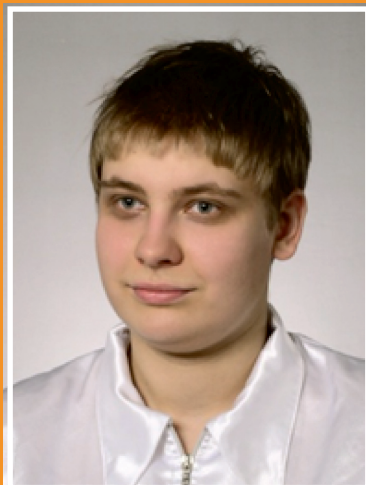


## Mgr Aneta Bressa

Wrocław University of Technology

aneta.bressa@gmail.com



Aneta Bressa is a graduate of the Faculty of Computer Science and Management at the Wrocław University of Technology and the Instytut Finansów (institute of finances) at the Państwowa Wyższa Szkoła Zawodowa w Nysie (higher public vocational school in Nysa). She specialises in business management, with her thesis written on the subject of risk management in projects.

She is interested in mathematics, film, and sport.

## Risk management in the @ktywne Senior project

**Summary:** Ex post risk management of the @ktywne Senior project constitutes the subject of the present article. In the first (theoretical) part the notion of risk, risk management in projects as well as its typology are discussed. In the second (practical) part the risk of the project is identified and described. Having evaluated the risk of the project the propositions of its management are introduced, such as risk minimization, assigning a person or persons responsible for risk minimization, and establishing the cost of risk management. At the end of the article the conclusions are proposed, in which the losses and mistakes of the organisers resulting from the lack of ex ante risk management of the project are described. In the ex post risk management it turned out that the biggest losses were: the lack of cooperation with the Powiatowe Biuro Pracy (district employment agency), because of which the beneficiaries were not informed of the opportunity to employ seniors, the lack of cooperation with secondary schools, because of which no intergenerational relationships were established, as well as the lack of information on what needs to be organised before starting the activities – the organisers did not know that every beneficiary needed a medical certificate from a GP to be allowed to participate in physical exercises.

The lack of contracts with partners, teachers, and beneficiaries which could lead to any of them dropping out of the project at any time was yet another neglect of the organisers. In the future the cooperation should be formalised to avoid such situations. A further mistake was the lack of safety devices in the gym which could result in serious injury.

Fortunately, despite the lack of ex ante risk management of the *@ktywny Senior* project it may be stated that it was successful and it has contributed to the activation of people of over 60 years of age; however, in the future the influence of "luck" should be reduced and a "plan" introduced along with an effective risk management.

**Key words:** project risk, legal risk, technical risk, financial risk, identification of project risk, project risk evaluation, FMEA, RPN, risk detection.

## The notion of project risk and risk management in projects

If we want to discuss the risk of a particular endeavour it needs to be explained what project risk and its management are. The definition specifies that the phenomenon is uncertain, related to the future, and its appearance will have a negative effect on the project<sup>1)</sup>. Risk management in a project is usually a constant, iterative process leading to identification and analysis, and subsequently evaluation and establishing the hierarchy of the encountered risks, and finally to selection of methods of controlling them. As a result risk management allows for a collecting of experiences that might serve to provide solutions to problems in further projects<sup>2)</sup>.

## Typology of project risk

### Legal risk

Legal risk is connected with receiving and the time needed to receive the various types of permissions necessary to implement the project, such as:

- decision on the conditions of construction and land use on the basis of the current spatial planning,
- agreements and opinions of government institutions and agencies, related to the project,
- government (health and employment regulations, etc.),
- agreements and opinions with providers of electricity, water, plumbing, telecommunication, etc.,
- permission to use a building (acceptance)<sup>3)</sup>.

Further legal risks of a project may be connected with:

- the language used,
- current legal regulations,

<sup>1)</sup> [www.skutecznyprojekt.pl/artykul.htm?AID=17](http://www.skutecznyprojekt.pl/artykul.htm?AID=17), retrieved: 16.01.2010.

<sup>2)</sup> J. Davidson, *Zarządzanie projektami w organizacjach*, Warsaw 2001.

<sup>3)</sup> [www.pwsz.nysa.pl/instytut/finanse/wilimowska/ryzyko2.pdf](http://www.pwsz.nysa.pl/instytut/finanse/wilimowska/ryzyko2.pdf), retrieved: 20.01.2010.

- location,
- document faults,
- technological aspects (the know-how, etc.),
- intervention of third parties,
- decisions of the government and central agencies (regulations)<sup>4)</sup>.

### Technical risk

Technical risk is connected with the will to improve the effectiveness or the necessity to adapt to new regulations during the planning of a project. Technological progress increases the frequency of occurrence of the risk of this category<sup>5)</sup>. The factors of technical risk may be:

- the scope of the product or the project,
- work schedule – delays are a result of a wrong organisation of WBS works and the use of an incorrect mutual task dependence model, unrealistic schedule based on optimistic assessment of the time needed to perform the works, work effectiveness lower than that assumed in the plan, wrong resource management, incorrect estimation of the resource expenditures (labour-intenseness, the amounts), unclearly defined deadlines in the contracts as well as payment dates, ineffective group communication within the project,
- procedures, technology,
- norms and standards unknown or not defined in the contract,
- the quality of equipment, machines, devices,
- the quality of research and development works,
- the choice of suppliers and co-operators (unreliability, additional cost, failures to fulfil the contract),
- packaging and transport,
- effectiveness and productivity of work, experience of the members of the team,
- availability of resources,
- spare parts<sup>6)</sup>.

