
Governance using ISO 9001:2000 challenges and barriers: empirical study applied on the Jordanian private mobile companies

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Abstract: The aim of this research is to investigate and identify the barriers that affect the implementing of ISO 9001:2000 in the private mobile companies in Jordan; the results of such research expected to help the management to improve their practices and governance over its operation. To achieve the research goals, an empirically-based systems analysis was carried out for all the private mobile companies in Jordan using a case study approach. Substantial field work was undertaken using a qualitative approach that used semi structured interviews, documentation, direct observation and archival records to collect the data.

To the best of the researchers' knowledge, this research is the first study in the Jordanian private sector regarding the barriers of implementing ISO standards. The results of this study identified some unique barriers, such as the ambition of employees to seek top and middle management posts, the restrictions applying when the companies were in the public sector, the failure to install complete management information systems, imbalance between the working practices of the companies and ISO 9001:2000 requirements. The researchers believe that such findings will strengthen the existing literature on QMS implementation in the private mobile sector internationally and nationally.

Keywords: governance; quality management system; ISO 9001:2008; barriers; implementation; Jordan.

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1 Introduction

The technology advancement in this age and how it affects the business world forces the organisations to use every possible tool to sustain their competitiveness position (Dory and Schier, 2002), such tools includes partial or comprehensive re-engineering and continuous improvement to the company products in a way that maintain high quality at low prices (Russell and Taylor, 2002; Tannock et al., 2007). Such mission would be impossible without having proper quality management (Lo and Humphrey, 2000) such as ISO 90001:2000 that is considered to be one of the most widely used around the world (Al-Wadi, 2002).

The need of quality management tools become highly desired when we have an industry with high economical impact such as the mobile sector; the mobile sector is considered to be at the heart of any economy, as of April 2008 there were around 300

mobile operators and another 300 virtual operators in 218 countries (Elaph, 2008). Moreover, more than 80% of the world's population was covered by the GSM standard (global system for mobile communications) (GSM, 2008) and more than a million new mobile connections are made each day. In addition, the world will reach four billion mobile connections by the first quarter of 2010 and 5.6 billion by 2013, equivalent to 95% of the world population. Total revenue from global telecoms reached \$ 2 trillion by the end of 2008, over half being generated by the mobile sector (Dailywireless, 2008). Furthermore, the mobile operators have spent more than \$ 234 billion building the GSM network since 2002, while it was recently predicted that \$ 14 billion would be spent on mobile advertising in 2011 (GSM, 2008). An estimated 43 billion text messages were sent globally on 2007 New Year's Eve (ITU, 2008) and nearly seven billion are sent everyday (Memshankar, 2008).

In Jordan, the telecommunication sector has developed significantly in the past few years, the sector made the second largest contribution to the total gross domestic product (19.5%) in 2008 (CBJ, 2008). At the end of 2006, the Association of Information Technology Companies in Jordan announced that the revenue of the telecommunication sector had reached 1.826 billion USD. Despite this significant growth, the national strategy for this sector aims to increase its income to JD2.13 billion and to increase the number of job opportunities to 9000 by 2011 (Alrai, 2007). It is also significant to mention that Jordan has four mobile operators, as one of the highest numbers in a single country in the Arab region, where a total of 48 mobile operators cover 18 countries (Al-Ghad, 2008).

Due to the economical impact of this sector as above illustrated and the importance of the quality management and governance, the researchers were motivated to conduct this study, the researchers tried in this study to investigate the status of ISO 9001:2000 implementation as one of quality management and governance structures, also this study tries to investigate and identify the barriers that delay or prevent having the ISO 9001:2000 in place. While this issue has received considerable attention in North America and Europe, studies based on international experience, especially in developing countries, are relatively rare (Al-Haj, 2006; Sharif, 2005). We are not aware of any study in investigating the barriers to implementing ISO 9001:2000 in the mobile industry. Hence, the results of this study can provide valuable insights and lead to a better understanding the practices in a less developed country.

2 Background and literature review

2.1 Mobile sector in Jordan

In 1999 Jordan joined 135 nations in the World Trade Organisation (WTO), to become a full member in 2000. It fulfilled its commitments related to the telecom sector, which included the full liberalisation of the sector by 2004. In addition, Jordan established the Telecommunication Regulatory Commission (TRC) under the Telecommunication Law of 1995 (amended in 2002), to regulate its telecom market. Reports by the Central Bank of Jordan (2008) indicate that the contribution of the combined telecommunication and transportation sector has almost remained stable over the last five years with good contribution. Table 1 shows the vital contribution of this sector to GDP.

Table 1 Telecommunications and transport as a percentage of GDP

<i>Year</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
Contribution to GDP	18.1%	17.9%	18.0%	17.9%

Source: Central Bank of Jordan (2008)

The mobile sector in Jordan has been developed significantly in the past few years due to intensive investment trend and the existence of a number of regulations; by the end of 2007, the mobile companies had achieved revenue of 894 million USD, an increase of 13% over the previous year (Al-Ghad, 2008) and 6% growth in the GDP (CBJ, 2008).

Mobile penetration in Jordan has surpassed fixed line penetration by a ratio of about 5:1 and stood at roughly 87.5% of the population at the end of 2007 (Alrai, 2008). In addition, 86% of Jordanian households have a cellular phone and 70% of them have more than one mobile line. Monthly, the average spending on mobile phone services is JD28, while the average mobile phone bill is JD11 (Al-Ghad, 2008).

The first private operator in Jordan was Zain Telecom, which introduced its mobile service in 1995 and benefited from a five-year exclusivity period guaranteed by the government. In 1998 the government started a privatisation process, selling the public telecommunication companies. As a result, Orange, another mobile company which is a wholly owned subsidiary of Jordan Telecom (JT), launched its operations in September 2000 and was granted a three-year duopoly with Zain. Later, Jordan's regulatory body, the TRC, granted Xpress Telecom a license to operate a radio-trunking network, launched in May 2004. Finally, a fourth mobile company, Umniah, was launched in 2006 (Global Research, 2006).

2.2 International organisation for standardisation (ISO) standards

The ISO, which is considered the world's leading developer of international standards, specifies the requirements for products, services, processes, materials and systems. It is a network of national standards institutes which is estimated to have issued over one million ISO 9001 certifications to organisations in private and public sector and in 170 countries (<http://www.iso.org>). Such growth in ISO certification suggests that there is widespread belief in the business and organisational benefits of ISO 9001:2000 certification (Magd et al., 2003).

ISO 9000 is a series of international quality standards which are codified, verifiable and easily adaptable (El-Meligy, 2002). ISO 9000 is a management control procedure which involves a business documenting the processes of design, production and distribution to ensure that the quality of its products and services meets the needs of customers (Quazi et al., 2002). It aims to give customers confidence in their suppliers by assuring them that the suppliers have in place the management processes that ensures consistency in the delivery process. It encourages, but does not by itself assure quality (Lo and Humphrey, 2000). The ISO 9000 standards help to ensure that organisations follow specific well-documented procedures in the making of products or services and nothing more. These procedures describe how operations must be conducted. Additionally, Murray and McAdam (2007) report that the ISO 9000 series can act as a company framework for quality management to direct quality efforts on a long-term basis without any loss of compliance, while Singels et al. (2001, p.2) state that "ISO

certification stands for certain minimum quality standards that organisations should meet, and is said to assure a consistent quality of products, services and processes”.

In the following paragraphs we discuss the barriers of implementing ISO 9000. A barrier is defined as “a problem, rule or situation that prevents somebody from doing something or that makes something impossible” (Oxford Dictionary, 2001). Barriers to the implementation of ISO 9000 (2000) are different from one culture to another (Casadesus and Karapetrovic, 2003). It is important for all organisations to understand these barriers before and during QMS implementation to be able to respond quickly and ensure a successful introduction and maintenance of the quality system.

2.3 Top management commitment

Al-Madi (2005) cites quality gurus like Deming, Juran and Crosby as stating that top management commitment is one of the most important factors affecting the success potential of QMS in an organisation. In the same context, Sampaio et al. (2009) mentioned that lack of top management involvement is considered to be the main barrier faced by companies during ISO 9001 implementation. Moreover, Wiele et al. (2001) recommend that this commitment should be based on the understanding, knowledge and belief that quality management is of considerable importance for the organisation. According to the ISO 9001 (2000) standard, top managers must establish a quality policy and objectives which are then well communicated and understood at all levels in the organisation. The leadership should conduct a management review at planned intervals, to review the continuing suitability, adequacy and effectiveness of the QMS involving quality policy and objectives in comparison with the organisation’s performance. Top management should also ensure the availability of necessary resources to achieve quality objectives (<http://www.iso.org>). Other researchers who have specified lack of top management commitment as a barrier to implementing ISO 9000 in their respective countries include Tayyara et al. (2000), who found this problem in Syrian organisations, Al-Zamany et al. (2002) (Yemen) and Fuentes et al. (2000) (Spain), Samson et al. (2009) (UK), Sharif (2005) reports that in some Libyan companies, Al-Haj (2006), (UAE) Finally, Amar and Zain (2002) observed the existence of this barrier in Indonesian manufacturing organisations.

2.4 Organisational culture

According to many contributors to the management literature, culture is considered one of the most important factors affecting the practice of a QMS. Individual and organisational culture has been the subject of discussion over the last few decades. Beardwell and Holden (2001) state that culture consists of patterns, explicit and implicit of, and for, behaviour acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiment in artefacts. Alternatively, culture is defined by Oakland (2000, p.22) as “the beliefs that pervade the organisation about how business should be conducted and how employees should be treated and should behave”. Stone (2002) defines organisational culture as “the values, beliefs, assumptions and symbols that define the way in which the organisation conducts its business”, while Maull et al. (2001) propose a model of organisational culture comprising four main elements – values, rituals, heroes and symbols – and McDermott and O’Dell (2001) classify aspects of culture as under two dimensions: visible aspects, such as the

organisation's mission, espoused values, structure, stories and spaces, and invisible aspects, which are the behaviours of the workers.

