

The Impact of ISO 9001 Certification Audit on Oil and Gas Organizations' Performance in Qatar

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Abstract

Quality Auditing is a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled. The purpose of this paper is to find out the impact of ISO 9001 certification audit on oil and gas companies' performance in Qatar. More than 100 oil and gas companies have been certified ISO 9001. Therefore, it is necessary to study and analyze the impact of that certification on their performance. Survey study has been done by distributing a questionnaire by e-mail or by handing it personally to most of the certified oil and gas companies in Qatar. The response rate was 33.6% of surveyed companies. The statistical operations with the results of analytical study have been done to achieve the goal and objectives of the research. Finally, ISO 9001 certification audit is found to have a positive effect on oil and gas companies' performance in Qatar.

Keywords: auditing process, ISO9001, quality management system, company performance

1. Introduction

1.1 The ISO9001 Certificate Companies in Qatar

The focus in this study is in oil and gas companies in the state of Qatar and finding out the impact of ISO 9001 certification upon their performance for these companies only, because they represent the main economic source in Qatar. Qatar also, which has been recognized as one of the leading liquidfy natural gas-exporting regions since its reserves of gas, represents about 7.4 per cent of the world total, see Al Khalifa (2000). Audit may interpreted by:

- Everything are completed, or
- Done process as per the rules.

Arter (2003) defined the audit as "It is conducted to check that process carried out in correct manner". In this study, Audit term as mentioned in ISO international standard is "systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled". This paper provide the impact of ISO 9001 certification audit on oil and gas companies performance in state of Qatar, and the purpose of this study is not only to find the impact on companies' performance - which is very important to evaluate the improvements on Qatar oil and gas markets- but also to find out the perception of companies' management on the commitment of audit as well as the auditor focusing during audit.

1.2 Literature Review

Many researchers tried to find the impact of ISO 9001 certification on all types of firms and companies around the world, where certification by ISO 9000 have been increased around the world year by year, for example Magd et al (2003) showed that in 2000 the number of certification are increased from 343 to 643. Studies and researches that looking for the impact of ISO 9001 certification were started in the last century. Magd et al (2003), Magd (2006) showed a positive impact of ISO 9000 certification in Saudi Arabia organizations which has improved the quality system efficiency, produced a better documentation and increased quality awareness in the Saudi Arabia firms. Chris et al (2007) preformed an event study and found that the time-based efficiency started to improve right after the implementation of the ISO 9000. They also found a better performance for ISO

9000 certified companies after they obtained certification. Magd (2008) showed that the impact of ISO 9001 is giving an opportunity to a high quality assurance system that guide to high of excellence in organization performance. Al Khalifa et al (2008) covered all types of companies in Qatar and describing the barriers, motives, benefits, difficulties and implementation success factor of different organizations in Qatar. Al Turki and Faris (2010) found a positive impact in Malaysian companies that have ISO 9001 certification to gain customer confidence in their products. Many studies in this field were found a negative impact or a positive weak effect from the ISO 9001 certification. Terziovski et al (1997) located that certification of ISO 9001 does not have a clear positive relationship with organizational performance in the TQM environment. Abraham et al (2000) found that no guarantee of ISO 9000 certification on supplier products or services quality that meet customer requirements. Stevenson and Barnes (2002) showed the cost focusing on three issues. These issues are: Internal costs (training, hiring a new employees...etc), Consultancy fees, and Registrations agencies' fees for auditing activities. Hesan et al (2002) found that ISO 9000 registration in Singapore did not have any impact on quality management practices and quality results of Singapore firms. Zeng et al (2004) found from 100 certified companies' survey answers that 50% of the respondents indicated that ISO 9000 certification has no obvious effect on quality improvement. A survey in Australia and New Zealand based on manufactures and Services Companies has been carried out by Mei et al (2006). The study demonstrated a positive weak effect on business performance. Moreover the study concluded that ISO 9000 itself does not lead to improvement in business performance. Smite and Brede (2006) concluded in their study that even though a company might be certified in accordance with ISO standard; it doesn't prove successful implementation and usage of the company's quality system. Kumar and Balakrishnan (2011) found few negative impacts in many areas of 100 contractors from UAE responders, more than half of it, found the same level of customer satisfaction before and after ISO certified, as well as documents volume was increased after ISO certified.

