Technological Applied and Humanitarian Academic Journal
https://riyadahpublishers.com/index.php/taha

TAHAJ

2024, Vol.1 No. 1, page No: 39-45

Research Article

Open Access

The Impact of Information Systems Performance Measurement on the Yemen Petroleum Company: A Case Study of the YPC Aden Branch

Nabil Mohammed Ali Munassar [1], Amna Fadel Mansoor Mohammed [2]

[1] Electronic & Distance Learning College, University of Science and Technology, Aden, Yemen
[2] Yemen Petroleum Company (YPC) , Aden Branch, Yemen

[*]*Corresponding author: n.munassar@ust.edu*

Received: September 12, 2024 Accepted: September 25, 2024 Published: October 04, 2024

Copyright: © 2024 Munassar N.M & Mohammed A.F.M. This is an open-access article distributed under the terms of the creative common attribution license, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited

Cite this article as: Munassar N.M & Mohammed A.F.M. The Impact of Information Systems Performance Measurement on the Yemen Petroleum Company: A Case Study of the YPC Aden Branch. Technological Applied Humanitarian Academic Journal (TAHAJ). 2024;1(1):39-45.

Abstract:

In today's rapidly evolving business environment, Information Systems (IS) are pivotal to optimizing operations, supporting decision-making, and enhancing overall organizational performance. This is particularly true in data-intensive industries like petroleum. The Yemen Petroleum Company (YPC), specifically its Aden branch, plays a critical role in the national economy by ensuring a reliable supply of petroleum products. The company depends heavily on IS for managing inventory and supply chain processes, making the evaluation of these systems' performance essential for operational efficiency and effectiveness. This study explores the impact of IS performance measurement on the operational efficiency of YPC's Aden branch. Despite the importance of these systems, their contribution to operational effectiveness remains insufficiently understood. The research addresses the question: How does IS performance measurement affect the efficiency and effectiveness of YPC Aden's operations? The research objectives include analyzing the current IS performance measurement mechanisms in place and proposing recommendations to improve them. Using a descriptive and analytical methodology, supported by surveys and questionnaires, the study offers valuable insights for management to optimize IS processes and enhance overall performance. Key findings reveal mixed results in system stability, responsiveness, and user satisfaction, with concerns about security and adaptability to changing requirements. The study concludes with recommendations to address these issues, aiming to improve system integration, security, and technical support, ultimately boosting operational effectiveness and ensuring YPC maintains a competitive edge.

Keywords: Measurement, IS , Yemen Petroleum Company, YPCA , Information System .

INTRODUCTION

The Yemen Petroleum Company (YPC), especially its Aden branch, significantly contributes to the national economy by ensuring a consistent petroleum product supply. The company relies heavily on IS for managing everything from inventory control to supply chain efficiency, Measuring the effectiveness of these systems is key to enhancing operational and administrative processes [1].

The goal of IS performance evaluation is to improve productivity, allocate resources more effectively, and support timely management decisions [2]. By identifying strengths and weaknesses in current systems, companies like YPC can boost operational capabilities, eliminate inefficiencies, and maintain a competitive advantage . In today's fast-evolving business landscape, Information Systems (IS) have become integral to optimizing operations, enabling better decision-making, and enhancing organizational performance Jessup and particularly in complex industries like petroleum, where data management plays a central role, evaluating IS performance is essential [3].

Information Systems (IS) provide essential data and services to individuals and processes.IS effectiveness hinges on two dimensions: the "systems" and the "information" (or "infological") aspects. The information aspect centers on data storage and its communication value, while the systems aspect focuses on the integration of components such as data, processes, and users [4].

Despite the essential role that information systems play in the YPC Aden branch, their impact on operational efficiency and effectiveness has not been fully explored. This study seeks to address the question: How does IS performance measurement affect the operational efficiency and effectiveness of the Aden branch of YPC? The aim of this study was to analyze the performance measurement mechanisms used for IS in YPC Aden and to propose recommendations for improving IS performance measurement to boost overall efficiency.

