

## The importance of involving employees in the establishment of early warning methods by using the ISO 9001 standard in large Croatian enterprises.

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### ABSTRACT

Risk management is the entire process of identifying, assessing, and monitoring risks and taking necessary actions in order to prevent the occurrence or mitigate the consequences of adverse events that are liable to jeopardize the output of corporate objectives. Risk is the possibility of occurrence of such events that might adversely affect the realization of corporate objectives, sales activities, and customer service. In addition, missed or unutilized opportunities and possibilities for business improvement are also considered as risks. The risk management process is a central part of strategic management and is an integral part of the process of planning and managing business processes. It serves management as a tool for responsible, transparent, and successful management. Risk management represents the management's process and approaches aimed at preserving assets and financial stability as well as the prevention of losses. Most risks cannot be completely eliminated, but they can and must be managed. The task of the management is to timely recognize warning signals referring to risks that might threaten an enterprise internally and externally and use them properly to prevent crises and adverse events. By implementing an early warning system, management can act promptly and take certain corrective measures in business. The process of establishing early warning methods should be carried out during the development of a strategic plan for the purpose of quality and timely decision-making, better anticipation and optimization of available funds, strengthening confidence in the management system, and the development of a positive organizational culture. All of the employees within an enterprise must actively participate in all early warning processes and indicate opportunities and threats arising from frequent changes in the market, such as the emergence and development of competition, the creation of new products or substitute goods, technological advances, product extensions, development of industry, the advancement of consumer behavior, the protection of rights, and the changes taking place in the political, environmental, and social environment of the organization. Employees should have the main role in generating qualitative indicators and with their risk identification activities prolong the time that management has to make the right decisions. This can be achieved with the adequate implementation of guidelines of the ISO 9001:2015 standard by which the organization realizes many benefits arising from a well-organized business risk management system. The advantages are reduction of business risk, better and timely decision-making, better forecasting and optimization of costs, and reinforcing trust in the management system.

**KEYWORDS:** business risks, strategic management, methods of early warning, ISO 9001

### I. INTRODUCTION

The purpose of creating a business risk management strategy is to improve the ability to achieve strategic goals, mission, and vision of the company through the management of threats and opportunities thus creating an environment that contributes to greater quality, efficiency, and results, in all activities and at all levels. To be at risk means to be an entity under the damage of a certain activity.<sup>1</sup> According to the above, risk is a calculated prognosis, i.e., the probability of possible damage, loss, or danger.<sup>2</sup>

<sup>1</sup> Bahtijarević-Šiber, F., Sikavica, P., Pološki Vokić (2008). *Suvremeni menadžment*. Zagreb: Školska knjiga, p. 116

<sup>2</sup> Andrijanić, I., Gregurek, M., Merkaš, Z. (2016). *Upravljanje poslovnim rizicima*. Zagreb: Libertas i Plejada d.o.o., p. 23

Setting up a strategy enables an increase in the level of decision-making quality through risk management, i.e., a more detailed and precise consideration of set goals helps managers to make coherent decisions with a realistic assessment of planned results. Furthermore, the application of the risk management model improves business efficiency through a better decision-making process concerning the manner of improving the system and achieving a balance between the acceptable level of risk and control costs. The incorporation of business risk management in the strategic business plan thus becomes the standard in the process of planning and making decisions that are essential for the realization of goals.<sup>3</sup> In recent decades, changes in the environment have strongly been influenced by new organizational forms in the scope of the globalization of the world economy.<sup>4</sup> The goal of the business risk management strategy is to fully integrate risk management into the organizational culture, and to provide a comprehensive framework for identifying, assessing, handling, monitoring, and reporting on risks at all levels of management by establishing effective risk management coordination.

