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RISK MANAGEMENT RELATED TO THE SUSTAINABILITY OF A PROJECT FINANCED BY EU STRUCTURAL FUNDS

ŘÍZENÍ RIZIK SPOJENÝCH S UDRŽITELNOSTÍ PROJEKTU FINANCOVANÉHO
ZE STRUKTURÁLNÍCH FONDŮ EU

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Instructions:

Introduction
Executive summary
Theoretical basis of the work
Problem analysis and current situation
Proposals and contribution of suggested solutions
Conclusions
References
Appendices

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Literature / Sources:


- DOČKAL, V. Strukturální fondy EU - projektový cyklus a projektové řízení. Příručka projektového manažera. Masarykova universita, 2007. 137 s. ISBN 978-80-210-4390-9.
- HAVRÁNEK, J. Příručka pro úspěšné žadatele o dotace ze strukturálních fondů. Brno: Raven Consluting, 2006. 58 s. ISBN 80-903830-0-9.
- Fondy EU: glosář základních pojmů. 1. vyd. Praha: Ministerstvo pro místní rozvoj, Odbor vnějších vztahů, 2005. 79 s. ISBN 80-239-6121-7.
- RAIS, K., DOSKOČIL, R. Risk management. 1.vyd. Brno: CERM s.r.o, 2007. 152 s. ISBN 978-80-214-3510-0.
- MERNA, T., AL-THANI, F. F. Risk Management: Řízení rizik ve firmě. 1. vyd. Brno: Computer Press, a.s., 2007. 194 s. ISBN 978-80-251-1547-3.
- Fondy Evropské unie [online]. Ministerstvo pro místní rozvoj, 2010 [cit. 2010-03-21].
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Abstract

The diploma thesis is focused on a project financed by one of the EU Structural funds and specification of risk management processes which could ensure sustainability of the project required by grant authorities. The author undergoes the whole process of risk management plan development including risk identification, risk analysis, and searching for appropriate responses to risks which were found to be significant. The risk management process is rounded off by a final risk register proposing a way of risks' elimination.

Abstrakt

Diplomová práce je zaměřena na projekt financovaný strukturálním fondem EU a určení procesů řízení rizik, které by mohly zajistit udržitelnost projektu, jež je vyžadována poskytovatelem dotace. Autor prochází celým procesem vývoje plánu řízení rizik zahrnujícím identifikaci rizik, jejich analýzu a hledání vhodných odezev na významná rizika. Proces řízení rizik je završen finálním registrem rizik s návrhy na jejich eliminaci.

Key words

Grant, project management, project sustainability, risk management, Structural funds

Klíčová slova

Dotace, projektový management, projektová udržitelnost, řízení rizik, strukturální fondy

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Statutory Declaration

I declare that this Master's Thesis is original and I processed it independently. I declare that the citation of used sources is complete, and that I did not infringe the copyright (as defined in the Act No 121/2000 Coll. on Copyright and Rights Related to Copyright).

In Brno, August 31st, 2010

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Introduction

Structural funds of European Union, meaning European Social Fund and European Regional Development Fund, finance wide scale of helpful projects. Many innovative projects supporting for example employment, education or infrastructure development would not be realized without help of these funds.

The author has already conducted Bachelor's thesis focused within this field. The thesis aimed to develop project which could apply for a grant from European Social Fund and to define all parts of the way from a project idea to a grant request submission. At this time, the author wants to focus on a different aspect of EU funding. After several months from submission of the grant request, successful applicants get the grant and then realize their projects (usually within 3 years). However, comprehensive controls made by grant authorities do not end with the project finalization because one part of a contract between beneficiary and the grant provider requires specific project outputs and activities to be maintained for next several years. This period (project is finalized but can still be controlled and deficiencies sanctioned) is called sustainability period and has to last mostly for 5 years. The sustainability is not financed by EU funds, nevertheless, the beneficiary has to ensure that subscribed outputs are kept functioning.

One way to enhance project's chances to succeed and stay sustainable is to eliminate situations which could have a negative impact on fulfilment of project objectives. This is the field this thesis is focused at.

This thesis is divided into 3 main parts. The first one is a literature review related to the Regional policy of EU, risk management processes and methods, and definition of project sustainability. This is followed by an analytical part dealing with the process of risk identification and analysis. Final part of the thesis is then focused on planning responses to significant project risks.

Executive Summary

Structural funds of European union support many projects by a very significant amount of money. Some projects are financed by these funds from 100 %. This form of financing also brings a lot of specific conditions and requirements to fulfil. The applicant has to fulfil strict conditions when applying for the grant, when drawing the grant and realizing his project and also after the project realization. The project has to be sustainable and certain outputs maintained for 5 years after the project is finalized and grant funding finished (a period required by most operational programmes). Surprisingly, it is very often more difficult to keep the sustainability rule than rules connected to a phase of a project realization as in a hectic period of preparation of a project intention and a grant request, the applicants often do not find time to consider possible hazards tied to remote period after the project realization.

Many different controls conducted by grant authorities check fulfilment of given regulations during the project realization as well as during the project sustainability period. These controls can check fulfilment of obligations retroactively, meaning that the subject can be sanctioned for shortcomings of project realization even a long time after the project is finished. During this time, a many unexpected situations can appear and many uncertainties are present. Simply said, there are threats present during the whole project life cycle which may turn into losses and damages. The word “may” from previous sentence can be explained as a risk. Other way of defining “risk” is that it is a problem that has not happened – yet.

The main aim of the thesis is to find an effective way how to eliminate those risks and thus enhance the project’s chance to be successfully realized and sustainable. In other words, the aim of the thesis was **to prepare a risk management plan (RMP)** for a project financed by one of the Structural funds of EU, which explains how a project manager and project team should deal with project risks.

However, the risk management plan is an output of a long and complex risk management process and there were two other goals to be achieved before the development of the plan could begin.

Firstly, it was necessary to become well acquainted with EU Structural funds as tools of fulfilling Regional policy objectives, their functioning, and also with risk management processes and methods. Secondly, a set of analyses had to be conducted to assess risks of the project.

The author does not focus on the discovery of a universal risk management plan, „generalizable truth“ valid for every single project funded by Structural funds. Instead, emphasis is placed on exploration of one specific case, one unique project, thus the method of this thesis elaboration is a case study. The case (the analysed project) is concerned in development of a second **Business Incubator Brno-South** and it is financed partially by **European Regional Development Fund**. The risk management plan is usually being developed (if at all) when the applicant is announced about the grant provision. The author selected a case in the same situation. It is very important to mention that the plan is valid for the moment of its “publishing”. It has to be actualised on regular basis to be useful and up to date as the level of risk in the plan can be relevant during one phase of the project realisation but not in the next one.

1 Theoretical Basis of the Work

1.1 EU Regional and Cohesion Policy

Regional policy (RP) is a policy of solidarity presented as the vehicle for delivering regional aid. The EU is one of the most prosperous economic zones in the world, however, there are disparities among the 271 EU regions. **Regional inequalities** may result from longstanding handicaps imposed by geographic remoteness or by more recent social and economic change. This frequently causes social deprivation, poor quality schools, higher joblessness and inadequate infrastructures. (17)

The EU wants to ensure that benefits of integration are as widely spread as possible and the development is as balanced as possible in geographical terms throughout the Europe. (15) In other words, the aim of regional policy of EU is to give all European citizens equal opportunities wherever they live in Europe.

It is sometime argued that the objectives of Cohesion policy are either unclear or too wide. This part of theoretical base is important to understand better the policy, its functioning and mainly the endowment system procedures.

1.1.1 Evolution of EU Regional and Cohesion Policy

The idea of structural aid for deprived regions started taking shape in **1970s**. Jean Rey (1968), the President of the European Commission between 1967-1970, said: “*Regional Policy in the Community should be as the heart is in the human body...and should aim to reanimate human life in the regions which have been denied it*”. In 1972, the Heads of State and Government adopted conclusions in Paris which described Regional Policy as “an essential factor in strengthening the Community”. (15)

Start of real action with real resources begun with the “Thompson Report” in **1973**. It concluded that “*although the objective of continuous expansion set in the Treaty has been achieved, its balanced and harmonious nature has not been achieved*”.

Consequently, the European Regional Development fund (ERDF) was set up in **1975** for a three-year period with the objectives of correcting regional imbalances due to predominance of agriculture, industrial change and structural unemployment. (14, 17)

Regional Policy **in the 1980s** meant certain breakthrough. In **1986**, the **Single European Act** (SEA) laid the basis for a genuine cohesion policy. New countries (*accession of Greece, Spain and Portugal*) brought increased regional disparities and funding became key mean of bringing wealth up to EU average. The adoption of single market programme in 1985 also helped to set the basis for genuine cohesion policy designed to offset the burden of the single market for the less-favoured regions of the Community. The SEA provided for the transformation of the Common Market into a single market on 1 January 1993. (16, 17)

In 1988, the Council adopted first regulation integration on the Structural Funds. The funds included the European Social Fund (ESF, since 1958), the European Agricultural Guidance and Guarantee Fund (EAGGF, since 1962), and the ERDF; co-financing projects which had been selected beforehand by Member States. (14, 17)

4 key principles were introduced, which made the funding more strategic (16, 17):

- **CONCENTRATION:** focusing on poorest regions,
- **PARTNERSHIP:** involvement of regional and local partners,
- **PROGRAMMING:** multi-annual programming,
- **ADDITIONALITY:** EU expenditure must not substitute national.

In summary, we can describe the period between **1989 – 1993** as a period of rules standardisation and fund management decentralisation. A major shift from annual project selection by Member States (MS) and adoption by the European Commission towards a more strategic and multi-annual programming built on a wide partnership between regions, MS and the European Commission. (14)

Annual payments increased from about ECU 6,4 billion in 1988 to ECU 20,5 billion in **1993**, and their relative share jumped from 16 to nearly 31 % of the EU budget. (17)

Jacques Delors (1989), President of the European Commission between 1985 and 1995, said:

“Europe sees its future as striking a balance between competition and cooperation, ... Is this easily done? No. ... If we left things to their own devices, industry would be concentrated in the north and leisure pursuits in the south. ... Man’s endeavour and political aspiration is to try to develop a balanced territory.” (14)

The period between **1994 - 1999** was a time of “doubling the effort”. In December 1992, the European Council decided on the financial perspective for the period 1994 -1999 and ECU 168 billion was set aside for the funds (a doubling of annual resources). New Cohesion Policy regulations were adopted by the Council in 1993, which now included the *Financial Instrument of Fisheries Guidance* and the *Cohesion Fund*. (14, 17)

There were 2 major efforts of the period **2000 - 2006**: efficiency (simplification design and procedures) and preparation for enlargement. “Agenda 2000” paved the way for biggest ever enlargement of the EU - 10 new Member States joining in May 2004. This enlargement brought up 20 % in the EU population, but only 5% increase in GDP. (14)

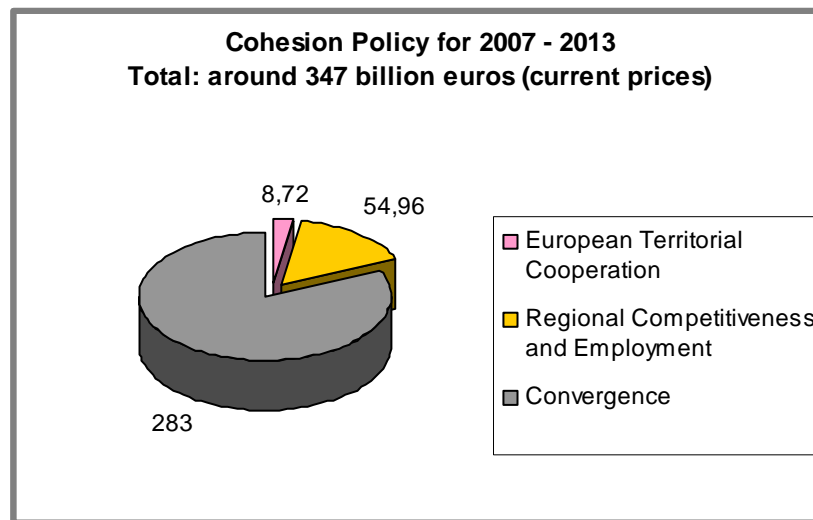
1.1.2 Cohesion Policy 2007 – 2013: An Overview

The highest concentration ever of resources on the poorest Member States and regions, the inclusion of all regions, and a shift in priorities set to boost growth, jobs and innovation, these are in a nutshell the major latest changes of EU Cohesion Policy. The specific aid of rural development and fisheries funds (former EAGGF and FIFG) now come under the new European Agricultural Fund for Rural Development (EAFRD) and the European Fisheries Fund (EFF). Also RP share within EU budget is growing (to €50 billion p.a.; circa 36% of EU budget). (50)

The current (**2007 – 2013 period**) priority objectives are defined as follows (21, 50):

- **Convergence:** aims at speeding up the convergence of the least-developed Member States and regions defined by GDP per capital of less than 75 % of the EU average;
- **Regional Competitiveness and Employment:** covers all other EU regions with the aim of strengthening regions' competitiveness and attractiveness as well as employment; and

- **European Territorial Cooperation:** based on the Interreg initiative, support is available for cross-border, transnational and interregional cooperation as well as for networks.



Graph 1: Cohesion Policy for 2007 – 2010. (50)

The whole European Union is covered by one or several objectives of the cohesion policy. To determine geographic eligibility, the Commission bases its decision on statistical data. Europe is divided into various groups of regions corresponding to the classification known by the acronym NUTS (common nomenclature of territorial units for statistics). (21)

The number of **financial instruments** for cohesion is reduced to **three** (14, 17):

- **ERDF** - covers programmes involving general infrastructure, co-operation, innovation, and investments.
- **ESF**- pays for vocational training projects and other kinds of employment assistance, and job-creation programmes, social inclusion and tackling discrimination.
- **CF** - covers environmental and transport infrastructure projects as well as the development of renewable energy (for countries whose living standards are less than 90% of the EU average).

Objectives, Structural Funds and instruments 2007-2013

Objectives	Structural Funds and instruments		
Convergence	ERDF	ESF	Cohesion Fund
Regional Competitiveness and Employment	ERDF	ESF	
European Territorial Cooperation	ERDF		

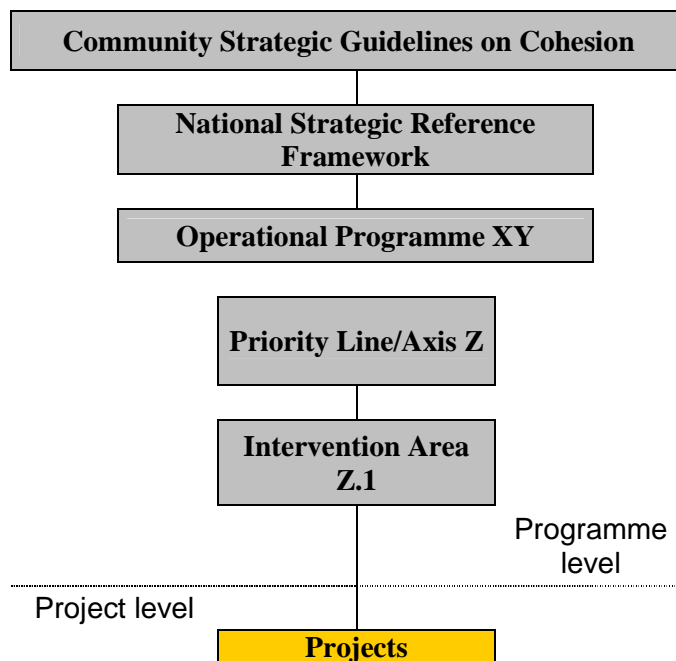
Table 1: Objectives, Structural Funds and Instruments. (51)

1.1.3 Policy Stages

General provisions on the Structural Funds and the Cohesion Fund are laid down by Council Regulation (EC) No 1083/2006 of 11 July 2006. The Structural Funds budget and the rules for its use are **decided by the Council** and the **European Parliament** on the basis of **a proposal** from the **European Commission**. (52)

The "**Community Strategic Guidelines on Cohesion**" identify the Community priorities to be supported by the Cohesion policy. Each Member State prepares a **National Strategic Reference Framework (NSRF)**, coherent with the Strategic Guidelines. The document defines strategy chosen by a MS and proposes a scheme of **operational programmes**. (58)

The Commission validates certain parts of the NSRF that require a decision, as well as each operational programme (OP). The OP present priorities of a Member State as well as the way in which it will lead programming. (16 ,52)



Picture 1: Regional Policy Stages. (58)

The Member States and their regions then have the task to select the thousands of projects, to monitor and assess them. All this work takes place through what are known as **management authorities** in each country and/or each region. **The Commission** commits the certified expenditure per Member State (MS), monitors each operational programme alongside the Member State and submits strategic reports. (52)

1.1.4 Future Priorities for Cohesion Policy

Today, the world is undergoing fast changes in connection with the economy getting global and a huge number of players mutually influencing each other. Current Cohesion policy (CP) programmes cover the period 2007-13, however the debate on post-2013 policy is already under way. Important challenge for the public European policy will be to ensure safe exit from extraordinary measures realized in reaction to the crisis.

