

A survey on Indian Experience on Integrated Management Standards (IMS)

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Abstract: Adoption of management systems standards is a key issue in manufacturing industry in India. Following the global trend quality and environmental issues are gaining importance. However the number of ISO 14001 certified companies are much less in India as compared to ISO 9001. The integration of ISO 14001 with ISO 9001 may help companies to sustain competitive advantage and overcome disappointments with quality standards and in turn encourage companies to adopt good environmental practices. The aim of this research is to study the implementation of integrated management standards (IMS) by the manufacturing organizations in India. The different aspects of integration and benefits of IMS implementation are analyzed. This research is based on empirical study carried out in Indian manufacturing firms, involving the application of a questionnaire. This questionnaire was tested on 50 manufacturing companies in India. The study reveals that focus on stakeholders; top management commitment and training are critical success factors for implementation of IMS. The main benefits of integration are discussed. The small sample size is one of the major limitations of this study. The paper informs the managers in manufacturing organizations and practitioners of management system standards especially in developing countries about IMS and will enable them to adopt IMS in future so that those organizations may not implement multiple and overlapping MSS(Management System Standards).

Keywords: Integrated management standards (IMS), India, manufacturing, implementation, management system standards (MSS)

1. INTRODUCTION

Various studies have confirmed that sustainable development is three dimensional [1]. Usually, cleaner production the organizations can improve the economic and the ecological dimensions. Adoption of management system standards(MSS) such as ISO 14001 is one way in the direction of

cleaner production. Since the Introduction of management systems standards (MSS) such as ISO 9000, ISO 14001, OHSAS, and SA 8000 the service and manufacturing companies in all the industrial sectors are adopting these and in turn asking their suppliers to get registered. The ISO survey has revealed that as of December 2007, 175 countries have about 951486, ISO 9001 certified companies and 148 countries have about 154572, ISO 14001 certifies

companies all over the world [2]. Up to year 2008, there are 1835 organizations in 68 countries in the world which are SA 8000:2001 certified [3]. ISO 22000:2005 is another management standard based on and fits very well with ISO 9001:2000 especially developed to assure food safety [4] and adopted by a number of organizations. This development has been especially noticeable at the global level where rising economic integration across the borders has heightened the need for universal standards to facilitate collaboration and synchronization between firms. The globalization of businesses has enhanced the role of quality and standards in economic progress of the nations. The standards act as a lubricant for global trade [5].

The most of the research has shown that adoption of these MSS improves the performance of the organizations. Implementing ISO 9000 is beneficial for the organization [6]. Implementing ISO 9000 can lead to better safety performance [7]. The adoption of environmental management practices is not only beneficial for environment protection but these are also linked with firm performance [8-9]. There is positive link between environment regulation and technical efficiency of the organizations [10]. Voluntary normative adoption of the pollution prevention technique approach encourages innovation and provides the firm with flexibility [11]. The corporate social performance is also positively associated with corporate financial performance [12]. Although the individual MSSs has its own focus, ISO 9001 is focused towards customer satisfaction, ISO 14001 towards supporting environmental protection and OHSAS is focused on improvement of safety and health related performance but the adoption of one generated interest in adoption of other. and on the basis of research in SMEs in UK and Spain, it is concluded that the enterprises that are adopting quality management standards were more likely to be interested in a health and safety management [13]. Therefore there exists a relationship between these standards. At the same time some authors have indicated that upon the implementation of quality and other standards, the companies have experienced higher cost of certification and auditing [14].