With the adequate implementation of the ISO 9001:2015 standard, the organization will prosper because of such a well-organized management system. The advantages are reduction of business risk, lower costs concerning customer complaints, high-quality relationship with suppliers, and a better working environment. A focus on customers, leadership, teamwork, process approach, systematic approach to management and decision making makes the ISO 9001 the most widespread international standard that sets requirements for the establishment and maintenance of quality management systems and is applicable to organizations of all kinds. ISO 9001 includes the core processes within the organization. In addition, by implementing certain actions it ensures controlled leadership and process control. The establishment of the quality management system includes recording and analysis of the existing context of the organization and situation (risk analysis, organization development, resources, processes), management and key employees training on introducing a quality management system, planning the necessary activities for the establishment of the quality management system, implementation of internal audits and evaluation of the system as well as the improvement of the system. Early warning systems consist of techniques and methods of planning, collecting, analyzing, and interpreting data and information, which help to possibly identify hidden signs even in the early stages of knowledge.<sup>5</sup>

One of the most important adjustment factors is the response time. Bleicher<sup>6</sup> states that the amending response time has been reduced when compared to the time available for carrying out any alterations. He illustrates this statement by the disparity between the period required to react and the period available to prepare for threatening intricacies and the corresponding opportunities and threats. He concludes that to reduce the disparity between the mentioned periods, an early warning system is needed in risk management. In his work, Aguilar<sup>7</sup> points out that data coming from the environment appears in the form of covert and visible signs according to the time of occurrence, manifested intensity, and visibility.

If not detected on time, there is a possibility for covert signs to turn into visible signs. This is exactly the reason why early warning systems exist in the first place. They try to detect covert signs at the earliest stage of their occurrence by investigating the environment and the circumstances in which the organization operates. Detected covert signs must be directed to the management of a particular organization for compression and storage. It is important to detect covert signs in the earliest stage because that will allow for an extension of the time management has for the decision-making process. More time for the decision-making process allows more freedom to combine different types of measures and ventures to find the most effective answer to a possible business crisis. Employees have the main role in generating qualitative indicators and with their risk identification activities prolong the time that management has to make the right decisions.

## **II. THE OVERVIEW OF PREVIOUS RESEARCH**

Osmanagić Benedik (2007)<sup>8</sup> states that covert signs are manifested through: “a sudden accumulation of similar events that are, or may become strategically relevant for the company, the spread of new opinions and ideas,

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<sup>3</sup> Young, P. C., Tippins, S. C. (2001). *Managing Business Risk: An Organization Wide Approach to Risk Management*. New York: American Management Association, p. 5.

<sup>4</sup> Fučkan, Đ., Sabol, A. (2013). *Planiranje poslovnih dometa*. Zagreb: Hum naklada d.o.o., p. 29.

<sup>5</sup> Labaš, D. (2011). Potpora informacijske tehnologije u strateškom sustavu ranog upozoravanja. Magistarski rad. Zagreb: Faculty of Economics, p. 17.

<sup>6</sup> Bleicher, K. (1992). *Das Konzept Integriertes Management*. Zweite revidierte und erweiterte Auflage. Frankfurt am Main: Campus Verlag, p. 26.

<sup>7</sup> Aguilar, F. J. (1967). *Scanning the Business Environment*. New York: The Macmillian.

<sup>8</sup> Osmanagić Bedenik, N. (2007). Kriza kao šansa: kroz poslovnu krizu do poslovnog uspjeha. Zagreb. Školska knjiga, p. 135

opinions and views of organizations and society, tendencies in law, and initiatives to change and adopt new legislation." The basic criterion for establishing an early warning system is its division into an operational and strategic one. Dojčinović (2009)<sup>9</sup> states that "the main difference between an operational and a strategic early warning system is reflected within their framework". The operational system focuses on short-term success, while the strategic operation system is directed towards possible successes and is also useful while detecting covert signs.

