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Motivations, Barriers and Benefits in the Adoption of ISO 14001 in Saudi Organizations

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Abstract: *Purpose* – The limited literature on the topic of standards adoption in the Middle East initiated this research, which aims to explore and identify the motivations, barriers, benefits, and relationships between motivations and benefits found by Saudi companies in adopting the ISO 14001 certification.

Method – An extensive review of the academic literature published on ISO 14001 motivations, barriers and benefits has been carried out in order to prepare the instrument that was used to explore these issues empirically in Saudi Arabia. For this purpose, primary data were collected using a field structured survey questionnaire that was administered to a representative sample of companies in Riyadh. The survey identified the organizations' characteristics, such as size and business sector, in addition to motivations, barriers and benefits, in order to study all the interactions that could arise.

Findings – The results of the study revealed that the main drivers motivating Saudi Arabian companies to adopt ISO14001 are meeting the regulatory requirements and improving efficiency. This is linked with improvements in corporate image and top management commitment. Cost savings are another optimal motivational factor influencing the implementation of the standard. There are also several main barriers to the ISO 14001 certification of organizations in Saudi Arabia. The limited support or guidance from the government to different sectors is perceived as the most salient factor that hinders Saudi companies from adopting ISO14001. Also important are the negative attitude towards documentation, lack of financial support to assist firms in the implementation of ISO 14001, and high fees paid to consultancy agencies and to accreditation agencies to implement ISO 14001. The main benefits that companies obtain from ISO 14001 certification consist of increased competitive and financial advantages due to reduced costs and improved efficiency, reduction of waste, water and energy consumption, improved company reputation and enhanced environmental performance

through supplier integration. The motivations that drive the adoption of the ISO 14001 standard seem to be positively related to the companies' reputation, supplier integration and staff motivation. While motivations positively affect reputation, operations and staff motivation, internal barriers make the adoption and implementation of the ISO 14001 standard more difficult. Top management perceptions of the limited usefulness of the standard promote an environment where both employees and top management feel that the adoption of the ISO 14001 standard does not bring any desired benefits. Overall, the study suggests that companies in Saudi Arabia are not motivated to voluntarily consider ISO 14001 certification because there are no strong internal or external pressures to do so; however, following the launch of Saudi vision 2030, the government should develop strategies, policy reforms and incentive schemes to reduce the barriers to adopting and implementing ISO 14001. The study also highlights the fact that financial barriers are not always challenges for adopting ISO 14001 in emerging economies and underscores the need for regulatory strategies and enforcement by the government.

Research Limitations – The number of ISO 14001-certified companies listed with ISO in Saudi Arabia is still small, which affected the data collection and analysis of the motivations, barriers, and relationship with perceived benefits.

Originality/value – This study contributes to the body of knowledge in the area of environmental management systems with particular interest in Saudi Arabia, where the implementation of ISO 14001 remains slow. The results of this study provide greater insights to researchers, Saudi companies, and other stakeholders in an effort to encourage greater implementation of ISO 14001.

Keywords: ISO 14001, Motivations, Barriers, Benefits, Saudi Arabia

1. INTRODUCTION

The motivations, barriers, and benefits of acquiring ISO 14001 certification are different in different economies due to their contexts and local priorities. According to Cassel (2011), these variations are due to the variables that determine the decisions that drive the certification process. In developing economies, demands and environmental awareness have forced companies to take into consideration the environmental issues associated with the life cycle of their products to protect their environment (Zorpas, 2010). Other factors associated with ISO 14001 certification issues include the crucial requirement among customers from European-based economies and the trend of refusal by certified firms to engage in business with non-certified firms, locally or internationally. This trend has increased due to the demanding environmental legislation in developed countries, and companies today are required to consider the environmental aspects associated with the life cycle of their products and implement suitable Environmental Management Systems (EMS) to reduce waste and protect the environment.

The variations on the motivations and benefits of the EMS are also credited with a range of other autonomous variables that shape the priorities and decisions that drive the demand for the acquisition of certification, which is influenced by the markets, especially in developing economies (Cassel, 2011). As a result, exporters from developing economies will continue to encounter increasing pressure from their trade affiliates in developed nations to embark on EMS implementation as a way of showing that they abide by the regulations of ISO 14001 (Emilson and Hjelm, 2002). Hence, the implementation of an EMS can be an appropriate initial step for those companies wishing to move towards more environmentally aware positions (Christini, Fetsko *et al.* 2004).

Consequently, the evolution of a reliable, accepted EMS has been largely influenced by regulatory shifts, market forces, public awareness and quality management in the developed world. In 1986, the negotiations of the World Trade Organization (WTO) focused on the minimization of non-tariff trade barriers, whereas the Rio Earth Summit of 1992 highlighted the need for commitment to environmental sustainability (Daiye, 2014). The main purpose of an EMS is to organize environmental structures and systems in such a way that an organization's environmental performance can improve continuously (Emilson and Hjelm, 2002). An EMS allows organizations to be systematic in the evaluation of their processes and activities with regard to interacting with the environment. Hence, an EMS controls these activities and ensures that established objectives and targets are being met. Organizations, therefore, implement such systems to maintain compliance with environmental requirements, decrease environmental costs, decrease risk rates, train employees, develop indicators of impact, and improve their overall environmental performance (Christini, Fetsko *et al.*, 2004). The ISO 14001 standard is one of several strategies that help build an effective environmental management system (EMS) in companies. Since the introduction of the ISO 14000 series in 1996, the number of companies seeking the certification has been increasing worldwide, reaching 319,324 in 2015.¹ The adoption level is different in different parts of the world, however, due to different regional contexts, as mentioned earlier. Table 1 presents the total number of ISO 14001 certified firms in six world regions as of 2015.

Table 1
Number and Percentage of ISO 14001-certified companies by region

	<i>Number</i>	<i>Percentage</i>
Africa	3,024	0.9%
Central / South America	9,925	3.1%
North America	8,712	2.7%
Europe	119,754	37.5%
East Asia and Pacific	165,616	51.9%
Central and South Asia	7,708	2.4%
Middle East	4,585	1.4%

Source: The ISO Survey of Management System Standard Certifications (1999-2015)

The table shows that firms in Europe and East Asia and the Pacific account for a significant proportion of companies that have adopted the ISO 14001 certification (89.4%). According to the statistics, Latin America, Africa and the Middle East together account for less than 5.5% of ISO 14001 certified organizations worldwide. Notably, companies from the Middle East region also account for an insignificant proportion, 1.4% in 2015, and even in this region there is a wide variance in adoption between countries, with the United Arab Emirates having 1,891 ISO 14001-certified companies and Yemen having only one (Figure 1). In comparison, Saudi Arabia also has some catching up to do with only 352 ISO 14001-certified companies in 2015.

Saudi Arabia started to implement the ISO 14001 standard in 1999 with only three organizations. However, as shown in Figure 2, by 2015, the number of companies certified had increased to 352.

