions on the performance of the oil & gas sector caused by strict environmental policies could lead to the following challenges for the industry: risk of under-investment, risk of stranded assets, and financial performance challenges (M. Alshurideh et al., 2023)(Elkhatib, M., Al Hosani, A., Al Hosani, I., & Albuflasa, 2022). Another source of risks for the industry included the need to balance the interests of shareholders in terms of profits generation and the environmental sustainability goals of other stakeholders (Al-Awamleh et al., 2022; Arshad et al., 2023; M. El Khatib et al.,...
The uncertainty of scenarios for the future development of the oil & gas sector also leads to the requirement for the rising flexibility and adaptiveness of operations (Alshawabkeh et al., 2021; Amiri et al., 2020; Khatib et al., 2023). Altogether, the findings of the current trends' review led to the conclusion about the importance of the increased flexibility in the development of management processes in the oil & gas sector.

3. METHODS

3.1. Research Design
The research design for this study relied on the application of qualitative research methods. The choice of the qualitative research design methods was explained by the researcher’s intention to utilize the interpretivism research philosophy during the research. To understand the relevance of the project management approach utilization in the oil & gas sector, the researcher focused on the collection of data from the senior executives and analysis of the relevant cases of selected organizations. This approach guaranteed a deep understanding of the study problem, including the study of the real-life experience of the participants. The quantitative research design format was rejected due to the absence of opportunity for engagement of a high number of respondents with sufficient experience and knowledge in the field of study.

3.2. Sample and Sampling Method
The sample of the study included senior executives and employees of the oil & gas sector organizations. Specifically, the researcher strived to collect primary qualitative data from the executives of the ADNOC. The choice of the organization was explained by its leading positions in the oil & gas sector of the UAE and the simplicity of access to the target population for the researcher. The main inclusion criteria for the sample population were the following: more than ten years of work experience in the oil & gas sector, experience with the use of project management approach at work, and engagement in one of the social groups inside the company – executives or employees. The total sample included six people. The sample size was determined based on the researcher’s capability to process primary qualitative data and attract people with the required competencies.

The second category of data sources used in the study included cases of companies operating in the oil & gas sector that integrated project management methods in the past. For the aims of the case study, the researcher collected information from reliable Internet sources, mainly the official publications of the selected organizations. For the aims of the case study analysis, the researcher focused on the sample of three business organizations operating in different regions of the world.

3.3. Tools and Instruments
The procedure of data collection and analysis differed for the primary qualitative data and the second case study data. For the processing of primary qualitative data, the researcher relied on questionnaire interviews. The interview form used in the study is presented in Appendix 1. It was important to divide the survey questions for executives and employees depending on their work experience and the quality of data they could provide.

For the aims of case study analysis, the researcher relied on materials that could be collected from open data sources. The main instrument of data search and selection included the Internet search engines. To identify the optimal sources of data, the researcher used a set of keywords: “project management approach,” “organizational structure,” “performance efficiency,” “flexibility,” and “oil & gas sector.”

3.4. Data Collection Methods
For the aims of the primary data collection, the researcher focused on the organization of online interviews with respondents. Each respondent received the email notification with information about the study, an informed consent form, and an invitation to propose their optimal time for an interview. Interviews were held online with the help of MS Teams platform.

For the collection of the case study data, the researcher used Internet search engine instruments. The application of the earlier mentioned keywords defined the set of official reports that could be used for data analysis. The researcher preferred the application of official recent reports of organizations or media releases.

3.5. Data Analysis Methods
The procedure of data analysis both for the
primary and secondary qualitative data included thematic analysis. The researcher analyzed interview transcripts and texts that delivered secondary data, coded data, and identified the main themes highlighted by sources. The comparison of themes and ideas stated in different sources formed the knowledge base used for the delivery of the study findings.

3.6. Limitations and Assumptions
The potential limitations of the study included the selection and subjective bias. The selection bias was explained by the potential mistakes of the author in the selection of primary and secondary qualitative data sources. For the sources of primary data, the researcher might have selected candidates that did not obtain the best combination of experience and knowledge for the aims of the study. The subjective bias was associated with the effects of the researcher’s and participants’ subjective opinions on the study findings. To address these limitations, the author utilized a self-reflective analysis instrument.

4. RESULTS
The results section summarized the findings of primary and secondary qualitative data analysis. First, the researcher delivered insights of primary data analysis, which was collected from employees and executives of the ADNOC. The second part of the results included the outcomes of the case study analysis.

4.1. Questionnaire Results
The first part of primary data analysis results presented the outcomes of interviews with the selected executives of the ADNOC. To avoid the need to use personal names of respondents, they were coded using the special names: Respondent 1, Respondent 2, and so on. Both executives selected for the study had more than five years of experience in managerial roles in the oil & gas sector, including more than two years of previous work for the ADNOC. To estimate the quality of work processes organization, the executives stated that they usually found it difficult to coordinate the work of separate departments and divisions due to the high functional closeness of their structures. Employees from different departments are excessively concentrated on their part of work and might lack vision for the wider picture. Both executives mentioned the rising role of the project management approach in the operations of the business, including the launch of the onshore developments’ project management teams. Respondent 1 and Respondent 2 shared the position that the current model of organizational structure usually did not allow them to implement a full list of managerial objectives. Respondent 1 was highly optimistic on the perspectives of the project management approach at the ADNOC. Nevertheless, Respondent 2 stated that this approach might not be used in all departments, leading to the need for high accountability and sensitivity in the application of the instrument. Respondent 1 argued that high flexibility is a necessity for the future organization of work at the ADNOC, while Respondent 2 found it more difficult to select between flexibility and productivity options.