Strategic early warning systems, unlike operational ones, are future-oriented with the aim of enabling the long-term existence of the enterprise. They include quantitative and qualitative analyzes of the branch and the environment. "Strategic systems imply a wider range of analysis that includes analysis of the enterprises' environment, sectors and markets in which the enterprise operates, management and financial performance indicators. A strategic early warning system is set in place to improve enterprises' ability to make predictions about developments before they become irreversible, which, at the same time, allows for active risk and opportunity management." <sup>10</sup> Ansoff (1990)<sup>11</sup> considered that it is necessary to introduce a "mentality" of collecting weak signals in enterprises. Since managers are not so keen on switching their attitudes since their experience is based on strong signals, this is not easy to achieve.

The key disadvantage of collecting only so-called "weak signals" lies in the uncertainty and irrationality, so according to that, also the possibility that they will not be identified. This stems from the fact that long-term and demanding analyzes and research often result in a significant number of different data, including data that may be irrelevant to the sustainability of the observed system. In the signal collection concept, emphasis is placed on data filtering so that the procedures mentioned would not imply that the process is uneconomical. Search limitations", according to Albright (2004)<sup>12</sup>, "can also be reflected in the fact that all these elements can encounter organizational resistance because they require time, organization of process, money, and changes in current practices."

Unlike different and well-known approaches based on quantitative analysis of balance sheet positions, crisis signals are now sought to be identified in several symptoms of disturbed forms in organizational behavior. In this way, the real causes of the crisis, which are key resources of every organization in its sphere and environment, are pointed out. Human resources serve as a generator of each crisis and as a way out of it.<sup>13</sup> According to Hall (1986)<sup>14</sup> managers have at least three basic strategies while managing employee motivation: an undifferentiated, differentiated, and concentrated approach. Hall explains that in a concentrated approach, managers are focused on the segment of employees they consider to be primary and strategically important. One of the most used quantitative models that offer crisis identification signals in the organization is the so-called Altman Z-score which is one of the most commonly used quantitative models in practice that offers signals for identifying a crisis in an organization. Z-score is based on the operationalization of various balance sheet categories and indicators: assets, profit, market value of capital, and sales revenues. However, this and most other quantitative models based on balance indicators, conditionally indicate signals of the crisis by coming late, i.e., at a time when the first signs of crisis in organizations are already visible.<sup>15</sup> It is known that accounting reports are created to show results of the past period and are sort of a historical method. Thus, it is certainly necessary to investigate in what measure quantitative indicators really are early signals. There is a multitude of papers published in professional and scientific journals which illustrate different disorders within organizations, whether it be organizational structure, organizational culture, or organizational behavior, that indicate different qualitative disorders in the functioning of the organization. Probst and Raisch (2005)<sup>16</sup> identified disruptions in four main areas: growth, change, the leadership of the organization, and organizational changes. By doing so they confirmed the proposed thesis on the reason why organizations at the peak of their success fall into crisis and collapse. Similar thinking and research

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<sup>9</sup> Dojčinović, D. (2009). Sustavi ranog upozorenja poslovne krize. Magistarski rad. Zagreb: Ekonomski fakultet, p. 43.

<sup>10</sup> Labaš, D., op. cit., p. 16.

<sup>11</sup> Ansoff, I. H. i McDonnell, E. (1990) *Implanting Strategic Management*. New York, pp. 20-21

<sup>12</sup> Albright, K. S. (2004) *Environmental scanning: radar for success*. The information Management Journal, svibanj/ srpanj, pp. 38-45.

<sup>13</sup> Matković I, Karin D. (2013) Sustav signala za rano uzbunjivanje na krizu u organizacijama Putokazi, Sveučilište „Hercegovina“ – [www.fdzmb.org/putokazi](http://www.fdzmb.org/putokazi), pp. 178-179

<sup>14</sup> Hall D.T., (1986), *Career Development in Organizations*, Jasssey-Bass, San Francisco, p. 360

<sup>15</sup> Matković I, Karin D. (2013) op. cit., p. 180.