Significance of the Study

This study offers insights into how IS performance measurement influences company efficiency, providing valuable recommendations that will aid management in improving IS processes and operational effectiveness.

METHODOLOGY

Study Design

This study employed a descriptive and analytical approach to assess the research objectives [5].

Sample Size

The sample size of this study was all 31 participant's employees of department information technology, all of whom were selected from the Yemen Petroleum Company branch in Aden**.**

Data Collection

Data was collected directly from the participants through a survey. The participants provided responses based on their personal experiences and perspectives related to the study objectives.

Tools

Originally, researchers adapted the questionnaires from previously published studies [6, 7, 8, 9, 10]. The investigation used a survey questionnaire derived from established information technology instruments. This questionnaire consisted of five carefully designed questions specifically addressing the study's objectives and ensuring alignment with the participants' perspectives. We distributed the questionnaire to the IT department of the Yemen Petroleum Company's Aden branch in May 2024.

We organized the questionnaire into five distinct questions, each utilizing a Likert scale ranging from "strongly disagree" to "strongly agree." The initial inquiry delved into the aspects of system reliability and the absence of malfunctions. The second inquiry focused on system efficiency and promptness. The third inquiry explored the extent to which the system fulfilled user requirements and satisfaction. Moreover, the fourth inquiry probed the system's capacity to embrace change and safeguard data security.

Study Analysis

Data obtained from the surveys were subjected to statistical analysis, utilizing SPSS program to summarize the data.

Ethical Approval

The research has been reviewed and approved by the ethical approval committee of the University of Science and Technology , Aden , Yemen number MEC/AD026. The IRB determined that the research complies with ethical guidelines and protects the rights of participants.

RESULTS

Table 1 illustrated the gender distribution with 54.8% of the participants being female and 45.2% being male.

Table 1 : Distribution of Data based on gender n = 31

Gender	Count	Percentage
Female	17	54.8%
Male	14	45.2%

Table 2 showed that majority (57.9%) of participants were agree or strongly agree that the system is reliable. in addition a significant majority (76.9%) agree or strongly agree that the system is efficient and prompt. Furthermore most participants (67.8%) agree or strongly agree that the system meets their needs. Finally a significant number (70.6%) agree or strongly agree that the system is adaptable to change and there is a notable concern about data security, with 32.2% disagreeing or somewhat disagreeing..

Table 2 : Performance Measurement n = 31

Category	Response	Count	Percentage
System Reliability and Lack of Malfunctions [6].	Strongly Agree	3	9.7%
	Agree	14	45.2%
	Somewhat Agree	10	32.3%
	Disagree	4	12.9%
System Efficiency and Promptness [7].	Strongly Agree	4	12.9%
	Agree	18	58.1%
	Somewhat Agree	8	25.8%
	Strongly Disagree	1	3.2%
Meeting User Requirements and Satisfaction [8].	Strongly Agree	3	9.7%
	Agree	18	58.1%
	Somewhat Agree	9	29.0%
	Disagree	1	3.2%
Capacity to Embrace Change [9].	Strongly Agree	2	6.5%
	Agree	8	25.8%
	Somewhat Agree	17	54.8%
	Disagree	4	12.9%
Data Security [10].	Strongly Agree	5	16.1%
	Agree	10	32.3%
	Somewhat Agree	10	32.3%
	Disagree	5	16.1%

DISCUSSION

This study highlights the critical role of Information Systems (IS) performance measurement in enhancing the operational efficiency and effectiveness of the Yemen Petroleum Company (YPC), particularly its Aden branch. The findings reveal a mixed landscape regarding system performance metrics, with significant insights gained from the analysis of user experiences and system functionalities.

A study by Delone and McLean [11] developed the IS Success Model, which highlights that system quality, information quality, and service quality are key components in measuring IS performance. They concluded that high-quality IS leads to greater user satisfaction, improved decision-making, and enhanced organizational performance. This supports your findings that IS performance measurement can play a critical role in improving operational efficiency, aligning with the mixed metrics you found.

