

Towards an Integrated Management System: A Hypothetical Case

Said Malki

Prince Sattam Bin Abdulaziz University

This paper provides an evaluation of the implementation of an integrated management system (IMS) by a hypothetical case company called Alpha Inc. It also compares the key principles of ISO 19001, ISO 14001, and OHSAS 18001. Moreover, this contribution includes a gap analysis for the IMS and an evaluation of the compliance to quality, environmental, and occupational health & safety standards. Additionally, the paper focuses on the requirements of the legal compliance for ISO 14001 standard and OHSAS 18001 standard in relation to customer requirements of ISO 19001. Finally, this research advocates the benefits of the IMS for Alpha Inc and also outlines the system's challenges and the necessary steps to be taken by the company in order to foster the systemic improvement.

INTRODUCTION

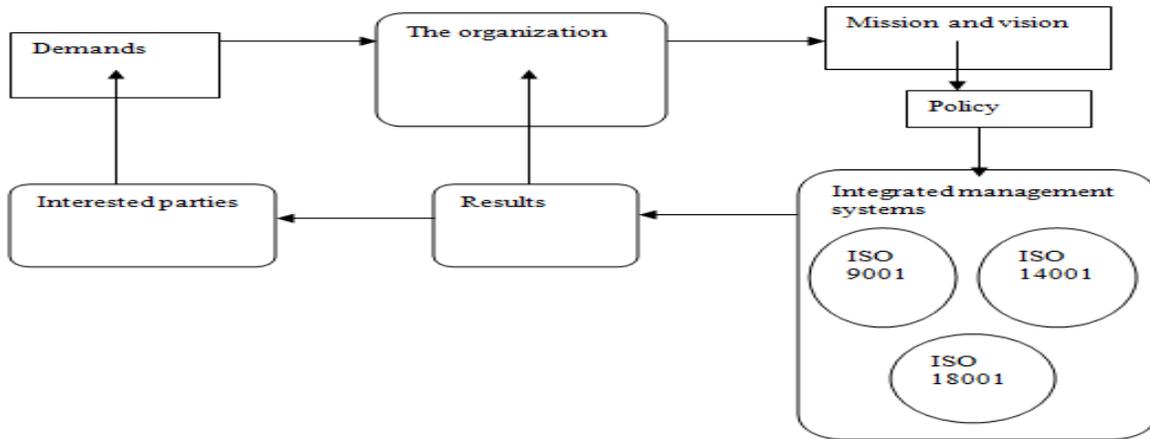
Alpha Inc Company produces sport clothes and exports them to Europe, North Africa, and the Middle East. It is already certified to ISO 9001 and considering incorporating management systems for ISO 14001 and OHSAS 18001. The Quality assurance manager at Alpha Inc aims to convince the company top management to implement the integrated management system (IMS). Such system should help the company (i) practice its business overseas with confidence and assurance of its quality and environmental responsibility; (ii) gain market shares through a green corporate image, (iii) attract more ethical investment, and (iv) reduce insurance risks and costs (Whitelaw, 1997).

Alpha Inc should use the Integrated Management System (IMS) as a single structure to manage its processes or activities that transform resources into a product which meet objectives and equitably satisfy the stakeholders, health, safety, environmental, security, ethical or any other identified requirement (Dalling, 2007). A simplified description of the IMS is given in Figure 1.

A single IMS helps the organization to remain competitive and still meet requirements if managers harmonize relations among spatial elements and integrate strengths of individual goals in shaping the future (Jackson, 1997). As compared to isolated environmental management systems, the IMS can improve environmental protection among other benefits, because ecological criteria can be considered from the early stages when the customer oriented products and processes are designed (Von Ahsen & Funk, 2001).

The revision of ISO standards creates a need for an integrated management system (Jørgensen & Remmen, 2005). Such system should foster the performance of the organization. However, this integration is not an obligation but an opportunity to exploit benefits associated with its implementation (Zeng et al., 2007). In this context, the integration of environmental management system, health and safety management systems, and quality management system into a single system leads to more efficiency and savings in the organization's business management system (Patience, 2008).

**FIGURE 1
SUMMARY OF IMS DRIVING FORCES AND BENEFITS**



Source: Patience (2008)

The objectives of Alpha’s business include elements of quality, the environment and occupational health and safety. These objectives are the same as many of the requirements of its stakeholders especially customers, shareholders, employers, and the community.

**TABLE 1
THE COMPANY’S BUSINESS REQUIREMENTS**

Customers Requirements	Shareholders Requirements	Employees Requirements	Community Requirements
Safe and reliable products/services	Return on investment	Safe working environment	Minimum environmental impact
Reliability of supply	Profitable business	Job satisfaction	Employment opportunities
Fitness for purpose	Legal compliance	Care and recognition	Stability
Environmentally safe product	Good image	Rewards for good work	
Value for money	Growth		

Source: Whitelaw, 2004, pp. 126-127

Alpha Inc should implement the IMS for two major reasons (Whitelaw, 2004):

- 1) To reduce costs to the business and add value to processes. This includes better use of auditors’ time (both internal auditors and certification bodies’ auditors). The reduction in management time has tangible internal cost benefits such as more efficient maintenance of the management systems.

