The University of Sheffield

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CITY Liberal Studies

To be completed by students (typewritten)

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INSTRUCTOR'S NAME	**Dr. DIMITRIS DRANIDIS**		

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TIE2717

STUDENT NAME(s)
ERGEN EVANGELOS

STUDENT SIGNATURE(s)

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MSc in Technology, Innovation & Entrepreneurship

Report in the module of:

MANAGING KNOWLEDGE DRIVEN ICT PROJECTS

with subject:

Project Management Case Study: Jackson's Timber Products

(Individual part)

By

ERGEN Evangelos

Module Director: Dr. Dimitris DRANIDIS

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ABSTRACT

This part is continuous of the group-work part.

In this section, we have tried to develop a small risk plan based in the two scenarios, as given by the assignment's instructions.

In general, either in scenario A, or scenario B, the number of risks are almost the same. The element that differs is their strength and potentiality of occurrence. We are focusing in mitigating these risks by applying certain strategies.

Our primary concern should be ***staff to be correctly motivated***, the ***working environment to be well established*** to inspire productivity and ***our initial plans to be followed correctly*** in order to keep our customer satisfied.

5.6 Risk Management Planning

Risk, is anything that may affect the ability of organization to achieve its objectives. In addition, it is a possible future event, which if it occurs, may lead to an undesirable outcome. A “risk” is a problem that could cause some loss or threaten the success of our project, but which has not happened yet. [1]

In conclusion, we may say that risk is the probability of suffering loss. [2]
To be more precise, risk is the probability of suffering loss while pursuing goals due to factors that are unpredictable or beyond. [3]

In IT projects, the loss may involve increased costs, longer completion times, reduced scope, reduced quality, reduced realization of proposed benefits, or reduced stakeholder satisfaction.

Risk is a parameter that is strictly related to uncertainty. Uncertainty is the outcome of what Mr Michael Raynor calls “possibility space” in his recent book “The Strategy Paradox” [4]. We cannot fight uncertainty but we can embrace it. Therefore, risk may be embraced as well.

Project risk, is the cumulative effect of the chances of an uncertain occurrence that will adversely affect project objectives.

Risk management, is a systematic and explicit approach for identifying, quantifying and controlling project risk. From this definition, we realize that the first step in risk management is to identify the possible risks and try to assess the consequences. Further to the risk assessment, we can develop our risk plan. [5]

To illustrate better this philosophy right below there is a table with the risk management activities (*Figure 1*).

