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Roadmap for Risk Management Integration Using AI

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Abstract

Modern risk management shows a necessity for high-end technologies in the form of various artificial intelligence tools to be approved. AI integration projects are still distrusted by many business organizations and others are failing. To facilitate this process this paper presents a roadmap for the integration of AI risk management covering all activities and processes in organizations. Here, the individual steps from the awareness of the need for AI in risk management, through the required analyses, preparatory and executive stages, the specific application of artificial intelligence in the individual stages of risk management, to its full implementation and guaranteed functionality, are successively revealed. The purpose of the material is to illustrate the overall process of integration of risk management, through artificial intelligence, thereby increasing the trust and success of company projects in this area.

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1. Introduction

The modern view of risk management at the business level is increasingly moving noticeably towards the use of artificial intelligence. Artificial Intelligence Risk Management (AIRM) is a growing guarantor for reducing the spread of potentially dangerous situations (Arcure Group), both from the internal and external environment of organizations. With its help, the risk management process is improved, showing better results in terms of: collection and processing of incoming data; more accurate threat identification; high accuracy in risk assessment achieved through a set of machine learning algorithms and models; faster and more adaptive responses to risk treatment measures (Cotelle at al., 2019); faster response time in risk monitoring by sending higher-level alerts and retriggering the entire process from scratch (Biolcheva, 2021). Among the most significant contributions, is that the whole process delivers results in real time, which gives a high possibility of showing flexibility and adaptability of the entire company management, preserving its reputational value. In addition, AIRM aims to expand the scope of risk management beyond the functional view, covering elements of the process that may be affected by the chain effect of other risks (Thabet, 2021). Linking risk to all systems inside the organization and sharing information with third parties without revealing data from other internal processes are among the main benefits. In this way, stable partnerships are built with open communication, trust and effective solutions (Henderson, 2020). The difficulties in this management are related to the construction of extremely complex models that take into account both the risk and the different aspects of the individual business process (Thabet, 2021) in its unity and in collaboration with the other business processes taking place in the organization and outside it. AI systems differ from traditional software because they have specific requirements and risks (Burgess, 2018). For this reason, there is still a high percentage of AI projects that fail (Managing AI and ML in the Enterprise, 2019) (Herremans, 2021).

Based on the development of science, this article poses the research question - through what steps does the whole path of AI integration of risk management in business organizations need to go? To answer the question, we offer a roadmap showing the AIRM integration process. Through it, AIRM can be integrated into each of the business processes in the organization, identify, analyze, treat and control the level of risk in an autonomous "intelligent" way. The goal is to reveal a conceptual view of the entire process that business organizations must go through, from the awareness of the need to full implementation and deployment. We place the limitation that the roadmap is conceptual and shows the sequence of individual integration steps, not the individual AI tools and algorithms that are used in the risk management process. This roadmap shows what lies ahead for individual business organizations that have made the decision to move to intelligent risk management.

To reveal the entire AIRM integration process in business organizations, the following sections are sequentially presented: Overview of the AIRM integration roadmap, which visualizes the overall picture of all required activities and processes;

Analysis showing initial preparatory actions by integrators; Preparation for implementation related to the provision of information; the nature of AIRM itself and the architecture development of the software product/service; Implementation and implementation targeting AIRM implementation activities; Monitoring, demonstrating control over the overall activity. In addition, a discussion and conclusion are also presented.

2. Overview of the AIRM Integration Roadmap

Many scientific researchers are working on the topic related to software implementation in a business environment. Khan and his team (2019) explore opportunities for global software deployment. Another team (Choi at al., 2022) explored opportunities to improve software processes, creating a model for developing quality recommendations through rigorous analysis of evaluation results. Lu and his team (2022) develop a software engineering roadmap, with a focus on multi-level governance for responsible AI systems, creating development processes that incorporate process-oriented practices for responsible AI systems. Another AI-based roadmap is aimed at creating an AI strategy to reduce the failure of AI research and development projects (Herremans, 2021). The roadmap developed in this material relates to the integration of IARM as a means of sustainability and business success. Basically, it follows the familiar procedures for introducing specialized software.

Software integration approaches encompass a series of standardized steps. According to Henderson, they can be systematized in the following:

1. Defining the requirements that the system must meet according to the management.
2. Conducting a feasibility analysis.
3. Software infrastructure design.
4. Plan for management of terms and alternative options.
5. System integration outlining the processes, applied methods and logistics.
6. Implementation of the solution and training of employees.
7. System maintenance (Henderson, 2020).