Bachtler and Gorzelak see added value of the policy in leverage effect of additional resources, multi-annual planning, partnership, monitoring and evaluation. Also interregional cooperation, sharing of best practices and support for other EU objectives such as sustainable development are benefits of Cohesion policy. Nevertheless, there are

still shortcomings waiting to be solved. (15, 48) They include complexity of management and control structures, complicated bureaucratic processes, varied performance of the policy between countries and regions, it is unclear in some MS if effects are consistent with policy, monitoring and evaluation is undermined by poor data.

It is clear that the effectiveness of the policy needs to be increased. For possible beneficiaries, especially complexity and rigidity of rules and procedures are often unacceptable obstacles.

In December 2008, the Commission published “Regions 2020” report which concludes that the policy’s framework needs to be adapted to help regions improve how they deal with **globalization, ageing populations, and climate and energy challenges**. Also need for **generating innovative ideas** and approaches has been emphasized. (48)

Commissioner Paweł Samecki, with his term in office drawing to a close, presented in December 09 an orientation paper on the future CP summarizing following issues (55):

- improving the way regional and local resources from all territories are used (such as better integration between Community funds),
- focusing the policy more on results so that its impact can be measured. This requires better monitoring and evaluating systems,
- continue simplifying the process used to implement the policy (for example, MS fulfilling certain requirements would not be obliged to undergo or carry on controls),
- helping regions to deal with future challenges. Financial crisis followed by economic recession showed that even such a big change is not predictable.

Financial and economic crisis showed structural weaknesses in many countries and regions in Europe regardless the level of their economic or social development. Convergence processes among MS could slow down in following years as there is lower economic growth and fiscal reduction. It is necessary to find the way out of this situation and restructured Regional (Cohesion policy) could be a powerful tool. (49, 55)

1.2 The Process of Grant Requesting

The long and complex process begins with a **project idea**. Subsequently, it is necessary to find out which operational programme is appropriate for that kind of project idea. In **the Czech republic**, there are *thematic* and *regional* operational programmes (OP) which can be the primary lead to choose the correct programme. After this, it is needed to choose right priority axis and intervention area within the axis. The project has to be completely consistent with the OP intentions.

Project requests are being collected when **Call for proposals** (limited period of time) is announced on websites of responsible authority. **Project request** is the key document for requesting a grant. It takes several weeks or even months to complete the request documentation. Since grants cover a very diverse range of fields, the specific conditions (and **required enclosures** such as a statutory declarations, certificate of incorporation, budget, feasibility study etc.) vary from one programme to another. (18, 20)

All applications are examined and evaluated on the basis of criteria that have clearly been announced in the Call. This evaluation part takes several months (usually 3 – 6). The EU does not finance projects up to 100%; however, some programmes make possible to cover all the project acknowledged expenses thanks to national budget contributions. The grant is usually paid retroactively – after project or its phase is realized. (18, 20)

If the project is found to be appropriate for funding, a **Contract** about financing will be signed. This is a good time for celebration, but also just the beginning of a long way which is full of *bureaucracy, monitoring reports, requests for payments and controls*.

Beneficiary has to fulfil a lot of conditions depending on the programme and type of a submitted project. Requirement which has to always be fulfilled is to keep the project outputs “alive” for a certain period of time – in other words, to ensure the project sustainability. (18, 20)

1.3 Project Sustainability

Sustainability can be explained in many ways, for example (3):

- *To keep in existence; maintain (The American Heritage);*
- *The ability of a system of any kind to endure and be healthy over the long term. A “sustainable society” is one that is healthy, vital, resilient, and able to creatively adapt to changing conditions over time. (Top 10 by 2010, Southwest Louisiana);*
- *The ability of an organization to develop a strategy of growth and development that continues to function indefinitely. (Dorothy A. Johnson Centre for Philanthropy & Leadership).*

Project Sustainability does not mean maintaining staff positions or all activities, and it is not dependent on grant funding; it is about maintaining the **outcomes, goals and products of a project**. (3) **In terms of EU funding**, project sustainability means certain period of time during which beneficiary has to maintain particular project outputs. The beneficiary is obliged to maintain the outputs by Contract about grant provision (Article 57 Council Regulation (ES) No 1083/2006). Every OP specifies the sustainability period (usually 5 years). The period starts when the project is realized and EU grant financing finished. (22) Required sustainability fulfilment can be controlled by appropriate authorities. In case they find out that outputs are not maintained in agreed way, the beneficiary can be bound to **pay back** the grant.

Applicants requesting grant have to prove they count with risks which can appear during the period of project realisation – a brief risk analysis is a mandatory part of a grant request form. Nevertheless, they have to keep certain outputs alive for 5 years after the project is realized and nobody cares about how the beneficiary will do this. Neither money needed for the sustainability period are included in grant budget. (22)

Although it may seem difficult to imagine at the start of a project, the time will come when the project ends. Sustainability is, however, not something that only needs to be considered at the end of a project. Indeed, at that stage it may already be too late. Following part of the thesis is focused on risk management of a project to ensure its “sustainability”. Nevertheless, this definitely does not mean to start managing risk at the beginning of the sustainability period.

1.4 Risk Management

Why risk management is so important and discussed recently? Study made by PricewaterhouseCoopers and International Bank for Reconstruction and Development gives simple answer to this question - *every kind of uncontrolled risk may lead to financial losses*. (32) Risk is concerned with every organization, however, the bigger and more complex the organization is, the higher profit it can gain from managing risk.

Projects financed by EU funds are specific. They need to fulfil same conditions as other business projects and also special requirements set by EU and Member State authorities. Although managing risks of these project to ensure their sustainability is very important, it is not widely discussed. Nevertheless, breach of “sustainability” obligations can cause that the beneficiary loses grant and consequently may bankrupt. (5, 32)

1.4.1 Definition of Risk and Risk Management

It is necessary to make difference between risk and threat. Kafka’s definition says that threat is a source of potential damage or loss and risk is the possibility, that a threat will cause the loss or damage. For example, stairs may illustrate threat and risk is the possibility of injury. Risk could be also explained positively (opportunity), however the author is now going to work with the “negative” definition.

The definition and also approach to risk has been changing over the time. Following quotes chronologically illustrate the evaluation. (11, 42)

- “Measurable uncertainty” (Knight, 1971);
- “Combination of the probability of occurrence of harm and the severity of that harm” (ISO/IEC Guide 51:1999);
- “Chance of something happening that will have an impact on objectives” (AS/NZS 4360:2004);
- “Exposure to unfavourable circumstances” (Doskočil and Rais, 2007);
- **“Effect of uncertainty on objectives” (ISO 31000:2009; Draft).**

All activities of an organization involve risk. Organizations of any kind face internal and external factors and influences that make it uncertain whether, when and to which extent the company will achieve or exceed their objectives.

Risk management (RM) means complex, long-term and systematic set of rules shaping our approach to uncertainty and risk, which can be applied across an entire organization, to its many areas and levels, as well as to specific functions, projects and activities. It includes checking of active and passive dangers, risks detection, risk assessment, identification of overall risk load in organization, risk regulation, monitoring of potentially threatening occasions and risk management cost reporting . (5, 32)

Risk management has been evolving (32):

from	to
Identification and evaluation of risks	Risk portfolio creation
Focus on all risks	Focus on critical risks
Risk minimization	Risk optimization
Risk with no owner	Responsibility for defined risk
Quantification of accidental risk	Monitoring and measuring
Risks, which are not my responsibility	Risk, which are responsibility of all

Project risk management delivers the following values (46):

- contributes to project success,
- recognizes uncertainty and provides forecasts of possible outcomes,
- produces better business outcomes through more informed decision-making,
- is a positive influence on creative thinking and innovation,
- offers better control – less overhead and less time wasted, focus on benefits,
- helps senior management to understand what is happening with the project and the challenges the project has to overcome.

The aim of risk management is not to manage all risks and try to avoid them. It is necessary to evaluate RM effectiveness – simply said to evaluate its costs and revenues.

1.4.2 Historical Evolution of Risk Management

The origins of risk management are as old as the Code of Hammurabi (Babylonian king 1795-1750 B.C.). This code of laws is the earliest-known example of a ruler proclaiming publicly to his people an entire body of laws. What is important, it also includes specific kind of insurance of non realized shipment. Since that the insurance was a long time the main way of managing risks by companies. (32, 54)

This changed in 1960s and 1970s when insurance was swapped rather for protection against losses caused by business activities. This period is called **the first age of risk management**. Of course, insurance is still powerful tool to manage non-entrepreneurial risk. (32, 54)

During **the second age of risk management** (1970s – 1980s) quality evaluation and standards of product requirements appear. Protection of risks (and prevention) is required legislatively not only in terms of customers safety but also the environmental one. (32, 54)

The third age of risk management (since 1995, Australian risk management standard publication) is the time when financial market reporting become important. In 1999, Turnbull Report was published, focusing on internal financial controls and better risk monitoring, and also EU started with accounting standardization (better comparison and evaluation possibilities for investors). (32, 54)

Other risk management standards appeared subsequently – in 2001 Japan introduced risk management system JSI Q 2001:2001; British risk management institute introduced own risk management standards. In 2004, an American organization COSO, presented document called Enterprise Risk management – Integrated Framework, in reaction to the Enron scandal. (32)

During the third age of risk management, companies are forced to evaluate their business risks properly and to face very strict reporting requirements. This need is strengthen currently by financial and economic crisis.

1.4.3 Risk Management Frameworks

Risk management is a rapidly developing discipline and there are many varied views and descriptions of what risk management involves, how it should be conducted and what it is for. A standard is needed to be used to ensure that there is agreed terminology, process by which risk management can be carried out, organisation structure for RM and objective for risk management. (2) The design and implementation of risk management plans and frameworks need to consider the varying needs of a specific organisation.

There are many different RM standards and frameworks applied in organizations - the following text presents the most important and widely used risk management standards.

AS/NZS ISO 3100:2009 – Principles and Guidelines

This standard (or its predecessor AS/NZS 4360:2004) is currently the most used one, especially in a private sector. It requires existing risk management strategy. Most shareholders consider organizations with this standard implemented to be risk-free. (32) Its universality and independence allow usage in different organizations and sectors. The standard specifies elements of processes which relate to risk management, but its aim is not to bring unified risk management system.

Australian Standard requires following documentation (5):

- compliance and due diligence statement,
- risk register,
- risk treatment schedule and action plan,
- monitoring documents,
- audit documents.

IRM's Risk Management Standard

This Standard is a result of work of a team drawn from the major risk management organisations in the UK, including the Institute of Risk management. The standard represents best practices against which organisations can measure themselves. (2, 32)

It outlines a practical and systematic approach to the management of risk and directly meets the needs of many smaller organisations worldwide.

Canadian frame CAN/ CSA-Q850-97

This Canadian Standards Association's "Risk Management: Guidelines for Decision Makers" framework is intended to assist decision-makers in effectively managing all types of risk issues, including injury or damage to health, property, the environment, or something else of value. (32)

ERM – integrated frame COSO

The Committee of Sponsoring Organizations of the Tread way Commission (COSO) is a voluntary private-sector organization, established in the United States, dedicated to providing guidance to executive management and governance entities on critical aspects of doing business. (32) This framework (published in 2004) describes how to integrate risk management system into daily company activities. Reding claims that this framework has been accepted by many, especially Anglo-Saxon organizations as a new trend in managing company, however a lot of organizations is not sure, how exactly transfer ERM concept to a specific procedures inside the organization. (13)

Although mentioned frameworks have slightly different approach to risk management, it can be concluded they all agree on following parameters of risk management systems.

Risk management system creates and protects value by increasing the likelihood of achieving objectives and **should be** (2, 5, 42):

- simple and tailored,
- flexible,
- cost effective,
- proactive,
- supported from the top and a part of decision making,
- taking human and cultural factors into account,
- transparent.

It is necessary for organisations' survival to be aware of the need to identify and treat risk throughout the whole organization.

1.4.4 Risk Classification

According to the author, the most important classification of risk is the one which divides risk on those which can be influenced (managed, reduced, removed...) and those which can't be changed. It is not possible (at least not fully) for example to predict world political and economic situation or influence global economy. Risk manager is in a position of "risk advisor" and has to focus on the risks which can be managed.

General division of risk is classifying it into **static and dynamic**. Dynamic risk results from changes in company and its surrounding environment. Static risks then include losses caused for example by natural disasters. Static (also real or clean) risk may be neutral or negative (harmful). Static risks (as more predictable) are easier to insure against. On the other site, dynamic risk (also entrepreneurial or speculative) can bring positive result (profit). (6)

In terms of possible company losses, risks are divided into **production, technical, economic, information, social, logistic, market and financial**. Of course, every company chooses to manage only risk categories connected to its activities. It is also possible to narrow categories to fit the company needs. (11, 56) Other division differentiate **internal and external** risks depending on their "place of origin". (11, 32)

It is logical that risks have attributes of more categories. Company risk can be for example logistic as well as strategic. **Strategic** risk possibility results from distribution, logistics, suppliers, goods and services quality, employee frauds, natural disasters, IT, fire. It is especially top management task to manage these. (18, 21) **Operational** risk, on the other hand, results from markets, competitors, technology, economics, customer needs, law, mergers and acquisitions. (11, 38) Important kind of risk is a **risk of disharmony** which is hidden e.g. in stock exchange rules and regulations, tax law, accounting standards, etc.. There is a lot of other divisions of risks, some quite specific – IT risks, holistic risks (reputation etc.), interpretation risks, and many others. (38)

The aim of the thesis is to manage risks of a project financed by EU funds to ensure its sustainability. Following part thus focus on project risks and project risk management.

1.4.5 Project Risks

As Kippenberger said, there's no such thing as a risk-free project. Risk of insufficient project management may appear in context with building works as well as with IT system construction. Risk and uncertainty are inevitable parts of every project and investors are exposed to risks during whole period of project realization. (35, 56)

Phases of project most inclinable to risk are implementation phase (before finalization) and functional phase (after finalization; operational risks). First few years of operating is the most risk inclinable time period. (17, 30)

Cooper and Chapman claims, that risk evaluation is particularly useful when project includes (38):

- **big capital expenditures,**
- **unbalanced cash-flow requiring big share of investment before any profit is generated,**
- important new technology,
- **unusual law, insurance or contract regulations,**
- sensitive environmental or security issues,
- strict regulation or license requirements.

The highlighted parts fits to the project which is going to be “the case” in following chapters. That emphasizes the importance of quality project risk management. (38)

According to Thompson and Perry, the most severe risks influencing projects are (38):

- inability to stay within estimated costs,
- inability to achieve required completion date,
- inability to achieve required quality and operating conditions.

Operational programmes of Structural Funds support projects from many areas and different fields, however, they always have to adhere to one rule – keeping outputs and goals of the project (be sustainable).

According to a manual for grant applicants published by Czech Ministry for local development, it is important to check project feasibility and sustainability especially from the following 5 point of views (risk categories) (8):

- **time**
- **organizational**
- **technical**
- **legislative**
- **financial**

Grant requests are controlled with respect to these angles. One of the control methods is risk analysis, a tool usable also for evaluation of project feasibility and sustainability.

1.5 Risk Management at Project Level

A project, by definition, is a temporary activity with a starting date, specific goals and conditions, defined responsibilities, a budget, a planning, a fixed end date and multiple parties involved. In today's environment, it is possible to expect change in any aspect influencing project. (57)

Project management processes - essential project actions - include **initiating the project, planning, executing, controlling** and **closing**. Every phase of the project life cycle hides specific threats as each includes specific activities, processes and consumes different portion of resources. Risk assessment in a project is the most difficult phase of all to carry out. There is always a risk – possibility – that threat will cause damage or loss. Resources in organization, including money, manpower, information, technology, equipment, and materials, are always by some means limited. These “constraints” in a combination with uncertainty create a risk of not achieving objectives. (34) Project manager is responsible for minimizing the risk, its control and documentation. (47)

The power of risk management is fully realized when a project manager takes action to respond to identified risks based on the risk analysis, with effort directed toward those

risks that rank the highest in terms of significant impact to project objectives. The project manager is focused on and responsible for the whole project but also for compliance of the project with overall strategy and objectives of the organization. This means that it is necessary to manage risk specific for the project and to inform managers on the higher level of possible impact of project risk on the organization. Following table provides for comparison between risks and objectives on different levels of risk management. (38, 46)

Type of risk management	Description	Sample objectives
Project risk management	any uncertainty that, if it occurs, could affect one or more project objectives	Time, cost, performance, quality, scope, client satisfaction.
Business risk management	any uncertainty that, if it occurs could affect one or more business objectives	Profitability, market share, competitiveness, IRR, reputation, repeat work, share price.
Technical risk management	any uncertainty that, if it occurs, could affect one or more technical objectives	Performance, functionality, reliability, maintainability.

Table 2: Risk and objectives for various types of risk management.

Adapted from: Effective Opportunity Management for Projects by David Hilson. (46)

1.5.1 Project Risk Management Processes

RM Standards mentioned in a Chapter 1.4.3 do not offer complex instructions for work with risks; they only recommend “what we should take into account”. It is actually general description of the whole procedure. The reviewed RM Standards, ISO guideline, PMBOK guide, IPMA baseline altogether suggest more or less the same following steps of RM:

- I. Identify and analyse risks (opportunities eventually);
- II. Make a plan of reactions / responses to risks; confirmed by authorities;
- III. Repeat continuously these actions;
- IV. Manage and control risk management plan and its fulfilment;
- V. Document new findings.