On the other hand, a study by Petter, DeLone, and McLean [12] identified that while measuring IS performance is essential, it does not always lead to improved organizational outcomes, especially if users experience issues related to ease of use or system reliability. This could contrast your findings if the Yemen Petroleum Company (YPC) has faced challenges in system functionality, showing that even when performance metrics are measured, operational improvements may not automatically follow.

Research by Seddon [13] further analyzed IS success and emphasized that different stakeholder groups may perceive IS performance differently, depending on their role and interaction with the system. This adds nuance to your study, suggesting that the mixed landscape you observed could stem from varying user experiences, which is consistent with findings in other sectors.

The gender distribution among participants showed a slight majority of females, indicating a diverse perspective on the effectiveness of the IS in question. In terms of system reliability, while a notable portion of respondents (45.2%) expressed confidence in the stability of the systems, a small but concerning percentage (12.9%) indicated dissatisfaction. The evaluation of system efficiency and promptness was more favorable, with 58.1% of users recognizing the responsiveness of the system, suggesting that improvements in this area may be necessary to maintain user satisfaction and operational flow.

User satisfaction was also a significant factor, as 58.1% agreed that the IS meets their needs, though the 29% who only somewhat agreed indicates room for enhancement. This reflects a critical need for YPC to invest in understanding and addressing user requirements more effectively.

The findings related to the capacity to embrace change were moderate, with only 25.8% fully agreeing on the system's adaptability to evolving demands, which suggests potential vulnerabilities in maintaining operational effectiveness amid changing industry requirements. Furthermore, data security emerged as a notable concern, with equal parts of respondents either disagreeing or expressing uncertainty about the system's security measures, indicating a need for stronger protocols and user education in this area.

CONCLUSION

In conclusion, the study underscores the importance of systematically measuring IS performance and provides valuable recommendations aimed at improving system integration, enhancing security protocols, and refining technical support. By addressing the identified weaknesses and leveraging the strengths of the current IS framework, YPC can not only boost its operational effectiveness but also ensure a competitive edge in the rapidly changing petroleum industry. This proactive approach will help YPC better navigate the challenges posed by an increasingly data-driven environment and meet the expectations of its stakeholders.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript

REFERENCE

1. Valacich, J. S., George, J. F., & Hoffer, J. A. (2003). Essentials of systems analysis and design (2nd ed.). Prentice Hall.
2. Turban, E., McLean, E., & Wetherbe, J. (2002). Information technology for management: Transforming business in the digital economy (3rd ed.). John Wiley & Sons.
3. Jessup, L. M., & Valacich, J. S. (2003). Information systems today: Why IS matters (1st ed.). Prentice Hall.
4. Argyropoulou, Maria. 2013. "INFORMATION SYSTEMS ' EFFECTIVENESS AND ORGANISATIONAL PERFORMANCE A Thesis Submitted for the Degree Doctor of Philosophy By." 0–381.
5. Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE Publications.
6. Dewan, R. M., & Mykytyn, P. P. (2008). Information systems success measurement: The case of a large government agency. Journal of Information Technology Theory and Application, 9(2), 35-58.
7. Morrison, J. M., & Becker, K. (2015). Information systems performance measurement: A comprehensive framework. Journal of Computer Information Systems, 55(2), 12-20.
8. Tam, K. Y., & Oliveira, T. (2016). Understanding the impact of user satisfaction on the intention to use information systems. Computers in Human Behavior, 65, 294-303.
9. Cameron, K. S., & Green, M. (2015). Making sense of change management: A complete guide to the models, tools, and techniques of organizational change (3rd ed.). Kogan Page.
10. Pfleeger, C. P., & Pfleeger, S. L. (2007). Security in computing (4th ed.). Prentice Hall.
11. Delone, W. H., & McLean, E. R. (2003**).** The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. Journal of Management Information Systems, 19(4), 9-30.
12. Petter, S., DeLone, W., & McLean, E. R. (2008). Measuring information systems success: Models, dimensions, measures, and interrelationships. European Journal of Information Systems, 17(3), 236-263.
13. Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. Information Systems Research, 8(3), 240-253.