According to another source, AI solutions can be introduced through the following sequence of steps:

1. Study the possibilities for the relevant business.
2. Setting ultimate goals.
3. Assessment of internal capabilities for technological adoption.
4. Choosing between building or integrating a ready-made system.
5. System testing.
6. Improving the system over time (How to Implement AI in Your Business, 2022).

The AIRM integration procedure proposed here is summarized in four main stages:

1. Analysis.
2. Preparation for implementation.
3. Implementation and implementation.
4. Monitoring.

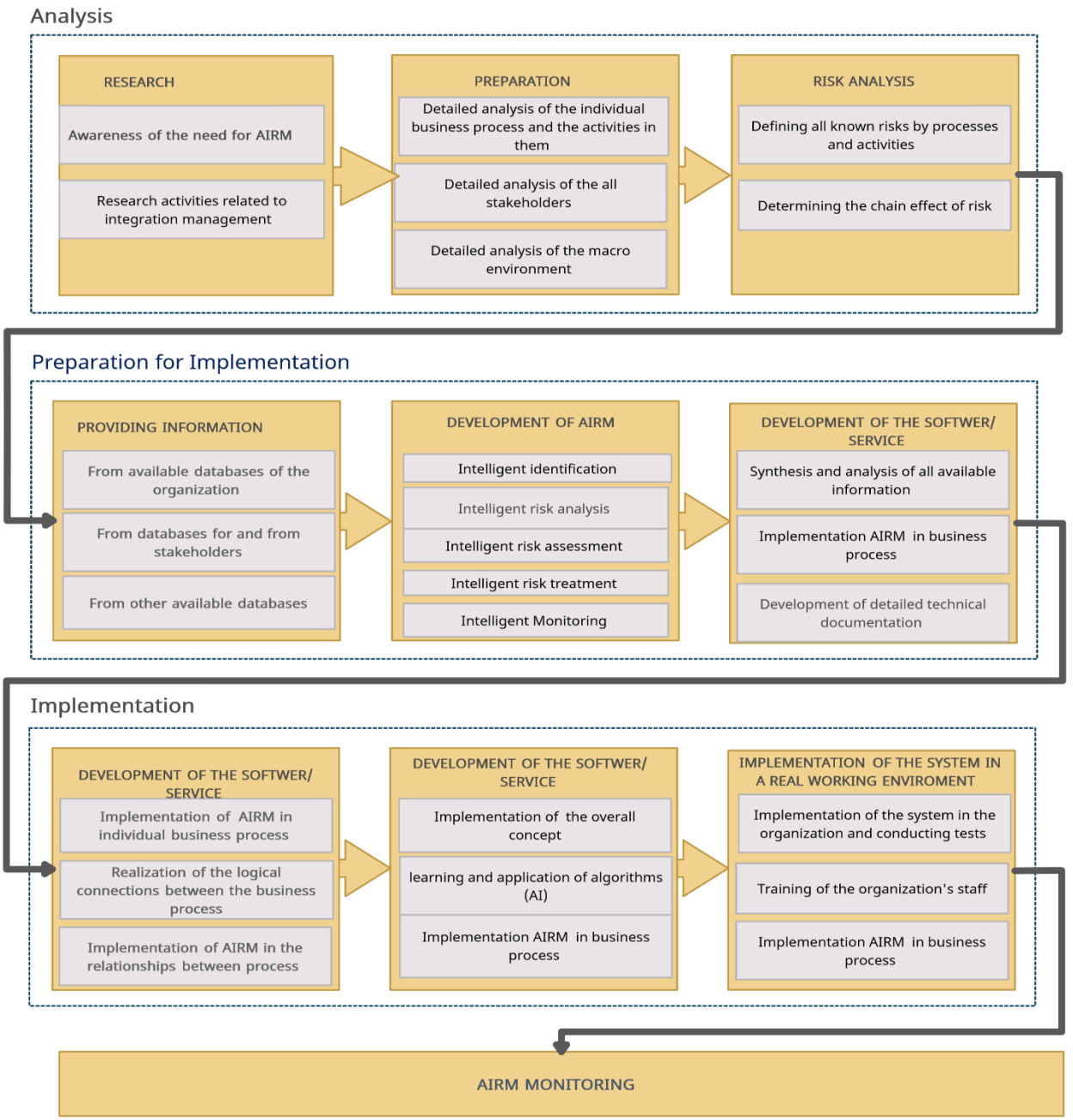

Figure 1: Roadmap of the AIRM integration process in the business organization

To better visualize the road map for the integration of intelligent risk management in the business processes of the organization, the individual stages with their main activities are presented below.