Washington State Department of Transportation has prepared useful scheme which combine mentioned risk management activities with the project life cycle. This instruction scheme was developed as a support for a transportation projects and can be used for any other kind of project as a lead for risk management planning. (46)

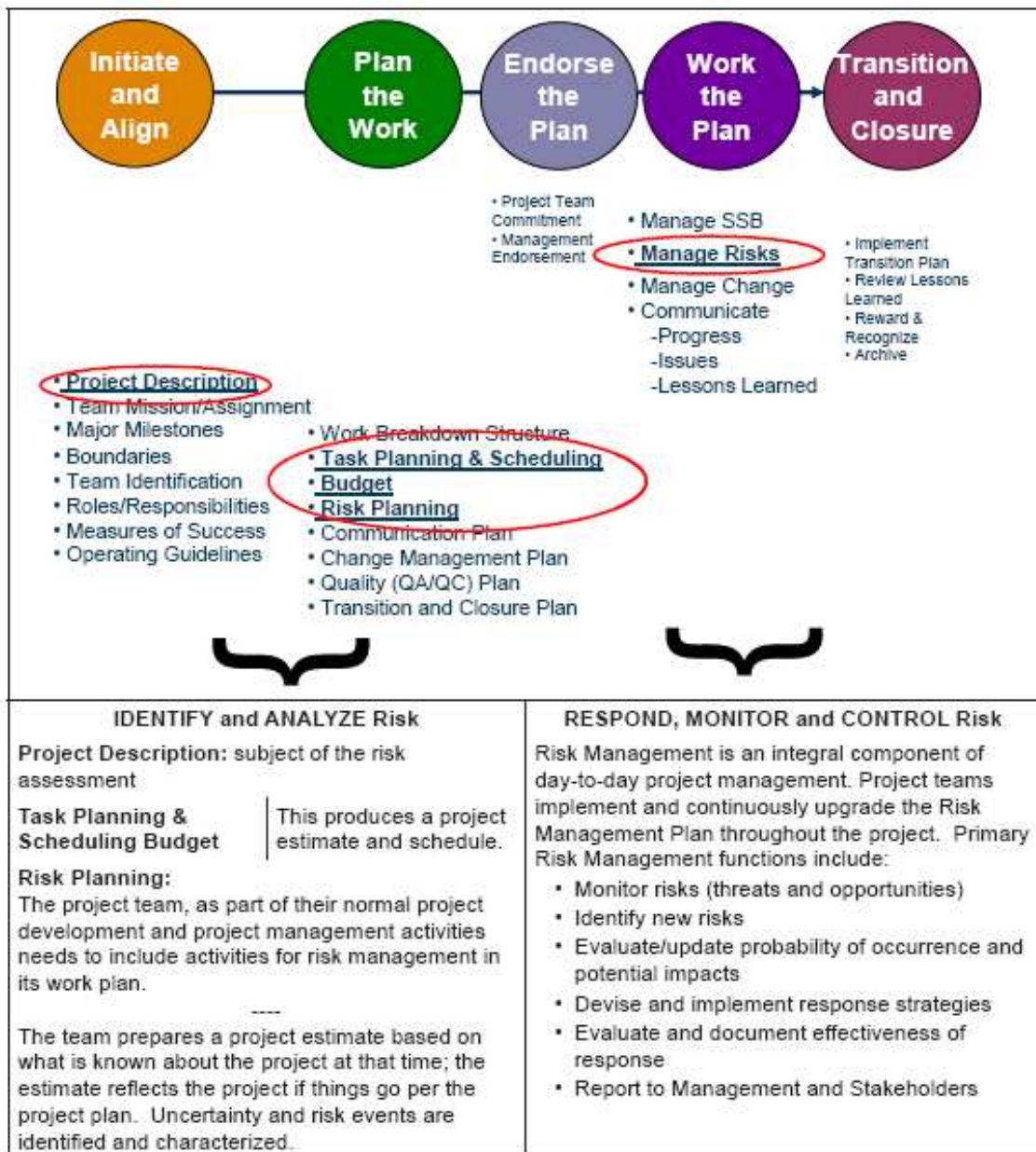


Table 3: Risk Management Activities. (46)

The base for all risk management activities is a **risk management plan (RMP)**. Simply said, RMP presents summary of risks and specifies the best ways how to deal with them.

RMP is a result of risk management processes including **risk identification, analysis, chosen responses to risks, monitoring and controlling**, and risk management **evaluation** during time. Quality RMP deals also with assigning responsibility for risks, risk documentation system and overall risk management policy. (38, 46)

1.5.2 Risk Identification

Risk identification involves determining which risks might affect the project and also documentation of their characteristics. It means continuous control of list of tasks and schedule. It may be conducted as a simple risk assessment organized by the project team as well as an expert discussion. (38)

Risk Identification Input - a defined and understood project.

Risk Identification Tools and Techniques

It is important to try to identify as many risks (external and internal) that *may affect project objectives* as possible. It is also necessary to determine risk thresholds for the project (project borders). There is a wide variety of techniques used for risk identification (38, 46, 48):

1. **Documentation Reviews**

Reviews of project documentation, studies, reports, preliminary plans, estimates and schedules are common and early method to help identify risks. .

2. **Information Gathering**

- **Brainstorming** - Formal and informal brainstorming sessions with project team members (extended team members). Effective brainstorming requires a skilled facilitator, working together with the project team and specialists who can bring additional expertise. This technique can be scaled for use on the simplest to the most complex projects. Using *checklists* and/or questionnaires can spark thinking prior to a more formal brainstorming.
- **Lessons Learned Database / Examination of past similar projects** - This can provide information on projects that may have faced similar risks.

- **Other methods:** some common techniques include: questionnaires and surveys, interviewing, checklists, asking “what-if” questions, for example “what-if we miss to submit the report?” etc.

Combination of above methods and/or others is usually used by most projects.

Risk Identification Outputs - a preliminary “risk register” documenting (38, 46):

1. Identification - for each risk identified.
2. Date when risk was identified.
3. Name of risk.
4. Detailed description of risk event.
5. Risk type.
6. Potential responses to identified risk.
7. Determination of who “owns” the risk and who will develop a response..

1.5.3 Risk Analysis

During this phase, the team assesses each identified risk for its probability of occurrence and its impact on project objectives. Risk identification results in the generation of an initial risk register. The risk register can be sizeable and it is necessary to evaluate and prioritize the identified risk events. (12, 38). There are 2 major groups of analysis methods – quantitative and qualitative. (11, 38, 56)

Simon et al. (1997) and Norris (1992) suggest to consider following aspects before choosing methods of the analysis: resource availability (human, IT, time); experience; project size and complexity; information accessibility; purpose of the analysis. (38)

Qualitative Risk Analysis

Qualitative risk analysis assesses the impact and likelihood of the identified risks and develops prioritized lists of these risks for further analysis or direct mitigation. Project teams may elicit assistance from subject matter experts or functional units to assess the risks in their respective fields.

Qualitative analysis utilizes relative degrees of probability and consequence of each identified project risk event in descriptive **non-numeric** terms; for examples of *qualitative risk matrices* (38, 56):

1. Gather the project team and appropriate persons to discuss project risk.
2. Establish which of the qualitative risk matrices you intend to use.
3. Review the risk information from the risk identification step.
4. Evaluate the likelihood of the risk occurring by asking the group.
5. Evaluate the consequences if the risk does occur by asking the group.
6. Record the result that the group agrees on.
7. Prioritize the risks based on the results of the qualitative analysis.

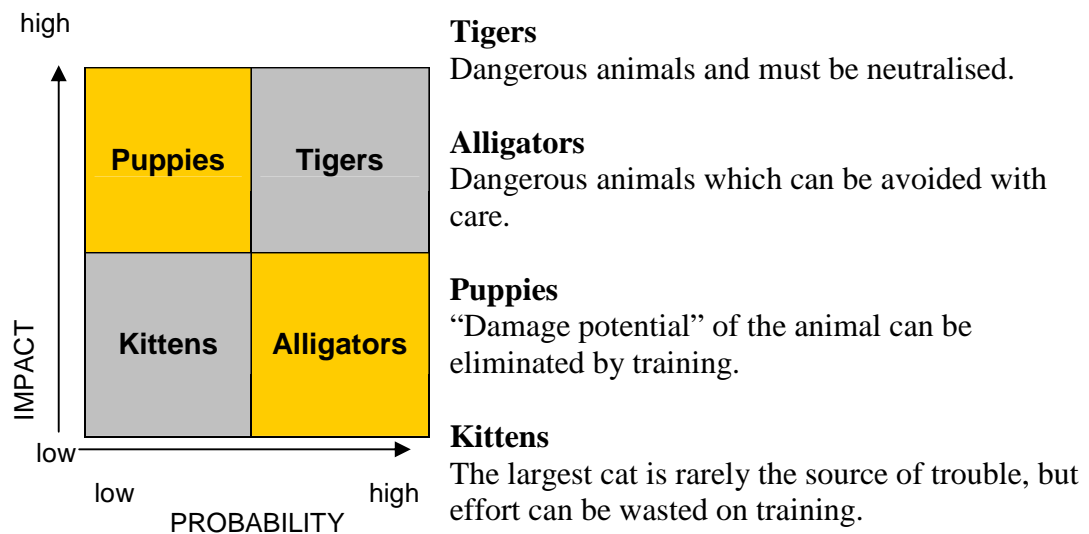
Simon et al. (1997) assumes, that information gathered from **qualitative analysis** is almost always **more valuable** than those from quantitative analysis. Thus the quantitative analysis is not always necessary. Thompson and Perry (1992) recommends use of qualitative analysis during the preliminary risk evaluation. Rais and Smejkal suggest use of quantitative methods especially in the field of organization security and information systems. (38, 56)

In any field, with experience, professionals develop intuition and an ability to understand projects to a greater degree than those not involved with project development and delivery. This experience and intuition is extremely valuable – in a risk workshop forum we surround ourselves with “wise counsel” to seriously and thoroughly discuss the project. (38)

The most common qualitative techniques include (38, 47, 56):

- Brainstorming;
- Delphi (experts' forecasts);
- Interviews;
- Checklists;
- Risk registers;
- Risk mapping;
- Probability - Impact tables;
- Risk matrix.

Example of a risk matrix:



Picture 2: Risk Matrix. (47)

Quantitative Risk Analysis

Quantitative risk analysis is a way of **numerically** estimating the probability that a project will meet its cost and time objectives. Quantitative analysis is based on a simultaneous evaluation of the impacts of all identified and quantified risks.

Quantitative analysis tools and techniques

1. Gather and Represent Data
 - Interviews
 - Subject Matter Expert input – interviews, surveys
 - Represent data in terms of probability and impact
2. Quantitative Risk Analysis and Modelling
 - Decision trees
 - Monte Carlo technique
 - Sensitivity analysis (impact of changes on the project)
 - Probability – Impact matrix

Quantitative Risk Analysis Outputs - the further developed risk register (a key component of the risk management plan).

1.5.4 Risk Response

The Project Manager and the project team identify which strategy (the list below) is the best for each risk, and then select actions to implement that strategy. This process ensures that each risk requiring a response has an “owner”. (38, 46)

Avoidance – removing the cause of the risk or executing project in a different way. Not all risks can be avoided and for others this approach may be too expensive or time-consuming, but this should be the first strategy considered for each risk.

Transfer - finding another party who is willing to take responsibility for its management, and who will bear the liability of the risk when it occurs. Transferring project risk almost always involves payment of a risk premium to the party taking the risk (insurance, warranties, etc.). Contracts may be also used to transfer specified risks.

Mitigation - implies a reduction in the probability and/or impact of an adverse risk event to an acceptable threshold. Examples of mitigation strategies include: adopting less complex processes, conducting more tests and/or field investigations, developing a prototype. Mitigation or acceptance are the strategies most often used since the number of threats that can be addressed by avoidance or transfer are usually limited.

Acceptation - refers to risks remaining after response actions and/or for which response is not cost effective; uncontrollable risks are (no response actions are practical) are also accepted. In some cases, in some industries, a contingency reserve is established to deal with the aggregate residual risk that has been accepted (“active acceptance”).

It is necessary to document properly responses action by describing the action, which work activities it will affect and the cost of the response action. Project manager has to be aware of how the risk responses may affect the overall project risks and organization strategy. Response implementation has to be followed by **Risk Monitoring and Control** which track identified risks, monitors residual risks, and identifies new risks - ensuring the execution of risk plans, and evaluating their effectiveness in reducing risk. (46, 56)

2 Problem Analysis and Current Situation

Despite the fact that risk assessment is becoming a growing aspect of major projects, there does not exist any definite norm referring to procedures and approaches to it. Nevertheless, many organizations and researchers developed ways of the procedures and the author is going to use a combination of the systems described in Chapter 1.4.

In the following analytical part of the thesis, the author aims to undertake project **Risk Identification** – to determine which risks are likely to affect the project and document the characteristics of each of them; and project **Risk Analysis** – to evaluate risks to be able to find the most appropriate responses to them.

In an optimal situation, risk management activities would be included in every phase of a project life cycle. Risk analysis is a mandatory part of a grant request form, however, the space for the analysis in the form is limited and grant applicants usually try to point out that they have all risks under control rather than to show real threats and weaknesses of their projects. The author critically uses initial risk analysis (see Appendix B) as one of the information sources and sets herself into the position of a project manager who was assigned to this project in a phase when the grant provision was already confirmed.

At first, it is necessary to get to **know the company realizing the project** (one of the risks might be insufficient backing – financial, knowledge, experience), its business activities, and also to define precisely the project to be able to establish risk management processes.

2.1 *Company's Introduction*

VÚSH, a.s. (Inc.) was established in 1993 by privatization of *Výzkumný ústav stavebních hmot* into an incorporated company. The company focuses on applied R&D in a field of building material technologies, low-capacity production of special building materials, and also on production of trial sifting machines for the building industry.

In 2000, a daughter company VUSTAH a.s. was established to ensure higher transparency and effectiveness of resources management. VÚSH, a.s. is the only founder and shareholder of the daughter company. VÚSH, a.s. is situated in Brno, close to traffic junction Brno – South. It occupies 35 000 m² and contains of research, development, laboratory, workshop, office and stock facilities.

Statistical information / Company Fact Sheet (31)

Entry date:	1 st December 1993
Trade name:	VÚSH, a.s.
Place of business:	Brno, Hněvkovského 30/65, Postcode 617 00
ID:	494 53 874
Legal form:	Incorporated
Statutory body:	Board of Directors
Shareholder:	Profi, a.s. (ID 499 66 537)
Shares:	81 681 000 pieces (nominative)
Basic capital:	81 681 000,- CZK (paid up)

Subject of enterprise (the major business activities) (31):

- Research and development in a field of natural, technical and social science;
- Production, installation and repairs of electric machines and appliances;
- Projection of electric machines;
- Production, installation and repairs of electronic appliances;
- Production of building materials and products;
- Production of chemical substances and chemical preparations;
- Services of business, financial, organizational and economic consultants.

2.1.1 Brief Evaluation of Company's Financials

The author conducted a brief financial analysis based on information from the project Feasibility Study (59) and financial statements (30) to evaluate financial health of the company (and so potential financial sources of threats) and to prove its ability to secure necessary financial sources for realization and smooth functioning of a planned investment.

The following financial ratios provide for transparent overview of basic financial characteristics of the company – its profitability, activity, liquidity and indebtedness.

Ratios		2003	2004	2005	2006	2007	<i>2008 est.</i>	2008 real	<i>2009 est.</i>	2009 real
Profitability Ratios										
ROCE – Return on Capital Employed (EBIT/Cap. Employed)	%	-4,28	3,39	14,29	5,07	4,01	6,18	7,09	5,59	9,04
ROE – Return on Equity (EAT /Equity)	%	-4,88	3,77	11,21	3,97	3,39	5,20	5,49	4,78	7,72
ROS – Return on Sale or Net Profit Margin (Op. Profit from Op. activity/Op. Sales)	%	-24,32	18,28	62,38	21,68	21,93	28,46	30,16	25,24	35,72
Activity Ratios										
Total Asset Turnover (Sales /Total Assets)	mult.	0,15	0,18	0,21	0,21	0,19	0,19	0,24	0,18	0,25
Gearing Ratios										
Equity Ratio (Equity/Tot. Assets)	%	86,21	89,05	94,02	97,26	89,35	91,85	96,58	86,46	95,23
Interest Cover R. (EBIT/Loan Interest)	mult.	-	-	-	-	14,11	22,18	21,45	9,97	-
Liquidity Ratios										
Current Ratio (Current Assets/ Current Liabilities)	mult.	8,26	12,73	3,87	8,39	19,31	16,08	11,02	13,44	5,77
Acid-Test Ratio (Current Assets – Inventory / Current Liabilities)	mult.	7,94	12,47	3,82	8,19	19,17	15,97	11,01	13,32	5,76

Table 4: VÚSH's Financials.

Data Sources: Business Intention (44), Feasibility Study (59), VÚSH document collection (30)

Note: Visible fluctuations in values of ratios in 2003 and 2005 were caused by creation (and dissolution) of reserves for property repairs.

