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New challenges and opportunities for risk management in the course of digital transformation of enterprises

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Contents

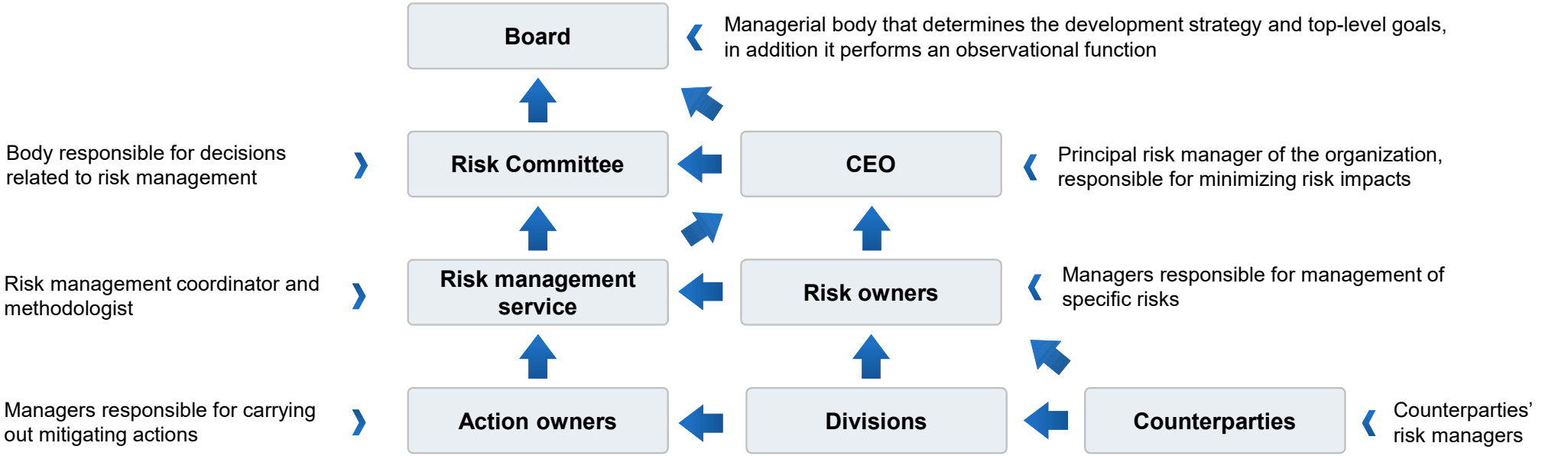
- Integration of procedures for management of tiered risks

- New challenges for risk management units
- Transformation of risk management tools
- Conclusions

