INTEGRATED SAFETY MANAGEMENT SYSTEMS

Holubová V.[*]

Abstract: Safety is an integral part of the management process of an organisation. The effectiveness of safety is related to the safety management system of the organisation, and the organisation's management system as a whole. Both systems are connected to the general principles of management. These general management principles were used to establish an integrated approach to the process of safety management through the integration of Integrated Management Systems (IMS), which work on the principles and rules of standardised management control systems, and which are possible to add to the already established management control systems, with the goal of the elimination of duplication in safety management, including reducing the cost of safety management itself. One benefit for the field of science is the creation of new universal algorithm steps for building integrated safety, which is applicable for managing any area of safety under any organisation's conditions, regardless of the size and subject of activity of the given organisation. A benefit in practice is that it brings closer the general objective or aim, which is the effective approach to the integration process of the organisation management system.

Key words: safety, integrated safety, integrated management system, effectiveness

DOI: 10.17512/pjms.2016.14.1.10

Article's history:
Received May 20, 2016; *Revised* July 12, 2016; *Accepted* October 20, 2016

Introduction

The research project focused on the area of security management, with an emphasis on its effectiveness in the context of the economic operation of the organisation. The reason for addressing the importance of safety, which continues to grow, and brings with it increased safety costs. The subject of the solution was to investigate whether, in connection with the management of safety in an organisation, there are hidden reserves that are detectable, removable, and whether it is possible to establish standardised management systems to incorporate the safety management of individual areas, whose practices are not standardised. International research focuses on individual standardised management control systems to analyze the impact on Quality Management Systems ISO 9001, with an emphasis on management strategy and organisational performance (Fonseca et al., 2015). Further attention is paid to occupational health and safety management systems, with a focus on safety management in specific areas of industry practices, such as maintenance management and occupational safety in Manufacturing Organisations (Tabor, 2014) or in building trade, e.g. factors influencing implementation of OHSAS 18001 in construction organizations, OHSAS 18001 specifications have

[*] **Věra Holubová,** PhD, Eng.,VŠB – Technical University of Ostrava, Faculty of Safety Engineering
✉ Corresponding author: vera.holubova@vsb.cz

been framed in concordance with quality and environmental management systems, keeping a view to integrate the systems (Rajaprasad and Chalapathi, 2015). The audit of the health and safety management system, viewed as a form and tool of controlling, is an example of a modern research instrument (Korban, 2015). Carnero working up the strategy assessment of occupational health and safety (Carnero ana Pedregal, 2013). IMS built on the basis of standardised management control systems are a very effective management tool, which is actively involved in the organisation's management system. An important role in the IMS is played by international institutions, most notably the International Organization for the Standardization of ISOs, under whose jurisdiction most international standards of Quality Management Systems (QMS), Environmental Management Systems (EMS), Occupational Health and Safety Management Systems (OHSAS), and Information Safety Management Systems (ISMS) are accepted. Accepted standards take the form of a recommendation of best practices, as experts from international teams have agreed, and as approved by the respective national standardisation bodies or institutions. IMS refers to standardised procedures aimed at identifying discrepancies, as well as identifying corrective and preventive measures that are specified in the individual components of the control system. An integrated approach to the management process is a complex and cross-sectional view of management in an organisation (Doucek et al., 2008). Thus conceived, the organisation's management system is, in practice, demanding to build, but the organisation has better co-ordination of their activities, gains benefits in the form of financial savings and clarity of documentation, better specification of responsibilities and powers, improvement of production processes, and easier error detection, thereby reducing occupational accidents and preventing possible accidents, guaranteeing compliance with applicable laws, etc. (Štěpán, 2010). The motivations that drive companies to integrate their management subsystems, the obstacles faced, and the benefits collected may have internal or external origins. The publishing of standards guiding companies on how to integrate their management subsystems has been carried out mainly at a national level. Models exist that could be used in order to support companies in their management subsystems integration processes, and a sequential, or an all-in, strategy may be adopted (Domingues et. al., 2015). The development of individual systems management goes further, and begins to talk about comprehensive enterprise integration. It is integrated with other systems, such as knowledge management, risk management, corporate social responsibility organisation, controlling, etc. (Virčíková and Šolc, 2012). Frequently used control systems include QMS, OHSAS, which is an integrated system of energy management, and there is talk about an innovative model of energy management in the company's management system (Majerník et. al., 2014). IMS packages are well known, and are deployed by various industries with different level of success. Still, a very limited number of theoretical and empiricial research focuses on the interrelation between IMS and sustainable development (Mezinska et. al., 2015). In the list of other systems,