ROCE ratio is used to show how much a business is gaining for its investments and in this case it shows that profit before interest and tax oscillates around 5 % of the total capital invested. Thus it can be concluded that it exceeds the inflation rate and the invested capital brings appreciation. It is also positive, that the ratio is higher than

interest rate of the credit planned to arrange to finance the project. ROE presents a guide to potential returns and in this case it circulates slightly under the values of ROCE ratio. Value of this ratio is low in comparison with average of close business branch (“services, rent, and research” segment average (39) is around 15 %). Nevertheless, this is caused by low indebtedness of the company and the fact that - as far as this ratio is concerned – financing company by own equity instead of debts leads to lower value of equity return. The ROS ratio grows which indicates that the company is becoming more efficient and there is not a signal of upcoming financial troubles. ROS shows that 100,- CZK of sales earns profit before interest and tax of approximately 25,- CZK which is relatively low value however it is not unusual for a company operating within R&D area.

Profitability ratios are relatively stable and improving. In spite of upcoming global financial and economic crisis, results of the ratios in 2008 and 2009 even exceeded estimations which were developed for project feasibility study.

Total Assets Turnover is steadily around 0,2 which means that every 1,- CZK generates 0,20,- CZK of sales turnover. This could appear to be insufficient and seemed that assets are not used well to produce revenue, nevertheless, the subject of enterprise of the company demand high level of fixed assets. This need decrease the value of this ratio, which is lower than segment average.

Equity ratio measures the proportion of the total assets that are financed by stockholders and not creditors. The value of the ratio is very high (recommended value is around 50 % and segment average (39) is 44 %) as the company prefer to use own resources to loan capital. The planned usage of credit can be rather positive as it will increase the level of positive leverage used by a company (higher profitability).

Interest cover ratio shows how many times can earnings before interest and tax pay for loan interests. The higher the ratio is the better the ability to pay for loans or get a new credit the company has. In this case, the values are very satisfactory.

There are high values of both liquidity ratios (Acid-test Ratio and Current Liability) which signs ability to meet an obligation, pay off debts, and ensure operating resources. In 2009, there were 5,77,- CZK for every 1,- CZK of current liabilities and 5,76,- CZK of assets which can be turned quickly into cash for every 1,- CZK of current liabilities. On the other hand, high values of liquidity ratios also mean certain inefficiencies in company productivity. However, it is not anything what could have significant impact on the project.

As regards sales, they have stabilized since 2005 on the satisfactory amount of over 20 million CZK per year. Also operating results have been positive during the period. Despite the fact that the project executor is a company with specific business subject (the aim is primarily not to maximize profit and increase the value of enterprise) it is constantly able to generate sales high enough to cover operating costs and create profit from operating activities.

It can be concluded, that the subject is financially healthy and no evident threats which could have an impact on the project were discovered. The company is steadily solvent with enough liquid resources for project realization and no signs of financial instabilities which could affect sustainability and fulfilment of commitments were detected.

2.2 Risk Identification

There have to be many aspects considered before selection of appropriate methods for project risk identification and analysis. According to Simon et al., these aspects include *access to resources* for analysis – human, technical and time; *experience* of people undergoing analyses, *size* and *complexity* of the project, *information accessibility* and aim of the analyses. (38) This identification of threat is important because it is so easy to overlook important threats. One way of trying to capture them all is to use a number of different approaches:

Firstly, **documentation review** was used for getting ideas of project risks. Project feasibility study (59) and project business intention documentation (44) were used to create a project definition. Initial risk analysis from the project request form was used as a next important source of information for following analyses. (see Appendix B).

Information **inputs** for risk identification are represented by processed company overview, company financials evaluation and earlier mentioned project definition development. Then macro-environmental analysis, SWOT overview (both **information gathering techniques**) and checklist analysis were chosen as **tools** for risk identification process.

2.2.1 Project Definition¹

The project definition (part of RMP) is a clearly formulated base including all necessary information about the project - its purpose, objectives, sponsorship, funding, etc. (65)

The Title: **Extension of Business Incubator Brno – South**
(Business Incubator II Brno – South)

Project Costs: 27, 138, 000,- CZK

Financing: **50 %** - VÚSH, a.s. (own sources and credit provided by CSOB)
50 % - Structural fund ERDF (85%) and state budget contribution (15%)
OP Enterprise and Innovation;
Priority Line 5 “Environment for enterprise and innovation;
Aid programme “**Prosperity**”

This programme assists with development of scientific-technical parks, business incubators and centres technology transfer centres.

¹ The chapter is based on Project Feasibility Study (59), Business Intention documentation (44), and Grant Provision Conditions (43). Project definition template was adapted from EPMbook (65).

The Purpose

The purpose of the project is to build second Business Incubator to ensure infrastructure and support for innovative start up companies in the region. VÚSH a.s. believes that the Incubator is ideal place for interconnection of science, research, innovations, universities and entrepreneurial subjects.

Project is a fluent continuation of fully engaged Business Incubator and Training Centre Brno – South which was realized in support of CzechInvest agency in 2007. It responds to high demand for affordable office spaces and support of beginning innovative companies especially from a group of university students.

The vision of VÚSH a.s. is to subsequently develop (within several years) system of activities aiming to establish infrastructure for industrial research, development, education and innovation in the southern part of Brno city. The activities include:

- Business Incubator Brno – South I. and II.
- Training Centre Brno – South
- Business Angels Club
- Innovation Centre Brno – South (under development)

Parties Involved

The project of Business Incubator extension is an effort of VÚSH, a.s. (“**Building Materials Research Institute**”, Inc.) in cooperation with VUSTAH, a.s.. VÚSH a.s. has long experience with applied research and development, provide for office facilities and technological spaces for testing and production of new technologies and processes focused mainly on *building materials and technologies*. The company also offer expert consultancy and services, and cooperates with universities and commercial subjects.

The idea is supported by County Borough of Brno, VUT Brno and South Moravian Innovation Centre – all these subjects will be in a position of consultants and expert guarantors. The sponsors can provide all the resources that may be required in terms of human resources, time and initial funding. There is a contract about partnership and cooperation signed with all the project partners.

The Goals

The project aims to create support for new and innovative companies establishment. The support will be in a form of quality services provision (such as financial or law consultancy) and guaranteed affordable operational conditions (for example preferential rent) during the beginning phase of a company life. The support for companies (up to 50 employees) will be preferentially provided to companies focused on industrial research, development of new products and services especially for *the building industry, development of new materials and technologies, measurement hardware, nanotechnology and mechatronics*.

Target Group Definition

Individual entrepreneurs and small companies established by:

- VUT Brno (Brno University of Technology) postgraduate students (5th year);
- VUT Brno research students;
- qualified and experienced engineers with interest in their own business.

Competitive Projects

There is Biotechnological Incubator and South Moravian Innovative Centre in the region, however they are not focused specifically on the construction industry and fields with high value added. The Innovative Centre is even one of the partners of this project. Anyway, there is high demand for favoured rents of office spaces from the side of beginning entrepreneurs with insufficient financial resources. Our project is smaller (in terms of area) than both mentioned facilities and no significant troubles to fill the Incubator capacity are expected.

Project Content

Construction of the second building of Business Incubator Brno – South (schedule):

- 1) Development of project documentation for area management and land purchase.
- 2) Project documentation for building licence and supplier selection.
- 3) Rough Construction (fabric).
- 4) Construction finalization.
- 5) Incubator equipment and De-minimis functioning.

The Incubator will subsequently be able to offer the following services:

1) Technological transfer

- international technological transfer from/to Czech republic,
- boosting International cooperation in the field of R&D,
- expert consultancy during realization of technological transfer (financial, technical, law, and intellectual and industrial property field).

2) Training, seminars, conferences (in a cooperation with training centre)

- for example: financial planning, entrepreneurial intention, marketing, support in the field of Science and Research, business legislative etc.,
- conferences – e.g. Hi-Tech, technological transfer, innovation development.

3) Consultancy

- project development, strategic management, searching for appropriate partners, marketing.

4) Searching for Resources

- financial (EU funds, National Institutions Loans, Business Angels) + personal.

5) Other Services

- infrastructure – telecommunication services etc.,
- endowed rent – offices, parking, equipment, “business and law” library,
- other “*easy terms*” services – e.g. security, ICT technologies, accountant.

Measurable Objectives

Mandatory indicators (necessary to fulfil them otherwise the grant could be withdrawn):

- The building of Business Incubator Brno – South II (area of flooring 513 m²).

Main Monitoring indicators (the sustainability period):

- Support of establishment and placement of min 10 innovative companies
- Creation of 50 vacancies by incubated companies
- Applied research outputs placed at market – min 6
- Patents of incubated companies – min 2

Specific Requirements

There are some specific requirements when project is financed by Structural funds and violation of these rules can cause sanctions including grant withdrawal.

These requirements include:

- supplier selection according to fixed rules,
- specific project publicity activities during and after realization of the project,
- rules of project phasing (the end date is mandatory as well as a number of phases and amount of money allocated to each phase),
- not to sell property bought within the project for 5 years after finalization,
- communicate every change of project (sometimes approval needed),
- impossible to gross up the grant amount during project realization.

Obligations during project sustainability then include for example (45):

- archiving of all the project documentation for min 10 years after its realization,
- the beneficiary must not terminate its business activities (which use the property bought for project) during 5 years after the project realization,
- keeping publicity rules,
- allowing the grantor representatives to control project realization.

Specific Financial Evaluation Characteristics

The project includes certain specifics in comparison with common market focused projects. Regarding its character and goals, it is not possible to expect results of evaluation to be consistent with measures generally required by common methods evaluating effectiveness of investment projects. There will be only low revenues from rent of offices. That is why NPV of the project is negative (-24, 967, 000,- CZK). Therefore it is not possible to determine Internal Rate of Return and payback period. Functioning of Incubator will be donated by VÚSH a.s. profit.

Project Team

Members of VÚSH's a.s. statutory organ and other employees dispose of high level of qualification. Statutory organ members are predominantly university professors and

docents. The functioning of business Incubator is ensured by 4 internal part-time employees and 4 external co-operators. Advantageous consultancy services are provided mainly by VÚSH's employees working on project – within their work load (e.g. Ing. Jan Kunc, Ing. Jiří Veselý, CSc., JUDr. Helena Dlezková).

Project Phases and Deliverables

The company estimates the period of investment project realization to last from the second quarter of 2008 to the first quarter of 2011. Separate project phases are planned to fluently continue one by one. Project team members are experienced (running Business Incubator Brno – South I) so smooth project realization is expected.

Phase	Project Phase and its Costs	14.4.2008	1.1.2009	1.1.2010	1.7.2010	1.1.2011
		- 30.4.2009	- 31.12.2009	- 30.6.2010	- 31.12.2010	- 31.3.2011
1	Development of project documentation for area management and land purchase 2,080,000,- CZK					
2	Project documentation for building licence and supplier selection + rough construction 13,150,000,- CZK					
3	Construction finalization + Partial Incubator equipment 10,430,000,- CZK					
4	Completion of Incubator equipment 1,310,000,- CZK					
5	Functioning according to “de minimis” terms 168,000,-					

Table 5: Project Schedule.

Data Sources: Grant Provision Conditions. (43) and Project Feasibility Study (59).

6	Project SUSTAINABILITY Period (phase 5 “continuation”)	31.3. 2011 – 31.3. 2016
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The author adds 6th phase of project life – the project sustainability period. This phase has to last at least 5 years after the project realization (31.3. 2011 + 5 years). During this period, the main project outputs (functioning project Incubator) has to be kept unchanged.

Budget Overview

Financing at the beginning is ensured partially by credit of 10 millions CZK and partially by own sources of VÚSH, a.s. (bank accounts). Shareholders agreed to help by short-term loans in case of money shortage. Consequential payments from EU fund and Ministry of Industry and Trade are being paid after finalization of each project phase.

Investment	2008	2009	2010	2011	Total expenditure
Land purchase	2,000,000				2,000,000
Nets and Communications		2,360,000			2,360,000
Project Documentation	80,000	380,000			460,000
New-building		10,000,000	9,100,000		19,100,000
Hardware			340,000		340,000
Machines and Equipment			1,540,000		1,540,000
Engineering Activities		100,000	100,000		200,000
Total (CZK)	2,080,000	12,840,000	11,080,000	0	26,000,000
De minimis					
Consultant services + studies		180,000	420,000	105,000	705,000
Travelling Expenses		70,000	70,000	25,000	165,000
Propagation + www		60,000	170,000	38,000	268,000
Total (CZK)	0	310,000	660,000	168,000	1,138,000

Table 6: Budget Overview.

Data Sources: Grant Provision Conditions. (43) and Project Feasibility Study (59),

Following table shows sources of project financing according to years of realization. Credit conditions include interest 1M PRIBOR + 1,9 % p.a.

	2008	2009	2010	2011	2012	2013	2014
Grant		1 040	6 420	5 540			
Bank Credit			10 000				
Credit repayments			1 248	2 496	2 496	2 496	1 264
Own sources	1 040	6 420	5 540				

Table 7: Sources of Financing. (59)

2.2.2 Project's External Factors – PESTL Analysis

It is very important that an organization considers its environment before beginning the risk management process. A company, when considering the environment it will deal with when entering a new market, has to consider certain aspects. These specifics represented depending on the environment in which they arise (Williams *et al.*, 1998) can be seen as sources of threats. This PESTL analysis is one of the **tools for risk identification phase** and it is focused on potential external sources of risk which could currently influence **the project**. PESTL factors combined with micro-environmental factors such as customers, competition, shareholders, employees etc. described in “project definition” chapter will be important information input for later SWOT analysis.

Economic factors

Building industry is one of the most important economic sectors. Acute phase of global financial crisis and recession is already behind us and gradual economy revitalization has begun in the second half of 2009, however, there are still issues to be solved in almost every industry. Within the building industry, the issues include especially declining demand in a private sector, higher competitiveness in a public sector, decrease of the public sector volume in 2011 and 2012. **Investments** into R&D, new processes of construction works, new materials, cooperation with universities are claimed to be one of the ways to treat the whole field. This predicts VÚSH, a.s. and its project of business Incubator positive future. (27)

One of the most important **problem of SMEs**, which are going to be the users of business Incubator (their success affects the success and reputation of the project), is **access to finances**. External financing from banks continues to be one of the most important sources of financing for SMEs, unfortunately, banks have become thanks to the crisis more strict, expensive and credits unavailable. Bank lending to the private sector has been falling year-on-year since September 2009, and in March 2010 it was 2.4% lower than the year before (same as in February). SMEs in the construction sector were the most negative with respect to the availability of bank loans. The rejection rate for bank loan applications was the highest for Spanish SMEs (25%, as against 20% in the first half of 2009) and the lowest for French SMEs (7%, as compared with 12% in the first half of 2009). (23, 40)

Political factors

The Czech republic is after **parliamentary elections** at the very beginning of necessary changes and these can start with money saving measures. Coalition of **right-wing parties** is considered very positively by investors, entrepreneurs as well as economists. Steps the new government has to undertake will not be easy but the money savings measures can potentially bring competitive advantage within the “new” Europe. There is not a threat of measures “against market” which are domain of the left-wing parties and increase of corporate tax is not expected. That is why the Czech republic is now becoming attractive to investors and potential partners of companies operating within business Incubator. Upcoming law that favours business investment is very important for start up companies and beginning entrepreneurs. (26, 36)

Legal factors

Today, this country belongs to the worst countries as regards innovations. The way to optimal **innovative environment** and system in this republic will be long, however, first steps have already been done. Direct grants for innovative companies are increasing and expert and advisory authority, **Council for research, development and innovation**, was established by Act No 130/2002 Sb. to support national policy for research, development and innovation in cooperation with Ministry of Education. (24, 61, 63)

EU is aware of the fact that a strong **industrial property rights** system is a driving force for innovation, stimulating R&D investment and facilitating the transfer of knowledge from the laboratory to the marketplace. These rights, including patents, trademarks, design rights and copyrights, can serve as incentives for research and development, for innovation, and can help users to identify trusted producers.

However, there is long way from Communication adopted by Commission to the effective system functioning in reality as the costs and complexity of the IPR system still causes that SMEs turn away and focus on more immediate issues of day to day running a business.(19)

Technological factors

The Czech republic belongs to countries with highest number of tertiary education institutions and research institutions. In spite of this fact, there is relatively low intensity of scientific knowledge transfer into practices. This is called “knowledge paradox”. There was **Technological Agency of the Czech republic** (TA ČR) established by Act No 130/2002 Coll., from 1st July 2009 which should help to solve this problem by preparation and implementation of applied research programmes, experimental research and innovations, and other tools. (60)

Transfer of technologies between universities and a private sector belongs to areas, in which the Czech republic does not operate very well and which are at the same time very important for both commercial as well as tertiary education spheres. The project is focused on this topic and should help to solve this problem at least to companies operating within the Incubator. The Incubator will hopefully help to solve insufficient interconnection between research institutions, universities and production subjects. (61)

As regards the transportation, the region Brno–South has got developed **infrastructure** and building of Incubator is well located at Hněvkovského Street, which is one of the most frequented artery of traffic of Brno city.