3. Analysis

3.1 Research

Within this first main stage, the activities related to the preparation of the organization for the introduction of AIRM are carried out. For this purpose, the process starts with research activities within organization itself. Awareness of the need for AIRM is fundamental. This first step is related to management's ideas and views about what they expect from intelligent risk, the goals they want to achieve with it, the returns from the increased degree of collaboration between business processes and risk management, and changes in the external environment. Once the clear vision has been approved at all hierarchical levels and is agreed between them, the actual preparation for integration is moved on.

Research activities related to management of the integration are aimed at the overall organization of the start of the procedure, i.e., the required budget, the deadlines, the development team, the necessary assets, requirements relative to the specifics of the organization, databases, data compatibility between individual systems, functionality of business processes in the stage of introduction and testing, etc. are defined.

3.2 Preparation

The second part of the analysis is related to the specifics of the organization itself and its surrounding environment. In order to integrate the risk, at all levels in the organization and in each business process, it is necessary to give a complete description, with all the activities carried out. An important circumstance is the definition of criteria that the processes must meet; all deviations that are permissible and those that are not; all potential risks that would be relevant in their implementation; all regulations that must be met in terms of quality, optimality, healthy working conditions and legality (Biolcheva at al. 2022). Another important circumstance is the determination of the importance and interrelationship of the individual process with the other ones in the organization and outside it, with the dependent processes of suppliers, partners, customers and other interested parties.

Within this part, the specifics of the organization are also determined from the point of view of the external environment. It is defined in two directions: 1) detailed analysis of all interested parties and 2) detailed analysis of the macro environment. These components are a significant source of potential risks, so it is important here to determine both the channels of information about them and to take predicative measures for their management. The analysis of the external environment at this stage of introducing risk integration is conditioned by the fact that business organizations do not work in a vacuum, and effective management requires an assessment of the strengths and weaknesses of the organization and the

opportunities and threats presented by challenges of the external environment (Ansah and Sorooshian, 2017) and opportunities it presents them with.
Stakeholder analysis is important from the point of view of their multitude, priorities, opinions, differences. This necessitates determining the perspectives and opportunities to influence (Sapapthai, at al. 2020) the organization and other stakeholders. Their opinions and actions have a direct impact on the level of risk in the organization and its individual business processes. From this point of view, they need to be comprehensively identified and analyzed and categorized. Here it is appropriate to apply a toolkit using categorization methods and/or "stakeholder relationship investigation" (Reed, at al. 2009). In this regard, an "Interest Matrix" is used, providing information on encouraging or discouraging of certain groups of stakeholders, an Influence Matrix, providing information on stakeholders that the organization should pay attention to minimize risk (Sapapthai, at al. 2020). The analyzing business organization has the opportunity to partially influence the actions of the interested parties, so that within this preparatory stage of the overall integration both the threats and the opportunities arising from them are taken into account.
The analysis of the macro environment is related to the dynamics of the macro factors that have a significant impact on the activity of the organization - economic, political, geopolitical, social, cultural, technological factors and others that determine the behavior of all interested parties. The most important part of conducting this analysis is identifying the risk of each of the external factors and determining its impact on the business processes in the organization. This analysis is characterized by a high degree of variability, so it is important that the information is up to date, as well as the correct choice of the appropriate moment at which the innovation should be introduced (AIRM) so as to minimize adverse side effects. A suitable tool for conducting this analysis is PESTLE TEC(N)QUE" (Rastogi and Trivedi, 2016).