<sup>16</sup> Probst R., Raisch S. (2005), *Organizational Crisis: The Logic of Failure*, Academy of Management Executive, Vol.19, No1, London, p. 123.

results can be found in the work of Hassain (2010)<sup>17</sup> and numerous other scientists who investigated the importance of employees in detecting qualitative disturbances important for the functioning of the organization from the aspect of data delivery and early information signals significant for the establishment of early warning systems. From the perspective of organizational behavior, it is necessary and possible to identify numerous forms of the organizational establishment of early warning system in which employees in the organization have the most important place in providing data related to job assignments, employee identification with the organization, motivation of employees, career management, changes to the organization, and inventive and creative employee behavior. Matović (2013)<sup>18</sup> points out that their identification should be one of the fundamental tasks and roles of modern management and managers, especially those at the corporate level. Burke (1995)<sup>19</sup> warned the public about their impact on enterprises and the need for change. He pointed out numerous factors that lead to these changes (processes, human resources, structure, technology, and the culture of the organization).

Employees are an important factor in detecting early warning indicators because they create data and information that is further used as basic material for decision-making and risk management measures.

Zeigenbahn (2008)<sup>20</sup> advises employees to deal with the indicators of early warning with a particular caution because "by experimenting with a random understanding of the human mind, he found out", among other things, "that certain people do not do the right thing because of their intelligence, but pure coincidence or luck and what seems accidental is only what is different from our everyday horizon". Furthermore, Zeigenbahn (2008)<sup>21</sup> points out that "spectacular dangers are overestimated while the imperceptible ones are being underestimated, probably because the media in their reporting tends to overemphasize extreme events, which can lead to distortions of employees' ability to assess the situation." It follows from the above that events from the past later often seem logical and are properly understood only after they have occurred.

Numerous taxonomies of threats and vulnerabilities, which can with mandatory adaptation to the context and the environment of risk assessment be of a certain help, have been developed for risk assessment.<sup>22</sup> Based on the principles of generic risk assessment methodology, different methods have been developed with different focuses in risk assessment (ISO/IEC 27005): a risk matrix method with predefined values (ISO/IEC 13335-3), risk measurement method that ranks threats according to risk assessment results, the method that assesses the likelihood of impact as well as possible consequences, and the method of distinction between acceptable and unacceptable risk. At the same time, numerous auxiliary and interactive risk assessment tools are available, such as COBRA, HESTIA, and RA2. A good interactive qualitative method for risk analysis is CRAMM. It is important to emphasize that the use of these applications is not easy and, as a rule, demands from the analyst to have good training. The risk assessment method must be comprehensive, systematic, adaptive to changes in the real situation and self-leading. It is important to emphasize that it must enable the work on identifying and understanding risk factors and proper decision-making to reduce risk and the protection system for all employees at all levels of the organization. An example is the Rapid Risk Analysis (RRA) method, which enables rapid and effective analysis of major risk factors, involving the capacity of the organization and without the need for a special engagement from a risk analysis specialist. The structure of business risk management depends on the activity in which it is introduced. In large corporations, every business entity will need its own risk management function, which will be in constant communication with other functions and top management. In smaller, integrated organizations, this function will be at the level of the entire organization.<sup>23</sup> The topic of this paper is finding out in what measure are all employees involved in the establishment of early warning methods and generating qualitative indicators in companies in the Republic of Croatia. This paper aims to point out that, regardless of all the above, within the implementation of the early warning system employees are key generators of qualitative indicators, both in the use of opportunities and in eliminating threats from the environment. Human resources are, in this area as well, the key resources of every organization and at the same time the main cause of crises in organizations and the

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<sup>17</sup> Hassain A. (2010), *Effective Diagnosis in Organization Change Management*, Journal of Business Systems, Governance and Ethics, Vol.5, No2, Victoria University, Australia

<sup>18</sup> Matković I, Karin D. (2013) op. cit., p. 181.

<sup>19</sup> Burke G, Peppard J., (1995), *Examining Business Process Re-engineering: Current Perspectives and Research Directions*, The Cranfield Management Series, Kogan Page

<sup>20</sup> Ziegenbein, K. (2008). *Kontrolling*. Zagreb: RRiF-plus, p. 415.