Integration of risk management levels

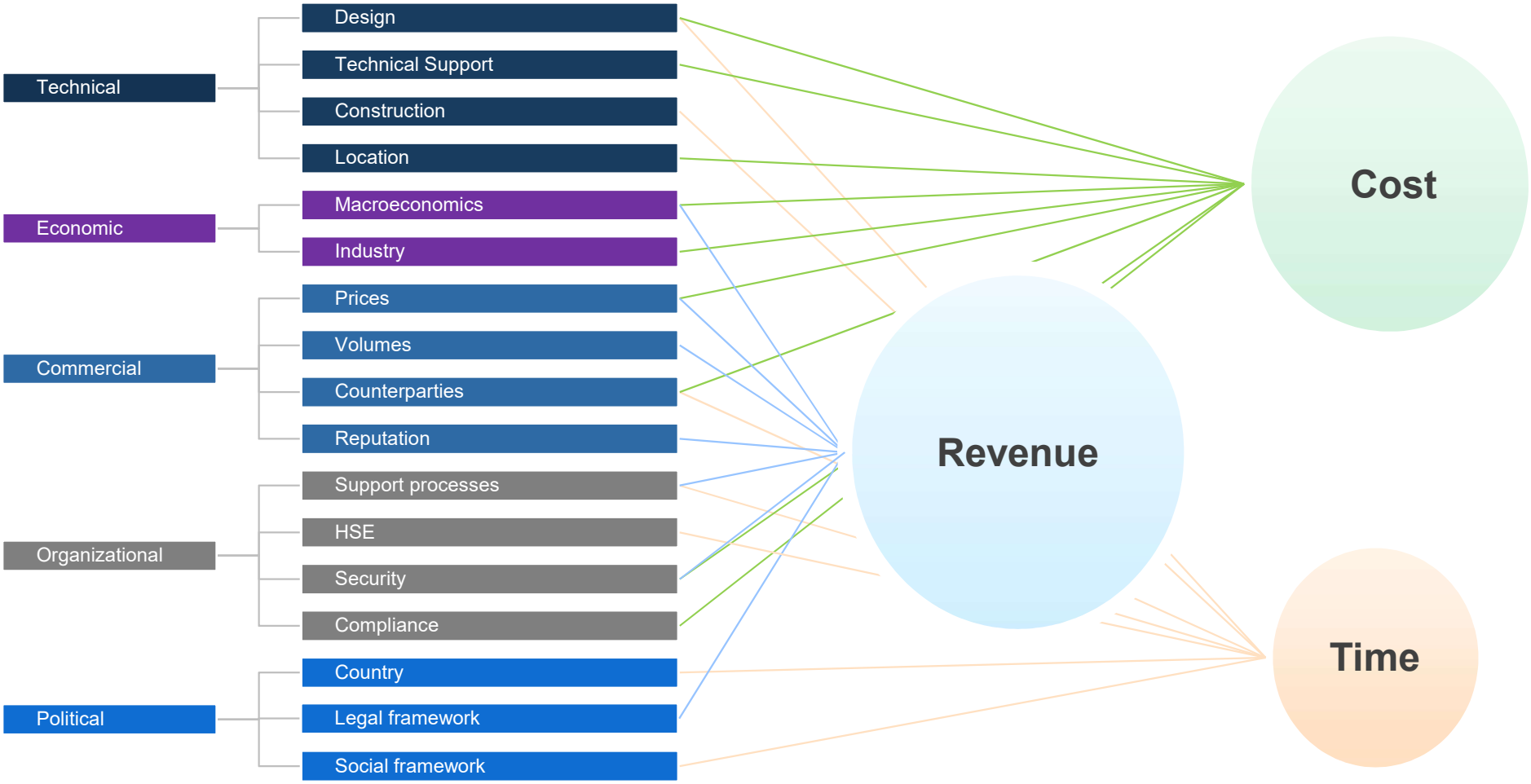
Despite the constant development of risk management methods, a gap between the processes of managing corporate-level strategic risks and operational risks remains a rather serious issue. Corporate risk management tools such as risk appetite are often quite poorly translate into indicators of daily operations and work, while risks related to specific project work are generalized to be presented at the highest levels of management.

Risk management framework



Classification of risks, factors and impacts

To ensure the correct integration of operational, tactical and strategic risks, an agreed hierarchy of risks, as well as the availability of unified tools for aggregating possible losses from risks, are a prerequisite. Risks should reflect dependencies on the type of impact on performance indicators, and potential losses for enterprises should be quantified so as to provide a solid basis for comparing the impacts of corporate risks of different types.