we cannot omit a safety management system, which is an indispensable part of comprehensive enterprise integration. Research has not yet addressed the issue of safety management systems and their interconnection with standardised management information systems for company management. Safety is one of the basic conditions for prosperity and economic growth of both society as a whole, but also the organisation. Classical safety science assumes that a certain degree of predictability of system behaviour can be achieved, safety is the main attribute for safety oriented organisations, but one cannot disregard the fact that it has to be placed in relation also to other performance attributes (Wahlström and Follenhagen, 2014). The goal of safety is the protection of life, health, property, reputation, and the scope of the organisation. Safety analysis in the companies is an important issue besides the quality, productivity and profitability. Safety integrity function in many industries is based on safety instrumented systems (Ouache at al., 2015). The importance of safety is constantly increasing. In an effort to maximise profits or for cost reduction, measures are often taken without a thorough analysis of the safety impact and the implementation of subsequent changes in safety measures. The investment in safety itself and the overall safety costs pose a serious problem. Today we can see the attitude that a reduction of the budget means first reducing safety costs. Not only the safety operating costs, but also maintenance costs and improving safety are greatly underestimated. In the Czech Republic, basic safety is defined by law but, of course, the requirements for safety are increasing, and currently exceed the scope of the legislation defined for areas of safety, as a result of which, the organisation is forced to limit other relevant safety areas, on the condition that they must always protect the interests of those whose protection is in the form of the minimum conditions recommended by law. Many of these new areas of safety are an organisationally illogical part of the organisational departments that their activities are not related to, and it can happen that the requirements of individual areas of safety overlap or are duplicated. The current status of these issues could be summed up in a statement saying that safety management lacks a comprehensive approach. In practice, the concept of safety system organisation is understood to mean safety design. This is a comprehensive safety concept which is unique to each organisation, and is implemented into the daily functioning of the organisation, thus becoming a solid foundation of the functional safety management system of the organisation. The safety system consists of safety and security, which are interconnected, so organisations have started to answer the question as to whether there are any common features that would enable the integration process of safety management (Fryšar, 2006).

Methodology

The aim was to create an integrated model for a safety management system, effectively solving organisation safety, to verify whether the principles and guidelines of standardised management control systems are applicable to non-

standardised procedures for safety process control, and recommend the process for safety integration that has no basis in standardised procedures. Safety management is individual, and can not be transferred from another organisation, even if it is a very similar organisation, because no two organisations exist that are completely identical to each other with completely identical safety environments. Each organisation has its safety needs addressed differently, including the required documentation, but the principles remain the same for the procedure itself. The criterion for selecting the areas of safety was to be represented as IMS components, as well as safety that must be legally established by each organisation, including the areas of safety without special legislation. The current safety management system of the organisation is shown in Figure 1.

