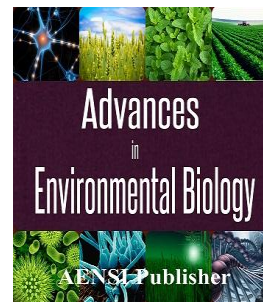




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“Feasibility of Implementing Enterprise Resource Planning (ERP) in the exploitation of oil and Gas Company of Gachsaran based on McKinsey 7s model”

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ABSTRACT

The aim of this study is to analyze the feasibility of enterprise resource planning (ERP) in the exploitation of oil and gas companies of Gachsaran based on McKinsey 7s method. Present study assesses different organizational dimensions of McKinsey 7s method including (Strategy, structure, systems, skills, management style, staff, and shared values). Thereby, strengths and weaknesses areas of each of the McKinsey model are identified to cover and eliminate weaknesses and take the necessary actions prior to the establishment of intended system. The population of this study constitutes of all employees of Gachsaran Oil and Gas Company. Because of the specialized nature of the subject, a number of scholars and expert systems were selected as samples using the snowball technique. The research method was descriptive survey and measuring instrument consists of a five-part Likert scale scored from very low to very high, that has been used to collect points. Data analysis spss22software was used to check seven main variables and twenty one sub- variables and finally recommendations are also provided. The findings of the research show a readiness of oil and gas companies of Gachsaran to exploit resource planning system for the organization.

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INTRODUCTION

Organizations should have the ability to adapt quickly to changing business conditions to survive in highly volatile markets today. General organizations around the world look for agility and flexibility to overcome this problem and have attempted to use enterprise systems to deal with internal and external changes in their business. There are different types of organizational systems such as customer relationship management (CRM), supply chain management (SCM), supplier relationship management (SRM) and enterprise resource planning systems (ERP) [10]. The effects of these systems on organizations was such that provided development and growing up conditions of some organizations in business or may cause their failure [13]. The studies show high rate of failure in implementation of enterprise resource planning systems.

Investment in ERP systems is a major issue for both information systems' employees and researchers. This is due to the sheer magnitude of performance, and financial and human resources for each of the organizations. Also organization culture will change high costs through re-processing engineering and management business. (Peter Will, March 2004). ERP systems with integrated database support create the access to information across the organization and support special reports and requirements of managers for the creation of strategic competitive decision-making results. ERP systems will help organization by providing better services to customers such as ordering options, observing previous orders, observing the status of their shipments and ONLINE payment.

The most important reason of difficulty of obtaining benefits in (ERP) is that individuals in the organization are not interested in changes, but (ERP) asks them to change their ways. Since (ERP) is not a software but a business model, effects of its changes in organization is much more important compared with software.

If the (ERP) software was prepared and installed without any change in organization process and readiness for its implementation, may lead to no advantages of ESR and even the new software can lead to slower tasks .

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So as said above, it seems that the assessment of the organization's readiness for deployment of (ERP) is the most important step in the implementation of the project. Implementation of Enterprise Resource Planning (ERP) is very complex in nature and it is one of the initial steps to deploy these systems, assess readiness for deployment of enterprise resource planning systems or the "Enterprise Resource planning Readiness Assessment", briefly called ERA. Preparation of the organization structure, management, human, technical, and cultural infrastructure has been investigated during the evaluation. Problems and risks in the implementation of the system are identified as a remedy for the problem and establishment of the system is provided [7] in fact the results of the study attempts to reply the basically question that whether there is the possibility to implement the planning system of organization resources in the exploitation of oil and Gas Company of Gachsaran or not?

Research literature:

Enterprise resource programming (ERP) systems:

Every organization is complicated with information cycle and only correct management would help the process of enterprise information to achieve competing goals. ERP is not a strategy, but a software system that integrates data across an organization and provides it an appropriate form to the patrons. Standardization of data, reducing the time of graduation, automation activities and faster service to corporate with clients are benefits of ERP applications brings to the organization. ERP system allows a set of production employees to work together in harmony, even if the geographical boundaries exist between them. ERP showing the status of an order or product at the moment operates as a decision support tool (Dabiri, 2011). This technology makes automated management and controls all the processes in each sector, and provides integrated and linked information or activity at any part of it without the need for linkages the organization's functions. ERP is not only the hardware or software, but includes a set of thoughts, architecture, function and development to achieve the goals of an organization or economic activity with profitability and customer satisfaction. ERP is changed from a thought and a specific solution for industrial and manufacturing organizations to a comprehensive solution for all organizations, including national and conversion services [4].