Information technologies in risk management

Processes and procedures of RMS

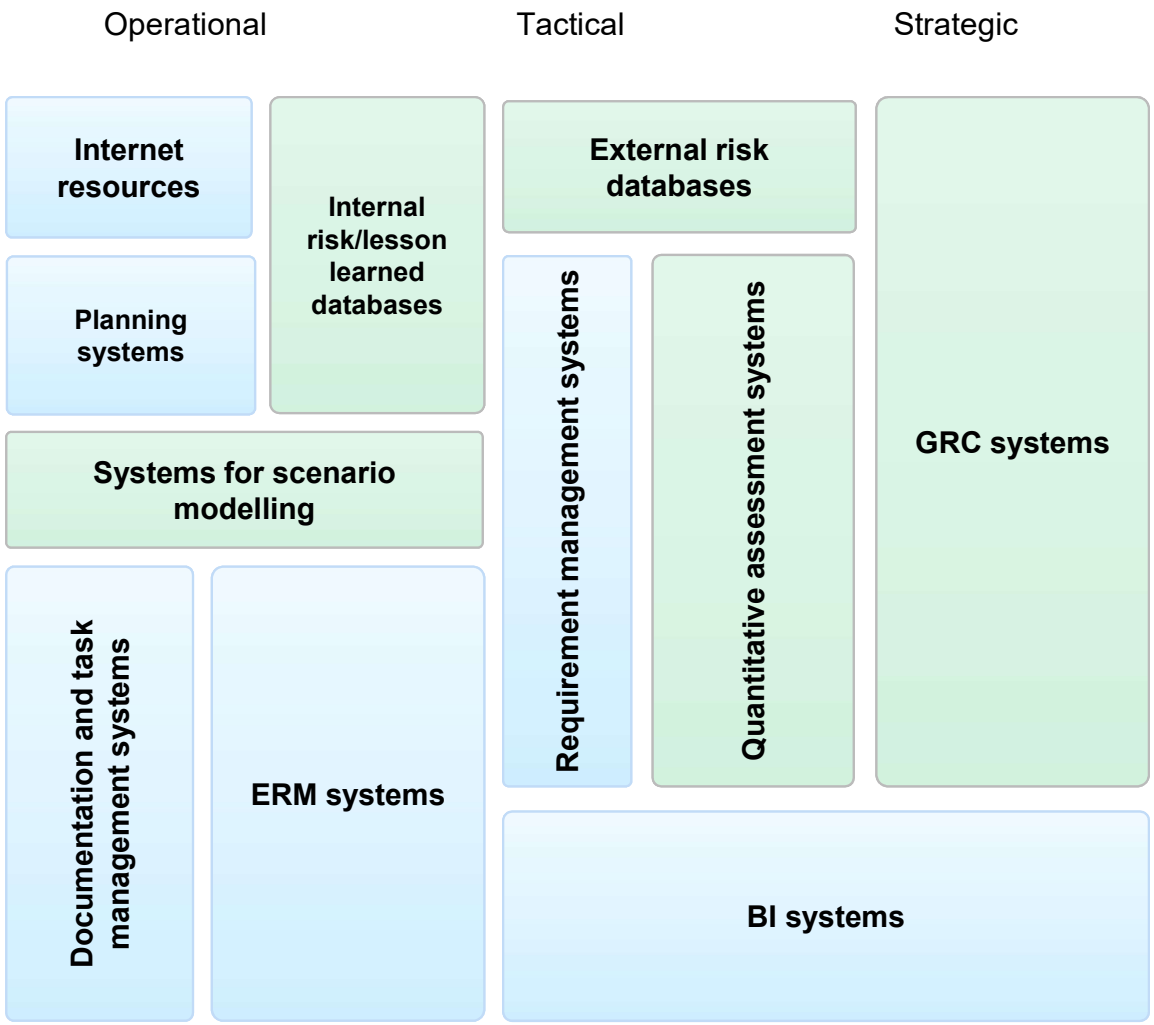
Identification
- Threats identification
- Cause analysis
- Impact analysis