For employees of the ADNOC, neither of the respondents provided a strong argument for the vision of project management approach utilization in the company. The level of autonomous decision-making and flexibility in relationship to the supervisor was low in both workers. They were placed into a highly formalized environment, which usually made it difficult to integrate relevant and effective solutions. Respondent 3 mentioned a situation when he was not capable of proposing and integrating required innovations in work processes due to highly formalized procedures. This situation led to specific losses for his department. Respondent 4 stated that adaptiveness and flexibility were the key requirements for the effective performance of her department at the ADNOC. In general, both respondents were highly supportive of using the project management approach.

4.2. Case Analysis Results
The discussion of the relevant cases of project management approach used in the oil & gas sector allowed determining specific scenarios of profit generation for the business. The first scenario determined during the study included the project production management (PPM) framework, which guaranteed improvement of production efficiency together with resilient operations of the business (M Alshurideh et al., 2022). For this study, the researcher focused on the case of Petrobras S.A. – Brazilian Oil & Gas Company. This organization
reached a considerable increase in production efficiency due to the application of the PPM (Ahmed et al., 2022; Al-Marooof et al., 2022b). This conclusion can be useful for future oil & gas business.

The second solution associated with the project management approach included the digitalization of the traditional functions and tasks in the industry. The case study of the Bien Dong POC – oil & gas company in Vietnam, demonstrated the benefits of operations digitalization for increased resilience, flexibility, and productivity of business (M. El Khatib et al., 2023g; Nuseir and Aljumah, 2020). The final case study highlighted the role of advanced analytics application in the format of project management approach at the Norwegian Continental Shelf (El Khatib et al., 2022; Lee et al., 2023a). The advanced analytics instrument allowed the management and employees to gain access to useful data insights, which made the decision-making process more informative and productive for the achievement of the organization’s needs.

5. DISCUSSION

5.1. Study Findings

The findings of the study included the justification of relevance for integration of the project management approach in the oil & gas sector. The discussion of the question with the experts of the ADNOC and analysis of the relevant business cases demonstrated the presence of high demand for the project management approach in the industry. In addition, the findings justified the significant opportunities existing for the organizations that would prefer project management practices in their future operations. Among the most promising solutions in this sphere, the following were highlighted: PPM practices; digitalization of operations, advanced analytics, and agile management framework.

5.2. Study Implications

The implications of the study included the identification of relevance of integrating project management initiatives in the oil & gas sector of the UAE. The discussion of the study problem with the executives and employees of the organization demonstrated that they were interested in the implementation of benefits of the project management approach. The results of the research also supported Hypothesis 1 and Hypothesis 3 of the study, forming the basis for further research in using project management practices in the target industry.

5.3. Significance of the Findings

The significance of the study findings is explained by its contribution to the existing knowledge in the field of oil & gas sector operations. It was argued that modern organizations had significant opportunities for further optimization of current operations via the integration of specific project management initiatives. The results of the research highlighted specific aspects of the project management approach that should be integrated in the future. According to the study findings, it is possible to provide recommendations for the future improvement of project management activities in the selected oil & gas company.

6. CONCLUSION

The main finding of the paper considered the need for more active and productive integration of the project management approach practices in the oil & gas sector of the UAE, including the ADNOC. The most important result that the reader should remember included the definition of the specific solutions in terms of project management that could contribute to the improvement of business performance in the target industry: PPM model and advanced analytics, as well as digitalization and agile project management model. Each solution should be studied by the management and employees of companies operating in the oil & gas sector and contribute to their integration in practice.

The study problem aimed to identify the applicability of the project management approach for the further improvement of operations in the oil & gas sector. The results of the study delivered a strongly positive response to the main study question about the relevance of the project management approach. It also justified the need for the development of specific project management solutions with a description of benefits for each of them. The broader implications of the study included the definition of relevance for further research in the field of project management approach utilization in the oil & gas sector. It is important to define new solutions that could be developed based on the existing technologies and
changing needs of the business.

- **Practical Recommendations**
  The practical recommendations of the study included the definition of specific directions for project management approach integration in the target organization and other oil & gas companies. The promising solutions for the ADNOC included the following technologies: PPM model, agile project management approach, digitalization, and advanced analytics. The discussion of the study problem with the company’s representatives demonstrated the absence of appropriate solutions in these fields and the high demand for their integration by the management. Employees and executives of the ADNOC should learn more about these opportunities and critically assess the benefits of their integration in practice. In the long term, the implementation of project management solutions is likely to generate new flexibility and operational efficiency opportunities for business.

- **Opportunities for Further Study**
  The findings of the research also determined specific opportunities for the further study in the target sphere. The specific attention should be paid to the question about the potential sources of resistance to change in the aspect of project management approaches application. The discussion of the interview results demonstrated that part of employees and executives can be quite skeptical at the early stage of project management initiatives integration. It is crucial to determine the sources of resistance to change and propose reliable strategies for its mitigation. The second opportunity for further research is related to the definition of barriers and challenges that could take place in the case of project management approach utilization. While the technologies are quite promising and productive, the failure in their implementation could reduce the productivity of the overall outcomes. In this context, a critical review of the previous experience is required to guarantee the minimization of mistakes and failures’ risk for future business.

REFERENCES

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