- 2) To reduce risks to the viability of the business: The management of an organization performs effectively an analysis of the risks to the business related to customers, the environment, and occupational health and safety.

IMS allows the organization to: (i) decrease the extent of documentation and bureaucracy which arises due to work organization and control, referring to separate procedures or different standards; (ii) save resources, entrusting the management of the IMS to one leader instead of appointing separate leaders to each and every management system, including the certificated one; (iii) carry out an internal and external audits more clearly and effectively; and (iv) promote concentrating on the organization's activity by improving connections between quality, employee health and safety and social responsibility. Nevertheless, few issues arise during the implementation of the IMS. In fact, up to eighty percent of works about quality management, environmental protection management and employee health and safety management in different organizations are very alike in their nature. There still remain twenty percent of issues, the content of which, talking about different organizations and their management areas, is not similar. Another problem is the organization's leaders' approach to the importance of management systems (Raišiene, 2011).

In general, the highest rank in organizations is usually given to quality management, and the environmental protection, employee health and safety and social responsibility is pushed to the background, or serves as a proof that reach for quality exists in all work areas (Jorgensen et al., 2006). Moreover, the realization of an IMS depends on the organizational culture and specifically the level of involvement of employees in decision making, teamwork, motivation, training and learning. However, many organizations do not develop and advance organizational culture often due to scarcity of resources (Wilkinson & Dale, 2002).

THE THREE STANDARDS KEY PRINCIPALS

Alpha Inc. should consider opportunities and challenges of the IMS and also understand its principles. Indeed, it is essential to look at similarities between ISO 9001, ISO 14001, & OHSAS 18001. Regarding the Quality Management System ISO 9001, it is based on eight management principles:

- customer-focused organization,
- leadership,
- involvement of people,
- process approach,
- system approach to management,
- continual improvement,
- factual approach to decision making and
- Mutually beneficial supplier relationship.

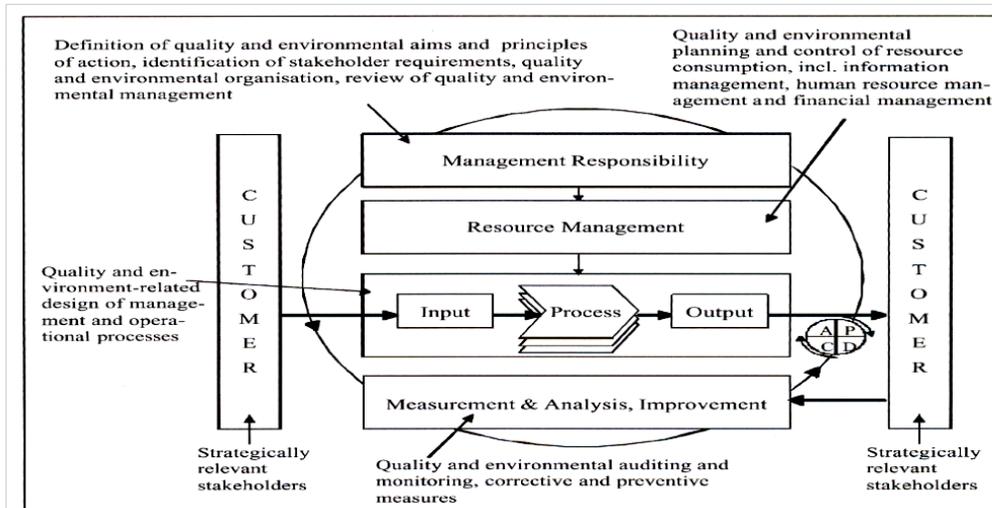
The model of process-based quality management systems is represented in Figure 2.

This model shows that customers play an important role in defining requirements as input and are also the main beneficiary of the output. Furthermore, although this standard does not include requirements specific to other management systems, it enables organizations to align or integrate its quality management system with the requirements of other management systems such as the environmental management system (ISO, 2002).

Concerning ISO 14001, it provides a structured management system for any organization that seeks to improve its environmental performance and to be consistent with environmental laws and policies. This standard is based on the Plan-Do-Check-Act model (PDCA) which can be applied to all processes of a company thus the link and compatibility of the ISO 9001 and 14001. These management systems are based on the Plan Do Check Act, (PDCA) model which is also called the Deming circle, named after W. E. Deming (Sokovic et al., 2010):

- Plan - The design and establishment of objectives and procedures required to produce results in conformity with the organization's environmental policy.
- Do - This is the implementation of the processes or procedures.
- Check - This is the measuring and monitoring of processes to ensure that they meet environmental policy, objectives and targets, legal and other requirements, and reporting results.
- Act - This includes the actions taken to improve performance of the environmental management system continuously.