2. INTEGRATED MANAGEMENT SYSTEMS

A management system is a set of interconnected processes to achieve desired outcome more effectively. Along with core business aspects some other aspects are important for the organizations e.g. environment, health and safety of employees, social responsibility etc. So a management system is composed of all the elements that have effect on business performance. Research has proved that Quality management, Environment management, safety has significant relationship with quality and financial performance of the organizations financial performance. It has also been indicated that that management systems for quality, environment, safety and health management have resulted in a significant number of duplicated procedures w.r.t training, auditing, inspection etc. These MSS are managed separately by different functional departments in manufacturing organizations. The implementation of these standards separately in the organizations results in excessive paperwork and high cost to the organizations. In this way lot of effort is wasted in developing and implementing these standards. If the organization is adopting one management system standard, many of the documents prepared for that adoption can be used for other management system standard with only minor amendments. An integrated management system (IMS) integrates all components of management standards into one coherent system to facilitate the achievement of its purpose and mission. Integration relates to making management systems work together by passing information through some form of interface and instead of having different systems, only one integrated system is present within the organization, which is implemented, and maintained effectively throughout the organization. An IMS is a single management system that delivers the means of the business through mutually supporting structured management functions build up around the wider needs of the organization [15]. Integration of MSS is becoming a necessity for many organizations irrespective of their size, location or the industrial sector context [16]. By

integrating the management systems there can be enhancement in productivity of the organization. So its implementation has a considerable impact on the business processes of the organizations. The organizations will not have to apply for not only for one but a range of management system standards at the same time to fulfill their own requirements as well as those of external stakeholders. With implementing IMS the organizations will have to do lesser paperwork, lesser duplication of activities, lesser costs in interpretation, implementation, auditing and registration, eliminate redundancy, improve communication, facilitate training and ultimately develop system for more productivity and efficiency thus achieving corporate goals.

Wilkinson and Dale [17] in their study suggested two approaches to achieve integration. First is to merge the documentation through the aligned approach through the similarities in the management standards, and second is to adopt the integrated system through a total quality management approach. Merging of documentation through the aligned approach is adopted for certification purposes. Zutshi et al [18] concluded that in the 21st century integration of management system standards will be one of the major strategies for survival. At the same time it will be beneficial in saving of time, cost and other resources. The authors on the basis of literature surveyed identified a number of tangible and intangible benefits of the integration.

Zeng, Shi and Lau [19] have found that there are certain problems with running parallel systems such as complexity, low management efficiency, cultural incompatibility, employees hostility, increased costs, wastage of human resources, slow information exchange and increased paperwork which can be overcome by implementing IMS.

Salomone [20] found on that a number of organisations in Italy are implementing IMS. These are implementing quality, environmental and occupational safety and health (OSH) management systems. The authors purposed that in the integration of management systems depends upon the company size and not on the other contextual variables like type of industry and its location.

Grifith et al [21] have found in their study on that a number of construction organizations in UK that there are three types of systems used by the respondents. These are

- (1) A merged system in which environmental management system is brought together with existing quality management system.
- (2) A conversion system based in which environmental elements developed within e an established quality management system.
- (3) An engineered system where integration of the quality management system with environmental management elements and health and safety elements to form a synergistic holistic system.

The benefits associated with establishment of IMS which are

1. Economic Benefits such as reduced risk of environmental penalties, reduced costs of remediation activities, reduced costs of resources and waste materials.
2. Organizational Benefits such as improved opportunities, improved marketplace, improved relationships, improved internal operations
3. Environmental Benefits such as reduced impact on the natural environment, reduced impact on natural resources, reduced impact on communities

Karapetrovic et al [22] in their study at Catalonia in Spain found that 96% of the organizations have implemented ISO 9001 along with ISO 14001. The authors explored the possibilities of integrating ISO 14001 with other management system standards. The research depicts that a large percentage (85%) of organizations with different types of MSSs have decided to implement some or all of them in an integrated way.

The benefits of IMS as discussed by various researchers are given in table 1.

The developing countries are generally lagging behind in applying safety, health and environment principles that are adhered to in developed countries[27]. Literature survey reveals that this is the first study for implementation of IMS in India and perhaps second in developing countries in the recent literature(first was in China by Zeng et al[19 & 28]).