Social factors

The recent move to **green construction** (sustainable buildings) as one of the results of environmental responsibility efforts and the need for innovative approach to construction processes is important and favourable as the project target group are start up companies developing new materials and technologies especially for the building industry. Demand for green building is still increasing and the benefits of this kind of construction are for example lower energy consumption, lower operational costs, clean air, lower risk of disease transfer. (29)

According to research made by European Commission, **public** perceive science as a value and connect it with development. Public funds should be invested into applied research, development and innovation, however, the public expect concrete economic or other benefit from their realization. **Innovation environment** should be improved to increase prestige and attractiveness of the Czech republic, to enhance interest of foreign subjects in cooperation with Czech organizations, and to ensure that “science makes knowledge from money, innovations make money from knowledge”. There must be also provisions forcing research institutions to transfer invented technology. (25, 64)

As far as education level in the region is concerned, Brno is on the second place (after Prague) in number of college-educated citizens. In Brno, there is approximately 1/5 of all university students concentrated. There is 22,5 thousand of members of the target group - students at the Brno University of Technology. Thus it can be concluded, that there is a high number of potential users of the Incubator as well as skilled workforce.

2.2.3 Checklist Analysis


Checklist analysis is a method for identifying actual project risks on the basis of historical information and knowledge that has been accumulated from previous similar projects. (41)

This checklist is composed of information from initial risk analysis (see Appendix B), which was created for the purpose of project grant request, common business risk


checklist (7), and uses risk classification emphasized in a manual „How (not) to sustain project outputs“ (8) published by Ministry for Local Development. Information gathered from previous analyses and documentation reviews are being used in the checklist.


The author uses Kendrick's classification (33) of risk sources - scope, resources, schedule – as this categorization is based on what actually happens to real projects, and thus fits better to this project level of risk management. Kendrick developed database of common project risks - *The Project Experience Risk Information Library* - and the classification is based on his experience.

This checklist is focused especially on the project issues while PESTL and partly SWOT analysis deal with overall company environment. The checklist includes risks which could appear during the project realization as well as during the sustainability period.

Source of Risk and Characteristics	Examined	Ideas for Risk Reduction
Category: Project Scope		
<p>Changing requirements coming from scope changes (additional investment of time and money)</p> <p>Pressure to meet the completion date (Incubator construction finalization)</p> <p>Technical problems in project documentation threatens the project quality</p> <p>Formal insufficiencies during selection procedures</p> <p>Insufficient demand for project outputs</p> <p>Insufficient services offered in the Incubator</p> <p>Not enough office spaces for companies.</p>		<p>Define scope up front in measurable terms: the limits to be applied to unbounded tasks, Undergoing adequate analyses during all project phases. Time and money reserves.</p> <p>Minimize any changes during the project time frame which may impact the project (e.g., changes to project staff).</p> <p>Add schedule management to the formal risk management plan to ensure visibility, and pro-actively address schedule variances.</p> <p>Use a more experienced team.</p> <p>Collocate team for maximum productivity.</p> <p>Use services of expert to compile all necessary documentation.</p> <p>Strict following of the OP rules and legal requirements.</p> <p>Advertise from the beginning; Incubator presentations at conferences and workshops; increase the offer to other faculties absolvent; cooperation with Chamber of Commerce.</p> <p>Monitoring of needs of companies and adapting to them.</p> <p>Rent of other VÚSH, a.s. offices - not financially favoured rent; limitation of accepted companies; limitation of period for which companies can stay in Incubator.</p>

Risk Management Checklist

Source of Risk and Characteristics	Examined	Ideas for Risk Reduction
Category: Project Resources		
<p>Money</p> <p>Shortage of money for Incubator functioning</p> <p>Unwillingness / inability of owner to finance first years of Incubator functioning</p> <p>Inability of small companies to fulfil commitments to Incubator</p> <p>Delay in grant Payment.</p> <p>Unrealistic project budget</p> <p>Eligible expenditures issues</p> <p>Robbery in the building of Incubator</p> <p>Outsourcing</p> <p>Subcontractor capability</p> <p>Energy or water deficit or blackout</p> <p>Denouncement of financial, law, and other experts</p> <p>De-commitment of building company</p> <p>Subcontractor ability to deliver as planned</p> <p>People (Personnel shortfalls - people and qualifications) :</p> <p>Temporary staff loss due to factors such as illness</p>		<p>Reduce Incubator area and offered services.</p> <p>Offer high quality services so they can be offered to other subjects out of Incubator and finance the project this way.</p> <p>More favourable timetable for repayment or payment in a form of share on innovative company.</p> <p>Ensure sufficient liquid funds.</p> <p>Use experienced estimations, ensure that the estimates are "owned" by people (responsibility), price by phase (not project)</p> <p>Thorough evaluation of each expenditure.</p> <p>Insure against this risk.</p> <p>Conduct reference checks.</p> <p>Specify conditions and remedy in event of poor performance.</p> <p>Contracts need to be negotiated, approved, and signed.</p> <p>Back up in form of temporary power and water source.</p> <p>Necessary to be in contact with other experts.</p> <p>Stay in touch with other company and prepare quality contract with strict de-commitment rules (penalty).</p> <p>Ensure delivery schedule is included in sub-contract.</p> <p>Substitution clause in contract with repayment for time lost.</p> <p>Consider external sources (e.g., subcontract).</p>

<p>Staff loss due to factors such as resignation</p> <p>Lack of training or experience for task</p> <p>Resources not available when needed</p> <p>Project Management</p> <p>Committed team</p>		<p>Implement key personnel agreements for critical resources and ensure competent Assistant Manager is available.</p> <p>Staff with top talent.</p> <p>Use overqualified staff in critical situations.</p> <p>Ensure that resolution of all issues and problems are assigned to individuals and documented.</p> <p>Replace poor performers if necessary. Motivate for performance.</p> <p>Ensure that Project Management fundamentals have been applied (project goal statement, feasibility, accountability etc.).</p>		
<p>Source of Risk and Characteristics</p>	<p>Examined</p>	<p>Ideas for Risk Reduction</p>		
<p>Category: Project Schedule</p>				
<p>Dependency</p> <p>Legal, regulatory, or standards shift</p> <p>Needed support not available (printing, IT, etc.)</p> <p>Estimates</p> <p>Poor estimating process, lack of analysis</p> <p>Delay</p> <p>Information Slip due to unavailability of needed data</p> <p>Delay / loss caused by environmental catastrophes (for example storm causes damage in the Incubator)</p> <p>Parts Delay waiting for needed components of deliverable</p>		<p>Regular checks and knowledge of OP conditions necessary.</p> <p>Usage of VÚSH, a.s. sources or building of Incubator I.</p> <p>Use historical information (from previous project) just as a lead - conduct analyses based on up to date information.</p> <p>Establish clear project team structure and communicate regularly.</p> <p>Insure against these environmental risks.</p> <p>Schedule reviewed and communicated periodically to affected groups.</p>		

Risk Management Checklist

2.2.4 Project SWOT Analysis

The purpose of this analysis is to *integrate* outputs of previous analyses and information² reviews to identify threats, weaknesses, strengths, and opportunities related to the project. As the thesis deals with managing negative risks, this analysis is focused especially on threats. It is necessary to think about what actually is important in achieving objectives, how to reduce weaknesses and how to **prepare for threats**.

Threats - description, implication and imperative (initial response)

Operational

Not enough innovative companies could lead to insufficient capacity usage, lower revenues and consequently to harm of reputation. ■ Incubator benefits need to be advertised properly to attract start up companies. In acute case, other companies have to get access to Incubator.

Insufficient office space for companies (high demand) would cause loss of revenues and possibly missed opportunity to find a really innovative company with good ideas. ■ Rent of other VÚSH, a.s. offices (not financially favoured rent); limitation of accepted companies (selection process); limitation of period for which companies can stay.

Decrease in demand (or price) for office spaces in Brno would lower VÚSH's revenues and threaten the project goal (to support innovative start up companies in the region and consequently increase the attractiveness and competitiveness of the region in R&D). ■ Offer the spare offices to interested companies; organise workshops and conferences to increase the awareness of Incubator, R&D benefits, and the region potential.

Insufficient services offered within the Incubator. ■ Regular monitoring of needs of companies and adapting to them.

² Feasibility study (59), Business Intention for the project (44), VÚSH documentation collection (30), VÚSH trade register information (31)

Insufficient demand for project outputs. ■ Advertise from the beginning; Incubator presentations at conferences and workshops; extend the offer to graduates of other faculties; cooperation with Chamber of Commerce.

Changing requirements coming from scope changes could require additional investments of time and money. ■ Define scope up front in measurable terms, set limits to tasks, make people responsible for that. Time and money reserve could solve that too.

Competing projects are making success of our project challenging. ■ Monitoring of similar projects appearance.

Waiting for needed components of deliverable could increase the overall duration of project realization, and consequently the grant rules could be broken. ■ Schedule reviewed and communicated periodically to affected groups

Outsourcing

Insufficient subcontractor capability could cause delays in schedule, construction budget violation, construction imperfections. ■ Reference check before engaging supplier; specify conditions and remedy in event of poor performance. Contract need to be approved and signed. Include requirement for *construction insurance* into contract.

Energy or water deficit (or blackout) could cause troubles to companies within Incubator in a form of, for example, loss of laboratory results, loss of important computer data, etc. ■ Back up in a form of temporary power and water source.

Avoidance of contract from the site of building company. ■ Stay in touch with other company; prepare quality contract with strict rules (penalties). Ensure delivery schedule is included in sub-contract. Substitution clause in contract with repayment for time lost.

Legislative / Regulatory

Strict and complex ERDF rules whose violation can lead to sanctions (paying back whole grant in the worst case). ■ Deep knowledge of OP conditions is crucial and it is

necessary to undergo regular checks of all legal requirements fulfilment (such as to follow Act No 137/2006 Coll., on Public Contracts)

Current industrial property rights system is unfavourable (in terms of costs and complexity) which could discourage talented people from innovative ideas and monitoring indicators could be difficult to fulfil ■ This could be solved partially by help of Incubator experts who connect beginning entrepreneurs with appropriate investors (willing to participate financially and by sharing knowledge with the entrepreneurs).

Financial / Economic

Shortage of money for Incubator full functioning would lead in worst case to closure of the incubator. ■ Reduce incubator area and offered services.

Unwillingness / inability of owner to finance first years of Incubator functioning could lead to sustainability rule violation and threaten the overall existence of the Incubator. ■ Offer high quality services so they can be offered to other subjects out of the Incubator and finance the project this way.

Inability of small companies to fulfil commitments could cause liquidity troubles to Incubator. ■ More favourable timetable for repayments or payment in a form of share on an owing company.

Delays in grant payment could cause liquidity troubles to the incubator. ■ Ensure sufficient reserves of liquid funds.

Strict project budget could cause violation of it what could be penalized by grant authorities. ■ Use experienced estimations, ensure that the estimates are "owned" by people (responsibility), price by phase (not project)

Eligible expenditures issues. Those expenditures found not to be eligible will not be paid off by grant. This would mean grant reduction and consequently existence problems for Incubator. ■ Thorough evaluation of each expenditure.

Significant increase in variable rate (1M PRIBOR) could increase monthly interest payments (liquidity difficulties and budget exceeding). ■ Hedge against this risk.

Social / Human Resources

Personnel shortfalls (people and qualifications) are very important elements for successful project realization as it depends mainly on quality team members' decisions and qualification. ■ Implement key personnel agreements for critical resources and ensure that competent Assistant Manager is prepared. Consider external sources (e.g., subcontract) in case of temporary staff loss.

Lack of training or experience for task could cause problems at every employee position.

- Staff with top talent needs to be selected.

Resources are not available when needed. For example, experts from VÚSH, a.s. have many other duties besides consultations for companies in Incubator what could make them unavailable when needed. ■ Use overqualified staff in critical situations.

Team not committed (or organised) enough to project could cause delays, budget violation, internal inconveniences and threaten successful project finalization. ■ Ensure that resolutions of all issues are assigned to individuals and documented. Replace poor performers if necessary. Ensure that Project Management fundamentals have been set.

Technical / Environmental

Disasters in a form of storms, floods, hurricanes could cause damage on the building of Incubator (in a phase of construction as well as functioning). ■ It is not possible to remove this kind of risks so insurance should be used.

Technical problems in project documentation threatens the project quality. ■ Use service of experts to compile all necessary documentation.

Robbery and burglary could cause losses – missing money, stolen electronics, etc. – and damages of on the property (interior and exterior of the building). ■ Insure against that.

Threats resulting from OP rules *(given by Grant Provision Conditions)*

Rules of project phasing (the end date, number of phases, and money allocated to each phase are mandatory) create pressure to meet the completion date and stick to budget. ■

Minimize any changes during the project which may impact the project (e.g., changes to project staff). Ensure transparency, and pro-actively address schedule variances.

Impossible to make significant changes (for example change mandatory indicators) within the project realization or to gross up the budget. Minor budget changes are possible, however, there are limits in % allocated to some parts of the budget (cost category) which cannot be exceeded. ■ Minimization of changes, what could be ensured by precise project plan preparation (before realization) and realistic expectations (e.g. the level of indicators is set appropriately). Use the most experienced team possible.

The beneficiary must not terminate its business activities, which use the property bought for project, or rent the property during 5 years after the project realization and she/he has the obligation to keep project outputs for 5 years after finalization (sustainability period). ■ *Manage risks which could have negative impact on project viability.*

Opportunities

Economical - Investments into R&D, new processes of construction works, new materials, cooperation with universities are claimed to be one of the ways to treat industries after the crisis. This need for innovations could mean increase in demand for products of incubated companies (profit for VÚSH, a.s.). Consequently, the project realization could lead to growth of an employment rate and economic level of the region. Opportunity can be also seen in the possibility of lower prices than those included in the budget. This would mean savings for VÚSH, a.s. as well as for ERDF.

Political - After the elections, the Czech republic is now becoming attractive to investors and possible partners of companies operating within business Incubator. Law that favours business investment is very important for start up companies and beginning

entrepreneurs. High support of Research and Development activities by EU and state itself are for the benefit of the project and its clients.

Technological - Companies are looking for cooperation in the field of transfer of technologies. The project have the opportunity to mediate between companies and other subjects. Technology development is the big opportunity to be exploited by the project as it will lead to new prototypes, patents and industrial designs. Lower operating costs ensured by Incubator will support realization of wide range of projects and ideas; research output could be brought into practice. VÚSH, a.s. will profit by new partnerships, projects and probably research authorities.

Social - High education level in the region means a high number of potential Incubator companies' clients. Environmental responsibility efforts lead to increased demand for innovative and "green" materials and construction processes. These materials also ensure lower operational costs which further increases the demand.

Weaknesses

Financial - The way of project financing by bank credit can be risky in a current economic climate. The planned area of Incubator had to be decreased because of lack of own resources and it will not be probably possible to satisfy all interested entrepreneurs.

Operational - The amount of offices spaces is not big enough to satisfy demand (the same for parking places). The company also misses production with higher turnover.

Strengths

Social - There is qualified and experienced person ready to play the role of a project manager and other collaborators with university education who can work on the project.

Operational - Timescale and deadlines were established by experts and with respect to experiences gained from the Incubator I project. Quality of offered services as well as long-term cooperation with universities are other benefits of VÚSH, a.s. Experiences

from complex projects and knowledge gained from Incubator I operating are important for smooth project realization as well as good reputation of the company.

Financial - The company have the financial strength to complete the project and also financial backing is ensured for case of unpredictable circumstances (shareholders agreed to support the project by short-term loans).

Technological - The project can use facilities of VUSTAH, a.s.; specialized laboratories are available; it is well located and infrastructure is more than good. VÚSH, a.s. and its daughter company have long tradition and concrete outputs of their research and development activities prove its credibility as regard the project intention.

2.2.5 Initial Risk Register – Risk Identification Output

The output of risk identification process is a list of all important risks identified including their description, potential impact on the project and first ideas (of responses) how to reduce their bad effects. The author divided the risk register into sections (legal, organizational, operational, financial, technical) recommended in a manual (8) as control authorities will be interested (if undergoing check) right in these categories.

Initial risk register is represented by the following columns in the final risk register:

Id	Description of Risk	Impact on Project (Identified consequences)	Potential Response (First ideas how to reduce bad effects)
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The initial risk register is used as input for risk analysis. To avoid duplicating within the text, the author decided not to include full initial risk register in this chapter.

2.3 Risk Analysis

With the risk identification complete, risk analysis is subsequently used to evaluate risks. There are several formal and complex methods that can be used for risk analysis, such as decision analysis. However, for many projects, less formal methods work well and consistency of used method is more important to achieve good results. The criteria most

project teams use is to consider the effects of a risk and the likelihood it will occur. In other words, many teams use qualitative risk analysis technique in a form of risk probability and impact assessment. (9)

This risk analysis part includes:

- Input:** Initial Risk Register (*the risk identification process output*)
- Tool:** Qualitative tool: Probability – Impact evaluation of each risk identified
+ Risk levels confirmation (by Manager³ of Incubator I)
- Output:** Advanced Risk Register

According to a Project risk Management Guidance manual (46), less formal risk assessment is sufficient and appropriate for the Incubator project. The project does not require a formal workshops and risks could be assessed mainly by a project team. No quantitative evaluation will be undergone at this stage as it would be very ineffective and uselessly time consuming to find value of every risk (there might be risks which will be simply accepted and quantification of their monetary value would be waste of time). Nevertheless, in case of high / extreme risks, quantitative evaluation will be necessary to be able to decide what kind of response would be effective and economical. Expected monetary value of important risks will be specified in the final chapter.