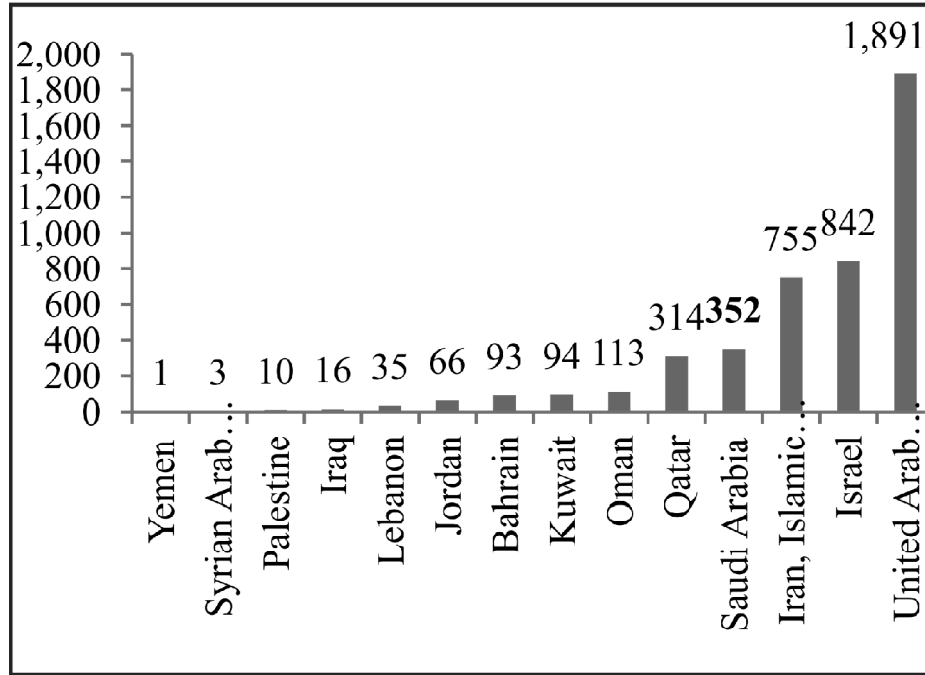


Figure 1: Number of ISO14001-certified companies in the Middle East in 2015

Source: The ISO Survey of Management System Standard Certifications (1999-2015)

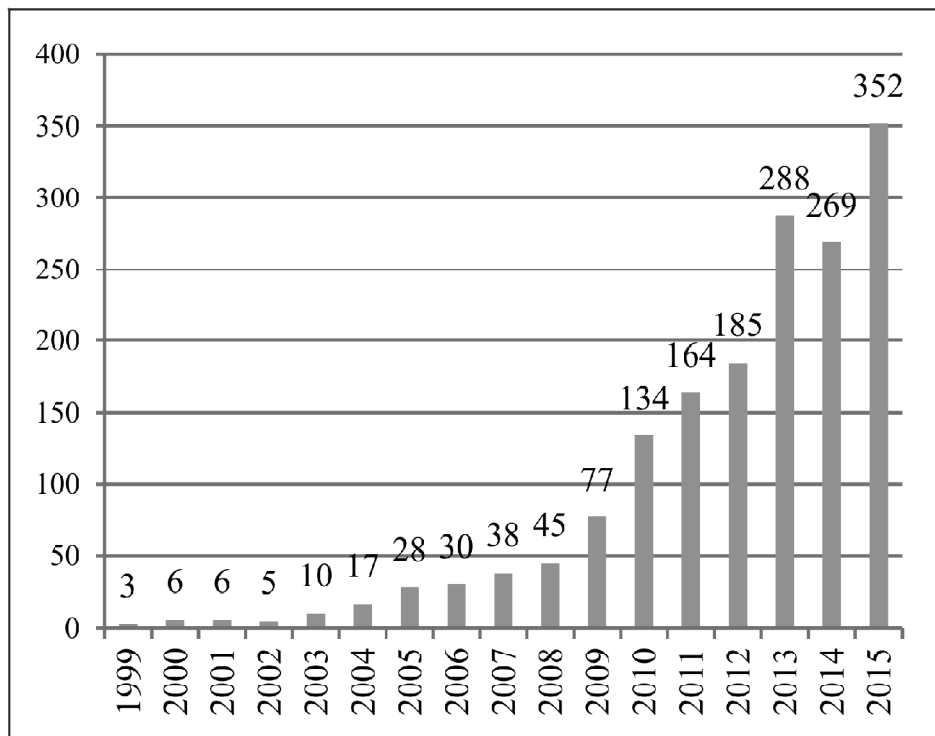


Figure 2: Number of ISO 14001-certified companies in Saudi Arabia from 1999-2015

Source: The ISO Survey of Management System Standard Certifications (1999-2015)

Studies related to the adoption and implementation of international environmental standards among the industrial sectors in developing countries are scarce, particularly in Saudi Arabia, where research in the industrial sector has focused on quality management systems. There is urgency for these studies, however, because the Saudi Arabian economy has been heavily dependent on oil and in April 2016, announced its Vision 2030, which aims to diversify the economy from oil dependence to the manufacturing and service sectors. Thus, it may be useful to conduct an empirical study to explore the challenges that companies face in ISO 14001 certification, what motivates these companies, and the perceived benefits that will accrue from achieving certification.

The purpose of this paper is to shed light on why ISO 14001 has been less attractive to Saudi firms compared to other countries in the GCC and in the world. Hence, this paper aims to explore and describe the practical driving forces and barriers associated with the adoption of ISO 14001 standards in an emerging economy in the Middle East. Theoretically, this work shall augment the knowledge in the domain of environmental management within the context of developing economies in the Middle East and in Saudi Arabia in particular.

Therefore, the main objectives of this study are as follows:

- To investigate the motivations, barriers, and benefits of ISO 14001 standards in Saudi Arabia.
- To investigate the relationship between these factors.
- To suggest appropriate measures/solutions to overcome the potential barriers and challenges and encourage greater adoption of ISO 14001.

The remainder of the paper is organized as follows. First, the literature on ISO 14001 implementation in developing countries is reviewed. Second, we build on insights from the literature review on ISO 14001 barriers, motivations, and benefits. Then, we discuss the research methodology and present the results of a survey directed to ISO 14001-certified Saudi Arabian companies. Finally, the paper concludes with recommendations, limitations and directions for future research.

2. LITERATURE REVIEW

2.1. Motivations for ISO 14001

There are several studies available regarding the motivations that drive the leading companies to implement the ISO 14001 standard. In general, the literature refers to two main approaches to explain companies' motivations towards the adoption and implementation of ISO 14001. The typologies of motivations developed by Bansal and Roth (2000) and Neumayer and Perkins (2005) reflect this duality between external and internal pressures. On the one hand, companies seem to adopt environmental standards because of *external pressures* coming from the market, the regulatory environment or society, and pressure from legal enforcement and incentive programmes from the government (Chavan, 2005; Liyin *et al.*, 2006; Yin and Ma, 2009). Another theory, however, criticizes this viewpoint and asserts that companies are dynamic and active and can respond in different ways through the development of unique resources and capabilities. The resource-based theory (Barney, 1991; Hart, 1995) attempts to explain companies' motivations based on internal pressures, focusing on the resources and capabilities that may lead to a sustainable competitive advantage. For example, Zushi and Sohal (2004) and Chavan (2005) emphasize that companies

are faced with continuous challenges when implementing and maintaining standards due to resistance from managers and staff. An effective implementation of the ISO 14001 standard requires internal motivation and strong leadership (Liyin *et al.*, 2006). A number of studies have also highlighted the existence of other drivers that appear to stem from internal pressures, such as corporate image, marketing advantages, commercial advantages and cost reductions (Quazi *et al.*, 2001; Fryxell and Szeto, 2002; Poksinska *et al.*, 2003; Gonzalez-Benito and Gonzalez-Benito, 2005; Turk, 2009).