<sup>21</sup> ibidem, p. 416.

<sup>22</sup> Jovanović V.: *Metodologija procjene rizika*, [https://www.academia.edu/Metodologija\\_procene\\_rizika](https://www.academia.edu/Metodologija_procene_rizika)

<sup>23</sup> Andrijanić, I., Gregurek, M., Merkaš, Z. (2016). *Upravljanje poslovnim rizicima*. Zagreb: Libertas i Plejada d.o.o., p. 14

main asset in overcoming crises. The paper investigates the extent to which, in the opinion of the company's management directly responsible for the establishment of an early warning system, employees are key generators of qualitative indicators and the extent to which employees participate in identifying and understanding risk factors and detecting hidden signs at the earliest stage. At the same time, it is worth considering and respecting the view that, according to Kereta (2020), the incentives for the development of the early warning system primarily come from the administration, i.e. top management in 71.4% of Croatian large companies.<sup>24</sup> Which is significant because employees involved in the operationalization of the early warning system can offer their maximum if top management understands the purpose and goal of the system, respects the results, and provides support for the implementation of the entire early warning process. The initial hypothesis of the paper is that employees in most large enterprises in the Republic of Croatia are a key factor in creating and functioning of early warning systems, with the help from auxiliary hypothesis they actively participate in generating qualitative indicators and risk identification procedures which prolong the time that management has to make the right decisions. More time for the decision-making process allows more freedom to combine different types of measures and ventures to find the most effective answer to a possible business crisis. "The better an organization is at perceiving the situation and changes, the more capable it is of solving problems, and inasmuch is younger."<sup>25</sup> A change in the approach to business risks and the implementation and regular application of activities and certain formal steps of the risk management system can significantly improve the success of Croatian companies, and thus make them more prepared for a competitive international market."<sup>26</sup>

### **III. METHODOLOGY AND DATA SET**

The theoretical part of the research uses a method of description with the aim of describing, defining, and monitoring processes and methods, collecting and analyzing information, and reporting from the company's environment. The compilation method was applied within the research of published scientific works in the field of environmental signals, environmental monitoring systems, and the application of information technology in early warning systems. Interviewing mode is used in empirical research to collect data, information, and views in companies operating in Croatia. Based on the primary research, the data necessary for the preparation of this paper was collected in the period from January to March of 2021 within twelve out of a hundred largest companies in the Republic of Croatia. To examine the relationship between the importance of employees' participation in the organization, and the information necessary for the successful operation of the early warning system, descriptive statistics were applied, more precisely, a multivariate correlation matrix with Pearson's coefficient and p-value has been calculated. The method of proving and refuting, in which inductive and deductive methods are also incorporated, is used to gather up the facts on the application of environmental monitoring methods, and to support information technologies in companies operating in the Republic of Croatia.

Following the set goal of the research, a survey questionnaire has been formulated consisting of 14 questions structured in four parts: general data on business organization, determination and measure of early warning system development, the structure of early warning system components, and model sustainability assumptions of the early warning system. After the introductory part of the questionnaire with basic general data, the questionnaire examines data on the functionality of the early warning system and determining the extent to which the early warning system is focused on threats. The questionnaire uses a Likert scale with rating scales ranging from (1), "completely undeveloped" to (5), "fully developed" or from (1), "I strongly disagree" to (5), "I fully agree". Answers to the questions are being used in the continuation of this paper to determine the involvement of employees in the current state of the early warning system in enterprises in the Republic of Croatia. Primary research was conducted through interviews. The interview was conducted in 12 renowned Croatian enterprises, according to the turnover in 2019. The response rate to the proposed interview was 42.9% which is considered high and relevant. Primary source data were collected through empirical research conducted during the first quarter of 2021, which limits the results of the research to that point in time. Based on the data subjects' responses on the assessment of the state of the early warning system in their organizations at the level of all data subjects, 25% of them believe that the early warning system is developed, 33.4% of them believe that the system is still partially developed. Table 1 states, among other things, that 41.7% of data subjects answered that the early warning system is insufficiently developed, which confirms the conclusion of the published research concluding