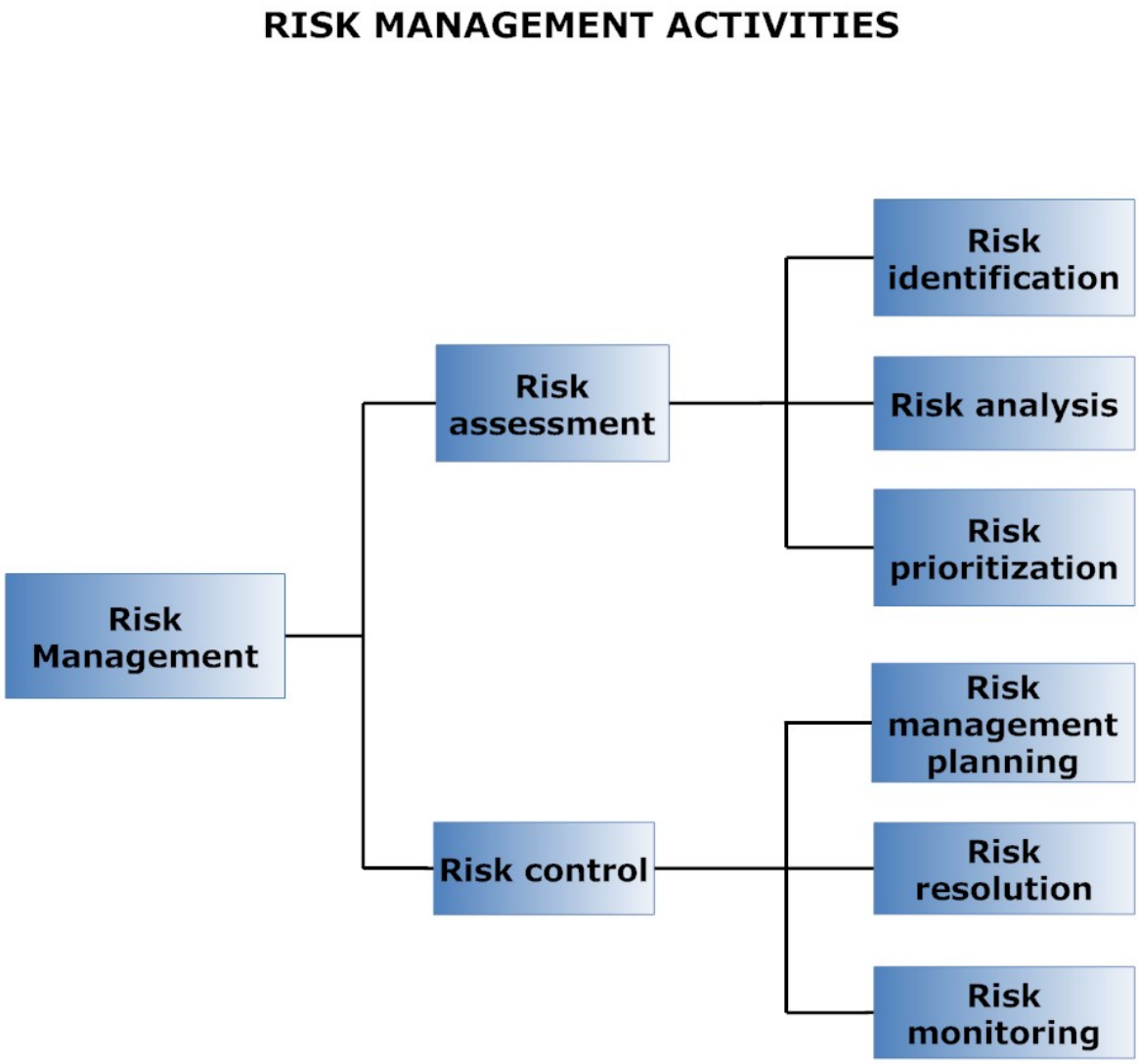

Figure 1. Risk Management Activities [6]

Therefore, based on this model, we start envisioning first, what can go wrong. ***Risk identification*** is the most important component, so in order to identify risks we review different checklists of frequently occurring risks. It is possible to rely on past experience, a common but useful methodology that guides us through the process. The project manager will use his judgment and expertise to evaluate the situation in identifying risks. It is unrealistic expecting only project manager to identify all the relevant risks though. Different project participants, can think of different possible risks. This will be our methodology. In addition, risk identification is considered a team issue.

Therefore, further to past experience, we plan to have a brainstorming session with the participation of the whole team.

We conclude to the below risk list table. Each risk factor included, is categorized in a group.

Master Risk List

	Category	Risk Factors
1.	Process	• Incomplete requirements • Poor requirements determination • Not clear business objectives • Lack of a clear product vision
2.	People	• Insufficient user involvement • Lack of user involvement • Users have no previous experience • Uncertainty of how needs can be expressed
3.	People	• Communication problems between the customer/users and our personnel • Staff personality conflicts
4.	Process	• Inaccurate task estimating • Unrealistic task estimates
5.	Process	• Scope creep and requirements changes • Too many requirement changes
6.	People	• Team problems: such as low productivity, low morale, burn out, turnovers • Man-power attrition • Failure to meet high performance
7.	People	• Weak upper management support • Ineffective stakeholder management
8.	Technology	• Working on new technology
9.	Technology	• Switching tools in the middle of the project due to bad scope planning
10.	Product	• Research-oriented development rather than real business oriented
11.	People	• Wishful thinking • Unrealistic expectations
12.	Process	• Insufficient management controls
13.	People	• Adding people to a late project
14.	Process	• Insufficient planning • Poor estimation
15.	Process	• Insufficient risk management
16.	Process	• Contractor's failure- Hardware set up delays cause burn of project

		• Supplied components failure
17.	People	• Project Roles & Responsibilities unawareness
18.	Process	• The new system will significantly change the workflow of the company
19.	Process	• Budget constraints and funding restrictions throughout the project's life cycle
20.	Process	• Vulnerabilities / Security leaks / integrity
21.	People	• Difficulties in maintaining and support the final product • Industrial Espionage issues • Human threats from poor training or dishonesty/curiosity

Before proceeding with the risk assessment and the proposed actions in order to mitigate risks, we have to make some certain assumptions.

