

RISK MANAGEMENT IN PUBLIC SECTOR ORGANIZATIONS: A CASE STUDY

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The evolution of the approach to public sector organizations, demonstrated, in the concepts of New Public Management and Lean Government, among others, assumes introduction into the public sector of market rules of operation and management methods that originated in business organizations. An important area for such changes is the development of measures and management control procedures, which is emphasized, among others, in the 3Ms concept and is manifested in the growing importance of risk management. The activities of public sector organizations are strongly tied to the presence of risks that need to be identified, analyzed, evaluated, monitored and controlled as a part of the risk management process.

Given the above, the aim of the present article is to discuss the unique characteristics and the basic tenets of risk management in public sector organizations and to present an example of practical implementation of this concept in a selected organization. This objective is achieved through a review of literature and a study conducted in the form of a case study at the Lodz University of Technology - a purposefully selected public university in central Poland. The empirical part of the article contains a presentation of the adopted organizational solutions pertaining to risk management and the role of risk in organizations, as well as a formulation of two research hypotheses that are to be verified in the course of further research conducted by the authors.

Keywords: Risk, Risk management, Public sector organizations, Public organization management.

Introduction

The evolution of the approach to public sector organizations, demonstrated, among others, in the concepts of New Public Management (Hood, 1991), Public Governance (Bovaird, 2005), and Lean Government (Scorson, 2008), assumes an introduction into the public sector of market rules of operation and management methods that originated in business organizations. An important area for such changes is the development of measures and management control procedures, which is emphasized, in the 3Ms concept (Ferlie, 2010) among others, and is manifested in the growing importance of risk management.

The activities of public sector organizations, which include health care services, education, and environmental protection, are strongly tied to the presence of risks that need to be identified, analyzed, evaluated, monitored and controlled (Drennan, McConnell, 2007) as a part of the risk management process (Hopkin, 2012). What becomes important is the effectiveness of this process (Dobson, Hietala, 2011), which largely depends on the organizational solutions adopted by the particular organization.

Given the above, **the aim of the present article** is to discuss the unique characteristics and the basic tenets of risk management in public sector organizations and to present an example of practical implementation of this concept in a selected organization. This objective is achieved through a review of literature and a study conducted in the form of a case study at the Lodz University of Technology – a purposefully selected public university in central Poland.

The study involved a questionnaire interview with the manager responsible for the coordination of the risk management process at the university. The manager presented the organizational solutions, as well as the role of the respondent and his actions in the risk management area. Based on that information, two research hypotheses were formulated; these will be verified in the course of future research by the authors. The conclusions from the studies may be used as a benchmark for other public sector organizations in the area of implementation of risk management solutions and open new fields in this area in management science.

Contemporary challenges in management of public sector organizations

Activities of contemporary public sector organizations are evolving toward implementation of solutions that are characteristic of business activities. Thus, the literature recommends new approaches to the management of such organizations that focus on improved effectiveness of their functioning and on greater professionalism and higher quality of their services. Such approaches constitute an attempt to maintain the mobility of public sector organizations, which include local and regional government bodies, state administration bodies, health care institutions, security institutions, and public universities (Teeuwen, 2011).

One of such approaches is the concept of **New Public Management** introduced in the 1980's. It assumes implementation in the public sector of professional management and market operating methods focused on improvement of their cost effectiveness, efficiency, and performance. The concept defines the standards, measures, and control of the results of operations, introduces competition into the public sector, as well as discipline and thrift in the use of public resources. C. Hood (1991) characterized this concept by defining its seven main principles:

- professional management in the public sector and strengthening the power of management;
- precise definition of standards and measures of effectiveness and creation of a framework of clearly defined and measurable objectives;
- monitoring of results and allocation of means and rewards that define the results achieved by public sector organizations;
- division of institutions, while maintaining their independence and financial autonomy, taking into account discipline in public finances and changes in the relevant laws;
- promotion of competitiveness, concluding fixed-term contracts, and use of public finance discipline in tender procedures;
- use of the management concepts and techniques from the private sector, to include, for example, the flexible employment model or payroll principles; and

- rationalization and reduction of expenditures while maintaining budget discipline.