### Financial risk

Financial risk appears in the case of, among others, financing an investment with outside capital. Using such funds leads to additional costs connected with the necessity to pay the credit. Financial risk is highly influenced by changes of the interest rates which are difficult to predict<sup>7)</sup>. The factors of financial risk may be:

---

<sup>4)</sup> [www.ioz.pwr.wroc.pl/pracownicy/betta/index.php](http://www.ioz.pwr.wroc.pl/pracownicy/betta/index.php), retrieved: 16.01.2010.

<sup>5)</sup> J. Skalik, *Zarządzanie projektami*, Wrocław 2009.

<sup>6)</sup> *Ibid.*, p. 3.

<sup>7)</sup> *Ibid.*, p. 1.

- incorrect estimation of the cost,
- means of financing (credits),
- payment deadlines not connected with the work performed,
- payment conditions (fixed or corrected prices),
- dates of payment (interests rate changes),
- exchange rates, soft currencies,
- lack of payment after the work is finished,
- fines (lump sum, limits),
- tax regulations (especially foreign),
- cancelling or ending the contract,
- social problems, decisions of the government and central agencies,
- civil liability, local safety regulations, security<sup>8)</sup>.

### *Identification, assessment, and propositions of risk management of the @ktywny Senior project*

Risk management in a project was conducted with the use of the Failure Mode and Effects Analysis (FMEA), the outline of which is presented below.

#### 1. Identification of risk on the basis of:

- interviews with the beneficiaries of the project, including three men and ten women aged 62 to 75 of higher and secondary education; in the interview the beneficiaries were asked about their fears connected with learning computer skills and using the internet and learning English language, their difficulties connected with any of the activities organised in the educational aspect, fears connected with physical activity, comments related to the medical examinations carried out before the start of the project, conflicts within the groups, interference of the project classes with other activities and if the classes taking place 5 times a week for 2 months are not too much of an effort,
- interviews with the teachers and instructors participating in the project (health education of people in late adulthood, physical and health education, computer and internet skills training, constructing group communication), the teachers and instructors answered the questions related to the difficulties that the beneficiaries had with the conducted classes, the willingness of the beneficiaries to participate in the classes, conflicts during the classes, the practicality of the taught subjects, objections related to the organisation of the project, competences of the voluntary workers and increasing the effectiveness of the project,
- interview with the project supervisor M. Ferenc,
- analysis of the project plan and writing a report on this basis.

#### 2. Assessment of risk:

- assessment of the probability of the occurrence of failure: from very high – 10 to marginal – 1,

---

<sup>8)</sup> Ibid., p. 3.

- assessment of the severity of the risk from dangerous (no warning) character of the effect of the risk – 10, to lack of any effect of the risk on the project – 1,
- assessment of the detection of the risk from total unpredictability – 10 to near certainty of prediction – 1,
- calculation of the Risk Probability Number –  $RPN = \text{probability} * \text{severity} * \text{predictability}$ .

The calculation of the risk was carried out on the basis of interviews with the beneficiaries, the teachers and instructors, and the project supervisor M.Ferenc, just like in the case of identification.

3. Propositions of risk management involving risk minimization and assessment of the cost of risk management<sup>9)</sup>.

## Identification of project risk

### Legal risk

As it was mentioned before the risks involved in a project are of legal, technical, and financial nature. Identification of the risks of the first category was achieved on the basis of the interviews conducted between 16.03.2010 and 19.03.2010 with the teachers and with M. Ferenc as well as the analysis of the project plan and the concluding report. The risk mentioned is described below.

1. Lack of contracts between:
  - the partners in the project – it may result in any of them dropping out at any time which leads to the lack of formalised responsibilities of the partners and, as a result, the devolving of responsibilities by one partner to another,
  - partners in the project and the teachers/instructors – it may result in any of the teachers dropping out at any time and a lack of clearly defined and formalised responsibilities that the teachers have to assume,
  - partners in the project and the beneficiaries – it may result in the beneficiaries dropping out of the project or a lack of activity of the beneficiaries, in such a situation the beneficiaries are not obliged to participate in the classes realised as part of the project and they may skip them without any consequences,
  - partners in the project and the voluntary workers - it may lead to the voluntary workers dropping out, which would result in a lack of help during the classes with the beneficiaries.
2. Mistakes in the contracts between the partners in the project related to the responsibilities – lack of clearly defined responsibilities of each of the partners which, just like in the case of contracts, may lead to devolving the responsibilities by one partner to another.

---

<sup>9)</sup> [www.adamdrobniak.pl/docs/05%20-%20Zarzadzanie%20ryzykiem%20projektu.pdf](http://www.adamdrobniak.pl/docs/05%20-%20Zarzadzanie%20ryzykiem%20projektu.pdf), retrieved: 17.01.2010.