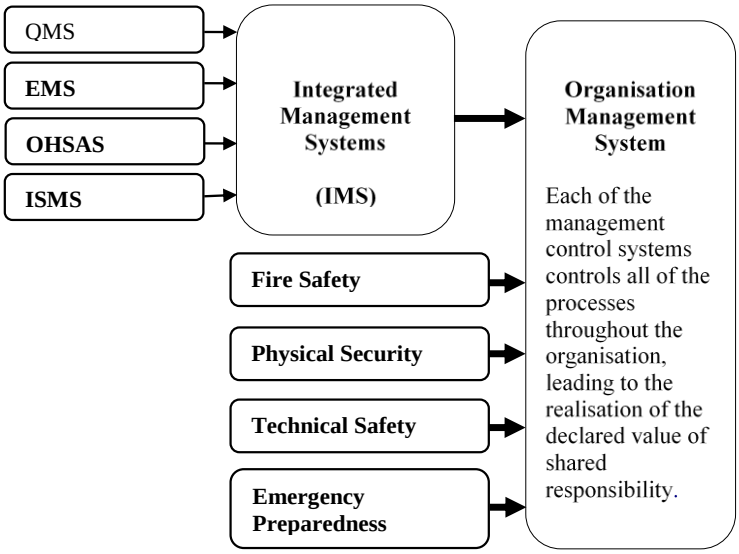

Figure 1. Current organisation safety management system *(Holubová, 2014a)*

Figure 1 shows the organisation's management system, into which IMS has been separately entered, and which is characterised by interconnected management, the removal of duplication in operations and management. Other inputs are realised by individual areas of safety, each separately enters the organisation system management, which leaves space for inefficiency. Figure 2 shows the proposed system of organisation security management. The image illustrates a common input, where the IMS and integrated security management system enter the organisation's management system. The proposed relationship in the image indirectly expresses the principle of integration, which is based on the existence of a process with classified inputs, which are transformed into outputs. The question was whether it is possible to integrate existing IMS into other systems which, unlike IMS components, are not supported by the standard procedures set out by international standards, and whether it is possible to create a safety management

system that would exhibit the same characteristics. The working hypothesis was – *progress is possible, and there is no requirement that the organisation had built an IMS, but it is sufficient for the organisation to have built only one functional standardised management system that will allow it to build a coherent system of management, but on the condition that it will use a process approach*.

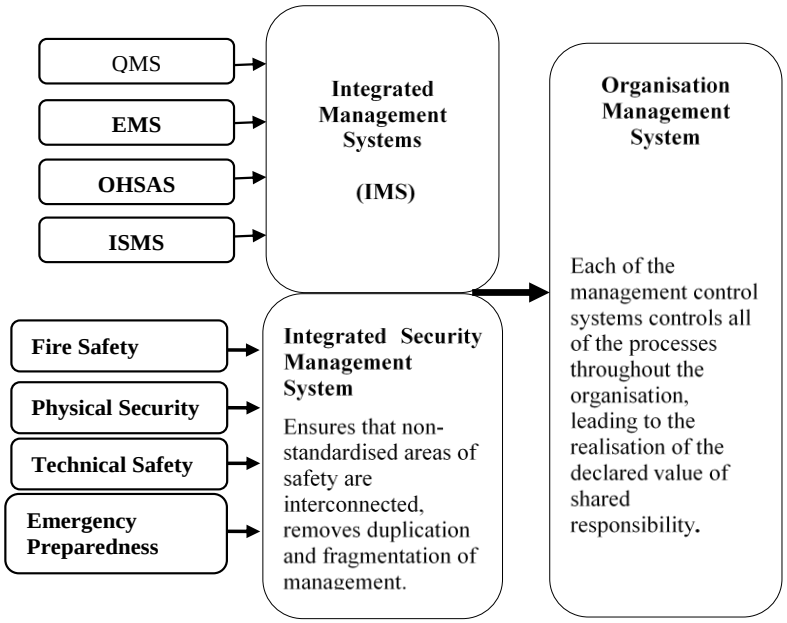

Figure 2. Suggested organisation safety management system *(Holubová, 2014a)*

The Merits of Integrated Safety Management System

There are discussions stating that it is not practical to create a single management system in which all processes are integrated, because each area has its own specifics. Why merge the unmergeable? The basic arguments in favour of integrated process safety management finds support in the basics of IMS, which does not try to merge the unmergeable into one compatible unit, but seeks a unification of the same or similar activities, procedures, and structures, which should achieve more efficient management of time and costs. The goal is full integration. The goal is to find an appropriate degree of integration, or a degree of overlap that will suit the specific requirements of each organisation. It's about determining the appropriate criteria by which it will seek the shortest route to bring systems closer together. At present, the most convenient criterion for bringing systems together is the minimalisation of costs in order to improve the functionality of the system in order to maintain functionality, save resources, maintain process and system access, and simplify links between the systems. This idea is supported

