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# PUBLIC RISK MANAGEMENT: RISK-TAKING AND INNOVATION IN PUBLIC SERVICE ORGANIZATIONS – SELECTED PROBLEMS

**Summary:** The aim of the paper is to outline risk management problems in the area of public services. The implementation of innovations in public service organizations (PSOs) is inherently associated with risk taking. This is the focus of the paper which recommends the application of the risk management approach in PSOs operating in Poland and abroad. Special attention should be drawn to the estimation of public risk. The paper is an attempt at transferring the risk management patterns from the private sector to public sector organizations. The most important thing, however, is the ability to use appropriate methodology to this end. The paper uses the method of synthesis, deduction and induction. The paper shows a review of scientific literature in the field.

**Keywords:** risk management, public management, public services, innovation, risk response.

**JEL Classification:** D81, H42, H54, H83, O31.

## Introduction

Risk-taking is an inherent feature of innovation implementation in the public sector. Therefore, appropriate risk management processes – such as risk identification, risk estimation, and the selection of most appropriate risk responses – are necessary for public organizations to introduce innovations in the services they provide. Since the measurement of effects that innovations help to bring in the public sector is a complex issue, risk assessment in such entities is a challenging process and requires an appropriate approach. The difficulties are mostly caused by the very nature of public risk [Tworek, 2016]. In public service organizations (PSOs), the more complex it is to determine the probability of

a given initiative, the higher the related risk. Every new initiative to be carried out in public services is associated with change [Osborne, Brown 2005; Hartley et al., 2008; Kinder, 2012], which inevitably implies risk. In addition, the specific character of the public sector and, in particular, the political environment in which PSOs operate, also adds to the complexity of public risk management. This problem is of special importance in Poland, where risk management has become obligatory in the public sector, under recently enacted legislation [MF, 2009]. The reforms introduced in Poland have led to the need to devise a new approach to risk management in the area of public services. Special attention should be drawn to the estimation of public risk [Tworek, 2016]. The paper is an attempt to address such questions<sup>1</sup>. In particular, its objective is to present the issue of risk management in public services. Such objective is a result of the hypothesis set out in that in PSOs not all risk management methods proposed in the scientific literature are used in the process of public services, which in a special way concerns the quantification of risk. The specificity of this type of organization requires a proper understanding of the nature of the risk that characterizes service activities in general. Besides it also aims to present the issue of risk-taking in PSOs in Poland, against the background of the new legal framework and systemic solutions [MF, 2009]. Its objective, in particular, is to outline risk management methodology for public sector organizations, with respect to innovation implementation in the provision of public services. The author also suggests that some risk management patterns can be transferred from the commercial sector to activities carried out by PSOs. On the one hand, the paper contains the deliberations on theory and concepts but, on the other hand, it also highlights the utilitarian dimension of the knowledge embedded in Public Risk Management (PRM). In its prescriptive part it provides some solutions, which should be adopted in public organizations that implement innovations in their range of services, focusing on the use of risk management methodology. Risk in PSOs should be managed in an integrated and systemic manner [Tworek, 2015]. A particularly important issue is risk identification as any mistakes made at this stage of the public risk management process may subsequently lead to errors in risk assessment [Tworek, 2016]. As a consequence, wrong decisions may be made when implementing innovations in public organizations. The risk management approach recommended in the paper applies to public organizations that implement innovations in the services they provide. The insights shared in the

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article show the author's critical attitude to the systemic solutions, which have been adopted in this respect in Poland. The theories and concepts presented in the paper are illustrated with the findings of the empirical studies conducted in this area in selected countries in Europe including Poland. They focused on risk perceptions in PSOs and risk management processes. More specifically, the studies were attempts to look for an answer to the following question: How does risk relate to innovations? The paper also contains a review of literature on the topic.