Morris et al (2000) showed that the generic purpose of any management system audit is:

- Find any systematic weaknesses in the process or system.
- Identify any opportunities for improvement.

As per ISO 19011 standard, which is guidelines for quality and/or environmental management systems auditing, it is very important for the auditor before conducting the audit to take the following points which summaries the guidance provided by ISO 19011:

Clause 4: gives the principles of auditing and auditors (Ethical conduct, fair presentation, due professional care, independence and evidence-based approach).

Clause 5: Audit programmes (managing, establishing, implementing and reviewing audit programmes also the control of the audit programme records).

Clause 6: provides the guidance on how to conduct the audit process (Audit process is shown in figure 1).

Clause 7: Shows the competence that needed by an auditors (knowledge, skills, education experience and training) and evaluation process of the audit.

1.3 The Problem Hypotheses

The goal of this paper is to find the actual impact of ISO9001 audit on the oil and gas companies in Qatar, and the objectives of this research could be concluded in the following points:

1. The impact of the certification against ISO 9001 in oil and gas companies in Qatar
2. The efficiency of auditors for conducting the ISO 9001 auditing process.
3. Perception and satisfaction level of oil and gas companies with ISO9001 certification.

2. Method

As per international codes and standards, ISO 9000:2005 Quality Management Systems, divide the audit into two types:

I – Internal Audit: some of sources used first-party audit term in place of internal audit; it is conducted by the organization itself for the review of management and also for other reasons such as an organization's declaration of conformity.

II- External audit: sometimes called second-party or third-party. Second-party audits are conducted and done by customer itself for the customers review or verification. The other name of external audit is third-party audit but it is for certification purposes and done by external independent party (certifying bodies) also such as those providing registration of conformity to ISO 9001.