Morad (2014) has explored the factors that motivate implementation of ISO 14001 in Malaysian packaging industries and found that top management concern about the environment is the main factor motivating ISO 14001 implementation. Other motivating factors include meeting customers' needs, compliance with environmental needs, and possible cost saving benefits. Table 2 summarizes the motivations for companies to adopt and implement the ISO 14001 standard.

Table 2
Motivation for ISO 14001 Certification

<i>Reasons/Motivations</i>	<i>Sources</i>
To meet regulation requirements and incentive programs from the governments	Prajogo <i>et al.</i> , (2012); Chavan, (2005); Liyin <i>et al.</i> , (2006); Yin and Ma, (2009); Bansal and Roth, (2000); Bansal and Hunter, (2003); Christini, Fetsko <i>et al.</i> (2004); Singels <i>et al.</i> (2001)
To increase efficiency	Brown <i>et al.</i> (1998), Bryde and Slocock (1998) Carlsson and Carlsson (1996), Llopis and Tari (2003)
To reduce costs	Poksinska <i>et al.</i> , (2003); Christini, Fetsko <i>et al.</i> (2004); Buttle (1997); Escanciano <i>et al.</i> (2001)
To improve corporate image	Quazi <i>et al.</i> , (2001); Fryxell and Szeto, (2002); Escanciano <i>et al.</i> (2001); Jones <i>et al.</i> (1997)
To gain market access	Bansal and Roth, (2000); Bansal and Hunter, (2003), Prajogo <i>et al.</i> , (2012); Cassel (2011); Escanciano <i>et al.</i> (2001); Singels <i>et al.</i> (2001)
To satisfy customers	Bryde and Slocock (1998), Carlsson and Carlsson (1996), Ebrahimpour <i>et al.</i> (1997), Escanciano <i>et al.</i> (2001), Jones <i>et al.</i> (1997), Krasachol <i>et al.</i> (1998), Lee (1998), Singels <i>et al.</i> (2001)
Supply chain pressures	Brown <i>et al.</i> (1998), Bryde and Slocock (1998)
Attention from environmental and community groups	(Zorpas, 2010), Escanciano <i>et al.</i> (2001), Christini, Fetsko <i>et al.</i> (2004)
Increase of employee environmental awareness	(Emilson and Hjelm, 2002)
Reduction of waste	Morad (2014),
Top management commitment	Morad (2014), Brown <i>et al.</i> (1998), Carlsson and Carlsson (1996), Escanciano <i>et al.</i> (2001)

2.2. Barriers to ISO 14001 certification

Several other studies have examined the barriers associated with the ISO 14001 adoption and implementation mainly from an empirical point of view. After an extensive review of the previous literature, this research

identified some common barriers that could hinder the adoption and implementation of ISO 14001 certification, as shown in Table 3 and Table 4.

Table 3
Internal Barriers to ISO 14001 Certification

<i>Internal Barriers</i>	<i>Sources</i>
Costs of changing the system to accommodate ISO 14001 are high	Ann <i>et al.</i> (2006); Poksinska <i>et al.</i> (2003); Del Brio <i>et al.</i> , (2001); Quazi (1999)
Lack of necessary knowledge and specialists in environmental issues/certified systems/ maintain continuous improvement of standard	Mark (2014), Boxall (2004)
Employees /top management feel there is no benefit in implementing ISO14001	Sumiani (2015); Boiral, (2007); Jiang and Bansal, (2003); Welch <i>et al.</i> , (2003)
No time to implement ISO 14001 due to competing priorities	Sumiani (2015)
The benefits associated to ISO14001 are not guaranteed	Yin & Schmeidler, (2009)
Implementing ISO 14001 will have no positive effects on the environment	Yin & Schmeidler, (2009)
Company is too small to get ISO 14001	Heras-Saizarbitoria <i>et al.</i> , (2013)
Lacks the necessary financial resources to Implement/ maintenance and improvement of ISO 14001	Poksinska <i>et al.</i> , (2003); Del Brio <i>et al.</i> , (2001); Quazi (1999)
Lack of government support and the fact that ISO 14001 is not being legally required or enforced by the government.	Masoud <i>et al.</i> , (2015), De Oliveira <i>et al.</i> (2010)

Empirical studies by Chin *et al.* (1998) and Ann *et al.* (2006) showed that the main barriers to the implementation of ISO14001 certification are the costs incurred during setup, long-term maintenance and improvements costs. Other studies have identified possible barriers in terms of training, commitment by management, documentation, periodic audits, implementation of corrective actions, workers' commitment and capital investment (Poksinska *et al.*, 2003; Del Brio *et al.*, 2001; Quazi, 1999). In addition, some companies have observed the lack of internalization and commitment from higher management and employees regarding the ISO 14001 adoption (Boiral, 2007; Jiang and Bansal, 2003; Welch *et al.*, 2003).

According to Psomas *et al.* (2011), the main barriers faced by Turkish companies when implementing ISO 14001 were specifically related to top management commitment, the lengthy registration process, and increased documentation and paper work, as well as increased expenses of the ISO 14001 EMS.

In a study that explored the problems of ISO 14001 implementation in China, a number of barriers were identified: lack of determination from some certifying bodies, high rivalry among certifying bodies, and the desire of certifying institutions to offer various services ranging from certification to consultation (Mark, 2014). For Sumiani (2015), the main factor obstructing ISO 14001 implementation is the lack of commitment by top management, also mentioned by Mark (2014). This factor is attributed to a range of issues that include low education quality, high turnover of top management, and lack of dedication and commitment by top management.