2.3.1 P- I Matrix

Qualitative Risk Analysis assesses the priority of identified risks using their probability of occurring, the corresponding impact and other factors such as the risk tolerance. (1)

Likelihood/Probability refers to the possibility of a risk occurring prior to any treatments being applied. Likelihood is assessed in terms of the total project lifespan, i.e. how likely it is that the risk will eventuate at some time during the project. This is necessary to enable risks to be funded in the project budget, which covers the life of the project. If a risk occurs, “impact” defines the cost or consequence of failure on the business intention (e.g. damage, loss, decrease in profit etc.). (2)

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It needs to be emphasized that the level of probability and impact corresponds with the phase of project realization. It means, that risks which were relevant for example in the phase of project planning (risk of not achieving the grant) are not evaluated in this phase or their importance is decreasing. The project is now in the phase of construction finalization and equipping so that risks which could appear now and onwards this moment are important.

To create the matrix, it is necessary to:

1. Assign a probability that the risk will occur.
2. Assign an impact to the project if the risk occurs.
3. Put the risk on the matrix.
4. Consequently (in the final part of the thesis) – to deploy one or more of the risk management strategies to the risks in the red section first; work on the yellow and green (caution needed) ones; ignore/accept the blue ones.

The following classifications were selected for P-I matrix establishment. 5x5 matrix was used as it allows more accurate risk evaluation than simple 2x2 or 3x3 matrix.

Qualitative measures of risk probability/likelihood (A – E):

A Almost certain – can be expected to occur in most circumstances; complex process with minimal checks (66-100 %)

B Likely – will probably occur in most circumstances; (46-65 %)

C Possible – might occur at some time; complex process with extensive checks; impacting factors outside control of organisation (16-45 %)

D Unlikely – could occur at some time; chance of occurring, noncomplex process; existence of checks (5-15 %)

E Rare – may only occur in exceptional circumstances; simple process (0-5 %)

Note: Despite the fact that the author is not quantifying the value of risk at this stage it is necessary to set approximate intervals of probability to each measure. This might be needed for justification of selected responses in the final part of the thesis. The intervals were chosen with respect to literature review and were discussed with Incubator Manager (to fit the verbal expressions in initial risk analyses from grant request form).

Qualitative measures of risk impact/consequences (1 – 5):

- 1 **Insignificant** (intensity of negative impact) – no measurable operational impact on the business intention; no material disruption, no impact on reputation,
- 2 **Minor** (intensity of negative impact) – management intervention required; inconvenient delays, negligible impact on reputation, negligible economic loss
- 3 **Moderate** (intensity of negative impact) – substantial management intervention required, schedule delays, marginal under-achievement of target performance, economic loss which can be restored
- 4 **Major** (intensity of negative impact) – significant intervention required, with significant mobilisation of resources, significant delays, performance under target, large economic loss
- 5 **Catastrophic** (intensity of negative impact) – immediate intervention required, loss of credibility, performance failure, non achievement of objective, violation of law which results in penalty or fine, serious economic loss

Project risk rating matrix

This matrix classifies risks according to their probability and impact. The matrix is divided into fields of different colours which represent specific levels of risk. Also **company’s risk appetite** is applied in the matrix. Risk appetite is the amount of risk a business is prepared to accept in pursuit of its business goals. It is usually expressed as an acceptable/unacceptable level of risk. The information necessary to set risk appetite of the company and establish matrix measures was gathered from the initial risk analysis – a part of the grant request (59). In this case, the black line in table presents the risk appetite border. The further action will have to be taken when $P \geq 3 \wedge I \geq 3$.

Probability	Impact				
	1	2	3	4	5
A					
B					
C					
D					
E					

Table 8: 5x5 Project Risk Matrix.

Adapted from Risk Management Methodology document (53).

Legend

Low risk Managed by routine procedures; no revenue impact; no impact to the reputation no loss of clients	High risk Senior management attention needed; considerable revenue impact; permanent loss of clients; regulatory fines can result; significant damage to reputation; violation of law/regulation.
Moderate risk Management responsibility to be specified; the impact nothing more than a nuisance; minimal or no loss of customers; minimal revenue impact	Extreme risk Immediate action required; financial impact on the project is likely to exceed its budget; significant impact on operational activities; possible closure of Incubator

2.3.2 Advanced Risk Register

The output of risk analysis is advanced risk register which builds an expansion of the initially generated risk register by relative ranking of project risks based upon the probability-impact matrix and the urgencies of the risks. The levels of risk **were approved** by Manager of the Incubator since it would be required in practice as well.

To avoid redundant duplications within the thesis, the advanced risk register, specifying threats to accept and threats to respond to, is presented by 3 columns in the final register: “probability”, “impact”, “level of risk”.

3 Proposals and contribution of suggested solutions

At this phase, the author has already identified and analysed all the possible aspects which could threaten the project and its goals fulfilment. Next step is to plan Risk Responses to reduce threats to project objectives. Finally, the risk management plan will be completed.

3.1 Risk Responses Planning

Risk response is the action which should be taken to reduce the risk, however it has to be appropriate to the significance of the risk, cost effective in meeting the challenge, timely, realistic within the project context, agreed upon all parties involved, and owned by a responsible person. (1)

According to the level of risk appetite of the company (see previous Chapter), there was relatively high number of risks considered to be acceptable for the company. Nevertheless **risk acceptance** in this project is proposed to be in **active form**. It means that within risk management plan, the acceptance is recommended (with consideration of the risk appetite) for risks where reserves were previously made (within schedule and budget) and “**Contingency plans**” (1) exist. These plans define actions to be taken if an identified risk occurs (*corrective actions*) and are expressed by column “Potential Responses” in the final risk register.

Risk Strategies (**beside acceptance**) which could be considered as an appropriate response to this projects’ risks include **avoidance, transference and mitigation**.

As the project is in the final phase of its realization (construction) now, it will not be probably possible to avoid many risks as this kind of response can be used mainly early in the project since it involves changing aspects of the overall project plan (extend the

schedule, reduce scope etc.). Simply said, it would mean eliminating threat by eliminating the cause (by clarifying requirements, obtaining expertise etc.).

Transfer of risk could be more likely taken into consideration as well as mitigation actions. Risk **transference** involves shifting the negative impact of a threat (and ownership of the response) to a third party. Risk transference does not eliminate a threat, it simply makes another party responsible for managing it. Risk **mitigation** involves reducing the probability and/or the impact of risk to an acceptable level. Taking early and pro-active action against a risk is often more effective than attempting to repair the damage a realized risk has caused.

Note: The project team is very small and whole operational functioning of the Incubator depends only on one person – the Project Manager. This fact was considered when responses were planned.

The following text presents risks which cannot be accepted after risk analysis. They are above the risk appetite border and the author has to undergo further evaluation of potential responses.

Operational risks requiring response planning

(Risk ID according to the final register numbering)

ID 4	Insufficient services offered within the Incubator	High risk (C4)
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This situation is not likely but it is possible, especially when consultancy services are considered (e.g. area of technological transfer, finances, management). Incubator might unconsciously provide services in inaccurate form, of insufficient “technical” level or quality. This could lead to loss of clients, low competitiveness, reputation harm and subsequently to existence difficulties. As the impact of this risk is considered to be major, prompt management intervention is required.

The author suggests *mitigation* actions in a form of:

1. Evaluation of every consultancy session with Incubator experts made by clients in a form of a brief and simple questionnaire, so that it would not take a lot of time to fill the form. Incubated companies would also see efforts of the management to improve offered services and fulfil their needs which helps the project reputation and sustainability.
2. Regular survey (every 6 months) collecting opinions of companies in Incubator about offered services (what services are used, what are not useful, level of satisfaction with used services, what services are missing in the offer).

Creation of simple questionnaires (for evaluation of sessions as well as for regular survey) does not require many resources – it is fast, easy and cheap way to monitor clients needs and satisfaction. It gives the Incubator the opportunity to adapt to fast-changing environment, increase quality of offered services and become coveted territory for starting innovative companies.

ID 8	Competing projects making our project success challenging	High risk (C3)
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Currently, there are no similar projects being realized in Brno. Two other incubators are functioning but operating within a different field and one of them is even a partner of this project. However, there is a chance that other similar institutions focused on building industry will be developed as Operational Programme Enterprise and Innovation has a priority line supporting directly creation of business incubators.

The capacity of both incubators Brno – South is not huge and it should not cause any difficulties to fill it, however, new similar project could drain clients away and project would have consequently problem to fulfil monitoring indicators and its whole purpose.

The author suggest, with respect to the level of risk and shortage of resources (financial as well as personal) *mitigation* of risk by monitoring Calls of the OP. It is possible to let the OP authority to inform the Project Manager electronically about every new Call so the only thing the Manager will have to do is to check regularly e-mails. When the call is announced, the project manager should contact business partners and try to find out if there is any similar project asking for grant. In case there is this kind of a project, and the project is well defined and perspective, the project manager could consider offering partnership to the project – no more competing project and even stronger market position.

Financial risks requiring response planning

(Risk ID according to the final register numbering)

ID 12	Unwillingness / inability of owner to finance first years of Incubator functioning	Med risk (E4)
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This situation is very improbable. The shareholders already have experience with business incubator and want to operate the second one as they can see its benefits (assuming first-class project management). Financial analysis showed economic health of the company so its inability to finance the incubator is unlikely. However if owners decide to stop financing of the incubator or will not be able to do so, the incubator will be in big difficulties. The sustainability rule would be violated (sanctions) and overall existence of Incubator would be threatened (closure).

From the position of the project manager, there is not a lot of things which could be done to eliminate this risk. However, the manager could try to find sources for Incubator functioning to fill the gap (between needed and available finances). He needs to ensure offer of high quality and interesting services to be able to use incubator potential “more commercially” and to offer its services to other companies on the market. This would increase revenues. Next possible action is to try to cut costs. Project team is minimal so incubator “reduction” (in terms of capacity used by favoured

companies) in favour of common commercial subjects could be considered. As all suggested activities would be taken after risk occurring, the risk strategy for this case is *acceptance*. It would be meaningless to take any further preventive actions (such as capital market trades) as it would require resources (personal, financial, time) and these are not available.

ID 13	Inability of small companies to pay for services to the Incubator	High risk (C3)
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It is quite possible that in current economic climate and complexity of acquiring credit (see PESTL analysis), the small beginning companies might have problems to pay for rent and other services provided by incubator (although the rent is very low and services low-budget). This could cause liquidity troubles to the incubator. Shareholders decided to help incubator with liquidity issues, however, the project manager should do his best to avoid that. Only common clause at the end of rental contract specifying financial sanctions for late rent payment would not be sufficient as it would not ensure that the debtor company will actually pay (mitigation action).

Also, it is not the aim of the incubator to ruin the companies. It is in the interest of the Incubator to keep the perspective companies functioning (to fulfil monitoring indicators and show qualities of the Incubator).

One possible strategy could be Receivable Insurance (risk transfer). Insurance price has increased significantly during last months and might be more than 1 % from insured turnover (depending mainly on business partners and territory of business). For evaluation of this risk strategy, it is necessary to find out expected monetary value of the risk and compare that with costs of insurance.

Expected monetary value (EMV)

- Probability of risk occurring assigned to “medium” risk – interval between 16 - 45 %

- Risk impact CZK 950 000,- in the worst case. This is the 2013 turnover when the revenues for rent will be highest as the 3rd year of stay of a company in Incubator is the most costly (financial plan does not include estimations of revenues for other services).
- Price of insurance SMEs (Atradius company fees)
 - individual; between 0,4 – 1,2 % (according to turnover)
 - co-insurance (participation) 15 – 20 %
 - construction industry considered to be risky
 - other fees (min CZK 1 000,- for request processing)
 - min 300,- per 3 months for every client (credibility check)

EMV = Impact * Probab. = 950,000 * 0,16 (own statistics, low amounts) = 152,000,-
This is what we could loose.

Approximate cost of insurance = 950,000 * 0,006 = 5,700,- + fees

Note: Construction industry is considered to be risky, it means that insurance price might be higher.

The insurance would then cost min 5,700,- and fees about 13,000,- (+ participation in amount of 15 %). In total approximately CZK 18,700,- per year. According to the EMV rule the risk should be insured (cost of insurance < monetary value of possible loss).

However, this tool (insurance) is used mainly by companies with many clients or for high value trades. There are only 10 companies (very small number of clients, project manager know them all personally) within Incubator and rent of one office in size of 30m² is max 5,250,- per month (small amount of money). It is more probable that owing companies will be only late with rent payment rather than bankrupting or unwilling to pay (as it should be their priority to keep office with favoured rent). Basically, the Incubator will have only 10 receivables per month to take care of and all possible debtors are situated in one building together with the creditor. Also, there is so called “waiting period” before insurance company pays to the beneficiary of insurance

(usually 5 – 12 months). This means that insurance would not make cash flow prediction much more accurate.

These facts make receivable insurance inappropriate kind of risk response. Based on this evaluation, the author suggests to establish reasonable timetable for repayments. The debtor company would have second chance to pay and Incubator would not lose its money. Next way could be payment in a form of share on the debtor company. This sort of capital interest of Incubator in the company could actually be very beneficial to that company as it would be given important expert management advices. All these actions have corrective character so that the final strategy is risk *acceptance*.

ID 14	Significant increase of variable rate (1MPRIBOR)	Med risk (D4)
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Credit conditions include interest 1M PRIBOR + 1,9 % p.a. (paid monthly). Any credit where payments made by the borrower may increase over time (as in this case of variable rate) brings with it the risk of financial difficulties to the borrower.

An effective way to deal with financial risk exposure might be transfer strategy. In this case of interest rate risk, interest rate option (CAP) could be considered. An interest rate cap is a derivative in which the buyer receives payments at the end of each period in which the interest rate exceeds the agreed strike price. An example of a cap appropriate for this project would be an agreement to receive a payment for each month the 1M PRIBOR rate exceeds 3 %. This kind of contract includes payment of a risk premium to the party taking the risk (bank). However, banks set limits in a form of minimum notional (nominal) amount. This limit is usually higher than 10 million (CSOB 25 mil.; KB 50 mil.).

The 1MPRIBOR was around 3 % when financial plan was developed and there was used rate of 5 % for overall interest payments calculations in the plan. In 2010 – the first year of interest payments – the 1MPRIBOR rate is much lower. In June, for example, the rate was 1,01 % which makes the total interest rate of 2,91 % for that month. With

respect to expected economic growth, exchange rates and foreign markets development, the CNB expects the rate to increase gently in 2011 but not significantly (still under 2 %). This leaves reserve of 1,1 %. The building market situation gave VÚSH, a.s. the opportunity to lower construction costs and so to decrease the amount of credit and cut the time needed for credit repayment. The credit is now 9 million instead of 10 and pay-off period will be shorter (4 instead of 5 years). (37 ,66) Loan interest will drop down in total from 1,502,000,- to 1,238,000,- (the 5 % used in financial plan). This reduces the risk of unexpected interest costs a lot.

Also, in 2010, 2011 and 2012, the 1MPRIBOR rate is supposed to be under previously expected values which gives the company chance to make reserves from saved interest money for the case of unexpected increase of the rate in 2013 (no estimations yet). (37) Risk transfer would minimally require time for administration, premium costs, and project manager (or other person) with financial market knowledge. Author thus suggests to *accept* the risk and create reserves for 2013 during favourable years.

Legal / regulatory risks requiring response planning

(Risk ID according to the final register numbering)

ID 23	Grant repayment in case of termination of business activities using the property bought for the project, or rent the property	Med risk (D4)
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VÚSH, a.s. is obliged to keep project outputs, which means that rent of the property bought for project or termination of overall business activities is not possible. Violation of this rule could lead to sanction in a form of paying back the grant. Closure of the business is very improbable and rent of the property can be swapped for different source of revenues. This issue is very complex and the risk cannot be transferred or avoided. Keeping business alive includes many aspects and no simple action can be taken to ensure this. However, observance of the risk management rules and sticking to the proposed risk management plan could significantly enhance the company's chances and *mitigate* the risk.

Technical / environmental risks requiring response planning

(Risk ID according to the final register numbering)

ID 24	Natural disasters - storms, heavy snow etc. + consequences	Med risk (D4)
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This risk is unlikely, however if it occurs, it might cause serious damages on property – in our case on Incubator construction and its equipment inside. That is why this kind of risk cannot be accepted. It is not possible to avoid it and mitigation actions are also limited, as no construction method can ensure full protection against calamity caused by natural elements. The company will probably need insurance help to rebuild after a disaster as it can be really financially devastating event, thus the suggested strategy is a risk *transference*.

Location of the Incubator is not “high risky” so that the insurance price should not be high (definitely not higher than EMV of the risk). Basic disaster insurance covers “fire” risks. Author suggests to use also supplementary insurance against windstorms, tree falls, heavy snow and water piping damages. Also, complex proprietary insurance, meaning combination of disaster insurance with the next category of risk (ID 25 - robbery) would decrease the overall insurance price. The insurance should cover real property (the building) as well as movables (equipment). The insurance company will then in case of insurance event cover a loss in amount sufficient to replace damaged items (principle of replacement value).

ID 25	Robbery and burglary into Incubator	High risk (C3)
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This kind of risk can be *transferred* on third person by theft insurance. This kind of insurance covers burglary (defined to mean the unlawful taking of property within premises that have been closed and in which there are visible marks evidencing forcible entry) as well as burglary (entry into a building for the purposes of committing an offence). Also damages on property caused by thieves should be covered (such as damaged door or a broken window).

