„Management and Business Administration. Central Europe" 6/2012 (119): s. 56–65, ISSN 2084–3356, Copyright by Akademia Leona Koźmińskiego

Implementation of the Risk Management Process through a Gaming Scenario in Public Sector Organizations

Primary submission: 11.06.12
Final acceptance: 31.07.12

Anna Pikos | **Akademia Leona Koźmińskiego** | apikos@kozminski.edu.pl

Abstract

Purpose: The aim of this article is to analyze the potential of a simulation game addressing the issue of implementing risk management within public sector organizations.

Design/methodology/approach: Recent legislation obliges public sector organizations to have a risk management system in place as part of their managerial control system. The author conducted interviews with key personnel responsible for risk management within their public organization.

Findings: This preliminary findings of the study, among public sector organizations, shows that these organizations have a problem implementing the risk management process. The author after deep analysis of the different educational methodologies decided to propose an experiential learning method in a form of simulation game.

Originality/value: Usage of simulation game to teach risk management is unique. It can be helpful for public sector organizations not only to understand the process but also to implement it and became an effective tool.

Keywords: risk management, public sector, simulation, game

Wspomaganie wdrożenia procesu zarządzania ryzykiem w jednostkach sektora finansów publicznych za pomocą gier

Nadesłany: 11.06.12
Zaakceptowany do druku: 31.07.12

Abstrakt

Cel: Celem artykułu jest analiza potencjału edukacyjnego symulacyjnej gry decyzyjnej w zakresie wdrożenia zarządzania ryzykiem w sektorze publicznym.

DOI: 10.7206/mba.ce.2084-3356.36

Metodologia: Ustawa z dnia 27 sierpnia 2009 roku o finansach publicznych nałożyła na jednostki sektora finansów publicznych, w ramach kontroli zarządczej, obowiązek wdrożenia zarządzania ryzykiem. W ramach badań zostały przeprowadzone wywiady z osobami odpowiedzialnymi za zarządzanie ryzykiem w danej jednostce.

Wyniki badań: Wstępne wyniki badań pokazały, że jednostki sektora finansów publicznych mają problem z wdrożeniem zarządzania ryzykiem. Po przeanalizowaniu różnych metodyk zaproponowano metodę nauczania opartą na doświadczeniu w postaci symulacyjnej gry decyzyjnej.

Oryginalność: Wykorzystanie symulacyjnej gry decyzyjnej w nauczaniu zarządzania ryzykiem jest pionierksie. Może okazać się pomocne nie tylko w zrozumieniu, czym jest proces zarządzania ryzykiem, ale również w jego wdrożeniu.

Słowa kluczowe: zarządzanie ryzykiem, sektor publiczny, symulacja, gra

JEL: C73

Introduction

The public sector in Western European countries has undergone many changes from the 'old public administration' (Bovaird, Loffler 2003) to New Public Management (Klimczak, Pikos 2011). The shift, driven by financial pressure, has concentrated on performance management, decentralization, transparency (especially in the financial arena), and on responsiveness to citizens (Bovaird, Loffler 2003). In terms of the new order, public sector organizations are supposed to focus on their goals and mission, not on procedures and regulations (Izdebski, Kulesza 2004; Osborne, Gaebler 2005). They should steer the organization, not row it (Osborne, Gaebler 2005). The reform was aimed at increasing the effectiveness of accomplishing tasks (Kożuch 2004) and to introduce managerial style within public sector organizations (Bovaird, Loffler 2003; Osborne, Gaebler 2005). A similar change, with significant lag, has been taking place in Central and Eastern European countries (Klimczak, Pikos 2011). This paper presents a country-specific case and is based on the Polish context where the Public Finance Act of August 27, 2009 introduced, under managerial control, the risk management system in the public sector. The introduction of the new system is not a simple task. It requires not only organizational changes but also changes in the way people think within the organizations (Klimczak 2009).