by the general shape of the safety model, which carries the general principle of integration:

$$M(ti) = (A(ti) \cap R(ti)) \cup E(ti) \quad (1)$$

where M(ti) is for a specific event, A(ti) for the actors, the system elements, R(ti) for the connection between elements, E(ti) specific place and time. Figure 3 illustrates the general safety model, applied to an integrated organisation safety management system.

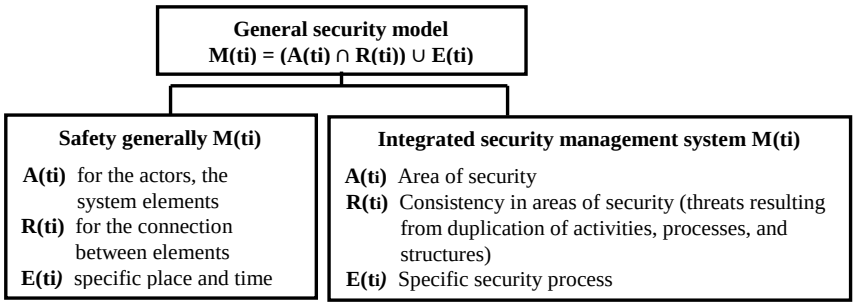

Figure 3. General safety model *(Janošec and Lupták, 2007)*

Fig. 3 illustarates a condition where, for each specific event M(ti) it is possible to view as an event which has its own system elements A(ti), connections between elements R(ti), and occurs at a specific place and time E(ti), which are the basic elements that must be defined for the integration process. Another group will be created by specific elements that are characteristic for systems that are the subject of integration (Janošec and Lupták, 2007).

Building Conditions and the Expected Benefits of an Integrated Safety Management System

One condition for building an integrated safety management system is to respect the basic principles of IMS. Integrated safety management systems must be based on a process approach, which is a fundamental principle of the integration of IMS. Its unifying element is the Deming PDCA cycle (Walton, 1986), which is a fundamental principle of the functioning of the IMS (Virčíková and Šolc, 2012). Expected benefits include limiting the duplication of activities in the process of safety management, interconnection between management and safety processes of the organisation, including documentation, lower costs for the implementation of safety, compared with individual solutions, and the creation of a single methodological environment.

Theoretical Approach to the Process of Building Integrated Safety

The conditions and system tools for integrating safety processes are standardised by the existence of management and control systems, and must be respected.

Their generalisation came about froman overview of generally applicable system tools for integrating security processes in an organisation. In building an integrated safety management system, you must first determine which system tools can be built together, and which are so specific that it would be better to build them separately. Building together, their deployment, and their development is appropriate when it is perfomed in such a way that it provides a cross-section through the various segments of the organisation, and creates space for eliminating duplication and creating synergies in the areas of safety. Most often it is a tool: the policy of integrated safety management system objectives and programmes, responsibility and authority, risk assessment and management, emergency action, training, documentation, control, monitoring, auditing, management reviews, and evaluation. Qualified analysis of standardised management is a prerequisite of systems integration, represented by ISO 14001 (ČSN EN ISO 14001), OHSAS 18001 (ČSN OHSAS 18001), and ISO 27001 (ČSN ISO/EC 27001). ISO 9001 (ČSN EN ISO 9001) was not analysed, because ISO 14001 and OHSAS 18001 are designed to make integration for ISO 9001 as easy as possible. The aim was to determine the extent to which their structures exhibit similarities that were generalised, and on the basis of which, was created by the structure applicable for standardised safety management systems. The analysis confirmed compatibility with ISO 14001 and OHSAS 18001, and disparity of ISO 27001 with these standards. ISO 14001 and OHSAS 18001 structures were interconnected by synthesis into a compliant single unit, into which the incompatible parts of ISO 27001 were incorporated. The resulting structure was four chapters replicating the structure of OHSAS 18001. As the basis for the structure, OHSAS 18001 was taken, because occupational safety and health must always be established by law, and if the organisation decides to integrate safety processes, then in this, safety procedure must be applied in accordance with OHSAS 18001. If, according to OHSAS 18001, three standardised managerial practices have been connected, then with the newly formed structure, it is possible to connect and control the management practices of any areas of safety, regardless of the extent of the established management's standardised management systems in the organisation. The new structure respects the principles of the standardised management's safety management systems, which are also based on the existence of a comprehensive system of safety documentation, which is a prerequisite for the interconnection of the various areas of safety.