3. Mistakes in the contracts between the partners in the project and the teachers related to:

- putting an incorrect number of class hours in the contract that the teacher is to conduct for a fixed pay. If the number of hours is lower than scheduled it may lead to a lack of completion of the curriculum. A higher number of hours than scheduled, in turn, may lead to the teacher demanding a higher pay, which results in legal proceedings, a lack of sufficient quality of the classes (without being paid for a part of the conducted classes the teacher might be indifferent to whether the beneficiaries understand everything and whether they make progress),
- putting an incorrect amount of the teachers' pay in the contract. If the amount is lower than scheduled it may lead to a lower quality of the conducted classes. If the amount is higher it may lead to serious financial problems of the project, especially in case of the mistakes being made in a number of contracts (financial risk is also connected with it),

4. Letting the seniors without a medical certificate of their GPs allowing them to participate in physical activities or those with invalid certificates (e.g. no stamp or signature of the GP) as well as those who have not been allowed by a GP to participate in physical activities exercise; such mistake made by an instructor may lead to serious legal consequences in case of any of the beneficiaries suffering an injury during the classes.

5. The beneficiaries were not informed by the instructors of the proper behaviour during some of the physical activities - this may lead to more or less serious injury and the beneficiary going to court and demanding an indemnity as well as dropping out of the project. Such situation will certainly influence its quality.

Accidents during physical activities lead to injuries caused by the fact that a beneficiary failed to follow the instructions of the person conducting the class and did not behave properly while doing exercise. As in the above case such situation will influence the quality of the project, because a person with an injury cannot participate in physical activities. Lack of safety measures during physical exercise may result in an accident of serious consequences, which may in turn lead to a legal case made against the organisers of the project and the beneficiary demanding indemnity and just like in the two formerly discussed situations the beneficiary may drop out of the project.

Mistakes in the grant application to the Wrocław borough consisting in:

1) formal mistakes:

- putting in incorrect information about the entity submitting the application,
- incomplete information about the entity submitting the application,

2) substantive mistakes:

- the aims and tasks of the project can be described in the application in such an unclear way as to make the borough officials consider it incompatible with the "Strategia Wrocław w perspektywie 2020 plus" (strategy – Wrocław in the 2020 plus perspective),

- omitting all the areas of the "Strategia Wrocław w perspektywie 2020 plus" that the @ktywny Senior project can be active in.

The above mistakes may lead to the borough rejecting the grant application of the @ktywny Senior project which results in the organisations constituting the partners in the project having to reduce costs, which might, in turn, have a great influence on its quality and cause a substantial financial risk.

A lack of clear procedures related to the protection of the personal information about the beneficiaries may lead to a leaking of the information and its illegal use. Had the beneficiaries become victims of such practice they could sue the partners in the project and drop out, since they would come to the conclusion that it has more disadvantages than advantages.

### Technical risk

A further risk connected with the project is the technical risk. It has been identified on the basis of the interviews with the beneficiaries, the teachers/instructors, and M. Ferenc between 16.03.2010 and 19.03.2010 as well the analysis of the project plan and the subsequent report. The technical risk of the project is presented below.

Difficulties in using computers belong to the first group of technical risks.

Difficulties in using the internet constitute the second group.

Yet another group of technical risks is the one connected with the problems with learning basic English vocabulary related to working with computers and the internet. These problems may be connected with the age of the beneficiaries, since for most people of over 60 years of age acquiring foreign languages and memorising new words is more difficult than for young people. The difficulties may result in making the acquisition of the skills necessary to use computer and the internet on the basic level slower.

Difficult, uninteresting, or boring subjects conducted in the education field may constitute another risk. If the subjects are too difficult the entire project might fail, since the beneficiaries will not be able to learn them sufficiently, because they will not be able to understand them. If the subjects are boring or uninteresting they will only be a waste of time to the beneficiaries and they most probably will never use the knowledge acquired throughout these classes or they will learn nothing due to their lack of interest. It may happen that the beneficiaries will skip the classes that they have problems with.

The lack of participation of the seniors with injuries or without a medical certificate from their GPs or those not interested in certain forms of physical activity – e.g. a low number of those willing to do Nordic Walking – constitutes another risk that may have a negative effect on the quality of the project, because in a such situation one of the objectives of the project will not be fully realised.

Too high an intensity of the classes may prove a further risk. Classes taking place 5 times a week for 2 months may constitute too much of an effort for the beneficiaries, which may result in their lack of active participation.

Another risk is people who despite health problems such as hypertension or great memory difficulties are being allowed by their GPs to participate in the project – it may lead to such people dropping out of the project and at the same time decreasing its effectiveness, because with the lowering of the number of participants the number of people trained is lowered, as well.

Further types of risks are:

Project classes interfering with other activities of the beneficiaries – professional or personal ones – which could result in the beneficiaries not participating in the classes which could lead to their falling behind and have a negative influence on the skills they are trained to acquire.