Risk Management in the Public Sector

Public sector organizations are committed to serve public interests and decide about the needs of the community (Bovaird, Loffler 2003; Denhardt 2010). Risk management is a revolution in the public sector and is a result of the modernization of the management system in this sector (Klimczak, Pikos 2011). Public sector entities should become modern organizations that react

DOI: 10.7206/mba.ce.2084-3356.36

dynamically to changes and look into the future to ensure effective risk management (Jenninson 2008). Public entities often undertake very risky activities private companies would never consider (Rowe 2004). That is why risk management is supposed to become a tool to increase the chances of achieving organizations' goals and effective allocation of public resources.

Initially, it became obvious that the first challenge was the foundation of a risk management system, because the legislator had only enacted general principles concerning the introduction of this process. The results of the first control of the Supreme Audit Office (2010) show that risk management standards were not followed in controlled organizations. Furthermore, there was no documentation of risk identification and assessment. The next control of the Supreme Audit Office (2011) negatively assessed the development of managerial control. There was no risk management system in 95% of the controlled local government organizations. Moreover, employees were not prepared for managerial control in 50% of the controlled entities.

The preliminary findings of the author's qualitative research show that the public sector staff lacks appropriate knowledge of the risk management process. They are not attending seminars or training programs where they could gain basic information. In some cases, they treat risk assessment as a wish list to show what is missing in their units. Additionally, they perceive the risk management system as an unnecessary effort and as paperwork.

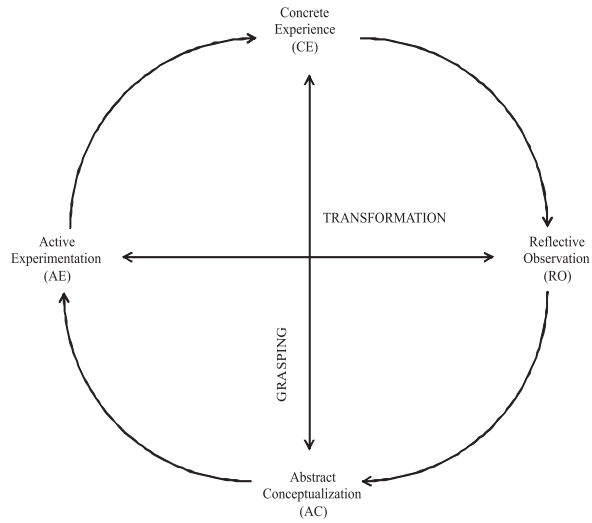
Taking into account that the risk management system is embedded in national law and cannot be simply forgotten by public entities, the author would like to propose a simulation game to help them make the new regulation beneficial for them.

Experiential Learning in Management Education

The experiential learning theory (Dewey 1938; Lewin 1951; Piaget 1971; Kolb 1984) is a widely accepted educational methodology. It emphasizes the key role that experience plays in the learning process (Kolb et al. 2000). The experiential learning theory defines learning as "the process whereby knowledge is created through the transformation of experience" (Kolb 1984: 38). The experiential education is based on the belief that people learn best by direct contact with learning experience (Priest, Gass 1997). According to Confucius: "I hear and I forget, I see and I remember, I do and I understand" (Confucius circa 450 BC). The Kolb`s cyclical four stages model of learning is presented in Figure 1.

DOI: 10.7206/mba.ce.2084-3356.36

Figure 1 | **Structure of Learning**



Source: Kolb D. (1984) *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.

Concrete experience (CE) is the first step in Kolb`s Experiential Learning Cycle, where the learner is involved in experience such as a lab session or field work. The second stage is reflective observation (RO), where the learner reflects back on that experience, intuiting the meaning of situation. The third stage, abstract conceptualization (AC) is the stage where the learner builds a general theory or model of what is observed. The last stage is active experimentation (AE), where the learner is testing a theory for creating new experiences. "Knowledge results from the combination of grasping experience and transforming it" (Kolb 1984: 41). Furthermore, Kolb states that all those four stages are equally important and allow to learn new skills or even new ways of thinking. Experiencing includes simulations, projects and exercises that people take part in it (Ritchie 2011).