## **1. Risk and innovation in public services – a synthetic approach to the problem**

In the related literature general views on risk management in the public sector have been presented by Young and Fone [2001] and by Drennan and McConnell [2007], while special attention to risk in innovations implemented in PSOs has been drawn by Osborne and Brown [Osborne, Brown, 2013; Brown, Osborne, 2013]. Similarly, to the commercial sector, innovations in the public sector are also connected with investments and risk is an inherent feature of every investment project [Tworek, 2017b]. In practical terms, resources are needed to implement innovations both in the social domain and in the public domain. Therefore, risk management may concern social innovations as well as public ones [Brown, 2010; Asenova et al., 2015]. In this respect the need to manage risk results primarily from the fact that innovations in the public sector focus on the profile of services and the way in which these are to be rendered, which is so important for the society [CCIC Report, 2013]. Public risk „always occurs when some new public services are created or when some improvements are introduced in the existing ones in order to e.g. offer new or enhanced methods of service provision, use any new ways to interact with customers and suppliers, open a new market for services, introduce new changes in an organisation in terms of public service provision etc.” [CCIC Report, 2013]. This means that public risk is an integral part of every process of that kind and that its presence is ubiquitous. PSOs may be exposed to risk because of [Rudawska, 2009]:

- technological innovations (incorrect integration and use of existing technologies, incorrect adjustment of technologies to the needs of a specific PSO, poor effectiveness of advanced IT and ICT processes, poor automation of routine processes, poor quality of services, incorrect and unreliable IT support, poor delivery of ICT services, including on-line services in electronic communication, a low degree of quality control in the performance of public services) [i.e. technological risk, sources of which are caused by the above-mentioned deviations *in minus* in PSOs],

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- organisational innovations (low internal effectiveness of the organisation, a defective and poorly organised blend of control and coordination processes, poor staff selection, low quality of human resources training and utilisation, inadequate improvements in functional specialisations, poor advisory support in the area of management, poor management over a PSO, insufficient legal support and inadequate auditing, low quality of HR services) [i.e. organizational risk, sources of which are caused by the above-mentioned deviations *in minus* in PSOs],
  - strategic innovations (insufficient flexibility, i.e. a failure to ensure the dynamic environment for an PSO, poor positioning of an PSO, insufficient defence in case of contradictory or incompliant regulations, shortcomings in PSO management, poor on-line services and poor auditing and legal support, inadequate marketing of services); [i.e. strategic risk, sources of which are caused by the above-mentioned deviations *in minus* in PSOs],
  - operational innovations (low functional division of work, poor focus on PSO's key activities, a lack of care of an PSO's operational capacity and image, poor language services, poor courier services, low quality of operational services, low quality of security services, including a lack of safety) etc. [Rudawska, 2009] [i.e. operational risk, sources of which are caused by the above-mentioned deviations *in minus* in PSOs].

There are many more types of risks to be faced when implementing innovations in public organisations, e.g. poor public relations. Special attention should be drawn to the importance of legal risk [Tworek, 2017b]. Ignorance of the law excuses no one and all processes which occur in PSOs require some legal support. This also applies to legal support related to innovations in PSOs. Any legal errors may lead to specific consequences, without excluding financial effects [Tworek, 2017b]. A breach of contracts when implementing innovations may lead to lawsuits (for compensation), which are not infrequent in Poland.

From among the risks related to innovations in public services, as listed above, the emphasis should be placed on the risk of public service quality and the risk of costs. These are two major components of innovation-related risks in public services. The third element, which may be added, is the risk related to the time it takes to implement innovation processes in PSOs. All the actions taken with the view to introducing innovations in PSOs bring about some improvement in service quality, whereas low quality of public services or service performance which does not meet the expectations of recipients should be regarded as a fundamental type of risk. In addition, low quality of public services leads to

complaints. This is also connected with the problem of measuring the effects of PSO operations [Rose, Lawton, 1999; Ferlie et al., 2005], and the effects of innovations such organizations have introduced. It is often difficult – though not impossible – to measure the benefits resulting from innovations in the public sector. The Benefits to Costs ratio (B/C ratio), i.e. the quotient of benefits measured in relations to costs incurred when conducting innovation projects in PSOs, is calculated in the public sector in Poland. This ratio should be more than 1, i.e. every monetary unit invested in an innovation should generate at least 1 monetary unit of quantified benefits. In reality, this is a modification of the Profitability Index (PI) [Pike, Neale, 2003] used in the commercial sector. The fact that it is calculated for innovations in PSOs in Poland does not result from the new statutory requirements, however, but it is obligatory in the procedures put in place by the European Union [CCIC Report, 2013]. After Poland's accession in 2004, EU funds became the main source of funding for innovations in the public sector (80%) [CCIC Report, 2013]. A failure to ensure compliance with the EU requirements when implementing innovations in public organizations will lead to the need to pay back the money, i.e. constitutes a risk for PSOs. Also, a risk of costs is connected with potential discrepancies which may occur in the process of innovation implementation in PSOs. In reality, planned costs of innovations may differ significantly and unfavorably from the original estimate. This leads to specific financial consequences for PSOs. That is why financial risk may be regarded as the second major type of risk for PSOs. In practical terms it means potential negative discrepancies from the expected financial results in PSOs. The risk of time, in turn, results from the course of innovation implementation over time. This might mean, in particular, an unexpectedly protracted process of innovation implementation in a PSO, which may generate extra costs for the organization. The three types of public risk are interlinked and interdependent, which may result in a spiral of risks for a PSO. It also implies that some risk factors may lead to other risk factors or a number of risk factors occurring at the same time.

