IMPLEMENTATION OF INTEGRATED MANAGEMENT SYSTEM: A COSTS MODEL

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ABSTRACT

Purpose: To present and model activities necessary for implementation and certification of Integrated Management System (IMS) in enterprises.

Methodology: Based on knowledge about four specific management systems, the model of IMS implementation activity items was composed. Using the Microsoft Excel application helps to materialized the the cost model of implementation aspects of management systems. The results are calculated for different variants of the integration as well as for the IMS as a whole.

Findings: The cost model of economic aspects of integration selected four types of MS.

Value of paper: Development and description of the model which can be used in corporate practice to calculate different scenarios of MS integration.

The paper presents an application of a costs model for Integrated Management System which is created by four kinds of management systems (quality, environment, health and safety, and information security). The paper content consists of a brief description of IMS together with a description of the cost model and its application. The model is located in the Microsoft Excel. A specific example of IMS implementation costs model is included in the paper.

Keywords: management system;, integrated management system; implementation, certification; costs model
1 INTRODUCTION

Enterprises are forced to monitor each aspect of their business in relation to costs and concentrate on decreasing the costs in order to survive and grow in the worldwide economic competition. Enterprises are forced to manage their business dynamically and thus ensure the goal of being successful and productive. Implementation of management systems according to international standards, relating to the field of business of the enterprise, is one of the possible specific solutions.

Implementation of a management system in the life of an enterprise is not an easy task. It requires coordination of several activities related to the implementation itself and subsequent certification of the management system. The need to create an integrated management system (IMS) arises from the perspective of penetration of the requirements of the said standards. The joint process approach and implementation of methods of continual improvement in management systems allow for integration and merger of management systems into a single IMS. The benefit of an appropriately implemented IMS consists in increased management efficiency and decreased costs. This paper presents an IMS costs model composed of four most frequent types of management systems used in business practice.

2 INTEGRATED MANAGEMENT SYSTEM

Several authors perceive the IMS as a system comprising at least two or more management systems, integrated in one efficient whole. Griffith (2000) says that integration of management systems enables the enterprises to remove duplicity and double efforts, i.e. to decrease the amount of documentation, save time and costs and reduce the overall redundancy.

A great number of studies and articles dealing with integration of management systems, published by Slovak and foreign authors, say that in practice, the attention is concentrated on four most used management systems. According to many authors, e.g. Jøgersen (2008); Asif et al. (2009, 2010); Majstrović and Marinković (2011); Turof (2012); Disterer (2013); Grzebyk and Musial-Malago (2014), Olaru et al. (2014), Zgodavová and Bober (2013:59) and others, the following management systems are among the most used (with number [#] of certificates from the year 2013 according to the ISO Survey of Management System Standard, Certifications Executive summary – 2013 (ISO, 2013):

- quality management system – standard ISO 9001:2008 (QMS); [#1,129,446 with increase of 3% against 2012];
- environmental management system – standard ISO 14001:2004 (EMS); [#301,647 with increase of 6% against 2012];
210

2.1 Costs model creation

We used a Microsoft Excel application to create the IMS costs model and present the costs model of implementation of IMS. The application of the IMS costs model consists of three Microsoft Excel sheets, i.e.:

1) Basic information about the company;
2) Demandingness of activities;
3) Resulting demandingness.

Each of the said sheets contains necessary data contained in the IMS implementation costs model. The first sheet contains the necessary basic information about the enterprise, which decided to implement the IMS, i.e.:

- number of organizational units;
- planned number of managing documents (apart from the quality manual);
- number of employees;
- average financial cost per man-hour of employee time (in €).
Further on, the enterprise selects a combination out of four types of management systems, mentioned above. Certain of them require a detailed description, e.g. for the EMS, it is necessary to select the class of complexity of environmental aspects, for the OHSMS, the corresponding workplace hazard class and for the ISMS, the class of the IT complexity.

After providing the basic information about the enterprise, the application calculates the time consumed by each activity necessary for implementation of the IMS, composed of the selected combination of four management system types. The said calculated time consumption is provided in the second Excel sheet. When making the calculation, the costs model takes into account, within individual activities, the minimum time necessary to perform each activity in hours.

The certification audit activities are part of the necessary IMS implementation activities. Guidance on the Application of ISO/IEC 17021:2006 for Combined Audits can be found in EA-7/05 M:2008. External certification audit is a load put on external auditors as well as employees of the enterprise. As we have mentioned before, the own activities time consumption as well as the external certification audit time consumption are provided in the basic information contained in the first Excel sheet. In order to present costs related to the said activity, it is necessary to provide the external auditor's rates, which depend on the decisions of external certification bodies. For the purposes of the model used, we used rates (Table 1) taken from the price lists of certification companies TÜV SÜD Slovakia, TÜV NORD Slovakia, BVQI Slovakia and QSCert Slovakia.