To make the public organizations understand the risk management and show them the mechanism of implementing this process within the institution the author wants to create a computer simulation game. The research indicates that simulations support all four learning stages more efficiently than traditional teaching methods (Herz 1998).

"Simulation is about seeing before being – a tool that paints a picture of a process or problem showing the consequences of a number of possibilities" (Elliot 2002: 25). The simulation game will allow to create the experimental environment where the learning and behavioral changes can appear and the managerial behavior can be observed (Keys, Wolfe 1990). The usage of simulation game has many advantages (Curry, Moutinho 1992):

DOI: 10.7206/mba.ce.2084-3356.36

Long and short term decisions: multiple decisions in time; immediate impact of decisions,

- **Active learning**: learning by doing,
- **Increased experience with Corporate Decision-Making**: framework for understanding and integrating of the presented concepts,
- **Introduction to Uncertainty**: ensure greater realism,
- **Increased Motivation through Competition**: groups compete against each other,
- **Use of computers for Decision Support**: computer models used in decision-making; financial forecasting,
- **More Effective Learning**: increased speed of learning and greater retention of knowledge,
- **Facilitation of Distance Learning**: transportable manuals.

Simulation games can improve learner`s knowledge, skills, attitudes and behavior. It may be a pathway to develop problem solving abilities (Csikszentmihalyi 1975; Choi, Kim 2004). Simulation games develop the relationship between thinking and doing, because individuals almost at the same moment are thinking, considering, acting and doing. There are helpful in seeing and coping with dilemmas and choosing between alternatives (de Caluwe 2007).

Additionally, simulation games that have immediate feedback, clear goals and challenges, may create positive learning experiences (Chen-Chung et al. 2011).

Risk management as a decision-making field is a domain of experience. The ideal solution for transferring both knowledge and an experience for decision patterns would be through simulation.

Game Description

Risk management is a systematic, structured, and timely process that should be integrated in an organization's policy, management, culture, and other processes (Risk Management Standards: ISO/DIS 31000). It involves identifying, assessing, and evaluating risk (Risk Management Standards: ISO/DIS 31000; AIRMIC, ALARM, IRM, 2002; COSO, 2008). Risk management supports the achievement of an organization's goals because, implemented properly, it assures the entity that it is not taking inappropriate risk and is not missing opportunities (Merna, Al-Thani 2008). Risk management is a continuous loop where all the process' steps are continually carried on (Merna, Al-Thani 2008).

The simulation game will be designed for the public sector and will address the topic of risk management. Its model will reflect industry characteristics, issues, and terminology (Hall 2011).

DOI: 10.7206/mba.ce.2084-3356.36

Learning objectives

There are several learning objectives for this simulation game:

- Introduce the key concepts of risk management
- Help players to understand the process of risk management
- Help participants become aware of the importance of the above-mentioned process
- Introduce the tools used during the risk management process
- Make the learning process enjoyable and dynamic (Cunningham 1995)
- Allow the players to learn by making mistakes (Cunningham 1995)

After playing the game, the participants will be able to:

- Apply the knowledge gained into practice
- Find, integrate, and interpret data from different sources.

Target audience

The participants in the simulation game inhabit, explore, and manipulate the context of the game through their play (Salen, Zimmerman 2004). The players will be public sector employees. Considering the possible differences in levels of knowledge, the game will be designed primarily for participants with little or no knowledge of risk management. The players will be senior management, middle management, and functional specialists. This simulation game is aimed at members of a single organization at central level or at members of different entities at local level. This solution will stimulate open discussion. Moreover, it will encourage participants to share knowledge and experience with others. Additionally, the players should have the ability to work effectively in a team as well as to organize and manage small teams.