Conflicts within the groups between the beneficiaries and the teachers/instructors or between the beneficiaries and the voluntary workers, e.g. the beneficiaries might declare that there is something they cannot do and the teacher or the voluntary worker may think that they should have learned it a long time ago – this may cause the beneficiaries to become disappointed with the subject conducted by the particular teacher. It might be the case that a beneficiary will deny a voluntary worker's competences to provide assistance and will only expect to receive help from the teacher.

More theoretical and less practical classes related to physical activity – this causes an incomplete carrying out of one of the objectives of the project related to physical activity of seniors.

The teachers' classes, the classes at the University of Wrocław interfering with those organised as part of the project. If such interference takes place a teacher may drop out of the project and the classes that were conducted by that instructor might be cancelled.

Mistakes in class schedule related to:

- 1) putting down a subject other than the one that the group actually has on a particular day and at a particular time; if the group does not learn of the actual time of their class this time is lost, and if the group learns of the actual class they have to waste time to get there.
- 2) putting in two subjects on the same day and at the same time which just like in the former case may result in the class being missed and time being wasted.
- 3) putting in classes that a group does not actually have on the particular day and at a certain time, which does not have any major influence on the project itself, but the beneficiaries waste their personal time devoting it to coming to classes that do not actually take place.

If the two first mistakes are not solved the first time they are made they result in serious consequences for the project in its entirety and its final effect.

Breaking a computer, a screen or other devices.

It results in some of the beneficiaries falling behind schedule, because they will not be able to acquire the skills planned for a particular class.

Lack of competences of the voluntary workers – it may lead to the failure to provide necessary assistance or a complete lack thereof during the computer skills



training course with the beneficiaries. In this way the quality of the entire work with the beneficiaries is decreased.

Lack of cooperation with secondary schools in order to encourage young people to become voluntary workers during the computer training courses – which leads to the failure to establish intergenerational relationships and may have negative influence on the quality of the project.

Lack of cooperation with employment agencies at the district and voivodship level, which results in the beneficiaries not receiving sufficient information on the legal and organisational opportunities of finding jobs for seniors which, in turn, influences the quality of the project.

Mistakes in the project schedule related to the date of recruitment of the beneficiaries – it may lead to a situation when there is not enough time to find a sufficient number of beneficiaries.

### *Financial risk*

The last risk of the project is the financial risk. It was identified on the basis of the interview with M. Ferenc on 18.03.2010. The identified risks are described below.

Underestimation or overestimation of the budget caused by an incorrect estimation of the costs, e.g. an erroneous calculation of the teachers' and instructors' pay or the cost of the medical examinations, or an erroneous calculation of the costs of the materials necessary for the classes with the beneficiaries. If the budget is overestimated the funds that could be used for certain tasks, not necessarily connected with the project, remain useless. If the budget is underestimated it may result in the project not being completed or not being fully completed, because there will not be enough funds to do all that was planned.

Lack of financial support from the Wrocław borough may turn out fatal for the project, because there will not be enough money to pay the teachers and to pay for the medical examinations; it may happen that the teachers will not be willing to work for free and they will cease their cooperation with the partners in the project or the number of the beneficiaries of the project will have to be reduced.

Putting too high a pay for an hour in the contract for the teachers – if the teacher will expect to receive the amount stated in the contract instead of the one that was planned and negotiated it may lead to a lack of funds for other instructors and having to reduce other costs of the project, e.g. providing less teaching materials for the classes with the beneficiaries. There risk is even more serious if the number of the teachers with too high payment rates in their contracts is greater.

A sudden demand of a pay rise from a teacher immediately before signing the contract – such behaviour may cause similar reaction of other instructors, a pay rise for the teachers may lead to serious financial problems for the project and might constitute the cause of its utter failure, because there will not be enough funds to implement it. It may also cause serious problems with its quality, e.g. it will turn out to be necessary to save money by reducing the number of teaching materials that the beneficiaries use in class or to reduce the number of the classes conducted

by the teachers demanding pay rise – as a result, a teacher will run a lower number of classes as part of a particular course, but his pay will not change.

A lack of a financial buffer in the project budget which should be a result of the underestimation of that budget – as in the above cases, it may result in ongoing cost reductions during the implementation of the project and as such might cause the lowering of its quality.

*Risk assessment of the project*

Risk assessment was conducted with the use of the Failure Mode and Effects Analysis (FMEA). The necessary suppositions are presented in the charts below.

In the case of the assessment of the probability of a particular risk the author made the following suppositions:

Chart 1. Suppositions for the assessment of the probability of a particular risk

| Probability of occurrence of a factor         | Rating |
|---|--------|
| 0,9–1, probability of occurrence very high    | 10     |
| 0,8–0,89, probability of occurrence very high | 9      |
| 0,7–0,79, probability of occurrence high      | 8      |
| 0,6–0,69, probability of occurrence high      | 7      |
| 0,5–0,59, probability of occurrence moderate  | 6      |
| 0,4–0,49, probability of occurrence moderate  | 5      |
| 0,3–0,39 , probability of occurrence moderate | 4      |
| 0,2–0,29, probability of occurrence low       | 3      |
| 0,1–0,19 probability of occurrence low        | 2      |
| 0–0,09, probability of occurrence marginal    | 1      |

Source: Developed by the author.

