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INTEGRATED MANAGEMENT OF THE ISO 9000, ISO 14000 AND PN-N 18001 SYSTEMS OF STANDARDS AT A SELECTED ENTERPRISE

1. Introduction

Within the last several years, a growing number of enterprises have clearly become more and more interested in the so-called system approach to managing quality, the environment and work safety. This is an outcome of modern managers becoming increasingly convinced that their actions in the field of environmental protection have to be accompanied by striving to improve the quality of production, as well as work safety.

The certification of quality management is based on the PN-EN ISO 9001:2000 standard, while the certification of environmental management is based on the PN-EN ISO 14001:2004 standard. The certification of work safety is based on the PN-N-18001:2004 standard.

More and more enterprises are aiming to obtain all three certificates, which qualifies them for the so-called process system certificate. Striving to integrate these management systems at the level of an enterprise has become indispensable, since companies are now required to adapt their activities to environmental protection [Lewandowski, 2000, 196], mainly through:

– preventing and ceasing any activities which may constitute a hazard to worker safety or to the surrounding environment,

– taking responsibility for the damages resulting from accidents at work and environmental pollution, as well as for the costs resulting from poor quality,

– including quality, ergonomy, safety and environmental protection in the goals, objectives and strategy of the enterprise.

The formulation of the ISO 9000, ISO 14000 and PN-N-18001 systems of standards assumes that enterprises strive towards perfecting the Deming cycle. The Deming cycle, also often called the PDCA cycle (Plan, Do, Check,

Act), is used for continuously perfecting all actions and processes in an enterprise's systems.

Integration of these management systems is also favored by the more and more commonly recognized philosophy of TQM (Total Quality Management), commonly defined in Poland as complete management through quality. It can be said that this philosophy goes far beyond the activities included in quality management. It is thought of as a team philosophy of enterprise management, in which the clients' needs and the enterprise's goals are inseparable. TQM aims at the most efficient use of human and material resources by an organization, so as to achieve its targets, such as: improved effectiveness of the processes conducted, gaining a better competitive position on the market, increasing workers' commitment to improving quality, satisfying clients' needs completely and – naturally – increasing profits.

The main goal of this paper is to present the process of constructing and implementing an integrated management system in accordance with ISO 9000, ISO 14000 and PN-N-18001 standards at an industrial enterprise, which is a Polish branch of a major multinational company engaged in electronics and illumination. The name of the enterprise is designated by the symbol X, as they wish to remain anonymous.

The overall analysis is based on the relevant bibliography and on comparative assessment of the experimental data obtained from enterprise X.

2. Constructing an integrated management system

Integration of a management system can be achieved in three ways. First, an integrated system can be constructed as a whole. Second, new subsystems can be sequentially integrated with the ones already existing in the enterprise. Third, it is possible to construct and to manage each subsystem separately.

An important and joint element of these standards is that ISO 9001, ISO 14001 and PN-N-18001 certification can be achieved by any organization, notwithstanding its size and activities. An essential common element is continual striving for perfection [Wąsikiewicz-Rusnak, 2006, 174].

The construction of an integrated management system (IMS) can be divided into the following stages, which are carried out in succession:

Decision to introduce an IMS

(i) Construction of the system,
(ii) Documentation,
(iii) Implementation,
(iv) Maintenance and continuous perfecting.

The decision to introduce an IMS is made by the company manager or president. After making such a decision, a vision of how the system should

be constructed has to be created, together with a strategy and tactics for its implementation. The organization of the system has to be mapped out. The ways of funding such a project have to be defined, together with the duration of the construction period, the necessary changes in the company's organization structure, as well as which member of the management is responsible for each of quality, the environment and work safety. Finally, a consulting company has to be chosen.

The documentation stage necessitates – above all – the system to be described, as well as the writing and verification of the management book, plans and procedures, together with process documents, manuals, specifications and forms. At this stage, the company has to ensure that members of each group of employees are trained on – among other things – interpreting the requirements and guidelines of the ISO 9000, ISO 14000 and PN-N-18000 standards, as well as on organizing and running meetings with workers.

