Application of Critical Success Factors throughout Skype project implementation

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A hallgató (szerző) aláírása
# Table of Contents

1. Description ........................................................................................................................................ 7
   1.1 Topic of investigation .................................................................................................................. 7
   1.2 Topic justification ......................................................................................................................... 7
   1.3 Structure of the Thesis .................................................................................................................. 8
2. Critical success factors ......................................................................................................................... 9
   2.1 The concept of critical success factor ......................................................................................... 9
   2.2 Description of the selected critical success factors ................................................................... 12
   2.3 Few words about the presented project .................................................................................... 19
3. Initiating ........................................................................................................................................... 21
   3.1 Develop Project Charter ............................................................................................................. 21
      3.1.1 Scope management .................................................................................................................. 21
      3.1.2 High level timeline ................................................................................................................. 22
      3.1.3 Business Case .......................................................................................................................... 22
      3.1.4 High Level Risks ...................................................................................................................... 22
      3.1.5 High Level Communication Plan .......................................................................................... 23
   3.2 Critical Success Factors in Initiating phase ................................................................................ 23
4. Planning and Execution ....................................................................................................................... 25
   4.1 Case for action .............................................................................................................................. 25
   4.2 Work Breakdown Structure (WBS) ............................................................................................. 32
   4.3 Resource allocation ....................................................................................................................... 34
   4.4 Resource Management ................................................................................................................ 36
      4.4.1 Communication plan ............................................................................................................... 37
      4.4.2 Roles and Responsibilities ..................................................................................................... 38
   4.5 Cost Management ......................................................................................................................... 41
      4.5.1 Workforce expense ................................................................................................................. 41
      4.5.2 Contingency ............................................................................................................................ 45
      4.5.3 Project benefits ....................................................................................................................... 46
   4.6 Scheduling ................................................................................................................................... 47
   4.7 Organization Structure ................................................................................................................. 48
   4.8 Risk management ......................................................................................................................... 49
      4.8.1 Risk management process ...................................................................................................... 49
   4.9 Critical Success Factors in Planning and Execution phase ......................................................... 51
5. Monitoring and Control and Closeout............................................................................. 56
  5.1 Status report.............................................................................................................. 56
    5.1.1 Project Execution Summary ............................................................................. 57
    5.1.2 Management escalation .................................................................................. 57
    5.1.3 Cross team communication ................................................................................. 57
    5.1.4 Issue management ......................................................................................... 58
  5.2 Critical Success Factors in Monitoring and Control and Closeout phase ......................... 58
  5. Summary, Consequences ........................................................................................... 59
  6. References ...................................................................................................................... 62
  8. Appendix ....................................................................................................................... 64
    8.1 Cost estimation details ......................................................................................... 64
    8.2 Resource Allocation .......................................................................................... 66

List of Tables

Table 1– Critical success factors by researchers – (Belassi and Tukel, 1996, pp. 143)........ 11
Table 2 – Full Skype’s weighted score – Own work............................................................ 27
Table 3 – Own development’s weighted score – Own work................................................. 27
Table 4 – Small company’s weighted score – Own work...................................................... 28
Table 5 - Resource and working hours need in Phase 1 – Own work................................. 34
Table 6 - Resource and working hours need in Phase 2/3 – Own work............................... 34
Table 7 - Resource and working hours need in Phase 4 – Own work................................. 35
Table 8 - Resource and working hours need in Phase 5 – Own work................................. 35
Table 9 - Abbreviation of Roles – Own work ................................................................. 40
Table 10 - RASCI matrix – Own work............................................................................. 40
Table 11 - Working hours for USA and Malaysia by phases – Own work......................... 41
Table 12 - Working hours for Brazil and Hungary by phases – Own work.......................... 42
Table 13 - Working hours for Netherlands and UK by phases – Own work ....................... 42
Table 14 - Working hours for Germany and Argentina by phases – Own work.................. 42
Table 15 - Working hours for Canada by phases – Own work............................................ 43
Table 16 - Total working hours by phases – Own work...................................................... 43
Table 17 - Total cost by phases for workforce – Own work................................................. 43
Table 18 - Threshold of countries – Own work............................................................... 46
Table 19 - Risk matrix – Own work ................................................................. 50
Table 20 - Working hours for USA by phases – Own work .................................. 54
Table 21 - Planned VS Executed list – Own work .................................................. 56
Table 22 - Issue management contact information – Own work ................................ 58
Table 23 - Cost estimation for Phase 1 – Own work .............................................. 64
Table 24 - Cost estimation for Combined Phase 2/3 – Own work .......................... 64
Table 25 - Cost estimation for Phase 4 – Own work .............................................. 65
Table 26 - Cost estimation for Phase 5 – Own work .............................................. 65

List of Figures

Figure 1 – High level timeline – Own work .......................................................... 22
Figure 2 – Key to success – Own work ................................................................. 31
Figure 3 – WBS of Skype project – Own work ..................................................... 33
Figure 4 – Schedule of Skype project – Own work .............................................. 47
Figure 5 – Organization structure of Skype project – Own work ........................... 48
Figure 6 – Risk management process – Own work ............................................. 49
1. Description

1.1 Topic of investigation

Multinational corporations are constantly challenged with how to execute necessary IT projects successfully. The statistic shows, which was filled out by organizations that 60% of IT projects meet with expected benefits, that means 40% of the projects do not achieve success (Emily, 2015). The definition used in this case is that a project is deemed successful if it delivers the full scope, within budget, on schedule, and with the appropriate quality. This study is focused on the question of how projects can be executed successfully with a greater frequency.

I will investigate publications and case studies’ lessons learned. I will attempt to explore the common features of these studies and publications and develop a list of the key success factors identified to have the biggest impact on the project success.

Along with the success factors, projects also have many unfavourable factors and threats, which could jeopardize the success. I would like to show that the project closeout can be successful, if we are aware of the success factors and can manage the key threats. In order to demonstrate these considerations, I selected a Skype implementation project from project initiation to the closeout.

1.2 Topic justification

I selected the topic of IT project management, because I am personally interested in project management and I work in this area. I work on application portfolio in IT project management department for a year. IT project management is a really complicated area. The project management discipline is multi-faceted requiring familiarity with topics such as technical design, finance, people management and decision making; this requires soft skills coupled with technical skills. It is a complex multi-disciplinary area that requires education and experience to be successful.
These factors are key considerations for my selection. The effective Project manager is learning continuously and is required to implement these learnings in their processes. In my opinion a good Project Manager has a lot of opportunity in his/her life.

1.3 Structure of the Thesis

In order to introduce success factors through real examples, I will describe an IT project that I worked on. In the first part I introduce success factors related to projects and investigate more studies and publications. Following this I have included a table of content which divides my thesis into the key project phases. These are:

- Initiating,
- Planning and Execution,
- Monitoring & Control and Closeout.

In the first section I start to develop the project charter and identify stakeholders.

The second section includes developing the project management plan and collecting requirements. I also determine the scope that is the main focus during the execution. Additionally, I define activities and schedule, further estimate budget, develop a communication plan, identify risks, develop a quality assurance plan and consider procurement. I will also cover the results of this phase that drive project updates and re-base lining. Other needs covered include managing the project execution process to achieve the project’s objectives, including well defined items such as collecting audit requirements, alongside the softer skills required to develop and manage the project team and stakeholder expectations. Finally, I will describe the vendor selection process required for conducting procurement.

Monitoring and controlling section requires the monitoring and controlling of the project work, the scope, costs, schedule and risks.

The last section is concerned with closing the project, including the benefit capture plan tracking and handover to support. At the end of the project description I compare explored success factors with my examples.
I will explore the most frequent critical success factors throughout the described Skype implementation project that I worked on. This project had already closed and my purpose with this study to present the importance and influence of critical success factors. In my opinion everyone who work on projects have to use them with great attention to achieve success at the end of the project. I selected this project, because critical success factors were considered during the execution. I will present throughout the Skype project implementation the application of critical success factors and I use this Skype project implementation example only throughout my thesis. Critical success factors were known before the project execution.

2. **Critical success factors**

In this paragraph I present what do success factors mean in project management and how I would like to introduce them through an example.

2.1 **The concept of critical success factor**

At first, I would like to identify the means of critical success factors. We call success factors those elements that can have a positive or a negative influence on the project’s success or failure. These factors are related to the project manager, to the organization, or to the external environment. The company has impact on two of them: those that are related to the project manager or related to the organization. External environment’s factors are outside of the company but they still have effect on the project’s success. (Belassi and Tukel, 1996)

Factors related to the project manager and project team
These success factors are depending on the project manager and team members; therefore, the company can improve them. For example, if the project manager has great soft skills and he/she can influence and manage the team with it, but he/she does not have the required technical skills the company can provide trainings. So factors related to the project manager or to the team can be developed by the company.
Factors related to project procedures (Zarina, 2014)
These factors are including strategies, procurement, required documents, project processes, identification of roles and responsibilities, mostly those features and factors that are related to deliverables.