Course set up and duration

The designed simulation game will last approximately eight to twelve hours. One week before the game, the participants will get a 'Participant Manual' from the tutor. At the beginning of training, the facilitator will clarify the rules and present the risk management process. After that, the participants will start playing the first round (A). After the teams have reached their decisions, the game facilitator will have time for debriefing. Table 1 presents the detailed information.

DOI: 10.7206/mba.ce.2084-3356.36

Table 1 | **Planned course schedule**

Action	Duration	Actor	Facility
Introduction	90 min	Tutor	Notebook, multimedia projector, printed materials
Round 1A	60 min	Players	Computer, printed materials
Round 1B	30–40 min		
Round summary	20 min	Tutor	Notebook, multimedia projector
Break	10 min	-	-
Round 2A	60 min	Players	Computer, printed materials
Round 2B	30–40 min		
Round summary	20 min	Tutor	Notebook, multimedia projector
Break	10 min	-	-
Round 3A	60 min	Players	Computer, printed materials
Round 3B	30–40 min		
Conclusions	60 min	Tutor and players	Notebook, multimedia projector

There will be no direct competition between teams, because the main objective is that everyone will succeed. However, there will be indirect competition on the field in terms of progress of the risk management process and of the level of the budget, which is supposed to increase the game dynamics and participants' engagement.

Game Play

The game starts with an introduction by the tutor. After that, the group is divided into teams of four to five members. If more than five teams participate, an additional game facilitator will be required.

Afterwards, the tutor will provide background information about the scenario and about specific game rules that were not mentioned in the Participant Manual. The goals of the task are communicated. When the first round (A) begins, the participants face a typical public sector challenge, e.g. road construction, development of public facilities, changes to legislation. Their task is to identify the risks related to a particular scenario. They should look for events that can positively or negatively affect the achievement of the entity's goals. There will be a list of risk categories and the players will have to select an appropriate one. The players will be motivated to use various tools and techniques. Additionally, they will be able to collect internal and external data that should support their identification process. The level of use of these resources is important for completing the learning objectives, and will be part of the team assessment. Extensive identifica-

DOI: 10.7206/mba.ce.2084-3356.36

tion is crucial, because risk, which will not be recognized at this stage, will not be the subject of further analysis (Risk Management Standards: ISO/DIS 31000).

The next step is to analyze the identified risk. The participants will have to consider the potential consequences of threats and decide how they will treat them. The players will also be required to assess the impact and probability of the risk. As in the previous stage, the participants may use different tools to assess risk and access different data sources.

Subsequently, the players will have to decide which treatment options they will implement and forecast the resources they will require. They will have also have to draw up a budget that is consistent with their action plans.

These decisions are entered into the simulation game. By default, the game idea is designed for a computer simulated game, but if the target audience responds better to a board or hybrid game (board and computer) the form of the simulation game may change. The results will be returned to the teams and analyzed by the game facilitator before the next round. After a short break, the second round (B) will begin.

Round B begins with new factors of the previous scenario and with risk materializing. This means teams that did not identify this risk or recognized this threat but assessed it superficially, will have to incur the cost of it. This will affect their budget because of immediate action plans. Those teams that assessed risk properly will be able to concentrate only on the new determinants.