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<sup>24</sup> Kereta, J., Sustav ranog upozorenja na strateške rizike u međunarodnom poslovanju, Doktorski rad, Zadar, Sveučilište u Zadru, Libertas međunarodno sveučilište, Zagreb, 2020., p. 216

<sup>25</sup> Adizes, I. (2006) Životni ciklusi tvrtke. M. E. P. Consult, Zagreb., p. 235

<sup>26</sup> Kereta, J.: Sustav upravljanja rizicima u hrvatskim poduzećima koja posluju na međunarodnom tržištu, 21st International Symposium on Quality, Crikvenica, Hrvatska, 2020., p. 7

that large Croatian companies apply and know enough about the procedures, methods, and techniques used in the early warning system and that they follow silent signals indicating strategic changes in the environment.<sup>27</sup>

Table 1.: Development of early warning systems in large enterprises in the Republic of Croatia

<b>Does your enterprise/organization have a developed <i>Early Warnings System</i> and based on your understanding of what it should include, how developed is it?</b>						
1 - Completely undeveloped; 2 - Partially undeveloped; 3 - Neither developed nor undeveloped; 4 - Partially developed; 5 - Fully developed	Research conducted in 1Q 2021.					
	1	2	3	4	5	Σ
Number of enterprises according to the development of the early warning system	3	2	2	2	3	12
%	25.0	16.7	16.7	16.7	25.0	100

Source: Author's processing

According to Kereta (2020), the early warning system is partially or fully developed in 52.4% of large Croatian enterprises<sup>28</sup>, which indicates similar results obtained by various surveys. In the primary survey of interviewed data subjects who believe that they have developed or partially developed an early warning system, only 28.4% answered that employees in all enterprises' structures were fully or partially involved in the creation and operation of the risk management system. This refutes the set hypothesis that, in most Croatian companies, employees at all levels are actively involved in the creation and operation of the system, i.e., that employees actively participate in the operationalization of the implemented early warning system.

Table 2.: Employee participation in the creation and operation of the early warning system.

<b>To what extent is the active participation of employees in business risk management and the creation and operation of early warning systems developed in your enterprise/organization?</b>						
1 - Completely undeveloped; 2 - Partially undeveloped; 3 - Neither developed nor undeveloped; 4 - Partially developed; 5 - Fully developed	Research conducted in 1Q 2021.					
	1	2	3	4	5	Σ
Number of systems according to employee involvement in the implementation and creation of early warning systems	2	2	1	1	1	7
%	28.6	28.6	14.2	14.2	14.2	100

Source: Author's processing

In the research process, data subjects answered questions about the manner and methodology in which they involve employees in the process of creating and functioning of the early warning systems, shown in more detail in Table 3. When asked about the manner of employee involvement in the development and functioning of the early warning system, all interviewees, i.e. 100% of data subjects, pointed out the use of the ISO 9001:2015 as a primary system in the establishment of active employee involvement. This confirms the auxiliary hypothesis that in most Croatian enterprises in which employees participate in the functioning of the early warning systems, they are actively involved in the generation of qualitative indicators and risk identification systems.

Table 3.: Methodology of active involvement of employees in the creation and operation of the early warning system

<b>To what extent is the ISO 9001:2015 system used to actively involve employees in the creation and operation of the early warning systems in your enterprise/organization?</b>						
1 - Not used; 2 - Rarely used; 3 - Used; 4 - Used in most cases; 5 - Fully used	Research conducted in 1Q 2021.					
	1	2	3	4	5	Σ

<sup>27</sup> Kereta, J., Sustav ranog upozorenja na strateške rizike u međunarodnom poslovanju, Doktorski rad, Zadar, Sveučilište u Zadru, Libertas međunarodno sveučilište, Zagreb, 2020.

<sup>28</sup> ibidem, p. 214-215.