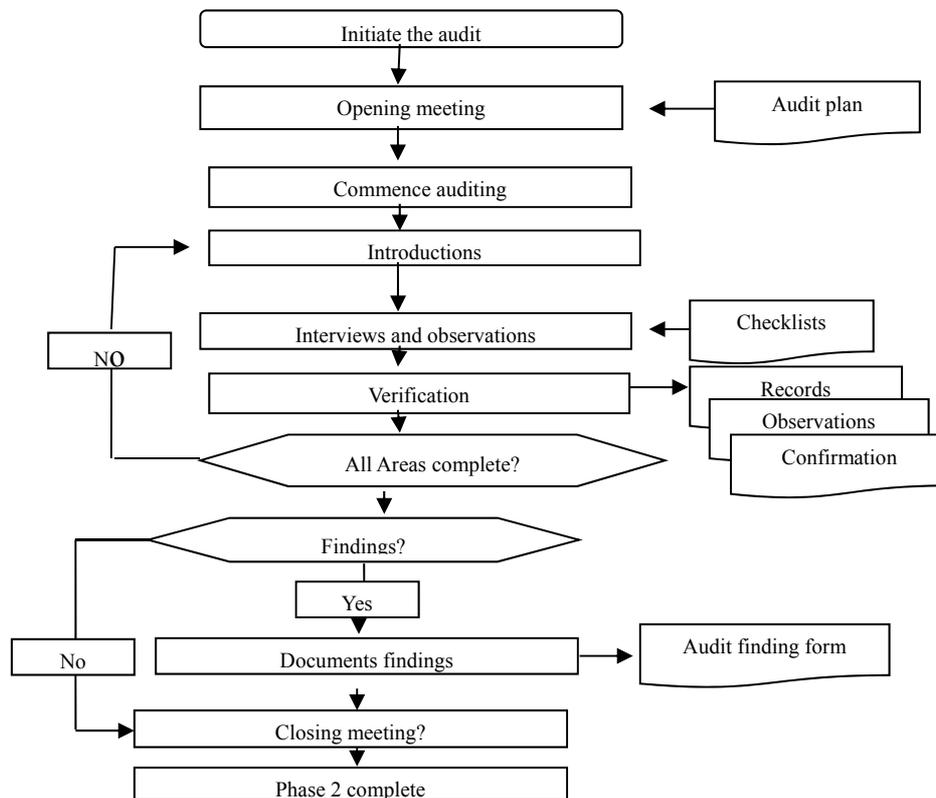


Figure 1. Flowchart of the audit process (Source: Heras, I. Casadesús, & M. Ochoa, 2001)

2.1 The Data Collecting

The data was collected utilizing survey questionnaire. The questionnaire was mailed or handed personally to all certified oil and gas companies in Qatar. The survey has been designed using previous studies. Number of surveys has been used in GCC in addition to those of face to face interviews with quality managers and professionals in Qatar who are working in quality management system fields and ISO certifying bodies. Based on their responses, previous studies and objectives of this study, a pilot survey was developed and sent to a few of quality departments managers and certification professionals people to make sure that survey covers the goals of this study. Their feedback and suggestions was taken to improve the design of survey. Final survey was developed and distributed to oil and gas certified companies in Qatar. The survey consists four parts:

Part I: Organization general details

This part investigates two type of information; the first section is about the general information of the companies and person position. This section is optional to avoid any conflict with companies' privacy. The second section is about the reasons of getting ISO 9001 certificate.

Part II: Commitment of audit firm

In this part of survey, researchers ask the target companies about their perception about the certifying bodies auditor how conducted the audit.

Part III: Auditor focusing during audit

Audit findings are good indicator helping in the study of the impact of audit on companies. This part asks the target companies about a percentage of type of findings (management and technical findings) from the total audit findings. As well as ask them about the timing distribution of audit by the auditors itself.

Part IV: Audit impact on organization performance

This is the final part of the survey and it is the most important part in the survey, because it evaluates the impact of ISO 9001 certification on the oil and gas companies.

2.2 Participant Characteristics

The survey addressed to the manager or person responsible for quality in the organization such as quality manager, quality management representative (QMR) and Quality Assurance/Quality Control (AQA/QC)

manager to find a suitable collection of respondents to complete the survey.

2.3 Sampling Procedures

Survey instrument was mailed to 101 oil and gas ISO 9001 certified companies in Qatar. It was very difficult to get a number of certified oil and gas companies from one source. The above number of certified oil and gas companies in Qatar has been obtained from three sources. First, the main oil and gas organization in Qatar, second statistical studies done by International Organization for Standardization for ISO 9001 certified companies and third, certifying bodies in Qatar. The distribution process started from May, 2011 till January, 2012.

2.3.1 Sample Size, Power, and Precision

Along with the description of subjects give the mended size of the sample and the number of individuals meant to be in each condition in case of separate conditions was used. State whether the achieved sample differs in known ways from the target population. Conclusions and interpretations should not go beyond what the sample would warrant.

Researchers tried to get high survey response rates to ensure that survey results are representative of the target oil and gas companies. A survey must have a good response rate in order to produce accurate, useful results. The Table (1) below shows survey response rate.

Table 1. Responses rate details

Category	Number of Survey	Percentage of Survey
Total survey sent	101	100%
Total survey returned	40	39.6%
Incomplete survey	6	7.9%
Usable survey (response rate)	34	33.6%

As shown in Table (1), the response rate is 33.6 % from the total certified oil and gas companies in Qatar. Greener (2008) showed that minimum size of response rate is 30% for any category of data to be more closely to the normal distribution. So 33.6% response rate is satisfactory.