Practical Approach to the Process of Building Integrated Safety

This is a special process, consisting of a sequence of steps which lead to the correct effectiveness of safey processes and increases the safety level, the output of which is integrated safety. Creating a generic model of the sequence of steps for building an integrated management safety system applicable in practice assumes that the model must be based on real experience and habits in force in corporate practice, with the construction of standardised management control systems. Information has

been collected from field experience and habits in force in the process of building IMS. The information shown was analysed in detail, which showed that the organisation in the process of building IMS implemented a similar sequence of steps. IMS originates in most organisations by expanding an already introduced management control system by adding other systems in one area. Usually, the first managerial system is the quality management system. Other IMS systems are often implemented separately, provided that they partially reflect the framework of the already established system, and over time, seek action and unification to streamline the operation of all three systems, based on the principles of IMS. Synthesis of the analysis of the information gathered enabled the creation of a general model of a sequence of steps to build IMS, divided into three steps, which were applied to all of the selected organisations, on the basis of which, a model was created for building the integrated safety management system, which also can be expressed graphically. The integrated safety management system model respects the existence of a general model for building IMS, is compatible with the model, allows its incorporation into an existing IMS, and is built up in three steps. The first step in the preparation, unlike IMS, raises the requirement for an initial analysis and risk assessment of the safety status of the organisation, because the results of the analysis and risk assessment are available from IMS. The second step of implementation is based on the description of the safety design. The description of the safety documentation is limited to standardised safety, because safety components forming the IMS have already been described. A tool to minimise the duplication of activities in safety activities is applied to all areas of safety, and brings the requirement to adjust the responsibilities and authorities for carrying out safety activities. Given that within the framework of IMS, roles and responsibilities have been adjusted, all that is necessary is to implement these changes in the form of a correction. Analysis and risk assessment verify the status of the organisation's safety management system under the conditions of integrated safety. According to IMS, safety documentation is prepared in the form of a manual for the integrated safety management system. The third step of the control is identical to the general model for building IMS (Holubová, 2014b).

Effectiveness of an Integrated Safety Management System

Organisational management systems are concerned with the continuous improvement of quality, and finding ways to do so at the lowest possible cost. The aim is to offer customers the highest quality at the best price. This effective objective can only be achieved when the optimal cost is adjusted in relation to quality (Holota et. al., 2016). The effectiveness of an integrated safety management system mst be sought within the internal organisation of information flows and relationships in the process of eliminating duplication and hidden costs. The basic prerequisite for measuring effectiveness is qualified knowledge of how the organisation works, because only in such a manner is it possible to find the critical points that lead to losses. Without the establishment of appropriate key process