Number of systems according to the intensity of use of the 9001:2015 standard in the implementation and creation of early warning systems				2	1	3
%				66,6	33,3	100

Source: Author's processing

In the research process, the data subjects assessed the extent to which the system, in which employees of the company were actively involved in generating qualitative indicators, responded promptly to possible threats and opportunities concerning the system in which indicators were generated exclusively using historical data available from primary and secondary sources. The answers to the question about the expediency of involving employees in the process of creating and functioning of the early warning system are more detailly shown in Table 4. When asked about the timeliness of obtaining key indicators, most of the interviewees, i.e., 85.7% of data subjects pointed out that the use of the ISO 9001:2015 system, and systematic involvement of employees, significantly improved the system. This further confirmed the auxiliary hypothesis that in most Croatian enterprises, in which employees participate in the functioning of the early warning system, the quality of the system significantly increases.

Table 4.: Improving the operation quality of the early warning system by involving employees in the creation and operational functioning of the system

<b>To what extent has the employees' active involvement in the creation and operation of the early warning system improved the system in your enterprise/organization?</b>						
1 - It has not been improved; 2 - The operation of the system has only been partially improved; 3 - The operation of the system has been improved; 4 - The operation of the system has been improved in most cases; 5 - The operation of the system has been completely improved	Research conducted in 1Q 2021.					
	1	2	3	4	5	Σ
Number of systems according to the intensity of work improvement		1		3	2	7
%		15.3%		42.9	28.7	100

Source: Author's processing

#### **IV. RESEARCH RESULT AND DISCUSSION**

The relationship between the system, the environment, and the degree of control that an organization can perform on system environment factors depend largely on the scope and intensity of gathered information needed to identify, analyze, measure, and control risk factors. The course of the risk management process best demonstrates cost-effective protection controls used for the mitigation or elimination of the risk, i.e., it indicates the involvement of employees, in all business segments, to participate in the necessary implementation of reliable methods used to reduce the fragility of the system. According to the research results, the early warning system has been fully or partially implemented in most large Croatian enterprises, thus confirming the hypothesis. Companies that have a partially or completely developed early warning system at a greater percentage, should use the system to educate employees and actively involve as many of them as possible in the generation of qualitative indicators and thus prepare them for future events. By introducing such an early warning system, managers and entrepreneurs would have timely information concerning the trends of certain future factors and could prevent risky situations with timely mannered strategies. By involving employees in the operationalization of the implemented early warning system, the company's management has the advantage of certain opportunities that would not be noticed on time without such a system. With early warning and business risk management systems based on the active involvement of employees in the generation of indicators, it is possible to increase the efficiency and effectiveness of large Croatian enterprises. The research showed that a change in the approach to business risks management and operating warning system, together with the implementation and regular application of employee activities, can significantly improve the success of Croatian enterprises, thus preparing them for a competitive international market.

#### **V. CONCLUSION**

The early warning system is significant for companies due to the pronounced dynamism and complexity of the environment in which they operate. The enterprise is, regardless of its size, still susceptible to the crisis. Deployment of such a system and the involvement of employees in its implementation and operationalization makes it easier to obtain information about possible changes and it provides preparation time for everything that

future business brings. The strategic risk management system is a reliable tool for managers in reviewing the existing strategy and its compliance with the expected changes in the environment. It consequently creates recommendations about necessary changes in the strategy of the enterprise. In the conducted research, most data subjects answered that risk management, and the establishment of an early warning system is fully or partially developed concerning the understanding of what the system should include, which is actually a very high percentage and indicates the existence of a systematic approach to risk management in large Croatian enterprises. Companies that in a higher percentage have a fully or partially developed risk management system, to a lesser extent, actively involve employees at all levels in the creation and operation of the early warning system. Analyzed data shows that the ISO 9001 standard is extremely suitable for the active involvement of employees in the implemented early warning system, and, it contains measures that enable the employees' involvement in the operationalization of the system. The calculation of the correlation matrix showed that there is a statistically significant correlation between the use of the norm and the participation of employees in the use of the early warning system. By examining data of the Republic of Croatia, a great potential has been noticed for other Croatian enterprises, in which the ISO 9001:2015 system has been established to start implementing the early warning system and actively involve employees in the creation and operation of the system.