We assume that our IT experts' team is familiar with the application of RUP framework; therefore, the team has a good understanding of RUP components. In addition, previous experience through involvement in similar IT projects, have given sufficient business knowledge so no need for further training is required.

Risk mitigation is a methodology that can be used in order to reduce or control risk. It can be achieved by any of the following risk mitigation options.

- **Risk assumption:** We accept the risk and continue operating or apply some controls to lower the risk.
- **Risk avoidance:** We try to avoid the risk by eliminating the potential causes or threats.
- **Risk limitation:** We try to limit risk by implementing controls, which minimize its impacts.
- **Risk planning:** We make a risk list, prioritize risk factors and develop mitigation strategies to maintain control over risks
- **Research and Acknowledgment:** We manage to lower the risk of loss due to vulnerabilities, while research for controls that will correct these vulnerabilities.
- **Risk transference:** We may transfer risk to other entities in order to compensate the loss, such as purchasing insurance (for example, in this project we have purchased a number of hardware products that are covered with 3-year insurance – computers and network products).

During the project, we have and we will use all mitigation options previously described. Moreover, below we give our mitigation strategies for each of the risk factors.

Scenario A (*customer agrees with our proposal*)

Risk Factors – Mitigation Strategies
• **Incomplete requirements** • **Poor requirements determination** • **Not clear business objectives** • **Lack of a clear product vision**
It is crucial not only to identify all users' requirements from the beginning, but to establish as well, mechanisms of update any changes, throughout project's lifecycle. The Requirements Analyst should be very careful in his interaction with the stakeholders and other key users. In addition, with the support of Project Manager, they will set up a formal change control system. In order to mitigate this risk, we will involve as much as possible, key users and stakeholders in the processes of documenting and approving requirements. Broaden involvement should include the participation of users in testing tasks, especially in the construction's phase iterations, where alpha/beta releases are produced. It is crucial for the project team to realize the scope of the project, and decode the real objectives. Special emphasis should be given to the Assessment and Preliminary Plan - the first outcome of the project - as well as in the Preliminary Scope and the Software Scope of the project. To mitigate this risk, deep study of all stakeholders' requirements should take place and repetitive review of their interviews to unfold any hidden requests. Such actions should be accompanied with regular meetings in order to make clarifications and possible re-arrangements. These four risk factors belong to the requirements issues and fail to understand them will lead to the build of wrong product or build the right product badly.

- Insufficient user involvement
- Lack of user involvement
- Users have no previous experience
- Uncertainty of how needs can be expressed

We have planned to involve end-users in every iteration's testing sessions and outcomes. During the Inception phase we have placed two iterations to take place. Our primary aim is to get feedback as early as possible and mitigate any relevant risks with the participation of users. This process will ensure up to a level the following actions.

- Communication problems between the customer/users and our personnel
- Staff personality conflicts

It is possible that conflicts, misunderstandings and similar situations will happen, during project's implementation. We will request the company's management, to participate in conflicts resolution, and support us in problem determination. Such problems should be resolved immediately through the increase of interaction between all parts. To mitigate this risk, we plan to frequently involve customer with requirement analysis, prototype review, design review and tests.

- Inaccurate task estimating
- Unrealistic task estimates

Even if we have experienced similar projects, each project has its own parameters and constraints. False estimates remain always a threat for the project. To mitigate this risk, we should use parametric estimation technique. We will gather historical data and compare them with real data, produced from those who do the work. Re-estimates of remaining work should be done periodically, and a systematic approach should be followed to ensure that initial estimations are finally met.

- Scope creep and requirements changes
- Too many requirement changes

Although changes are unavoidable, and up to a level should be acceptable by our team, it is necessary to clarify with the customer possible consequences and direct costs. We may include a plan relevant to contingency funds for unforeseen changes. We should document all change requests and prioritize requirements. An alternative tactic may be to charge customer for changes and develop alternative cost plan and baseline schedule, which will be updated each time considered necessary.