Some authors (Ferlie, 2010) noted that critics of the New Public Management concept emphasized its dysfunctional aspects, such as strong vertical reporting lines that may result in a silo mentality and the presence of side effects in the form of work performed without due care. Moreover, the authors of this concept are reproached for focusing on financial matters and marginalizing efforts that ensure improved quality. It is also indicated that the New Public Management concept results in a deficit of democracy and excesses of managers' erosion among citizens. They want to have professional involvement in the actions taken in organization.

Therefore, in order to reduce the risk of possible problems associated with implementation of this concept, a new solution, referred to as **management through cooperation**, was proposed. As the principles of public order are also included in law making, it is necessary to guarantee proportionality because of the need to achieve a balance with regards to cost effectiveness. These principles are elements of the **Governance concept**, first recommended by H. Cleveland who, in 1972, demonstrated his intuition by quite precisely describing the changes in public management that he thought would occur (Cleveland, 1972).

This concept covers various territorial levels and by opening up to the relations between the public sector and the private sector, to negotiations and network and horizontal links. It enables the effective activity of public organizations in the presence of increasing expectations and complexity of social forces. This approach is supplemented by the desire to meet new challenges faced by the top management of public sector organizations. This is why they often they decide to implement the **Lean Management concept** as a part of their activities. This concept contributes to cost reduction and improved effectiveness of public sector organizations. Nevertheless, implementation of this solution requires much care in balancing administrative law, matching the management method to the scope of improvement efforts, increasing work efficiency, and reducing the costs (Scorsone, 2008).

In order to be effective, the Lean Government concept includes a collection of many diverse smart methods and techniques that enable identification of critical points (elements) of an organization that require specific reduction and remedial actions. The basic principles of this concept include: putting the customer in the center of management, focusing on added value for the customer, disclosing and eliminating waste, setting objectives for employees and making employees responsible for processes, as well as efforts to develop and to achieve mastery by the staff of the organization. This is why the use of this concept in the public sector should focus on the achievement of these principles (Teeuwen, 2011).

Implementation of the Lean Government concept requires introduction of fundamental changes in organizations. A good solution is to introduce **project management rules** (Wirick, 2009), which enables the definition of a specific (separate) scope of works performed at a given time, assigning a dedicated team to perform the scope, and promoting good practices in the organizations and informing other teams about the tried and tested methods after completion of the scope. If followed, such rules may become a catalyst in the functioning of organizations and a benchmark for others. They enable improvement of management in organizations, reduce resistance to changes among employees, and provide an excellent opportunity for them to observe the results of their work and the benefits they reap (Parks, 2002).

To address the changes in contemporary public sector organizations, E. Ferlie (2010) proposed the **3Ms concept**, which combines management, measurement of efficiency, and introduction of a market focus in their functioning. Development of those three areas facilitates implementation of ideas from the business sector in public sector organizations. The supreme

aim of such changes is to improve efficiency and to determine the need for appropriate monitoring and assessment of actions taken based on specific indicators. An important aspect of the changes made as a part of this concept is paying attention to the impact of human resources and human capital (Pynes, 2013) on the correct implementation of improvements. There are three key factors the monitoring of which may influence the way that organizations are managed. These include merits, mobility, and motivation of employees to work. This approach may lead to the formation of a new management paradigm that is appropriate for the constantly changing socioeconomic reality in which public administration functions.

An important aspect of the current changes that constitutes part of the market-oriented approach to management in the public sector is the **introduction of risk management** into this category of organizations. This is because risk is an integral component of any organized human activity and, in time and with the development of management science, the attitudes toward risk and its management in organizations have changed (Sadgrove, 2005).