3.3 Risk Analysis

The results of the preparatory stage aim at identifying the current profile of the business organization and can be summarized within the framework of a SWOT analysis, with conclusions from an analysis of all its strengths and weaknesses, opportunities and threats. This shows the integration team the current level of risk and is the basis for moving to the next part of the roadmap - risk analysis.
The presence of internal risk registers providing information about the cases of realized risks, the expert assessment of various employees, the information from the previous stage, the detailed knowledge of each process and activities and all known cases of threats in them are the object of interest within this part from the road map. This information is the starting point for the breadth of the integration process. Moreover, the individual details of activities and processes must cover the type and size of the connections between the individual processes inside and outside the organization; as well as the type and chain effect of the manifestation of a given risk

on other affected (directly and or indirectly) activities and processes.
This part of the roadmap lays the foundation for the concept of interaction and interweaving of all relations, that needs to be achieved through AIRM.

4. Preparation for Implementation

The second stage of the road map is aimed at the activities related to the preparation for the implementation of the AIRM integration. Three main activities are carried out within it:

1. Providing information.
2. AI risk management.
3. Development of software product/service architecture.

4.1 Provision of Information

Provision of relevant databases is a necessary condition for building the functionality and capabilities of AIRM. There are several primary sources of information that are needed at this stage. First of all - available databases from the organization itself. They include key information on the implementation of business processes, the financial and material flows that pass through them, the trends of development and load, delivery terms, execution of processes, realization and production, etc., i.e. all information related to the functioning of business processes and their logistics inside the organization.
On second place, it is necessary to have databases from and for the interested parties. This data is a source of information about the capabilities of interested parties, their conditions, requirements, behavior, contractual culture, reliability, etc. The source of this information can be shared databases, for example on production capacities and resource capabilities, tracking of deliveries. The purpose of this analysis is aimed at predicting the future behavior and potential reactions of stakeholders.
On third place, information is sought from other accessible (structured or not) databases. These include bases on key indicators that are available in the market. For example, long-term inflation trends, consumption by individual sectors, etc.
After providing the necessary input information, the roadmap leads to its essence, namely the development of the specifics for the AIRM functionality.

4.2 Development of AIRM According to the Specifics of the Organization

According to ISO31000, the process starts with ***risk identification***. Smart risk identification is used here, i.e., enhanced based on AI capabilities. The first step of identification is to define the business processes and the activities that accompany them, with all the details that should or should not be performed within them. Historically known risks are defined. Information up to this point is provided in traditional ways. It is necessary to provide initial data, on the basis of which the artificial intelligence will be trained and developed. From here on, its mechanisms are triggered, with the transition to the next step of the identification stage, namely: conducting intelligent risk identification. It is based on a number of principles, the

main ones being:
• AI analysis of the information from the defined risks;
• AI analysis of information on activities and processes;
• Analysis of available data and knowledge from ML and neural networks;
• Applying AI and neural networks to generate inferences and solutions about potential risks.
The most significant contribution of intelligent risk identification is that, based on known risks and connections, AI conducts its own analyzes taking into account changes in all internal and external factors and draws conclusions, generating the current risk profile of potential risks in the given organization.

4.2.1 AI analysis and risk assessment

After the intelligent identification stage, risks need to be systematized and characterized and evaluated. These activities are performed autonomously, without the need for human intervention. Artificial intelligence tools conduct an analysis related to the main factors and dependencies characterizing each individual risk. The main directions of this analysis are related to:
• Risk frequency analysis with ML based on historical data;
• Analysis of financial consequences by means of ML and meta information;
• The intelligent identification of the financial consequences of the realization of the risk based on ML;
• ML risk analysis from the point of view of the continuity of business processes;
• Ensuring direct and indirect connections with other processes and activities;
• AI analysis of the impact of risk on the entire business organization;
• Potential effects of risk on stakeholders;
• Semantic analysis of other factors influencing the risk.
As part of the qualitative assessment, each of the characterized risks is compared to the level of risk appetite of the organization, through AI analysis. Artificial intelligence optimizes the process to the extent of assisting expert assessment, by applying analysis based on all available information and predicting the risk appetite of the organization. In this way, its level (low, medium, high) is established. Through the autonomous generation of a probability matrix, based on neurons and semantic networks, it is possible to transform the obtained data and output a probability matrix in which the place of each risk is determined according to the intelligent qualitative risk assessment.
For higher accuracy in intelligent risk assessment, a quantitative assessment is also performed. It is conducted based on Monte Carlo Simulation, the functions of which have been improved, through AI algorithms, tracking the overall processes and combinatory of the information flows, on the basis of which useful models are realized, through which complete monitoring and prediction of the quality assessment is carried out. The results of the stage of are summarized in the generation of each risk separately.