Assessment
- Qualitative assessment
- Quantitative assessment

Response
- Action planning
- KRI development
- Risk appetite planning

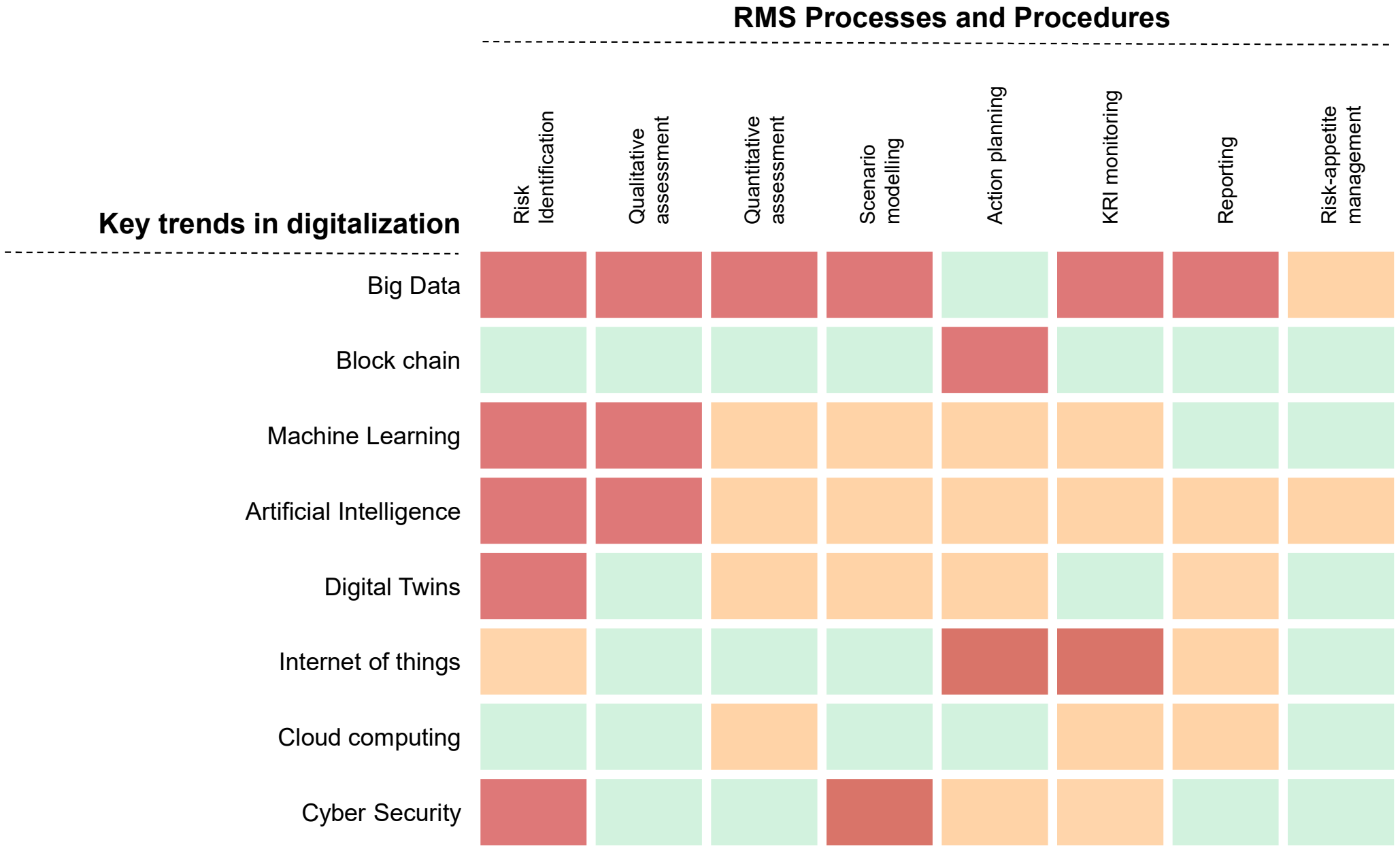
Monitoring
- Action control
- Variation analysis
- Re-assessment of risks
- Reporting

Management Levels



General IT-system Special IT-system

How digitalization affects risk management process



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TOP-5 challenges for risk managers

Even if an individual enterprise decides not to digitally transform its internal processes, it will soon face serious changes in the world around it, which is becoming more and more digitalized.

Given the task of maximizing the integration of information on various types of risks in a single data set, the main challenges that risk managers will face include:

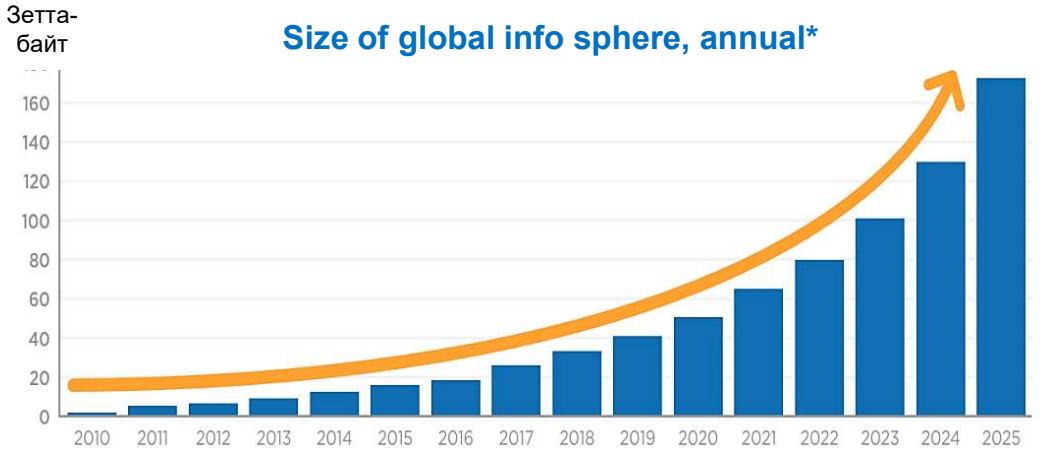
- Constantly increasing volume of generated and processed data;
- Widespread use of Machine Learning and Artificial Intelligence;
- Even more rapidly changing conditions of digital world;
- Leading role of IT infrastructure for operational work of enterprises;
- Increase in offers of digital risk management tools.