Table 1: Benefits of IMS

S No	Benefit	Type	Sources
1	Reduction in documentation	I	Douglas et al[23], Griffith et al[15], Zutshi et al[18], Mcdonald et al(2003), Jorgenson et al(2005), Salomone [20]
2	Reduction in time required for implementation	I	Karapetrovic et al(2009)
2	Customer satisfaction	E	Zutshi et al[18], Mcdonald et al [24], Salomone [20]
3	Reduction in costs	I	Douglas et al[23], Zutshi et al[18], Mcdonald et al [24], Jorgenson et al[25], Zeng et al[19]
4	Synergy between MSS	I	Rocha et al[26]
5	Reduction in audits	I	Douglas et al[23], Salomone [20]
6	Reduction in training requirements	I	Salomone [20]
7	Better communication between departments		Douglas et al[23], Zutshi et al[18], Mcdonald et al [24],
9	Operational Improvements		Zutshi et al[18], Mcdonald et al [24], Jorgenson et al[25], Zeng et al[19]
10	Improvement in performance	I	Mcdonald et al [24],
11	Continual improvements	I	Salomone [20]
12	improved image of company	E	Douglas et al[23], Salomone [20]
13	gaining competitive advantage	E	Salomone [20]

3. PRESENT WORK

This research reports the results of a survey which tried to explore some of the implications of Integration of MSS standards by Indian manufacturing organizations. The objective of this research is to find the significant information about integrated management systems for organisations that are in the process of adopting MSS to make their standardization process more cost-effective and successful by the way of integration. This paper informs about the advantages which the companies have perceived to get with integration. This will allow the organizations to anticipate the possible benefits of IMS. Another important feature is to identify the obstacles encountered by manufacturing organization seeking the integration of MSS.

One of the main objective of this study is to evaluate the impact of IMS on performance of manufacturing industries in India. According to numerous studies, there are many benefits related to the integration of MSS (Table 1). The main hypothesis in this study is:

H1. There is a meaningful relationship between integration of MSS and the performance of manufacturing industry.

The authors also defined eight sub-hypotheses (based on eight known advantages which are discussed in Table 1) as follows:

- (1) There is a meaningful relationship between integration and documentation reduction.
- (2) There is a meaningful relationship between integration and reduction in time required for implementation of MSS.
- (3) There is a meaningful relationship between integration and customer satisfaction.
- (4) There is a meaningful relationship between integration and reduction in time required for implementation of MSS.
- (5) There is a meaningful relationship between integration and reduction in time required for implementation of MSS.
- (6) There is a meaningful relationship between integration and reduction in time required for implementation of MSS.

4. METHODOLOGY OF THE RESEARCH

A questionnaire survey was conducted manufacturing organizations in North India to find out whether these companies have integrated the management system standards or not. Those organizations were chosen for the survey which are certified to Quality management standards such as ISO 9001 or TS 16948 and ISO 14001. The questionnaire used in this study was developed on the basis of literature survey, consultation with the industries and MSS researchers in the world. The questionnaire was pilot tested on three

manufacturing organizations which resulted in rewording of the questions and deleting some questions. The questionnaire formulation process is given in figure 1. The questionnaire was then translated into local language Hindi with help faculty member in Punjab University, Chandigarh. The final questionnaire was sent to around 270 manufacturing in Northern India. Of the 270 organisations, 60 questionnaires were returned, yielding a response rate of 22.22%. Out of these only 50 organisations have some sort of integration in their MSSs. The demographic profile of the 50 organization is given in Table 1 and Table 2.