Operational feasibility:

Research has shown that the success of ERP project not only saves the cost, schedule, and functionality that are different, but it is accessible to the users. Organizations should be aware of these features, effects and consequences of ERP implementation and prepare its members for acceptance and use it. So it is necessary to consider all the factors that can influence the acceptance of this system and encourage the use and operation of the project, [13].

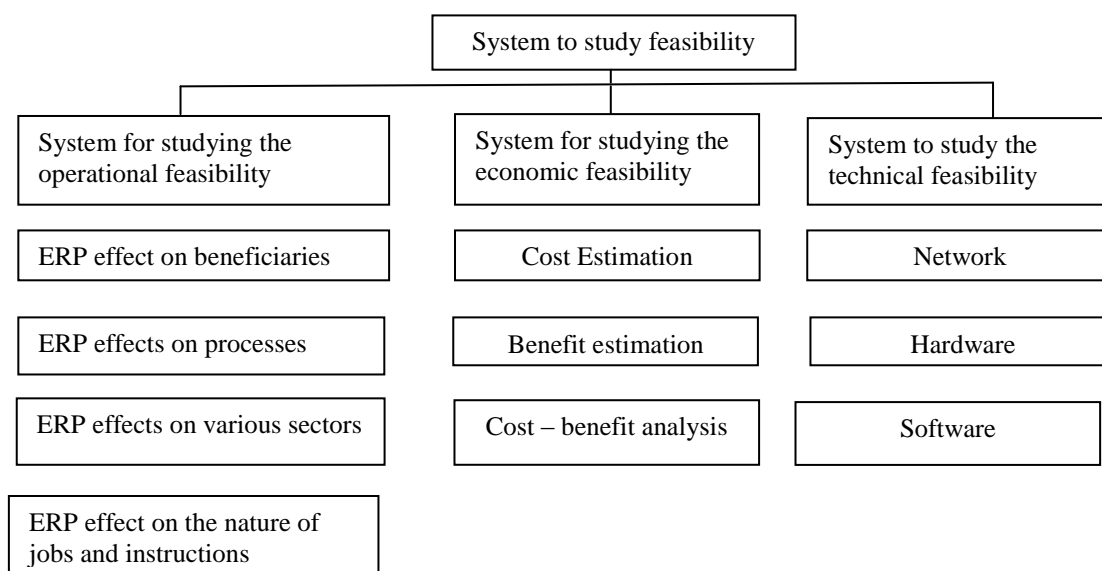


Fig. 1: The hierarchical model of technical, economic, operational feasibility [14]

Implementation goals of ERP:

The implementation of an ERP system has numerous purposes, but it should be noted that the goals of improving business processes of organization is not easy to achieve. The successful implementation of an ERP system depends very much on the selection of a proper system, adequate supply, the localization of the software in organization according to the strategy, structure and culture of the organization, management commitment and support of software implementation, consultants' qualifications for software implementation, appropriate

project management during the process of implementation and completion of projects on special time with forecasting budget [2].

- 1- The conversion of explicit organizational processes from tacit to explicit form due to organization reengineering processes
- 2- Faster installing and operating of systems in relation with ERP in an organization such as various modules of the software, or other applicable softwares that are not provided by the suppliers of ERP and are specific for the organization.
- 3- Possibility or facilitating the development of systems and new technologies such as JIT, ABC and. . . .
- 4- Establishment of trade cooperation, joint ventures, and acquisitions and For organizations with less cost and higher efficiency and better results.
- 5- Changing the focus from computer programming within the organization to improvement of processes.

The methodology for the implementation of enterprise resource planning systems:

Operational methodology:

Oracle Company, to implement the software package of "ERP", has developed a special method that implementation methodology "is called "ERM". The method, with main software, has controlled implementation of project in which the development of the project in each system and subsystems at each part can be computed. This process consists of 6 phases and 11 processes. Operational phases implanted by the contractor in cooperation with the client and follow by the operating "ERP" method runs as follows: [3]

- 1- Definition (recognition): The project implementation method is planned. (Feasibility and determination of requirements)
- 2- Operation analysis: this phase contains gathering of work process information and operational requirements of organization by project team.
- 3- Designing the Solution: designing and configuration of the future organization and the final configuration (determination of software solutions and system architecture)
- 4- Structure: implement of system and testing the changes that are necessary for compliance of the product with the requirements.
- 5- Transition / Transformation: The project team will deliver the final product to the organization.
 - a. Production / exploitation: the exploitation of the system is done in operating environment with actual data.

The main advantages of this methodology are:

1. Flexibility, 2. Scalability, 3. Structured framework, 4. Leading technology, 5. Integration with other methods and systems of Oracle [3].