4.2.2 Intelligent impact (treatment) and risk monitoring

Due to the dual nature of risk, intelligent analysis proceeds in two directions - on one hand, it is necessary to respond to the opportunities of the risk, and on the other hand, to the threats it creates. As their possible answers differ, they are grouped separately. The most important decision that artificial intelligence tools (in this case ML analysis) should make at this stage is the selection of an appropriate response to each individual risk and its impact on all related activities and processes.

To obtain a high level of guarantees and subsequent training of ML, an additional analysis is carried out, giving information on the level of residual risk after the treatment of the risk. ML plays an important role in realizing maximum optimization and proactively ignoring or minimizing the risk factor. The results of the risk treatment are displayed with the current values of each individual risk after impacting it, i.e., in accordance with the risk appetite acceptable to the organization. The high dynamics of the environment necessitates constant monitoring regarding a change in the effect of the risk response; changes in the environment; changes in risk status; discrepancy between planned and reported results and values. The smart tools mentioned so far for analysis, application of activity and acquisition of knowledge become an excellent monitoring utility. The monitoring provides connection and presentation of the synthesized and normalized information to the experts using modern monitoring technologies (Biolcheva, at al., 2022).

Continuing with the individual steps on the roadmap after the development of AIRM within the preparation for implementation stage, the development of the software product/service architecture follows.

4.3 Software Product/Service Architecture Development

A fundamental stage of the roadmap is the development of the overall software and application architecture. The moment is of great importance for the correct and complete implementation of the subsequent analyzes and applied software project. Designing the architecture requires passing through several main phases, as well as conducting additional meetings and analyzes during the implementation of the process, as follows:

- Systematization and analysis of all available information and knowledge – In the initial stage of the implementation of the software project architecture, the phase of analysis of the entire available and accessible information is of high priority. In this phase, it is necessary to hold numerous meetings with experts and users of all levels. The systematization of the process of supplementing the information based on the applied opinion of the expert staff, as well as the analysis of their expectations and requirements add immeasurable value to the overall analysis required for the design of the architecture. Software experts on their own, have the opportunity to implement a number of improvements to work processes and expectations, based on current tools in the field of AI. The required end result of the phase is the complete understanding of the information and the synthesis of architectural documentation. After verification of the details,

the documentation should be supplemented and presented as a complete architectural solution necessary for the subsequent phases and stages.

- Implementation of AIRM by business processes – In this phase, the correct and complete integration of AIRM in all processes of the organization is important. The approach provides granularity of business processes, as well as their complete and accurate description (provided by the previous phases). This is where the actual implementation process begins. Using approaches and tools from the field of artificial intelligence, the first layer of intelligent risk management is implemented. This necessitates the division of processes into activities of the lowest level. Breaking down, detailing, and then combining them provides a broader and deeper perspective and shows the information dependency that is useful for AI training. The required end result of this phase is a detailed processing of various examples, situations, information necessary for the initial training of artificial intelligence. Thus, different reaction scenarios are described, based on which the AI has the ability to analyze, improve and derive conclusions and rules, as well as methods of action. Last but not least, the aim is to ensure the proactive behavior of intelligent models for risk analysis.
- Development of detailed technical documentation – The last phase of this stage/process is the realization of detailed documentation describing all, actions, analyses, method, processes, risks, etc., synthesized in a readable form.

As mentioned at the beginning, the Software Product/Service Architecture Development process is one of the most important steps in the realization of the overall concept. The correct and systematic passage through all phases, as well as the achievement of the set phase results, is a guarantor of ensuring stability, high levels of truth, minimal problems/obstacles, as well as ultimately achieving high levels of comparability and achieving project results against the set and expected ones.

5. Execution and Implementation

5.1 Linking AIRM to Processes

In the previous phase, the focus was on practical methodologies for analysis and implementation of project architecture based on information, analysis, expert assessment. In the current phase, attention is paid to the conceptual and practical linking of Intelligent Risk Management with the real processes of the company. The purpose of the phase is the realization of logical, interface, application and communication models, based on the overall application information.

