

# Risk management maturity: what shapes and enhances an innovative company's risk culture?

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**Abstract.** This paper aims to improve the current understanding of enterprise risk management and summarize empirical research regarding the risk management practice and risk culture formation in a radio-electronic industry company. The risk-based management approach is not widely implemented in Russian companies, and it is mainly well adapted in most financial and some industrial companies. When researching the risk-based approach implementation in the management of a company, it is important to analyze how the risk culture is represented and answer the questions: how to organize the risks control, whether the business processes repository with clear lines of authority and responsibility has been formed, whether decision-making system in terms of risk management is transparent, how competent employees are in managing risks. The results showed that it is possible to apply a certain algorithm to assess the level of risk culture formation and to develop activities to enhance the risk culture of the organization.

**Keywords:** risk-based management approach, risk management practice, risk culture, the level of risk-culture formation assessment, activities to enhance the risk culture, radio-electronic industry company.

## 1 Introduction

The relevance of research of diagnostics of risk-culture in the company is undeniable and has established research practice. However, despite number of fundamental research on the formation and development of risk culture and risk management in the organization, many issues remain developed mainly in the frames of a certain industry [1]; [2]; [3]; [4], especially banking and finance. The conducted content analysis of research over the past years [5]; [6] [7] has shown that authors are mostly attracted by such issues as 1) the issues of corporate system management as an integrated risk management system, 2) problems of implementing a proactive approach to risk management and integrating it in a company corporate culture. 2010-2018 period surveys are mainly presented with the studies on risk management function formation in a company, as well as managerial attempts to integrate risk-management system in business process of the company and to clarify the problem of quantitative risk analysis implementation within the company. 2018-2023 period surveys may represent the studies on smart risk management (that contains digitalization of the risk management practice, predictive analytics, Big Data studies concerning risk management etc.); continuous risk

management process integrated into company business processes; implementation of risk management approaches in business functions.

Organizational-level risk culture is interpreted in the paper as part of the corporate governance indicator, namely, the extent to which risk management as a risk management policy and practice is adopted, shared and applied by the employees of the organization and reflected in their professional conduct based on values, attitudes and beliefs, established standards, level of general awareness, understanding and knowledge of accepted practices and traditions in the field of risk management by executives and management at all levels in the organization [3]; [8]; [9].

Taking into account the definition of risk management adopted in the banking sphere as the most developed one in risk management (which is explained by the number of regulatory requirements based on the international ones, e.g: Basel III) [4]; [10]; [11], in this paper, we understand risk management to be a mechanism that provides stability in the organization, allowing the identification, prioritization, mitigation and evaluation of the consequences of a decision making procedures. The study of knowledge management about risks in the context of «knowledge economy» and in the concept of intellectual capital development is important for responding to both social challenges and for making optimal managerial decisions in the context of constant changes in the company life cycle.

In this regard, the aim of this paper is to present a developed and implemented methodology of diagnostics of risk-culture in the organization. So, within the paper the authors are to present briefly a tool that was used to assess the formation of risk-culture in an innovatively oriented company.

## **1.1 Materials and Methods**

The research methods are represented by a set of different approaches of theoretical and applied scientific knowledge that contribute to the implementation of analytical tools [1]; [5]; [12]; [13] such as analysis of document, used in the study. The system approach [14][15] formation within the company. Risk-culture assessment was carried out in the Russian electrical engineering company. Main area of company activity is complex equipment and re-equipment of enterprises of radio-electronics and machine-building, moving companies to a new level of production efficiency, scientific and production consulting. The number of employees of the company is about 3500 people. The results of the survey conducted were used as the empirical base of research. The results of the study can be further used in the practice of company risk culture development and could be refined in the broader context of the study.