Factors related to the company
Similar to the previous area these features can be improved by the company. One of the most important critical success factor that related to the company is the management support. The management must be committed to the organization and provide the right support to the whole project team to achieve success. The level of the provided support depends on the organization, and it is different from company to company. The higher the level of support, the bigger the chance to success.

Factors related to external environment
The organization has the smallest influence to external factors. These features are not dependent on the management or the project manager. They are dependent on external factors. In some cases, the managers do not have any chance to change them.

Identification of success factors is very difficult, as success has different meanings for different people. For management a successful project means that the project is completed within budget. Their perspective is different from customers. Customers identify the project success if it fulfils their expectations. Finally, for the project manager success can mean that the project is completed on scope, in time, within budget. Alongside these considerations is the measurement capability of the organisation. So the consequence is that success can be very different from different perspectives.

There are many theoretical studies regarding success factors. The first study was by Rubin and Seeling in 1967. After them in 1983, Baker, Murphy and Fisher identified that the project needs clear scope and purpose, accurate cost estimates and planning techniques. In 1987 Morris and Hough captured learnings from eight large projects that mostly failed. Their critical factors from these learnings included: project objectives, community involvement, and implementation process. (Belassi and Tukel, 1996)
After them in 1989 Pinto and Slevin started to categorize success factors and made two groups. One of them was called the strategic group and the other was named the tactical group. These different factors have an effect on the performance at various phases of implementation. The Strategic group included for example management support or scheduling the project and the tactical group included client consultation or personnel recruitment.

Table 1 – Critical success factors by researchers – (Belassi and Tukel, 1996, pp. 143)

<table>
<thead>
<tr>
<th>Source</th>
<th>Critical Success Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin (1976)</td>
<td>Define goals: Make project commitments known, Select project organizational philosophy: Appoint competent project manager, Organize and delegate authority: Set up communications and procedures, Select project team: Set up control mechanisms (schedules, etc.)</td>
</tr>
<tr>
<td>Locke (1984)</td>
<td>Project authority from the top, Project summary: Operational concept</td>
</tr>
<tr>
<td>C peel and King (1983)</td>
<td>Scheduling</td>
</tr>
<tr>
<td>Sayles and Chandler (1971)</td>
<td>Clear goals</td>
</tr>
<tr>
<td>Baker, Murphy and Fisher (1983)</td>
<td>Goal commitment of project team</td>
</tr>
<tr>
<td>Pinto and Slevin (1989)</td>
<td>Top management support</td>
</tr>
<tr>
<td>Morris and Hough (1987)</td>
<td>Project objectives</td>
</tr>
</tbody>
</table>

As we can see from the above there is significant research available in the area of critical success factors. This highlights that there is a high degree of interest in critical success factors and finding your way to navigate these critical factors is the most likely way to complete a project successfully.

I investigated project factors from several case studies, literatures:

- Pinto and Slevin, 1987
- Turner, 1999
- Belassi and Tukel, 1999
- Hallman, 2011
- Seweryn, 2005
Across these studies I identified the following common features, these are:

1. Agree on the project scope and goals
2. Management support & involvement key staff
3. Communication
4. Project Manager’s competence
5. Project team
6. Proper risk management
7. Project schedule and plans
8. Project objectives
9. Progress meetings

I considered the following reasons when selecting these nine critical success factors:

- These were the most common success factors in listed publications above. It does not mean these are the used critical success factors only, but I have read about them with greater frequency.
- The company pays attention mainly on the listed critical success factors.
- Use of the critical success factors above helped to make the project successful.

2.2 Description of the selected critical success factors

1. Agree on the project scope and goals – CSF1

The project must have clear and well defined goals. It means that the business, IT, or other departments have to clarify their purpose with the project. They have to clarify the reason of the project completion and the way of the project execution. So the project manager has to be sure, that he/she has an agreement with clear scope that is agreed with stakeholders, sponsors and the management. (Hughes, 2010) It gives clear information to the project manager and he/she can transmit this information to his/her team.
I started to explore the scope of the project at the very beginning of initiating section on page 15. In spite of the fact that did not have deep details about the project’s execution in the initiate phase, I started to collect what is in scope and what is out of scope and set the high level objectives the project needs to have to meet this critical success factor already in the first phase.

Hereinafter as I go forward in the thesis and reach the next phase called planning and execution, which starts on page 18, I will also write about the scope and goals of the project in more detail. This complete information will include the requirements from the perspective of the scope and outcome of the project.

In the last section, which is called monitoring and control, and closeout I will make a summary about the execution on page 47. Planned outcome and executed outcome will be compared with each other to enable us to check which point of the scope is completed and which is not completed.

2. Management support and the involvement of key staff – CSF2

As I mentioned above, top management support is one of the most important features. If they are committed and give full support to the project manager and the team, the chance to reach the purpose is significantly increased. In this way they help the project manager with their daily work. (Hallman, 2011) The Project manager has to be sure the project has a project sponsor, a leadership committee and the right project team. The project sponsor is the head of steering committee. He/she gives the funding and owns the project. The leadership committee is responsible for the current and next status of the project. If the team can’t make a decision, the leadership committee will. The project team is working on the project and all of them have assigned tasks. I am going to give details about project team later.

I will mention the management and Steering committee from different perspectives and several times throughout the thesis. Predominately in the planning and execution section where I explain the roles and responsibilities on page 32, the communication plan on page 31, and risk management on page 45.
I give details about the project team as key staff in the first initiating section from page 16. In this part I just mention them, but later in planning and execution phase I will give more detailed information about the project’s teams. They have significant impact on the project, therefore I have to describe their communication plan, identify their roles and present where they are placed in the organization structure.

3. Communication – CSF3

Communication has a key importance and one-way communication is forbidden. As described by Pinto and Slevin there are multiple communication channels. (Pinto and Slevin, 1987) Continuous communication is a must between:

- Project manager and Project committee (management)
- Project manager and Project team
- IT and Business

The project manager creates a communication plan, where he/she defines the communication channels, frequency and purpose of the communication. The best way to communicate is direct face to face communication, but this is not possible all the time in a multinational environment.

Communication with the Steering committee should take place at least once a month. They have to be informed about the status of the project, focus on issues if any, and deliverables. They have to get an overview on high-priority risks and issues that have a negative impact on the project. Team meetings should be held once a week. Participation should be encouraged for all team members who have assigned roles and tasks. Status reports need to be issued once a week or monthly as needed. These keep everyone informed about what is happening, what are the next steps or changes of schedule, cost, and scope. Communication to end users is also required, although of a slightly different nature. We have to inform end users about the changes of service and give them a document that includes the instructions on how to use the new service, we have to help to understand the differences between the new and the old services. If they would like to get more help, we have to provide trainings them. (Hallman, 2011)
I mention the communication plan several times due to its criticality. I will describe a high level communication plan on page 17 in the initiating phase, which describes the main features of the communication plan. In the planning and execution phase I will identify the communication plan’s purpose, audience, organizer, content and duration on page 30.

4. Project Manager’s competence – CSF4

Every project needs a project manager. Assigning the project manager to the project is dependent on his or her technical and soft skills, the type of the project, top management, project committee and availability of project managers. For example, if a project manager has already completed a successful Skype implementation project earlier, there is a higher chance to consider him/her for selection, because he/she has the required experience and skills.

The Project manager role’s description is going through the whole thesis. I will not have a separated part about Project managers, but I will describe his/her roles and responsibilities in almost all sections. He/she is the key person who will manage all of the people who work on the project and he/she is in contact with the management and sponsor(s). He/she must understand the scope and purpose of the project, because he/she has to select resources with the right skills and competencies. All of the above factors explain the reason behind the importance of Project manager’s competence.

He/she is attending meetings with the top management where they determine the scope and main goals of the project together. In the initiating phase he/she will identify the scope and goals with the members of the management, determine the major stakeholders, make a high level communication plan and list the key risks and mitigations.

In the next section, that is planning and execution he/she has to give more detailed information about the project to the project team members. He/she needs to know about risks that the project faces, meet with everyone who has impact on the project, or who is impacted by the project and manage them.

At the end of the project completion, he/she is responsible for the project’s success.
5. Project team (Dr. Keith) - CSF5

Early involvement of team members is very important, because if they are not involved, they do not know what is expected from them, which would have a negative impact on the project. Therefore, when the project has started, the project manager has to assign roles and responsibilities to the members. All members have to know what is expected of him/her. The project manager has to develop the team, which includes improving individuals and the whole group. There are many different ways to achieve a variety in development:

- Team building
- Trainings
- Meetings – face to face or virtual
- Recognition awards

These possibilities can motivate team members and have a positive effect on team work.

After the team was selected, resources have to be allocated by the project manager. He/she has to assign tasks to people. The first step is creating the work breakdown structure and dividing activities. When it is done, resources are allocated to activities according to their responsibilities and report progress to the project manager. They execute what is defined in the communication plan, report completion of activities, and if necessary request assistance from other team members or the project manager.

I have already mentioned the project team as the second member of the list of determining critical success factors.