The implementation stage necessitates, above all, training courses on the implementation of an IMS, including – but not only – training for the managers who are responsible for implementation, for users on applying the requirements of the system and for employees in specific posts. After the schedule for implementation has been worked out and various documents describing the system have been introduced, the system has to be monitored and audited, in order to verify its efficiency and effectiveness. The IMS has to be inspected by the top management of the company at the times appointed by them. After the final inspection, if the IMS is found to function appropriately, the management files a request to the appointed certification authority to start the procedure of IMS certification according to the PN-N-18001, PN-EN ISO 9001 and PN-EN ISO 14001 standards.

Implementing an IMS for work safety, quality management and environment management may produce various positive effects for an enterprise. Also, the operating costs and financial expenses borne by implementing all three systems concurrently are lower than the costs of implementing each system in turn [Wąsikiewicz-Rusnak, 2005, 250–253, 256].

Enterprise X based the construction of its IMS on a system of quality management, with the systems of environment management and safety management being gradually added and integrated.

In 1997, the enterprise obtained an ISO 9000 certificate. The next challenge faced by the entire organization was to implement a system of environment management, based on the ISO 14001: 1996 standard. The decision on achieving this target was made by the general director as early as 1997. This project was unavoidable, since in 1994 measurable targets had been defined by the head office presented in 4-year programs of action, according to which the company was to become the most environmentally-oriented organization in the electronics and illumination industries. Thanks to their highly–skilled

staff, X obtained the ISO 14001: 1996 certificate for environmental management in 2000. Getting such a certificate was in no way equivalent to the cessation of activities aimed at increasing the environmental friendliness of their products and production processes. The next action initiated by the company management was to join the EcoVision program promoted by the Corporate Environmental and Energy Office. The goal of this program was to continually reduce the adverse effects of the company's activities on the environment.

X's management system includes work safety management as well. Although no branch is required by the company to use such a system, it was only a question of time before the Polish branch implemented one. This followed from the management philosophy adopted. The decision on introducing such a system and integrating it with the already interconnected systems of quality and environment management was also affected by the market situation abruptly changing. These changes mainly involved increased requirements for quality, environmental protection and work safety, which necessitated further efforts by the organization aimed at their clients (both domestic and international) being offered still better products and services, as well as ensuring safer working conditions for their employees.

In 2000, enterprise X obtained ISO certification for their system of work safety management.

At present, X have an IMS for ensuring quality, environmental protection and safety. Each component in this system has a number of common points, which enables simultaneously satisfying the requirements of the certification systems. Apart from satisfying these requirements, the documentation has also been extended and now the elements of all of the three component systems are included therein.

The IMS at enterprise X is documented using the Book of Quality, Environment and Safety Management, as well as the procedures and manuals prepared according to the "procedure of implementing the documents on the system of quality, environment and safety management". Among these documents, the Book of Quality, Environment and Safety Management takes precedence. This document presents a system of quality, environment and safety management which meets the requirements of ISO 9001, ISO 14001 and PN-N-18001. The Integrated Management Book is implemented by the Proxy for System Affairs, with the participation of the organization's section heads and the quality & environment engineer. Any revisions of the book's contents are made by the System Proxy after they are approved by the General Director. These revisions are recorded in the "list of revisions" – which is included in the Integrated Management Book as an appendix. In order to ensure that the Book is up-to-date, it is checked for its conformance with actual practices prior to each system inspection by the System Proxy. The Book of Quality,

Environment and Safety Management, as well as all of its revisions, are approved by the General Director.

Copies of the Book of Quality, Environment and Safety Management are distributed to members of the distribution list (in its electronic version). The original is kept by the System Proxy. Uncontrolled copies of the book are issued with the printed inscription: "FOR INFORMATION ONLY".

In 2000 enterprise X's integrated system satisfied the revised requirements of ISO 9001; 2000, while in 2004 it also satisfied an updated version of PN-N-18001: 2004. In 2005, the system satisfied the requirements of the updated system ISO 14001: 2005.