FIGURE 2
MODEL OF PROCESS BASED QUALITY MANAGEMENT



Source: Périgo (2015)

It is a fundamental principle of ISO 14001 that an organization sets its own goals, based on whatever considerations it wishes to include, such as demands of customers, regulators, communities, lenders or environmental groups. The ISO 14001 standard provides a framework for developing plans to meet the organization's targets, and to produce information about whether or not the targets are met. An important benefit of adopting ISO 14001 is to give stakeholders the reassurance they need that the organization's environmental claims are valid. The ISO 14001 standard is intended to be flexible, and to be of value in a wide variety of situations. However, it is applicable most readily to large companies that already have a formal management system in place, and which have the expertise and resources to incorporate environmental issues into that system. The good news is that ISO 14001 principles have been designed to apply also to smaller businesses, and to non-business organizations (IISD, 2013).

With respect to OHSAS 18001 standard, it based on the following key principles (Shrestha, 2011):

- Leadership involvement: the top management of the organization must be actively engaged in the management system;
- Risk management : The implementation of an OH&S management system is driven by the hazards and risks identified and the controls that are determined to be necessary to prevent injuries and ill health;
- Commitment to compliance :Societal interests, as reflected in the laws and regulations promulgated, must be addressed;
- Worker participation : Workers, as the primary stakeholders of an occupational health and safety management system, have the right to be involved in management system processes;

- Performance monitoring & improvement: Continual improvement cannot be achieved unless processes are in place to measure performance.
- Prior to the integrating ISO 14001 and OHSAS 18001 into the ISO 9001, Alpha Inc should scan its internal environment to identify its strengths and weaknesses. In this regard, a gap analysis is imperative.

GAP ANALYSIS

The PDCA approach proposes to identify requirements of different three standards, and looks to what needs to be done for a successful implementation of an IMS. Alpha Inc is ISO9001 certification and seeks to integrate ISO1 4001 and OHSAS 18001.

TABLE 2
GAP ANALYSIS AS A PREREQUISITE FOR IMS IMPLEMENTATION

Clause	Status (In place; Not in Place)	Responsible	Deadline
ISO 14001 Environment 4.1 General requirements	Not in place	Brian	6/15/2016
ISO 9001 Quality 4.1 General requirements	OK	—	—
OHSAS 18001 4.1 General requirements	Not in place	John	6/15/2016
PLAN	PLAN		
ISO 14001 Environment 4.2 Environmental Policy	Not in place	Brian	7/31//2016
ISO 9001 Quality 5.3 Quality policy	OK	—	—
OHSAS 18001 4.2 OH&S policy	Not in place	John	7/31/2016
ISO 14001 Environment 4.3.1 Environmental aspects	Not in place	Brian	7/31/2016
ISO 9001 Quality 5.2 Customer focus	OK	—	—
ISO 9001 Quality 7.2.2 Review of requirements related to the product	OK	—	—
OHSAS 18001 4.3.1 Hazard identification, risk assessment and planning of controls	Not in place	John	7/31/2016
ISO 14001 Environment 4.3.2 Legal and other requirements	Not in place	Brian	7/31/2016
ISO 9001 Quality 7.2.1 Determination of requirements related to the product	OK	—	—
OHSAS 18001 4.3.2 Legal and other requirements	Not in place	John	7/31/2016
ISO 14001 Environment 4.3.3 Objectives, targets and program(s)	Not in place	Brian	31/7/2016

ISO 9001 Quality 5.4.1 Quality objectives	OK	—	—
OHSAS 18001 4.3.3 Objectives and programs	Not in place	John	7/31/2016
ISO 9001 Quality 5.4.2 Quality management system planning	OK	—	—
ISO 9001 Quality 8.5.1 Continual improvement	OK	—	—
DO	DO		
ISO 14001 Environment 4.4.1 Structure and responsibility	Not in place	Brian	3/31/2017
ISO 9001 Quality 5.1 Management commitment	OK	—	—
ISO 9001 Quality 5.5.1 Responsibility and authority	OK	—	—
ISO 9001 Quality 5.5.2 Management representative	OK	—	—
ISO 9001 Quality 6.1 Provision of resources	OK	—	—
ISO 9001 Quality 6.3 Infrastructure	OK	—	—
OHSAS 18001 4.4.1 Resources, roles, responsibility, accountability and authority	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.2 Training, awareness and competence	Not in place	Brian	3/31/2017
ISO 9001 Quality 6.2 Human resources	OK	—	—
OHSAS 18001 4.4.2 Competence, training and awareness	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.3 Communication	Not in place	Brian	3/31/2017
ISO 9001 Quality 5.5.3 Internal communication	OK	—	—
ISO 9001 Quality 7.2.3 Customer communication	OK	—	—
OHSAS 18001 4.4.3 Communication, participation, and consultation	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.4 Documentation	Not in place	Brian	3/31/2017
ISO 9001 Quality 4.2.1 Documentation requirements (general) and 4.2.2 Quality manual	OK	—	—
OHSAS 18001 4.4.4 Documentation	Not in place	John	3/31/2017