3. Results

The main factor of succeeded audit is the audit team performance. Researchers asked surveyed companies in the second part of survey about their perception about the audit team commitment in general point of view. These questions were divided into two parts; the first part was about auditor commitment, auditors' company qualification and auditor explanation during audits meetings. The second part was about the auditor focusing during the audit. Surveyed people were asked to select percentage of audit time spent with management and technical staff of total time. The results were analyzed using the Statistical Package for Social Scientists (SPSS) for Windows version 18.0.

3.1 Statistics and Data Analysis

The surveyed companies were asked to rate their overall satisfaction of nine features about commitment of their certifying agent (auditor firm) on a five point scale (Likert Scale) ranging from 1= very dissatisfy, 2= dissatisfied, 3 =neutral, 4= satisfied and 5 = very satisfied. Items found in table (2) were examined through the Cronbach's α coefficient which is recognized as a good direct measure of internal reliability. Cronbach's α coefficient is a coefficient of reliability. It is commonly used as a measure of the internal consistency or reliability of a psychometric test score for a sample of examinees. The equation Cronbach's α is defined as:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum_{i=1}^k \sigma_{Yi}^2}{\sigma_x^2} \right) \quad (1)$$

Where, K is the number of components, σ_x^2 the variance of the observed total test scores and σ_{yi}^2 the variance of component i for the current sample of variables. A scale of Cronbach's coefficient Table (2) commonly accepted describing internal consistency.

Table 2. Scale of Cronbach's coefficient α

Cronbach's alpha	Consistency
$\alpha \geq .9$	Excellent
$.9 > \alpha \geq .8$	Good
$.8 > \alpha \geq .7$	Acceptable
$.7 > \alpha \geq .6$	Questionable
$.6 > \alpha \geq .5$	Poor
$.5 > \alpha$	Unacceptable

By using the SPSS for reliability, α scale is 0.915 which is very high instrument reliability. Table (3) presents the mean and the standard deviation which found by SPSS program based on common formula:

$$\bar{x} = \frac{1}{\sum_{i=1}^n f_i} \sum_{i=1}^n f_i x_i \quad (2)$$

$$\sigma = \sqrt{\frac{\sum_{i=1}^n f_i (x_i - \bar{x})^2}{\sum_{i=1}^n f_i}} \quad (3)$$

Based on the data presented in Table (3), the top three positive perceptions of oil and gas companies in Qatar on audit firms were as follows:

- Worldwide Certifying Body.
- Qualifying Audit Team.
- Auditor communication.

The first feature "worldwide certifying body" is logic perception from surveyed companies however, the certifying bodies are working in Qatar (BV, Velosi, TUV, DNV and BSI) are international companies and accredited by accreditation international authorities such as United Kingdom Accreditation Services (UKAS) and Inter American Accreditation Cooperation (IAAC). Qualifying audit team and a good level of communication from auditors came in the second positive perception in the survey (mean 4.18).The team auditors' qualification and experience are the main reason for the positive perception of surveyed companies.

The other three features (timing commitment, explanation in opening meeting and valid audit plan) came in the middle and the mean from 3.97 to 3.88 which mean that the surveyed firms are satisfied with these auditor features.

Table 3. Perception of auditor evaluating

Features	N	Mean	Std. Deviation
Worldwide Certifying Body	34	4.32	1.199
Qualifying Audit Team	34	4.18	.869
Auditor Communication	34	4.18	.834
Timing Commitment	34	3.97	1.218
Explanation in Opening Meeting	34	3.88	1.038
Valid Audit Plan	34	3.88	1.200
Explanation in Closing Meeting	34	3.68	1.173
Follow up after audit	34	3.32	1.007
Pre Audit Visits	34	2.91	.712

The last three features come in the table (3) are:

- Explanation in closing meeting
- Follow up after audit
- Pre audit visits

Surveyed companies have faced the lack of explanation of audit findings in the closing meeting that is because the auditee did not agree with audit findings. It looks like the auditee has no conformity with ISO 9001 clauses or observations which results in more works and time to correct the findings actions. When the companies get the ISO 9001 certificate, they will be waiting for follow up after audit to keep the company's system without variations. This feature is still satisfied (mean=3.32) with the most surveyed companies.