Nevertheless, no matter how many types of risks PSOs may be exposed to when implementing innovations, the risks may be reduced, to a higher or lower extent by a certain degree. Risk limitation is one of the public risk management strategies and may be carried out in a PSO simultaneously with the risk-taking strategy. Literature on the subject addresses this issue [Edwards, Bowen, 2005], referring to that as a risk response [Tworek, 2015], i.e. an integral element of a public risk management process. A risk matrix (Fig. 1) may help to ensure that risk management efforts are effective.

*Public risk – frequency of occurrence*

		Low	High		
<i>Low</i>		<i>Risk-taking</i>	<i>Absorption of risk and use of counteractive methods</i>	<i>Size of public risk</i>	
	<i>High</i>		<i>Risk transfer</i>		<i>Risk avoidance</i>

**Fig. 1.** Risk response matrix in PSOs

Source: Own elaboration based on the International Risk Management Institute [IRMI, 2017, p. I.A.11].

Figure 1 presents potential risk responses in PSOs, in form of a risk matrix. Similar matrixes are frequently used in the commercial sector worldwide, e.g. in Project Management [Schuyler, 2001]. This method, once transferred to the public sector, may enable public risk managers to look at potential solutions to be applied to strategic management of public risk in a more clear way. Risk-taking is not a perfect strategy in public management. It means that any possible negative risk consequences will ultimately have to be borne by a PSO. An ideal solution would be to try and avoid risk altogether. Then, if some innovations in a PSO turn out to be too costly or not effective enough (with the B/C ratio of less than 1) the risk should not be taken. Therefore, risk identification is so important. A PSO, before embarking on an innovation process, has to find out what potential threats may occur in the future. Apart from the B/C ratio, it should also estimate risk using specific methods and measurements. In Poland, in spite of the changes in regulations referred to earlier, PSOs are not offered any consolidated methodology of risk analysis and assessment [Tworek, 2017b], which should be criticised. In Poland PSOs limit their actions to arranging insurance for their operations [Tworek, 2017b]. There is no common historical database on public risk [Tworek, 2016]. Such data would make it possible to quantify risk using the probabilistic approach, with the focus on risk simulation [Tworek, 2017a]. That is why the present system solutions used in public risk management in Poland should also be criticised. In addition, the impact of political risk is too heavy, which hinders reasonable decision-making in administration and, as a result, leads to financial consequences of wrong decisions being borne by the state treasury, in other words, the taxpayers. The empirical research – conducted in this area in Poland as well as Bulgaria, Finland, Spain, Estonia, Italy, the United Kingdom, Holland, Romania and Sweden – shows that 80% of stake-

holders agree that risk-taking is an inherent component of a public organization's culture and that public organisations which take public risk are more likely to implement innovations [CCIC Report, 2013]. When replying to the question about the level of risk which public service organizations may tolerate when implementing innovations, a big number of the stakeholders surveyed (out of 414, i.e. the total group of respondents) answer that they do not have any opinion on this subject, which only confirms that there is no common position on the size of public risk which may be taken by public sector organizations in connection with the innovations they implement in provision of public services [CCIC Report, 2013]. At the same time, 40% of the respondents in the empirical research do not agree with the statement that innovations should not bring any risk for public service organizations, and that innovation planning may be continued if a public service organization does not bear a risk [CCIC Report, 2013]. As many as 80% of the stakeholders claimed that a formal risk assessment procedure should be introduced in public sector organizations before implementing innovations [CCIC Report, 2013]. The proposals of such a procedure are described below.