ISO 14001 Environment 4.4.5. Control of documents	Not in place	Brian	
ISO 9001 Quality 4.2.3. Control of documents – A DOCUMENTED PROCEDURE IS COMPULSORY	OK	—	—
OHSAS 18001 4.4.5 Control of documents	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.6 Operational Controls	Not in place	Brian	3/31/2017
ISO 9001 Quality 7.1 Planning of product realization	OK	—	—
ISO 9001 Quality 7.3 Design and development	OK	—	—
ISO 9001 Quality 7.4 Purchasing	OK	—	—
ISO 9001 Quality 7.5 Production and service provision	OK	—	—
OHSAS 18001 4.4.6 Operational control	Not in place	John	3/31/2017
ISO 14001 Environment 4.4.7 Emergency preparedness and response	Not in place	Brian	3/31/2017
ISO 9001 Quality 8.3 Control of nonconforming product	OK	—	—
OHSAS 18001 4.4.7 Emergency preparedness and response	Not in place	John	3/31/2017
CHECK	CHECK		
ISO 14001 Environment 4.5.1 Monitoring and measurement	Not in place	Brian	3/31/2017
ISO 9001 Quality 7.6 Control of monitoring and measuring devices	Continuous	Stacy	3/31/2017
ISO 9001 Quality 8.1 Measurement, analysis and improvement - general	Continuous	Stacy	3/31/2017
ISO 9001 Quality 8.4 Analysis of data	Continuous	Stacy	3/31/2017
OHSAS 18001 4.5.1 Performance measurement and monitoring	Not in place	John	6/30/2017
OHSAS 18001 4.5.2 Evaluation of compliance	Not in place	John	6/30/2017
ISO 14001 Environment 4.5.2 Evaluation of compliance	Not in place	Brian	6/30/2017
ISO 9001 Quality 8.2.3 Monitoring and measurement of processes	Continuous	Stacy	3/31/2017

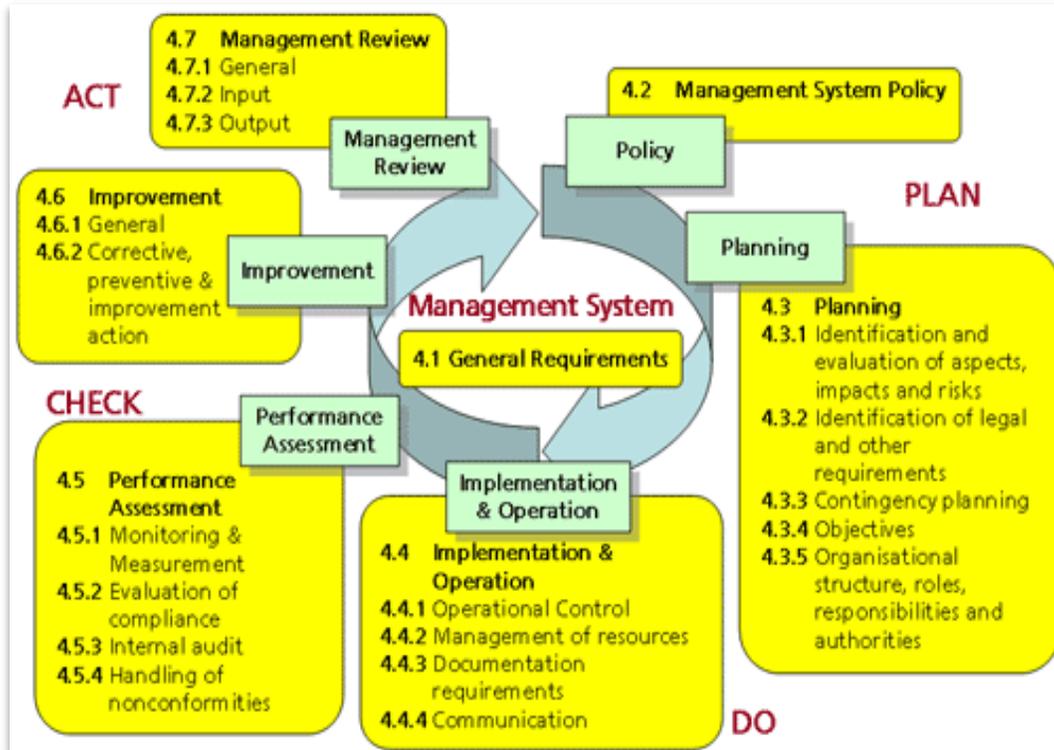
ISO 9001 Quality 8.2.4 Monitoring and measurement of product	Continuous	Stacy	3/31/2017
ISO 14001 Environment 4.5.3 Nonconformity, corrective action and preventive action	Not in place	Brian	3/31/2017
ISO 9001 Quality 8.5.2 Corrective action	Continuous	Stacy	3/31/2017
ISO 9001 Quality 8.5.3 Preventive action	Continuous	Stacy	3/31/2017
OHSAS 18001 4.5.3 Incident investigation, nonconformity, corrective and preventive action	Not in place	John	3/31/2017
ISO 14001 Environment 4.5.4 Control of records	Not in place	Brian	3/31/2017
ISO 9001 Quality 4.2.4. Control of records – A DOCUMENTED PROCEDURE IS COMPULSORY	Continuous	Stacy	3/31/2017
OHSAS 18001 4.5.4 Records and records management	Not in place	John	3/31/2017
ISO 14001 Environment 4.5.5 Internal audit	Not in place	Brian	3/31/2017
ISO 9001 Quality 8.2.2 Internal audit	Continuous	Stacy	3/31/2017
OHSAS 18001 4.5.5 Internal audit	Not in place	Brian	3/31/2017
ACT	ACT		
ISO 14001 Environment 4.6 Management Review	Not in place	Brian	12/15/2017
ISO 9001 Quality 5.6 Management Review	Continuous	Stacy	12/15/2017
OHSAS 18001 4.6 Management Review	Not in place	John	12/15/2017

The successful implementation of the IMS at Alpha Inc depends not only on the degree of coping internally with ISO 14001 and OHSAS 18001 requirements, but also the ability to comply with customers' requirements, laws, and regulations.