In the case of the assessment of the severity of a risk the following suppositions apply:

Chart 2. Suppositions for the assessment of the severity of a risk

| Influence on the project   | Rating |
|----------------------------|--------|
| Hazardous (no warning)     | 10     |
| Hazardous (with a warning) | 9      |
| Very high                  | 8      |
| High                       | 7      |
| Moderate                   | 6      |
| Low                        | 5      |
| Very low                   | 4      |
| Minor                      | 3      |
| Very minor                 | 2      |
| No effect                  | 1      |

Source: Developed by the author.

In the case of risk detection the following suppositions apply:

Chart 3. Risk detection suppositions

| Detection                                | Rating |
|--|--------|
| Total uncertainty of detection           | 10     |
| Highly marginal possibility of detection | 9      |
| Marginal                                 | 8      |
| Very low                                 | 7      |
| Low                                      | 6      |
| Moderate                                 | 5      |
| More than moderate                       | 4      |
| High                                     | 3      |
| Very high                                | 2      |
| Almost certain                           | 1      |

Source: Developed by the author.

Calculation of the Risk Probability Number

$RPN = P \cdot S \cdot D$

With:

- level of probability (*P*),
- severity (*S*),
- detection (*D*).
- index values of the RPN - from 1 (min.) to 1000 (max.)<sup>10)</sup>.

Legal risk

The assessment of the first risk is illustrated as an example, the further assessments are presented in the chart.

The risk assessment was carried out on the basis of the interview with the project supervisor.

The probability of the occurrence of the risk of a lack of contracts between the partners in the project or between the partners and the teachers and between the partners and the beneficiaries is very high; on the basis of the interview with the project supervisor I give it a rating of 9,5 out of 10. The severity of the risk is very high and it receives a rating of 9 due to its substantial influence on the project in its entirety with its possible results being the incompleteness of the project; because the results of this risk tend to appear with a certain warning i.e. there are some warning signs that somebody wants to drop out its detection is high and gets the rating of 2,

<sup>10)</sup> J. Skalik (ed.), op.cit., p. 6.

since the partners as well as the teachers and the beneficiaries originally trust each other and they believe that written contracts are unnecessary and oral agreements are sufficient.

The index value of the RPN is in this case:

$$RPN = 10 \cdot 9 \cdot 2 = 180.$$

Chart 4. Compilation of the assessed values of legal risks of the @ktywny Senior project

| Risk  | Probability rating | Influence on the project rating  | Detection rating         | RPN value                       |
|---|--------------------|----------------------------------|--------------------------|---------------------------------|
| Mistakes in the contracts between the partners in the project   | 0,4, rating 5      | Very high, rating 8              | Low, rating 6            | $5 \cdot 8 \cdot 6 = 240$       |
| Mistakes in the contracts between the partners in the project and the teachers  | 0,5, rating 6      | Very high, rating 8              | Very high, rating 2      | $6 \cdot 8 \cdot 2 = 96$        |
| The risk of letting the seniors without a medical certificate of their GPs allowing them to participate in physical activities or those with invalid certificates as well as those who have not been allowed by a GP to participate in physical activities exercise | 0,01, rating 1     | Low, rating 5                    | Low, rating 7            | $1 \cdot 5 \cdot 7 = 35$        |
| The risk of the beneficiaries not being informed by the instructors of the proper behaviour during some of the physical activities  | 0,02, rating 1     | Hazardous, no warning, rating 10 | Low, rating 7            | $RPN = 1 \cdot 10 \cdot 7 = 70$ |
| The risk of accidents during physical activities that lead to injuries caused by the fact that a beneficiary failed to follow the instructions of the person conducting the class and did not behave properly while doing exercise                                  | 0,25, rating 3     | High, rating 7                   | Moderate, rating 5       | $3 \cdot 7 \cdot 5 = 105$       |
| The risk of a lack of safety devices during physical activities on the gym  | 1, rating 10       | High, rating 7                   | Almost certain, rating 1 | $10 \cdot 7 \cdot 1 = 70$       |
| The risk of mistakes in the grant application submitted to the Wrocław borough  | 0,45, rating 5     | Vary high, rating 8              | Moderate, rating 5       | $5 \cdot 8 \cdot 5 = 200$       |
| The risk of the personal information of the beneficiaries being leaked and used for illegal purposes  | 0,25, rating 3     | High, rating 7                   | Low, rating 6            | $3 \cdot 7 \cdot 6 = 126$       |

Source: Developed by the author.

The highest RPN value is attributed to the mistakes in the contracts between the partners in the project, with the lowest one - to the risk of letting the seniors without a medical certificate of their GPs allowing them to participate in physical activities exercise.

Technical risks

The assessment of technical risks was carried out on the basis of the interviews with the beneficiaries, the teachers, and the project supervisor. The first assessment serves as an introductory example, the further ones are presented in the chart.

The risk connected with using computers is moderate and the interviews with the beneficiaries and the teachers lead to the conclusion that the probability of the occurrence of the risk is 0.3 (it is the number of beneficiaries and teachers who gave an affirmative answer to the question related to problems with using computers divided by the number of all who answered the question) and it receives the rating of 4. The effects of this risk on the project may possibly be very dangerous, that is why the severity of this risk gets the rating of 9. The detection of the risk is rather high; it is easy to predict that the beneficiaries will have certain problems with using the computers, that is why it receives the rating of 3.