It is not easy to evaluate impact of this threat. Losses and costs of theft might include (beside the value of stolen items) for example those caused by unavailability of machines, loan interest (when buying new appliances) etc.. Possible loss is likely to be much higher than insurance price. The Incubator I has already been robbed so that the author recommends to use service of insurance company in this case.

3.2 Risk Management Plan

Project summary, risk management approach, risk identification, analysis processes, and response planning information have been specified in previous chapters – all these are actually parts of the risk management plan. Following concluding risk management plan has a form of a final risk register which integrates outputs of all previous analyses and processes.

This project (the case) is not extremely structured and highly complex, so that the **Project Manager** should also become a **Risk Owner** and **Project Risk manager**. He will be responsible for risk management plan and response actions implementation. He might delegate some specific risks' ownership to other team members. He should also ensure risk monitoring and control. **Project Team Members** should pro-actively identify risks within specialty areas and communicate it to the manager.

3.2.1 Developed Final Risk Register

The *Final Risk Register* was designed by author to be **brief and to the point**, so it quickly conveys the essential information. It records details of all the risks identified, their grading (probability, impact), initial and final responses to each risk, responsibilities for responses and date of revision.

Id	Description of Risk	Impact on Project (Identified consequences)	Potential Response (First ideas how to reduce bad effects)	Assessment of Probability	Assessment of Impact	Level of Risk	Responses (actions to take)	Owned by / Date of revision
Operational risks								
1	Not enough innovative companies to fill the Incubator capacity	Insufficient capacity usage, lower revenues, and consequently harm of reputation.	Incubator benefits need to be advertised properly to attract start up companies. In acute case, other companies have to get access to Incubator.	E	3	M	Acceptance (presently)	Project Manager / 15.8.10
2	Insufficient infrastructure (in terms of ICT – internet connection, communication services etc.)	High dependency of companies on a quality ICT. Functionless infrastructure lower their competitiveness.	Monitor constantly the needs of companies, ICT functionality and discuss it with them regularly.	D	3	M	Acceptance (presently)	Project Manager / 15.8.10
3	Insufficient office space for companies (high demand)	Loss of possible revenues and missed opportunity to find perspective companies with innovative ideas.	Rent of other VÚSH, a.s. offices (not financially favoured rent); limitation of accepted companies (selection process); limitation of period for which companies can stay in Incubator.	C	2	M	Acceptance (presently)	Project Manager / 15.8.10

4	Insufficient services offered within the Incubator	Loss of clients, low competitiveness, reputation harm.	Regular monitoring of needs of companies and adapting to them.	C	4	H	Mitigation – evaluation of services + survey (questionnaire)	Project Manager / 15.8.10
5	Energy or water deficit (or blackout)	Discomfort for companies + possible loss of computer data, etc.	Back up in a form of temporary power and water source.	E	1	L	Acceptance (presently)	Project Manager / 15.8.10
6	Significant decrease in demand (or price) for office spaces in Brno / insufficient demand for project outputs	Less clients, lower revenues and the project goal threatened (<i>to support for innovative companies and increase the attractiveness and competitiveness of the region in R&D</i>).	Advertise from the beginning; offer spare offices to every company (also to other faculties graduates) ; presentations at conferences to increase the awareness of Incubator, R&D benefits, and the region potential; co-op. with Chamber of Commerce.	D	3	M	Acceptance (presently)	Project Manager / 15.8.10
7	Changing requirements coming from scope changes	Additional investments of time and money.	Scope to be defined up front in measurable terms, set limits to tasks and make people responsible for that.	E	3	M	Acceptance (presently)	Project Manager / 15.8.10

8	Competing projects are making success of our project challenging	Loss of clients, not fulfilling monitoring indicators, project not fulfilling its purpose.	Monitoring of similar projects realization. Try to establish co-operative relationship with them.	C	3	H	Mitigation – monitoring Calls of OP; partnership with projects	Project Manager / 15.8.10
9	Waiting for needed components of deliverable (the construction)	Increase in the duration of project realization, and consequently the grant rules could be broken.	Schedule reviewed and communicated periodically to affected groups.	D	3	M	Acceptance (presently)	Project Manager / 15.8.10
10	Insufficient subcontractor capability (the building company) <i>Note: construction insurance</i>	For example delays in schedule, construction budget violation, construction imperfections.	Check reference before engaging supplier; specify conditions and remedy in event of poor performance. Contract to be approved and signed.	E	3	M	Acceptance (presently)	Project Manager / 15.8.10
11	Avoidance of contract from the site of building company	Delay in project realization – mainly administrative inconveniences.	Be in touch with other company; quality contract with strict rules (penalties). Delivery schedule included in sub-contract. Substitution clause in contract (for time lost etc.).	E	2	L	Acceptance (presently)	Project Manager / 15.8.10

Id	Description of Risk	Impact on Project (Identified consequences)	Potential Response (First ideas how to reduce bad effects)	Assessment of Probability	Assessment of Impact	Level of Risk	Responses (actions to take)	Owned by / Date of revision
Financial								
12	Unwillingness / inability of owner to finance first years of Incubator functioning (for the sustainability period)	Sustainability rule violation and threaten existence of Incubator; would lead in worst case to closure of the incubator.	Offer high quality services so they can be offered to other subjects out of the Incubator and finance the project this way. Reduce incubator area and offered favoured services.	E	4	M	Acceptance – contingency plan (commercial use of Incubator)	Project Manager / 15.8.10
13	Inability of small companies to fulfil obligations - to pay for services to Incubator	Liquidity troubles to Incubator.	More favourable timetable for repayment or payment in form of share on innovative company.	C	3	H	Mitigation + acceptance (contingency plan – payment schedule; capital interest in a debtor company)	Project Manager / 15.8.10

14	Significant increase of variable rate (1MPRIBOR)	Increase in amount of credit interest paid monthly to bank. In worst case, budget exceeding.	Create reserves for this situation.	D	4	M	Acceptance + contingency plan (reserves)	Project Manager / 15.8.10
15	Delays in grant payment	Liquidity troubles to the incubator.	Ensure sufficient reserves of liquid funds.	C	2	M	Acceptance (presently)	Project Manager / 15.8.10
16	Inappropriate project budget (or cost increase)	Penalization made by grant authorities for its violation, insufficient financial resources for some budget elements.	Use experienced estimations, ensure that the estimates are "owned" by people (responsibility). Cost savings to be identified.	E	3	M	Acceptance (presently)	Project Manager / 15.8.10
17	Eligible expenditures issues	Not eligible expenditures would not be paid of by grant – grant reduction.	Thorough evaluation of each expenditure.	E	3	M	Acceptance (presently)	Project Manager / 15.8.10

Id	Description of Risk	Impact on Project (Identified consequences)	Potential Response (First ideas how to reduce bad effects)	Assessment of Probability	Assessment of Impact	Level of Risk	Responses (actions to take)	Owned by / Date of revision
	Legal / regulatory / political							
18	Strict and complex ERDF rules	Their violation can lead to sanctions (paying back whole grant in the worst case).	Deep knowledge of OP conditions is crucial and it is necessary to undergo checks of all legal requirements fulfilment (such as to follow Act No 137/2006 Coll., on Public Contracts)	D	3	M	Acceptance (presently)	Project Manager / 15.8.10
19	Current industrial property rights system is unfavourable (in terms of costs and complexity)	That could discourage talented people from innovative ideas and thus it would be difficult to fulfil monitoring indicators (e.g. patents of incubated companies)	Could be solved partially by help of Incubator experts who could connect beginning entrepreneurs with appropriate investors (willing to participate financially and by sharing knowledge).	D	2	L	Acceptance (presently)	Project Manager / 15.8.10
20	Changes in tax regimes	Decrease in planned revenues.	Count financial reserves into budget.	E	2	L	Acceptance (presently)	Project Manager / 15.8.10

21	Rules of project phasing (the end date is mandatory as well as number of phases and amount of money allocated to each phase)	Pressure to meet the completion date and phase budget.	Minimize any changes which might impact the project duration (e.g., changes to project staff). Ensure visibility, and pro-actively address schedule variances.	D	2	L	Acceptance (presently)	Project Manager / 15.8.10
22	Impossible to make <i>significant</i> changes (for example to change mandatory indicators or to gross up the grant amount) during project realization. (Minor changes are possible.)	Could cause financial difficulties and threaten the project realization in case that the company would want to change slightly the project purpose.	Necessary to minimize changes - could be solved by precise project plan preparation (before project realization) and realistic expectations so thus the level of indicators is set appropriately. Use the most experienced team possible.	D	3	M	Acceptance (presently)	Project Manager / 15.8.10
23	The beneficiary must not terminate its business activities, which use the property bought for project, or rent the property	For 5 years after the project realization + obligation to keep project outputs for 5 years after project realization (sustainability period). – otherwise obligation to pay back the grant.	Complex issue – necessary to manage risks which could have negative impact on project viability.	D	4	M	Mitigation – risk management processes establishment	Project Manager / 15.8.10

Id	Description of Risk	Impact on Project (Identified consequences)	Potential Response (First ideas how to reduce bad effects)	Assessment of Probability	Assessment of Impact	Level of Risk	Responses (actions to take)	Owned by / Date of revision
Technical / Environmental								
24	Natural disasters in form of storms, heavy snow, hailstorm etc. and their consequences	Destruction of the building of Incubator or its damage.	Insurance against natural disasters.	D	4	M	Transfer – disaster insurance	Project Manager / 15.8.10
25	Robbery and burglary into Incubator	Loss of finances, electronics etc. + damages on the property.	Insurance against the risk.	C	3	H	Transfer – theft insurance Risk 24 + 25 to be insured together (proprietary insurance)	Project Manager / 15.8.10
26	Technical problems in project documentation	Threatens the project quality (quality of the construction).	Use service of experts to compile all necessary documentation	E	3	M	Acceptance (presently)	Project Manager / 15.8.10

Id	Description of Risk	Impact on Project (Identified consequences)	Potential Response (First ideas how to reduce bad effects)	Assessment of Probability	Assessment of Impact	Level of Risk	Responses (actions to take)	Owned by / Date of revision
HR / Organizational								
27	Permanent and temporary staff loss / Resources not available when needed	Staff loss could cause missing resources for project management and services providing.	Implement key personnel agreements for critical resources; ensure competent Assistant Manager is available. Consider external sources in case of temporary staff loss. Use overqualified staff in critical situations.	D	2	L	Acceptance (presently)	Project Manager / 15.8.10
28	Lack of training or experience for task	Inappropriate decisions leading to reputation harm; possible loss; inappropriate advices given by “experts” to start up companies..	Staff with top talent needs to be selected.	E	3	M	Acceptance (presently)	Project Manager / 15.8.10
29	Team not committed (or organised) enough to project	Delays, budget violation, internal inconveniences and markedly threaten successful project finalization.	Ensure that resolution of all issues and problems are assigned to individuals and documented. Replace poor performers if necessary. Ensure that Project Management fundamentals have been applied	D	3	M	Acceptance (presently)	Project Manager / 15.8.10

3.2.2 Proposed Monitoring and Control Activities

To complete the RMP, system of **monitoring and control** has to be established since it is as important as a part of identification, analysis and response planning. Threats are appearing and disappearing in course of time which means that a risk register can be valid one day but obsolete the other one. Risk acceptance does not mean disregard. It only means that at the moment the stated level of risk is acceptable but the level of risk could change by time. After that, the risk might be re-graded as unacceptable and response would have to be planned.

The author suggests following actions to be taken by Project Manager to keep the risk register up to date and effective:

1. Update the RMP regularly; insert in any changes that happened – undertake informal own individual brainstorming once a month + make deeper analysis every 3 months (the project realization is divided into long phases and the shortest one lasts 3 months);
2. establish a system of milestone control to ensure timely defect detection;
3. activate corrective actions (column “initial responses” in final register) when level of previously accepted risk increases;
4. monitor effectiveness of responses;
5. communicate threats and responses effectiveness to VÚSH, a.s. shareholders (their risk appetite might change);
6. look for different kind of response if the original one does not have positive effect on achieving goals (*for example security services instead of theft insurance – meaning mitigation instead of transference*);
7. promote risk management activities within the project team so that team members become willing to actively manage risks.

It is clear that the change of level of risk can be also positive as the project knowledge increases and risks are diminishing.

Conclusions

The purpose of a project risk management plan is to summarise all project risks and specify exact ways how to deal with them. The plan is a result of many risk management processes including risk identification, analysis, planning responses to risks, their monitoring and control.

The aim of this thesis was to develop a risk management plan for a project financed by Structural funds of European Union to help to ensure its sustainability. More precisely, the case in this Master's thesis was a project developing second Business Incubator Brno – South, which aims to create support for innovative starting companies especially from the field of building industry.

To fulfil the main aim of this thesis, it was necessary to make a review of documentation such as the project feasibility study and project business intention to get input for project risk identification part. On the basis of the review, the project definition was made and also company's financials were evaluated to understand better the financial backing of the project. Tools selected to identify risks were PESTL analysis, Checklist method and SWOT analysis. The output of this phase was used as an input for following risk analysis. Every identified risk was analysed from the point of view of its negative impact on the project and fulfilling its objectives and also the likelihood of the risk occurring (P-I matrix). Advanced risk register was output of this phase. Finally, risks which were considered by the author to be over the company's risk tolerance were further analysed and responses to them were planned. The final risk register includes 29 identified risks and 8 of them required the further evaluation of appropriate responses. Proposals for risk elimination (responses) were considered from the site of their costs and effectiveness. The final part of the thesis includes also proposals of activities which should be taken to ensure quality monitoring and control of risk management plan and effectiveness of responses.

This thesis is not a theoretical paper – this risk management plan was developed for a real project and up to date information was used to detect threats. Thus it brings

valuable contribution to a project manager as it gives him, simply said, a clue what arrangements to make to eliminate revealed threats. It is not possible to eliminate all threats however their documentation provides awareness that these exist and that they can be managed. The author believes that if all recommendations are respected and proposed monitoring and control activities undergoing, the project of Business Incubator will be successful and will fulfil the sustainability rule.

The risk management system used in this thesis to develop the risk register (i.e. the plan) can be kind of sample or inspiration for VÚSH, a.s. and other companies using grants as one of the sources of their financing. Every project can use the main base of this thesis as a backbone for their project risk management plan. They only have to consider the scope and nature of their project and select appropriate methods for risk assessment.

References

- 1 A Guide to the Project Management Body of Knowledge : Epitome. USA : Project Management Institute, 2004. 176 s.
- 2 *A Risk Management Standard* [online]. London : AIRMIC, ALARM, IRM, 2002 [cit. 2010-05-27]. Available at: <http://www.theirm.org/publications/documents/Risk_Management_Standard_030820.pdf>.
- 3 AACPS [online]. c2010 [cit. 2010-05-26]. Introduction to Project Sustainability. Available at: <www.aacps.org/development/IntroToProjSustainability.ppt>.
- 4 ANTOŠ, O. *Měšec* [online]. c 1998-2010 [cit. 2010-08-08]. Máte pojištěné své pohledávky?. Available at: <<http://www.mesec.cz/clanky/mate-pojistene-sve-pohledavky/>>.
- 5 AS/NZS ISO 31000:2009. *Risk management: Principles and Guidelines*. Australia: ISO, 2009.
- 6 BENEŠ, J., MARTINOVIČOVÁ, D. *Krizový management*. 1st ed. CERM s.r.o., 2004. 91 s. ISBN 80-214-2736-1.
- 7 BORISOWICH, C. *Toolbox.com* [online]. 2008 [cit. 2010-07-08]. Risk Management Checklist. Available at: <<http://it.toolbox.com/blogs/enterprise-solutions/risk-management-checklist-22039>>.
- 8 BOUŠKA, P. *Jak (ne)udržet výstupy projektu* [online]. Praha : MPMR, 2009 [cit. 2010-06-01]. Available at: <[http://www.strukturalni-fondy.cz/Informacni-materialy/Jak-\(ne\)udrzet-vysledky-projektu](http://www.strukturalni-fondy.cz/Informacni-materialy/Jak-(ne)udrzet-vysledky-projektu)>.
- 9 CERVONE, F. H. Project Risk Management. Managing Digital Libraries: The view from 30,000 feet. *OCLC Systems & Services: International digital library perspectives*, 2006, č.4, Vol. 22, s. 256-262.
- 10 ČSOB [online]. c2010 [cit. 2010-08-08]. Úroková opce. Available at: <<http://www.csob.cz/cz/Firmy/Podnikatele/Financni-a-kapitalove-trhy/Nastroje-zajisteni-rizika-pohybu-urokovych-mer/Stranky/Urokov-a-opce.aspx>>.