CONDITIONS FOR COMPLIANCE'S ACHIEVEMENT

The compliance to ISO 19001, ISO 14001 and OHSAS 18001 can be achieved by referring to PAS 99 which a specification is issued by the BSI; a British business standards company that internationally helps organizations make excellence a habit. Alpha Company may utilize PAS 99's framework to insure the compliance between the three different standards. PAS 99 has six common requirements: (i) Policy; (ii) Planning; (iii) Implementation & Operation; (iv) Performance Assessment; (v) Improvement; and (vi) Management Review (BSI, 2012).

**FIGURE 3
INTEGRATED MANAGEMENT SYSTEM**



Source: The CQI (2007)

The achievement of compliance to various standards based on PAS 99 requires the merging of the following support procedures/processes:

- Document control
- Records keeping
- Control of nonconforming product/situations.
- Coercive action
- Preventive action
- Internal auditing
- Training & competence
- Management review

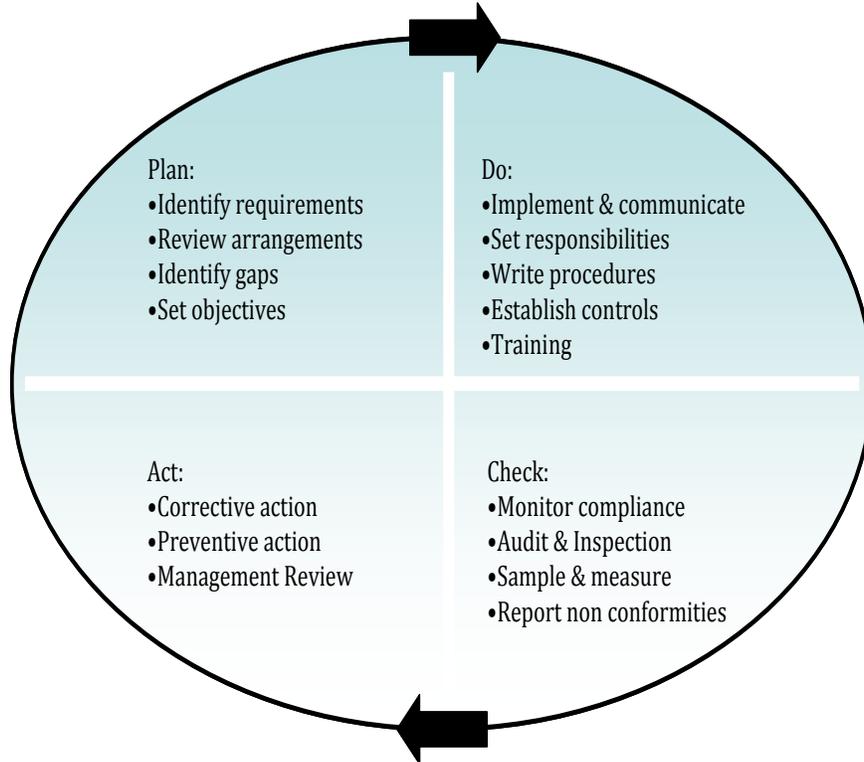
TABLE 3
CORRELATION OF THE MANAGEMENT SYSTEM MODELS
STANDARDS ON CLAUSE BY CLAUSE BASIS

Clause	PAS 99- 2012	ISO 9001	ISO 14001	OHSAS 18001
4	Context of the Organization			
4.1	Understanding Alpha Inc and its context	4.1	4.1	4.1
4.2	Understanding the needs & expectations of interested parties	5.2	4.3.2	4.3.2
4.3	Determining the scope of the IMS	4.2.2	4.1	4.1
4.4	IMS	4.1	4.1	4.1
5	Leadership			
5.1	Leadership & Commitment	5.1	4.4.1	4.4.1
5.2	Policy	5.3	4.2	4.2
5.3	Organizational roles, responsibilities & authorities	5.5	4.4.1	4.4.1
6	Planning	5.4 , 7	4.3	4.3
6.1	Actions to address risks & opportunities	4.1 , 5.4.2 , 7.1 , 6.4	4.3.1	4.3.1
6.2	IMS objectives & planning to achieve them	5.4.1 , 5.4.2, 7.2 , 7.3, 7.4, 7.5	4.3.3	4.3.3
7	Support	6		
7.1	Resources	6.1, 6.2 , 6.3	4.4.1	4.4.1
7.2	Competence	6.2	4.4.2	4.4.2
7.3	Awareness	6.2	4.4.2	4.4.2
7.4	Communication	5.5.1, 5.5.3, 7.2.3	4.4.3	4.4.3
7.5	Documented information	4.2	4.4.4	4.4.4
8	Operation	7		
8.1	Operational planning & control	7.1	4.4.6 , 4.4.7	4.4.6 , 4.4.7
9	Performance evaluation	8		
9.1	Monitoring, measurement, analysis & evaluation	8.2 , 8.2.1, 8.3,8.4	4.5.1	4.5.1 , 4.5.2
9.2	Internal audit	8.2.2	4.5.5	4.5.5
9.3	Management review	5.6	4.6	4.6
10	Improvement	8.5		
10.1	Nonconformity & corrective action	8.5.2 , 8.5.3	4.5.3	4.5.3
10.2	Continual improvement	8.5.1		