## **2. Risk management process in PSOs – proposed approach**

The transfer of risk management patterns from the commercial sector to PSOs is due to the fact that the solutions proposed there are efficient and effective. According to this way of thinking, since risk management adds value to a commercial enterprise [Dallas, 2006], it will similarly help to maximize the public value in the public sector [Moore, 1995]. One should not forget about the behavioral aspects of risk management [Smallman, Fischbacher-Smith, 2003]. The individual preferences (risk perception) of the people involved in innovation implementation processes in PSOs affect the final effect. There might be two contrary attitudes to risk – risk aversion and risk acceptance [Edwards, Bowen, 2005]. PSOs that are more willing to take a risk achieve better results and thus improve their image and perception by the general public. They have a stronger social mandate and limit their risk of a political failure. In the relevant literature, behavioral aspects are connected with the division of innovation-related risk in public services into the risk taken at the personal level, the risk taken at the PSO's level, and the risk taken at the stakeholders' level [Brown, Osborne 2013; Flemig, Osborne, Kinder, 2016]. The proposals on how risk should be managed in PSOs are presented in Fig. 2.

Figure 2 presents the public risk management approach analyzed in terms of its usefulness and applicability. A similar approach to risk management is followed, for example, in the construction industry in Poland [Tworek, 2011]. The transfer of this pattern and its adaptation to the needs of PSOs will offer an easy option for dealing with public risk in a holistic way. When looking at Fig. 1 we can see that public risk management is: first of all, a 3-phase process, composed of risk identification, risk quantification and risk response; secondly, the three risk management phases can be further divided into sub-phases, where appropriate risk management methods are used; thirdly, risk management is based on a reliable IT system, which enables the collection of historical data on public risk and, subsequently, the right quantification of risk assuming the probabilistic approach; and fourthly, all the risk management activities in a PSO are handled by a public risk manager, who is also responsible for public risk. Irrespective of the structure of the proposed the public risk management approach, however, methodical aspects play the key role here. It should be added that the relevant literature presents a slightly different way to manage risk related to innovations in public services, broken down into risk limitation, risk analysis, and risk negotiation [Brown, Osborne, 2013; Osborne, Brown, 2013; Flemig et al., 2015]. Taking into account the context in which PSOs operate, such an approach seems to be fully acceptable.

## **2.1. Methods of risk management in PSOs**

### **2.1.1. Public risk identification methods**

Public risk identification (Phase 1), understood as the establishment of the sources of risk in a PSO and its specific forms, is the first [Chapman, 2001] and, at the same time, the most important stage in a risk management process (Fig. 2). At the same time, risk identification is a process in itself, in which a number of methods should be used simultaneously and complementarily in order to ensure the right identification of public risk [Tworek, 2017b]. In the risk identification process special attention should be drawn to the following facts: first of all, that there is a variety of risk identification methods which may be freely used by a public risk manager, depending on the situation and the needs; secondly, risk identification methods have both advantages and disadvantages; and thirdly, specific methods bring specific effects [Tworek, 2016].