6. Proper risk management – CSF6

Projects fail if risks are not identified and there is no risk management. Risk management helps to identify and provide solutions for risks. (Boyer, 2016) If it is ignored the project will not know what kind of threats the project may have and they cannot prepare to them. A good risk management plan helps to avoid the negative effects on the project, potentially even turning them into a positive impact.

In the initiating section, I will collect the key risks, which may have a negative impact on the project. It is a high level risk plan, where I do not provide solutions for the risks yet.
On page 46 in planning and execution section I will give a more accurate list about key risks and provide solutions.

7. Project schedule and plans – CSF7

A detailed project plan is required for success. Project plans refer to schedule, milestones, resources, requirements and cost. These estimations are of significant importance in order to achieve success. If the project manager has an accurate estimation for schedule and cost, he/she knows when he/she has to complete the given task and how much money the project will require to reach the next milestone.

In the initiating section, I will create a very high level timeline. It does not have accurate dates in the first phase, and it can be changed later. Detailed cost estimation is not started in this section, because as I mentioned the project manager does not have deep information about the project at this time.

Detailed estimation is starting in the planning and execution combined phase. I create a cost management part where I divide the project cost for workforce, for non-workforce and for capitalized cost.

Workforce will include the cost for separated phases by country and at the end of the workforce estimation I give the total amount by phases. I will give more details in this part that starts on page 36.

In the non-workforce expense part on page 39 I will make a summary about the company’s purchases and explain the concept of non-workforce expense.

In the capitalized expense paragraph on page 40, I also explain the concept, and make a list of the capital items that the company purchased.

I will speak about threshold and contingency of the project. So I make a detailed cost estimation, what is a key success factor as you can see.
The project schedule can be changed if that is not accurate, but in our case it was, so I will not change the dates, but explain the importance of an accurate timeline.

8. Project objectives (Goetz, 2010) – CSF8
   This is one of the first steps of projects and it defines what the outcome of the project is. It is a very similar phase to defining goals and scope. Project objectives are not about what the project’s goals are, objectives are about how you execute the process. Every goal has objectives. Objectives tell you how you can execute and reach your purpose. Project objectives can be organized under: (Miller, 2015)

   1. Performance and Quality
   2. Budget
   3. Time to Completion

As you can see in the list above project objectives have three main groups. These are not separate, these objectives explain the importance of how the project manager or team members work, complete the estimation, etc. So it explains the how behind the what.

   Progress meetings are short in duration, generally no longer than one hour. Project meetings should be aligned with the project goals and team members have to understand what the current status of the project is, does it have any issues or not. If the project has issues it requires a longer discussion after progress meeting. Naybour listed 8 different tips how to manage progress meetings:

   o Have an agenda
   o Repeat objectives
   o Review the progress from the last discussion
   o Focus on progress updates
   o Give everyone a chance to speak
   o Limited amount of time
   o Assign activities to individuals
   o Create a summary about the progress meeting
Communication plan includes progress meetings; therefore, I will describe it in the communication plan section.

Hereinafter I present a Skype implementation project that I worked on. I would like to show how the project could be successful. I chose this project, because it was very successful by being within budget, in scope and on time. I introduce deliverables by phases from the very beginning to the end of the project. I am going to bring examples for critical success factors and I am going to give details on the implementation of the project.

2.3 Few words about the presented project

I will describe the project from the beginning to the end. I go through all of the required deliverables and documents in every phases. PMBOK (Project Management Body of Knowledge) is the main framework of the project and it has ten knowledge areas. (Mulcahy, 2013)

- Project Integration management
- Project Scope management
- Project Time management
- Project Cost management
- Project Quality management
- Project Human Resource management
- Project Communications management
- Project Risk management
- Project Procurement management
- Project Stakeholder management

I divide the project into phases (Emily, 2015). These phases will include the knowledge areas.

Phases: I call phases the different sections of the project. A project has five phases: Initiation, Planning, Execution, Monitoring & Control, and the last one is the Closeout. (Mulcahy, 2013)
Phase 1 – Initiating
This is the first phase of the project. The project has very high-level information about resources, budget, schedule, scope, communication and so on. In the first phase that is called initiating the Project Manager identifies the several needs of the project. In this section, I will make a high-level scope management, a schedule, and a business case, identify main risks and make a high-level communication plan.

Phase 2 – Planning
In the planning phase the Project Manager has more detailed information, but still high-level. The project team starts to think about the execution, Project Manager used to organize a workshop, where they can understand the different views and make a vision together about the execution.

Phase 3 – Execution
In the Execution part you have detailed information about the project. In this phase the project plan is completed and accurate, resources know their roles and responsibilities. In some cases, planning and execution are mixed into one phase, then we call them combined phases. I will use this technique in my thesis.

In this combined phase 2 and 3 I introduce the case for action, the work breakdown structure’s ingredients, complete the resource management that includes the communication plan. Furthermore, I am going to make the cost management, introduce project benefits, prepare the organization structure and risk management and I will list the key risks of the project and provide solutions for them.

Phase 4 – Monitoring and Control
The section of Phase 4 does not include new deliverables, it is a kind of check about the project work to date. In this part the Project Manager does not have new details about project, he/she has already knows all facts.

Phase 5 – Closeout
Closeout means the project is completed and the project can start the process of closing. It will be revealed that the project fulfilled the expected purpose and outcome, or not.
3. Initiating

3.1 Develop Project Charter

Project charter is a document which includes the scope of the project and what is out of scope. This is one of the most important part of the phase 1. Scope can be defined as a collection of purposes of the project. Project charter includes all of the information what we have, or at least we can estimate at the very beginning of the project. The aim of the project charter is to give a vision of the project at the very beginning.

Requirements: Anyone who works at the company should use chat and call options by Skype on their notebooks.

3.1.1 Scope management

In Scope

- Deploy full Skype to end users
- Purchase of Skype devices (wireless headset, web camera, speakerphone)
- Skype for Business to Skype for all company assets (notebooks, laptops)
- Basic end user trainings – Management of Change
- On-demand support by Microsoft
- Call and chat history saving
- Schedule business meetings with outlook
- Decommissioning of the current chat/audio service

Out of Scope

- Any hardware manufacturing
- Communication between mobile phones
- Instant Messaging and online meetings with external parties
Major Stakeholders

- Microsoft
- Project team members
- Project manager
- Project accountant
- End users
- Steering committee
- Project management office
- Consultants

3.1.2 High level timeline

_Figure 1 – High level timeline – Own work_

3.1.3 Business Case

Implement advanced technology, the company would like to improve the communication channel that is used for virtual meetings and between virtual teams. With this replacement the company can save costs and the work between the teams becomes more effective.

Created advantages by the project: The main advantage of the project is that the communication between different regions and virtual members will be more effective, and save time. Replacement of the previous communication software saves costs for the company.

3.1.4 High Level Risks

- Required resources with specific skills may not be available in the next phase of development
- There are no thorough preparations
- Communication between project team members is not effective or not constant
- Unforeseen problems
- Risks and new issues are not identified
- Key stakeholders may be shifted

3.1.5 High Level Communication Plan
The communication plan has to identify the frequency of the meetings, and what is the approach to be utilized. In my opinion the communication plan is one of the most important deliverables if the project wants to achieve success.

As we are in phase 1 and do not have detailed information, I can describe just some high-level information about the communication plan:
- It identifies the relationship between
  - Project Manager and Management
  - Project Manager and Project Team
  - IT and the Business
- Communication has to be clear and straightforward
- Need to identify the communication channel, for example if the project team is in one region, the best if they meet with each other personally. If we have team members in different countries, we have to think about the time zone differences, in some cases the key people can visit each other to be more productive, but most of the time we have to set up virtual meetings. I give details later.

3.2 Critical Success Factors in Initiating phase

The first step was to create the project charter in this phase that is called initiating. It helped to set up the expectations of the project and started to determine what is in scope and what is out of scope as I mentioned on page 9. CSF1, agree on the project scope and goals. Identification of scope and goals is a key, because people who work on the project have to know the clear expectation from them to do their best. It makes the work easier, because they get clear information about the purpose of the project, consequently they will know clearly what and how they have to do their work to reach the purpose of the project. So, it gives a fuller picture about the CSF8, which called project purposes.
CSF2 that called management support is also a key success factor as I mentioned on page 10, therefore the top management and sponsors have to support the project management and the whole project from the very beginning. The project manager can achieve success easier by management support.

CSF3, the communication plan is high level in the first phase, but it collects the main features and needs. It describes the very required details that I listed on page 20. Setting up a communication plan is highly recommended in the first phase. The Project manager has to start to communicate with his/her team, business, management, and sponsor at the very beginning. Understanding each other’s notions is dependent on the active and continuous communication.

CSF4, the competence of the project manager already has major role in the first phase. In my opinion, this is where soft skills are most needed, because he/she must be persuasive with management to secure the necessary budget for the project and present the future value of the project, explain the execution needs and demonstrate that he/she was the right choice to manage the project.

CSF5, creating the project team has already started in Initiating phase, but it depends on the available information. If the project manager has more details already in this first phase, then he/she can start to select the team that is a key feature, because they are involved at the earliest phase as possible in this case.

