Integration management system – new of requirements of ISO 9001:2015 and ISO 14001:2015 standards

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Abstract. Organizations are becoming more aware of the importance of integrated management systems (IMS). Interest in this subject indicates that IMS are seen as "management systems of the future". The problem is that the methodology of integration of management systems does not exist. There are specification for example PAS 66 that tell only about requirements standards. standards Both ISO 9001:2015 and ISO 14001:2015 standards were revised in 2015. Based on this, the aim of this article is to characterize the possibility of creation of IMS through the identification of common elements and specific requirements in accordance with professional references ISO 9001:2015 and ISO 14001:2015.

Key words – Integrated management system, environmental management system, quality management system

1. General requirements

According to the Chartered Quality Institute, UK, integration means a combination; that is putting all the internal management practices into one system in such a way that the components of the system are not separated but linked to form one integral part of the company's management system. In simple words, an integrated management system (IMS) is a management system which combines all components of a business into one coherent system so as to enable the achievement of it purpose and mission (OLARU M., MAIER D., NICOARA D., MAIER A. 2013).

The most common integrated international standards include are: Quality Management Systems (QMS) according to ISO 9001, Environmental Management Systems (EMS) according to ISO14001or EMAS III, and Occupational health and safety management systems according to OHSAS 18001. Integration of three management systems is possible because ISO 9001 and ISO 14001 standards are compatible and OHSAS 18001 specification was modelled on ISO 14001; all of them have a process oriented approach based on the concept PDCA (Plan - Do - Check - Act). Effective management is based on maintaining and improving standards. The first task should be to maintain management standards based on the cycle of SDCA (standardize - do - check - act). When standards are adhered

to by employees, the next task should be to improve the standards based on the PDCA cycle (plan - do - check - act) (JAGUSIAK-KOCIK M. 2014, KNOP K., MIELCZAREK K. 2015).

The ultimate focus of ISO 9001 is profit intended to improve customer satisfaction. EMS, according to ISO 14001, is focused on how the company cares about the environment (standard towards the outside). An important term which relates to EMS is sustainability. Sustainability is broadly defined as meeting the needs of the present generation without compromising the ability of future generations to meet their own needs (INGALDI M., 2015 STASIAK-BETLEJEWSKA 2015). OHSAS is focused on how management manages their employees (standard towards inside). These can also integrate other standards such as: ISO 27001 (Information security), ISO 26000 (Social responsibility), ISO 31000 (Risk management), or different industry standards ISO 50001 (Energy management), ISO 22000 (Food safety management systems), ISO 13485 (Medical devices), ISO/TS 16949 (Automotive quality management), etc., as well as internal standards developed by the company itself and valid within (IKEA, SONY, Slovnaft). ISO/TS 16949 together with ISO 9001 demonstrate guidelines for the implementation and maintenance of quality management systems in the whole chain of production processes and the production of spare parts in the automotive industry (ROSAK-SZYROCKA J. 2014).

Integrating two or more management systems into an integrated management system can have much advantages: alignment of objectives, processes, resources in different areas, reducing of paper work, eliminating of duplications between procedures of the systems, reduction in external certification costs over single certification audits, a holistic approach to managing business risks, improvement of internal and external communication, increase of management efficiency by merging three functional departments into one, time saving, better structured processes and clearer responsibilities, improved operational performance, cross-functional team work and integrated audits. It is a time consuming and costly process. The integration of systems arise to certain risks. One of them is giving different importance to each aspect, for example more attention is paid to aspects of quality at the expense of environmental aspects. It is important to remember that integration of systems does not mean that these systems will exist next to each other but have to be connected with each other and to form a complete unit. For integration is therefore not use the software package documentation administering the systems, or the inclusion of managers for QMS, EMS and OHSAS per one department.

2. Requirements of ISO 9001:2015 and ISO 14001 standards

In the year 2015 the new international standards ISO 9001:2015 and ISO 14001:2015 were published. In the year 2017 standard for Occupational Health and Safety Management Systems (ISO 45001) will be published. The similarities or the generic processes in a management system are: top management commitment, definition of a policy, planning of objectives and targets, procedures for training of employees, communication procedures, audits, documentation and records control, control of non-compliance, corrective and preventive actions, and management review. In the Table 1 similarities and specifications in management are presented. There are several approaches which can be taken, depending on the current position of an organisation.

Conversion: If an organisation has a certificated QMS, it can build upon it by adding the necessary processes to cater for health, safety, environment, and other requirements of management system standards.

Merging systems: If an organisation has more than one formal system, e.g. a quality management system and an environmental management system, it can merge these two systems and proceed to integrate other systems as it begins their formalisation. With this method the organisation can merge documentation where it supports the same process. However, they will remain two separate systems unless the labels are removed, and quality, safety and environment are no longer separated at the detail level.