Table 4
External Barriers to ISO 14001 Certification

<i>External Barriers</i>	<i>Sources</i>
Little support or guidance on how to implement ISO14001 from government agencies	Massoud <i>et al.</i> (2015)
Limited sector specific guidance and materials tailored to different sizes of firms	Massoud <i>et al.</i> , (2015)
Fees paid to consultancy/ registration/ accreditation agencies for auditing agencies to implement ISO 14001 are high	Bansal and Bongger (2002); Prajogo <i>et al.</i> (2012); De Oliveira <i>et al.</i> (2010), Ratnasingam <i>et al.</i> (2009)
Poor legislative framework to assist firms in implementing ISO 14001	Massoud <i>et al.</i> , (2015); De Oliveira <i>et al.</i> (2010)
No financial support to assist firms in the implementation of ISO 14001	Bansal and Bongger (2002); Prajogo <i>et al.</i> (2012)
The required documentation for ISO 14001 is very complicated and large	Poksinska <i>et al.</i> (2003); Del Brio <i>et al.</i> , (2001); Quazi (1999)
Partners/customers/suppliers/government agencies demand or pressure companies to implement ISO 14001	Massoud <i>et al.</i> , (2015)

2.3. Benefits

The benefits associated with the adoption and implementation of ISO 14001 have been studied primarily from an empirical point of view. Many studies have confirmed the positive effects associated with the adoption of the standard in terms of gained competencies, increased efficiency and performance and improved competitiveness (Kollman and Prakash, 2002; Corbett and Russo, 2001; Bansal and Bogner, 2002; Melnyk *et al.*, 2002 Rondinelli and Vastag, 2000; King and Lenox, 2001; Link and Naveh, 2006). Specifically, these studies have highlighted the internal and external benefits of the certification. Other studies show that internal benefits have been associated with the improvement and rigor of environmental management practices, increased employee motivation and reinforced managerial leadership (Gonzales-Benito and Gonzales-Benito, 2008; King *et al.*, 2005; Russo, 2009). Similarly, the literature has also highlighted external benefits such as improved relations with various stakeholders, promotion of green practices, response to customer expectations and increased competitive advantage (Bansal and Hunter, 2003; Darnall *et al.*, 2008; Fortunski, 2008; HWeeNga, 2009; Melnyk *et al.*, 2003).

This insight is supported by Kafel, (2014), who classifies the benefits as internal and external. Internal benefits are linked to organizational improvement, while external benefits involve the improvement of the promotional and marketing aspects of a business. Additionally, Al-Darrab (2012) explored various groups of benefits of ISO 14001 certification from an internal perspective. For example, the corporate management benefits include a reduction in the number of complaints from consumers, improved profitability, waste reduction, resource savings and increased social recognition. The marketing effects involve increased customer confidence, increased market share, and better corporate image. The supplier relations benefits are realized through improved association with suppliers, promoting ISO 14001 certification, better control over suppliers and improved environmental awareness among suppliers.

Table 5
Benefits of ISO 14001 Certification

<i>Benefits</i>	<i>Sources</i>
Improved product and/or service quality	Kollman and Prakash, 2002; Corbett and Russo, 2001; Arauz and Suziki (2004), Brown <i>et al.</i> (1998), Escanciano <i>et al.</i> (2001), Singels <i>et al.</i> (2001)
Reduction in incidents, rejections and complaints	Arauz and Suziki (2004), and Escanciano <i>et al.</i> (2001)
Increased productivity and/or efficiency	King and Lenox, 2001; Link and Naveh, 2006; Buttle (1997), Dick (2000), Gotzamani and Tsiotras (2002), Häversjö (2000), Jones <i>et al.</i> (1997), Lee (1998), Santos and Escanciano (2002)
Reduced internal costs	Arauz and Suziki (2004), Buttle (1997), Escanciano <i>et al.</i> (2001)
Improved profitability	Iatridis & Kesidou, 2016), Arauz and Suziki (2004), Buttle (1997), Dick (2000), Gotzamani and Tsiotras (2002), Häversjö (2000), Jones <i>et al.</i> (1997), Lee (1998), Santos and Escanciano (2002)
Increased workforce motivation and retention	Buttle (1997), Brown <i>et al.</i> (1998), Escanciano <i>et al.</i> (2001), Gotzamani and Tsiotras (2002), McLachlan (1996)
Employees become more quality aware	Brown <i>et al.</i> (1998), Chow-Chua <i>et al.</i> (2003), Dick (2000), Quazi and Padibjo (1998), Tsiotras and Gotzamani (1996)
Improved processes and procedures	Arauz and Suziki (2004), Chow-Chua <i>et al.</i> (2003), Poksinska <i>et al.</i> (2002)
Elimination of redundancy or unnecessary work	Chow-Chua <i>et al.</i> (2003), McLachlan (1996)
Better working environment	Escanciano <i>et al.</i> (2001)

The benefits of ISO 14001 implementation have been further distinguished between business performance and environmental performance benefits. The environmental performance benefits include a reduction in the level of pollutant emissions and utilization of recycled materials, among other environmental benefits that have not yet been comprehensively examined. From the business performance perspective, the realized benefits include the expansion of business through foreign employees, increased sales and productivity per employee, investment in research and development and expansion of the gross profit margin on an annual basis (Tambunlertchai, 2013).

Karim (2015) examined ISO 14001-certified firms in Saudi Arabia and concluded that three most significant benefits of ISO 14001 adoption are an improvement in quality systems efficiency, improved documentation processes and increased organizational quality awareness.

2.4. Relationship between motivations and benefits in the adoption of ISO 14001

While there have been credible research efforts to explore the motives of the ISO 14001 certification and implementation, little research has been undertaken regarding the impact of these initiatives on economic benefits and competitive advantage in the emerging economies. Perhaps it would be encouraging for industries in Saudi Arabia to adopt ISO 14001 if there was a demonstration of a clear, significant and observable

correlation between implementation efforts and benefits sustained. This is also crucial for the promotion of environmental management and sustainable development.

The study by To and Tang (2013), examining the adoption of ISO 14001 in Macao, China, highlighted that the perceived benefits of adopting the standard were strongly associated with the overall level of motivation. The top motivating factors included the promotion of environmental awareness among employees, better management of environmental regulatory compliance, and improved efficiency. Such initiatives led to improvements in enhancing employees' awareness of pertinent environmental regulations, enhancing the organizational image, and assisting management in addressing environmental issues. Heras-Saizarbitoria *et al.* (2011) conducted an extensive study about the motivations for and benefits of implementing ISO 14001. The study claimed that managers perceived substantial operational, managerial, and competitive benefits for organizations that adopted the standard. They found that the most highly rated benefits were compliance with environmental laws and regulations, followed by improved environmental effectiveness, fewer environmental problems, and improved customer satisfaction. Other studies have shown that organizations gained more benefits from adopting and implementing ISO 14001 when they were more strongly motivated (Chan and Wong, 2006; Heras-Saizarbitoria *et al.*, 2011). At the same time, however, the link between the motivations for adoption of the environmental standards and improvements in the competitiveness and other benefits for organizations in the Middle Eastern Region, and Saudi Arabia in particular, remains unclear.

There are many research initiatives, as mentioned above, exemplifying the motivations for adopting ISO 14001 and others investigating the perceived economic and business benefits for the firm (Klassen, 1996). This study, however, has not identified literature that empirically tests the relationship between motivations and management's perceived benefits for the adoption of ISO 14001 in emerging economies, including Saudi Arabia. This lack of research makes this study exploratory and pioneering in nature, especially in the Saudi Arabian context, for which few field-based or empirical studies are available.