Risk covers all situations that may take place in organizations with a specific probability (Asel, 2009), as well as situations or events which are estimated to involve a threat or the result of whose occurrence is uncertain (Rosa, 1998). Some authors define risk as the probability of an adverse event (Lowrance, 1976; Campbell, 2005), an adverse result (Graham, Weiner, 1995), or an uncertain consequence of an event or an activity to a specific area of an organization (Renn, 2005).

Consequently, risk consists of two fundamental elements that determine its unique characteristics: the probability of its occurrence and the gravity of its consequences. These two components can be calculated using different formulas, for example the probability model or the economic model (Solojentsev, 2008). Risk studies have involved numerous analyses of perception and communication of risk, taking into account the psychological (Pidgeon, 1992) and the sociological (Turner, 1992) approach.

This method of describing risk points to its complex nature. This is because risk is always two-dimensional: on the one hand it stands for the threat and the danger associated with possible future loss (Carter, Demczur, 2008) caused by certain actions (Drucker, 1974) and, on the other hand, it may create new opportunities and areas for actions that have not been known previously (Arnoldi, 2009).

To address the unique characteristics of public sector organizations, one must look for patterns of behavior and good practices that demonstrate the best methods of **risk management**, which covers identification, measurement, determination of the scale of risk acceptance, and use of instruments that reduce risk. Public sector organizations may base their actions in this area on examples of commercial entities and modify them, as appropriate, to match their unique circumstances and the scope of their operations. There are examples in many countries that demonstrate that some public sector organizations are ready to take action in this regard (Martin, Wanna, 1996). Currently, the key challenge in this area is to implement management control and, within its framework, risk management in the management practices in such organizations.

Basic rules of risk management in public sector organizations

In public sector organizations, managers should not focus only on ensuring a proper place for management mechanisms (Martin, Wanna, 1996), but should also perform a review of the entire organization and, through their actions, influence the strategic, tactical, and operational levels of its function. These requirements also apply to risk management the aim of which (generally speaking) is, on the one hand, to counteract potential threats and, on the other hand, to avoid

losses, accidents, and disasters (Aven, Vinnem, 2007). By performing this process, organizations attempt to limit the consequences of risk (Adler, Leonard, Nordgren, 1999); however, this requires time, appropriate funds, and knowledge. These effects are facilitated by proper performance of individual **stages of the risk management process** which include (Hopkin, 2012):

- understanding of the organization’s objectives;
- identification of threats associated with achievement of objectives combined with evaluation of the probability and the strength of the potential impact of individual types of risks on the objectives of the organization;
- development of programs aimed at eliminating threats that have been identified; and
- monitoring and evaluation of risks with the aim of finding their solutions.

The starting point is to build a **bundle of objectives** that arise, most of all, from the mission, the vision, and the strategy of the particular organization. It is also necessary, as a part of this effort, to identify the objectives of risk management, to adopt a specific definition of risk management to serve as a basis for further deliberations, to set the activity into a legal framework and to act in accordance with centrally defined guidelines.

Another stage after the definition of risk has been adapted to the characteristics of a public sector organization is **identification of risk**. Various methods and techniques (such as brainstorming) are used to identify the most complete set of potential threats. Each of them undergoes a detailed analysis, with regard to both its probability and the gravity of its consequences. Given the above, identification, analysis, and control of risk should be performed with due care and should constitute information on management performed in individual units of the organization.

As a result of these actions, a database of risk factors present in individual areas of the organization is elaborated. The managers must perform an assessment of the level of acceptability of each element of the database. However, the perception (and acceptability) of risk depends on many, often subjective, factors. Further characteristics of threats include their qualitative properties, the types of exposure to the threats, and the nature of their potential consequences and the associated benefits (Reid, 1992). Thus, it is important to determine **the level of acceptability** adopted in the organization for each of the identified risks, regardless of the area of activity that they pertain to. Such acceptability is quite diverse and depends on the activities and the unique characteristics of each public sector organization (Reid, 1999).