System engineering approach: Whether an organisation has an existing formal system or no formal system, it can adopt the system engineering approach to management system development, i.e. design a system top-down to fulfil a specific objective. The benefits are that one coherent system can be built which serves business needs and does not tie the organisation to a particular standard (DOUGLAS A., GLEN D. 2000).

Table 1. Overview of similarities of standards ISO 9001:2015 and ISO 14001:2015

	SIMILARITIES OF MANAGEMENT SYSTEMS (QMS, EMS)
Context of the organization	The organization: – should determine external and internal issues, monitor and review information about that issues. – should determine interested parties and requirements of the interested parties to the quality management system (QMS) and environmental management system (EMS). The organization shall monitor and review information about interested parties. – should determine the scope of QMS and EMS. It means that the organization shall determine the boundaries of applicability of QMS and EMS (free choice, throughout the organization or in selected parts of the organization). – should not exclude from the scope of activities the ones that have a significant impact on strategy or environment. – should determine the applicability of QMS/EMS. When the applicable requirements of the standard an organization must substantiate this decision. – should determine the processes for QMS/EMS, determine the inputs and outputs from these processes, determine the interaction of these processes, evaluate the performance, determine the resources and ensure their availability, assign the responsibilities and authorities for processes and address the risk and improve the processes.

Leadership	Top management should:
	– demonstrate leadership.
	– take responsibility for the effectiveness of QMS/EMS.
	– establish, implement and maintain an policy and objectives for QMS/EMS. The policy shall be available to relevant interested parties, shall be maintained and communicated.
	– provide the resources needed for QMS/EMS.
	– ensure the requirement of QMS/EMS integration into the organization´s business processes.
	– assign the responsibility and authority for the following:
	  – ensuring that QMS/EMS conform to the requirements of standards ISO 9001:2015/ISO 14001:2015.
	  – reporting on the performance of QMS/EMS.
	– ensure that people are engaged in order to contribute to the effectiveness of QMS/EMS.

Planning	The organization should: – determine the risk and opportunities related to intended results of QMS and environmental aspects. – plan and implement actions to address of risks and opportunities and evaluate the effectiveness of these actions. – establish quality and environmental objective at relevant functions, levels and processes. The objectives should be consistent with the policy, shall be measurable, communicated and update. – plan changes in QMS/EMS and review the consequences of change. It means defining the purpose of the change, the availability of resources, reallocation of responsibilities and authorities, etc.. – determine and provide the resources needed for QMS/EMS.
Support and operation	The organization should: – determine and provide the resources needed for QMS/EMS. – determine the competence that is necessary in terms of people, take actions to acquire the competence and evaluate the effectiveness of the action taken. – ensure that person doing work under the organization´s control is aware of the environmental and qualitative policy, the quality objectives, the significant environmental aspects and their contribution to the effectiveness of QMS/EMS. – establish the process needed for internal and external communications relevant to QMS/EMS. – control the processes and determine the requirement for the processes, the products and services and establish criteria for the processes. – control outsourced processes.
Performance evaluation	The organization should: – evaluate the effectiveness of QMS/EMS. The organization ought to determine what needs to be monitored and measured, the methods for measurement, time of measurement and shall evaluate the performance QMS/EMS. – conduct internal audits at planned intervals. – review the organization´s quality management system and environmental management systems at planned intervals.
Improvement	The organization is supposed to determine and select opportunities for improvement. When nonconformity occurs, the organization ought to react to it, by reviewing and analysing, as well as determining its causes. It should also undertake any actions needed, review the effectiveness of any corrective action taken and update risks

Table 2. Overview of specifications of standards ISO 9001:2015 and ISO 14001:2015

		SPECIFICITIES OF MANAGEMENT SYSTEMS (QMS, EMS)
Leadership	**QMS**	Top management should determine, understand and meet customer requirements, and determine regulatory and contractual requirements.
	EMS	
Planning	**QMS**	The organization should: – determine and provide people for operation and control of processes and implementation of QMS, – determine, provide and maintain the infrastructure necessary for the operation of processes, – determine, provide and maintain the environment necessary for the operation of its processes (e.g. calm, non-confrontational, stress-reducing, temperature, heat, light, noise, etc.), – determine and provide the resource needed for monitoring or measuring, – ensure the measurement traceability (measuring equipment shall be identified, calibrated and safeguarded form damage), – determine knowledge necessary for the operation of processes.