- Implementation of AIRM in individual business processes – The practical application of AIRM in individual business processes is a long-term stage, subordinated, engaging and influencing a number of phases, processes and stages of the realization of the overall concept. Its implementation requires maximum preparation and participation of a number of expert groups and participants in the above-mentioned phases. Working together on the different aspects of the problem, the ultimate goals are focused on:

- Examining each individual business process from the point of view of real events and the surrounding world;
- Division of the process into logically connected blocks (stages);
- Granulation at the maximum level of each block (stage) and conducting analyzes and studies from different expert points of view;
- Analysis of the smallest blocks of processes and diagnosis of risks according to priorities and available information;
- Application of the most appropriate tools to deal with risks by stages;
- Application of algorithms and additional analyzes for the implementation of AIRM at a higher stage level, looking for the commonality between the individual blocks.

After obtaining the results of the above-mentioned goals, we proceed to consider the overall processes and stages. The aspirations are to use universal methods and technologies having the ability to meet the needs of IRM. When the most suitable solution for the purpose is found, it is compared and taken into account with the next stage.

- Realization of the logical connections between the processes – In this phase, the binding of the IRM to the business processes is continued. Here, emphasis is placed on the logical and practical connections between processes that change the overall picture and distribute information and knowledge at a higher abstract level - inter-process level of AIRM. Determining the dependencies between individual processes, stages, phases and blocks is an inevitable part of the overall architecture of a solution, especially from the intelligent level. Low logic level analysis is as important as high level analysis to the overall model. Taking the approach of searching for the "low-level least common multiple", it is followed here again, but with a different abstraction. The goals are to use minimal combat intelligent algorithms of high and low level, but with maximum success rate for the specific project. This is ensured by:
- Increasing the reliability of operation and analysis of AI;
- Improving the quality of final results of Artificial Intelligence, due to increasing the capabilities of self-learning algorithms based on uniform approaches and expanding their scope;
- Increasing the possibility of implementing proactive actions, based on more complete and objective information and knowledge base.

Following the realization of the logical connections between the processes and the implementation of intelligent models, is a guarantor of successful management and scope analysis of logical, technical and applied connection between the processes.

- Implementation of AIRM in the relationships between processes – Extending the concept and considering the possibility of implementation at the level of relationships between processes, individual processes are analyzed. In this way, algorithms can dynamically change the relationships and sequence between and of processes. From a "real world" perspective, every action and process follow logical dependencies. For example, the blocking of a certain stage due to various factors, including the possibility of stopping the operation of the entire process

is relatively high. To counteract this, AIRM is activated here at the inter-process level. It monitors the risks of the very links between the processes. When indicating a strict one-way relationship without the possibility of bypass relationships, the system will correct the operation of the processes themselves, exchange their possible dependencies and redirect resources (of any type) to other units until the problem is eliminated or redirected. This proactive AI approach provides rapid analysis of large volumes of scenarios and probabilities before technology can choose the most correct one.

5.2 Development of the Software Product / Service

The overall process of implementing the software product is the next step. This is where the realization of the final product, based on the overall information, takes place. It consists of the following steps:

- Implementation of the overall concept – the overall implementation of the concept is based on the applied architectural documentation. After going through the above steps, the actual work on the software product begins. Using already available information and action methodology, software experts implement technical documentation, including details and technical specifics, for implementation. Going through the entire information array and available data, technologies, algorithms and methods relevant to the scope and complexity of the organization are selected and applied. The stage is followed technically at a low level by defining and structuring the processes in spoken user interfaces and approaches. The implementation is divided into several main stages:
  - Technical design of the system based on the prepared documentation and information;
  - Realization of the fundamental technical layers by means of the selected technologies and technical experts;
  - Carrying out primary tests for the needs of the system;
  - Design and construction of high user access levels to the system - interfaces and their proper communication with users;
  - Implementation of the complete software product meeting the requirements of the documentation;
  - Verification of the actual product against the requirements and documentation

The result of passing through these stages is realized software that meets the primary requirements and documents. Next are stages aimed at continuing the process and training the algorithms.

- Training of the applied AI algorithms – After the implementation of the initial version of the software, one of the most important stages for starting the real work of the product is coming. Training the AI algorithms over a period of time and actions providing maximum understanding of the environment. Training is a relatively time-consuming process, during which the complete information input arrays are observed, as well as the reaction of the AI based on historical data and conclusions. During this period, the operation of the algorithms is

corrected if deviations from the required results are diagnosed. If necessary, additional parameters for fine-tuning the processes are also provided. Expert verification of data is important to validate AI decisions and opinions. After passing this stage, the ability of artificial intelligence to be proactive as well as to make autonomous decisions increases significantly. This is followed by a stage of real system work training. It can last up to a year or, in the case of extremely complex processes, longer. During this cycle, the system will learn from the real data coming in every second, continuing to search for optimized models to analyze and deal with problems or situations. The approach can be "metaphorically" expressed by raising and training young children, going through all the steps, but it should be borne in mind that the speed of training depends on the provision of information and expert verification.