Source of graphics: Strana Rosatom

Volume of generated and managed data

The volume of data generated in organizations increases significantly due to introduction of new digital systems. The volume of data received from outside of organization is also growing.

Most of these data contain some information on risks: information on emerging risks, data on the success of risk management and effectiveness of decisions made, magnitude of losses and deviations, etc.



What processes will it affect?

- Scheduling and budgeting processes;
- Accounting and cost control processes;
- Risk identification procedures;
- Qualitative risk assessment procedures;
- KRI monitoring procedures.

What can this lead to?

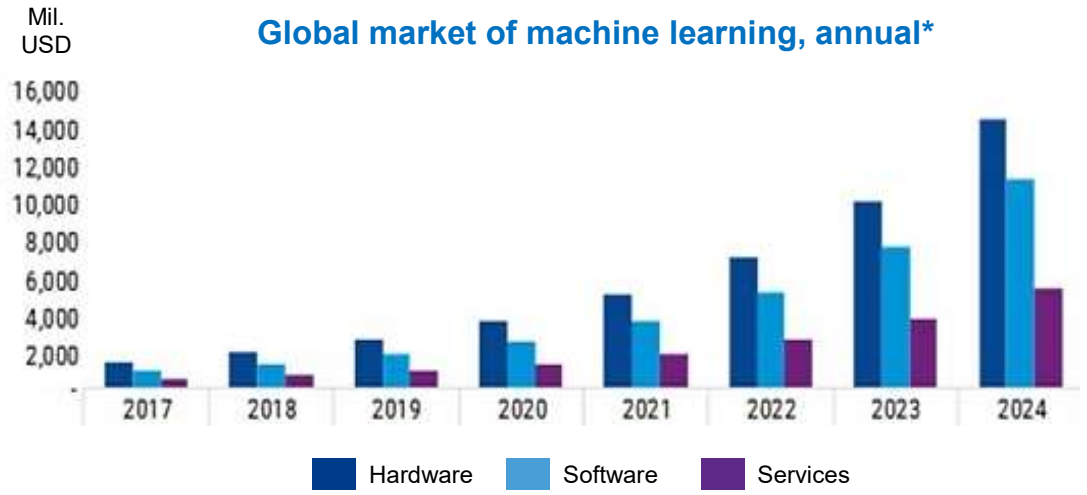
- The occurrence of contradictions between constantly changing source data will call into question the accuracy of risk analysis and assessment;
- Slowing down the processing speed of large data sets for identification and development of measures to respond to risks will exclude results of such analysis from decision-making process;
- The generalization or exclusion of some data sets from the analysis in order to ensure sufficient processing speed will lead to the loss of the ability to identify additional data relationships and reduce the value of the results of such analysis.

* Source: Data Age 2025, Segate 2018 г.

Machine learning and Artificial Intelligence

Current risk management practices include the widespread use of expert opinions to evaluate activities and develop methods for responding to emerging risks. Moreover, expert assessments are used both as the main result of a qualitative risk assessment, and as source data for quantitative modeling of risks impact on schedule and cost.

Global market of machine learning, annual*



What processes will it affect?

- Design processes;
- Scheduling and budgeting processes;
- Risk identification procedures;
- Procedures of assessing and quantifying risk;
- Risk response procedures;
- Risk monitoring procedures.

What can this lead to?