Source: Comparison of ISO 9001, ISO 14001, and OHSAS 18001 clauses

The PDCA approach insures the achievement of compliance in the IMS. The figure 3 outlines aspects to be considered in this domain.

**FIGURE 4
THE ACHIEVEMENT OF THE COMPLIANCE IN THE IMS**



Source: The CQI (2007)

In total, Alpha Inc should refer to the correlation of the management system standards on a clause by clause basis and to the PDCA approach to insure the achievement of compliance in its IMS. Furthermore, the company should have an integrated risk management approach that considers concomitantly risks related to customers, the environment, and occupational health & safety.

**TABLE 4
EVALUATION OF THE COMPLIANCE**

Category	ISO 9001	ISO 14001	OHSAS 18001
Understanding the needs & expectations of interested parties	<p>5.2 :Customer focus</p> <p>Top management shall ensure that customer requirements are determined and are met with the aim of enhancing customer satisfaction.</p>	<p>4.3.2: Legal and other requirements</p> <p>The organization shall establish, implement and maintain a procedure(s) a) to identify and</p>	<p>4.3.2: Legal and other requirements</p> <p>The organization shall establish, implement and maintain a procedure(s) for identifying and accessing the legal and other OH&S</p>

	<p>7.2.1. Determination of requirements related to the product</p> <p>The organization shall determine a) requirements specified by the customer, including the requirements for delivery and post-delivery activities,</p> <p>b) requirements not stated by the customer but necessary for specified or intended use, where known,</p> <p>c) statutory and regulatory</p>	<p>have access the applicable legal requirement and other requirements to which the organization subscribes related to its environmental aspects, and</p> <p>b) to determine how these requirements apply to its environmental aspects.</p>	<p>requirements that are applicable to it.</p> <p>The organization shall ensure that these applicable legal requirements and other requirements to which the organization subscribes are taken into account in establishing, implementing and maintaining its OH&S management system.</p> <p>The organization shall keep this information up-to-date.</p> <p>The organization shall communicate relevant information on legal and other requirements to persons working under the control of the organization, and other relevant interested parties.</p>
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>requirements applicable to the product, and d) any additional requirements considered necessary by the organization.</p> <p>8.2.1 Customer satisfaction</p> <p>As one of the measurements of the performance of the quality management system, the organization shall monitor information relating to customer perception as to whether the organization has met customer requirements. The methods for obtaining and using this information shall be determined.</p> <p>NOTE Monitoring customer perception can include obtaining input from sources such as customer satisfaction surveys, customer data on delivered product quality, user opinion surveys, lost business analysis, compliments, warranty claims and dealer reports.</p>		
Evaluation of compliance	No explicit clause for compliance in ISO9001.	<p>4.5.2: Evaluation of compliance</p> <p>4.5.2.1 Consistent with its commitment to compliance , the</p>	<p>4.5.2 Evaluation of compliance</p> <p>4.5.2.1 Consistent with its commitment to compliance, the organization shall</p>

		<p>organization shall establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements. The organization shall keep records of the results of the periodic evaluations.</p> <p>4.5.2.2. The organization shall evaluate compliance with other requirements to which it subscribes. The organization may wish to combine this evaluation with the evaluation of legal compliance referred to in 4.5.2.1 or to establish a separate procedure(s). The organization shall keep records of the results of the periodic evaluations.</p>	<p>establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements (see 4.3.2). The organization shall keep records of the results of the periodic evaluations.</p> <p>4.5.2.2. The organization shall evaluate compliance with other requirements to which it subscribes (see 4.3.2). The organization may wish to combine this evaluation with the evaluation of legal compliance referred to in 4.5.2.1 or to establish a separate procedure(s). The organization shall keep records of the results of the periodic evaluations.</p>
--	--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Source: OHSAS 18001, 2007, pp.1-23; ISO 14001, 2004, pp.1-24; ISO 9001, 2008; pp. 1-28

Alpha Inc should examine environmental and OH&S requirements along with its customers requirements. The compliance to various standards can be achieved by referring to clauses 5.2, 7.21, and 8.2.1 of ISO 19001 in one hand, and clause 4.3.2 of both ISO 14001 and OHSAS 18001 in the other hand. Although there is no explicit clause related to legal compliance in ISO 19001, it is essential to connect clauses 8.2. Monitoring and measurement, 8.2.1, Customer satisfaction, 8.2.2 Internal audit; 8.3 Control of nonconforming product; and 8.4. Analysis of data of the standard to “Legal Compliance” Clauses of ISO 14001 and OHSAS 18001.

