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Risk Management in Museums in Czech Republic

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Risk management in museums of the Czech Republic is inadequate and is not implemented in most museums. The presented issue of risk management in museums is only the first step towards introducing this knowledge into museums. The introduction of risk management as part of an integrated museum management system is essential, as emergencies and disasters are very democratic and unexpectedly affect all nations of the world and, thus, various institutions. Risk management should occur primarily by the application of common sense principles. When preparing a risk management plan, managers should avoid drowning the risk management plan in technical details, actuarial charts, and probability statistics. As a rule of thumb, the simpler the risk management strategy, the more likely it will be implemented. Those responsible for implementing risk management must plan to understand the importance of their activities. The risk management plan will certainly not address all of the institution's risks but will generate new responses to state of the art. Risk management is not a task and a goal but a long-term process.

* 1. Introduction

The great diversity of the threat of destruction of cultural heritage, the historical structure of a site or area has affected many generations of government management, museum management and restorers, and collection managers. Despite this threat, risk prevention and risk management have remained a secondary issue worldwide for many years. The absence of natural disasters and anthropogenic emergencies has led to the forgetting of various past emergencies. Such events have appeared in full force over the years and have destroyed much of their irreplaceable cultural heritage. Threats to cultural heritage come mainly from naturogenic provenance, but more recently, especially with the onset of regional conflicts or technological accidents or the effects of human vandalism and unfair human behavior, such as organized theft. Cases of major global disasters and major regional conflicts have begun to change the way global museum organizations view the prevention of museum risks. The 1995 Kobe earthquake, the war in the former Yugoslavia from 1991 to 1996, shocked the world with the targeted destruction of extraordinary cultural values. A similar situation has now been repeated in Afghanistan since 2001 and now in Syria since 2011, to a lesser extent in Egypt and Tunisia and Algeria. These emergencies have shown the extraordinary vulnerability of the world's cultural heritage. (Coles, 2009) Thus, international professional and international governmental organizations have come together to ensure greater security by providing risk management in local, regional, national, national, and international disaster and emergency reduction frameworks of various origins. (Smejkal, 2013)

Responses to these events have forced the international professional community to develop the protection of cultural heritage through the introduction of risk management methods. Better training in defense of cultural heritage has also contributed to the development of an international network of interdisciplinary perceptions of the problem of preserving cultural world heritage.

Museum activities are quite fragmented and diverse. Each activity of the museum represents a relatively complex complex of individual tasks. Workers in smaller museums have to perform more specialized activities than workers in larger museums. In larger museums, there is a greater specialization of individual work activities, which increases the demand for greater communication and coordination of activities between departments or specialized staff. The museum and especially its depository is very similar to a warehouse and many museum technologies are also reminiscent of logistics systems. In particular, the storage of a collection and its registration and preservation is very similar to the logistical storage of collections, with the only difference being that many items of collection are not handled. Any movement or change of location must be recorded immediately so that the collection item is not lost.

* 1. Risk Management in Museums

All museum collections are subject to risks that could seriously affect the museum collection's life and value. Evaluation tools in the area of ​​risk management, which has been developed for use in the insurance industry, are increasingly used by museums. Universities and specialist museological sites identify the most significant risks to collections and set out procedures for planning and reducing unavoidable disasters and their consequences on collections.

Although there is a relatively high-quality Act No. 122/2000 Coll., The Act on the Protection of Museum Collections and the Amendment of Certain Other Acts Governing Museums, most museums do not address or even know the issue of risk management in the field of museums. He solves the problem only by chance.

As a result of recent world events, foreign institutions have learned that they must be prepared to respond quickly to emergencies, whether naturogenic or anthropogenic. This process is known as disaster planning. While the word "disaster" can mean a significant event, such as floods, fires, or earthquakes, most of the "disasters" of museum collections are on a much smaller scale - such as flooding from a burst pipe. (Nair, S.R. Salter, J. 2019) Today, there are several online resources available on the websites of significant museum institutions, listing the risk factors of museum collections as well as appropriate plans for the protection of these collections. This information could use both for collectors and for museum management, which could introduce it into the overall museum management system. (Kavan, 2014) (Kreimer, 2000)

Risk management can then be defined as a management function that seeks to address the causes and effects of uncertainty. Its goal is to help the organization effectively and efficiently develop towards its strategic goals. Risk management for museums is a process in which individuals and organizations respond to uncertainty and take steps to protect their property and collection. Risks in museology include all such events or factors that may adversely affect the museum and its ability to fulfill its mission. (Lindhout, P., 2019) This process is based on a framework that helps identify risks and select the appropriate response. Risk management should be applied to all aspects of museum operations by identifying those areas of risk where a reply may be required and increasing the museum's ability to respond to possible future threats. (Wegener, 2015) Risk classification plays an important role in the management of an entity's organization, as it can then obtain the necessary information about the risk and then protect itself against it. (Groot, A., 2019) Risk can be classified in a basic way, according to size, into financial and non-financial, but also according to their material nature. Identification of risks or uncertainties - the purpose of this phase is to determine all factors that could endanger or positively affect the achievement of corporate goals and the goals of individual organizational units. The identification of risk factors is based on the use of knowledge and intuition of the company's employees involved in the implementation and management of its activities (identification of internal risks), as well as on careful monitoring of business development (identification of external risks).