Pre-audit visit was seen as negative perception of surveyed firm (mean=2.91). These companies need the pre-visit before starting the audit to know more and more about the audit to avoid any of issues during the audit, see figure (2).

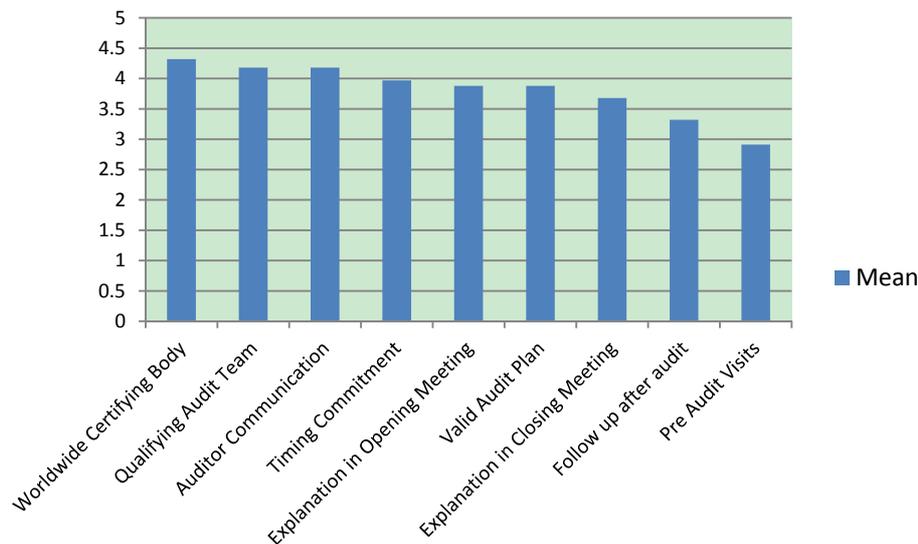


Figure 2. Perception of auditor evaluating

3.2 Statistics and Data Analysis

The general scope of the international standard ISO 9001 specifies requirements for the organization to provide products that meet customer needs. So, it is recommended that the auditor focusing on the processes related to product activities and technicians more than the processes related to management peoples. In this part of survey, researchers asked the surveyed companies to give approximately percentage for the auditor's time spend during the auditing process. The answers are explained in Table (4). Survey's result shows that 58.6% of audit total time is spent with the technical staff which is acceptable and it is recommended to be increased by auditors. The time that spent with management staff is 41.4 % which is also acceptable.

Table 4. Auditor's time with auditee staff

Item	N	Percentage	Mean	Std. Deviation
Time spent with management staff	34	41.4%	2.32	0.638
Time spent with technical staff	34	58.6%	3.15	0.702

Table (5) shows the percentage of the auditor time spent with the quality management system documents (such as company quality manual, policy, managements procedures and HR records) and technical or equipments documents (such as records, inspection, calibration documents and technical procedures). 55.6% of total time of auditor with documents was spent with QMS documents and 44.4% with technical and equipments documents.

The percentage above gives indication of the amount of QMS documents that have been used in the oil and gas organization in Qatar.

Table 5. Auditor's time with auditee documents

Item	N	Percentage	Mean	Std. Deviation
Time spent with QMS documents	34	55.6%	3.26	0.864
Time spent with technical/equipment documents	34	44.4%	2.53	0.929

Audit findings are the evidence from the auditor to encourage the auditee (organization) to improve or correct the findings area which is discovered by auditors. The findings may be related to the core business or auditee or non process related. Table (6) shows that the mean percentage of process related findings is more than non process related by 5.1%. This difference depends on many factors such as size of auditee, experience of auditor and type of findings that found.