- Conducting tests and analysis for the proper functioning of AIRM – The test stage is the last of the development phase. Here, the overall information, analysis, algorithm and human training, action analysis and system operation are tested in their full and complete cycle. Verification from the perspective of technical experts, process experts and all other stakeholders is of utmost importance. At this stage, the overall indication and approach of the system to the external environment, situations, problems and users is visualized as a whole. The testing process, especially in the cases where artificial intelligence is integrated, is relatively complex and time-consuming, but the verification time is invested in the proper functioning of AIRM. After passing primary - final tests, problems are fixed and additional settings are applied if needed. Upon successful completion of this stage, the correct operation of the various modules of the system can be established.

6. Implementation of the System in a Real Working Environment

The last phase of the roadmap is implementing the system in a real working environment. At this stage, the system has been implemented and tested and is moving to its actual putting in function. It is divided into three main sub-stages:

- Implementation of the system in the organization and conducting the tests - after passing all the tests of the previous phase, as well as verifications and AI training, here is the moment when the system starts its work and management of real processes. Putting in function is a process that goes through the final phase of the road map. With it, the system is installed on working servers and stations, as well as tests are carried out for the passage of the implementation processes. After passing the implementation procedures, the training phase follows.
- Training of the personnel in the organization - The employees/operators who will work with the system are trained by the experts who created AIRM, and the training process lasts depending on the number, type and knowledge of the operators. At this stage, seminars, trainings, presentations are organized for basic familiarization of users with the system, as well as diversification of

separate groups of operators, according to their rights and obligations. At the end of the process, the required result is the problem-free functioning of the system, as well as at a higher level - administrator, adequate understanding and operation with the settings and training algorithms of the project.

- Development of AI algorithms – the process of learning AI algorithms is continuous and evolving. The results of the autonomy and the correct operation of the system are constantly increasing over time. With the continuous addition of information from current events, the work of the overall system is self-improving.

7. AIRM Monitoring

Although intelligent, this system, like any other software product, needs monitoring and, if necessary, external intervention. Despite its autonomous nature, the human factor is also important. The system aims to improve business organizations, to facilitate risk management, but does not exclude the need for human resources, although in this case it is more of a control nature.

Monitoring the overall process and all the steps through which the stages of the road map pass is important from the point of view of the correct introduction and functioning of the system in accordance with the specifics of the given organization. Strict compliance with individual activities and stages largely determines the degree of achievement of the intended results (Biolcheva, at al., 2022).

8. Conclusion

Every business organization has specifics that need to be taken into account in terms of its relationships with stakeholders, the type, number and complexity of individual business processes, company culture, personnel, hierarchical relationships, etc., but for all of them is a must to manage the risk in an effective way. Although risk management is already embedded in general management, the possibilities of using AI in its management gives it several competitive advantages. From this point of view, the material is useful both for the scientific community and for any medium and large business organization, regardless of industry and subject activity. Going through the individual steps sequentially gives a clear idea of what lies ahead for organizations that have made the decision to manage their risk in an intelligent way. The developed roadmap enables the project teams managing similar projects at the company level to calculate the required resources and time for the described integration. At the same time, a clear sequence of steps is a tool to reduce the risk of integration failure. Another challenge is the still insufficient confidence of company personnel in artificial intelligence, their fears of losing their jobs after its introduction. Here, too, a contribution can be sought from the road map shown, which outlines that the human factor is not eliminated, it has control functions, and by optimizing the risk management process, experts will be able to focus on their core business.

It can be summarized that the answer to the posed research question: "through what

steps it is necessary to go through the whole path of integration of AI risk management in business organizations" - found its answer and in a summarized form they are: an analysis showing the necessary preparatory actions for integration; Performance preparation providing information; revealing AIRM according to the specifics of the company, and the development of the architecture of the software product/service; Implementation and integration targeting AIRM realization activities; Monitoring, demonstrating control over the overall activity.

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