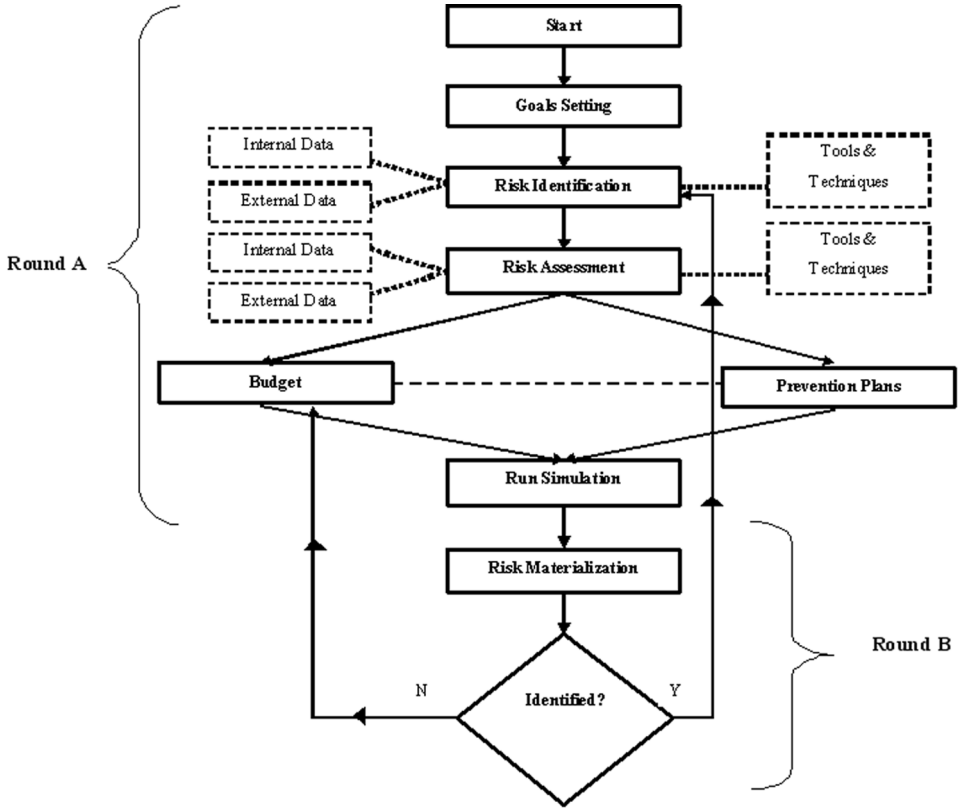
After the decisions are entered into the simulation game, the tutor will analyze the performance. The teams can compare their results.

The next cycle of rounds A and B starts, but in every decision-making cycle, the rounds become more complicated. The participants will have to make more decisions, choose from more options, and face critical risks. Figure 1 shows the game structure.

During all stages of the game, the facilitator clarifies the rules when needed, supports the participants, and manages the learning process (Hall 2011).

DOI: 10.7206/mba.ce.2084-3356.36

Figure 2 | Game structure



Source: author`s elaboration based on Khedr (2006) and Chinbat (2009).

| Conclusions

This paper presents a work in progress on a risk management simulation game. The author is still searching for a proper format and content. This project was based on the preliminary findings of qualitative research, so the next steps of the study will deepen the understanding of both risk management implementation problems and the ability to transfer this knowledge through the simulation game.

DOI: 10.7206/mba.ce.2084-3356.36

References

Bovaird T., Loffler E. (eds.) (2003) *Public management and governance*. London; New York: Routledge.

Chen-Chung L., Yuan-Bang Ch., Chia-Wen H. (2011) The effect of simulation games on the learning of computational problem solving. *Computers & Education*, Vol. 57, No. 3, pp. 1907–1918.

Chinbat U. (2009) Using Simulation for Reducing Risk of a Mining Optimization Project. *International Journal Of Simulation Modelling*, Vol. 8, pp. 166–177.

Choi D., Kim J. (2004) Why People Continue to Play Online Games: In Search of Critical Design Factors to Increase Customer Loyalty to Online Contents. *Cyberpsychology and Behavior*, Vol. 7, No. 1, pp. 11–24.

Csikszentmihalyi M. (1975) *Beyond boredom and anxiety*. San Francisco: Jossey-Bass.

Cunningham Ch. (1995) Evolution of a Bushfire Simulation/ Game. In: Crookall D., Arai K., *Simulation and Gaming across disciplines and cultures*. Thousand Oaks: Sage, pp. 20–29.