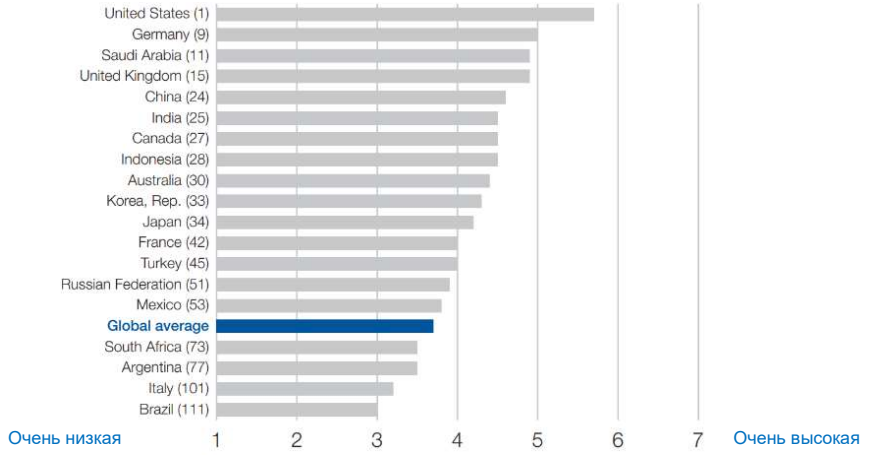
- Decrease in the accuracy of expert risk assessment due to the impossibility of correctly including the results of software analysis using common methods;
- Problems with collection of all the necessary information required for the correct use of ML & AI algorithms in risk analysis;
- Dilution of responsibility of risk owners for the quality of analysis and planning of actions to reduce risks;
- Implementation of overhyped technologies that do not provide the expected result;
- Public hostility to implementation of ML & AI algorithms designed to reduce the risks in enterprises.

* Source: MRFR Analysis

Rapidly changing conditions of digital world

We are witnessing how fast changes are happening in today's world. These changes concern not only launch of new technological products on the market, but also accompanying increase in the speed of implementation of regulatory decisions, the emergence of trade wars, and changes in resource prices.

Digital Technology Regulation Speed Index*



What processes will it affect?

- Planning processes;
- Internal control processes;
- Risk identification procedures;
- Risk response procedures;
- Risk monitoring procedures.

What can this lead to?

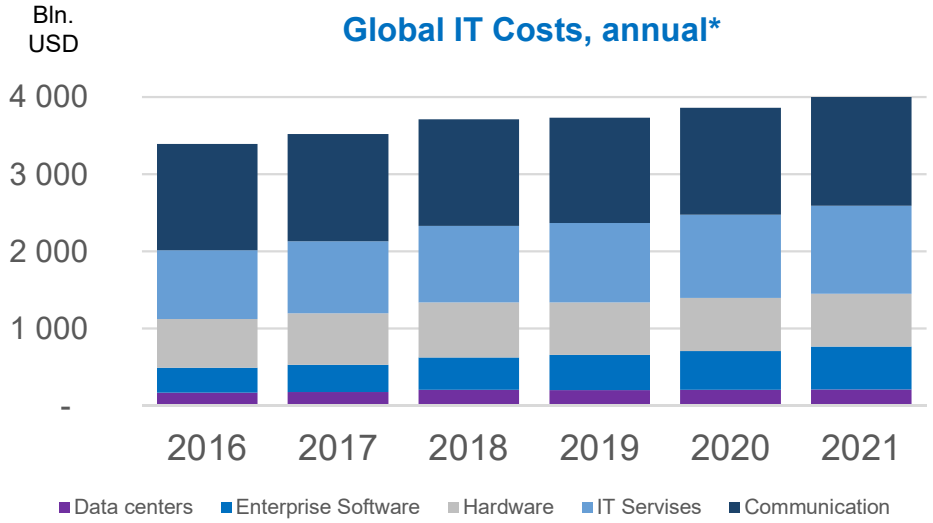
- Increasing requirements for reliability of assessing the impact of regulatory risks on operational and project activities;
- Increased requirements for speed of collection and processing of information about emerging risks for presentation to decision makers;
- The emergence of need to develop more advanced methods for assessing the risks of changes in costs of resources and goods;
- The emergence of a need for new effective risk transfer methods.

* Source: WEF Survey, The Global Competitiveness Report 2019

Role of IT infrastructure for operational work of enterprises

The issue of the stability of the IT infrastructure was especially acute on the agenda of organizations whose work quality depended directly on communications: banks, stock brokers, insurance companies, etc.

Now every large organization operating in any industry realizes how effective its activity depends on the stable operation of systems, data security and the possibility of high-quality communication between employees. In this regard, cyber risks are included in one of the areas of corporate integrated risk management.



What processes will it affect?

- Design processes;
- Scheduling and budgeting processes;
- Accounting and cost control processes;
- Risk identification procedures;
- Procedures for assessing and quantifying risk;
- Risk response procedures;
- Risk monitoring procedures.

What can this lead to?