The analyses that involve identification of threats and opportunities lead to a formulation of a detailed description of each risk. The results of these efforts are then evaluated by the managers of the organization and/or internal and external experts. All the analyses may be arranged in descriptive form, for example as **risk registers** (Terje, 2009). Another way to present risks is to determine their hierarchy by source and to arrange them in descending order, according to their anticipated consequences (Williams, 1996). This way, the process can be performed in a transparent manner and the documentation that is a product of observance of the standards and guidelines defined by the advisory bodies (Khatta, 2008) that is prepared as a result, constitutes the basis for further analyses and reports for the top managers.

It must be emphasized that risk may affect many areas of activity of public sector organizations, such as strategy, finance, staff management, technology, and environment. Thus, before the risk identification stage starts, it is recommended that a template be prepared of the document that, once completed with the identified data, will constitute a risk report. In the

document, the organization can be divided into characteristic areas, since specific risks may include loss of key employees, significantly reduced financial and other resources, serious disturbances in information flow and communication, fires and other disasters leading to disturbances in the activities of the organization. Thus, risk management is necessary to reduce the probability that the objectives of the organization will be threatened by unexpected events. The top managers must define the type and scope of the threats that are acceptable and must make an effort to maintain risk at a specific level (Khatta, 2008).

Thus, the foundation of risk management is decisions regarding which risks are critical to the success of an organization and what measures must be implemented to reduce the probability of their occurrence and their impact on the organization (Dobson, Hietala, 2011). This can be achieved by continuous **risk monitoring** and by periodic assessment of various areas of activity.

In order to ensure proper implementation of the risk management process, managers of public sector organizations can use the support of internal auditors (Martin, Wanna, 1996). Thanks to their skills and knowledge, organizations can properly implement both preventive measures and measures that minimize risk (Sawyer, Dittenhofer, Scheiner, 2005). Another aid that can be used is reports from internal audits. This is because, as D.S. Gherai and D.E. Balaciu (2013) indicate, such reports contain information regarding good practices pertaining to the processes performed in public sector organizations, to include risk management processes. In some organizations, risk is perceived only as a negative phenomenon, even though it is considered to be important. Consequently, managers of such organizations work on ensuring that risk management is a creative process that increases the value of the organization and improves the awareness of the presence of opportunities and threats that influence the activities of the organization (Chapman, 2011).

In public sector organization management practice, one can observe a growing development of risk management concepts, methods, and tools. This is demonstrated by adoption of the AS/NZS 4360 standard, which describes introduction of the risk management process in both public sector organizations and private sector organizations. The AIRMIC, ALARM, and FERMA standards that were established later provided a definition of risk and its management, as well as guidelines for implementation of the risk management process in organizations (Drennan, McConnell, 2007). These standards are an additional source of information about risk and may support top managers in their work on developing risk management processes that match the unique characteristics of their organizations. The process of evolution of risk management theory demonstrates the presence of a number of obstacles, in particular those pertaining to various sources of identification of potential threats (Smith, Fischbacher, 2009).

Besides knowing the aforementioned fundamental principles of implementation of risk management in public sector organizations, the managers of such organizations must also make sure that the actions undertaken as a part of this process are performed in an effective, efficient, timely, and cost-effective manner. I. Dobson and J. Hietala (2011) point to six basic prerequisites for risk management to be considered **effective**. These are:

- ensuring that the procedures of and benefits from risk management are communicated to the entire staff of an organization;
- the actions of the top managers must focus on supporting and promoting the risk management process;
- creation of an organizational culture that is conducive to development of an innovative approach to taking risks;
- integration of risk management into the overall management process in an organization;

- direct links between risk management and achievement of objectives by the organization;
- evaluation and management of risk associated with contact with external parties.

By following the above guidelines, the top managers of an organization not only enhance the awareness of the presence of risk management among the entire staff of the organization, but also point to ways to handle the threats that do appear. It is also very helpful to prepare proper documentation that includes descriptions of identification, analysis, monitoring, and assessment of risk in specific organizations.