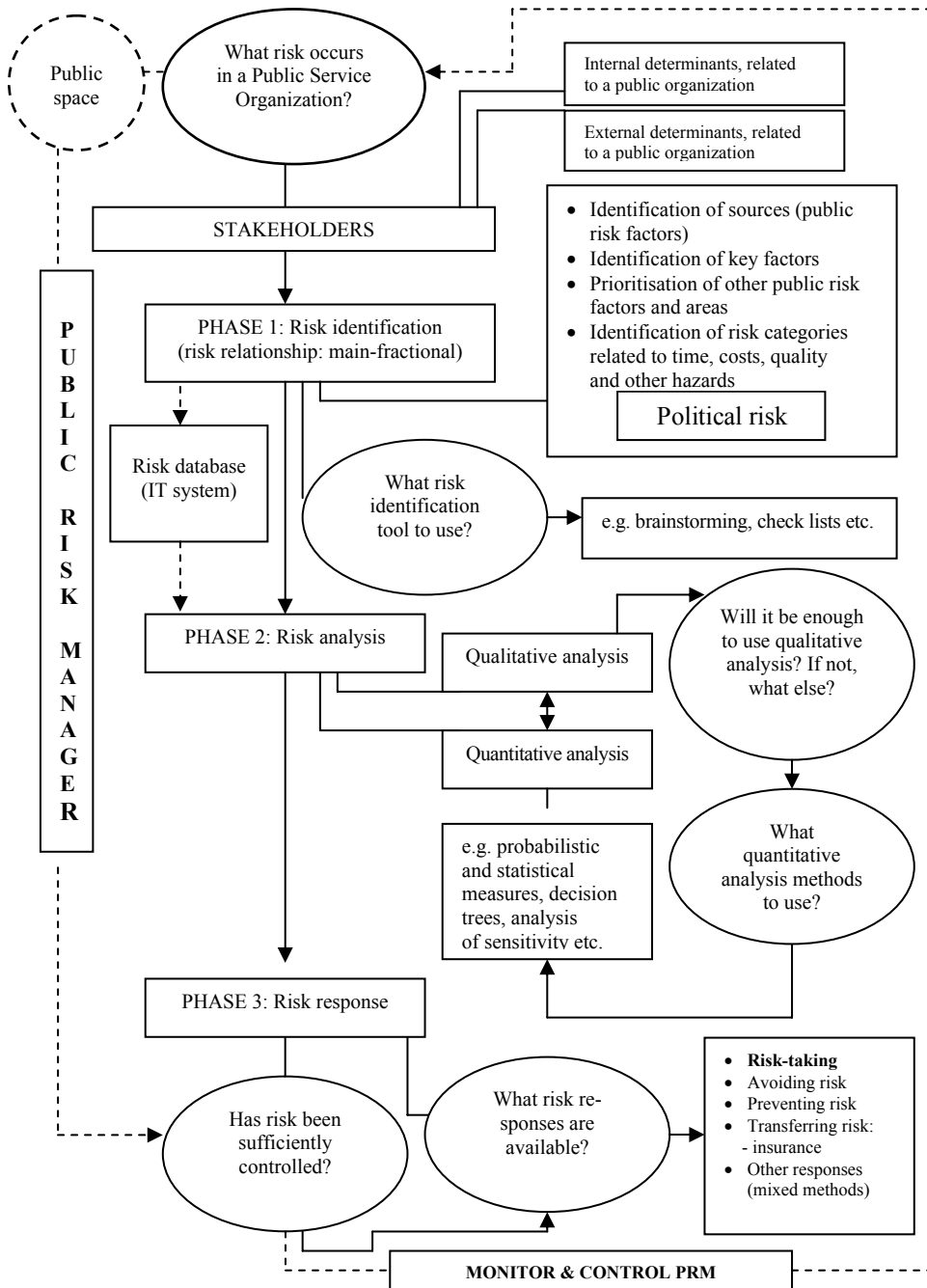


Fig. 2. Risk management process in PSOs – proposed approach

Source: Own elaboration based on [Twarek, 2011, p. 810].

From among the many methods that are now recommended in the relevant literature, in the context of the issues contemplated here, the best solution would be to take advantage of the methodical achievements included in the FERMA standards [FERMA, 2002]. The methods proposed in this standard are quite universal in their applications [Tworek, 2010]. In particular special attention should be drawn to the check list technique [Tworek, 2015]. Apart from typical checklists, public risk managers may also take advantage of other methods, which are popular in the private sector. These methods may include the ones based on diagrams, such as the Ishikawa diagram, which focuses on the investigation of risk causes and presentation of mutual relationships between specific risk components [PMBOK, 2009]. The graphic techniques make the public risk mechanism very clear and comprehensible. They are very easy to use and interpret. Every application of these methods in PSOs requires their modification to suit a given PSO's needs [Tworek, 2017a]. After the risk is properly identified in a PSO, it needs to be quantified.