CSF6, creating a risk management plan is the next phase’s task, therefore I will describe the importance and criticality of the risk management plan in the next planning and execution section.

CSF7, that includes a high level timeline and cost estimation is also mandatory as soon as possible. In this early phase of the project employees do not know the specifics of the project, but they need an estimation that they can follow and it has to be agreed with the management. Later, it will be more accurate and can show potential delays, or over and underruns. As I said on page 13, initiating phase has no detailed cost estimation for the project. The project manager and management must agree on the available amount that is enough to start the work. Later he/she will have detailed information that helps to create the detailed estimation and calculate the total budget.
4. Planning and Execution

4.1 Case for action

Current issue:
The current software is not able to support as many users as the company has. There are communication issues, like:

- voice quality is not good, very noisy
- video call is not an opportunity
- Skype is available for desktop users.

Skype as the strategic voice, collaboration solution, has been selected to replace the existing legacy phone systems.

As we would like to deploy Skype at a multinational company in several countries, virtual meetings are very often and needed for daily work. If the company doesn’t improve the performance, it will be critical vulnerability. In the next part I introduce some possibilities, and explain in my opinion why the company has to deploy full Skype.

Solutions, possibilities:

1. Full Skype solution
Deploy full Skype for all users (desktop and laptop users).
Video call through Skype call, for desktop users would provide cameras, which are already included in laptops.
Testing audio and video quality.
Skype is a well-known product of a huge company, what means they can provide support in 24/7.
Company can get the latest updates from them.
2. Develop own solution
Company has developers, so the second solution would be a company developed system. 
It would be a unique system, so the company would be responsible for errors and updates. 
Company can choose cameras, what fit the needs best 
Need to create a support team to solve issues and give solutions and advices for all employees.

3. Solution from a smaller company
Company buys the software from a smaller company, not a worldwide one. 
It would cost less than Skype. 
They couldn’t provide 24/7 support to the company.

I listed three solutions and possibilities to implement the service. I created a score matrix, because it helps to make the decision. Weighting column means how important the criteria for us is. Score means the alternatives can provide solutions for the given criteria or not. I used scale from one to five. One means the criteria is not important and the alternative cannot provide it and five means the criteria is very important and alternative can provide it for us. Weight or criteria is the same at alternatives.

Score Matrix
As the score matrices show below, Skype could provide the solution with the best result. However, it is not a cheap solution, Skype would provide us 0-24 support, what the other two options couldn’t. I think it is the reason of maximum reliability. As we speak about a worldwide company we know the quality and worked with them before.
Developing an own solution is very expensive, because we have to provide support and cannot be sure in the outcome’s quality and reliability. It would make our people very busy, and should create a new team, who would work on it. If the organization does not have the right people with the right skills, then new employees needs to be recruited. Even in the case we find the right people who can develop the service, they may leave the company and the service will not be supported. It is a huge risk.
Contracting with a smaller company to complete the project is also risky. Due to their size we do not know them, so we cannot be sure with the outcome’s quality. They are the cheapest solution, but it is the only advantage of them. Below I give detailed information about advantages and disadvantages of listed solutions.

Table 4 – Small company’s weighted score – Own work

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weighting</th>
<th>Score</th>
<th>Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-24 Support</td>
<td>5</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Cost</td>
<td>5</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Reliability</td>
<td>4</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Time</td>
<td>4</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Guarantee</td>
<td>4</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Extra services</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Updates available</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Quality</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>84</strong></td>
</tr>
</tbody>
</table>

Advantages and disadvantages of mentioned solutions

Full Skype:

- Skype is a multinational company’s product, what works well, and our company can be sure to get the newest updates always and they support us in 0-24. Similar to our company, they are present in several countries so the time difference is not a problem.
- Don’t have to worry about the quality. It is a well-known software, and it works on all types of computers and laptops.
- There is no limit of types of cameras what the company’s management will provide to employees.
- Expensive solution for all employees, big investment for the company.
Develop own solution:
- Do not have to outsource.
- Employees know the company well and also what we would like to create and avoid exactly.
- They have to start develop from the very beginning and document everything.
- There is no guarantee the result will work well.
- Company would have to create a new team for this project and for the continuous support.
- If the developer is not available, it can be a high risk.

Call software from smaller company:
- Advantage is the price. This solution is cheaper than Skype, what means less investment.
- They cannot provide 0-24 support in every time zone and do not understand the different languages.
- The company has to customize the solution.
- There is no guarantee they can provide their solution on long term.

In my opinion full Skype solution would be the best choice for the company based on the reasons described above. Skype solution would have the smallest risk considering the company has implemented several similar projects in the recent years. Project team members have big experience in this area, and the company wouldn’t have to deal with support, because Skype would support the company.

In impact:
- All employees who use teleconference, videoconference during their work
- Project team members
- Stakeholders (listed above)
- Network team
- Area operations
- Vendors

Requirements drive down to a more detailed set of project expectation.
Purpose of requirements:
- Basis to assess fit-for purpose of the proposed project solution
- Enables further planning and design, including cost and schedule estimates
- Allows for reduction of costlier design by requirements

Relationship to scope:
- Requirements are the details needed to provide delivery of project scope
- Every element of scope should be supported by requirements
- Every requirement should be traceable to project scope

Requirements:
- Ability to secure the presentation content
- Reduce cost
- Ability for the presenter to share the screen
- Ability for the presenter to give control to another attendee
- 24/7 support available
- Long term investment viability
- Business continuity and recovery requirements
- Permission for all employees to use Skype’s functionalities
- Limited country rollout with implementation plan for countries not in initial scope

Objective: clarify Skype profiles in order to facilitate power user review of Skype migration plan.
Standard user: Target – All personal laptop and desktop users

Skype features:
- Voicemail: default setting. Can be disabled upon end-user request.
- Extension dialling: possible as Skype facilitates calling contacts
- Call options: local calls, national calls, international calls
- Instant messaging: available to all versions of Skype

Testing is a good opportunity to check the right quality.
Test plan includes the validation, verification, and testing.
What test team will do?

- Test management and consulting
- Standard processes and templates
- Test planning, estimation
- Scaled Testing solutions
- Manual, automation and performance test services
- Security testing

Basic principles followed by test:

- Test early and often
- Involve project team members
- Management support is important to secure test resource
- The bigger the risk, the more intense the test will be

Key to the Success:

Successful change requires both the technical and people sides

*Figure 2 – Key to success – Own work*

Validation tests criteria

The test team software implementation approach will have multiple planned releases during the project life cycles. This approach goes through the next phases:

Requirements – Design – Build - Testing – Plan

Types of testing:

1. Unit – when test team tests a component
2. Integration – when test team testing component interaction
3. User Acceptance – end users in the testing phase meeting requirements
Need to analyse the requirements. Engage an expert or review similar component of other projects. Need to analyse the completeness of the requirements, therefore requirements have to be well defined. Requirements has to be with relationship to scope.

Need to check:

- review the scope after each requirements cycle
- check the completeness of requirements
- verify the sufficient expertise was engaged

Deployment checklist covers the key activities that should be completed to migrate customers to Skype.

**Task** | **Detail**
---|---
Deploy headset | Provide headset to customers
 | Highlight email guidance for purchasing optional devices
Update contact details | Prompt customer to update their contact details in global address list
Skype meetings | How to join to the meeting directly from Skype
 | Use of the meeting audio pop-up box options
Call quality | Explain call quality factors and best practices
Phone removal | Existing hard phones won’t be removed because of business continuity (BCP)
Support | For any issues they have call the support team
Training | Show the new features to users

### 4.2 Work Breakdown Structure (WBS)

The work breakdown structure identifies all of the activities of the project. It helps to assign the activities to individuals. The Skype project implementation uses a basic work breakdown structure. Phase 1, Phase 2 and Phase 3 are using the same structure to assign the project work and tasks. Phase 4 and Phase 5 is a bit different from them, because it has a rollout part that includes the basic
activities and the project management activity is separated from them, because it helps to manage the project, but the others help to complete the project from technical side.

Work breakdown structure is a key deliverable of the project, and it is related to more deliverables, for example it helps to select the team, assign project work to people, helps to divide the budget for phases and activities and helps to identify an accurate schedule.

Figure 3 – WBS of Skype project – Own work
4.3 Resource allocation

Table 5 - Resource and working hours need in Phase 1 – Own work

![Resource and Working Hours Need in Phase 1](image)

Table 6 - Resource and working hours need in Phase 2/3 – Own work

![Resource and Working Hours Need in Combined Phases 2&3](image)
Table 7 - Resource and working hours need in Phase 4 – Own work

Table 8 - Resource and working hours need in Phase 5 – Own work
4.4 Resource Management

As the Skype will be implemented globally, the project needs to have global resources. Resource management includes documenting roles and responsibilities, required skills for the project completion have to be identified. Who are the stakeholders, who are impacted by the project, or who have impact on the project? I am going to identify the endorsers and approvers roles too.