Curry B., Moutinho L. (1992) Using computer simulations in management education. *Management Education and Development*, Vol. 23, No. 2, pp. 155–167.

De Caluwe L. (2007) Using gaming simulation for change of organizations and for change of corporate culture. In: Kriz W., *Gaming Simulation and Organizational Change*. Berlin: Wissenschaftlicher Verlag.

Denhardt R.B. (2010) *Theories of Public Organization*, Cengage Learning.

Elliot M. (2002) The Simulation Games. *Industrial Engineer*, Vol. 34, No. 1, pp. 24–30.

Izdebski H., Kulesza M. (2004) *Administracja publiczna. Zagadnienia ogólne*. Warszawa: Liber.

Jenninson B. (2008) *Zarządzanie ryzykiem w sektorze publicznym. Podręcznik wdrożenia systemu zarządzania ryzykiem w administracji publicznej w Polsce*, http://www.mf.gov.pl/_files_/koordynacja_kontroli_finansowej_i_audytu_wewnetrznego/metodyka/zarzadzanie_ryzykiem_w_sektorze_publicznym.pdf?PortalMF=c5e223be3f9d1 (11.2008).

Keys B., Wolfe J. (1990) The Role of Management Games and Simulations in Education and Research. *Journal of Management*, Vol. 16, No. 2, pp. 307–336.

Khedr M.K. (2006) *Project Risk Management Using Monte Carlo Simulation*. AACE International Transactions, pp. 1–11.

Klimczak K.M., Pikos A.M. (2011) *Risk-based management control in the public sector: a live experiment in Poland*. Working Paper, Social Science Research Network.

Klimczak K.M. (2009) Wdrażanie zarządzania ryzykiem w jednostkach sektora finansów publicznych. *Przegląd Organizacji*, nr 5, pp. 23–26.

Kolb D. (1984) *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.

Kolb D., Boyatzis R.E., Mainemelis Ch. (2000) Experiential Learning Theory: Previous Research and New Directions. In: Sternberg R.J., Zhang L.F. (eds.), *Perspectives on cognitive, learning, and thinking styles*. NJ: Lawrence Erlbaum.

Kożuch B. (2004) *Zarządzanie publiczne. W teorii i praktyce polskich organizacji*. Warszawa: PLACET Publishing House.

Hall J.J.S.B (1996 & 2011) *Tutoring Business Simulations*, http://www.simulations.co.uk

Merna T., Al.-Thani F.F. (2008) *Corporate Risk Management*. Chichester: John Wiley & Sons.

Osborne D., Gaebler T. (2005) *Reinventing government: how the entrepreneurial spirit is transforming the public sector, translated into Polish*. Poznań: Media Rodzina.

Priest S., Gass M. (1997) *Effective Leadership in Adventure Programming*. Human Kinetics, Champaign, IL.

Ritchie D. (2011) External experiential learning programmes for today`s apprentices. *Industrial and Commercial Training*, Vol. 43, No. 3, pp. 179–184.

Rowe C. (2004) Managing Risk in the Public Sector. *Risk Management Magazine*, Vol. 51, No. 11.

Salen K., Zimmerman E. (2004) *Rules of play. Game Design Fundamentals*. Cambridge; London: The MIT Press.

Supreme Audit Office results of controls, http://www.nik.gov.pl/kontrole/wyniki-kontroli-nik/kontrole,6540.html (18.11.2011) and http://www.nik.gov.pl/kontrole/wyniki-kontroli-nik/kontrole,8629.html (09.12.2011).

Risk Management Standards mentioned in the text:

A Risk Management Standard (2002). AIRMIC, ALARM, IRM.

COSO II Enterprise Risk Management – Integrated Framework.

Risk management — Principles and guidelines on implementation, International Organization for Standarization, Draft International Standard ISO/DIS 31000, 2008.

DOI: 10.7206/mba.ce.2084-3356.36