Dimensions of McKinsey Model:

- Shared values: includes the beliefs, values and assumptions that shape the behavior of individuals in organizations and organizational culture. Shared values, which is what causes the establishing of trust in the organization. [7].
- Structure: includes the organizational chart and reporting information. In other words, structure represents hierarchy of authority and accountability within the organization and indicates centralization, decentralization, and matrix, network, etc. [7].
- Strategy: includes the achievement of program objectives and decisions and actions planned for the significant advantage against competitors. We can say that the model strategies is policies, plans, procedures, and resource allocation decisions that involve the question of what the organization is, what it will involve and why (ibid.).
- System: The system consists of daily activities; including business support systems. The system includes operating procedures, processes and affairs to manage the organization. In general, systems are the procedures and processes of formal and informal systems of affairs and duties, as well as formal systems of organization (Ibid).
- Style: in organizational culture, it is the dominant values and beliefs and developed norms that are the characteristics of organizational life. In management, it asks the question of what the managers say, how they act, and how they spend their time and what they focus on? (Ibid.).
- Staff: includes the number and type of organization personnel, and methods of their development, also characterized in terms of education, functional areas of business, human resource management, energy absorption by forming basic values in criteria for the selection and promotion of employees and future career path. (Ibid)
- Skills: Ability of distinguishing and competence of staff. In other words, the skills are the distinctive feature of the organizational. (Ibid.).

Based on the foregoing, designed conceptual model of present study is shown below.

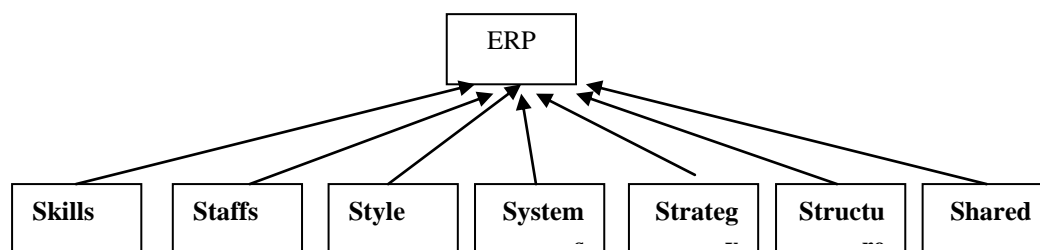


Fig. 2: Conceptual model of the study.

Research Hypothesis:

Main hypothesis:

There is the necessary background and framework for the implementation of enterprise resource planning system (ERP) in the exploitation of Oil and Gas Company of Gachsaran.

Secondary hypotheses:

1. The organization has a suitable structure for implementing of Enterprise Resource Planning (ERP) system.
2. There are shared values for establishment and implementation of enterprise resource planning (ERP).
3. Organizational strategy is in accordance with the objectives and plans of the enterprise resource planning system (ERP).
4. Organization style is proportional for implementing Enterprise Resource Planning (ERP) according to organizational culture and management style.
5. Organization system includes major and support systems according to the enterprise resource planning system (ERP).
6. There are necessary properties of staff (human resources) in terms of education, human resources management, selection and promotion criteria, and future direction for implementation of (ERP).
7. Organization with characteristics, competencies, distinctive skills and enough readiness are capable of using (ERP) systems.

Research method:

Present study is an applied research and also non-experimental research (action) based on data-gathering. The aim of the present study make it applied research type. T-test was used to test primary and secondary research hypotheses testing.

Data analysis:

Main hypothesis:

There is the necessary background and framework for the implementation of enterprise resource planning system (ERP) in the exploitation of oil and Gas Company of Gachsaran.

Table 1: The main hypothesis testing .

	t	df	Sig	The mean	Lower bound	Higher bound
There is the necessary background and framework for the implementation of enterprise resource planning system (ERP) in the exploitation of oil and Gas Company of Gachsaran	4.54	39	0.000	0.442	0.245	0.639

As can be seen in Table 1, the significant score of test was less than 0.05, means that the main hypothesis of project has been approved. In other words, there is the necessary and appropriate field to implement and deploy enterprise resource planning system (ERP) in -operated oil and gas Company of Gachsaran.

1st secondary hypothesis:

The organization has a suitable structure for implementing of Enterprise Resource Planning (ERP) system.

Table 2: Sub-hypothesis 1 testing.

	Standard division	df	Sig	The mean	Lower bound	Higher bound
structure	0.735	39	0.000	0.647	0.411	0.882

"Structure" as one of the VS McKinsey should have the necessary fitness for deployment of an enterprise resource planning system. As table (2), the structure of exploitation of oil and gas companies are appropriate to implement ERP, because the significantly level is lower than 0.05.