2.5 Lack of understanding ISO 9000 standards and the requirements

Yahya and Goh (2001) and Besekese and Cebeci (2001) report that one of the major problems faced by ISO 9000 certified and non-certified organisations in implementing ISO 9000 is the understanding of the standards and requirements. Awan and Bhatti (2003) believe that the use of English as the language of the standards may prevent thorough understanding of the requirements. While others, including Mo and Chan (1997), Sharp et al. (2003), Curry and Kadasah (2002), Al-Khalifa and Aspinwall (2000) and Chin et al. (2000), specify that one of the common barriers encountered by organisations trying to implement ISO 9000 is a lack of understanding of the requirements of ISO 9000 itself.

Some other researchers provide examples of this problem in particular countries. For example, Sharif (2005) in Libyan organisations, Al-Zamany et al. (2002) in Yemen, Similarly, Besekese and Cebeci (2001) in Turkish organisations, in Syria, Tayyara et al. (2000), Balzarova et al. (2002) in some UK firms, while Withers and Ebrahimpour (2001) indicate that one of the most common obstacles facing 11 different European organisations in their study, also, Zeng et al. (2007) in Chinese companies, and in the UAE, Al-Haj (2006). Finally, Park et al. (2007) conducted a study of Korean companies and found a lack of understanding of requirements and insufficient performance by all employees.

2.6 Lack of human resources

Some researchers found that ISO 9001:2000 certification could improve human resource management, as it helped organisations to recruit a high quality of staff (McAdam and Fulton, 2002) and improved job satisfaction, work performance and staff retention (Magd and Curry, 2003), while Casadesus and Karapetrovic (2005) report that suggestion systems and health and security at work were improved. Conversely, Fuentes et al. (2000) identified a lack of human resources and of expertise as major barriers to ISO 9000 implementation. Moreover, Boiral and Roy (2007) cite other researchers who found that the mobilisation of human resources appeared to be both one of the main difficulties associated with implementing the standard and a key factor in a successful certification process. Beckford (2002) agrees that human resources represent one of the main components in ISO 9001:2000 requirements, hence, cultural change is crucial for its success. A number of other researchers have identified human resources as a barrier to implementation in individual countries. For example, Al-Zamany et al. (2002) in some Yemeni organisations; Amar and Zain (2002) in Indonesian manufacturing organisations; and Sharif (2005) reports that a shortage of expert people, knowledgeable in ISO 9000 standards and QMS issues, was a barrier in Libyan companies.

2.7 Lack of education and training programmes

Lack of training has been identified as another barrier to ISO 9001:2000 certification (Ebrahimpour and Whithers, 2001; Bhuiyan and Alam, 2005), while Awan and Bhatti (2003) suggest that appropriate awareness training for ISO 9001:2000 is crucial for all

organisation members. The training strategy assessment scale in any organisation is measured by the availability of training resources, the number of times each employee is trained and retrained, employees' satisfaction with training and the level of their participation in training sessions. Berggren et al. (2001) suggest that there is a link between education and training on one hand and the amount of engagement in and commitment to the QMS on the other, finding that those companies which started with education and training early in the process experienced a high level of awareness of quality and motivation to use ISO 9001:2000. Moreover, Antoni et al. (2002) found that proper training for all employees was required to improve the manner of managing ISO 9001, and Najmi and Kehoe (2000) state that training of employees without a specific purpose is a common barrier to implementation of ISO 9000 standards.

Some researchers reported that inadequate training and education are barriers there. For example, in Qatari organisations, Al-Khalifa and Aspinwall (2000); Al-Haj (2006) in some UAE companies, Tayyara et al. (2000) in Syrian companies and Sharif (2005) in Libyan companies. Also, beyond the Arab world, many other researchers have identified poor training and education as a barrier to implementing ISO 9000 in their countries. For example, Balzarova et al. (2002) and Sharp et al. (2003) in some UK firms, while Awan and Bhatti (2003) and Dickenson et al. (2000) found the same difficulties in Pakistan, Glover and Siu (2000) in Chinese organisations.

2.8 Lack of financial resources

Some researchers have pointed out that lack of financial resources is a barrier to implementing ISO 9000 standards. For example, Fuentes et al. (2000) and Najmi and Kehoe (2000) identify unsuitable budgets as a barrier to QMS implementation, while others have mentioned lack of financial resources as a barrier to implementing ISO 9000 in particular countries. For example, Amar and Zain (2002) identified this problem in Indonesian manufacturing organisations. And Sharif (2005) who found that lack of financial resources is a barrier to implementing ISO in Libya organisations.

2.9 Lack of motivation

Performance pay, profit-share, share options, flexible job descriptions, job rotation, family-friendly policies, non-pay benefits and benefits covering spouse or family members are motivational tools for employees (Sung and Ashton, 2005). Martinez-Costa and Martinez-Lorente (2007) quote Terziovski and Power (2003) found a positive relationship between managers' motives for adopting ISO 9000 certification and business performance. While, Sampaio et al. (2009) mentioned that there is an interesting relationship between ISO 9001:2000 motivation and the corresponding benefits. However, Poksinska et al. (2006) found that a lack of internal motivation stopped the process of practicing the ISO 9000 standards, or made it very slow. Sun et al. (2000) suggest that a reward system would motivate employees to become actively involved in the ISO 9001 programme.

Furthermore, lack of motivation was found by some researchers to be a barrier to implementing ISO standards in certain countries. For example, Low and Ling-Pan (2004) list a number of barriers to effective ISO 9001:2000 implementation and maintenance in Singapore organisations: inadequate recognition, respect and reward for a good job done

in achieving quality performance. Sharif (2005) also found limited employee motivation to be a barrier to the implementation of ISO standards by Libyan companies.

2.10 Lack of communication within the organisation

Goetsch and Davis (2000, p.307) define communication as “the transfer of a message (information, idea, emotion, intent or feeling) that is both received and understood”. In the present context, Kelly (2000, p.92) quotes Daft’s definition of organisational communication as “the process by which information is exchanged and understood by two or more people, usually with the intent to motivate or influence behaviour”.

The lack of communication between departments in an organisation is one of the most common barriers to ISO 9000 implementation, as discussed by Sharp et al. (2003), Fuentes et al. (2000), Balzarova et al. (2002) and Glover and Siu (2000). For Al-Zamany et al. (2002), poor communication happens because of a lack of trust between employees and the difficulty of having a discussion with their managers about issues related to quality.

Again, there are reports in the literature of studies set in individual countries. For example, Sharif (2005) in Libya, in a UAE study, Al-Haj (2006), finally, Amar and Zain (2002) in Indonesian manufacturing organisations.

2.11 Lack of time required for ISO implementation

Dory and Schier (2002) warn that organisations need time to successfully implement the quality methods and processes that are necessary to achieve significant improvements. Similarly, Berggren et al. (2001) highlighted a plan for the certification process as a way to set time limits for the different steps. Stevenson and Barnes (2001) add that to become certified usually takes from about a year to two years, depending on the organisation’s size, current level of work quality, extent of current documentation, complexity of production process and management commitment. In the same year, Besekese and Cebeci (2001) found that organisations had been provided with insufficient time for their certification. Furthermore, Sharp et al. (2003) and Balzarova et al. (2002) in some firms in the UK, Yahya and Goh (2001) in Turkish manufacturing organisations, Withers and Ebrahimpour (2001) in 11 different European organisations, finally, Low and Ling-Pan (2004) in some Singapore companies.

2.12 High cost of ISO 9001:2000 certification

Some researchers, such as Augustyn and Pheby (2000), Lo and Humphrey (2000) and Douglas et al. (2003) consider that the cost of implementing ISO 9001:2000 certification is too high. According to Martinez-Costa and Martinez-Lorente (2007), ISO 9000 supporters could argue that companies increase in quality but the market benefits do not compensate for the costs of implementing the standard and maintaining it. Authors who have proposed some reasons for this high cost include Stevenson and Barnes (2001), who believe that it is generated by training, time, consultancy fees and the registration fee itself. A similar list of factors is given by Sharif (2005), who found that the high cost of certification was a barrier facing most organisations in Libya and that it came mostly from training, consultancy fees, registration fees and the cost of upgrading the infrastructure to meet international standards. Others who have identified cost as a barrier

to implementing ISO 9000 in individual countries include Fuentes et al. (2000) in Spanish organisations, Magd (2006) in Egypt, Tayyara et al. (2000) in Syrian manufacturing organisations, Glover and Siu (2000) in Chinese organisations, Yeung and Mok (2005) in Slovenian companies, Yeung and Mok (2005) in manufacturing firms in China, finally, in a survey of 399 companies in Spain, Casadesus and Karapetrovic (2005).

2.13 Lack of documentation

The ISO notes that the documentation of a QMS in any organisation is affected by the complexity and interaction of its processes and the competence of its people. The ideal QMS documentation, according to the new standard, is represented in the quality manual, which states quality policy and objectives as well as listing QMS procedures that describe interrelated processes, work instructions and other detailed documents (<http://www.iso.org>). Wealleans (2000) states that one of the main objectives of documenting system management is to keep up the practices in place so as to ensure the continuity of work methods and product quality. Yahya and Goh (2001) estimate that 80% of failures by organisations to pass a certification audit is caused by factors such as inappropriate documents or poor control of documents and data.

Researchers identifying lack of documentation as a barrier to implementing ISO 9000 in particular countries include Besekese and Cebeci (2001) in Turkish industry, Tayyara et al. (2000) in Syrian organisations and in the UAE, Al-Haj (2006) discovered that some companies had changed from the older ISO 9000:94 to the ISO 9000:2000 versions, but that employees continued to place much importance on documentation, which was perceived as a potential barrier.

2.14 Lack of clear mission and vision

The management of an organisation should establish the mission, vision, policies and critical success factors, giving the staff and stakeholders a clear picture of their future organisation (Balzarova et al., 2002). Quazi et al. (2002) states that lack of vision in the organisation is a common barrier to implementing ISO 9000, while Tayyara et al. (2000) found that quick profitability was the vision in some Syrian organisations and that this was a barrier to implementing ISO 9000 standards. In the UK, Balzarova et al. (2002) found that a failure to identify a clear mission as a performance measurement tool was one of the common organisational barriers to successful QMS implementation in some firms. Finally, Sharif (2005) observed a lack of strategic mission and objectives in Libyan companies because the executive managers did not feel secure in their positions.