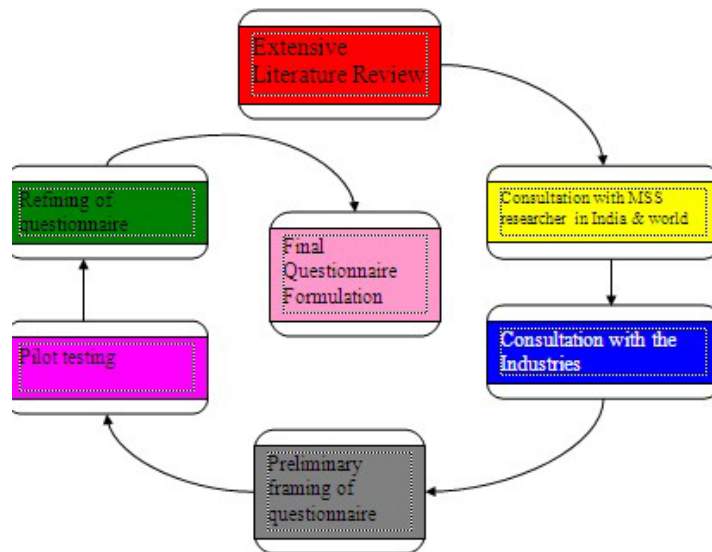


Fig. 1. Questionnaire formulation process

Table 1: Respondent by nature of industry

S.No	Nature	Frequency	%age
1	Automobile	26	52.0
2	Cement	1	2.0
3	Consumer products	3	6.0
4	Electrical	3	6.0
5	Electronics	6	12.0
6	Pharmaceutical	2	4.0
7	Primary metal	3	6.0
8	Textile	6	12.0
	Total	50	100.0

Table 2: Number of employees

S.No	No of employees	Frequency	%age
1	51-250	7	14.0
2	251-500	15	30.0
3	501-1000	16	32.0
4	More than 1000	12	24.0
	Total	50	100.0

Table 3: Turnover of the Organisations

S.No	Turnover(In Indian Rs)	Frequency	%age
1	0-100 Millions	1	2.0
2	100-500 Millions	4	8.0
3	500-1000 Millions	13	26.0
4	1000-2000 Millions	9	18.0
5	2000-3000 Millions	3	6.0
6	3000-4000 Millions	9	18.0
7	Above 4000 Millions	11	22.0
	Total	50	100.0

5. RESULTS OF THE SURVEY

On analysis of questionnaire it has been found that 50 out of 60 organisations (around 83%) have different type of integration of their MSS as shown in table 4. The organisations have implemented in quality management: ISO

9001, QS 9000 and TS 16949, in environment ISO 14001, In Safety OHSAS 18001, in social accountability SA 8000, in food safety HACCP The combination of implemented management standards is given in table 5.

Table 4: Implementation of IMS

Organisations	Contacted	Responded	IMS implemented
Number	270	60	50

Table 5: Integration of management systems

S.No	Management Systems	Respondents	%age
1	Quality, Environment	37	74%
2	Quality, Environment, OHSAS	29	58%
3	Quality, Environment, Food safety	3	6%
4	Quality, Environment, Social Accountability,	10	20%
5	Environment, social accountability	5	10%

Two different types of integration process were being used by the responding organizations. These were:

- (1) combining other MSSs such as EMS with existing MSSs such as QMS;
- (2) an adaptive system based on an

established MSS with added elements of other MSS.

The second system was used by 86 % of the responding organization. The areas in which some sort of integration has taken place are shown in table 5.

Table 5: Areas of integration

S.No	Area where integration took place	Respondents	%age
1	Documentation and its control	42	84%
2	Auditing	35	70%
3	Training	37	74%
4	Corrective and preventive action	33	66%
5	Management review	35	70%
6	Continual improvement process	30	60%
7	Purchase	25	50%

The most common area where integration occurred is documentation and its control (84%). The organization which had separate system of documentation previously, combined it into a single system. Management review,

Auditing and Training are the other areas where integration has taken place.

Another aspect analyzed was the time required for different type of integration.

Table 6: Time taken for integration

S.No	Time taken	Respondents	%age
1	Up to 6 months	5	10%
2	6-12 months	12	24%
3	12-24 months	10	20%
4	24-36 months	20	40%
5	More than 36 months	3	6%

Most of the organizations (40%) took 24-36 months for the integration. Actually time for integration varies with the degree of integration and size of the organization. Some bigger organization took more time for integration than for SMEs.

was critical success factors of IMS implementation. Top management commitment, provision of resources, training, process control, documentation, continual improvement were the major factor as perceived by the respondents

The next issue analyzed through the research

Table 7: Critical success factors for integration

S.No	Critical success factors	Respondents	%age
1	Top management commitment	42	84%
2	Provision of resources	39	78%
3	Training	43	86%
4	Process control	35	70%
5	Documentation structure	42	84%
6	Continual improvement	40	80%
7	Focus on stakeholders	45	90%

6. BENEFITS OF INTEGRATION

There was less effort spent on audits as there was no need for separate audits of each of

management system standard because of similarities in structure and documentation between them. Regarding the benefits with integration the organization responded in the manner as given in Table 8.