2nd secondary hypothesis:

There are shared values for establishment and implementation of enterprise resource planning (ERP).

Table 3: Sub-hypothesis 2 testing.

	Standard division	df	Sig	The mean	Lower bound	Higher bound
common values	0.795	39	0.008	0.350	0.095	0.604

"Common values" is another VS McKinsey factor that should have the necessary fitness for deployment of an enterprise resource planning system. As in Table (3), common values are appropriate to implement ERP in exploitation of oil and gas company of Gachsaran, because the significantly level is lower than 0.05.

3rd secondary hypothesis:

Organizational strategy is in accordance with the objectives and plans of the enterprise resource planning system (ERP).

Table 4: Sub-hypothesis 3 testing.

	Standard division	df	Sig	The mean	Lower bound	Higher bound
Strategy	0.647	39	0.021	0.246	0.0397	0.453

"Strategy" is another VS McKinsey factor that should have the necessary fitness for deployment of an enterprise resource planning system. As in Table (4), strategy is appropriately designed to implement ERP in exploitation of oil and gas company of Gachsaran, because the significantly level is lower than 0.05. So the recent hypothesis is proven.

4th secondary hypothesis:

Organization style is proportional for implementing Enterprise Resource Planning (ERP) according to organizational culture and management style.

Table 5: Sub-hypothesis 4 testing

	Standard division	df	Sig	The mean	Lower bound	Higher bound
Style	0.736	39	0.02	0.389	0.153	0.624

"Style" is another VS McKinsey factor that should have the necessary fitness for deployment of an enterprise resource planning system. As in Table (5), Style is appropriately designed to implement ERP in exploitation of oil and gas company of Gachsaran, because the significantly level is lower than 0.05.

5th secondary hypothesis:

Organization system includes major and support systems according to the enterprise resource planning system (ERP).

Table 6: Sub-hypothesis 5 testing

	Standard division	df	Sig	The mean	Lower bound	Higher bound
System	0.646	39	0.000	0.627	0.421	0.834

"System" is another VS McKinsey factor that should have the necessary fitness for deployment of an enterprise resource planning system. As in Table (6), system is appropriately designed to implement ERP in exploitation of oil and gas company of Gachsaran, because the significantly level is lower than 0.05.

6th secondary hypothesis:

There are necessary properties of staff (human resources) in terms of education, human resources management, selection and promotion criteria, and future direction for implementation of (ERP).

Table 7: Sub-hypothesis 6 testing

	Standard division	df	Sig	The mean	Lower bound	Higher bound
Staff	0.729	39	0.001	0.403	0.170	0.636

"Staff" is another VS McKinsey factor that should have the necessary fitness for deployment of an enterprise resource planning system. As in Table (7), staff properties (Education, human resources management, selection and promotion criteria, and future career path) are appropriately designed to implement ERP in exploitation of oil and Gas Company of Gachsaran, because the significantly level is lower than 0.05.

7th secondary hypothesis:

Organization with characteristics, competencies, distinctive skills and enough readiness are capable of using (ERP) systems.

Table 8: Sub-hypothesis 7 testing.

	Standard division	df	Sig	The mean	Lower bound	Higher bound
Skill	0.682	39	0.000	0.433	0.214	0.651

"Skill" is another VS McKinsey factor that should have the necessary fitness for deployment of an enterprise resource planning system. As in Table (8), skill is appropriately designed to implement ERP in exploitation of oil and gas company of Gachsaran, because the significantly level is lower than 0.05.

Research results:

ERP is a process-oriented system and this approach is in contrast with the activities carried out in the countries and organizations in the country. Process vision into the production process of a company, sometimes causes the changes in the structure of organization which mostly creates tensions among employees and senior executives. So the organization will be successful when it has the ability to change the organizational structure and business processes in order to adapt optimized processes.

As the studied organization was in the feasibility level, it can be said that the structure of the organization can accept ERP, because the departments are completely identified and there is no parallel departments. The size of the organization, formalization and the CIO is now fit with minor changes of ERP. Research findings that mentioned below also confirm the topic:

"Common values" in the exploitation of Oil and Gas Company of Gachsaran is proper to implement ERP.

"Strategy" of the exploitation of Oil and Gas Company of Gachsaran is proper to implement ERP.

"Mission and Vision" of the exploitation of Oil and gas company of Gachsaran is not proper to implement ERP.