2.15 Non-availability of information

Al-Haj (2006) believes that the main aim of an information system is to facilitate the gathering and sharing of information so that it is available across departments. This will give individuals and communities the tools for better environmental action and help to achieve the vision of the company. Conversely, Najmi and Kehoe (2000) consider that lack of integration between the quality information system and the existing management information system is a major barrier to ISO 9000 implementation.

Researchers who report that non-availability of information is a barrier to implementing ISO 9000 in particular countries include Amar and Zain (2002) in Indonesian manufacturing organisations and Al-Khalifa and Aspinwall (2000) in Qatari organisations, Fuentes et al. (2000) in Spanish organisations, while in Singapore, limited exchanging of information was found to be a barrier to implementing and maintaining ISO 9001:2000 effectively (Low and Ling-Pan, 2004).

2.16 Lack of customer satisfaction

According to ISO 9001:2000, the top management of an organisation should determine customer needs and expectations, then convert them to requirements. Communication of the importance of meeting customer requirements throughout the organisation and the awareness of customer requirements must be further promoted by managers, who must communicate with customers to discuss product orders, contracts or requirements and receive feedback. Customer feedback must then be used in management meetings to review current performance and improvement opportunities. Indeed, the measurement of customer satisfaction is an important factor in the determination of the effectiveness of QMS implementation (ISO, 2007). In addition, Quazi et al. (2002) emphasise the importance of customer orientation, commitment to satisfy customers, integration of customer satisfaction in the firm's goals and vision, and knowledge of customers' needs and expectations, stating that failure to provide these are major obstacles in exceeding customer expectations. Other barriers to ISO 9000 implementation are the failure to use customer feedback in new product design, to monitor customer satisfaction, to be responsive to customer complaints and to ensure a high level of interaction with customers (Quazi et al., 2002).

Additionally, Najmi and Kehoe (2000) point out that lack of customer focus is an obstacle to applying ISO 9000 standards. Again, the literature supplies evidence from individual countries. For example, Fuentes et al. (2000) in Spanish organisations, Tayyara et al. (2000) in Syrian organisations, also in a study of Yemeni organisations (Al-Zamany et al., 2002). Finally, an empirical study by Casadesus and Karapetrovic (2003) of about four hundred Spanish organisations.

2.17 Lack of ISO 9000 awareness

According to Chin et al. (2000), ISO 9000 awareness means that staff of an organisation understands the management's quality policy and the current status of the ISO 9000 quality system in the organisation. They cite McCullough and Laurie (2005), who found that lack of awareness of the importance of ISO 9000 requirements was a barrier to obtaining certification.

Al-Zamany et al. (2002) found that the level of awareness of quality management issues in Yemeni organisations was very low and that there was a poor understanding of the importance of quality in international trade and of the globalisation of markets. Lack of awareness was an inhibiting factor to starting the ISO 9000 process in Pakistan (Awan and Bhatti, 2003). Ahmed et al. (2005) report that some US companies have failed to see the need to obtain the ISO 9000 certification. Al-Haj (2006) found that, among lower level staff, limited understanding of quality and a lack of recognition of the wider benefits of quality led to poor awareness of quality. Finally, Heras et al. (2008) conducted a study in Spain with a panel of 14 experts in the field, reporting that "because ISO 9001

is a well-known and widespread tool, some participants noted that it provides a certain legitimacy to a sector that is generally considered to have many managers with limited managerial training” (p.6).

2.18 Lack of employee involvement

Another factor affecting ISO 9001:2000 certification is the commitment of middle managers and workers (Antoni et al., 2002). Sun et al. (2000) believe that without employee involvement, the future of ISO certification is not encouraging. They add that managers need to embrace a new management philosophy and a new attitude towards employees, who should in turn be provided with the necessary authority, information and skills. Similarly, Val et al. (2003) suggest that without involvement, employees will feel that ISO certification is a top-down process. Based on a survey in Spain, Torre et al. (2001) report that the greater the degree of involvement of the employees, the less time was taken to obtain the registration of the firm.

Sharif (2005, p.213) states that “management should adopt a teamwork approach to involve workforce members in improvement process activities and solving problems”. Furthermore, some researchers have found that lack of employee involvement is a barrier to implementing ISO 9000 in particular countries include. For example, Park et al. (2007) in South Korean manufacturing companies, Fuentes et al. (2000) in Spanish organisations, in Pakistan, Awan and Bhatti, (2003), also, in Poland and Russia Dickenson et al. (2000), Low and Ling-Pan (2004) in Singapore, while Sharif (2005) found that the organisational structure was still centralised in some Libyan organisations.

2.19 Limited calibration

Yahya and Goh (2001) report that 80% of the failure of organisations in certification audits is caused by factors such as improper calibration of tools and gauges. Similarly, lack of calibration agencies and non-availability of quality auditors are some impediments to the ISO 9000 implementation process in Pakistan (Awan and Bhatti, 2003). Fuentes et al. (2000) states that a barrier to implementation in Spain was the difficulty of gaining access to test laboratories, while Sharif (2005) found that there was no role for calibration in Libyan national standards. This means that most companies hired foreign agencies to carrying out calibration, leading to high costs and variation in calibration from one company to another.

2.20 Lack of proper supplier relationship

Quazi et al. (2002) state that supplier relationships and their duration, supplier selection criteria, number of suppliers and suppliers’ involvement in new products are factors affecting the implementation of ISO 9000 standards. This supports the observation of Kruger (2001) that poor product quality can arise from the poor quality of incoming materials and that one way to address this is to cooperate with a single supplier in a long-term business relationship. Also, Yahya and Goh (2001) calculate that 80% of the failure of organisations in certification audits is caused by factors such as improper control of suppliers and inadequate examination of incoming materials. But Martinez-Costa and Martinez-Lorente (2007) advice that organisations should not choose their suppliers using ISO 9000 certification as a prerequisite, since this could create problems for the suppliers

which would soon or later result in increased costs to themselves. Again, some researchers have found poor supplier relationships to be a barrier to implementing ISO 9000 in particular countries. For example, Fuentes et al. (2000) in Spanish organisations, Sharif (2005) in some companies in Libya, finally, Al-Haj (2006) in the UAE.

2.21 Lack of national quality standards, consultants, advisors and quality certification bodies

The ISO 9001:2000 standards are intended to be applicable to all organisations (Hoyle, 2001). To make the standards fit with a company's operations, it's essential to take guidance from consultants (Augustyn and Pheby, 2000). Similarly, Berggren et al. (2001) state that companies use consultants to make the ISO 9001:2000 certification processes easier and faster. On the other hand, Martinez-Costa and Martinez-Lorente (2007) warn that not all auditing companies have the same ways of understanding the standards and that some of them could have flexible auditing procedures. This means that two companies in the same sector certified by different companies could be applying the standard in very different ways. In a study of Spanish and Swedish organisations, Fuentes et al. (2000) identify a shortage of external advisors properly qualified in a certain sector of activity as another barrier to ISO 9000 implementation. Similarly, Sharp et al. (2003) found that a lack of clarity regarding the role of certification bodies was a barrier to successful implementation of ISO 9001:2000 in the UK.

On this last point, Al-Haj (2006) concludes that strong competition among certification companies and consulting firms prevented organisations from obtaining the real value of ISO 9000 certification, because the certification companies involved were offering low prices to improve their business in a highly competitive market.

2.22 Failure to manage processes

Bamber (2002) believe that a part of the success of any organisation depends on how effectively it manages business processes. Thus, the understanding of process mapping and its integration is a key factor in the successful implementation of the new standard. Stanies (2000) suggest that the processes should be designed through a consensus meeting. However, these conditions are not always fulfilled. Among the obstacles to the ISO 9000 implementation process, Rohitratana and Boon-Itt (2001) list a lack of knowledgeable specialists in this subject matter; lack of understanding of the details of quality standards from the enterprise's point of view, causing a delay in implementation; and lack of support and cooperation from the staff, which invariably results in resistance. Boiral and Roy (2007) suggest that adoption of ISO 9000 can create more bureaucracy in the work. Also, Martinez-Costa and Martinez-Lorente (2007) report that the ISO 9000 standard slows the production process by introducing too much bureaucracy into the company. The bureaucratisation process associated with the adoption of norms may make the organisation place emphasis on producing related documentation rather than assuring the functioning of the system and QI (Santos and Escanciano, 2002).

Furthermore, some researchers have found bureaucratic in managing the processes to be a barrier to implementing ISO 9000 in particular countries. For example, Al-Haj (2006) in some UAE companies, similarly, in organisations in the UK

(Sharp et al., 2003), also, Sharif (2005) in Libyan companies, Based on research in Swedish organisations, Berggren et al. (2001) report the same results.

2.23 Resistance to change

Usually, there is resistance to change. Employees are afraid of the unknown, of losing skills and status, and of not being able to cope (Mohammed, 2005). Sharif (2005) adds that employees want to escape from new responsibilities. Despite quality being the responsibility of everybody in the company, employees were convinced that quality was not their responsibility, but that of the quality department. Employees avoid taking responsibility which might bring them into conflict with other staff or require them to do more work without recognition. Extra work means people may have to learn more information or develop new skills related to QMS issues.

Some researchers have found that resistance to change was a barrier in implementing ISO 9000 in individual countries. For example, Al-Zamany et al. (2002) in Yemeni organisations, similarly, in Qatari organisations (Al-Khalifa and Aspinwall, 2000), Beseke and Cebeci (2001) in Turkish organisations, while Amar and Zain (2002) observed such resistance to change in Indonesian manufacturing organisations, and Fuentes et al. (2000) in Spanish companies, also Sharp et al. (2003); Balzarova et al. (2002) in UK organisations. Curry and Kadasah (2002) in Saudi Arabian manufacturing organisations, also, Tayyara et al. (2000) studied ISO 9000 implementation in Syrian organisations, similar results are reported by Dickenson et al. (2000) in Russian organisations, Withers and Ebrahimpour (2001) in 11 different European organisations, and Low and Ling-Pan (2004) in Singapore and finally, Samson et al. (2009) in some non-profit companies in UK.