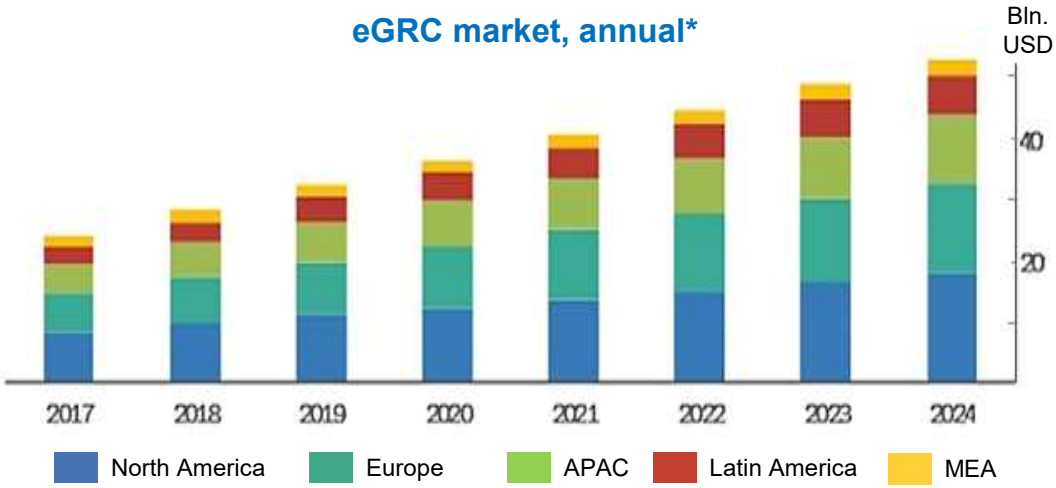
- Growing demand for quantitative analysis of cyber risks and the accounting of results of such analysis in decisions for management of operational and project risks;
- Creation of new metrics for monitoring risks in terms of availability and effectiveness of enterprise IT infrastructure;
- The need to optimize the costs of IT systems being used, including those used in risk management processes.

* Source: Gartner

Increase in number of offers of digital risk management tools

Over the past decades, many products aimed at supporting risk management processes have been introduced. In some organizations, the risk management process was automated as much as possible through the introduction of several solutions; in other organizations, software was used only to perform certain procedures.

At the same time, the current round of digital technology development will be able to offer even more advanced tools for processing and analyzing risk data.



What processes will it affect?

- Accounting and cost control processes;
- Risk identification procedures;
- Procedures for assessing and quantifying risk;
- Risk response procedures;
- Risk monitoring procedures.

What can this lead to?

- Piling up of various tools for analyzing and responding to risks that duplicate each other's functions;
- Increased costs of maintaining IT infrastructure of risk management systems;
- Redirecting the efforts of relevant divisions from presenting results of the analysis to maintaining the “correct” functioning of analysis system;
- Loss of detail of initial information when transferring data between systems.

* Источник: MarkestandMarkets Analysis

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Necessary changes in risk management systems

Given the expected changes in the process models of organizations, the services responsible for risk management processes should also conduct an early review of their own strategies and rules, being the basis for functioning of the risk management system.

To prevent the negative consequences mentioned above, following changes may be initiated by risk management units:

- Creating opportunities for the use of new datasets in risk analytics;
- Stimulating the transformation of a risk management culture;
- Changing the requirements for the competencies of risk managers.

Source of graphics: Strana Rosatom

Creation of opportunities for use of new data

Information sources

Digital twins

Big Data

Machine Learning

Internet of things

Information types

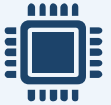
1. Risks associated with selected project decisions
2. Scenarios for realization of negative phenomena
3. Statistics of incidents, deviations and losses
4. Macroeconomic and price indicators
5. Evaluation of effectiveness of action scenarios
6. Schedule and budget quality data
7. Identification of nonconformities in the course of execution of work
8. Location analytics