- 11 DOSKOČIL, R., RAIS, K. *Risk management*. 1st ed.. Brno: CERM s.r.o, 2007. 152 s. ISBN 978-80-214-3510-0.
- 12 DUNCAN, W. R. *A Guide to the Project Management Body of Knowledge*. USA: Project Management Institute, 1996. 176 s.
- 13 *Enterprise Risk Management — Integrated Framework : Executive Summary* [online]. USA : COSO, September 2004 [cit. 2010-05-27]. Available at: <www.coso.org/Publications/ERM/COSO_ERM_ExecutiveSummary.pdf>.
- 14 EU Cohesion Policy 1988-2008: Investing in Europe's future. *Inforegio Panorama* [online]. June 2008, 26 s. [cit. 2010-04-04]. Available at: <http://ec.europa.eu/regional_policy/sources/docgener/panorama/pdf/mag26/mag26_en.pdf>. ISSN 1608-389X.
- 15 *EU Regional Policy: an overview: DG Regional Policy*. Brussel: European Commission, 2010. 29 s. Available at: <http://ec.europa.eu/regional_policy/sources/slides/2010/2010_regional_general_en.ppt>.
- 16 *Europa : Summaries of EU legislation* [online]. European Commission, c2005-2010,[cit. 2010-04-04]. The Single European Act. Available at: <http://europa.eu/legislation_summaries/institutional_affairs/treaties/treaties_singleact_en.htm>.
- 17 *European Commission : Regional Policy* [online]. European Commission, c2010 [cit. 2010-04-04]. History. Available at: <http://ec.europa.eu/regional_policy/policy/history/index_en.htm>.
- 18 *European Commission* [online]. c1995 - 2010 [cit. 2010-05-25]. Introduction to EU Funding. Available at: <http://europa.eu/legislation_summaries/regional_policy/provisions_and_instruments/index_en.htm>.
- 19 *European Commission* [online]. c1995-2010 [cit. 2010-07-17]. An industrial property rights strategy for Europe. Available at: <http://ec.europa.eu/internal_market/indprop/rights/index_en.htm>.
- 20 *Fondy Evropské Unie* [online]. c2010 [cit. 2010-05-25]. Jak na projekt. Available at: <<http://www.strukturalni-fondy.cz/Informace-o-fondech-EU/Jak-na-projekt>>.

- 21 *Fondy Evropské Unie* [online]. c2010 [cit. 2010-05-25]. Regionální politika. Available at: <<http://www.strukturalni-fondy.cz/Informace-o-fondech-EU/Regionalni-politika-EU>>.
- 22 *Fondy Evropské Unie* [online]. c2010 [cit. 2010-05-26]. Glosář. Available at: <<http://www.strukturalni-fondy.cz/glosar/u>>.
- 23 FRAIT, J., ŠMÍDKOVÁ, K. ČNB [online]. 21.6.2010 [cit. 2010-07-17]. Návrat recese ohrozí finanční stabilitu. Available at: <http://www.cnb.cz/cs/verejnost/pro_media/clanky_rozhovory/media_2010/cl_10_1006_21b.html>.
- 24 HAZDRA, A. *Inovace* [online]. 28.3.2009 [cit. 2010-07-17]. Zelená, Bílá a Modrá kniha Technologického centra AV ČR. Available at: <<http://www.inovace.cz/for-business/veda-vyzkum/podpora-vedy-a-vyzkumu/clanek/zelena--bila-a-modra-kniha-technologickeho-centra-av-cr/>>.
- 25 HAZDRA, A. *Inovace* [online]. c2007 [cit. 2010-07-17]. Věda očima obyvatel EU. Available at: <<http://www.inovace.cz/for-business/veda-vyzkum/clanek/veda-ocima-obyvatel-eu/>>.
- 26 HLAVOŇ, M. *Kurzy* [online]. 31.5.2010 [cit. 2010-07-17]. Volby vyhrál obyčejný investor. Available at: <<http://zpravy.kurzy.cz/227988-ve-volbach-2010-vyhral-obycejny-investor/>>.
- 27 *Hospodářské noviny* [online]. 13.4.2010 [cit. 2010-07-17]. Aktuální problémy stavebnictví. Available at: <<http://hn.ihned.cz/c1-42472500-aktualni-problemy-stavebnictvi>>.
- 28 *Insia* [online]. c2009 [cit. 2010-08-08]. Orientační ceny pojištění. Available at: <<http://www.pojistenipohledavek.cz/orientacni-ceny-pojisteni.html>>.
- 29 JOHÁNEK, T. *Realit* [online]. c2006-2009 [cit. 2010-07-17]. Zájem o zelené budovy se stále zvyšuje. Available at: <<http://realit.cz/clanek/zajem-o-zelene-budovy-se-stale-zvysuje>>.
- 30 *Justice* [online]. Ministerstvo spravedlnosti ČR, 2010 [cit. 2010-07-16]. Sběrka listin: VÚSH, a.s. Available at: <<http://www.justice.cz/xqw/xervlet/insl/index?sysinf.@typ=sbirka&sysinf.@strana=documentList&vypisListin.@cEkSub=177746&sysinf.klic=804f275756d35c11ba131ee04>>

40fafad&sysinf.spis.@oddil=B&sysinf.spis.@vlozka=1165&sysinf.spis.@soud=Krajsk
%FDm%20soudem%20v%20Brn%EC&sysinf.platnost=16.07.2010>.

- 31 *Justice* [online]. Ministerstvo Spravedlnosti ČR, 2010 [cit. 2010-07-16]. VÚSH, a.s.
Available at:
<http://www.justice.cz/xqw/xervlet/insl/index?sysinf.@typ=or&sysinf.@strana=searchResults&hledani.@typ=subjekt&hledani.format.typHledani=x*&hledani.podminka.subjekt=v%20fash>.
- 32 KAFKA, T. *Průvodce pro interní audit a risk management*. 1st edition. Praha: C. H. Beck, 2009. 167 s.
- 33 KENDRICK, T. *Identifying And Managing Project Risk: Essential Tools for Failure-Proofing your Project*. New York : Amacom, 2003. 354 s.
- 34 KERZNER, H. *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*. 10th ed. New York : International Institute for Learning, 2009. 1120 s.
Available at:
<<http://books.google.cz/books?id=4CqvpWwMLVEC&printsec=frontcover&dq=PROJECT&cd=7#v=onepage&q&f=false>>. ISBN 978-0-470-27870-3.p8
- 35 KIPPENBERGER, T. There's no such thing as a risk-free project. *The Antidote*, 2000, vol. 5, issue 5, pp 24 – 27. ISSN: 1363-8483.
- 36 *Lidovky* [online]. 31.5.2010 [cit. 2010-07-17]. Investoři jásají nad výsledkem voleb, koruna prudce posiluje. Available at: <http://byznys.lidovky.cz/investori-jasaji-nad-vysledkem-voleb-koruna-prudce-posiluje-p5d-/firmy-trhy.asp?c=A100531_100023_firmy-trhy_abc>.
- 37 *Makroekonomická predikce ČR*. Praha : Ministerstvo financí, červenec 2010. 75 s.
- 38 MERNA, T., AL-THANI, F. F. *Risk Management: Řízení rizik ve firmě*. 1st ed. Brno: Computer Press, a.s., 2007. 194 s. ISBN 978-80-251-1547-3.
- 39 *Ministerstvo průmyslu a obchodu* [online]. c2005 [cit. 2010-07-17]. Benchmarkingový diagnostický systém finančních indikátorů INFA. Available at:
<<http://www.mpo.cz/cz/ministr-a-ministerstvo/ebita/>>.
- 40 Monthly Note on Economic Recovery in Manufacturing, Construction and Selected Service Industries. *European Commission*. 2010, May 2010, s. 18.

- 41 *MyPMPS* [online]. c2006-2009 [cit. 2010-07-17]. Risk Identification. Available at:
<<http://www.mypmps.net/en/mypmps/knowledgeareas/risk/risk-identification.html>>.
- 42 OW, P. *Draft ISO 31000:2009 : Risk management - Principles and guidelines* [online]. Australia : VMIA, June 2009 [cit. 2010-05-27]. Available at:
<<http://vmiaclinicaltrials.com/skillsEDIT/clientuploads/48/Introduction%20to%20ISO31000%20June%202009.pdf>>.
- 43 *PODMÍNKY poskytnutí dotace v rámci prioritní osy 5. Prostředí pro podnikání a inovace*. Brno : OPPI, 2009. 13 s.
- 44 *Podnikatelský záměr na projekt: Rozšíření podnikatelského inkubátoru Brno - Jih*. Brno : VÚSH, a.s., Leden 2009. 28 s.
- 45 *Pokyny pro žadatele a příjemce dotace z operačního programu Podnikání a inovace*. Praha : MPO ČR, červen 2010. 55 s.
- 46 *Project Risk Management : Guidance for WSDOT Projects* [online]. Washington : WSDOT, January 2010 [cit. 2010-05-31]. Available at:
<<http://www.wsdot.wa.gov/publications/fulltext/cevp/ProjectRiskManagement.pdf>>.
- 47 *Reducing Project Management Risk* [online]. c1999 [cit. 2010-05-31]. Netcomuk. Available at: <<http://www.netcomuk.co.uk/~rtusler/>>.
- 48 *Reflection paper on future Cohesion Policy : Informal Meeting of Ministers for Regional Policy* [online]. Mariánské Lázně : European Commission, April 2009 [cit. 2010-05-26]. Available at:
<http://ec.europa.eu/regional_policy/policy/future/pdf/reflection_paper_future.pdf>.
- 49 *Regional policy - Inforegio* [online]. c1995 - 2010 [cit. 2010-05-26]. The cohesion policy of tomorrow. Available at:
<http://ec.europa.eu/regional_policy/policy/future/index_en.htm>.
- 50 *Regional Policy - Inforegio* [online]. c1995 - 2010 [cit. 2010-05-31]. Funds available. Available at: <http://ec.europa.eu/regional_policy/policy/fonds/index_en.htm>.
- 51 *Regional Policy - Inforegio* [online]. c1995-2010, Last modified on: 23-11-2009 [cit. 2010-05-25]. Key Objectives. Available at:
<http://ec.europa.eu/regional_policy/policy/object/index_en.htm>.
- 52 *Regional Policy - Inforegio* [online]. c2005 - 2010 [cit. 2010-05-25]. Policy Stages. Available at: <http://ec.europa.eu/regional_policy/policy/etap/index_en.htm>.

- 53 *Risk Management Methodology*. Sydney : Frame, 2010. 4 s.
- 54 SADGROVE, K. *Complete Guide to Business Risk Management*. 2nd Revised edition. USA : Gower Publishing , 2005. 348 s. ISBN 978-0-566-08661-8.
- 55 SAMECKI, P. *Orientation Paper on Future Cohesion Policy*. EU: EC, 12 / 2009. 13 s.
- 56 SMEJKAL, V., RAIS, K. *Řízení rizik ve firmách a jiných organizacích*. 3rd expanded and actualized ed. Praha: Grada Publishing, a.s., 2010. 353 s. ISBN 978-80-247-3051-6.
- 57 *Software Projects* [online]. c2001 - 2010, July 22nd, 2007 [cit. 2010-05-31]. Project Definition. Available at:
<http://www.softwareprojects.org/project_intake_reasons22.htm>.
- 58 *Strukturální fondy* [online]. c2010 [cit. 2010-05-31]. Informace o fondech EU. Available at: <<http://www.strukturalni-fondy.cz/Informace-o-fondech-EU>>.
- 59 *Studie proveditelnosti : Prosperita, výzva 1, režim zakládající veřejnou podporu*. Brno : VÚSH, a.s., Leden 2009. 49 s.
- 60 *Technologická agentura České republiky* [online]. c2010 [cit. 2010-07-17]. Available at: <<http://www.tacr.cz/>>.
- 61 *Technologické centrum HK* [online]. c2007 [cit. 2010-07-17]. Transfer technologií. Available at: <<http://www.tchk.cz/centrum-pro-transfer-technologiei/transfer-technologiei.htm>>.
- 62 *Výroční zpráva VÚSH*, a.s., 2009. Brno : VÚSH, a.s., 2010. 32 s.
- 63 *Výzkum a vývoj v ČR* [online]. c2010 [cit. 2010-07-17]. Rada pro výzkum, vývoj a inovace. Available at: <<http://www.vyzkum.cz/FrontClanek.aspx?idsekce=496>>.
- 64 *Výzkum a vývoj v ČR* [online]. c2010 [cit. 2010-07-17]. Reforma systému výzkumu, vývoje a inovací v České republice. Available at:
<<http://www.vyzkum.cz/FrontClanek.aspx?idsekce=495405>>.
- 65 WALLACE, S.,. *EPMbook* [online]. c1999-2007 [cit. 2010-07-29]. Project definition. Available at: <<http://www.epmbook.com/projdefwhy.htm>>.
- 66 *Závazný příslib poskytnutí úvěru*. Brno: ČSOB, 8.8. 2008, 1 s.

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List of Appendices

Appendix A – Financial Plan of the Investment Project

Appendix B – Initial Risk Analysis

Appendix A – Financial Plan of the Investment Project

	Období 1	Období 2	Období 3	Období 4	Období 5	Období 6	Období 7	Období 8	Období 9	Období 10	
Řádek	Výsledky provozu projektu v tis.Kč	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1	Tržby provozní (cena služby)										
2	Ostatní výnosy			250	720	850	950	720	850	950	720
3	VÝNOSY PROVOZNÍ CELKEM provozní	0	0	250	720	850	950	720	850	950	720
4	Spotřeba materiálu										
5	Spotřeba energie										
6	Náklady na opravy a údržbu										
7	Náklady na služby	0	660	660	168						
8	PŘIDANÁ HODNOTA	0	-660	-660	-168	0	0	0	0	0	0
9	Osobní náklady (mzdy+soc.zab.)										
10	Pojištění majetku, silniční daň, atd										
11	Odpisy investice (bez DPH a bez dotace)			712	912	1 160	1 160	1 160	1 040	1 040	712
12	Ostatní náklady										
13	NÁKLADY PROVOZNÍ CELKEM provozní	0	660	1 372	1 080	1 160	1 160	1 160	1 040	1 040	712
14	HV provozní	0	-660	-1 122	-360	-310	-210	-440	-190	-90	8
15	Úroky přijaté										
16	Ostatní finanční výnosy										
17	VÝNOSY FINANČNÍ CELKEM	0	0	0	0	0	0	0	0	0	0
18	Nákladové úroky	0	0	500	438	313	188	63			
19	Ostatní finanční náklady										
20	NÁKLADY FINANČNÍ CELKEM	0	0	500	438	313	188	63	0	0	0
21	HV finanční	0	0	-500	-438	-313	-188	-63	0	0	0
22	Daňová sazba	0,21	0,20	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19
23	Daň z příjmu (absolutní výše)	0	0	0	0	0	0	0	0	0	2
24	HV čistý (po odpočtu daně z příjmů)	0	-660	-1 622	-798	-623	-398	-503	-190	-90	6
Řádek	Potřebný oběžný kapitál k provozování projektu v tis.Kč	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
25	Zásoby provozní										
26	Pohledávky za odběrateli										
27	Závazky k dodavatelům										
28	Změna čistého pracovního kapitálu	0	0	0	0	0	0	0	0	0	0
Řádek	Zdroje financování projektu v tis.Kč	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
29	Dotace		1 040	6 420	5 540						
30	Přijaté nové úvěry a půjčky k pokrytí financování projektu			10 000							
31	Splátky nově přijatých úvěrů a půjček			1 248	2 496	2 496	2 496	1 264			
32	Vlastní zdroje žadatele	1 040	6 420	5 540							
Řádek	Požření dlouh.investic projektu (bez DPH)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
33	Celkové náklady projektu (bez DPH)	2 080	12 840	11 080							

Appendix B – Initial Risk Analysis

This appendix includes initial risk analysis developed for the purpose of grant request.

Factor importance establishment:

Probability – scale from 1 to 5

Impact – scale from 1 to 5

Significant are factors evaluated by a grade 4 or 5. Also factors with possibility and impact grade both 3 are significant.

1 minimal probability of occurrence (negative impact intensity)

2 small probability of occurrence (negative impact intensity)

3 medium probability of occurrence (negative impact intensity)

4 high probability of occurrence (negative impact intensity)

5 very high probability of occurrence (negative impact intensity)

1a) Business/supplier relationship in a phase of constructing

Risk	Probability	Impact	Product
Building company resignation	1	2	2

1b) Business/supplier relationship in a phase of functioning

Risk	Probability	Impact	Product
Expert resignation	1	3	3
Energy blackout	1	1	1
Insufficient demand for services	2	3	6

2 Financial

Risk	Probability	Impact	Product
Not enough resources for construction	1	5	5
Unwillingnes of owner to finance the Incubator	1	4	4
Not achieving grant	2	5	10
Inability of small comp. to pay for commitments	3	3	9

3 Personal

Risk	Probability	Impact	Product
Manager resignation	1	3	3

4 Technical - organisational

Risk	Probability	Impact	Product
Not quality offer	3	3	9
Not enough parking space	1	2	2
Not enough space for offices	1	5	5
Insufficient infrastructure	1	5	5

Risk reducing actions:

Building company resignation – quality contract (penalties)

Experts resignation – be in a touch with other experts or companies providing the service.

Insufficient demand – advertisements, presentations at conferences, extend the offer for other alumnae's.

Not enough resources for construction – reduce the scope of a project.

Unwillingness of owner to finance incubator functioning – offer quality services for public.

Not achieving the grant – change the parameters of overall project.

Inability of small companies to pay for commitments – spread payments (smaller amounts, more often).

Manager resignation – to have an assistant who understands the incubator.

Not enough services offered – offer services according to needs of clients.

Not enough spaces for companies – reduce the number of incubated companies, ensure other offices.

Insufficient infrastructure – communicate with infrastructure users their needs.