3 Research methodology

The phenomenological research philosophy was chosen in the present case, for couple of reasons; the nature of the research is social, as it deals with the beliefs, perceptions of reality, attitudes and experience of people (Hussey and Hussey, 1997; Collis and Hussey, 2008). Moreover, the authors were involved in the context of the research, which refers to the subjective aspects of human activity, focusing on meaning rather than measurement (Creswell, 2003; Patton, 2002; Alison et al., 1996). Within the phenomenological paradigm, qualitative methods were considered appropriate for this aspect of the study, for two reasons; first, the research seeks to provide rich descriptions and a deep understanding in their natural setting of certain phenomena related to the circumstances affecting the implementation of ISO 9001:2000 (Naslund, 2002; Patton, 2002; Bell, 1999). Secondly, this is an exploratory study investigating the meaning and experience that people bring to a process, which requires the researchers to explore real-life perceptions of why and how these obstacles occur in the Jordanian context (Denzin and Lincoln, 1998; Amaratunga, 2002; Gummesson, 2000).

Among the different strategies adopted in social science research (Yin, 2009), the case study strategy was chosen here because the researcher wishes to obtain rich descriptions and gain a deep understanding of the context; it is a worthwhile way of exploring existing theory and enables the researchers to immerse themselves in real life, which can provide powerful insights (Saunders et al., 2007; Bell, 1999; Amaratunga,

2002). In addition, Yin (2009) lists three conditions which can be used to select the appropriate strategy for research: the type of research question posed, the extent of control an investigator has over actual behavioural events, and the degree of focus on contemporary as opposed to historical events. According to this analysis, the present study explores the ISO barriers and challenges by addressing 'how' and 'why' questions, and focuses on contemporary events in Jordanian organisations, answering the 'what' question.

The population and the sample of this study consisted all the four private Jordanian mobile companies; two of them were ISO 9001:2000 certified (Zain and Orange), while the other two were not yet (Umniah and Xpress). We applied the case study approach since we believe that multiple case designs are more common than single ones and are generally used to replicate findings or support theoretical generalisations (Yin, 2009; Lee, 1992). Moreover, the multiple case studies research increases the external validity and guards against observer bias (Leavy, 1994), also it is more likely to reach general conclusions and to provide strong research findings than those based on a single case (Perry, 1998).

The final methodological decision to be made was the choice of data collection methods; taking into the consideration that there is no single source of data has a complete advantage over all others, while multiple sources of evidence can help in clarifying the real meaning of a phenomenon. Moreover, researchers are encouraged to use more than one method and recognise the value of using multiple methods to corroborate findings and to improve the validity of data (Silverman, 1993; Denzin and Lincoln, 1998). The use of different methods also enables the researchers to overcome the possibility of bias associated with a single method approach (Collis and Hussey, 2008). Consequently the researchers used semi-structured interviews, documents, archival records and direct observation to collect the data for the purposes of this study.

To improve the questionnaire reliability and validity, the researchers conducted a preliminary observation on the practice, reviewed the available literature and performed a pilot studies over a period of two weeks, a draft transcript of each interview was validated by asking interviewees to confirm that it reproduced accurately what they said during the interview. The use of a case study protocol and the development of a case study database were among other tactics adopted to ensure the validity and reliability of study instrument. The total number of interviewees in the four case studies was 67, comprising employees from top and middle management and from the shop floor.

The researchers used the grounded theory and the explanation-building tactics to analyse the data gathered. The following considerations were followed in analysing the data and the aim of the study were considered at all stages. It was ensured that all material collected from interviews, direct observations or original documents were properly referenced. After that, any oral notes were transformed into written records. The data was next compartmentalised, classified and coded through using the ground theory. This technique allowed the researchers to store, retrieve and reorganise data, placing it in the appropriate category while reducing and rearranging it into a manageable and comprehensive form. Subsequently, the researchers wrote a summary of findings of various stages of the study to build up an overview against which he could compare existing theories or construct new ones.

Furthermore, we would like to highlight the inherent possible bias in the collected data due to the different respondents' background and knowledge level regarding the ISO implementation, though it is difficult to assure and assume the consistent knowledge level

between the respondents, the researchers did their best to make the study sample consistent as much as possible.

4 Results and dissections

Appendix 3 shows a list of the interview questions used at the different organisational levels in each case study. The researchers summarise the barriers been found at the four case studies in Table 2.

Table 2 Views on barriers to ISO implementation at the four case studies

<i>The barriers</i>	<i>Case A</i>	<i>Case B</i>	<i>Case C</i>	<i>Case D</i>
Lack of top management commitment	X	X	X	X
Lack of resources requirements	X	X	X	
Lack of equivalence between the company's work and ISO requirements	X	X	X	
Poor correspondence of customer satisfaction	X		X	
The competition among consultancy companies	X	X		
Lack of full management information system	X	X		
Lack of awareness of ISO benefits	X		X	
Limited involvement of employees	X	X	X	X
Limited employee authority and empowerment	X	X		
Lack of understanding of ISO requirements	X			
Poor of internal processes	X	X		
Lack of organisational culture	X		X	X
Lack of clear vision and mission		X	X	X
Resistance to change		X	X	
The ambition of staff to be promoted to top and middle management jobs		X		
Limited training courses			X	
Leaving the company in the public sector		X		

The key element of this study was to investigate and identify the barriers to the implementation of ISO 9001:2000 in private mobile companies in Jordan. These are divided into three main categories: barriers identified in the literature and found in the Jordanian case studies, those referred to in the literature but not found in the case studies, and those found in the case studies but not identified during the literature review, the researchers summarise these finding in Table 3. The researchers will discuss in brief the barriers found in the case studies but not identified in the literature review. Moreover, the researchers in Table 4 classified those barriers to three categories: before, during and those remain after the implementation.

Table 3 A comparison of the barriers affecting the implementation of ISO 9001:2000 that have found in this study and those reported in other literatures

<i>The barriers</i>	<i>In this study</i>	<i>In the literatures</i>
Lack of top management commitment	X	X
Lack of resources requirements	X	X
Lack of equivalence between the company's work and ISO requirements	X	
Poor correspondence of customer satisfaction	X	X
The competition among consultancy companies	X	X
Lack of full management information system	X	
Lack of awareness of ISO benefits	X	X
Limited involvement of employees	X	X
Limited employee authority and empowerment	X	X
Lack of understanding of ISO requirements	X	X
Poor of internal processes	X	X
Lack of organisational culture	X	X
Lack of clear vision and mission	X	X
Resistance to change	X	X
The ambition of staff to be promoted to top and middle management jobs	X	
Limited training courses	X	X
Leaving the company in the public sector	X	
Lack of motivation in the system		X
Poor English among employees		X
Lack of availability of information		X
Social relations		X
Lack of communication among employees		X
Lack of calibration process		X
High cost of obtaining the certification		X
Lack of documentation		X
Lack of time requirements to obtain the certification		X

Herein we discuss the barriers that were found in this study but not discussed in the examined literature; starting with the first barrier, "lack of equivalence between the company's work and ISO requirements", it was found in all of the four cases that using ISO procedures was not a problem, but it was difficult to match the ISO with the company's goals; which was partially referred to the long paperwork for ISO that creates some low desired delays in such competitive environment. Another factor participates in such mismatch is the clarity of ISO certification goals for the top and the middle level management; that could be obtained from couple of incidents where the employees were asked to satisfy some deadlines though it may require ignoring quality procedures. In addition, not having a healthy communication channels between the operation level employees and the management participate to ignore some ideas that could achieve the

targeted alignment between the company and ISO goals; that was concluded after significant number of the respondents who indicated that their ideas were ignored and they were afraid to follow up due to secure their jobs.

Table 4 The classification of the barriers to the implementation of the ISO at the four case studies

<i>The barriers</i>	<i>Before the implementation of ISO certification</i>	<i>During the implementation of ISO certification</i>	<i>Remain after the implementation of ISO certification</i>
Lack of top management commitment	X		
Lack of resources requirements	X		
Lack of equivalence between the company's work and ISO requirements		X	
Poor correspondence of customer satisfaction		X	
The competition among consultancy companies	X		
Lack of full management information system	X		
Lack of awareness of ISO benefits		X	X
Limited involvement of employees		X	X
Limited employee authority and empowerment		X	X
Lack of understanding of ISO requirements	X	X	
Poor of internal processes	X	X	X
Lack of organisational culture	X	X	X
Lack of clear vision and mission	X	X	
Resistance to change		X	X
The ambition of staff to be promoted to top and middle management jobs		X	
Limited training courses	X	X	X
Leaving the company in the public sector	X		

However, though A and B cases managers agreed that it was difficult in the beginning to match their companies' work with the quality steps; they felt later that these quality standards helped them to do work with minimum effort while maintaining the highest quality. The respondents in these cases indicate some tips that helped to overcome this barrier, such as, using latest technology to ease the work load and reduce the pressure on staff, attending technical training courses when and where required and stay in touch with consultants.

The importance of the second barrier, lack of full management information system, is withdrawn from desirable need of a collaborative management information system

provides any required data in every step of the quality system execution. The study respondents indicates a partial recognition over the significant role of efficient MIS, that obtained from several answers like “MIS is a plan for managing information” and “MIS facilitate and manage the gathering, sharing and disseminating of information”, to make a long story short, our observations indicate an inconsistent recognition and knowledge in the respect of the MIS role and goals and cross the different managerial levels.

To explain the last barrier in this section, company public ownership, the researchers tried to examine the possible differences between the public sector and private sector in respect of the motivations and accountability; the respondents in one case, which recently left the public sector to the private sector, indicates that several factor and constrains did not encourage the company to acquire and implement any quality system, such as non-existence of obligatory regulation, lack of governmental support, shortage of expertise, fear of change and job security and lack of financial support.

Moreover, two of the barriers that are indicated in Table 4, namely:

- 1 lack of resource requirements
- 2 lack of full management information management system, were reported as they were found, a barrier before the implementation of ISO certification, to maintain the research integrity and avoid any bias despite the researchers believes of having these barriers through or after the implementation is more appropriate.