### LITERATURE

1. Adizes, I. (2006) *Životni ciklusi tvrtke*. M. E. P. Consult, Zagreb
2. Aguilar, F. J. (1967). *Scanning the Business Environment*. New York: Macmillian.
3. Albright, K. S. (2004) *Environmental scanning: radar for success*. *The information Management Journal*, svibanj/ srpanj
4. Andrijanić, I., Gregurek, M., & Merkaš, Z. (2016). *Upravljanje poslovnim rizicima*. Zagreb: Libertas - Plejada.
5. Ansoff, I. H. i McDonnell, E. (1990) *Implanting Strategic Management*. New York
6. Bahtijarević-Šiber, F., Sikavica, P., Pološki Vokić (2008). *Suvremeni menadžment*. Zagreb: Školska knjiga
7. Bleicher, K. (1992). *Das Konzept Integriertes Management*. Zweite revidierte und crweiterte Auflage. Frankfurt am Main: Campus Verlag
8. Burke G, Peppard J., (1995), *Examining Business Process Re-engineering: Current Perspectives and Reasearch Directions*, *The Cranfield Management Series*, Kogan
9. Dojčinović, D. (2009). *Sustavi ranog upozorenja poslovne krize*. Magistarski rad. Zagreb: Ekonomski fakultet
10. Fučkan, Đ., Sabol, A. (2013). *Planiranje poslovnih dometa*. Zagreb: Hum naklada d.o.o
11. Gilad, B. (2004). *Early warning: using competitive intelligence to anticipate market shifts, control risk, and create powerful strategies*. New York: AMACOM.
12. Hall D.T., (1986), *Carreer Development in Organizations*, Jassej-Bass, San Francisco
13. Hassain A. (2010), *Effective Diagnosis in Organization Change Management*, *Journal of Business Systems, Governance and Ethics*, Vol.5, No2, Victoria University, Australia
14. Hedin, H. (2005). *Early Warning System - How to Set Up an EWS Process*. *Competitive Intelligence konferencija*. Zagreb.
15. Kereta, J. (2020). *Sustav ranog upozorenja na strateške rizike u međunarodnom poslovanju*. Doktorski rad. Zadar, Zagreb: Sveučilište u Zadru i Libertas međunarodno sveučilište.
16. Kereta, J. (2020). *Sustav upravljanja rizicima u hrvatskim poduzećima koja posluju na međunarodnom tržištu*, 21st International Symposium on Quality, Crikvenica.
17. Košutić, S. (2012). *Sustavi ranog upozoravanja*. *National security and future*, 3 (12), pp. 33-54.
18. Labaš, D. (2011). *Potporna informacijske tehnologije strateškom sustavu ranog upozoravanja*. Specijalistički poslijediplomski rad. Zagreb: Ekonomski fakultet Zagreb.
19. Matković I, Karin D. (2013) *Sustav signala za rano uzbunjivanje na krizu u organizacijama Putokazi*, Sveučilište „Hercegovina“ – [www.fdzmb.org/putokazi](http://www.fdzmb.org/putokazi)
20. Probst R., Raisch S. (2005), *Organizational Crisis: The Logic of Failure*, *Academy of Management Executive*, Vol.19, No1, London
21. Osmanagić Bedenik, N. (2007). *Kriza kao šansa: kroz poslovnu krizu do poslovnog uspjeha*. Zagreb. Školska knjiga
22. Young, P. C., Tippins, S. C. (2001). *Managing Business Risk: An Organization Wide Approach to Risk Management*. New York: American Management Association,
23. Ziegenbein, K. (2008). *Kontroling*. Zagreb: RRiF-plus