The evaluation of compliance at Alpha Inc should start early in the design phase when reviewing drawings and process flowcharts to ensure incorporation of legal requirements and system optimization. This helps eliminate or reduce environmental and OH& S risks. Additionally, the analysis and monitoring of data is a crucial during the compliance's evaluation. Moreover, periodic inspection of work and storage areas and programmatic regulatory auditing are also important tools to reinforce adherence to specific regulatory administrative and technical requirements. If noncompliance conditions are identified, Alpha Inc should include processes for taking corrective action to prevent recurrence and, as appropriate, for proactively taking action to prevent occurrence elsewhere in the organization (clause 4.5.3).

Alpha Inc does not have to do a comprehensive evaluation of compliance as does a regulatory auditor, but it should perform a sampling of specific regulations and operations to collect objective evidence to determine whether procedures are established as necessary. Such procedures not only identify and address compliance requirements, but also show that the company has periodically evaluated its status with respect to all of the applicable regulations.

Alpha Inc should also verify that evaluation of compliance is performed by a knowledgeable and qualified person and that the company is addressing any noncompliance identified in a systematic way through corrective and preventive action system or through its objectives, targets and program processes. Evidently, the final evaluation of compliance is performed during the management review process (clause 4.6). Top management reviews Alpha Inc's environmental performance and evaluate the adequacy, suitability and effectiveness of the IMS (Quality; Environmental; & OH&S requirements) in achieving the policy commitments. The company's compliance performance results and status as examined internally and independently (e.g.; regulatory agencies) should be included in the evaluation. Through this evaluation, areas for prioritized improvement are identified and addressed.

In sum, even though there is no system or regulatory scheme that can insure full compliance permanently, the ISO 14001 standard and OHSAS 18001 standard should enable Alpha Inc to systematically identify its compliance status and address its noncompliance issues.

CONCLUSIVE REMARKS

The adoption of the IMS by Alpha Inc should generate the following benefits:

- Improved operational performance, internal management methods and cross-functional teamwork
- Higher motivation of staff
- Fewer multiple audits and costs reduction
- Enhancement of customer confidence
- Elimination of redundancy and conflicting elements
- Enabling a comparative advantage and attract investments
- Improvement and protection of brand reputation and increase stakeholders' attention and satisfaction.
- The inclusion of the best practice and lessons that offer knowledge within many disciplines (safety, environment, quality).
- The development of an individual set of requirements thus reducing the documentation system to the minimum.
- The possibility to carry out training in an integral system and hence reduce its duration

Nevertheless, Alpha Company should face barriers to the implementation of IMS (Buhl-Hansen et al., 2008):

- Lack of competence and knowledge in the company
- Hope for a clear focus in depth of a single standard.
- Security with the existing management systems
- The systems are separated organizationally
- The management has one-sided focus on one area

- The workers have to work differently.

Other barriers to integration can be identified (Dalling, 2012):

- Failure to gain senior management commitment: Senior managers may not be conscious that integrated management is relevant to their organization and that by not adopting it they may become less effective and efficient than their competitors.
- Vested interests: In most organizations there will be functional heads of health and safety, environment and quality. When creating an integrated management system who would be the head of the integrated function? When one of the individual functional heads is given overall responsibility there may be a tendency for emphasis to be given to that individual's area of expertise.
- Lack of a universal integration methodology/model: ISO has generally made no significant attempt to unify the various approaches to management and there has been a proliferation of published management system standards each managed by separate technical committees with little cooperation and coordination.
- Lack of understanding and concerns about competence: The organization may perceive integration as a mere merging of documentation and may not be aware of the full potential and implications of integrated management
- Adverse organizational culture that resists change: The staff within the organization may be change averse and perceive all change to be negative. Staff may be used to operating in silos and cooperating and coordinating behaviors may be alien to them.

FUTURE STEPS FOR IMPROVEMENT

Upon the completion of the gap analysis, Alpha Inc should (i) formulate a policy for the IMS; (ii) define the system by writing a well structured manual to act as the company's instruction book; (iii) communicate IMS requirements and expectations throughout its structure; and (iv) install common system elements. At the level of planning, Alpha Inc must insure permanently that (i) risks are identified and managed; (ii) responsibilities and roles are identified and communicated; (iii) an expected emergencies plan is set.

During the IMS implementation, it is critical to respond to the following questions:

- For each process are there procedures for measurement and monitoring and are results recorded?
- Are personnel assessed as competent to carry out their tasks?
- Are resources adequate?
- Are documented procedures in place as required by specific standards?

At the level of performance assessment, it is indispensable to insure that (i) requirements of each process are defined and measured; (ii) performance is measured against requirements and recorded; (iii) a corrective action is taken and tested when problems arise; and (iv) the audit system is comprehensive.

Additionally, Alpha Inc should (i) have an effective system for corrective actions; (ii) take into account stakeholders feedback when reviewing nonconformities; (iii) identify risks of actions to be taken; and (iv) have a system for measuring improvement. However, the main tool for achieving improvement is through the management review. This latter should take place regularly and focus not only on maintaining records but also look on opportunities for improvements including those related to the overall integrated system (BSI, 2003).