Finally, such findings will help the academics and practitioners to develop a better understanding to barriers that could face the Jordanian company in specific and the other companies in general; we are not looking to generalise the findings of such study rather than giving an insight and deeper look to the study population.

5 Conclusions and recommendations

One main contribution to knowledge was found in this study, is the identification of four unique barriers affecting the implementation of ISO 9001:2000 in the private mobile companies in Jordan as governance and quality control tool. These barriers are: the ambition of employees to seek top and middle management posts in the companies concerned, the restrictions applying when the companies were previously in the public sector, the failure to install complete management information systems and imbalance between the working practices of the companies and ISO 9001:2000 requirements.

On one hand, the literature in this field has mainly been undertaken in a different cultural context comparing to current study that is applied in Jordan, which could emphasis the cultural affect as shown by the current study results; the internal audit has been mentioned in some literature as a barrier to implementing ISO 9001:2000 while the findings of this study concluded other reasons for such as: reviewing the documentation system, job specifications and internal communication to check whether all the department procedures were conformed to the requirements of ISO 9001:2000 standards and to decide how to make any adjustment needed.

On the other hand , the study results confirms the barriers identified by other researchers in the Arab countries, such as Al-Zamany et al. (2002), Sharif (2005), Mohammed (2005) and Al-Haj (2006) such as: resistance to change, organisational culture, lack of vision and mission, lack of awareness of ISO 9001:2000, lack of

understanding the ISO 9001:2000 standards and requirements, lack of employee empowerment and involvement, lack of top management commitments, Inadequate training programmes and lack of resource optimisation. These findings will strengthen the existing literature on ISO 9001:2000 area.

Moreover, this study has revealed similarities in the factors affecting ISO 9001:2000 implementation between certified and no certified companies in the Jordanian context which is another contribution to knowledge. Further, it has been found that companies that implement ISO 9001:1994 had not much benefit in its processes from implementing ISO 9001:2000 version, because it still had on emphasis on the 1994 version with its negative and made some adjustments to obtain the certification of the 2000 version. While companies that implement ISO 9001:2000 version directly had much benefit, because it's focuses directly on the positives of the 2000 version. This finding has not been mentioned before in the literature.

5.1 Operational recommendations

The findings of this study have several important implications for top management and quality managers. The main implication for practicing managers is the finding that success of implementing ISO 9001:2000 quality management systems would be increased (operational and business performance) if it is well planned and implemented when the philosophical quality aspects of the organisation are coupled with employee training, periodic audits, corrective action and commitment all levels of the organisation. Furthermore, in order to implement ISO 9001:2000 successfully from beginning, the top management of private mobile companies could use the listed barriers that have been found in this study to identify the barriers before the process began.

Going through an intensive orientation programme on the benefits and requirements of the ISO 9001:2000 standard would clarify ideas about the certification process. Lack of top management commitment would thus, be countered, because top and middle managers would be more aware and supportive of obtaining ISO certification, and they would also be able to minimise the resistance of employees to the process. In addition, the training issue is very important and must be taken into consideration while preparing the budget as well as large-scale contracts, which should emphasise the training element for the staff. This intensive training will help in overcoming organisational and individual barriers arising from factors such as time management, change management, communication skills and optimisation of resources.

Local and foreign consultancy agencies can also benefit from the barriers found in this study when helping companies to obtain ISO 9001:2000 certification, because it will give them a full picture regarding the types of barrier which need to be overcome. The time required for the implementation of ISO 9001:2000 certification should also be taken into account before the mobile companies decide to implement the system. Moreover, the technical, management information system, financial and human resources implications should be considered.

Also, it might be important to consider the involvement of employees at different levels in the implementation of the ISO standard. Participation of the staff in how the company could implement the ISO standard lead to reduce the resistance to change and therefore, the successful application. In addition, top managers should be able to combine between the long-term objectives of the company, which some times affected the requirements of ISO 9001:2000 standards with customer satisfaction. Finally, the top

management could take into account staff satisfaction and motivation by opening the way for promotion to all levels within the company.

5.2 Recommendations for further work

The researchers believe that there are several opportunities for further work in this field, one major direction for further research would be to use the barriers that were identified in this study with a different sample or population that was not explored yet. Furthermore, ISO 9001:2000 barriers could be investigated and defined using larger size sample in order to obtain conclusions that could be generalised over that sector or industry. Also, the current study, as exploratory study, used a nominal scale approach to define the existence of such barriers, a future research could be conducted using an ordinal or numerical scale to reflect to which level these barriers are exist and provide more detailed results. Finally, as an extension of the current work a new research can be performed to explore the critical success factors for the application of ISO 9001:2000 standards.

5.3 Limitations of the study

The basic limitation of this research is the inability to make sound recordings of the interviews due to cultural constraints. This may have led to important information being missed and less concentration on the interviews. In order to tackle this limitation, the researchers tried to write as much as possible during the interview, and then immediately after each interview, allow time to record all pieces of information and ideas while they were still easy to recall.

Another limitation concerns the large amount of data which was collected during the interviews, which may have led to missing important information or to the over-weighting of some findings due to focusing on particular issues rather than others, which may have been important (Saunders et al., 2007). This limitation was addressed by compiling the collected data into tables, which minimised the risk of missing important information.

A final limitation was the confidentiality of the subject investigated. Due to the fact that some barriers to the implementation of ISO 9001:2000 are highly confidential, a few of the interviewees seemed uncomfortable in giving some information during the interview sessions. To solve this problem, the researchers used soft skills to try to make the interview sessions as relaxed as possible. Before the actual interviews were started, the researchers had visited top management in the four companies to introduce himself, to build a rapport and to seek permission to conduct the interviews at three management levels.

5.4 Originality

One main original contribution of this research is an in-depth understanding of the barriers affecting the implementation of ISO 9001:2000 in the private mobile companies in Jordan. To the best of the researchers' knowledge, this study is the first to be carried out in Jordan into the barriers to the implementation of ISO 9001:2000. It is also the first academic study for the mobile companies in Jordan. Moreover, no case study research

has been examined this topic in Jordan mentioned in the literature. Therefore, it is hoped that it provides a basis for the development of scientific research in this area.

This study mentioned the classification of the barriers to implementing the ISO 9001:2000. Some barriers were found before the implementation such as: Lack of top management commitments, lack of infrastructure needed includes the human, financial, technology and technical resources, lack of clear vision and mission, lack organisational cultures and limited training and workshops. While, some other barriers happened during the process of the implementation such as: lack of awareness and understanding of the ISO standard and limited employee's authority, involvement and empowerment. Finally, other barriers remain even after obtaining the certification such as: resistance to change and the organisational culture and ambition of staff to be promoted to top and middle management jobs. No literature mentioned this classification before, which leads to another originality found in this study.

References

- Ahmed, S., Aoieong, R., Tang, S. and Zheng, D. (2005) 'A comparison of quality management systems in the construction industries of Hong Kong and the USA', *International Journal of Quality & Reliability Management*, Vol. 22, No. 2, pp.149–161.
- Al-Ghad (2008) Al Ghad Newspaper, available at <http://www.alghad.jo/index.php?news=340298&searchFor=ايولخل>.
- Al-Haj, S. (2006) 'Barriers of implementation ISO 9001:2000 in the government department and authorities in the emirate of Sharjah, United Arab Emirates', Unpublished PhD Thesis, University of Salford, UK.
- Alison, B., O'Sullivan, T., Owen, A., Rice, J., Rothwell, A. and Saunders, C. (1996) 'Research skills for students', Kogan page Ltd & Deontfort University, UK.
- Al-Khalifa, K. and Aspinwall, E. (2000) 'The development of TQM in Qatar', *The TQM Magazine*, Vol. 12, No. 3, pp.194–204.
- Al-Madi, F. (2005) 'Impediments to the adoption of TQM in Jordanian ISO 9000 series certified manufacturing companies', Unpublished PhD thesis, University of Salford, UK.
- Alrai (2007) Alrai Newspaper, available at: http://www.alrai.com/pages.php?new_id=201817&selec.
- Alrai (2008) Alrai Newspaper, available at http://www.alrai.com/pages.php?new_id=201817&select=اقنل20%فتامل.
- Al-Wadi, M. (2002) 'Perceptions towards ISO certification at Etisalat', University of Sharjah, U.A.E.
- Al-Zamany, Y., Hoddell, E. and Savage, B. (2002) 'Understanding the difficulties of implementing quality management in Yemen', *The TQM Magazine*, Vol. 14, No. 4, pp.240–247.
- Amar, K. and Zain, M. (2002) 'Barriers to implementing TQM in Indonesian manufacturing organisations', *The TQM Magazine*, Vol. 14, No. 6, pp.367–372.
- Amaratunga, D. (2002) 'Quantitative and qualitative research in built environment: application of "mixed" research approach', Vol. 51, No. 1, pp.17–31.
- Antoni, M., Poksinska, B. and Dahlgaard, J. (2002) 'The state of ISO certification', *The TQM Magazine*, Vol. 14, No. 5, pp.297–306.
- Augustyn, M. and Pheby, J. (2000) 'ISO 9000 and performance of small tourism enterprises', *Managing Service Quality*, Vol. 10, No. 6, pp.374–388.
- Awan, H. and Bhatti, M. (2003) 'An evaluation of registration practices: a case study of sports goods industry', *Managerial Finance*, Vol. 29, No. 7, pp.109–134.