## **2 Results and Discussion**

### **2.1 Risks management procedures and regulations within the company**

The main purpose of managing operational risks of the Company is prevention of risks in financial and economic activities, timely taking of measures on their elimination and creation of conditions for not repetition of such situation in the future. Currently, the Company has the

following regulations, which provide regulation the Company's business processes and are aimed at reducing the probability of new occurrence of previously identified risks:

1. *Contract negotiation clause* (it involves verification and approval of draft contracts and economic models for economic feasibility and legal purity of transaction). When planning a transaction, the draft of the new contract is sent on approved routes and is agreed by all participants in the process. Further, the contract is submitted for approval and signature to the Head of the Company, the Manager is acquainted with all the comments of the participants and makes a decision taking into account all the specified risks to conclude the contract with necessary corrections, or he/she refuses the transaction.
2. *Due diligence clause in contract formation.*
3. *Regulation for the verification of the reliability of contractors.* This audit includes the request of constituent documents, extracts from EGRUL (USRLE, Unified State Register of Legal Entities, a federal information resource containing general systematized information on legal entities conducting business activities on the territory of Russia. The register is maintained by the Federal Tax Service, in accordance with the legislation of the Russian Federation), verification of address for mass registration, verification of information about the head of the company, request of documents confirming the authority of officials of the counterparty, analysis of other counterparty information available on the Internet, media and other risk assessment resources;
4. *Procurement regulation* (control of incoming prices for market conformity carried out by logistics service);
5. *Regulation on budgeting* (preliminary assessment of the financial condition of the enterprise for the coming financial year, as well as estimation of income, expenses, assets and resources of the company);
6. *Human resources policy* (involves implementation of a personnel policy setting out approaches to recruitment, training and development of personnel, performance measures);
7. *Regulation on remuneration of employees* (that is a local regulation establishing the system of remuneration of personnel of the research and production company);
8. *Bonuses system regulation* (to minimize information risks due to non-transparent bonuses);
9. *Regulation on tender work* (to minimize risks arising from participation in the tender process);
10. *Regulation on business trips;*
11. *Regulation on commercial secrecy;*
12. *Regulation on powers of attorney;*
13. *Regulation on copyright remuneration;*
14. *Regulation on the handling of employees' personal data;*
15. *Company working rules regulation;*
16. *Regulation on the occupational safety management system;*
17. *Regulation on the handling and treatment of micro-injuries;*
18. *VHI policy regulation;*
19. *Schedule of documents flow;*
20. *Regulation on issuing of orders and directions;*
21. *Reporting period plan;*
22. *Accounting policies;*

23. *Corporate risk management matrix* (the process of corporate risk management is carried out by the board of directors, managers and other employees, which begins when developing a strategy and affects all areas of the Company);
24. *Code of corporate governance*, and
25. *Code of business ethics* (control of the internal environment through the introduction of rules of conduct of management and other personnel of the Company in the event of various events, procedures for the consideration of complaints).

The analysis of the Company's regulations *revealed the following*:

1. The Company takes certain actions to prevent operational risks. Senior management has placed great emphasis on the selection of professional staff and has consistently allocated funds for personnel development. External audit of financial statements is conducted annually, and external personnel and corporate business audit is conducted periodically. The strategy of managers is aimed at the implementation of business processes digitalization. The company receives daily up-to-date operational data based on automated accounting systems. The Company is currently implementing a new ERP system, which provides the system with data for analysis of production risks, making timely decisions, including replenishment of stocks or technical updates of used equipment.
2. First-line level managers regulate their business processes by approving internal local regulations, thus building a line of defense of the Company. Among the managers, the level of risk-culture maturity can be estimated as satisfactory (3 of 5 points). The managers understand responsibility for decision-making at their level of management, can always discuss risks openly and respond to risks in the organization. They are the first to face daily risks in their main business and production activities.
3. Among employees, the level of risk-culture is assessed closer to low (1 of 5 points). Employees lack knowledge in the field of risk management. Often, staff in one office do not care that their internal process is a problem for other offices. The percentage of employees involved in reducing operational risks of the whole company is not significant.
4. We would like to note that the Company does not have independent evaluation of the internal audit service. In the period under review, information on current risks is not collected and analyzed on an ongoing basis, their assessment and ranking by weight, reporting to senior management. It is not certain that the actions taken by low-level managers to prevent risks are sufficient and reliable.

Now we are to consider in more detail the following information and analyze the *institutional gaps*.