Unfortunately, many memorial institutions are not yet aware of the seriousness of the risks that may pose them. It is frequently due to the staffing of museum staff, but also insufficient funding for museums by founders. Methodological workplaces do not address the issue of risk management. If so, it is only a form of technical support for the collection, the exhibition, and the museum itself. Unfortunately, even these measures are insufficient, mainly for financial reasons. To be able to implement risk management well in the operation of the museum, it is necessary to create a simple strategy for introducing risk management in museums as part of the integrated management system of these memorial institutions. Subsequently, to train employees on how to introduce risk management into the management of the museum.

* 1. Elements of Risk Management in Museums in Czech Republic

Risk management has the task of identifying, measuring the probability and the possible impact of events, and treating risks, eliminating or reducing their effects with the minimum investment of resources. (Ekwere, 2016) The risk management process describes the principles and procedures that the museum derives from the specifics of memorial institutions. These policies and procedures are essential to the final outputs or results of such a risk management process. It should be noted that a large part of the risk management process will probably need to be outsourced, i.e., organizations that specialize in such matters. Such companies have a variety of professionals to implement and complete these risk management strategies. (Necas, 2013) (Kreimer, 2000) One of the main reasons for ineffective risk management is the absence of clear and precise methodological principles of this process. The analysis of the principles of risk management in the literature shows their inconsistency and the diversity of attempts at systematization brings a lot of controversial points and statements. Following the risk analysis, it is necessary to take measures that are based on the nature of the organization's activities. Organizations that do not yet have risk management should implement such procedures systematically and with all the contexts and difficulties in mind. Organizations operating in the non-profit sector often underestimate this issue. This is often due to the fact that they do not have experts but also funds for risk analysis in professional organizations. Due to the fact that this issue is quite complex, it is necessary, based on discussions with the management of organizations, to try to gradually introduce risks into organizations, mainly in the field of services.

The risk management process will serve as a basis for many other museum policies and covers:

* Insurance (director's liability, public liability, property and assets of the insurance)
* Judicial estimates of the collection
* Disaster planning (fire, flood, earthquake, strong winds, freezing, power loss, computer viruses or data file corruption)
* Museum security
* Health and safety of employees
* Definition and clarification of the responsibilities of collection staff and curators
* Constant planning
* Compliance with applicable legislation

Museum methodologies should initially provide a risk assessment - whether formal or informal, large-scale, or only a representative part of the collection. It creates a tool to manage the implementation of collection security measures. The aim is to limit damage to the group.

The most common risks of museum collections include:

* physical forces (earthquakes, physical damage from employees, vibrations from sockets, repair work)
* fire (flame, soot)
* water (floods, plumbing or roof leaks)
* criminal (theft, isolated theft, vandalism)
* pests (rodents, insects)
* pollutants (dust, gases)
* light and UV radiation
* incorrect temperature
* Incorrect relative humidity
* neglect of administration (loss of data, inappropriate restoration of artifacts, etc.)

The aim of the collection risk assessment is to determine:

* What percentage of the collection is prone to specific risk?
* What will be the resulting loss in value?
* What is the probability that this will happen?
* What should be the scope of the event?

Museum staff could be overwhelmed by several questions and problems, so this must be avoided. The risk assessment process must focus on several objectives. For most museums, the primary goals are:

* Reduce the number of injuries,
* maintain the excellent reputation of the museum,
* reorient resources for the activities of the central missions of the museum,
* Identify and allocate funds to support an adequate risk management process.

The museum must identify the principal risks and create adequate responses to them. From experience from abroad, the following risk areas in museology can also be defined for the Czech and Moravian environment:

**Museum staff and museum visitors**

It is necessary to ensure a quality and safe environment for employees' well-being and visitors to the museum. People need information to behave in emergencies. These risks also affect museum leaders and their responsibility for the operation of the museum. To reduce these risks, there is a certain amount of insurance that does not directly protect people.

**Property, buildings, and collections**

This area of ​​risk includes emergencies and disaster responses through contingency plans related to museums' physical facilities and their groups. Intellectual property can be an essential part of museum property. Intellectual property that refers to trademarks, industrial designs, copyrights, and other confidential information is frequently overlooked. The collection also belongs to the museum's property but is subject to the law, and in-state museums, it is the property of the state.