- Balzarova, M., Bamber, C. and McCambridge, A. (2002) 'The factors affecting successful implementation of process-based management in a UK housing association enterprise', *2nd International Conference on Systems Thinking in Management*, School of Management, Salford University.
- Bamber, C. (2002) 'Agile manufacturing in UK aerospace small to medium size enterprises', Unpublished PhD Thesis, Salford University.
- Beardwell, I. and Holden, B. (2001) *Human Resource Management: A Contemporary Approach*, Prentice-Hall, Harlow.
- Beckford, J. (2002) *Quality*, 2nd edition, Routledge.
- Bell, J. (1999) *Doing your Research Project: A Guide for First Time Researchers in Education*, 3rd Edition, Jedit Bell.
- Berggren, B., Wellemets, U. and Gustafsson, R. (2001) 'Experiences from implementing ISO 9000 in small enterprises', *The TQM Magazine*, Vol. 13, No. 4, pp.232–246.
- Besekese, A. and Cebeci, U. (2001) 'Total quality management and ISO 9000 applications in Turkey', *The TQM Magazine*, Vol. 13, No. 1, pp.69–73.
- Bhuiyan, N. and Alam, N. (2005) 'A case study of a quality system implementation in a small manufacturing firm', *International Journal of Productivity and Performance Management*, Vol. 54, No. 3, pp.172–186.
- Boiral, O. and Roy, M. (2007) 'ISO 9000: integration rationales and organisational impacts', *International Journal of Operations & Production Management*, Vol. 27, No. 2, pp.226–247.
- Casadesus, M. and Karapetrovic, S. (2005) 'The erosion of ISO 9000 benefits: a temporal study', *International Journal of Quality and Reliability Management*, Vol. 22, No. 2.
- Casadesus, M. and Karapetrovic, S. (2003) 'ISO 9001(2000) and ISO 9001/2/3:1994-A comparative empirical study of the benefits and costs', *Business Excellence*, pp.293–298.
- Central Bank of Jordan (2008) 'Statistical bulletin and annual report (2008)', Amman, Jordan.
- Chin, K., Poon, G. and Pun, K. (2000) 'The critical maintenance issues of the ISO 9000 system: Hong Kong manufacturing industries perspective', *Work Study*, Vol. 49, No. 3, pp.89–96.
- Collis, J. and Hussey, R. (2008) *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*, Third Edition, Palgrave Macmillan, New York.
- Creswell, J. (2003) *Research Design: Qualitative and Quantitative Approaches*, Thousand Oaks, SAGE Publications, California.
- Curry, A. and Kadasah, N. (2002) 'The yin and yang of quality systems evaluation', *Managerial Auditing Journal*, Vol. 17, No. 7, pp.424–429.
- Dailywireless (2008) *Global Telecom Revenue*, available at <http://www.dailywireless.org/2008/09/17/global-telecom-revenue-2-trillion/>.
- Denzin, N. and Lincoln, Y. (1998) *Collecting and Interpreting Qualitative Materials*, Sage Publications, Thousand Oaks, California.
- Dickenson, R., Campbell, D. and Azarov, V. (2000) 'Quality management implementation in Russia: strategies for change', *International Journal of Quality & Reliability Management*, Vol. 17, No. 1, pp.66–82.
- Dory, J. and Schier, L. (2002) 'Perspective on the American quality movement', *Business Process Management Journal*, Vol. 8, No. 2, pp.117–139.
- Douglas, A., Coleman, S. and Oddy, R. (2003) 'The case for ISO 9000', *The TQM Magazine*, Vol. 15, No. 5, pp.316–324.
- Ebrahimpour, M. and Whithers, B. (2001) 'Impacts of ISO 9000 registration on European firms', *Integrated Manufacturing System*, Vol. 12, No. 2, pp.139–151.
- Elaph No. 2898 (2008) Available at <http://www.elaph.com/Web/Economics/2008/11/384841.htm>, <http://www.elaph.com/ElaphWeb/Technology/2008/4/319774.htm>
- El-Meligy, O. (2002) 'TC 176: develops Arabic version of ISO 9000 (2000) series', *ISO Insider*, July–August.

- Fuentes, C., Benavent, F., Moreno, M., Cruz, T. and Val, M. (2000) 'Analysis of the implementation of ISO 9000 quality assurance systems', *Work-Study*, Vol. 49, No. 10, pp.229–241.
- Global Research (2006) *Jordan Telecom Sector*, Kuwait.
- Global System for Mobile (GSM) (2008) Available at <http://gsmworld.com/newsroom/press-releases/2102.htm#nav-6>.
- Glover, L. and Siu, N. (2000) 'The human resource barriers to managing quality in China', *International Journal of Human Resource Management*, October, pp.867–882.
- Goetsch, D. and Davis, S. (2000) *Quality Management: Introduction to Total Quality Management for Production, Processing and Services*, 3rd edition, Prentice Hall.
- Gummesson, E. (2000) *Qualitative Methods in Management Research*, 2nd ed.
- Heras, I., Cilleruelo, E. and Iradi, J. (2008) 'ISO 9001 and residential homes for the elderly: a Delphi study', *Managing service Quality*, Vol. 18, No. 3, pp.272–288.
- Hoyle, D. (2001) *ISO 9000: Quality System Handbook*, 4th edition, Butterworth-Heinemann, Oxford, UK.
- Hussey, J. and Hussey, R (1997) *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*, Macmillan Press, London.
- International Telecommunication Union (ITU) (2008) *Basic Indicators*, available at http://www.itu.int/ITU-D/icteye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/BasicIndicatorsPublic&RP_intYear=2007&RP_intLanguageID=1.
- ISO 9000 Standard, 'Quality management systems: ISO action plan', Geneva, Switzerland, available at <http://www.iso.org>.
- ISO 9000 (2000) *Quality Management Systems – Fundamentals and Vocabulary*, International Organisation for Standardization, Geneva, Switzerland.
- ISO 9001 (2000) *Quality Management Systems – Requirements*, International Organisation for Standardization, Geneva, Switzerland.
- Jordan Telecommunication Regulatory Commission (TRC) (2008) Available at <http://www.trc.gov.jo>.
- Kelly, D. (2000) 'University vision to improve organisational communication', *Leadership & Organisation Development Journal*, Vol. 21, No. 2, pp.92–101.
- Kruger, V. (2001) 'Main schools of TQM: the big five', *TQM Magazine*, Vol. 13, No. 3, pp.146–155.
- Leavy, B. (1994) 'The craft of case-based, in qualitative research', *Irish Business and Administrative Research*, Vol. 15, No. 4, pp.105–118.
- Lee, S. (1992) 'Quantitative versus qualitative research methods: two approaches to organisation studies', *Asia Pacific Journal of Management*, Vol. 9, No. 1, pp.87–94.
- Lo, V. and Humphrey, P. (2000) 'Project management benchmarks for SMEs Implementing ISO 9000', *Benchmarking: An International Journal*, Vol. 7, No. 4, pp.247–260.
- Low, S. and Ling-Pan, H. (2004) 'Critical linkage factors between management and supervisors staff for ISO 9001: 2000 quality management systems in construction', *9th International Conference on ISO 9000 & TQM*, 5–7 April 2004, Siam-City Hotel, Bangkok, Thailand.
- Magd, H. (2006) 'An investigation of ISO 900 adoption n Saudi Arabia', *Managerial Auditing Journal*, Vol. 21, No. 2, pp.132–147.
- Magd, H. and Curry, A. (2003) 'ISO 9000 and TQM', *The TQM Magazine*, Vol. 15, No. 4, pp.244–256.
- Magd, H., Kadasah, N. and Curry, A. (2003) 'ISO 9000 implementation: a study of manufacturing companies in Saudi Arabia', *Managerial Auditing Journal*, Vol. 18, No. 4, pp.313–322.

- Martinez-Costa, M. and Martinez-Lorente, A. (2007) 'A triple analysis of ISO 9000 effects on company performance', *International Journal of Productivity and Performance Management*, Vol. 56, No. 5, pp.484–499.
- Maull, R., Brown, P. and Cliffe, R. (2001) 'Organisational culture and quality improvement', *International Journal of Operations & Production Management*, Vol. 21, No. 3, pp.302–326.
- McAdam, R. and Fulton, F. (2002) 'The impact of the ISO 9001:2000 quality standards in small software firms', *Managing Service Quality*, Vol. 12, No. 5, pp.336–345.
- McCullough, L. and Laurie, A. (2005) 'ISO 9001: after registration, then what?', *Proceedings of ANTEC Annual Technical Conference*, Vol. 3.
- McDermott, R. and O.Dell, C. (2001) 'Overcoming cultural barriers to sharing knowledge', *Journal of Knowledge Management*, Vol. 5, No. 1, pp.76–85.
- Memshankar (2008) *20 Factors for 20 Years of Mobile Communications*, available at <http://memshankar.wordpress.com/2007/09/08/20-facts-for-20-years-of-mobile-communicationsgsm/>.
- Mo, J. and Chan, M. (1997) 'Strategy for the successful implementation of ISO 9000 in small and medium manufactures', *The TQM Magazine*, Vol. 9, No. 2, pp.135–145.
- Mohammed, O. (2005) 'Identifying the barriers that affecting quality in maintenance in Libyan manufacturing organisations', Unpublished PhD Thesis, University of Salford, UK.
- Murray, E. and McAdam, R. (2007) 'A comparative analysis of quality management standards for contract research organisations in clinical trials', *International Journal of Health Care Quality Assurance*, Vol. 20, No. 1, pp.16–33.
- Najmi, M. and Kehoe, D. (2000) 'An integrated framework for post-ISO 9000 quality development', *International Journal of Quality & Reliability Management*, Vol. 17, No. 3, pp.226–258.
- Naslund, D. (2002) 'Logistics needs qualitative research- especially action research', *International Journal of Physical Distribution & Logistics Management*, Vol. 17, No. 3, pp.226–258.
- Oakland, J. (2000) *Total Quality Management: Text with Cases*, Second edition, Butterworth Heinemann.
- Oxford Dictionary (2001) 10th revised edition, Oxford University Press.
- Park, D., Kim, H., Kang, B. and Jung, H. (2007) 'Business values of ISO 9000:2000 to Korean shipbuilding machinery manufacturing enterprises', *International Journal of Quality & Reliability Management*, Vol. 24, No. 1, pp.32–48.
- Patton, M. (2002) *Qualitative Research and Evaluation Methods*, 3rd edition, Sage, Thousand Oaks, CA.
- Perry, C. (1998) 'Process of a case study methodology for postgraduate research in marketing', *European Journal of Marketing*, Vol. 32, No. 9, pp.785–802.
- Poksinska, B., Eklund, J. and Dahlgaard, J. (2006) 'ISO 9001:2000 in small organisation lost opportunities, benefits and influencing factors', *International Journal of Quality & Reliability Management*, Vol. 23, No. 5, pp.490–512.
- Quazi, H., Hong, C. and Meng, T. (2002) 'Impact of ISO 9000 certification on quality management practices: a comparative study', *The TQM Magazine*, Vol. 13, No. 1, pp.53–57.
- Rohitratana, K. and Boon-Itt, S. (2001) 'The implementation of ISO 9000 in Thai seafood processing industry: an empirical study', *Integrated Management: Proceedings of the 6th International Conference on ISO 9000 and TQM*, pp.477–482.
- Russell, R. and Taylor, B. (2002) *Operations Management*, 4th ed., Prentice Hall.
- Sampaio, P., Saraiva, P. and Rodrigues, A. (2009) 'ISO 9001 certification research: questions, answers and approaches', *International Journal of Quality & Reliability Management*, Vol. 26, No. 1, pp.38–58.
- Samson, P., Rowland-Jones, R. and Thomas, A. (2009) 'The implementation of a quality management system in the not-for-profit sector', *The TQM Magazine*, Vol. 21, No. 3, pp.273–283.