Research method and characteristics of studied entities

The aim of the article was achieved by way of a case study performed in a purposefully selected public sector organization. The case study method was used in order to develop hypotheses (Yin, 2003) and to identify proposals (areas) for further research work (Stake, 2005). The specific research method was the interview method. The research technique was a questionnaire interview and the research tool was an interview questionnaire. The respondent was an employee in charge of risk management coordination.

The organization to be studied was purposefully selected to be the Lodz University of Technology – a public university in central Poland. The university was established in 1945 in Lodz, where the office of its rector and all departments of the university, divided among two campuses, are located.

The Lodz University of Technology (<http://www.p.lodz.pl/en/index.htm>) is the only technical university in the Łódź region. It occupies the 4th position in a list of 23 universities according to leading rankings conducted in 2013. A report of the Ministry of Science and Higher Education indicates that it is the 4th most popular university among candidate students. In a contest organized by the Academic Information Center, the Lodz University of Technology was found to be the most creative and innovative university in Poland with regard to creation of future professional prospects. It is the first university in Poland that received the European Commission's "ECTS Label," a prestigious certificate confirming the quality of education. It is the winner of the "Forbes Diamonds 2013" award granted to companies and institutions of the largest yearly growth of equity. The university is a signatory of the Magna Charta Universitatum that focuses on the most fundamental values of the academic tradition and on strengthening the ties between European universities. It is the only Polish member of the European Consortium of Innovative Universities (ECIU).

The university cooperates with over 450 centers in 40 countries on research programs performed, for example, as a part of the Framework Programmes of the European Community. The priority research areas of the university are new technologies for sustainable development, advanced materials technologies, energy, environment and infrastructure, information technology, production, staff, and financial management systems, industrial biotechnology, and biomedical engineering. The Lodz University of Technology represents Poland in the Cluster of Industrial Biotechnology, an organization of large industrial companies and research institutions that have a great impact on the development of the global bioeconomy. Together with other Polish universities and research institutions, it is a founding member of the Polish Institute of Technology.

The university is a business partner to numerous companies in the Łódź region and other regions of Poland, including Philips, Fujitsu, Dell Polska, Ericpol Telecom, and Gillette. It conducts a number of research programs and projects that result in patents for invented and

developed solutions. As the first Polish university, in 2009, the Lodz University of Technology established a unit responsible for commercialization of the results of research, for transfer and implementation of new technologies and solutions for industry, namely the Technology Transfer Center, a limited liability company owned entirely by TUL. Also, the Lodz University of Technology established the Interdisciplinary School of Innovation, which is a program aimed at stimulating, supporting, and developing academic entrepreneurship and creating new innovative solutions that are ready to be implemented in the market. The School's activities are to result in creation of new spin-off companies and to enable preincubation of projects with significant market potential.

The Lodz University of Technology offers 36 majors, with numerous specialties geared to match demand in the labor market and the most recent achievements in a given field of education. Currently, the university's nine departments and several inter-departmental units educate over 20,000 students on all levels: the undergraduate level (bachelor of science/arts), the graduate level (master of science/arts), and the postgraduate level (PhD). The university employs over 2,500 employees, both in research and teaching.

The strategy of the university, adopted by its Senate, defines its priority areas of activity. One of them is to make the management process more efficient. A good example of a step towards achievement of this goal is to implement management control and the risk management process as part of it. In order to present the constraints of the implementation of this process in the practical functioning of the organization, in January 2014 a questionnaire interview was conducted with the employee in charge of coordination of the risk management process. Her current position is that of independent specialist in the central administration of the university. The person is a woman between 26-36 years. She has been working in this position for nearly four years. In the organizational hierarchy, she reports directly to the Director and indirectly to the university's rector.

Implementation of risk management in the studied organization

The matters discussed with the respondent during the interview were divided into two parts. The first part pertained to the organizational solutions adopted at the university in the area of risk management and the second part to the role of the respondent and the actions taken by her in the framework of those solutions.