indicators, it is not possible to assess the effectiveness of the functioning of the process, since it is not possible to determine whether, or how, the process works or does not work. Measuring the cost effectiveness of safety measures is regularly monitored by objective data on the functioning of the integrated safety management system, which will affect all of the important decisions in the field of safety (Rodryčová, 2012). One basic step for evaluating the effectiveness of the safety system requires very good identification. The system shall be established as part of objective reality, and will describe the appropriate model (Pribyl et al., 2008). It is problematic to decide how it will measure the effect, and how it will evaluate the individual parameters of the integrated security management system. The indicators must be measurable, comparable, and should prove to monitor the progress of safety processes. The downside of the financial indicators in the area of safety is that it is difficult to distinguish between the finances spent on safety as a whole, and on safety maintenance costs, losses caused by safety incidents are poorly quantified, because they are often financially reported as direct losses, but omit the costs incurred in the work of those involved in managing any such safety incident. Process indicators provide information about how the method that the integrated safety management system is implemented, and how it affects the management and decision making processes (Doucek et al., 2008). The method of quantifying the current costs is a probabilistic method, which is suitable for economic risk analysis. The problem is with the comparison, whose causes are variable costs. Costs are distributed over a certain period of time, and may have different values. Most costs are incurred during the implementation of safety measures, the value of risk is determined for the lifetime of the safety measures. The current cost relationship is expressed:

$$\mathbf{VSH\ x} = \sum \left(\frac{I_i}{(1+i)^{(r_i - r_0)}} \right) \tag{2}$$

where VSH - quantifies the current costs for x years, ri - investment year/risk, r0 - initial calculation year, i - inflation, Ii - investment costs /risks for the given year i. Figure 4 illustrates investment in safety measures for acceptable risks. The vertical axis represents costs invested in safety measures. The horizontal axis represents the value of the calculated risk, which is obtained by adding or removing measures with regard to safety. The costs outlaid on safety measures should be adjusted according to effectiveness. The reference point is decisive, as it compares all of the costs. For a point of reference, we consider the initial point of measurement, the start of safety measure function. It is immediately necessary to solve systems with high risk. In adopting the requirements, it is necessary to take into account the requirements for economy, operation, and safety. In the next step, it is necessary to examine whether the proposed measures change in risk. The system must undergo a re-analysis according to the algorithm, and verify that the residual risk is acceptable (Stavnikovič, 2007).

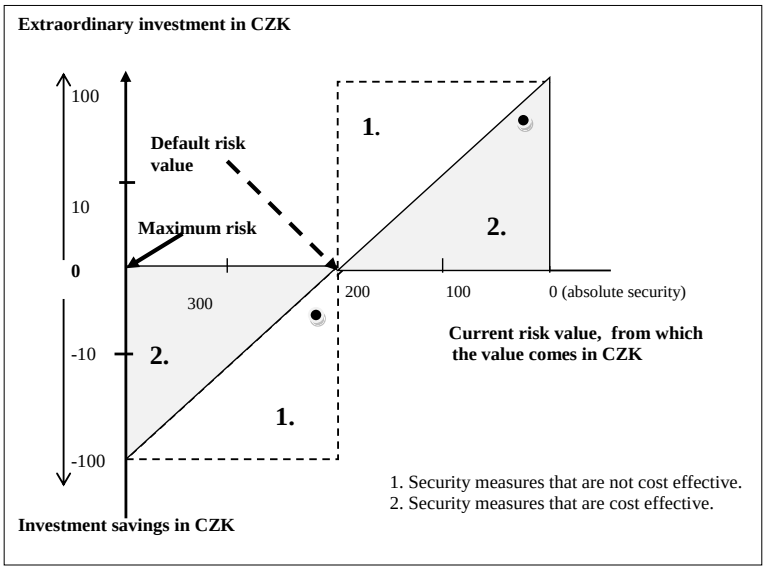

Figure 4. Investment in safety measures *(Stavnikovič, 2007)*

Research Implications

The aim of the research was to develop an integrated model for effectively solving safety management in an organisation. The output of the first phase of the research was to create tools to minimise the duplication of activities in safety operations, which is a prerequisite for creating an effective safety management system in the organisation (Holubová, 2014b). The second phase of the research was aimed at creating an integrated safety management model, which links a standardised management system with standardised management information systems for the company management in one compatible unit, with emphasis on the management efficiency of the organisation as a whole. Research data was drawn from real life, and the research results have been applied in practice. This research has contributed to knowledge in the field of safety management, including its effectiveness.