- Santos, L. and Escanciano, C. (2002) 'Benefits of the ISO 9000 (1994) system: some considerations to reinforce competitive advantage', *International Journal of Quality & Reliability Management*, Vol. 19, No. 3, pp.321–344.
- Saunders, M., Lewis, P. and Thornhill, A. (2007) *Research Methods for Business Students*, 4th edition, Financial Times Prentice Hall, London.
- Sharif, I. (2005) 'The barriers affecting the implementation of quality management system-ISO 9000 in Libyan manufacturing public sector organisation', Unpublished PhD Thesis, University of Salford, UK.
- Sharp, J., Balzarova, M., Castka, P. and Bamber, C. (2003) 'Problems and barriers in implementation of process-based quality management systems-UK: multiple case study perspective', *Proceedings of 8th International Conference on ISO 9000 and TQM*, Montreal, Canada, pp.134–140.
- Silverman, D. (1993) *Interpreting Qualitative Data*, pp.144–170, Sage, London.
- Singels, J., Ruel, G. and Van-de-Water, H. (2001) 'ISO 9000 series: certification and performance', *International Journal of Quality & Reliability Management*, Vol. 18, No. 1, pp.62–75.
- Stanies, A. (2000) 'Benefits of an ISO 9001:2000 certification', *International Journal of Health Care Quality Assurance*, Vol. 13, No. 1, pp.27–33.
- Stevenson, T. and Barnes, F. (2001) 'Fourteen years of ISO 9000: impact, criticisms, costs and benefits', *Business Horizons*, June, pp.45–51.
- Stone, R. (2002) *Human Resource Management*, 4th edition, John Wiley & Sons, Australia, LTD.
- Sun, H., Hui, I., Tam, A. and Frick, J. (2000) 'Employee involvement and quality management', *The TQM Magazine*, Vol. 12, No. 5, pp.350–354.
- Sung, J. and Ashton, D. (2005) 'Achieving best practice in your business: high performance work practices: linking strategy and skills to performance outcomes', DTI in association with CIPD, London.
- Tannock, J., Balogun, O. and Hawisa, H. (2007) 'A variation management system supporting six sigma', *Journal of Manufacturing Technology Management*, Vol. 18, No. 5, pp.561–575.
- Tayyara, G., Nasser, A. and Ghadban, G. (2000) *The Quality and Its Role in Economical Development*, available at <http://www.mafhoum.com/syr/articles>.
- Terziovski, M., Power, D.J. et al. (2003) 'The longitudinal effects of the ISO 9000 certification process on business performance', *European Journal of Operational Research*, Vol. 146, pp.580–595.
- Torre, P., Adenso-Diaz, B. and Gozales, B. (2001) 'Empirical evidence about managerial issues of ISO certification', *The TQM Magazine*, Vol. 13, No. 5, pp.355–360.
- Val, M., Cruz, T., Moreno, M., Benavent, F. and Fuentes, C. (2003) 'ISO 9000-based quality assurance approaches and their relationship with strategic analysis', *International Journal of Quality & Reliability Management*, Vol. 20, No. 6, pp.664–690.
- Wealleans, D. (2000) *The Quality Audit for ISO 9001: A Practical Guide*, Gower Press, Aldershot, Hampshire, England.
- Wiele, A., Williams, A., Brown, A. and Dale, B. (2001) 'The ISO 9000 series as a tool for organisational change: is there a case?', *Business process Management Journal*, Vol. 7, No. 4, pp.323–331.
- Withers, B. and Ebrahimpour, M. (2001) 'Impact of ISO 9000 registration on European firms: a case analysis', *Integrated Manufacturing Systems*, Vol. 12, No. 2, pp.139–151.
- Yahya, S. and Goh, W. (2001) 'The implementation of an ISO 9000 quality system', *International Journal of Quality & Reliability Management*, Vol. 18, No. 9, pp.139–151.
- Yeung, G. and Mok, V. (2005) 'What are the impacts of implementing ISOs on the competitiveness of manufacturing industry in China?', *Journal of world Business*, Vol. 40, No. 2, pp.139–157.
- Yin, R. (2009) *Case Study Research: Design and Methods*, 4th edition, Sage Publications.
- Zeng, S., Tian, P. and Tam, C. (2007) 'Overcoming barriers to sustainable implementation of the ISO 9001 system', *Management Auditing Journal*, Vol. 22, No. 3, pp.244–254.

Appendix 1*List of common barriers affecting the implementation of ISO 9001:2000 certification, found in the literatures*

	<i>The barrier</i>	<i>The researcher' name, the year of its publishing</i>
1	Top management commitment	Amar and Zain (2002), Al-Khalifa and Aspinwall (2000), Quazi et al. (2002), Tayyara et al. (2000), Al-Zamany et al. (2002), Fuentes et al. (2000), Withers and Ebrahimpour (2001), Chin et al. (2000), Sharif (2005), Bhuiyan and Alam (2005), Al-Madi (2005) and Al-Haj (2006)
2	Organisational cultural	Al-Zamany et al. (2002), Awan and Bhatti (2003), Fuentes et al. (2000), Al-Khalifa and Aspinwall (2000), Sharp et al. (2003), Tayyara et al. (2000), Najmi and Kehoe (2000), Glover and Siu (2000) and Al-Haj (2006)
3	Lack of understanding ISO 9000 standards and the requirement.	Al-Zamany et al. (2002), Casadesus and Karapetrovic (2003), Yahya and Goh (2001), Chin et al. (2000), Besekese and Cebeci (2001), Sharp et al. (2003), Curry and Kadesh (2002), Fuentes et al. (2000), Al-Khalifa and Aspinwall (2000), Balzarova et al. (2002), Tayyara et al. (2000), Withers and Ebrahimpour (2001), Sharif (2005) and Al-Haj (2006)
4	Lack of human resources	Fuentes et al. (2000), Amar and Zain (2002), Al-Zamany et al. (2002), Tayyara et al. (2000), Najmi and Kehoe (2000), Sharif (2005) and Boiral and Roy (2007)
5	Lack of education and training programs.	Najmi and Kehoe (2000), Al-Khalifa and Aspinwall (2000), Al-Haj (2006), Tayyara et al. (2000), Sharif (2005), Balzarova et al. (2002), Sharp et al. (2003), Awan and Bhatti (2003) and Glover and Siu (2000)
6	Lack of financial resources	Al-Khalifa and Aspinwall (2000), Awan and Bhatti (2003), Amar and Zain (2002), Fuentes et al. (2000), Al-Zamany et al. (2002), Najmi and Kehoe (2000), Glover and Siu (2000) and Tayyara et al. (2000)
7	Lack of motivation	Poksinska et al. (2006), Martinez-Costa and Martinez-Lorente (2007) and Sharif (2005)
8	Lack of communication in the organisation	Sharp et al. (2003), Al-Zamany et al (2002), Balzarova et al (2002), Glover and Siu (2000), Sharif (2005) and Al-Haj (2006)
9	Lack of time required for ISO 9000 implementation	Sharp et al. (2003), Balzarova et al. (2002) and Withers and Ebrahimpour (2001)
10	High cost of ISO 9000 certification	Fuentes et al. (2000), Stevenson and Barnes (2001), Glover and Siu (2000), Magd (2006), Tayyara et al. (2000) and Sharif (2005)
11	Lack of documentation	Yahya and Goh (2001), Besekese and Cebci (2001), Tayyara et al. (2000) and Al-Haj (2006)
12	Lack of clear vision and mission	Balzarova et al. (2002), Quazi et al. (2002), Tayyara et al. (2000), Balzarova et al. (2002) and Sharif (2005)
13	Lack of availability information	Amar and Zain (2002), Al-Khalifa and Aspinwall (2000), Najmi and Kehoe (2000) and Fuentes et al. (2000)

List of common barriers affecting the implementation of ISO 9001:2000 certification, found in the literatures (continued)

	<i>The barrier</i>	<i>The researcher' name, the year of its publishing</i>
14	Lack of customer satisfaction	Quazi et al. (2002), Fuentes et al. (2000), Tayyara et al. (2000), Al-Zamany et al. (2002), Najmi and Kehoe (2000) and Casadesus and Karapetrovic (2003)
15	Lack of ISO 9000 awareness	Chin et al. (2000), Al-Zamany et al. (2002), Awan and Bhatti (2003) and Al-Haj (2006)
16	Lack of employee involvement	Awan and Bhatti (2003), Fuentes et al. (2000), Sharif (2005) and Park et al. (2007)
17	Limited calibration providers	Awan and Bhatti (2003), Yahya and Goh (2001), Fuentes et al. (2000) and Sharif (2005)
18	Lack of proper supplier relationship	Quazi et al. (2002), Yahya and Goh (2001), Fuentes et al. (2000), Kruger (2001), Al-Haj (2006) and Sharif (2005)
19	Lack of national quality standards, consultant, advisor and quality certification body	Sharp et al. (2003), Fuentes et al. (2000), Al-Haj (2006) and Zeng et al. (2007)
20	Lack of process	Rohitratana and Boon-Itt (2001), Boiral and Roy (2007), Al-Haj (2006), Sharp et al. (2003) and Sharif (2005)
21	Resistance to change	Sharif (2005), Withers and Ebrahimpour (2001), Sharp et al. (2003), Al-Zamany et al. (2002), Tayyara et al. (2000), Curry and Kadash (2002), Balzarova et al. (2002) and Al-Haj (2006)

Appendix 2

Case studies companies

1 Zain

Zain is the new name for the largest mobile company in Jordan, which was known as Fastlink until 2007. Founded in 1995, it was the first operator to introduce mobile phone services in Jordan. In January 2003, Mobile Telecommunications Company (MTC) of Kuwait acquired 91.6% of Fastlink in what was widely considered the largest single acquisition in the Middle East area and the largest private sector investment in Jordan. Zain holds a 15-year licence which expires in 2020 but which will be automatically renewed if the licensee has operated successfully and in accordance with the law (TRC, 2008).