The respondent indicated that all activities are taken at the university taking into account the internal and external laws and regulations, something which also applies to the implementation of the risk management process. An important role in this area is played by the regulations that require management control in public sector organizations so as to ensure achievement of objectives and performance of their tasks in a manner that is legal, effective, efficient, cost-effective, and timely. Management control covers a number of activities that modify the internal environment of the organization, the rules for providing information and the rules of communication, and the control mechanism. Their objective is to ensure adequate, effective, and efficient functioning of the university, to include assurance of the compliance of its activities with laws and internal procedures, the credibility of its reports, protection of its resources, observance and promotion of principles of ethical behavior, as well as effectiveness and efficiency of information flow. An important area of activity is also the implementation of risk management that ensures full achievement of the objectives and public tasks of the university.

The implementation of this requirement started with a review of the university and preparation of a position for a person whose main task was to coordinate the implementation of

risk management in the entire university. In 2010, a recruitment campaign for this job was conducted, which concluded with the employment of the respondent. Her induction consisted in participation in specialized training in the area of management control and risk management in public finance sector entities.

The respondent stated that the university implements the risk management process by involving employees on all levels of the organization. In order to achieve efficient organization, top management established a team that supports the work of the respondent and the university's authorities.

The respondent claims that she **initiated a number of actions** aimed at the implementation of a uniform system for documentation of risk management at the university. For this purpose, she elaborated and presented to the management drafts of appropriate reports and registers. She also conducted a pilot study in selected units of the university so as to modify the proposed documents to have them not only to comply with the legal requirements but also to match the unique characteristics of the Lodz University of Technology. As a part of the pilot study, she also conducted a number of interviews and consultations with external and internal auditing bodies.

The respondent is not only involved in the risk management process on the level of her job, but also **supports the management** in the process of risk estimation on various projects. Moreover, she **ensures continuous information** of direct superiors about current and planned legal changes pertaining to the management control process, with particular focus on risk management.

In connection with the aforementioned directions of development of the risk management process, the roles and functions of the respondent continue to evolve. She described her role in this process most of all as **the verifier and initiator of changes** who is open to new solutions in the area of risk management and supports their implementation on all management levels. These tasks involve the possibility to continuously improve skills and to submit new solutions to superiors. In the risk management process, the respondent is also **the functional advisor** who assists employees and superiors in implementation of solutions pertaining to this process and in assessment of the degree of its completion.

As a result, the respondent described her role at the university as a **risk manager** who analyzes the current threats and recommends measures to make risk management more efficient. As a part of her duties, she prepares and continuously corrects a catalog of risk factors that helps lower management to develop uniform risk documentation methods in the areas of activity assigned by the university's top management. For this purpose, she has prepared **a risk register** which has been used to conduct a pilot risk assessment for selected projects performed at the university. Table 1 shows the sheet that the respondent prepares, with a summary of the knowledge of the risk present on a project.

Table 1. Project risk register.

Project title	
Is the project performed by a consortium?	yes/no
What is the nature of the participation of the TUL in the project?	leader/member
What is the nature of the project?	research/construction/field of study
Total cost of project implementation	

Total risk for the project						
Task name	Risk factor in the task	Level of significance of the risk factor (insignificant/significant)	Scale of probability of occurrence of negative consequences (on a scale of 1 to 5)	Scale of impact (1 to 5)	Result: probability x consequence	Acceptable risk (yes/no)

Source: prepared by the authors based on the results of the study.

An electronic version of the register is a great support for the top management of the studied organization. The key items in the register form are the name of the project and the total cost of its implementation. Due to the diverse nature of projects, the respondent recommended that the person filling out the form select one of three options and define the nature of participation of the university organizational unit in the project. Other elements of the form are the tasks assigned in the project and, with reference to the risk management process described earlier in the article, identification of the risks associated with each task.