Stakeholders:

- Project Management Committee
- Business users’ management
- IT users’ management
- Portfolio Manager
- Network Security Manager
- Representatives of power users

Project team members (internal):

- Project Manager
- Deployment Leads
- Project Manager Office
- Management of Change members
- Project accountant
- Network engineer
- Service Design Lead
- Skype engineering
- Application Design and Build team
- Test team
- Security and Controls advisor
- Architect
- Infrastructure team
Resource rates are different by country, what is important on budget side.

- USA 130 $
- Malaysia 50 $
- Hungary 75 $
- Netherlands 120 $
- UK 120 $
- Brazil 50 $
- Germany 125$
- Canada 120 $
- Argentina 75 $

4.4.1 Communication plan

Project kick-off meeting:
- Purpose of meeting: Define broad scope and highlight options.
- Audience: Project team
- Organizer: Project manager
- Content sharing: Face to face, review the phases and discuss the next phase work
- Timing: Once – In the Phase 2/3

Team meetings:
- Purpose of meeting: Check the key risks and issues, inform the project manager, and discuss questions
- Audience: Project team
- Organizer: Project office manager
- Content sharing: Project consists of global team members, thus using teleconference and screen sharing.
- Timing: Weekly – because of different time zones American and European resources have meetings every second week, and Asian resources meet on every other weeks
Stakeholder meetings:

- Purpose of meeting: Discuss plans and impacts on the organization
- Audience: Stakeholders
- Organizer: Project Manager
- Content sharing: E-mail or telephone-conference
- Timing: Recommended every quarter

Steering Committee meetings:

- Purpose of meeting: Status against plans - cost, scheduling, deliverables scorecard, project risks, management of change plan update
- Audience: Key stakeholders
- Organizer: Project manager
- Content sharing: Face to face if possible
- Time: Monthly

4.4.2 Roles and Responsibilities

When the project reaches the end of each phase, it needs to have approvals and endorsements from a defined list of stakeholders. Details of endorsements and approvals depend on the actual phase, but there is some content what needs to be reviewed in every situation:

- Scope
- Project Approach
- Organization
- Cost and schedule estimates
- Economics
- Status
Endorsements: Endorsements are documented for funding events. Driven by Budget approver. Phase reviews are serious decision points. Phases decide whether to proceed and fund, ready for the next phase, and closeout phase confirms completion.

- **Budget Approver**: Accountable for project investment designation. Commits IT funding. The total approved budget: 5,500,000 $
- **Phase keeper**: Provides management control and direction during each phase of work. Responsible for endorsing a project’s progress through each phase.
- **Business Venture Manager**: Responsible for designating business representatives and executing the business aspects of the project.
- **Project Owner**: Is accountable for the project outcome and overall business result.
- **Portfolio manager**: Manager of Project Manager.
- **Project Manager**: Responsible for ensuring successful execution of project activities.
- **Project office manager**: Supports the Project Manager with skilled project services.
- **Project steering committee**: Comprised of senior representatives from key stakeholders.
- **Stakeholders**: Anyone with an interest or role in the project. Stakeholder communication is key to project success.

**RASCI Matrix**

RASCI matrix is used to understand the project roles and responsibilities. With the help of the matrix Project Manager can assign tasks to individuals. RASCI is an acronym:

- **R** – **Responsible** – Who is responsible for the assigned task?
- **A** – **Accountable** – Who is responsible for the whole task and who has the responsibility for what has already been done?
- **S** – **Support** – Who can provide support?
- **C** – **Consulted** – Who can provide advices?
- **I** – **Informed** – Who has to be informed?
### Table 9 - Abbreviation of Roles – Own work

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th></th>
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<tbody>
<tr>
<td>Application support</td>
<td>AS</td>
</tr>
<tr>
<td>Database administration</td>
<td>DA</td>
</tr>
<tr>
<td>Application owner</td>
<td>AO</td>
</tr>
<tr>
<td>Application custodian</td>
<td>AC</td>
</tr>
<tr>
<td>Problem support</td>
<td>PS</td>
</tr>
<tr>
<td>Application engineering</td>
<td>AE</td>
</tr>
<tr>
<td>Access administration</td>
<td>AA</td>
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<tr>
<td>Hardware administration</td>
<td>HA</td>
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<tr>
<td>Backup management</td>
<td>BM</td>
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### Table 10 - RASCI matrix – Own work

<table>
<thead>
<tr>
<th>Roles</th>
<th>AS</th>
<th>DA</th>
<th>AO</th>
<th>AC</th>
<th>PS</th>
<th>AE</th>
<th>AA</th>
<th>HA</th>
<th>BM</th>
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<td>Tasks</td>
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<td></td>
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<tr>
<td>Maintain and support application</td>
<td>A,</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schedule and perform HW maintenance</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schedule and perform database maintenance</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Schedule and perform backups</td>
<td>I</td>
<td></td>
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<td></td>
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<td>Perform application access reviews</td>
<td>R</td>
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<td>Maintain application controls documents</td>
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<td>Monitor application performance and capacity</td>
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<td>Plan for capacity changes</td>
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<td>Install application</td>
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<tr>
<td>Steward application availability</td>
<td>A,</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<td>Steward application reliability</td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**RASCI MATRIX**

| Maintain and support application                  | A,R | S  | S  |
| Schedule and perform HW maintenance               | I   | I  |    |
| Schedule and perform database maintenance         | I   | A,R| I  |
| Schedule and perform backups                      | I   | I  | A,R|
| Perform application access reviews                | R   | A  | I  | S  | I  |
| Maintain application controls documents           | S   | A  | R  |
| Monitor application performance and capacity      | R   | S  | A  | I  | S  | I,S|
| Plan for capacity changes                         | R   | S  | A  | C  | S  | I,S|
| Install application                               | A, R| S  | I  | C  | S  | S  |
| Configure application                             | A, R| S  | I  | C  | S  | S  |
| Test changes                                      | A, R| S  | I  |    |
| Steward application availability                  | A, R| I  | I  |    |
| Steward application reliability                   | A, R| I  | I  |    |
4.5 Cost Management

In cost estimation I can use the same techniques as in scheduling. Bottom Up estimating requires accurate work breakdown structure. Cost management consists of the following activities:

- Determine budget: Cash flow, reconciliation
- Control cost: manage the changes, follow the cost management plan
- Cost progress reporting: represents completion in percentage

4.5.1 Workforce expense

Parts of the outlook:

- Workforce: Workforce cost is the expense of all resources who work on the project.
- Non workforce: the project has third party resources, who give an invoice to the company.
  In this case, the company satisfies a debt bill.
- Hardware: capital expense, physical assets purchased by the project.
- Software: Opex cost.

Details: Hours/Phases

*Table 11 - Working hours for USA and Malaysia by phases – Own work*

<table>
<thead>
<tr>
<th>USA</th>
<th>130</th>
<th>US dollar/hour</th>
<th>Malaysia</th>
<th>50</th>
<th>US dollar/hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>300</td>
<td>Hours</td>
<td>Phase 1</td>
<td>0</td>
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<tr>
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<td><strong>Total</strong></td>
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<td>US dollars</td>
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</table>
Table 12 - Working hours for Brazil and Hungary by phases – Own work

<table>
<thead>
<tr>
<th>Brazil</th>
<th>50</th>
<th>US dollar/hour</th>
<th>Hungary</th>
<th>75</th>
<th>US dollar/hour</th>
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</thead>
<tbody>
<tr>
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<td>Phase 2/3</td>
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</tbody>
</table>

Table 13 - Working hours for Netherlands and UK by phases – Own work

<table>
<thead>
<tr>
<th>Netherlands</th>
<th>120</th>
<th>US dollar/hour</th>
<th>UK</th>
<th>120</th>
<th>US dollar/hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>0</td>
<td>hours</td>
<td>Phase 1</td>
<td>0</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 2/3</td>
<td>15</td>
<td>hours</td>
<td>Phase 2/3</td>
<td>20</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 4</td>
<td>450</td>
<td>hours</td>
<td>Phase 4</td>
<td>1050</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 5</td>
<td>470</td>
<td>hours</td>
<td>Phase 5</td>
<td>350</td>
<td>hours</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>935</td>
<td>hours</td>
<td><strong>Total</strong></td>
<td>1420</td>
<td>hours</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>112200</td>
<td>US dollars</td>
<td><strong>Total</strong></td>
<td>170400</td>
<td>US dollars</td>
</tr>
</tbody>
</table>

Table 14 - Working hours for Germany and Argentina by phases – Own work

<table>
<thead>
<tr>
<th>Germany</th>
<th>125</th>
<th>US dollar/hour</th>
<th>Argentina</th>
<th>75</th>
<th>US dollar/hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>20</td>
<td>hours</td>
<td>Phase 1</td>
<td>0</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 2/3</td>
<td>152</td>
<td>hours</td>
<td>Phase 2/3</td>
<td>300</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 4</td>
<td>900</td>
<td>hours</td>
<td>Phase 4</td>
<td>600</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 5</td>
<td>500</td>
<td>hours</td>
<td>Phase 5</td>
<td>750</td>
<td>hours</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1572</td>
<td>hours</td>
<td><strong>Total</strong></td>
<td>1650</td>
<td>hours</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>196500</td>
<td>US dollars</td>
<td><strong>Total</strong></td>
<td>123750</td>
<td>US dollars</td>
</tr>
</tbody>
</table>
Table 15 - Working hours for Canada by phases – Own work