REFERENCES

- Alan, B.P. (1981). Management directed buyouts. *Journal of Management*, 27, (3), 23-34.
- Bank, R. L. & Wheelwright, S. C. (1983). *Operation versus strategy: Trading tomorrow for today*, New York: John Wiley.
- Davis, M.R., Jones, L.K. & English, C.P. (1999). Directing LBO's in aviation firms. *Journal of Strategic Policy*, 41, Fall, 113-127.
- Johnson, B. (1993). *Principles of banking*, New York: John Wiley & Sons, Inc.
- British Standards Institution (2003). *IMS – Continual improvement through auditing*. London: IMS Risk Solutions Ltd.
- BSI British Standards. (2012). *PAS 99: Specification of common management system requirements as a framework for integration*. Retrieved from <http://www.bsigroup.com/en-GB/pas-99-integrated-management/>
- Buhl-Hansen, B., Christensen, J.O., Eliassen, A., Jørgensen, L. P, & Vestergaard, J. (2008). *Integrated management systems: Incentives, barriers, and outcomes*. Master in Environmental Engineering – Risk Assessment. Aalborg University, Denmark.
- Dalling, I. (2007). *Integrated management system: Definition and structuring guidance*. CQI IMSIG
- Dalling, I. (2012). Management integration: Benefits, challenges and solutions. IIRSM Technical Paper: European Cooperation for Accreditation. (2010). *Legal compliance as a part of accredited ISO 14001: 2004 certification*. EA-7/04 M. P.p. 1-15.
- International Institute for Sustainable Development. 2013. ISO 14001 2004. Retrieved from https://www.iisd.org/business/tools/systems_iso.aspx
- ISO. (2002). ISO 19001:2002(E). *The International Standardization Organization*. Retrieved from http://thuvienkhcn.vinhlong.gov.vn/tailieukhcn/.../ISO/ISO_19001_2002.pdf
- ISO. (2004). *ISO 14001: Environmental management systems- Requirements with guidance for use*. Retrieved from <http://www.praxiom.com/iso-14001-2004.htm>
- Jackson, S. L. (1997). *The ISO 14001 implementation guide –Creating an integrated management System*. New York: John Wiley& Sons, Inc.
- Jørgensen, T.H. & Remmen, A. (2005). *Tools for a sustainable development*. Preliminary edition, Aalborg University.
- Jørgensen, T. H, Remmen, A & Mellado, M.D. (2005). Integrated management systems- three different levels of integration. *Journal of Cleaner Production*, 14, (8), 713-722.
- OECD. (2005). *Integrated management systems (IMS): Potential safety benefits achievable from integrated management of safety, health, environment and quality (SHE&Q)*. *OECD Series on Chemical Accidents*, (5), 9, 126-159.
- OHSAS Project Group. (2007). OHSAS 18001: Occupational health and safety management systems requirements. Retrieved from <http://ehs-club.com/NuoWanFile/file/2014-01-16/tIABSimxWD893.pdf>
- Patience, M.M. (2008). *Integrated management systems: A qualitative study of the levels of integration of three Danish Companies*. Environmental Management Department, Aalborg University.
- Pérido, D.M. (2015). ISO-2: ISO 9001:2000 and quality management systems. Retrieved from <https://www.westgard.com/iso2.htm>
- Raišiene, A.G. (2011). Advantages and limitations of integrated management system. *Social Technologies*, 1,(1), 25-36.
- Shrestha, R. (2011). OHSAS in Brief. Retrieved from <http://www.slideshare.net/ravisth7/ohsas-in-brief>
- Sokovic, M., Pavletic, D.,& Kern Pipan., K. (2010). Quality improvement methodologies – PDCA cycle, RADAR matrix, DMAIC and DFSS. *Journal of Achievements in Materials and Manufacturing Engineering*, 43, (1), 476-483.
- The Chartered Quality Institute (2007). *Integrated management framework*. Retrieved from <http://www.thecqi.org/Community/Branches/CQI-Scotland/CQI-West-of-Scotland/Past-events/December-2007-PAS-99/>

- Von Ahsen, A., & Funk, D. (2001). Integrated management systems - Opportunities and risks for corporate environmental protection. *Corporate Environmental Strategy*, 8, (2), 165-176.
- Whitelaw, K. (1997). *ISO 14001 environmental system handbook*. Oxford: Butterworth Heinemann.
- Whitelaw, K. (2004). *ISO 14001 Environmental systems handbook*. 2nd Edition. MA: Elsevier
- Wilkinson, G. & Dale, B. G. (2002). An examination of the ISO 9001:2000 Standard and its influence on the integration of management systems. *Production, Planning & Control*, 13,(3),284-297.
- Zeng, S. X., Shi, J., & Lou, G. X. (2007). A synergetic model for implementing an integrated management system: an empirical study in China. *Journal of Cleaner Production*, 15, 1760–1767.
- Zeng, S. X., Xie, X. M., Tam, C. M., & Shen, L. Y. (2011). An empirical examination of benefits from implementing integrated management systems (IMS). *Total Quality Management & Business Excellence*, 22(2), 173–186.