Our aim should be to convince customer that changes in requirements affect the whole project. It would be clever to develop a requirements' prototype and negotiate each time on this document.

- Team problems: such as low productivity, low morale, burn out, turnovers
- Man-power attrition
- Failure to meet high performance

Team building should be our priority, and Project Manager has the responsibility to evaluate from time to time his team's status. An alternative, to mitigate this risk, may be to reassign people to different tasks, put them to work in pairs or change these pairs according to iterations and phases. Moreover, backup personnel should exist to be utilized in any case.

Furthermore, we will try to repeat team-building sessions and maintain proper documentation of each individual's work.

- Weak upper management support
- Ineffective stakeholder management

Project charter is a strong quantified business justification for the project. We will ensure that this document will be signed off from the Managing Director, who is the main customer for us. We should seek for his support during the project, through regular reporting addressed to him about project's progress and relevant costs.

- Working on new technology

As described in the project charter, company's staff currently has no special skills in using technology. At least there is no evidence that key users had any training so far regarding new technologies. New system will change the working environment, the working demands therefore; we should predict a number of actions to make in order to mitigate any potential losses due to new situation.

We propose to establish a time as learning curve, providing in parallel training in the new technology. We assume that it would be necessary to provide a more detailed training session, especially to key users than the usual.

So, a phased delivery of the final product should be considered as an alternative, instead of just setting up the whole system in one day and let it work.

• Switching tools in the middle of the project due to bad scope planning
Close cooperation between the project's Architect, the Project Manager and the IT Manager will include the task to secure, that from the beginning the chosen model is the most suitable to the case. We have made a long and deep preliminary scope statement because our purpose was to identify the real scope of the project. Preliminary scope and Scope statements will use much of our resources, but this is necessary.
• Research-oriented development rather than real business oriented
Business people and developers must work together daily. Our plan should be to keep contact with stakeholders and evaluate their requirements. We should welcome changing requirements and focus in their real needs. The project is not a research product but a real-cover business needs product. High involvement of participants and conjunction of their thoughts would clarify the real scope of "what we are trying to achieve".
• Wishful thinking • Unrealistic expectations
Often interactions between project's team and stakeholders/end-users, should take place. In our Communications plan, described in previous part of this assignment, we establish some regular channels. These will be fully exploited in order to roll the real feedback of project's progress.
• Insufficient management controls
Project Manager should consider that each iteration, each phase and each task must have its own defined internal controls. With the support of IT Manager, Architect and Configuration Manager/QA, they should interact and get feedback regarding the processes' development. To mitigate this risk, we should control all outcomes and milestones as "stage gates". That means, strict examination of all outcomes during phases, evaluation and questioning of what went right and what went wrong.
• Adding people to a late project
Adding people in the middle of a project or even worse adding people to a project that has not caught up the deadlines is a major risk factor. We would avoid adding people or outsourcing part of the development process. We manage our project not to have over

allocations, and by supporting big team spirit, we will prepare our team for overtimes.

We prefer to do this and keep processes and experience within the team.
In case there is no alternative, we would hire experienced people and use our back-ups. A "pick on demand – POD" philosophy would be a good alternative to utilize.

- Insufficient planning
- Poor estimation

To mitigate these risks we will re-evaluate users' requirements, we will review preliminary and final scope statements, and examine step-by-step results of the development.

- Insufficient risk management

Project Manager in cooperation with the participants should focus in specifying a number of risk factors that may affect the project. Risk identification and control should not be abandoned or underestimated.

The Project Manager in this project will use the prioritized risk assessment table and with the support of QA Manager, who will play the devil's advocate role, will keep track with risks and their mitigation strategies.

- Contractor's failure- Hardware set up delays cause burn of project
- Supplied components failure

We will develop a plan of alternatives including the establishment of a network of suppliers. The Network/Hardware expert in cooperation with the Configuration Manager and IT Manager should investigate the possibility of maintaining at least two offers from different suppliers, keeping open the communication channel.