**Revenues and sources of financing**

Most museums are financed from state resources, regularly according to the founder. The income provided by the founder is not still sufficient for the operation of the museum. Therefore, museums rely heavily on fundraising, grants, and subsidies. Consequently, the museum's financial policies must include risk management plans. These will consist of strategies for investing funds that have been earmarked for future projects.

**Public acceptance of the museum, its support, and reputation**

People are the biggest asset to museums. It includes individuals who support the work of the institution at all levels of society, members of non-profit organizations supporting museums and their activities, the management of the museum, and its employees and supporters. The risk management plan will try to define the way museums are currently perceived by the community and create strategies to improve and enhance the museum's reputation.

* 1. Integrated Risk System in Museums

Unfortunately, several memorial institutions are unaware of the seriousness of the risks that may pose them. It is frequently due to the staffing of museum staff and the founders' insufficient funding for museums. Methodological workplaces do not address the issue of risk management. If so, it is only a form of technical support for the collection, the exhibition, and the museum itself. Unfortunately, even these measures are insufficient, mainly for financial reasons. To be able to implement risk management well in the museum's operation, it is necessary to create a simple strategy for introducing risk management in museums as part of the integrated management system of these memorial institutions. Subsequently, to train employees on how to add risk management into the control of the museum.

Incorporating a preventive system, we can call it the Integrated Risk Management System in Museums, and will create the conditions for us to best secure collection items for future generations. A system of preventive protection needs to be put in place to prevent further damage to collection items. Given that collection items are of various kinds, from plants to anthropogenic items to geological collection items, measures need to be taken to monitor all these specificities of protection. This interdisciplinary practice is intended to provide a comprehensive solution for risk management in museums. Integrated risk protection is essential from the outset of the collection to prevent a variety of risks. These methods include direct interventions in the structures of materials, preventive protection of collection items, their storage in depositories or exhibition spaces, or transport to exhibition sites, packaging of collection items, their effective transport, safety, environmental management, physical risks (light, relative humidity, pollution, pest control, maintaining the right temperature, proper storage), crisis planning, staff training, and compliance. An integrated risk management system combines employees' skills and, at the same time, the efficient use of funds.

* 1. Risk Management Concept

The definition of risks may vary according to the legal norms of individual states and regions. It is because the risk varies with the characteristics of a particular industry or field of science.

The terminology of risk is based on the same principle in such areas as engineering, banking, insurance, medicine, psychology, and sociology, yet variations exist in the various areas listed. When describing the risk in different institutions, we must not reduce or neglect it. A risk is an adverse event that could occur at an undesirable time. The realization of risk regularly ends with damage and loss. Confrontation with the effects of risks at work in museums has social, environmental, technological, security implications, and economic, cultural, and social-political implications. The risks then prevent the realization of the set goals required by the workplace.

The definitions suggest a state of anticipation of a state of uncertainty associated with the occurrence of risk in museums. Therefore, museums and other companies or organizations, need risk analysis to prevent and forecast them so as not to disrupt their business or the performance of the museum's core business. In this context, we monitor two main risk parameters:

* Probability of risk occurrence.
* The effect of the risk involved.

The potential for harm is a great danger. Identification of risks and their factors that could harm the health and safety of persons and property in the environment where we anticipate this risk. Some sources of risk may be based on the source of the risk.

The risk could be described as the probability of destroying artifacts stored in museums. Risk analysis is a process of solving how to qualitatively and quantitatively interpret all risks that may arise. There is also a risk that the consequences of emergencies will widen and increase. The greater the capacity of the risk management department, the higher the probability of the organization's response to emergencies, but above all, their reduction in the occurrence of such risks.

Risk analysis is part of the risk management system. Management indeed has five essential functions: planning, organizing, personnel management, control, and leadership. Management is the achievement of specific goals through specific resources. The need to manage is based on the requirement to meet the set goals that individuals cannot manage on their own, through teamwork.

Museum buildings include many functions, which in combination can cause a risk of an emergency. Such structures must meet several user requirements for the preservation of cultural heritage already design and construction of such buildings. Therefore, it is necessary to design buildings so that designers and builders take into account all possible risks that have been identified from the very beginning. In this respect, risk analysis and their assessment should be carried out at workplaces by our laws, in particular Act No. 122/2000 Coll., The Act on the Protection of Museum Collections, and the Amendment of Certain Other Acts.