Table 8: Benefits of integration

S.No	Benefit	Respondents	%age
1	Reduction in documentation	44	88%
2	Reduction in time required for implementation	41	82%
3	Customer satisfaction	35	70%
4	Reduction in costs	36	72%
5	Synergy between MSS	42	84%
6	Reduction in audits	40	80%
7	Reduction in training requirements	24	48%
8	Better communication between departments	34	68%
9	Saving of time	35	70%
10	Operational Improvements	36	72%
12	Continual improvements	35	70%
13	Improved image of company	44	88%
14	Better focus on business goals	37	74%
15	Environmental benefits	39	78%

The implementation of IMS also results in environmental benefits through reduction in impact on environment and costs. There is increase of interest in implementation of environment management. The organization were asked to indicate the environmental benefits of integration. The environment benefits accrued due to IMS are reduced impact on natural environment, and reduced impact on

natural resources

Table 9 represents the main obstacles faced during implementation of IMS. The main obstacles faced by the manufacturing organisations during integration of management system included a lack of support from top management (84% of total respondents), a lack of training (74%), insufficient guidelines for the implementation (76%).

Table 9: Obstacles faced during implementation of IMS

S.No	Obstacles	Respondents	%age
1	Lack of management support	42	84%
2	Lack of awareness	35	70%
3	Lack of training	37	74%
4	Lack of communication	33	66%
5	Lack of auditors	35	70%
6	Cultural barriers	30	60%
7	Insufficient guidelines for implementation	38	76%

4. CONCLUSION

India had to pay a great sacrifice for its industrial development e.g. severe environmental deterioration and become one among the world's most polluted countries. Increase in production activities have resulted in more pollution emissions[29] and environment problems due to resource

depletion and pollution has become acute and the decision for cleaner manufacturing will be more effective[30]. The Indian Ocean experiment has also indicated that the South and East Asian region is a substantial source of global pollution [31]. To reduce the levels of pollution, India has taken some measures including promotion of implementation of the environmental management standards by the

manufacturing organisations. As more and more Indian manufacturing organizations are adopting the management system standards, these have been encountered with the additional work and another challenge of managing separate systems. Adoption of integrated management systems by combining the different MSS provides an effective way to face this challenge. It has been confirmed through literature survey that there is a tendency in companies all over the world towards integration of management system standards (Douglas and Glen [23], Mackau [32], Fresner and Engelhardt [1], Jørgensen et al. [25], Labodova [33], Zutshi and Sohal [18], Zeng et al. [19], Salomone [20], Wilkinson and Dale [34]). Research has suggested that long period of certification process; increase paperwork and high implementation cost are the main difficulties encountered in ISO 14001 implementation [35]. However these difficulties can be overcome by implementing IMS. The manufacturing industry in India has implemented ISO 9001, ISO 14001 standards in their business operations to a sufficient extent to compete with the manufacturing organizations from developed and developing countries. This can be gauged from the fact that India is ranked high in 2007 survey of these certifications. The integration of MSS process was investigated using a questionnaire survey on 60 manufacturing organizations in India.

The results indicate that the majority of the organizations which responded (around 83%) have integrated their management system standards to some extent. This finding of the research is same as that of studies conducted in other countries, Douglas and Glen [23] with 78%, Bernardo et al [36] with 86%. The integration has taken place in documentation and documentation control, auditing, training and management review processes. The time spent for integration purpose ranged from 24-36 months. The critical success factors for implementation of IMS are focus on stakeholders, management commitment, provision of resources, training, process control and documentation structure and continual improvement. The findings indicate that the benefits of IMS include improvement of image of the company, reduction in documentation, reduction in time required for implementation, synergy between MSS, reduction in audits. The adoption of integrated management systems in manufacturing is one of the challenges of today. The authors believe that the recognition of benefits associated with IMS in manufacturing organizations will spread across the world, making it a common management practice. It is also believed that the demand for IMS will increase among stakeholders. However, the manufacturing organizations which are early adopters are most likely to reap most of the early benefits.

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