The RPN in this case is:

$$RPN = 4 \cdot 9 \cdot 3 = 108$$

Chart 5. Compilation of the assessed values of technical risks of the @ktywny Senior project

| Risk  | Probability rating | Influence on the project rating    | Detection rating    | RPN value                 |
|---|--------------------|------------------------------------|---------------------|---------------------------|
| Risk connected to difficulties in using the internet  | 0,15, rating 2     | High, rating 7                     | High, rating 3      | $2 \cdot 7 \cdot 3 = 42$  |
| The risk connected with the difficulty in learning basic English vocabulary connected with using computers and the internet | 0,53, rating 6     | Moderate, rating 6                 | High, rating 3      | $6 \cdot 6 \cdot 3 = 108$ |
| The connected the fact that some of the subject might appear boring, uninteresting, or too difficult to the beneficiaries   | 0,38, rating 4     | Hazardous with a warning, rating 9 | High, rating 3      | $4 \cdot 9 \cdot 3 = 108$ |
| The risk connected to the fact that some of the beneficiaries will not participate in physical activities                   | 0,2, rating 3      | High, rating 7                     | High, rating 3      | $3 \cdot 7 \cdot 3 = 63$  |
| The risk connected to the fact that the classes might appear too intensive  | 0,53, rating 6     | Moderate, rating 6                 | High, rating 3      | $6 \cdot 6 \cdot 3 = 108$ |
| The risk connected with a person with serious health problems being allowed by a doctor to participate in the project       | 0,01, rating 1     | Hazardous with a warning, rating 9 | Low, rating 6       | $1 \cdot 9 \cdot 6 = 54$  |
| The risk of the classes interfering with the beneficiaries' other activities  | 0,3, rating 4      | Very high, rating 8                | Very high, rating 2 | $4 \cdot 8 \cdot 2 = 64$  |
| Risk of conflicts   | 0,05, rating 1     | High, rating 7                     | High, rating 3      | $1 \cdot 7 \cdot 3 = 21$  |

|  |                |                    |                     |                           |
|--|----------------|--------------------|---------------------|---------------------------|
| Risk connected with the number of theoretical classes on the subject of physical activity being higher than that of the practical ones | 0,8, rating 9  | High, rating 7     | Moderate, rating 5  | $9 \cdot 7 \cdot 5 = 315$ |
| The risk of the classes interfering with the teachers' other activities  | 0,1, rating 2  | High, rating 7     | High, rating 3      | $2 \cdot 7 \cdot 3 = 42$  |
| The risk of mistakes in the schedule   | 0,7, rating 8  | Moderate, rating 6 | Moderate, rating 5  | $8 \cdot 6 \cdot 5 = 240$ |
| The risk related to technical problems with computers  | 0,38, rating 4 | High, rating 7     | Very high, rating 2 | $4 \cdot 7 \cdot 2 = 56$  |
| The risk of lack of competences of the voluntary workers   | 0,01, rating 1 | Moderate, rating 6 | Low, rating 6       | $1 \cdot 6 \cdot 6 = 36$  |
| The risk of a lack of cooperation with secondary schools   | 0,7, rating 8  | Moderate, rating 6 | Very high, rating 2 | $8 \cdot 6 \cdot 2 = 96$  |
| The risk of a lack of cooperation with employment agencies on the borough and voivodship level   | 0,7, rating 8  | High, rating 7     | High, rating 3      | $8 \cdot 7 \cdot 3 = 168$ |
| The risk connected with schedule mistakes related to the date of the recruitment of participants                                       | 0,2, rating 3  | High, rating 7     | High, rating 3      | $3 \cdot 7 \cdot 3 = 63$  |

Source: Developed by the author.

The highest RPN value is related to the risk connected with the number of theoretical classes on the subject of physical activity being higher than that of the practical ones, and the lowest to the risk of conflicts.

Financial risks

The assessment of financial risks was carried out on the basis of the interview with the project supervisor. The assessment is presented in the chart below.

Chart 6. Compilation of the assessed values of financial risks of the @ktywny Senior project

| Risk   | Probability rating | Influence on the project rating      | Detection rating    | RPN value                   |
|--|--------------------|--------------------------------------|---------------------|-----------------------------|
| The risk of underestimation or overestimation of the budget                                    | 0,8, rating 9      | Hazardous without warning, rating 10 | High, rating 3      | $9 \cdot 10 \cdot 3 = 270$  |
| The risk of a lack of financial support of the Wrocław borough                                 | 0,9, rating 10     | Hazardous without warning, rating 10 | Low, rating 6       | $10 \cdot 10 \cdot 6 = 600$ |
| The risk of putting too high a pay for in a teacher's contract                                 | 0,5, rating 6      | Very high, rating 8                  | Very high, rating 2 | $6 \cdot 8 \cdot 2 = 96$    |
| The risk connected with a teacher or teachers demanding a pay rise before signing the contract | 0,1, rating 2      | Very high, rating                    | Low, rating 6       | $2 \cdot 8 \cdot 6 = 96$    |
| The risk connected with a lack of financial buffer in budget of the project                    | 0,6, rating 7      | High, rating 7                       | High, rating 3      | $7 \cdot 7 \cdot 3 = 147$   |

Source: Developed by the author.