* 1. Risk Management Plans in Museums

Risk management should be primarily the application of common sense principles. When preparing a risk management plan, managers should avoid drowning the risk management plan in technical details, actuarial tables, and probability statistics. As a rule, the simpler the risk management strategy, the more likely it is to be implemented. The staff responsible for implementing risk management plans themselves must have a solid understanding of the importance of their activities. The risk management plan will certainly not address all the institution's risks but will generate new answers to the current state of affairs. Risk management is not a task and a goal but a long-term process. As a result, plans must be evaluated and reviewed according to changing facts. (Knapík, 2012) (NeCas, 2013) (Spicka, 2014)

Founders, donors, and the general public should be made aware of the results of the implementation of risk management in museums. Documenting that the museum is responsible for implementing risk management strategies will help ensure that it is recognized as a responsible and sensitive institution. It identifies approaches that have been particularly effective in reducing or eliminating the risk.

* 1. Results

The museum building itself, its equipment could become a source of risk for both the staff and visitors of the museum, but mainly for the preserved cultural heritage. Therefore, they should be monitored regularly. Buildings should comply with the requirements of laws and regulations to prevent weather, rodents, insects, temperature fluctuations, theft and sabotage, and emergencies. All risk factors should be identified and assessed. After the evaluation, museum staff need to be trained in how to behave in emergencies and must also know crisis scenarios and emergency plans. In this regard, it is necessary to prepare a methodology for conducting risk analysis.

* 1. Conclusions

Risk management in the Czech Republic museums is insufficient and is not even implemented in several museums. The presented issue of risk management in museums is only the first step to the introduction of this knowledge into museums. The Faculty of Logistics and Crisis Management has now begun to work with museums and the international museological organization ICOM to develop research and a manual for risk management in museums. Due to the underfunding of culture in the Czech Republic, the implementation of the risk management system in practice will be slow, but necessary, as international bodies require such approaches due to the global political situation and climate change. (Fahy, 1995) (Muzeum, 2008)

The introduction of risk management as part of an integrated museum management system is essential, as emergencies and disasters are democratic and unexpectedly affect all countries globally and, thus, various institutions. The international public is aware of the vulnerability of unique collections and, therefore, in cooperation with politicians and international institutions, supports the issue of risk management as well as its subsets of the global disaster risk reduction strategy.

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References

Coles A., 2009, Disaster Management in Archives, Libraries and Museums, Alexandria, 21, 150.

Desvallees A., 2011, Basic museological concepts. Brno: Technical muzeum in Brno, Czech Republic.

Dolak J., 2009, Museology at the Beginning of the 3rd Millennium. In Proceedings of international seminar Theory and Pracice 2008.

Eger L., 2013, Risk Management of the Educational Projects. Plzeň: Nava, Czech Republic.

Ekwere N., 2016, Framework of Effective Risk Management in Small and Medium Enterprises (SMEs): A Literature Review. Bina Ekonomi, 20, 1, 23-46.

Fahy A., 1995, Collections management. Leicester readers in museum studies. London: Routledge, UK.

Groot A., 2019, Influencing the human and organisational factors in process safety risk assessments. Chemical Engineering Transactions, Volume 77, Pages 289 – 294.

International Council of Museums, 2020, <<http://icom.museum/>>

Kavan S., 2014, Security of society in the conditions of the European Union. České Budějovice: University of European and Regional Studies, Czech Republic.

Knapik J., 2012, Vademecum museology. Opava: Silesian University in Opava, Czech Republic.

Korytarova J., 2013, Management of investment projects. Brno: Litera, Czech Republic.

Kreimer A., Arnold M., 2000, Managing disaster risk in emerging economies. Disaster risk management series.

Lindhout P., 2019, Unknown risk: The safety engineer’s best and final offer? Chemical Engineering Transactions, Volume 77, Pages 847-852.

Malek J., 2014, Risk Management. Praha: Oeconomica, Czech Republic.

Museum: museum and ethnographic work, 2008, Prague: National Museum, Czech Republic.

Nair S.R. Salter J. 2019, Layout - A cost effective and powerful design step in risk management. Chemical Engineering Transactions, Volume 77, Pages 13 – 18.

Necas S., 2013, Risk Management and Security Management in Organizations. Prague: Karlovy Vary University, Czech Republic.

Pelantova V., Havlicek J., 2011, Integrated Management System for Teaching. Liberec: Technical University in Liberec. Czech Republic.

Prostejovska Z., 2013, Risk Management. Prague: University of Economics and Management, Czech Republic.

Smejkal V., Rais K., 2013, Risk Management in the Companies and Other Organizations. Prague: Grada, Czech Republic.

Spacek M., 2014, Probabilistic Approaches to Risk Analysis of the Investment Projects and their Use in the Practice. Plzeň: Nava, Czech Republic.

Spicka J., 2014, New Economic Tools for Weather Risk Management. Prague: C.H. Beck, Czech Republic.

Wegener C., 2015, Museums in Crisis. Museum International, 67, 132-137.