3. Requirements and functioning of the integrated management system at the studied enterprise

In order for the IMS to be complete, it must satisfy the requirements of all three component standards. These requirements are for the entire system, from management responsibilities to monitoring the control processes. Enterprise X constructed its IMS on the basis of the original system of quality management, thus it is best adapted to the criteria for certification pertaining to this system.

The Book of Quality, Environment and Safety Management includes a detailed description of the ISO 9001, ISO 14001 and PN-N-18001 criteria. Table 1 presents the index of the IMS Book at enterprise X.

X's integrated system of quality, environment and safety management pertains to and affects any actions related to the quality, environmental impact and safety of the products manufactured, together with the production process. The system must be observed by all workers and is indispensable in the enterprise's daily operation for: ensuring quality, environmental protection, work safety and the safe usage of products; maintaining quality, safety and the condition of the environment; solve problems related to quality, the environment and safety; initiate corrective and preventive measures. At enterprise X, ensuring quality, environmental protection and safety are aims and the mission of all employees.

4. Concluding remarks

The growing importance of obtaining certification of management systems in conformance with the ISO 9001: 2000, ISO 14001: 2005, PN-N-18001: 2004 standards discussed herein is due to the fact that such certification is now a major instrument for firms in constructing an image and marketing. It is

Table 1. Index of the IMS Book at enterprise X

General	00
Management responsibilities	01
System of QUALITY, Environment & Safety Management	02
Description of criteria	03
Designing control procedures	04
Documentation & data supervision	05
Purchases	06
Control of products delivered by clients	07
Product identification & identifiability	08
Monitoring Processes	09
Controls & tests	10
Supervising the equipment for monitoring & controlling tests	11
Role of controls & tests	12
Dealing with products that do not meet the requirements	13
Corrective & preventive measures	14
Handling, storage, packaging, protection and delivery of products	15
Monitoring records	16
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Source: Enterprise X's own materials.

absolutely indispensable, in order to meet the increasingly strict requirements of clients. The efforts of Polish companies to obtain certification also results from the country joining the European Union. The international standards that have been introduced remove any technical barriers to trading between the member countries – Poland included. Furthermore, certification enables Polish companies to operate on the EU market on a "level playing field".

It should be noted that certification alone is not enough to guarantee a successful organization. The system will only give the results expected when it is functioning efficiently. Hence, the process of continually improving the system is of great importance and is a major element of the philosophy of the ISO standards. Moreover, introducing each particular management system and obtaining its certification is not sufficient. The next stage is to create an integrated management system. Conventionally, it is composed of three main systems to control such areas of management as quality, environmental protection and safety. Only integrated systems form an overall management system in conformance with international and domestic standards.

This evaluation of the construction and functioning of an integrated management system in an industrial enterprise leads to the conclusion the system enables keeping uniform documentation, as well as running joint audits and inspections of the integrated system; the effect being that time is saved and costs avoided compared to running each component system independently. Integration of the said systems also enables better understanding and satisfaction of clients' requirements for quality, environmental protection and safety, both of the manufacturing processes and of the products.

In order for the management system to function efficiently, internal audits and system inspections are conducted at enterprise X. Any incompliances disclosed by the inspections were mainly due to human factors, *e.g.* documents being filled in wrongly missing, or too late. On the other hand, due to the extended structure of the system, which covers the fields of quality, environmental protection and safety, there is no adequate supervision of the initiation of corrective measures. Thus, it seems that incompliance is due to the inefficiency of delegating responsibilities.

More efficient functioning of the integrated system at enterprise X could also be achieved by satisfying the criteria of the new versions of the ISO 9000, 14000 and PN-N-18001 standards. In order to do this, enterprise X should focus on the process approach and identify all the processes carried out in more detail. Currently, extra training for workers would be desirable, which could eliminate, for example, documents being filled in wrongly. Also, it is absolutely necessary that the top management are in full control of the initiation of corrective measures.

Literature

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