### **2.1.2. Public risk quantification methods**

Similarly, to public risk identification methods, also when looking at risk quantification, one should take into account the pros and cons of every method and remember the need to modify quantitative methods, in order to tailor them to the specific profiles of PSOs. In particular, the analysis and assessment of public risk (Phase 2) involves risk estimation and the determination of its impact on the given PSO (Fig. 2). This stage of a public risk management process consists of quantitative and qualitative analyses, where, unlike in the quantitative approach, qualitative risk assessment is mainly conducted using the method of description [Tworek, 2015]. Risk matrixes may prove particularly useful here, as their construction is based on the evaluation in which specific types of risk are assigned a specific grade – very low, low, moderate, high and very high – and the final assessment of public risk combines the constructed matrix with the scale of probability and effects of every identified public risk [PMBOK, 2009]. Their advantage is the fact that they can be expanded to the  $n$  scale matrix (multi-step matrixes). Multi-step matrixes are used widely in risk estimation processes carried out for the needs of public construction investment projects in the USA [Walewski, Gibson, Dudley, 2003]. In the quantitative approach, specific quantitative methods supported with simple IT techniques should be used. In the case of PSOs it would be difficult to run a risk simulation using advanced stochastic

methods, such as the Monte Carlo risk simulation [Schuyler, 2001]. It is possible, however, to use simple statistical methods, with particular focus on a standard deviation ( $\sigma$ ) [Tworek, 2015], which science sees as the basic quantitative risk measure [Knight, 1921]. Consequently, when looking at innovations in the public sector as an investment, this simple statistical measure has to be modified to become a probabilistic and statistical measure, for instance, the risk in an investment project may be determined by estimating the dispersion of all possible results around a given expected value – an average, a mathematical expectation [Rogowski, 2016]. To be more specific, the standard deviation ( $\sigma$ ) is a square root of ( $\sigma^2$ ) variance, which may be calculated from the following equation:

$$\sigma = \sqrt{\sigma^2} = \sqrt{\sum_{i=1}^n p_i [X_i - E(X)]^2}$$

where  $E(X)$  means the expected value of  $X$  variable,  $X_i$  stands for the  $i^{\text{th}}$  possible result,  $p_i$  means the probability of the  $i^{\text{th}}$   $X_i$  result,  $n$  is the number of possible results [Pike, Neale, 2003]. The higher the standard deviation, the higher risk of an investment project and, consequently, the higher risk of the public sector organization concerned, and vice versa [Tworek, 2017b]. If the result of the innovation should be the economic net present value (ENPV), calculated for the new IT portal (e-platform) project in a municipality office, then the value of the estimated risk can be expressed as  $\sigma\text{ENPV}$  [Tworek, 2017b]. When public risk is defined as a negative category, however, the calculation of semi-variance (the downside variance) seems more reasonable. Apart from probabilistic and statistical measures, PSOs may also use such methods as analysis of sensitivity or the decision-tree technique [Perry, 2007]. The analysis of sensitivity is based on the answer to the general question – *what...if?* [Pike, Neale, 2003], in other words, what will happen if a given risk factor occurs in a PSO. Namely, what will happen if the innovation implementation process in the PSO ends up in a failure, for example if the new IT system turns out to make customer service in a public office more difficult, instead of facilitating it. And consequently, what potential extra costs may have to be borne by the PSO in order to mitigate this risk. In addition, the analysis of sensitivity enables the simulation of deviations around the economic rate of return (ERR), which is compared to the  $r$  discount rate, expressing the cost of capital needed to finance the innovation. That means: what will happen with the ERR result, if the cost of capital rises especially, whether the ERR is going to be higher or lower than the  $r$  rate, and, if this is the case, by how much. In practice, the ERR must be higher than or equal to the

$r$  discount rate in order for the investment project to be viable. A viable project is the investment for which the ENPV result is higher than 0, the ERR is higher than the estimated  $r$  discount rate, and the B/C ratio is more than 1. In this case, it is recommended that the PSO goes ahead with the innovation, as its implementation is going to increase the overall prosperity, specifically, the investment project will be effective in social and economic terms. The implementation of the innovation in the PSO is also recommended in the case when the ENPV result equals 0, the ERR equals the  $r$  discount rate, which was assumed in the calculations, and the B/C ratio equals 1. In the PSO this is the case when social and economic benefits equal social and economic costs. In other cases, PSOs should decide not to implement the innovation. For the sake of comparison, in the case of social economy entities [Wronka-Pośpiech, 2015, 2016], the value of Social Return on Investment (SROI) is estimated, in order to allow the social economy entities to measure and express their social, economic and environmental value in financial categories, compared to the investments that have been completed [Millar, Hall, 2013]. The quantitative methods proposed here would enable the estimation of potential deviations around the SROI, namely, the risk, while the decision tree analysis may facilitate the decision-making process in PSOs. The tree branches are described by the probability that a given condition will occur in the future. It also allows the creation of negative and positive scenarios of the events that are described using the probability of occurrence, which is the very essence of public risk. Apart from these methods, risk in the public sector may also be quantified by means of the game theory and, in particular, the game with nature which refers, most of all, to the risk of acts of God.