Summary

This article is focused on the area of safety management, focusing on its effectiveness in the context of its impact on the efficient operation of the organisation. International research focuses on standardised management control systems. Research has so far ignored the issue of safety management in the organisation as a whole, and its links to standardised management control systems. The aim was to create an integrated model systému řízení bezpečnosti that would effectively solve safety management. The solution is based on the principle that the integration of safety processes in an organisation is a prerequisite for building

effective safety management, which is an integral part of comprehensive enterprise integration. The integrated safety management system model has universal validity, regardless of the size of the organisation and its objectives. It is built on identical principles to the general model for building ISM, and confirms the general validity of the conditions of integration and system integration tools applied in the process of building IMS, and is a testament to their applicability in the field of safety management, which is below international standards governing their management systems, thus fulfilling a goal, the objective being shown in Figure 2. The universal model of integrated safety management systems can be expressed graphically in the form of a sequence of steps of the algorithm for building integrated safety. Its hallmark is its ability to be added into already established standardised management systems. This article contributes to the understanding of safety management, including its effectiveness. International research in the field of standardised management control systems has confirmed the results by confirming their versatility which, under the terms of integration and respecting the system tools, can be compatibly interconnected with non-standardised safety management systems. Experience with the application of the proposed procedure closer approaches the fulfillment of the overall objective, which is an effective approach to the process of system integration for the organisation. Further research will be channelled into models of efficiency of integrated safety management systems and IMS.

References

Carnero M.C., Pedregal D.J., 2013, *Ex-ante assessment of the Spanish Occupational Health and Safety Strategy using a State Space framework*, "Reliability Engineering and System Safety", 110.

ČSN EN ISO 9001, *Systémy managementu kvality,* 2016, Praha, Český normalizační institut.

ČSN EN ISO 14001, *Systémy environmentálního managementu,* 2016, Praha, Český normalizační institut.

ČSN OHSAS 18001, *Systémy managementu bezpečnosti a ochrany zdraví při práci*, 2008, Praha, Český normalizační institut.

ČSN ISO/EC 27001, *Informační technologie – Bezpečnostní techniky – Systém řízení bezpečnosti informací,* 2014, Praha, Český normalizační institut.

Domingues J.P.T., Sampaio P., Arezes P.M., 2015, *Analysis of integrated management systems from various perspectives*, "Total Quality Management & Business Excellence", 26(11-12).

Doucek P., Novák L., Svatá V., 2008, *Řízení bezpečnosti informací,* Praha: Kamil Mařík – Professional Publishing.

Fonseca L.M., Lima V.M., 2015, *Impact of Supplier Management Strategies on the Organizational Performance of ISO 9001 Cerfied Organizations,* „Quality Innovation Prosperity", 19(2).

Fryšar M., 2006, *Bezpečnost pro manažery, podnikatele a politiky,* Praha: Public History.

Holota T., Hrubec J., Kotus M., Holiencinova M., Caposova E., 2016, *The management of quality costs analysis model*, "Serbian Journal of Management", 11(1).