Table 6. Auditor's findings

Item	N	Percentage	Mean	Std. Deviation
No of findings in non process	34	47.4%	2.56	.894
No of findings in process related	34	52.6%	2.88	.844

At the end of the second part of the survey, researchers asked the surveyed companies about the percentage of coverage of audit scope by auditor. The mean was 4.18 (74.2%) which is acceptable percentage in general. The rate of overall satisfaction of surveyed companies with their certifying bodies in this study has been supported with the study conducted in 2006 by Majd in Saudi Arabia manufacturing industries that found 84% of them are satisfied with the registration agencies.

4. Discussion

One of the important conditions which affect the impact of certification is auditor performance. In this study, the researchers investigated the impact of auditor performance by analyzing the certified companies' perceptions as following:

- The three top factors that positively affect certified oil and gas companies are: the first factor is worldwide certifying body that indirectly transfers of other countries experiences in improvement of QMS to companies that have adopted ISO 9001 certification in Qatar. The second factor is the qualifying audit team and it's professional training with high level of experience. The third factor is auditor communication with the auditee before, during and after the audit. The communication between the auditor and auditee is very important in resolving the ISO 9001 audit findings. The other four factors that came as a result of survey related to timing commitment from the auditor, explanation during opening or closing meeting and the validity of audit plan are not directly affect certification of organization, but affect the relationship between the auditor and auditee as well as satisfaction of certified company. The last two factors (follow up after audit and pre-audit visit) can be considered as more cost on auditee, in other words for follow up audit means that the auditor should pay more and more for the audit firm as well as the pre-visit audit.
- Appropriate distribution of the audit time on all type of people (technical and management staff) and on all type of documents (QMS and technical documents), giving an effective and successful ISO 9001 implementaion. This study concludes that 55.6% of auditor total time was spending with QMS documents and 44.4% of auditor total time was spending with technical and equipments documents. For Staff distribution time, auditor spent 58.6% of auditing total time with technical staff. While spent 41.4 % of total time with management staff.
- Researchers found that this research has some discrepancies with other researches that were conducted in USA, Canada, Australia, China and other European countries due to the differences in business culture, job environment, roles of labors and the system of company operations. But this research is matching – in most of it- with research that was conducted in Saudi Arabia, UAE and other Arab countries.
- The main benefit of this research is focusing on certain area in Qatar and logically in GCC area because of similarity of business culture and focusing on oil and gas field that because it is the main resource of income in Qatar and GCC.
- The differences of ISO 9001 certification benefits from developed and developing countries are giving

indication that adoption of any quality approach that imported from overseas or developed countries is not necessarily applicable in our countries. It is because contrast in culture, environment. It is recommended that quality approach could be developed to be suitable with our business culture, our privacy, and our identity.

- In 2011 it was established a Administrative Control and Transparency Authority (ACTA) in Qatar to be as an anti-corruption watchdog overseeing government agencies and the handling of public funds. The researchers recommended that ACTA should be the main authority to control the ISO certification award and should be the accreditation body in Qatar to accredit the certifying companies. As result of that the central certification data base will be the ACTA.

4.1 Limitation and Difficulties

This part of paper mentions to some limitations and difficulties of this study.

4.1.1 Data Gap and Lack to Archive Data

It was difficult to get the exact number or statistical study of ISO 9001 certified company in Qatar from any of authorized sources. In addition, it was difficult to get certification information from governmental organizations. So, the researchers had extracted the information from international resource such as ISO.

4.1.2 Gulf Cooperation Council (GCC) Business Culture

Limited studies and researches were studied in the implementation ISO 9001 certification in Qatar or GCC. So, some certificated companies were refusal to respond to the survey.

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