Summing up, similarly to the subsequent phase specifically, risk response (Fig.2), also risk estimation is a process. It is generally regarded – in theory and in practice – to be the most difficult stage of the entire risk management process [Mulcahy, 2003; Murphy, 2008] as it demands a lot of expertise and experience from the individuals who evaluate risk. This may be particularly difficult in the public sector due to the attributes that public services demonstrate [Rose, Lawton, 1999; Rudawska, 2009]. However, in the process of PSOs risk assessment, in the qualitative approach cannot be completely ignored. Many effects related to innovations in public organizations can be effectively measured using qualitative methods applied to the activities of organizations providing specific public services. While estimating the benefits of innovation in public services is not difficult, estimating the risks associated with it is more challenging. This problem, although addressed in the scientific literature [Brown, Osborne 2013],

is still underdeveloped as only few publications regarding this subject exists, which do not explain this issue in a comprehensive way. Thus, it can be a scientific challenge for researchers representing the sub discipline of public management.

### 2.1.3. Methods and ways of responding to public risk in PSOs

Risk responses in PSOs should basically be based on the '101 principles' issued by the International Risk Management Institute (IRMI), referred to previously in the paper, and on the element of rationality [Tworek, 2016]. If PSOs decide to face risk they need to take into account the universal rules, which are well known in other areas of life, and use their common sense. The first rule is: you should not risk more than just a little; secondly, never forget to plan; thirdly, always consider both the sources and the consequences of public risk; fourthly, have ready-to-use solutions up your sleeve, for any potential failures and circumstances which may arise; fifthly, do not delegate your own duties to other employees; sixthly, do not take public risk as a routine or just to save face; seventhly, never risk more than you can afford, eighthly, be ready to listen to experts' advice; ninthly, listen to what your experience and intuition tell you; tenthly, always take into account these public risks which are under control (specific risk) and those which are beyond control – systemic risk [Flanagan, Norman, 1993]. The adherence to these rules may be a simple way to protect a PSO from a variety of threats. Generally, however, risk response (Phase 3) in a PSO involves the selection of the right method and way to counteract the public risk that has been identified and estimated before (Fig. 2). Risk responses in PSOs refer to the concept presented in Fig. 1 – the risk response matrix. The relevant literature offers an array of different concepts and approaches in this respect [Brown, Osborne, 2013; Osborne, Brown, 2013; Flemig, Osborne, Kinder, 2016]. Risk response is expected, first of all, to reduce the risk impact on the PSO [Walewski, Gibson, Dudley, 2003]. Insurance may be the best option here and it is available from any insurers operating worldwide [Willett, 1951]. Insurance should thus be seen as an effective way of financing risk in PSOs. In Poland the most popular types of insurance include third party liability, accident insurance, and health insurance. Another effective method is risk transfer by inclusion of appropriate clauses in agreements entered into by PSOs (legal risk). Risk transfer through insurance and contractual clauses is regarded as a desirable strategy to manage public risk [Tworek, 2016]. In theory, however, the best risk management strategy is risk avoid-

ance, although in practical terms this is not possible. As a result, PSOs have no alternative but to cope with their risk exposures.

#### **2.1.4. Risk monitoring and control in public management**

In PSOs all the activities related to risk identification, quantification and responses should be subject to day-to-day control and monitoring [Tworek, 2016] (Fig. 2). This should ensure, first of all, that risk management objectives can be set and any potential faults or shortcomings can be detected. Therefore, monitoring and control are necessary in order to allow a PSO to find out whether they need to use any additional measure or any other method in order to make their public risk management more effective [Tworek, 2015]. A public risk manager has to know how the risk management process runs and whether it brings the desirable and expected effects. The results of his or her work should be communicated to other public managers in PSOs on a regular basis, so that they could always be aware of the risks which occur (e.g. when implementing innovations), having read the reports. The risk reports are compiled and create the risk documentation for a given entity. The public sector in Poland, however, is not obliged to produce such reports, which should be viewed critically. There is no official form that could be filled in to report public risk on an ongoing basis. Therefore, it is recommended that the tried and tested solutions, which are generally applied in the private sector, should be adopted [Mulcahy, 2003]. In particular, the data derived from the reports may be used to create public risk databases. This is a source of necessary information on public risk for public risk managers when they have to take appropriate measures in order to eliminate risk in the future, which will also apply to innovative processes.