Zain has network coverage of over 99.9% of the populated areas in Jordan, despite the challenging geography of the country: 70% of the network is over mountainous terrain, which requires superior network design and maintenance capabilities. Through an aggressive rollout of a dense microcellular network, Zain has also achieved a high degree of indoor penetration, with high quality voice and data communications (Global Research, 2006).

Zain has over 1100 direct employees, who are almost all Jordanian, and has created indirect job opportunities for thousands more. It has around 2.25 million customers and a

market share of 39%. Its strategic plan is to operate in seven Arab countries and fourteen African nations, with 32 million customers. Thus, the Jordanian company will be a member of a group that aims to become one of the top ten mobile operators in the world in 4 years (Zain, 2008).

2 *Orange*

Orange is Jordan's second mobile network, launched in September 2000 under the name of Mobilcom. In 2007 Orange bought 60% of Mobilcom shares and the company adopted the famous Orange brand name.

Orange plays a prominent role in the information and communications technology sector. Its fixed, mobile and internet services constitute the real base for Jordan's telecommunications renaissance and contribute to its integration with the regional and the wider world.

Orange employs 620 people in its mobile business in Jordan, where its network coverage is currently over 99.9%. There were around 1.71 million mobile subscribers at the end of 2007, earning Orange 33.5% of the market. Like Zain, Orange holds a 15-year licence ending in 2020, which will be automatically renewed if it is found to have operated successfully and in accordance with the law (TRC, 2008).

3 *Umniah*

The Umniah mobile company became the fourth mobile telecommunication provider in Jordan in August 2004. Bagrain-basem Batelco acquired a 96% stake in the company in June 2006. Six months after its launch in June 2005, Umniah attracted 300,000 active subscribers, which represents a 10% market share in the country. By December 2006, Umniah's market share had increased to 17% and at the end of 2007 it stood at 26.2% (TRC, 2008).

Umniah's services, which are targeted at Jordan's youth and low-income groups, include mobile phone and internet connection services. It was the first mobile operator in Jordan to offer per-second billing to its subscribers.

4 *Xpress*

Xpress became the third private mobile company in Jordan when it launched its wireless and mobile services in June 2004. Xpress claims to be the first Arab company to offer a new form of telecommunication solutions based on the integrated digital enhanced network technology which combines the abilities of ordinary mobile phones with those of instantaneous direct connect (walkie-talkie) services.

Xpress currently has over 200 employees, 98% of whom are Jordanian. The national network covers 95% of populated areas. In December 2007, Xpress subscribers represented a 1.3% market share (TRC, 2008).

Appendix 3

Interview questions for top management in certified organisation

1 What is your knowledge about ISO 9000 standards?

- 2 Have you been receiving any training programme related to ISO 9000 standards?
- 3 Why did your organisation decided to go for ISO 9000 certification?
- 4 Do you feel that the organisation have received the benefits that was planning to? Why?
- 5 Is the purposes and the benefits of the ISO 9000 certification understood among the employees in the organisation during the implementation process, and after you got the certification? Why?
- 6 How did your organisation implement the ISO 9000 standards?
- 7 What were the barriers that your organisation faced during the certification process?
- 8 Could you divide these barriers into three parts, before implementing ISO, in the process of implementing ISO, after you got the certification?
- 9 How did the organisation overcome these barriers?
- 10 What was the period time your company spent to get the ISO 9001:2000 certification? Why?
- 11 If you would go through the implementation again, what would you do differently?
- 12 Have the responsibilities, authorities, involved and empower the employees defined in the organisation? Why?
- 13 Who is your calibration body? Why?
- 14 What were the changes required in your organisation to satisfy the system?
- 15 Did you face any problems when making these changes? Why?
- 16 How does your organisation, individuals' culture affect the implementation process?
- 17 What are the barriers affecting maintenance of the system?
- 18 How do you maintain the system? Why?
- 19 How does the organisation identify and trace its problems?
- 20 Is there are any other issues about implementing the ISO 9000 that you want to discuss?

Interview questions for middle and shop floor management levels in certified organisation

- 1 What is your knowledge about ISO 9000 standards?
- 2 Did you receive any training courses related to ISO 9000 certification?
- 3 How did your department implement the ISO 9000 system?
- 4 Is the purposes and the benefits of the ISO 9000 certification understood among the employees in your department? Why?
- 5 Are all work procedures and instruction identified? If not, why?

- 6 What are the barriers that affected the implementation of ISO 9000 system?
- 7 How does the organisation identify and trace its problems?
- 8 How these barriers affected implementing the system?
- 9 How your department overcome the barriers and obstacles of implementing the ISO 9000 system?
- 10 What are the barriers your department faced while maintaining the system? Why?
- 11 What are the main issues raised while conducting the internal auditing program?
- 12 What were the changes required in the organisation to satisfy the system?
- 13 Did you face any problems when making these changes? Why?
- 14 If you would go through the implementation again, what would you do differently?
- 15 What was your role in helping implementing the system?
- 16 How does the management involve and empower the employees? Why?
- 17 How does the organisation identify and trace its problems?
- 18 Have the organisation use the appropriate IT and MIS in exchange the information? Why?
- 19 Are the customer's requirements addressed in the product design processes in the organisation? Why?
- 20 Does your department document and review all documents, records, results and procedures related to quality and maintain them? If not, Why?
- 21 Is there any other issues about implementing the ISO 9001:2000 that you want to discuss?

Interview questions for top management in the organisation in the process to get ISO certification

- 1 What is your knowledge about ISO 9000 standards?
- 2 Have you been receiving any training programme related to ISO 9000 standards?
- 3 Are their any future training programs to the employees related to quality? Why?
- 4 Why did your organisation decided to go for ISO 9000 certification?
- 5 Is the purposes and the benefits of the ISO 9000 certification understood among the employees in the organisation during the implementation process, and after you got the certification? Why?
- 6 How did your organisation implement the ISO 9000 standards?
- 7 What were the barriers that your organisation faced during the certification process?
- 8 Could you divide these barriers into two parts, before implementing ISO, and during the process of implementing ISO?

- 9 How did the organisation overcome these barriers?
- 10 What was the period time your company spent until now in the process to get the ISO 9001:2000 certification? Why?
- 11 Have the responsibilities, authorities, involved and empower the employees defined in the organisation? Why?
- 12 Who is your calibration body? Why?
- 13 What were the changes required in your organisation to satisfy the system?
- 14 Did you face any problems when making these changes? Why?
- 15 How does your organisation, individuals' culture affect the implementation process?
- 16 How does the organisation identify and trace its problems?
- 17 Is there are any other issues about implementing the ISO 9000 that you want to discuss?

Interview questions for middle and shop floor management levels in the organisation in the process to get ISO certification

- 1 What is your knowledge about ISO 9000 standards?
- 2 Did you receive any training courses related to ISO 9000 certification?
- 3 Are their any future training programs to the employees related to quality? Why?
- 4 Is the purposes and the benefits of the ISO 9000 certification understood among the employees in your department? Why?
- 5 Are all work procedures and instruction identified? If not, why?
- 6 What are the barriers that affected the implementation of ISO 9000 system?
- 7 Could you divide these barriers into two parts, before implementing ISO, and during the process of implementing ISO?
- 8 How does the organisation identify and trace its problems?
- 9 What were the changes required in the organisation to satisfy the system?
- 10 Did you face any problems when making these changes? Why?
- 11 What was your role in helping implementing the system?
- 12 How does the management involve and empower the employees? Why?
- 13 Have the organisation use the appropriate IT and MIS in exchange the information? Why?
- 14 Are the customer's requirements addressed in the product design processes in the organisation? Why?
- 15 Does your department document and review all documents, records, results and procedures related to quality and maintain them? If not, Why?

- 16 Is there any other issues about implementing the ISO 9001:2000 that you want to discuss?

Interview questions for top management in non certified organisation

- 1 What is your knowledge about ISO 9001:2000 standards?
- 2 Have you been receiving any training related to ISO 9001:2000 standards?
- 3 Is there any training courses for your staff in any type of quality related issues?
- 4 Are you aware of the benefits of the ISO 9001:2000 system?
- 5 Why your organisation did not sought yet the ISO 9001:2000 certification?
- 6 What are the barriers facing the organisation to start implement ISO 9001:2000 standards?
- 7 What is the quality management system that is implemented now in the organisation?
- 8 How do you evaluate the communication and coordination between the sections within your departments? Why?
- 9 How do you evaluate the services that you are delivering to the customers? Do you think it's satisfactory? Why?
- 10 How does your organisation measure its customer satisfaction and is that sufficient for now?
- 11 Are the customer's requirements addressed in the product design processes in the organisation?
- 12 How do you evaluate the documentation level in your organisation? Is the work procedures and instructions are well documented? If not, why?
- 13 How do you evaluate your organisation readiness to go for ISO 9001:2000 certification? Why?
- 14 Have the responsibilities and authorities defined and deployment in the organisation? How?
- 15 How does your department identify and trace the problems?
- 16 Is there any empowerment and involvement for the employees in your department? Why?
- 17 How is the coordination and communication between different departments?
- 18 How is the communication between your department and the customers?
- 19 Is there any other issues about implementing the ISO 9001:2000 that you want to discuss?