3. METHODOLOGY

This research was based on a survey questionnaire for Saudi Arabian firms designed to assess the motivations, barriers, benefits and relationships among all three in adopting the ISO 14001 standard. The instrument was derived from the literature review and was adjusted to provide additional clarity to the questions and to suit the Saudi Arabian context. In the first stage, the questionnaire was validated by carrying out a pre-test in six companies belonging to different sectors that had implemented the ISO 14001 standard. The questionnaire was sent via e-mail or hand delivered personally to senior executives, explaining and justifying its main objectives. Based on the results of this pre-test, some questions were removed and others were rewritten, according to suggestions made by companies that participated in the pre-test. The main goal of this first stage was to identify possible difficulties with the interpretation of the questionnaire and to eliminate or reformulate questions that were unanswerable. The questionnaire was modified accordingly based on the feedback and finalized.

Both qualitative and quantitative questions were utilized depending on the nature of the question and the available data. Quantitative questions used a five-point Likert scale ranging from strongly agree (1) to strongly disagree (5) and from (1) most important to (5) not important. The questionnaire contains four different sections and eighteen questions. The first section asked about general information, such as the

business sector of the company, the number of employees and the types of certifications already obtained. This type of information is both useful and necessary in order to establish relationships with data about the implementation experience. Based on the responses to the first question, where the organizations indicate their business sector, the main sectors that the companies surveyed belonged to could be categorized. The second classification by size was based on the answers to the question of whether the company was an SME or a large enterprise, as well as on the number of employees.

The second section focused on motivations, barriers and benefits. This part was intended to investigate the key drivers that motivate organizations to implement ISO 14001. Different options were given to the respondents, who were asked to select the appropriate ones and rank them. The next section explored the barriers to implementation. With a similar structure, different options of internal and external barriers were given to the respondents, who indicated the most suitable and ranked them. The objective of this portion was to study the main difficulties that appear in the implementation process and determine which barriers are more restrictive, the internal or the external ones. The final section was based on the benefits that the organizations obtained from their environmental management systems in order to examine if their expectations were realized and if they thought the implementation was justified.

The questionnaire, created in Google Docs, was sent by e-mail or hand delivered personally to a representative sample of private Saudi companies from different sectors located in the capital city of Riyadh with a certified environmental management system, along with a cover letter describing the objectives of the research and instructions on how to fill out the survey.

The questionnaire was completed by 38 companies but only 27 were validated, for a response rate of 52%. In a way, this was a convenience sampling for a developing country at a stage when the awareness of the ISO 14001 standard is still low, leading to difficulties in data collection. Saudi Arabia began to implement the ISO 14001 standard in 1999 with only three organizations, and in 2015, there were still only 352 certified organizations.

Once the data were collected, the next step consisted of the analysis and interpretation of that data. An Excel file was created with the collected data that was then exported to SPSS 24 (Statistical Package for Social Sciences).

4. RESULTS AND DISCUSSION

4.1. Profile of the companies

The respondent firms varied in size from 300 million Saudi Riyals to less than 5 million Saudi Riyals in capital investment. The majority of the firms surveyed (51.9%) employed more than 700 employees, 22.2% between 300 and 700, and 26% with less than 300 workers. Of those 27 companies, 22% were from the Trade/Services activity sector, 59% were from the Industrial sector, 15% were from the Electricity/Telecommunications sector and 4% were from the Construction sector (cf. Figure 3).

4.2. Motivations

All the companies reported being familiar with the ISO 14001 standard and were considering environmental issues in their decision-making processes, before adopting the standard. They also realized its importance

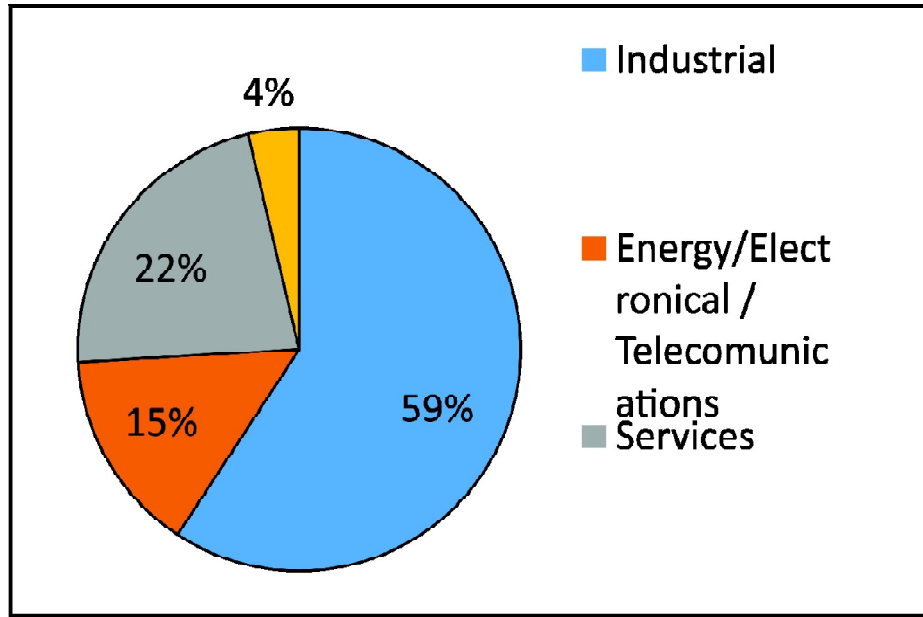


Figure 3: Distribution of participating companies by sector of activity

in controlling their environmental impact and managing relationships with customers and shareholders. Hence, all the surveyed companies considered ISO 14001 implementation to be a high priority because it would bring added value to their business. The results also indicate that the implementation of the standard is completely voluntary and that implementation pressures from government, suppliers, business partners and customers are moderate. The main motivations associated with ISO14001 implementation are summarized in Table 6.

Table 6
Descriptive statistics related to ISO 14001 motivations

Motivation	Type	Mean	Rank	Std Deviation
Meet regulation requirements	E	1.04	1	0.196
Improve efficiency	I	1.04	1	0.192
Improvement of corporate image	E	1.07	2	0.267
Reduction of waste	I	1.07	2	0.267
Top management commitment	I	1.08	3	0.272
Reduction of costs	I	1.11	4	0.320
Gain market access	E	1.11	4	0.320
Shareholders interest	E	1.12	5	0.326
Satisfaction of customers	E	1.15	6	0.362
Increase of employee environmental awareness	I	1.15	6	0.362
Attention from environmental and community groups	E	1.22	7	0.424
Supply chain pressures	E	1.30	8	0.465

Notes: N=27; 1=most important and 5=least important

The mean scores assigned by the respondents provide an indication of the most common sources of motivation for ISO 14001 adoption. The main drivers that motivate Saudi Arabian companies to adopt ISO14001 are meeting regulatory requirements (Mean = 1.04; SD = 0.196), and improvement in corporate image (Mean = 1.07; SD = 0.267). This results are based on the fact that most studies stress that the main reasons to adopt ISO 14001 are external to companies, like the improvement of external image of the firm and ensure legal or a regulatory compliance (Quazi *et al.*, 2001; Escanciano *et al.* 2001; Jones *et al.*, 1997; Schylander and Martinuzzi, 2007; Freyxl and Szeto, 2002; Poksinska *et al.*, 2003; Hamschmidt and Dyllick, 2001; Prajogo *et al.*, 2012; Chavan, 2005; Liyin *et al.*, 2006; Yin and Ma, 2009; Bansal and Roth, 2000).