The highest RPN value is related to the risk of a lack of financial support of the Wrocław borough, with the lowest ones related to the risk of putting too high

a pay in a teacher's contract and the risk connected with a teacher or teachers demanding a pay rise before signing the contract.

## Propositions of risk management in the project

The author individually prepared a description of the actions that should be undertaken in order to prevent or reduce the particular types of risks along with a description of the costs of prevention or reduction of these (not all the cases of risk prevention involved additional costs).

## Legal risk management

Contracts must be prepared and signed between:

- partners in the project,
- partners in the project and the teachers,
- partners in the project and the beneficiaries.

This will lead to a formalisation and clear definition of the responsibilities of both sides. It will make it obligatory to follow certain rules, because these will be enumerated in the contracts.

The costs of preparing such contracts are administrative - the costs of the pieces of paper and printing.

If one wishes to avoid mistakes in the contracts between the partners related to the responsibilities, they must first be defined and clarified and then put in the contract. The persons who need to ensure that such mistakes are avoided are the representatives of the partners in the project.

The mistakes in the contracts between the partners in the project and the teachers can be prevented by writing the contract in two identical copies and then re-reading it in order to find potential differences between the contract and the previous oral agreements. The costs of preventing these risks do not appear in this case.

When attempting to avoid the risk of letting the seniors without a medical certificate of their GPs allowing them to participate in physical activities or those with invalid certificates as well as those who have not been allowed by a GP to participate in physical activities exercise it must be made clear in the contract signed with the instructor that if this happens he will be held fully responsible.

It should be defined in the contracts with the instructors that it is their responsibility to inform the beneficiaries of the proper behaviour during the particular types of physical exercise practiced as part of the physical activity classes.

To prevent accidents during the physical activities related to the beneficiaries ignoring the instructions and behaving improperly during the exercises it must be clearly stated in their contracts that failure to comply with the rules established by the instructors leads to the acceptance of full responsibility for any and all possible consequences.

The action minimizing the risk of accidents during physical activities is fitting the gym with necessary safety devices. The person responsible for buying this equipment should be one of the employees of the Fundacja "Umbrella" ("Umbrella" foundation), since the gym is located in the Centrum Sektor 3, and the building is managed by "Umbrella". The cost of the measures to prevent this risk is the price of the safety devices.

To avoid the mistakes in the grant application submitted to the borough it must be made sure that all the information about the submitting entity are contained in the form and that they are correct; it should also be checked if no substantive mistakes such as those described earlier in the risk identification part are to be found.

The personal information of the project beneficiaries should be stored in such a way as to prevent leaking; it is best to store them in the special, sufficiently protected computer programmes made for this purpose (databases). The cost of this action is the price of the computer programmes for storing data.

### Technical risk management

During the classes related to using computers and the internet the teachers should inform the beneficiaries of the opportunity to freely ask the instructors of the voluntary workers in the case of problems or difficulties with any of the subjects. Consultations ought to be organised for people falling behind schedule and failing to keep up with the rest of the group. Each of the teachers would have consultations twice a week in the afternoon with the duration of two classes for any people having the aforementioned problems. The cost of such preventive measure is the teacher's pay for the consultations.

To prevent problems with learning the basic English vocabulary related to using computers and the internet an effort must be made to start getting the beneficiaries accustomed to the English language connected with computer skills from the very beginning of the training course. It is necessary, just like in the case of computer skills training classes, to organise consultations twice a week for those with any problems. The cost of such preventive measure is the teacher's pay for the consultations.

A preventive measure in the case of the subjects appearing uninteresting, boring, or too difficult could be to hold a meeting in the conference room during which a teacher would speak of the subject he is to conduct and the employees of the partners in the project would discuss the organisation of the project. At the end of such meeting the future beneficiaries could be given surveys about the subjects, where they could declare which of them they find interesting and which they do not. This should be done before signing the contracts with the teachers. The cost of this preventive measure would be made up of the teachers' pay for the time devoted to the introduction of their subjects and the costs of the surveys for the future beneficiaries.

To prevent the risk of a number of the beneficiaries failing to participate in the physical activities due to injuries or a lack of medical certificates from their



GPs allowing them to exercise or a low interest in certain sports a reserve list should be drawn up of the beneficiaries who are not interested in participating in all the classes organised as part of the project or who for various reasons cannot come to all of them but would like to take part in the physical activities from the start to the end. To cost of such actions would be the expenditures for the invitations to participate in physical exercises sent out to all the future beneficiaries who have originally declared the willingness to attend the project classes; the invitations can be sent to everyone since the surveys are anonymous and it is never known who answered that he is not interested in e.g. philosophy but would certainly like to take part in physical activities.

The beneficiaries ought to be asked in the surveys if attending classes 5 times a week for 2 months would not be too much of an effort. In order for the project activities not to interfere with other activities the schedule should be adjusted to the availability of all the beneficiaries.