Definition of clear goals and missions are important for official systems. Visions and missions should be understood in the organizations [12]. Also having an explicit vision is necessary for system. It is necessary for guidance of the implementation of ERP and micro and macro-objectives should be defined [8].

In this study, parameters related to the strategy are mission and vision, objectives, and strategic planning of IT. According to the respondents, first two factors were not suitable for oil companies to implement ERP and the end factor, IT strategic planning, is entirely appropriate. In general, respondents strongly confirm strategic IT programs in tailrace with ERP and with less weight, denied mission, vision and objectives in accordance with ERP that has led to say that "strategic" is fit for enterprises to implement ERP.

"Style" in the exploitation of Oil and Gas Company of Gachsaran is proper to implement ERP.

"Top management support" of the exploitation of Oil and Gas Company of Gachsaran is proper to implement ERP.

Vision, active involvement and direction of high-level executives in the course of the implementation of plan are called "Top management support". IT History clearly proves that top management support is essential to the success of IT projects [9].

It is also used for ERP projects and no other factor is important than top management support to predict the success of ERP, especially early in the project life. Senior management should have ERP project as their highest priority and take an active role in leading changes.

Also, management should be involved at all stages of implementation, monitor project progress and lead the project team [11]. The history of oil and gas Exploitation Company of Gachsaran indicates that company executives have had particular attention to implement advanced management systems and always support it.

"System" of the exploitation of Oil and Gas Company of Gachsaran is proper to implement ERP.

Before ERP implementation, it is important to identify and perform the necessary changes in existing systems. The evolvment, compatibility, usability and integration of existing systems should be at an acceptable level (Yang et al., 2007). Therefore, the best ERP system profile can be determined accurately to identify needs.

"Staff condition (Education, human resources management, selection and promotion criteria, and future career path)" of the exploitation of Oil and Gas Company of Gachsaran is proper to implement ERP.

In addition to a high-level management, low-level administrators should support changes in ERP. Commitment and help of all organizations staff are required to implement the system in all sections. Therefore, the role of the staff in the success or failure to implement ERP is inevitable. Employees must be convinced that the organization is committed to implement ERP.

They must recognize the need for change and to avoid resistance and disordering to properly prepare for the changes. Staffs involved in the project are also important, because will be the users of system. They must have IT skills and knowledge to understand the ERP [13].

Experience has shown that the most important factors in the failure of implementation of enterprise resource planning are staffs, and personnel using the software in different sections of organized (especially

business system users) and if they don't pass Cultural and scientific training to change traditional methods and do not accept that ERP will improve the process of tasks and activities than previous system, they would resist against the implantation and would face fails.

Also if senior management does not directly support the executors or do not entrust the management and do not reduce his presence in the projects and also do not form on time committees to manage changes and crisis management as major issues in the management, they will increase failure percent. Research shows that almost half of projects carried out have been failed because managers do not try to change management practices appropriately. The best recommendation to reduce the resistance is to involve employees in the changing process. Meetings with experts and members and using experiences can significantly reduce resistance of other users. Staff in Gachsaran company had appropriate condition and human resources was the most important point in recent years, to maintain that level of education is fully upward and employments were in this line. Thus, skilled and highly educated workforce in the company is proportional to implement ERP.

"Human resource management" of the exploitation of Oil and Gas Company of Gachsaran is proper to implement ERP.

Research Proposals:

- 1- According to the appropriate hypothesis of organizational structure for ERP, it is recommended that all processes move from traditional to the horizontal, flat structures and use re-engineering systems to improve their organization process.
- 2- Regarding to hypothesis of appropriateness of the shared values in the organization to deploy ERP, it seems that the organizations convert the values to a constant and unchanged culture and preserve the status by promoting methods. So, creation of an integrated whole for the implementation of ERP in an organization become a common value.
- 3- With regard to the hypothesis that fits the organization's strategy to deploy ERP, it is recommended to use the technical guidance of experts and consultants within and outside the organization to have stability. The top management of the organization's commitment should declare the practical implementation of the system, with the participation and resource allocation required to the end of its run.
- 4- With regard to the style of organization has been detected by respondents in this study for the establishment of an appropriate system, it is better for organization to use realistic style and behavior, and to revise them to have system deployment.
- 5- According to the appropriate hypothesis for deployment of ERP, it is suggested that the organizations to change IT infrastructure for the deployment of ERP instead of updating the system from up to down. Because small changes that impact on ERP systems will not be fruitful.
- 6- For the acceptance of the hypothesis about the fitness of personnel educational and human resources management and other issues with the system, with regard to present condition, it is recommended to takes place general and public review of the studied company on the selection criteria, system of reward and punishment in accordance with standard management systems in the world.

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