The first gap is seen as follows. On the first working day when a new staff member is employed, he or she is being acquainted with a number of local regulations and after that he / she declares and signs that he / she is familiar with the documents. The list of the document is defined, but may be not complete. When a new document is first introduced, information is communicated to all employees via e-mail. But if, in the long run, a staff member wants to go back to the information in the Regulations or reads it, he / she does not understand where to get the information or may not know at all about the local regulations operating in the organization.

Secondly, many employees do not have access to the Regulations approved within the Company. Some of the local documents are publicly available on the Company cloud storage, while some of the regulations are available in the workflow system, which is not accessible by many employees, or in the specific unit folders. The company does not have a single resource for posting in the public access of all accepted documents.

Third, many local regulations lack meaningful information on who is specifically responsible for monitoring the implementation of a document;

Fourth, the Company does not have Inventory regulation or Internal control regulation. There is a complete lack of internal control over the failure to implement all accepted Regulations in the company throughout the chain of operation.

Fifth, the Company does not conduct an assessment to classify existing risks, the so-called risk rating. So are the institutional gaps we identified within the procedures and regulations gap analysis.

## **2.2 Self-evaluation of heads of units at risk-culture level**

In order to diagnose the risk-culture in the organization and subsequently to develop a strategy for the development of risk-culture in the organization, a survey methodology was developed, the results of which should reflect the level of development (maturity) of the organization's risk culture with respect to operational risks at the present time. Since up to now quantitative indicators of realized operational risks have not been set and the basis for accounting has not been formed in the company, in our study we focus on qualitative (expert) assessment.

In the future, the company intends to introduce regular risk management, determine an acceptable and critical level of risk-appetite and other necessary quantitative indicators to assess the operational risk for the implementation of an integrated approach risk management system: Risk identification, assessment and management (monitoring, prevention risks and implementation of the actions to mitigate them).

The main principles on which the methodology of risk management culture assessment was based are as follows:

«Risk management culture» is defined as one of the key elements of the organizational culture of the company. Two of its components, organization of work with operational risks and manifestation of risk-cultural behavior of employees, were evaluated.

To determine the level of culture we have identified five levels of risk-culture development (maturity) and have identified the following indicators, their name correlates with the names of the elements: the level of organization of work with operational risks and the level of risk-culture manifestation.

From a content perspective in the survey, we were to clarify and focus on identifying a) the level of operational risk management at the moment based on the expert assessment (question sets 1–5), and b) the level of risk-culture manifestation by employees of the units at the moment (question sets 6–10).

The identified level of operational risk management and level of risk culture of employees will be the starting points for determining the risk-strategy at the level of functional units and setting the target level of risk-culture formation for the nearest period.

After determining the target level of risk-culture formation, it is planned to develop a risk-culture development plan for the company, including the setting of targets and indicators for the main areas of activity.

Business processes optimization is expected to be implemented on the basis of the obtained objective data on two directions of development a) identification of areas of improvement and main process risks and c) analysis of operational risks of the process.

In developing the content of the survey we were guided by the expert opinion of the managers, expressed in the format of self-evaluation, on the evaluation type of question on a 10-point scale, where 1 is minimum value, 10 is maximum value. Closed-ended questions (yes / no questions) were also used.

The survey involved 30 middle-level managers (heads of offices / departments, that is, process owners in a functional area), and first-line managers (heads of divisions).

We consider the risk culture level formed with 75% or more respondents responding positively to the total number of respondents.

The survey was conducted in open (not anonymous) mode.

Let's present the questions clusters (a list of 5 questions) included in the survey below.

Question sets 1–5 (close-ended questions) have a common wording: «Say, if the following statement is correct ("yes") or incorrect ("no")».

Question sets 6–10 set also has the following unified wording: «Assess how much you think this characteristic is manifested in your professional behavior».

Question set 1. Questions 1.1–1.3. A set of questions to assess the level of risk-culture formation in the department. It manifests the 1st of 5 levels of maturity:

Question 1.1: My unit has a risk coordinator.

Question 1.2: The process of working with the risk coordinator to record incidents in my unit is structured.

Question 1.3: An analysis of the causes of incidents in my unit is being carried out and measures are being developed to reduce the risk.