There is no way of guaranteeing that GPs will refrain from allowing ill people to participate in the project; this risk cannot be prevented.

To prevent conflicts within the groups the teachers and the voluntary workers should never be condescending. If the conflicts are started by the beneficiaries themselves, because they e.g. cannot understand something and they do not want to be assisted by a voluntary worker and they demand to be helped by the teacher exclusively the voluntary worker should explain to the beneficiary that he is here because he has been properly trained. In case of the entire group expressing dissatisfaction with a particular subject it is best that it is changed.

In order to prevent the number of theoretical classes from prevailing over the number of the practical ones in relation to the physical activities the partners in the project should be informed about the conditions that the seniors have to meet to participate in practical physical activities; it would be best to ask the instructors about it.

In order to avoid the interference of the project classes with the activities of the teachers the employees responsible for creating the groups should draw up a roster for the teachers and consult it with them.

If the schedule is centrally planned and the beneficiaries cannot sign up to a particular group the employee drawing up the schedule ought to make sure that there are no mistakes in it, e.g. if a particular group does not have two classes at the same time.

To reduce the results of technical problems with computers it would be necessary to buy one extra computer for each of the labs, because if there are 10 people in a group and there are ten computers in a lab and one of them breaks down then one of the beneficiaries practically misses the class, since there is no additional computer to use. In the case of a malfunction the computer technician of the object should be called immediately. The costs of reducing such risks are made up of the prices of the computers.

To prevent a lack of cooperation with secondary schools the project should get more promotion in the press (advertisement in local newspapers). It is necessary

for the employees-partners in the project to talk to the principals of secondary schools. The cost of this measure is the price of the newspaper advertisements.

In order to establish cooperation with the employment agencies at the district and voivodship level representatives of the partners in the project should talk personally to representatives of the agencies and convince them that the seniors are able to work.

To reduce the consequences of a wrong schedule of the recruitment of beneficiaries a time buffer should be established – i.e. extra time in case the recruitment process is prolonged.

### Financial risk management

To prevent the underestimation or overestimation of the budget related to an erroneous estimation of the costs the person planning the budget should make sure that all the amounts are entered correctly and check if any of the costs have changed.

To prevent a lack of financial support from the borough representatives of the partners in the project should talk personally to representatives of the city office and convince them that professional activation of seniors is necessary and that these people can remain professionally active to a certain extent.

The situation when a teacher demands a pay rise before signing the contract cannot be fully avoided. However, representatives of the partners in the project can negotiate with them, which does not mean that the organisers will concede. As a last resort another teacher can be found, who will agree to conduct the project course for the formerly planned pay.

A financial buffer should be considered when planning the budget – extra funds to be used in the case of an underestimation of costs.

### Conclusion

Risk is an inherent element of all endeavours – including the *@ktywny Senior* project. Introducing risk management to a project would prepare its organisers for certain unfavourable situations that might take place during its implementation and they would also have ready plan of work in such situations. The project suffered because of the lack of risk management. It influenced its quality, making it worse than it could have been if risk management was introduced at the planning stage. The greatest failures were the lack of cooperation with the employment agency at the district level due to which the beneficiaries were not informed of the employed opportunities for people their age, the lack of cooperation with secondary schools which denied the seniors and the youth the opportunity to establish intergenerational relationships with the exchange of openness and experience and stability and the lack of information about the actions that should be undertaken before starting the project. The organisers did not have a sufficient knowledge of the fact that each of the beneficiaries needs a medical certificate from a GP in order to be allowed

to participate in physical activities which caused a waste of time and resulted in a lower number of physical activity classes conducted. It could have been avoided, had risk management been introduced to the project. The lack of contracts that could have at any time resulted in a partner, a teacher, or a beneficiary dropping out of the project was a big mistake of the organisers. In the future the cooperation should be formalised to avoid such situations. Another serious mistake was the lack of safety devices in the gym, which could have led to a serious accident. However, it may be stated that despite the lack of risk management the *@ktywny Senior* project was successful and contributed to the activation of people over 60 years of age.

### Bibliography:

Davidson F.J., *Zarządzanie projektami w organizacjach*, Warsaw 2001.

Skalik J., *Zarządzanie projektami*, Wrocław 2009.

[www.adamdrobniak.pl/docs/05%20-%20Zarządzanie%20ryzykiem%20projektu.pdf](http://www.adamdrobniak.pl/docs/05%20-%20Zarządzanie%20ryzykiem%20projektu.pdf), retrieved: 17.01.2010

[www.pwsz.nysa.pl/instytut/finanse/wilimowska/ryzyko2.pdf](http://www.pwsz.nysa.pl/instytut/finanse/wilimowska/ryzyko2.pdf), retrieved: 20.01.2010

[www.ioz.pwr.wroc.pl/pracownicy/betta/indeks.php](http://www.ioz.pwr.wroc.pl/pracownicy/betta/indeks.php), retrieved: 16.01.2010

[www.skutecznyprojekt.pl/artykul.htm?AID=17](http://www.skutecznyprojekt.pl/artykul.htm?AID=17), retrieved: 16.01.2010.