### **Conclusion**

The contemplations included in the paper are aimed to present to PSOs in Poland and worldwide, the ready-to-use Public Risk Management (PRM) concept. Risk management should apply to all the processes that occur in PSOs, including, in particular, innovation implementation processes related to public services. Risk is inherently linked to any innovations that are implemented in the public sector, therefore it should be managed by using specific methods and following specific principles. In practice, PSOs may take advantage of a wide

range of accessible methods and vast experience gained in this area by the private sector. That is why the paper recommends that public risk in PSOs should be handled by adopting the public risk management approach (Fig. 1, Fig. 2), which may not only contribute to more effective management of public risk but also support the overall process of governance in PSOs. Risk management should be reviewed and analysed in terms of its function and functionality [Tworek, 2015]. Consequently, the public risk management approach (Fig. 2) is based on a three-phase process of risk management in PSOs, broken down into such steps as risk identification, risk quantification, and risk reaction (risk responses), and all the actions undertaken as part of the process should be subject to day-to-day control and monitoring by public risk managers [Tworek, 2015]. Although risk management is obligatory in the public sector, Polish PSOs do not deal with their risk exposure in any integrated way [Tworek, 2016]. In addition, managers in public entities in Poland are not sufficiently aware of potential advantages that may result from the implementation of an integrated public risk management system. PSOs may benefit by providing public services of better quality. Nevertheless, risk management in the public sector is a much more challenging task than risk management in the commercial sector. The difficulties here stem from the key differences between the types of innovations introduced in the two sectors and are also caused by the specific nature of public risk [Tworek, 2016]. The empirical research conducted in Poland shows that the inability to estimate risk and its negative consequences may lead to a commonly shared belief that „risk management is not a useful system, but just another bureaucratic requirement” [Klimczak, Pikos, 2010]. Only 13.6% of Polish non-profit organizations are certain that they want to take risk in their everyday operations [Domański, 2014]. The findings of the research gave rise to the creation of the public risk management approach in PSOs (Fig. 2), with a recommendation that it should be applied in activities conducted by these organizations. The proposed PRM approach pays special attention to risk estimation, which results from the general definition of risk in science [Knight, 1921]. Looking at innovations implemented in PSOs as an investment, risk may be quantified following the probabilistic approach. This will facilitate the correct measurement of potential deviations in the results brought by innovations, expressly, the measurement of risk. Nevertheless, risk management in the public sector is a much more challenging task than risk management in the private sector. The difficulties here stem from the key differences between the types of innovations introduced in the two sectors [Tworek, 2016] and are also caused by the specific nature of public risk.

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## RYZIKO W ZARZĄDZANIU PUBLICZNYM: PODEJMOWANIE RYZYKA A INNOWACJE W ORGANIZACJACH SEKTORA PUBLICZNEGO – WYBRANE PROBLEMY

**Streszczenie:** Celem artykułu jest przedstawienie wybranych problemów zarządzania ryzykiem w obszarze usług publicznych. Implementacja innowacji w organizacjach świadczących usługi publiczne jest nierozzerwalnie związana z podejmowaniem ryzyka. Stanowi to przedmiot zasadniczych rozważań podjętych w artykule, który zawiera propozycję implementacji metodycznego podejścia do publicznych organizacji działających w Polsce i za granicą, zwracając szczególną uwagę na zagadnienie, jakim jest szacowanie ryzyka publicznego. Artykuł stanowi próbę transferu rozwiązań stosowanych w tym zakresie w sektorze prywatnym na grunt funkcjonowania organizacji sektora publicznego. Najważniejszą rzeczą jest znajomość właściwej metodyki w tym względzie. W artykule wykorzystano metodę syntezy, dedukcję oraz indukcję. Artykuł zawiera przegląd literatury naukowej z tego zakresu.

**Słowa kluczowe:** zarządzanie ryzykiem, zarządzanie publiczne, usługi publiczne, innowacje, reakcja na ryzyko.