<table>
<thead>
<tr>
<th>Canada</th>
<th>120</th>
<th>US dollar/hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>0</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 2/3</td>
<td>0</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 4</td>
<td>250</td>
<td>hours</td>
</tr>
<tr>
<td>Phase 5</td>
<td>800</td>
<td>hours</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1050</td>
<td><strong>hours</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>126000</td>
<td><strong>US dollars</strong></td>
</tr>
</tbody>
</table>

Table 16 - Total working hours by phases – Own work

<table>
<thead>
<tr>
<th>Working Hours by Phases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Hours - Phase 1</td>
</tr>
<tr>
<td>Total Hours - Phase 2/3</td>
</tr>
<tr>
<td>Total Hours - Phase 4</td>
</tr>
<tr>
<td>Total Hours - Phase 5</td>
</tr>
<tr>
<td><strong>TOTAL HOURS</strong></td>
</tr>
</tbody>
</table>

Table 17 - Total cost by phases for workforce – Own work

<table>
<thead>
<tr>
<th>Total cost by phases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost - Phase 1</td>
</tr>
<tr>
<td>Total Cost - Phase 2/3</td>
</tr>
<tr>
<td>Total Cost - Phase 4</td>
</tr>
<tr>
<td>Total Cost - Phase 5</td>
</tr>
<tr>
<td>Total Cost - Closeout</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
</tr>
</tbody>
</table>
You can see the Workforce expenses are calculated in the appendix part (from Table 23 to Table 26). The table shows all workforce expense estimations by phases for the whole project. The workforce need is different by phases, because different phases need different amount of work.

I could estimate the numbers from experience and compare the project with other similar completed projects.

Above in the Cost management in Hours/ phases part shows how much working hours were required in the different phases of the project by countries. I also summarized the rates by countries what resulted in the payment for resources by countries data. It is different by country because of the differences by nationalities. Finally working hours by phases were multiplied with resources’ rates. That was the final step to get the whole estimation for workforce expense.

Non-workforce expense

Workforces of those contractors who work at the Vendor and the company pays their working hours by invoices. Also non-workforce cost what is not capitalized and below the threshold of the given country. Project travel budget is a non-workforce expense too.

Below I listed all of the assets what the company needed to buy to complete the project. These ingredients are coming from the sum of the non-workforce expense, what you can see in the appendix (from Table 1 to Table 4) in Non-workforce row just as the Workforce.

Non-workforce expense's estimation is accurate, because of the project members get quotations from vendors. The company works with the usual vendors who are already known from previous projects.

Company purchased non-workforce expenses

- Desktop phones with HD voice
- Ethernet cables
- Microphones
- USB headsets
- Analogy VOIP gateway
- Telephony cable safety locker
Service element
Desktops
Consultation
Travels and Workshops as needed
Lync Voice Architecture
Deployment

Capital expenditure
Capital expenditures (CAPEX) are funds to purchase physical assets, which value is over applicable affiliate threshold.

Company purchased
- Servers
- Skype licenses

4.5.2 Contingency
Contingency is required to handle exceptional risks. It means the project has some reserves because there are some possible unexpected costs and events. Contingency covers expenses what are above the total project budget. Separate reserves can be created for both capital and expense costs. The company had several similar projects, so because of lessons learned the contingency is 10%.

The total project budget: ~ 5M
There is no need for contingency for CAPEX expense. Project knows the exact number of the invoices, because of quotations.

Thresholds
Thresholds are different for Non-workforce Opex and Capital Expenditure by country. Project Manager can differentiate between CAPEX and OPEX expenses based on the thresholds. The amount what is below the threshold is OPEX, and that amount what is above the threshold is CAPEX. It is important for controllers to do the correct booking of costs.
### Table 18 - Threshold of countries – Own work

<table>
<thead>
<tr>
<th>Country</th>
<th>USD</th>
<th>Hardware threshold</th>
<th>Software threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>$18000</td>
<td>6000</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>$25000</td>
<td>8000</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>$30000</td>
<td>10000</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>$30000</td>
<td>10000</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>$18000</td>
<td>6000</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>$18000</td>
<td>6000</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>$30000</td>
<td>10000</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>$25000</td>
<td>8000</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>$30000</td>
<td>10000</td>
<td></td>
</tr>
</tbody>
</table>

#### 4.5.3 Project benefits

Projects can have 2 types of benefits. Hard and soft benefits.

**Hard benefit:**
- Can be quantified, measured and have accountability.
- Hard benefits are included in project economics.
- Includes whole staff reduction and specific reduced out-of-pocket spend

**Soft benefit:**
- Anticipated, but not readily measurable or traceable
- Soft benefits are used to provide a case for action and to compare alternatives
- Includes improved organizational effectiveness, blanket percentage reductions in costs

This Skype Implementation project is non-discretionary, and it has soft benefits:
- Reduced effort to create and join meetings
- Increased productivity and enhanced functionality through unified communications
- Saving time with one-click functionality
Non-discretionary projects are those, which required to ensure services are secure and controlled in accordance with corporate and legal requirements. Require to ensure committed service levels.

4.6 Scheduling

Schedule planning is a really important part of the estimation. The cost estimation is appropriate if we know the exact deadlines of the project’s phases. Without the schedule estimation the project manager could not to tell how much resources are needed to complete the current task, because he/she would not have a deadline. Deadlines are important, because the customers and also the management would like to see the result of the project within the deadline.

Scheduling includes:

- Confirm dependencies between activities
- Major milestones and long-time items
- Identify critical path
- Schedule performance

Figure 4 – Schedule of Skype project – Own work
4.7 Organization Structure

Organization structure gives an overview about who are impacted by the project and who are working on the project. It says who can approve the project budget, and who has the responsibility of reporting. It also helps to select the right contact with the current questions, issues and so on.

*Figure 5 – Organization structure of Skype project – Own work*

- **STAKEHOLDERS**
  - Delivery Manager
  - Program Manager
  - Project management office
  - Business Users’ Management
  - IT Users’ Management

- **PROJECT TEAM**
  - Management of Change members
  - Deployment Leads
  - Architecture
  - Risk manager
  - Project accountant
  - Service design team
  - Infrastructure team
  - Deployment lead
  - Engineering team
  - Test team

- **Budget Approver**
- **Phase Keeper**
- **Project Owner**
- **Business Venture Manager**
- **Project Manager**
4.8 Risk management

Project risk is an unexpected event with positive or negative impact to the project. Positive risks are opportunities and negative risks are threats. Risk management is the process of risk identification, analysis and monitoring.

4.8.1 Risk management process

*Figure 6 – Risk management process – Own work*

Risk Identification:
- Identification of potential risk events
- Documentation of risk events
- Development of risk events

Risk Analysis:
- Determine size and importance of risk events
- Estimate the value (quantitative, qualitative)
- Probability of impact for risk events

Risk Response Planning:
- Creating strategies for risks
- Selecting the primary risks

Risk Monitoring and Control: 3 key activities:
- Risk response execution
- Risk evaluation
- Risk documentation
Risk Matrix

A risk matrix was used to identify risks for this project. Magnitude of risk depends on the frequency of occurrence and impact of the risks mix.

Table 19 - Risk matrix – Own work

<table>
<thead>
<tr>
<th></th>
<th>Probable</th>
<th>Occasional</th>
<th>Remote</th>
</tr>
</thead>
<tbody>
<tr>
<td>High impact</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Medium impact</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Low impact</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Key risks

- Availability of key resources: Work with resource owners to prioritize resource availability
- Competing initiatives at sites: Align with local operations teams to resolve conflicts
- Incorrect cost estimates: Obtain fixed cost vendor quotes with penalty clauses for overrun, leverage project contingency
- Incorrect schedule estimates: Revise at each phases, detailed plans for each phase is built and owned by leads. Leverage project contingency.
- Poor communication between team members: Leverage project kick-off events for teambuilding activities, implement recognition programs
- Continuously changing requirements: Review all scope changes with Steering committee
- Technical complexity (Skype implementation) is too complex: Leverage key vendor resources.
- Governance leadership changing: ensure continuity of approach when key stakeholders move on – develop management briefing documentation

Recommendation: Setup coordination process to manage alignment and scope change decisions, comprehend project scope and risk management process.
4.9 Critical Success Factors in Planning and Execution phase

In order to better understand the scope and purpose of the project, I created a case for action part on page 23 and I have listed several options that offer solutions. The list of options is very important, because the project must be able to choose the best. I created a score matrix on each solution on page 27, which helps to choose the best from the available solutions. It provides insights about the weight and score of the most important criteria. When you summarize the weighted scores of a solution you can compare it with others. This way you can choose the best possible solution for your company. On page 24 I wrote down the advantages and disadvantages of the listed solutions which provides a complete picture of them. It all helps to understand the scope and clarify the requirements. Requirements and scope have to be clear and they have to be communicated to project team members, and stakeholders as I indicated about CSF1 on page 10.