The findings also highlight the fact that the adoption of the ISO 14001 standard is linked to improving efficiency (Mean = 1.04; SD = 0.192). This is in line with other studies that have underscored the importance of improving environmental performance and increasing efficiency (Florida and Davison, 2001; Fryxell and Szeto, 2002; Prajogo *et al.*, 2012). Reduction of waste is another important motivation related to the adoption of ISO14001 (Mean=1.07; SD=0.267), cited by Morad (2014).

Gaining market access is another motivation for acquiring the ISO 14001 standard (Mean =1.11; SD = 0.320). This is consistent with research that has reported that the standard is adopted in various industries as a way to overcome market and trade barriers (Fryxell and Szeto, 2002; Zutshi and Sohal, 2004).

An interesting finding is that top management commitment is one of the most important drivers for ISO 14001 implementation (Mean=1.08, SD=0.272), in line with research conducted in the Malaysian package industry, in which top management's concern about the environment is the main factor motivating ISO 14001 implementation (Morad, 2014). Cost savings have been found to be a comparatively strong driver in other studies (Morrow and Rondinelli, 2002; Mitra and Datta, 2014); however, cost reduction is not perceived as the primary driver in our study (Mean = 1.11; SD = 0.320), and the finding suggests that Saudi Arabian firms do not fully realize the financial benefits from adopting ISO 14001, perhaps because the government fails to promote environmental improvement as a way to reduce costs or because top management lacks knowledge.

The findings revealed that the adoption of ISO 14001 is not a response to pressure from company stakeholders, such as suppliers, customers, shareholders or community groups. This contradicts the findings of several studies that show that many companies are adopting ISO 14001 in response to pressure from their stakeholders. ISO 14001 adoption under pressure from customers (Mean = 1.15; SD = 3.62), pressure from community groups (Mean=1.22, SD=0.424), pressure of shareholders (Mean=1.12, SD=0.326), and under pressure from suppliers (Mean = 1.30; SD = 0.465) is not relevant in the Saudi Arabian context as evidenced by their high mean scores and non—significant percentages of respondents agreeing or strongly agreeing with the items, when compared with the other motivators. This shows the lack of external pressure on firms to adopt environmental practices. Environmental issues are still not perceived as significant in Saudi Arabia when compared with other countries. Furthermore, Saudi Arabian customers are not yet sensitive towards environmental degradation and like their counterparts in developed countries, do not demand environmentally friendly practices from manufacturing firms (Zorpas, 2010).

4.3. Barriers

Tables 7 and 8 show the related descriptive statistics of external and internal barriers to ISO14001 implementation. Considering the external barriers (cf. Table 7), the limited support or guidance from the

government to different sectors is perceived as the most salient factor hindering Saudi companies from adopting ISO14001 (Mean = 1.50; SD = 0.648). This is consistent with findings in Lebanese manufacturing industries, where the lack of government cooperation, know-how, and experienced local consultants were found to be the main barriers (Mezher and Zreik, 2000). Curkovic *et al.* (2005) found that the lack of cooperation between industry and regulatory agencies in the US accounts for the slow pace of adopting ISO 14001. In the EU and Asia, regulatory agencies developed policies and incentives to promote EMS in the industrial sector (Zeng *et al.*, 2005; Yiride and Ciso, 2003). This study also demonstrates that this barrier is not restricted to developing countries. In addition, there is a lack of coordination among government agencies responsible for environmental protection and resource management. Limited sector guidance, lack of support from the government and limited resources further aggravates the uncertainty and scepticism towards adopting ISO 14001(Chan, 2008).

Table 7
Descriptive statistics of external barriers to ISO14001 adoption

<i>External Barriers</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Little support or guidance on how to implement ISO 14001 from government agencies	26	1.50	0.648
Limited sector specific guidance and materials tailored to different sizes of firms	26	1.50	0.648
Large amount of documentation is required	25	1.52	0.770
No financial support to assist firms in the implementation of ISO 14001	25	1.68	0.852
Poor legislative framework to assist firms in implementing ISO14001	25	1.72	0.843
High fees paid to consultancy agencies to implement ISO 14001	26	1.77	0.863
High fees paid to the registration/ accreditation agencies for auditing ISO14001	26	1.77	0.863
Company partners demand or pressure	26	1.96	0.871
Customers demand or pressure	25	2.00	0.957
Suppliers demand or pressure	27	2.19	0.921
Required documentation for ISO 14001 is very complicated	26	2.12	0.864
Government agencies demand or pressure	23	2.35	0.775

The negative attitude towards the documentation process was perceived as the second major barrier to adopting ISO 14001 (Mean = 1.52; SD = 0.770). The amount of time and resources needed to prepare the necessary documentation makes the certification process complex and burdensome (Marriotti *et al.*, 2014; Al- Darrab *et al.*, 2012).

The lack of financial support (Mean=1.68; SD=0.852) and the poor legislative framework to assist firms in implementing ISO 14001 (Mean=1.72; SD=0.843) are also indicated by the companies as important barriers in ISO 14001 adoption. Saudi firms may consider ISO 14001 certification if they face some sort of obligation, either through legislation or as a result of customers' or stakeholders' demands. Even with the existing laws and regulations, it would be difficult to achieve regulatory compliance because of the lack of infrastructure and organizational resources in Saudi Arabia. Effective enforcement of applicable laws and legislation should be coupled with financial incentives, education and increased awareness of environmental issues.

The fees paid to consultancy agencies and accreditation agencies to implement ISO 14001 were considered by companies to be a crucial barrier. The cost of certification in Saudi Arabia could range between 50,000 and 65,000 USD, corresponding only to the consultancy and registration fees, without considering other investments needed to maintain the system. Given the expected high costs associated with acquiring the certification, inadequate infrastructure, the lack of local professional advice, and lack of support or guidance from the government, it is unrealistic to assume that Saudi firms, especially SMEs, would be able to achieve certification without financial and technical support. This is in line with the findings of Magd (2006) and Mark (2014), who found in their research that the auditing charges of international registration agencies are exorbitantly high. Furthermore, the lack of enforcement and economic instability in the country can make that many industries reluctant or unwilling to make any heavy financial investment. Pogojo *et al.* (2012) have stated that companies may be required to undertake changes in the production process and carry out continuous monitoring activities to comply with the standard; therefore, companies may consider the standard as a burden.

The findings also show us that stakeholder pressures were not considered as important barriers in the adoption of ISO 14001. As for the motivations, environmental issues are not yet perceived as significant issues in the Saudi Arabian context. This is because Saudi Arabian customers are not yet sensitive towards environmental degradation and unlike their counterparts in developed countries, do not demand environmentally friendly practices from manufacturing firms. Most Saudi firms also do not feel the pressure of global competition because they do not operate at global levels. This reflects the country's industrial and technological environment, which is not as developed as in the West (Al-Darrab *et al.*, 2012).