After consulting with management, the person filling out the form defines the level of significance of each of the risks, whereby significance is defined as the impact of the risk on all activities of the organization. The respondent recommended using a scale of 1 to five to define the probability of risk events and the same scale to define the impact of those events. The product of those two components, **referred to as risk**, indicates the level of each specific risk.

The last element of the table is the acceptability of each event. The lack of acceptance of a risk means that it is necessary to perform more in-depth analyses of the project. It is also important to inform the top management of the organization of this fact. One of the possible consequences is recommendation of preventive measures or description of a specific response to a given risk. The register prepared by the respondent may help evaluate the risk management process. The layout of the register shown above was designed in consultation with internal auditors who conducted training in the area of management control and risk management. The register is also to be used as a support in visualization of the identified risks. In the respondent's opinion, this will not only render possible the introduction of this document into universal use, but will also help gather comments and recommendations regarding modifications to it, so that its contents and form match the unique characteristics of management of the university.

In the respondent's view, another success in the process of implementation of risk management in the studied university was the creation of a cascade system for the collection of partial declarations of the status of management control and risk management from lower level managers. One of the respondent's duties after such declarations have been collected is to prepare a summary report that describes the level of control, to compare it to the current activities of the university, to present it to the top management, and, once the top management's approval has been obtained, to send it as the comprehensive management control report to the appropriate minister who supervises the specific organization. Moreover, the respondent prepares a catalog of recommended remedial measures that, after acceptance by management, may result in improved quality of risk management at the university. The reports and conclusions from the respondent's work presented each time provide the university authorities with knowledge about her activities and serve as a starting point for further improvement in the area of risk management.

At the last stage of the interview, the respondent was asked to assess the current level of effectiveness of risk management at the Lodz University of Technology. Her task was to delineate a hierarchy of requirements that must be met in order for the risk management process to be effective. Her responses are shown in Table 2. The table also contains information on instances in which individual requirements that exist at the university were fulfilled according to the respondent.

Table 2. Hierarchy of requirements for effective risk management in the studied organization.

Name of requirement	Order 1 - least important 6 – most important	Examples of fulfillment of the requirement in the studied of organization
The culture within the organization should be conducive to development of innovative actions associated with risk taking	6	Use of good academic practices, in particular in the area of promotion of innovation, to include in describing risk in projects
Higher level managers should support and promote the risk management process	5	A description of risk management in the form of an official document, training on its use
Risk management should be integrated in the management process	4	Identification of the areas of university management and placing risk management in its framework
Risk management should be tightly linked to achievement of aims	3	Elaboration of the university’s mission, vision, and strategy, and a catalogue of associated risks
The risk management procedures and the benefits from effective risk management should be communicated to the organization’s staff	2	Training on good practices in risk management, observing public finance discipline
The risk associated with contacts with external parties should be evaluated and managed	1	Introduction of a register of projects at the university performed using external funds, a system of contracts with companies

Source: prepared by the authors based on the results of the study.

In the opinion of the respondent, the fundamental factor of effective risk management in the studied organization is **proper organizational culture** characterized by a focus on employee activity and submission by employees of recommendations concerning actions aimed at improving operational management. Of key importance is also the fullest possible knowledge of the organization, its environment, and its management methods that is gained by managers thanks to the respondent's work related to the improvement of the risk management system. In the respondent’s opinion, this approach could be the foundation of a risk management system at the Lodz University of Technology. Shaping the organizational culture is not an easy task and, on the one hand, requires a comprehensive look at the organization and, on the other hand, is manifested in operational measures. Given the role of risk management in this area, **H1 hypothesis was formulated:** Through risk management, the top management performs a review

of the organization and the impact of this process can be seen in the daily activities of the organization.