The management support (CSF2) is also required in planning and execution phase too. As the project has detailed information, the project manager can make an estimate that he/she presents to the management to get the full funding. If it is not fulfilled, the project will be cancelled. Management also have responsibility in project’s success, as they are informed at least monthly, they have the responsibility to influence the project execution.

If we want to achieve success, the project communication has to be clear to understand the real and main challenges of the project, find the issues on the project or within the team. Everyone has to be engaged and visible on the project. When I speak about communication management, I mean people have to understand the whole message and not just what they are hearing from others. The Project manager has to set up meetings (CSF9) with the project team, top management, stakeholders, business representatives and end users.

I have described the communication plan as CSF3 on page 33 (that is also related to progress meetings; CSF9) and explained how it should be executed. In other words, be sure the message is intended for everyone at the meeting, and who is the target audience for the discussion. If we know it, we can determine the purpose of the meeting, so what we would like to speak about, and what we need to resolve. Most of the time the organizer is the project manager, however resources can also organize meetings. For example, if they have a question about their roles, tasks, or what is the expectation from them and so on. These meetings are called one on one, because one resource and
the project manager have the discussion. It does not need to have a long duration, it usually takes an hour, or a half. The project manager has to make a decision about the duration, but it can also depend on the top management. If the project manager makes a decision that it’s enough to have a meeting once in a month, but on the other hand the top management wants to get informed every week, then they can discuss the required frequency of the meetings. Regular reporting of the project’s status is a key to the success of the project.

Type of the meeting also depends on the participants’ geographic location. If they are around the world, then time zones need to be considered and they have to organize virtual meetings. The best option would be the face to face meeting, because it is more effective and it has the chance to influence the success of the project. It is very important to communicate the project vision. Unfortunately, if the vision is not communicated very clearly the project has bigger chance to fail, because people cannot articulate the vision and success criteria. In addition, it is important to define roles and responsibilities of individuals. Also it can be the basis of communication to let people know who they can get answers from. If they know with whom they have to review a current issue, question or task, it increases the probability to achieve success at the end of the project.

CSF5, selecting the suitable people to the project team is a difficult task. They need to have the adequate knowledge, expertise, capacity and abilities to function in their field just like the project manager’s. His/her leader role is an essential function. CSF4, the project manager’s role has to be always active. He/she has to apply efficient and well-trained resources. Project manager has to be available all the time to their people when they would like to discuss with him/her. If people who work on the project do not take their function and role seriously, the project will not be going well and it will start to cause problems, so the project manager has to check and monitor their works and progresses. As noticeable, it needs to be a collaborative relationship what refers back to the project manager’s competence on page 11. The project manager has the biggest influence on the project as he/she leads people and communicates key decisions, progress and risks in the direction of top management as well as to the team. All of the above are justifying the project manager’s influence and indispensability.

Work breakdown structure (WBS) is one of the key deliverables. It helps to categorize the team’s work into convenient sections. Work breakdown structure is connecting to scope as a visual representation covering multiple manageable sectors. It helps the team members and project
manager to understand the scope in each level, so WBS is connected to CSF1; agree on project scope and goals on page 10, CSF5; project team, and CSF7 on page 14; project schedule and plan on page 14.

Creating an accurate work breakdown structure has several benefits in project work. It is connecting to

- Project budget, schedule and cost estimation (CSF7)
- Resource allocation (CSF5), and also helps to
- Find the key risks already in the planning phase (CSF6).

All the points of the list are related to the success factors. Project budget can be delegated to each level of the structure and the estimation can be determined based on the project’s work. As the project manager assigns resources to work packages the project schedule and budget can be elaborated in this early phase. As the work is separated to specific sections of the WBS, the structure can be tracked to determine the budget performance and identify key risks in the project.

As I have already touched on resource allocation part, resource management (CSF5) is also tightly connected to the work breakdown structure. The work breakdown structure helps to assign work tasks to individuals, and it helps to do the resource allocation by phase. By the way resource allocation is a part of the resource management that is another critical success factor as mentioned on page 12.

When the team is selected the project manager has to organize a meeting where he/she informs the team about the project’s purpose, scope and requirements and this point is connected to the communication management which I referred on page 33 in planning and execution phase and listed the CSF3 on page 10. On page 13 below proper risk management (CSF6) paragraph, I have already mentioned the significance of risk management. Risks are called those unfavourable factors that can have a negative influence on the project. As a result, the project does not reach the target, the scope and requirements have been met, but the cost of the project will be much higher than the expected and endorsed funding and so on. Therefore, the project must have a risk management plan, where it can collect all of risks that can have an effect on the project. The risk management plan involves
recognizing, understanding, analysing and addressing risk. It makes the project well prepared to provide solutions for a given risk in critical time.

On page 37 I have developed the cost management that refers to project schedule and plans CSF7 on page 13. An accurate project budget estimate gives the chance to achieve goals within budget, which is one of the key deliverable of success. To get the exact cost estimate, I divided the costs into several parts:

- Workforce expense
- Non-workforce expense
- Capitalized expense

In order to be able to estimate the exact amount of workforce we have to know how much work is going on each task. Therefore, at first we have to make a resource management plan that I had already mentioned above when I referred to resource allocation and resource management.

I made a summary on page 37 that shows the amount of work on each phase by country. If we know for each resources as individuals our expectation, and also know the rates of their country, we can make an estimate easily for expected workforce expense. For example, I know that resource rate in the USA is 130$ for an hour. As the example shows below USA people work on the project 300 hours in initiating phase. So, we just multiple these 300 hours with 130 dollars, that is their rate, finally we get, that their total cost for initiating phase is 39 000 dollars.

Table 20 - Working hours for USA by phases – Own work

<table>
<thead>
<tr>
<th>USA</th>
<th>Rate: 130 $/hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>300 hours</td>
</tr>
<tr>
<td>Phase 2/3</td>
<td>1000 hours</td>
</tr>
<tr>
<td>Phase 4</td>
<td>950 hours</td>
</tr>
<tr>
<td>Phase 5</td>
<td>2800 hours</td>
</tr>
</tbody>
</table>
So creating the cost estimation (CSF7) is a must, because the project manager must know how much money he/she needs to finish with the current phase and prepare for the next phase. If we count the expected amount for each country, we can make a summary about the expected total cost by phase. If the workforce is constantly monitored, we can influence the outlook accuracy and keep up to date.

Non-workforce estimation is easier, because the project manager knows what he/she wants to purchase. At first he/she gets a quotation from the vendor and that shows the exact amount before the purchasing would happen. It is a big help, because we know the whole amount and we can make a very accurate estimate for non-workforce expense.

Capitalized expenditure is estimated in the same way as non-workforce expense.

We also have to estimate the contingency that gives additional funding for the project. The amount of contingency to be applied is dependent upon the level of certainty with the project estimate. In this example I will consider ten percent. It means the project has the whole project funding plus ten percent of the total budget. For example, the total project budget is five million dollars, then the contingency is 500 000 dollars, so the project can spend 5 500 000 dollars. The reason is that the project has some unexpected issues, or need more people for the project to move forward.

The cost estimation has effect also on scheduling and vice versa. If the cost estimation is not accurate enough and the cost is higher than the expected amount, then maybe we will not have as many resources as needed and the duration of the project will be longer.

As I summarized the key features of cost and schedule estimation you can realize why they are so important and why they are listed between of critical success factors on page 14. The success of the projects highly depends on the accuracy of the cost and schedule estimation, because these two are the basis of the project management beside the scope, so 2 of the 3 main basic requirements were described in this part.
5. Monitoring and Control and Closeout

During the execution phase the project manager should consider key processes to manage the product delivery. These include status reporting, issue management & escalation, cross team communications and stakeholder engagement.

5.1 Status report

Work description: Full Skype implementation for desktop and laptop company users with call and chat history saving.

*Table 21 - Planned VS Executed list – Own work*

<table>
<thead>
<tr>
<th>Planned</th>
<th>Executed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deploy full Skype to end users</td>
<td>✔</td>
</tr>
<tr>
<td>Purchase of Skype devices (wireless headset, web camera, speakerphone)</td>
<td>✔</td>
</tr>
<tr>
<td>Skype for Business to Skype for all company assets (notebooks, laptops)</td>
<td>✔</td>
</tr>
<tr>
<td>Basic end user trainings – Management of Change</td>
<td>✔</td>
</tr>
<tr>
<td>On-demand support by Microsoft</td>
<td>✔</td>
</tr>
<tr>
<td>Call and chat history saving</td>
<td>✔</td>
</tr>
<tr>
<td>Schedule business meetings with outlook</td>
<td>✔</td>
</tr>
<tr>
<td>Decommissioning of the current chat/audio service</td>
<td>Not implemented</td>
</tr>
</tbody>
</table>
5.1.1 Project Execution Summary

Background and scope

- As we can see above almost all items was executed by the project team, except decommissioning of the current chat/video service. The company will start a new project to complete this item.