Methods of work

Development of flexible reporting forms with BI elements

Designing of own databases templates for storing risk information

Integrating solutions for risk modeling systems in the designated areas



Taking into account level of development of sensor technologies in risk planning

Expected changes in risk management culture

High competition creates need to accept new risks

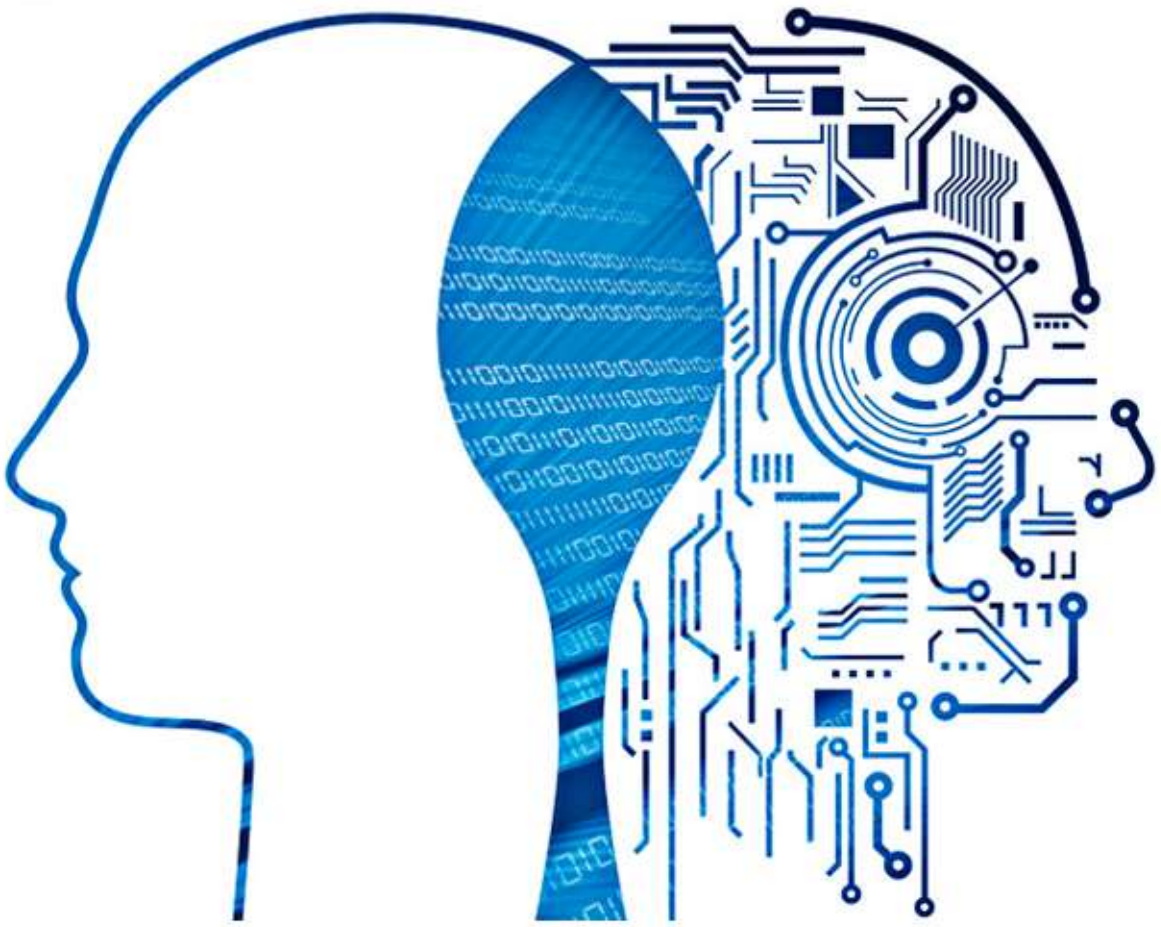
Decentralization and management transparency trends require collective risk management

Emphasis on the role of employees in minimizing impact of cyber risks becomes even more important.

Innovation focus makes failure look like something mundane and expected

Source of graphics: Strana Rosatom

Requirements for risk managers expertise



- Understanding Relational Database Design Principles and Data Science Skills
- Knowledge of programming languages and software application development skills
- Coaching, mentoring and training skills

Source of graphics: Strana Rosatom

Conclusions

- Threat of reducing the risk management effectiveness in the digitalization process may arise in the absence of adaptation of risk management procedures to such a transformation.
- Technical and methodological re-equipment of tools for risk management systems is required to ensure that new datasets are fully taken into account in risk analytics.
- It is necessary to initiate the transformation of risk management culture to take into account the ongoing global changes.
- It is necessary to develop additional competencies of risk managers to ensure agility in risk management systems.

Contact information

Thank you for your attention!

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