- Project Roles & Responsibilities unawareness

The "Roles and Responsibilities" plan should be discussed and agreed with the stakeholders since the beginning of the project. In addition, the idea preserved behind this plan, would be for each participant to embed his responsibilities. We will achieve that through personal and group interaction. Project Manager is responsible to communicate this, throughout the development of the project.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

- The new system will significantly change the workflow of the company

Emphasis should be given in the training of end-users. In addition, during transition period, a number of work hours will be dedicated to the support of stakeholders on their daily operations.

- Budget constraints and funding restrictions throughout the project's life cycle

In Project Charter should be agreed with the Managing Director and other stakeholders, their continuous support to the project's development. Budgeting issues have to be clarified and from time to time cost issues will be discussed and analysed.

We should establish proper financial checkpoints, throughout the project for all participants and Project Manager will have the responsibility to catch up with the original financial plans. In addition regular meetings with the Managing Director should take place to increase communication and involvement of both parts in the financial support of the project.

- Vulnerabilities / Security leaks / integrity

Various checks and testing routines will be applied during the construction and transition phases. Further to the set up of the software product, our company will review the possible security leaks. We have hired in our team two system testers, as one of their main duties will be to check the integrity of the software product in each iteration and phase.

- Difficulties in maintaining and support the final product
- Industrial Espionage issues
- Human threats from poor training or dishonesty/curiosity

Give focus on security routines and procedures that will identify each user. The software product should have a number of examination processes for each user according to his/her level of access. Staff should be trained and informed about security issues.

Our company will be ready to support whenever this considered to be necessary in security issues.

Training of staff should include methods and operations regarding the new system. Company can develop a policy on theft

Scenario B (*50% increase to labor cost, 20% upper limit of extra work time / or subcontract a series of tasks with 100% increase of cost*)

In case, customer requests for earlier delivery of the product, this would add a number of risk factors in our primary list. Moreover, existed risks identified in the first scenario, may be altered and become more aggressive and possible to occur.

In the second scenario, we use our back-up/internal staff, and in parallel apply overtimes to all project's participants. We are within the constraint of 20% extra work time, as we will not outsource any of the development process of the project. Later, we will discuss the risks could come from outsourcing.

In order for the scenario to work, we have decided to apply some additional control measures. These measures will normalize possible risks derived from the scenario's demands.

It is absolutely necessary, to maintain a productive environment. To achieve this we should, increase communication among staff through regular and informal meetings, provide updates of project's progress, encourage each individual separately and facilitate any useful information. We should predict an internal reward system or any incentives scheme that will affect staff's behavior.

Any additional technical resources needed by the staff should be covered, and people will feel the sense of security and care from the project manager.

Therefore, in any case, people and material should be our primary concern in order to qualify for success in this pressured scenario.

Some additional risks identified were:

- Stakeholders request late changes

- Stakeholders sacrifice cost or time over quality
- Losing critical staff at critical points of the project
- Insufficient time to make planning
- Wrong estimates based on false expectations
- Communication breakdowns
- Lack of upper management support

Outsourcing development work to company-subcontractor, poses a new set of risks, which most of the times are difficult to directly mitigate them. Following there is a small risk list:

- Limitations in communication
- Subcontractor makes unachievable promises in order to get the job
- Subcontractor lacks appropriate software development and management processes
- Subcontractor does not deliver components of acceptable quality
- Subcontractor does not provide accurate and timely visibility into actual project status

Our risk management planning should be preventive, as this philosophy makes risk to be treated as part of the development process.

In both scenarios, we have identified a number of risk factors and the relevant mitigation strategies. All mitigation strategies should be included in a complete contingency plan, which will constitute our tool to embrace uncertainty.

In any case, and further to the risks identification made so far, we will base our daily efforts on a small action plan, which includes the following principles:

- Establish potential impact of each risk to our project
- Rank afterwards the risks according to potential impact each time
- Calculate the probability that the risk will occur
- Rank again the risks according to their combined impact and probability of occurrence
- Develop separate contingency plans for risks that tend to be majors

- Examine and determine which resources are necessary for the contingency plans to run
- Incorporate risk information in our review plan of the project, as risks are part of the project as well
- Keep tracking risks as the project evolves
- Periodically evaluate and update the risk list with new information

Our continuous priority is to satisfy the customer by delivering a real useful final product.

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