<table>
<thead>
<tr>
<th>Table 1 – External auditor’s rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost per man-hour of external auditor QMS + EMS (in €)</td>
</tr>
<tr>
<td>Cost per man-hour of external auditor OHSAS (in €)</td>
</tr>
<tr>
<td>Cost per man-hour of external auditor ISMS (in €)</td>
</tr>
</tbody>
</table>

After the basic data providing and subsequent processing of the time consumed by each activity, an overview of the IMS costs model implementation from the point of view of composition was created and provided in the third Excel sheet. The processed summarizing overview contains the amount of time consumed as well as the costs of the IMS implementation and costs related to the external certification audit. The value of costs of the certification company expressed in EUR is an important datum. For the enterprise, that amount is the maximum value for the performance of external certification audit based on the created costs model.

The maximum value for the performance of external certification audit, determined by the model, enables the enterprise to uncover what approximate
price offer for the performance of external certification audit to expect from an external certification company. If a certification company requests a higher price than the price calculated based on the costs model, it will mean a significant drawing of benefit on the part of a certification company from the performance of external audit, whereby the enterprise, which decides to certify the implemented IMS will be robbed of its money. The same conclusion is valid also for a lower price than the price calculated in the costs model.

2.2 Costs model of IMS implementation – a specific example

As provided herein, the first phase consists of the basic information about the enterprise, on which the parts of the costs model are based and subsequently processed. In this case, those are basic information necessary to complete the first Excel sheet. We select an enterprise with 7 organizational units and 20 managing documents. The enterprise has 235 employees. The average cost of man-hour of employee time is € 18. The enterprise contemplates implementing the QMS, EMS, OHSMS and ISMS, i.e. all four IMS components.

Table 2 presents selected activities necessary to implement the IMS together with time estimates.

Table 2 – Selected activities necessary to implement the IMS

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time consumption in hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Creation of a team and distribution of tasks</td>
<td>18</td>
</tr>
<tr>
<td>2. Analysis of the enterprise’s activities and information security risks</td>
<td>350</td>
</tr>
<tr>
<td>3. “Environmental Aspects” setting</td>
<td>20</td>
</tr>
<tr>
<td>4. Creation of a “Process Map”</td>
<td>16</td>
</tr>
<tr>
<td>5. “IMS Policy” determination</td>
<td>8</td>
</tr>
<tr>
<td>8. Managing documents preparation</td>
<td>240</td>
</tr>
<tr>
<td>10. “Statement of Applicability” preparation</td>
<td>80</td>
</tr>
<tr>
<td>11. “IMS Manual” preparation</td>
<td>40</td>
</tr>
<tr>
<td>15. External certification audit (own workers)</td>
<td>444.8</td>
</tr>
<tr>
<td>Total</td>
<td>1,113</td>
</tr>
</tbody>
</table>
Table 2 provides an overview of the time consumed by individual activities. The time estimate is necessary to process the costs of execution of those activities, i.e. costs of the IMS implementation. For example, activity 15 shows the time necessary for internal preparation for the performance of external certification audit, expressed in hours. Table 2 contains the mentioned external auditors’ rates, necessary to calculate the costs related to the IMS certification.

Tables 1 and 2 above are contained in the second Excel sheet. After obtaining said data using the IMS implementation costs model, the application calculates the resulting demandingness, which is contained in the third sheet and presented in Table 3.

Table 3 – Resulting demandingness in the IMS implementation costs model

Table 3 shows the resulting demandingness, within the costs model, for separate implementation of each of the four management system types and for the IMS implementation. For each management system certified by the relevant standard, the resulting time consumption and certification costs are provided. The last row of the table, showing the resulting demandingness of the IMS implementation costs model, is important. The time necessary for the implementation is 1,113 hours (datum taken from Table 2), which, multiplied by the average cost per man-hour of employee time (e.g. € 18.00) provides the total cost of IMS implementation in the enterprise (in our case € 20,034). The amount of € 16,250 is the maximum value of the price offer and remuneration of an external certification company, which should not be exceeded. In the created costs model, the amount of € 24,256.40 ((444.8 x € 18.00) + € 16,250.00) represents the total cost of the IMS implementation and certification.
3 CONCLUSION

The presented IMS implementation costs model enables the enterprises contemplating implementation of the IMS to:

1) estimate the approximate price of the IMS implementation provided that the conditions in the enterprise are ideal;
2) estimate the price of audit which should not be exceeded by an external audit company, thus set the basic position for eventual price negotiations;
3) prepare variant financial needs for the implementation of individual management systems and compare them with the IMS implementation; that enables the enterprises to select tactical steps of management systems and IMS implementation in line with the existing internal conditions of the enterprise.

The created costs model is available to various typologically classified enterprises and can be applied to any business sector.

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REFERENCES


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