Question set 2. Questions 2.1–2.3. It manifests the 2nd of 5 levels of maturity:

Question 2.1: There are no operational risk incidents hidden in my unit.

Question 2.2: My unit proactively identifies operational risk (including potential one) as part of its ongoing activities.

Question 2.3: My unit is proactively implementing risk prevention measures.

Question set3. Questions 3.1–3.2. It manifests the 3rd of 5 levels of maturity.

Question 3.1: In my unit, the operational risk level is constantly monitored on the basis of «key risk indicators» and effectiveness of applied risk reduction measures

Question 3.2: The operational risk monitoring system covers all of my unit's activities.

Question set 4. Questions 4.1–4.2. It manifests the 4th of 5 levels of maturity.

Question 4.1: All staff in the unit are familiar and involved in risk monitoring and risk mitigation.

Question 4.2: My unit is constantly improving to reduce operational risk.

Question set 5. Questions 5.1–5.3. It manifests the 5th of 5 levels of maturity.

Question 5.1: Decisions in my unit are made only within the established risk-appetite frames;

Question 5.2: The level of acceptable risk and monitoring system for it are assigned in my unit.

Question 5.3: My unit develops an action plan when addresses the maximum acceptable level of risk.

Question set 6. Question 6.1. The question is to assess of the level of evidence (manifestation) of risk cultural behavior of the head of a unit while risk managing and administrating. It manifests the 1st of 5 levels.

Question 6.1: As the head of the unit, I am familiar with the concept of «risk-culture», its main elements and ways of communication, and I am aware of the importance of work on its improvement.

Question set 7. Questions 7.1–7.2. A set of questions to manifests the 2nd of 5 levels.

Question 7.1: As unit manager I provide the correct risk attitude (as well as the sub-manager, that is a –1 level manager / a line manager or key staff).

Question 7.2: As the head of the unit, I initiate training of my unit's personnel in the appropriate areas of risk management (in accordance with the functions of the unit on a regular, systematic basis.

Question set 8. Questions 8.1–8.2. A set of questions to manifests the 3rd of 5 levels.

Question 8.1: I am aware of the risk culture indicators of my units. I know the indicators of awareness of risk management principles are measured in indicative mode. I discuss them regularly with senior management (e.g., as part of the performance dialogue of the reporting period).

Question 8.2: My unit has identified significant gaps in our risk culture and is implementing a recovery plan to address them.

Question set 9. Questions 9.1–9.2. A set of questions to manifest the 4th of 5 levels.

Question 9.1: Indicators of the level of knowledge of the unit's personnel in risk management and risk culture are included in the KPI of the unit.

Question 9.2 The road map for the development of risk culture of the unit is developed, implemented and constantly updated.

Question set 10. Questions 10.1–10.3. A set of questions to manifest the 5th of 5 levels.

Question 10.1: Risk culture is an established feature of the unit and is based on the involvement of all personnel (managers/ staff) of the unit.

Question 10.2: Indicators of risk management and risk culture are ambitious enough and are included in the KPIs of the unit and in the KPIs of an employee and are regularly evaluated.

Question 10.3: The proper attitude to risk, the high level of knowledge and skills in the field of risk management are accepted by all employees; and the application of knowledge and procedures of risk management are a prerequisite for the career development of employees of the unit.

### 3 Conclusion

To summarize the results of the study we should emphasize the following. The audit confirmed showed the areas to develop within the defined risk management strategy of Company. 1. Risk communication with personnel (especially with line managers and the staff) requires the most attention and effort to take since there is an information gap on risk management and culture defined. 2. Certain efforts should be made in further document procedures digitalization as well as implementing some special risk control panels and dashboards to make risk management processes more transparent and accepted by employees and thus to provide a more advanced risk segment of organizational culture of the company.

Due to the exploratory and integrative nature of the approach of the study the authors cannot claim absolute representativeness of the results. The study is limited to one innovatively oriented company, a representative of the largest segment of the electronics industry market. The findings of the risk culture assessment methodology may suggest that an innovative company should choose risk culture tools and risk-management based approach according to their own conditions and experience within the defined risk strategy and that their implementation requires support from senior and middle management.

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