From the analyses of the *internal barriers* (cf. Table 8), the costs related to changing the systems (Mean=1.69; SD=0.884) and the increasing maintenance costs that accompany the adoption of ISO 14001 (Mean=2.07; SD=0.917) were the main internal barriers faced by Saudi firms. Those results are also related to the high fees that companies must pay to consultancy agencies and to accreditation agencies to adopt ISO 9001 (see external drivers).

Table 8
Descriptive statistics of internal barriers to ISO14001 adoption

<i>Internal Barriers</i>	<i>N</i>	<i>Mean</i>	<i>Standard Deviation</i>
High cost of changing the system to accommodate ISO 14001	26	1.69	0.884
Increasing costs in the maintenance and improvement of ISO 14001	27	2.07	0.917
Employees feel there is no benefit in implementing ISO 14001	27	2.30	0.869
Benefits associated with ISO 14001 are not guaranteed	27	2.41	0.844
Lack of the necessary knowledge and specialists in environmental issues	27	2.44	0.847
Lack of the necessary knowledge about certified systems	25	2.48	0.823
Top management feels there is no benefit in implementing ISO 14001	27	2.56	0.801
No time to implement ISO 14001 due to competing priorities	27	2.56	0.801
Lack of the necessary financial resources to implement ISO 14001	27	2.63	0.742
Lack of the necessary knowledge about how to maintain continuous improvement of standard	27	2.63	0.742
Implementing ISO 14001 will have no positive effects on the environment	25	2.64	0.757
Company is too small to implement ISO14001	27	2.81	0.557

The lack of employee knowledge about the benefits of ISO 14001 adoption was another barrier discovered in our study. This can be related to top management with the perception that there is no benefit in implementing ISO 14001. The uncertainty of benefits may be attributed to the respondent's lack of knowledge with respect to environmental impacts and certified systems and the lack of specialists in environmental issues. Additionally, the limited availability of professional advice, government support and resources further exacerbate the uncertainty and scepticism (Chan, 2008). The decision to adopt the standard might be unjustifiable if managers do not have a clear understanding of the benefits or if the financial returns are not easily or quickly quantifiable (Thiruchelvam *et al.*, 2003). The lack of environmental awareness can also result in less investment in training the company's human resources in environmental issues. There is also a belief among Saudi Arabian management that certification costs are not commensurate with the benefits (Al-Darrabt *et al.*, 2002).

4.4. Benefits

An analysis of Figure 4 shows that the main benefits to companies from the ISO 14001 certification consist of increased competitive advantage due to reduced costs and improved efficiency, improved company reputation and enhanced environmental performance through supplier integration. The reduction of waste, energy and water consumption are also considered main benefits. Moreover, companies that implement the ISO 14001 standard fulfil any legal requirements. They are also able, to some extent, to benefit from increased involvement among top management and more engaged and motivated employees. Because most companies have adopted the standard only recently, however, it remains to be seen whether these benefits can be protracted in the longer term. Recent studies found

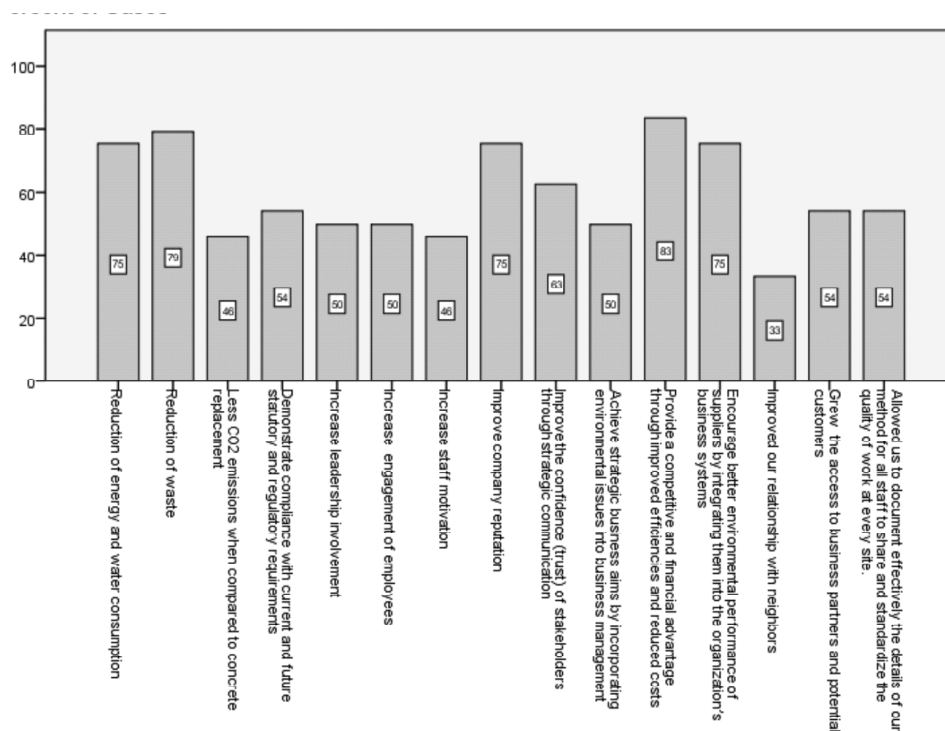


Figure 4: Main benefits of ISO 14001 adoption

that ISO 14001 mainly determines improvements in the implementation phase (Brouwer and Kappen, 2008; Boiral and Henri, 2012; Heras-Saizarbitoria *et al.*, 2013). This is especially the case when organizations (like in Saudi Arabia) do not experience significant pressure from the institutional environment or the various stakeholders and take the continuous improvement of environmental performance as a loose obligation. Therefore, the ISO 14001 certification is not necessarily leading the organizations to improve its environmental performance.

4.5. Relationship between barriers, motivations, and benefits

The motivations that drive the adoption of the ISO 14001 standard (reduction in costs, improvement in corporate image, market access, increase in employee environmental awareness, reduction of waste and top management commitment) seem to be positively related to companies' reputations. This suggests that the more a company is motivated to adopt the ISO 14001 standard, the more this can become a boost to its reputation. Similarly, motivations such as cost reductions, improvement in corporate image and meeting regulation requirements are significantly and positively related to suppliers' integration. Hence, the more companies that are motivated to adopt the ISO 14001 standard, the more they will be able to benefit from greener operations by integrating suppliers. Finally, reductions in costs, improvements in efficiency and reduced consumption of energy and water are significantly and positively related to increasing levels of staff motivation. The study by To and Tang (2013) examining the adoption of ISO 14001 in Macao highlights that the perceived benefits of adopting the standard were strongly associated with the overall level of motivation.

While motivations positively affect reputation, operations and staff motivation, internal barriers make the adoption and implementation of the ISO 14001 standard more difficult. For example, top management's perception of the limited usefulness of the standard, lack of time for implementation and the general perception of it not bringing about a positive effect tend to promote an environment where both employees and top management feel that the adoption of the ISO 14001 standard carries no desired benefits. Hence, concerns about the adoption and implementation of the standard can drive companies away from the standard, in line with some studies that have shown that organizations gained more benefits from adopting and implementing ISO 14001 when they were more strongly motivated (Chan and Wong, 2006; Heras-Saizarbitoria *et al.*, 2011).