The top management should encourage a sense of responsibility among the employees for their activity as well as the timeliness and quality of the performance of their duties. In the respondent's opinion, this attitude enables employees to identify with their organization and reduces the risk of harmful behavior. Another step is to raise awareness that every task employees perform involves certain risks in the area of finances, property, staff, and, for example, information technology resources. This builds the awareness of the presence of risks among employees. This has led to the **formulation of H2 hypothesis**: risk management awareness is built on all levels of management of the organization and employees take an active part of its development. This hypothesis is confirmed by the respondent's statement that "development of a habit in employees to indicate potential threats for continued effective, efficient, and timely functioning of the university is the supreme objective."

The respondent emphasized that the risk management system should be based on the initiatives and needs reported on the middle level of the organization. This is where the **network of objectives** and methods for their achievement must be articulated, the mission, vision, and strategy must be formulated, and the tasks must be assigned to all parts of the organization. The developed approach must be formalized by inclusion in official statements and documents. As the respondent emphasized, it is very important that all employees be informed of the implemented solutions, to include implementation of risk management. Also, the top management must know that the benefits of effective risk management may be delayed and should be communicated to the staff of the organization as they occur.

In the respondent's opinion, the risk associated with contacts with third-party entities, both close to the university and distant from it, should be subject to extensive risk management. The extent of the impact of such entities will largely depend on the management's attitude toward risk and the level of its acceptance. The respondent emphasized the impact of risk management on all the university's activities. She is also aware of her role in this process that consists in building its foundations and creating a uniform method of risk estimation and analysis. The adopted system can be used as a benchmark for other public sector organizations. The activity of the risk manager at the Lodz University of Technology is also manifested in the preparation of periodic activity reports and declarations of the status of management control.

The respondent expects that her role in the risk management process at the studied organization will remain at a stable level. Her key task in the nearest future is to promote risk awareness among employees of the university and to advise the managers of individual organizational units on methods and places where control mechanisms and preventive measures aimed to minimize potential risks should be implemented.

Conclusion

The literature on risk management emphasizes the dual nature of this term. Risk can be considered as an opportunity when it has a positive impact on the functioning of the public finance sector or as a threat if its impact is negative. In order to estimate the value, type, and impact of risk, one must first review the interior of an organization and its management processes, as well as its environment. Such a review makes it possible to indicate new areas of activities and to identify potential sources of risks. Its purpose is to elaborate a uniform, formal document taking the form of a risk register that describes all the risks present in an organization.

This process involves decisions concerning acceptance of risks and delineation of a hierarchy of risks according to their impact. It also enables **creation of a visual risk map** for the organization (Dobson, Hietala, 2011), which is particularly important in the event of increased dependence of the quality of risk management on the quality and style of management adopted in the organization (Davies, 1997). The aforementioned review must be supplemented with the raising of awareness of risks on each management level and in the daily activities of all employees of the organization.

As the research conducted has demonstrated, there is a **high awareness** of the need to monitor all kinds of risks at the Lodz University of Technology. In order to make this process more effective, the position of risk management coordinator was established and the respondent was hired to supervise this area of activities. At the same time, the scope of her duties was expanded to include constant communication with the top management of the university. As the results of this study have demonstrated, the respondent **continuously responds to changes in the external environment**, to include the legal environment, and takes care of improvement and integration of the risk management system. She also initiates numerous measures aimed to fully implement this process, prepares reports and compilations for the university's authorities, and assists all employees, to include those on the lowest level in the organization's hierarchy.

Based on the monographic studies that were conducted, two research hypotheses were formulated concerning the tasks of the top management and the impact of risk management on the functioning of the organization and the need to build awareness of the importance of this process on each level of the organization. Due to the high interest in this matter, these issues will be the subject of further research conducted by the authors. The plan is to first conduct an expert study that will lead to formulation of specific theoretical foundations. Then quantitative survey studies will be conducted at universities in central Poland. It is expected that the research hypotheses will be confirmed, which will enable formulation of a number of cognitive and application conclusions and will enable development of new knowledge in management science.

Acknowledgements

The project was financed with funds from the Polish National Science Centre granted pursuant to decision no. DEC-2012/07/N/HS4/00274

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