Holubová V., 2014a, *Bezpečnostní aspekty provozování organizace a její dopady na hospodárnost. Doktorská disertační práce,* VŠB-TUO Ostrava.
Holubová V., 2014b, *Tool for minimizing duplicate actions in the activities of safety, "*Advanced Materials Research", 1001(1).
Janošec J., Lupták L., 2007, *Panoráma globálního bezpečnostního prostředí,* MOSR.
Korban Z., 2015, *Quality assessment of occupational health and safety management at the level of business units making up the organizational structure of a coal mine: a case study,* „International Journal of Occupational Safety and Ergonomics", 21(3).
Majernik M., Bosak M., Stofova L., Szaryszova P., 2015, *Innovative model of integrated energy management in companies,* „Quality Inovation Prosperity", 19(1).
Mezinska I., Lapina I., Mazais J., 2015, *Integrated management systems towards sustainable and socially responsible organization*, "Total Quality Management & Business Excellence", 26(5-6).
Ouache R., Kabir M.N., Adham A.A.J., 2015, *A reliability model for safety instrumented system,* "Safety Science", 80.
Přibyl P., Janota A., Spalek J., 2008, *Analýza a řízení rizik v dopravě - Tunely na pozemních komunikacích a železnicích*, Praha, BEN - technická literatura.
Rajaprasad S.V.S., Chalapathi P.V., 2015, *Factors Influencing Implementation of OHSAS 18001 in Indian Construction Organizations: Interpretive Structural Modeling Approach, „*Safety and Health at Work", 6(3).
Rodryčová D., 2012, *Bezpečnost informací - podmínka prosperity firmy,* Praha: Grada Publishing.
Stavnikovič M., 2007, *Technicko-inžinierske a bezpečnostné systémy tunela*, dizertační práce, Košice: Technická Univerzita v Košiciach.
Štěpán M., 2010, *Integrovaný systém řízení podle norem ISO 9001, ISO 14001 a OHSAS 18001, doktorská disertační práce,* Ostrava, VŠB - TUO.
Tabor J., 2014, *Maintenance management and occupational safety in manufacturing organiazations,* „Polish Journal of Management Studies", 10(2).
Virčíková E., Šolc M., 2012, *Integrované manažerské systémy,* Košice, SR: Equilibria.
Walton M., 1986, *The Deming management method,* New York: The Putman Publishing Group.
Wahlström B., Rollenhagen C., 2014, *Safety management - A multi-level control problem,* "Safety Science", 69.

ZINTEGROWANE SYSTEMY ZARZĄDZANIA BEZPIECZEŃSTWEM

Streszczenie: Bezpieczeństwo jest integralną częścią procesu zarządzania organizacją. Skuteczność bezpieczeństwa związana jest z systemem zarządzania bezpieczeństwem organizacji i systemem zarządzania organizacją jako całością. Oba systemy połączone są ogólnymi zasadami zarządzania. Te ogólne zasady zarządzania zostały wykorzystane do stworzenia zintegrowanego podejścia do procesu zarządzania bezpieczeństwem poprzez integrację Zintegrowanych Systemów Zarządzania (ZSZ), które działają na zasadach i regułach standaryzowanych systemów kontroli zarządzania, a które można dodać do już ustanowionych systemów kontroli zarządzania, mając na celu eliminację powielania w ramach zarządzania bezpieczeństwem, w tym redukcję kosztów samego zarządzania bezpieczeństwem. Korzyścią dla tej dziedziny nauki jest tworzenie nowych uniwersalnych kroków algorytmu do budowania zintegrowanego bezpieczeństwa, które ma zastosowanie do zarządzania dowolnym obszarem bezpieczeństwa w warunkach każdej organizacji,

niezależnie od wielkości i przedmiotu działalności danej organizacji. Korzyścią w praktyce jest to, że przybliża to ogólny cel lub cel, jakim jest skuteczne podejście do procesu integracji systemu zarządzania organizacją.
Słowa kluczowe: bezpieczeństwo, zintegrowane systemy bezpieczeństwa, zintegrowany system zarządzania, efektywność

集成安全管理系統

摘要：安全是組織管理過程的一個組成部分。安全的有效性與組織的安全管理系統以及組織的整個管理系統相關。這兩個系統都與管理的一般原則相關。這些一般管理原則被用來通過綜合管理系統（IMS）的整合來建立安全管理過程的綜合方法，綜合管理系統工作於標準化管理控制系統的原則和規則，並且可能增加已經建立管理控制系統，目的是消除安全管理的重複，包括降低安全管理本身的成本。科學領域的一個優點是創建用於建立集成安全的新的通用算法步驟，其適用於在任何組織的條件下管理任何安全區域，而不管該組織的規模和活動主題。實踐中的一個好處是它使得更接近總體目標或目標，這是組織管理系統的整合過程的有效方法。
關鍵詞：安全，綜合安全，綜合管理體系，有效性