Cost and Economic summary

- Total approved funding: 5.500.000 $  
- Total Project cost: 5.096.350 $  
- Non - Discretionary project  
- Contingency: 10%  
- The project did not have need for contingency, the total project cost is under the total approved cost.

Scheduling

- Scheduling was appropriate, project was closed 3 weeks later than planned, but it is still within the planned contingency.

5.1.2 Management escalation

(Project-management.com, 2017)

Escalation management is used for IT service management. Escalation criteria for example missed the deadline that defined in the contract. Escalation is a formal process that helps to realize an issue. The project manager needs to understand the right use of escalation. Before the project manager escalate an issue he/she needs to be sure the analysis and monitoring is done. He/she needs to escalate effectively, for example:

- Have to avoid the unnecessary escalations  
- Do not involve everyone in the issue, escalate to the right stakeholders  
- Keep escalation meeting, call or mail focused on the concern

5.1.3 Cross team communication

Allows more networking related opportunities and interactions across IT groups to help to solve issues. Cross teams can share examples and resolution of challenges to reach higher customer satisfaction. To get better feedbacks from customers and because of reaching better outcome of the project every team has to communicate with each other. Business representatives have to be
informed too about IT teams’ tasks, risks, and they have to communicate them to customers and management.

5.1.4 Issue management

Table 22 - Issue management contact information – Own work

<table>
<thead>
<tr>
<th>Situation</th>
<th>From</th>
<th>Primary contact</th>
<th>Secondary contact</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issues</td>
<td>Business</td>
<td>Product Owner</td>
<td>Project Manager</td>
<td>email</td>
</tr>
<tr>
<td></td>
<td>Team</td>
<td>Project Manager</td>
<td>Related Stakeholder</td>
<td>personal or virtual meeting</td>
</tr>
<tr>
<td></td>
<td>Product owner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes</td>
<td>Business</td>
<td>Product Owner</td>
<td>Project Manager</td>
<td>email</td>
</tr>
<tr>
<td></td>
<td>Team</td>
<td>Project Manager</td>
<td>Stakeholders</td>
<td>personal or virtual meeting</td>
</tr>
<tr>
<td></td>
<td>Product owner</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Issues:

1. The project schedule was depending on the sites being network ready. Network upgrades and scheduling for sites was not accurate, and implementation was delayed.
   Solution: work closely with network support team to ensure network upgrades are completed.

2. Availability of some key resources
   Solution: Create a common project site, where resources can demonstrate their future plans about vacation, trainings, or something else and they have to inform the Project

5.2 Critical Success Factors in Monitoring and Control and Closeout phase

In this last section I made a status report that involves the summary of project execution. The first column shows the planned goals and the second column shows the executed features. It also gives some information about the background, for example the estimated total budget and the current total project cost. As you can see, it was a really successful project, because the project reached almost all of the targets, expect one, the decommissioning of the current chat/audio service. The project cost is within budget, so there was no underrun or overrun.
This last phase also includes issue management, cross team communication and management escalation sections. These provide information about what you have to do when you are facing a problem. Although these are not listed individually as critical success factors, these processes result from the application of multiple CSF’s and it is important to know what the process in these cases is.

At the end of the last phase, called closeout the project manager makes a report about the success or failure of the project to the top management. The achieved success will be revealed in the closeout section.

5 Summary, Consequences

My thesis’ aims to demonstrate the critical success factors on the Skype implementation project from the very beginning to the project closeout. It presents the nine main critical success factors which were explored throughout my thesis. These are:

CSF1 – Agree on the project scope and goals
CSF2 - Management support and the involvement of key staff
CSF3 – Communication
CSF4 - Project Manager’s competence
CSF5 - Project team
CSF6 - Proper risk management
CSF7 - Project schedule and plans
CSF8 - Project objectives
CSF9 - Progress meeting

Overall, I believe that all of listed critical success factors are related to the whole project, and not just for the separated phases. The project manager and all of those people who are working on the project must constantly take care of them, because without the appropriate attention they can cause significant problems and we will not have the chance to achieve success.
I listed ‘agree on the project scope and goals’ as CSF1. This means everyone who is working on the project, who has effect on the project, or who are affected by the project have to understand the scope and purpose of the project. IT people have to translate to business people what they understand and mean by each point and vice versa. This also applies to top management and sponsor(s). If they do not understand each other and it is not signalled to others this will hinder the projects chances of completing successfully.

CSF2, the management support and involvement of key staffs are also very critical, because the management determines that the project should continue or not. If they say no, the project will be cancelled. To secure the budget to complete the project also depends on them and on the sponsor(s) of the project, so the project manager has to inform them about the status, key risks and also issues of the project.

The basis of the listed critical success factors above is the communication. It is the key when the different departments and different people wants to understand each other, and it is the key also when the project manager wants to get the funding of the project. Communication always has to be active and must have the key messages. It also important to communicate to resources and end users. They will make the decision about the project outcome, that the final result complies with their requirements or not.

The CSF4, the project manager’s competence is also important from the very beginning as he/she manages all resources and he/she is responsible to achieve success. He/she has selected the project team with the right skills and capabilities. He/she needs to use soft and technical skills too, because does not have to manage people only, but also has to understand the technical things, status and issues of the project as he/she has to make decisions continuously.

The next critical success factor is the project team (CSF5). Project team is working on the project from the beginning to the closeout, they will provide details about the project to the project manager, and they have to also inform the project manager about the status and progress of their tasks. So one of the basic requirements is depending on them and on their scheduling. If they do not complete their assigned tasks within the specified deadlines the duration of the project could be extended and this may impact the project’s success.
CSF6, the risk management is a critical point, because these unfavourable factors can make the project ineffective, but the team can prepare for the risks and provide solutions by creating a risk management plan and thus avoid possible errors, or reduce the possibility of failure at least.

Project schedule and plan that I listed as CSF7 is also a key feature. It helps the project manager stay within budget and in schedule. Schedule estimation gives the deadlines to the project manager. Cost estimation helps him to check how much money is left for him/her to complete the task for particular deadline that helps to avoid underrun and overrun.

Project objectives, CSF8 give the answer for the questions beginning with how. Project objectives give a complete picture about how people can realize the purpose of the project and how they can achieve successful result.

CSF9, progress meetings are related to the communication. It determines the length and purpose of the meetings. It usually takes an hour or less. The aim of the progress meetings is to check the status of the project and monitor the progress of assigned works and tasks.

Consequently, I can say, that all of listed critical success factors are very important and that none of them can be omitted. Critical success factors must be checked throughout the project. If we do it, we will have a greater chance of making the project successful. However I have to say that we should not be satisfied with them. As every project is different, every project has different success factors, therefore we have to keep searching and explore new ones that help us to create a great successful project execution.
6 References


[Accessed: 22\textsuperscript{th} of February 2017]

[Accessed: 12\textsuperscript{th} of January 2016]


[Accessed: 12\textsuperscript{th} of January 2017]

[Accessed: 20\textsuperscript{th} of December 2016]

[Accessed: 16\textsuperscript{th} of February 2017]

Turner, J. R. (1999). International Journal of Project Management, USA, Association for Project Management (APM) and International Project Management Association (IPMA)

[Accessed: 14\textsuperscript{th} of February 2017]
8. Appendix

8.1 Cost estimation details

*Table 23 - Cost estimation for Phase 1 – Own work*

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<th>Outlook Cost</th>
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<td><strong>36 500</strong></td>
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*Table 24 - Cost estimation for Combined Phase 2/3 – Own work*

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<td><strong>61 000</strong></td>
<td><strong>90 000</strong></td>
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**Table 25 - Cost estimation for Phase 4 – Own work**

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<td>Oct</td>
<td>Nov</td>
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<td></td>
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**Table 26 - Cost estimation for Phase 5 – Own work**

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<td>187 650</td>
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8.2 Resource Allocation

**Phase 1: 520 hours**
Application Design and Integration: 1 person – 3 hours
Engineering: 1 person – 20 hours
Infrastructure: 3 people – 220 hours
Testing: 1 person – 5 hours
Deployment: 1 person – 152 hours
Project management: 4 people – 120 hours

**Phase 2/3: 1865 hours**
Application Design and Integration: 2 people – 8 hours
Engineering: 1 person – 95 hours
Infrastructure: 10 people – 490 hours
Testing: 1 person – 57 hours
Deployment: 4 people – 825 hours
Project management: 4 people - 390 hours

**Phase 4: 5950 hours**
Project Management: 4 people – 880 hours
Rollout:
- Infrastructure: 5 people – 180 hours
- Application Design and Integration: 10 people – 250 hours
- Engineering: 3 people – 920 hours
- Infrastructure: 28 people – 2070 hours
- Deployment: 5 people – 1050 hours
- Testing: 6 people – 600 hours
Phase 5: 6720 hours

Project Management: 4 people – 300 hours

Rollout
  Infrastructure: 4 people – 200 hours
  Application Design and Integration: 8 people – 300 hours
  Engineering: 4 people – 1050 hours
  Infrastructure: 28 people – 3310 hours
  Deployment: 4 people 800 hours
  Testing: 5 people – 760 hours