5. CONCLUSIONS

The purpose of this study was to examine the motivations, barriers, benefits, and relationship between motivations, barriers and benefits of ISO 14001 adoption in Saudi Arabia. Although an extensive body of research on ISO 14001 implementation motivations, barriers and benefits exists around the world, little empirical research has been conducted in the Arab countries in general, and in Saudi Arabia in particular. The findings reveal that the main drivers that motivate Saudi Arabian companies to adopt ISO14001 are meeting regulatory requirements and improving efficiency. The findings also highlight the fact that the adoption of the ISO 14001 standard is linked with improvements in corporate image, waste reduction, and gaining market access. Less priority is given to cost reduction because the government fails to promote environmental improvement as a way to reduce costs. Moreover, the adoption of ISO 14001 is not a response to pressures from different stakeholders, such as suppliers, customers, shareholders or community

groups. Considering the external barriers, the limited support or guidance from the government to different sectors is perceived as the most salient factor that hinders Saudi companies from adopting ISO 14001. Furthermore, the negative attitude towards the documentation process was perceived as the second major barrier to adopting ISO 14001 because of significant time and resources required to prepare the necessary documentation,, making the process complex and onerous (Mariotti *et al.*, 2014; Al- Darrab *et al.*, 2012). The lack of financial support and poor legislative framework available to assist firms in the implementation of ISO 14001 are also indicated to be important barriers in the adoption of ISO 14001 by companies. The fees paid to consultancy agencies and accreditation agencies to implement ISO 14001 were also considered an important barrier by companies, as were the costs of changing the systems and the increasing maintenance costs required to adopt ISO 14001.

Policy makers and regulatory agencies should take a leading role in persuading industries to converge to voluntary environmental standards. Regulatory enforcement should be encouraged (i.e., penalties, fines, inspections), coupled with appropriate financial incentives such as low interest loans, tax deductions on environmental friendly equipment and subsidizing part of the ISO 14001 certification cost. The government should develop an environmental funding programme in cooperation with financial institutions and international funding organizations. Professional training and innovative diffusion principles such as pilot trials to disseminate success stories should be promoted. The Saudi government can also improve public awareness through various awareness-raising activities (including environmental campaigns, newsletters and workshops). Educational institutions are not doing enough to raise environmental awareness, which explains the lack of pressure from stakeholders, consumers and suppliers.

Internal barriers make the adoption and implementation of the ISO 14001 standard more difficult. For example, top management's perception of the limited usefulness of the standard and the lack of time to implement it to promote an environment where both employees and top management feel that the adoption of the ISO 14001 standard carries no benefits.

The main benefits gained by the companies from the ISO 14001 certification consist of increased competitive advantage due to reduced costs, mainly in reduced waste creation and energy and water use, and improved efficiency. The improvement of the company reputation and enhanced environmental performance through supplier integration were also considered main benefits. The motivations that drive the adoption of the ISO 14001 standard seem to be positively related to the company's reputation, supplier integrations and staff motivation. While motivations positively affect reputation, operations and staff motivation, internal barriers make the adoption and implementation of the ISO 14001 standard more difficult. Top management's perception of the limited usefulness of the standard promotes an environment where both employees and top management feel that the adoption of the ISO 14001 standard carries no benefits.

The expectation is that the results of this study will facilitate the development of an appropriate regulatory framework, financial support and incentive system for the implementation of ISO 14001 and that the continued adoption of ISO 14001 in Saudi Arabia will help with the reduction of waste, water, energy and air emissions. The study has implications for managers because without a strong commitment from top and middle management, the adoption of ISO 14001 remains challenging.

6. RECOMMENDATIONS, LIMITATIONS AND FUTURE RESEARCH

6.1. Recommendations

Based on the results of this current study, we make several recommendations regarding the implementation of ISO 14001 certification in Saudi Arabia:

1. **Governmental agencies:** The government must consider enforcing implementation gradually, as in the case with corporate governance. Companies joining the capital market authority abided by corporate governance rules that were initially optional. The rules of corporate governance for listed companies became compulsory later on. A similar approach can be applied to motivate companies to implement the ISO 14001 standard. This will give companies enough time to seek certification, smoothly implement the certification and adopt their practices to avoid symbolic implementations. It is especially important for certain manufacturing sectors, such as oil companies, chemical and petrochemical firms, plastics firms, pharmaceutical companies and manufacturers of cement related products. The government can also provide some privileges in contracts for companies that are certified to the standard, e.g., by providing incentives to companies wishing to implement environmental management systems, especially ISO 14001, such as providing expansion opportunities and contract preferences to motivate more companies to implement the standard.
2. **Religious and social groups:** Religious groups in Saudi Arabia seem to have forgotten the role of Islam in environmental issues. Islamic teachings dictate that if any Muslim plants or sows a field and a human, bird or animal eats from it, it shall be accepted as charity. It also forbids the destruction of animals and plants in the case of war. Religious groups have an influential voice and an authority that can impact the environmental awareness of the country in general and organizations specifically.
3. **Top management commitment and support:** Although companies seemed to be committed to implementing the standard, they are not communicating the commitment to their employees since employees feel neutral towards implementation. Furthermore, some companies seem to consider top management as unimportant, when studies have proven that management is of high importance in order to motivate companies to implement the ISO 14001 standard. Top management can be more influential if it communicates the benefits and implementation practices of ISO 14001 to all levels of the organization, showcasing its dedication to the environment and encouraging employees to participate in the implementation. When top management supports and allows employees to contribute in implementing the standards, environmental issues become part of the organizational culture.
4. **Costs of maintaining the certification:** There is a need to reduce the cost of ISO 14001 certification as it was cited as a main barrier. The government should initiate policies, incentives and strategies to minimize barriers. Most importantly, companies should be coached in ways of implementing ISO certification standards without viewing the move as a way of increasing business operating costs.
5. **Education and training:** Several companies have a problem regarding the adoption of the standard mostly due to the lack of knowledge and specialists in environmental issues that provide guidance

and consulting services. Educational institutions are not doing enough to raise environmental awareness, which may explain the lack of pressure from stakeholders, consumers and suppliers. Saudi Arabia's educational institutions can contribute to the certification of environmental standards by providing training programmes.

6.2. Limitations and Future Research

There was an abundance of research on ISO 14001 implementation, barriers and motivations for various countries but there was a lack of research, data and articles on the implementation of ISO 14001 in the Middle East, especially in Saudi Arabia. There is also a limitation regarding selected methodology of questionnaires; they tend to allow little flexibility to the respondent with respect to response format because they are structured instruments. Future studies may cover other aspects of ISO 14001 certification such as problems with certification agencies, the relationship of ISO 14001 to the quality management system and the environmental impacts of ISO 14001 on Saudi organizations. Longitudinal studies with larger samples would provide a more in-depth picture of Saudi companies' experiences in implementing the standard. Future studies should also consider using interviews as a study methodology.

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NOTE

1. http://www.iso.org/iso/the_iso_survey_of_management_system_standard_certifications_2015.pdf

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