	EMS	The organization should:
		 – determine the environmental aspects of activities, products and services and determine the environmental impact,
		 – determine significant environmental aspects by using established criteria,
		 – communicate its significant environmental aspect among the various levels and functions of the organization,
		 – determine the compliance obligations related to environmental aspects and determine how these compliance obligations apply to the organization,
		 – plan to take actions to address its significant environmental aspects, compliance obligations and risks and opportunities,
		    – plan how to implement the action into its environmental management system processes,
		    – plan how to evaluate the effectiveness of these actions,
		 Within the scope of EMS, the organization shall determine potential emergency situation, including those that can have an environmental impact.

Support and operation	**QMS**	The organization should: – communicate with customers, obtain customer feedback and provide information relating to products and services, – conduct a review of the customers requirement, regulation requirements and contract requirement before committing to supply products and services to a customer, – determine the required process stage, the control activities, the activities of verification and validation, the responsibilities and authorities, the requirement for products, the resource needed for the design and development of products and services, – identify, review and control change of design and development, – ensure that externally provided processes, products and services, which determine and apply the controls, monitoring, verification and validation of the external providers performance, do not adversely affect the organization's ability to consistently deliver conforming products and services to its customers, – communicate with external provider the requirement for the processes, products and services, the requirements on the approval and release of products and services, competence person, control and monitoring of the external providers performance, verification and validation, etc., – implement production and service provision under controlled conditions, – ensure identification and traceability of outputs, – identify and protect customer or external providers property, – meet requirements for post-delivery activities relating to warranty provisions, recycling, etc., – control change relating to production and service provision, – implement planned arrangements in order to release of products and services. The release of products and services to the customer should not proceed until the planned arrangements have been satisfactorily completed, – ensure identification of nonconforming outputs, apply appropriate action and verify outputs after repair.
	EMS	The organization should: – respond to relevant communications on its EMS, – establish the processes needed to prepare a response to potential emergency situations, – take action to prevent or mitigate the consequences of emergency situations and periodically test response actions.

Performance evaluation	**Q M S**	The organization should: – monitored of customer satisfaction, – analyse and evaluate appropriate data from monitoring and measurement.
	E M S	The organization should: – monitor, measure, analyse and evaluate its environmental performance and determine the criteria of evalu- ate, – communicate relevant environmental performance information both internally and externally, – establish, implement and maintain the process needed to evaluate fulfilment of its compliance obligation.
Improvement	**Q M S**	
	E M S	

Table 3. Overview of requirements on documentation information (ISO 9001:2015, ISO 14001:2015)

	DOCUMENTED INFORMATION	
Similar re- quirements		The organization should retain documented information in terms of: – the scope of the quality management systems (QMS) and environmental management system (EMS), – the quality policy and environmental policy, – the objectives for QMS/EMS (the organization shall determine: what will be done, what resources will be re- quired, who will be responsible, when it will be completed, how the results will be evaluated), – the risk and opportunities, – the processes of QMS/EMS (inputs, outputs, performance evaluation, resource, responsibility and authority, etc.), – necessary competence of people doing work under the control that affect the performance of QMS/EMS, – the documented information that demonstrate that processes have been carried out as planned, – performance evaluation of QMS/EMS, – the audit programme, – the management review, – the control of nonconformity.
Specific requ- irements	**Q M S**	The organization should retain documented information on the following: – the resources of monitoring and measurement, – the necessary knowledge, – the control of externally provided processes, products and services, – demonstrating fraceability, – lost or damaged property of a customer or an external provider, – the results of the review of change, – the release of products and services, – the control of nonconforming outputs, – the documented information needed to demonstrate that design and development requirements have been met (documented information on design and development inputs, controls, outputs and change).
	E M S	The organization should retain documented information on: – the environmental aspects, and environmental impact, – the significant environmental aspects and criteria used to determine its. significant environmental aspects, – the compliance obligations related to environmental aspects, – communications, – emergency preparedness and response, – the evaluation of compliance.

3. Conclusion

Integration of management systems into a single IMS brings many benefits to the organization. It is important to recognize, that IMS is a single structure used by organizations to manage their processes or activities that transform input of resources into a product or service which meet the organization's objectives and equitably satisfy the stakeholders quality, health, safety, environmental, security, ethical or any other identified requirement. If this conditions not met, for example in favouring one system over another may develop risk. The results of several international studies show that the most companies implemented ISO 9001:2000 first, followed by ISO 14001: 2004, and then OHSAS 18001:1999.

In Slovakia such a study has not been conducted. Studies have also shown the problems with integration have a small and medium-sized enterprises (SMEs) (DOUGLAS A., GLEN D. 2000). SMEs referred the lack of time, human and financial resources, and the perception that that management systems are too bureaucratic. In general, SMEs are not aware that the adoption of IMS not only improves their management and their internal efficiency, but also results in cost reduction.

Acknowledgment

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