

# **MASTER'S THESIS**

Projekt přestavby kanceláří v mezinárodní společnosti a její propojení se spokojeností zaměstnanců

Project of office redesign in international company and its connection with employee satisfaction

## **STUDY PROGRAMME**

Management of Development Projects

## **FIELD OF STUDY**

Project Management of Innovations in a Company

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Project of office redesign in international company and its connection with employee satisfaction

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**CÍL PRÁCE:** Zpracovat projektový plán a poskytnout podniku aktuální informace pro efektivní řízení spokojenosti zaměstnanců na základě pracovního prostředí.

**PŘÍNOS PRÁCE:** Přispět jak k teoretickým aspektům problematiky pracovního prostředí a jejího propojení se spokojeností zaměstnanců, tak k praktické stránce i projektu přestavby kanceláře v mezinárodní společnosti. Dále vytvořit praktický projektový plán pro řízení přestavby kanceláře.

**OSNOVA:** (1) Úvod; (2) Analýza společnosti (3) Projektový plán; (4) Implementace projektu; (5) Hodnocení projektu; (6) Závěr

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- (1) ALLEN, T., HENN G. The organization and architecture of innovation: managing the flow of technology. Boston, 2007.
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- (4) ZACHAR, R. Spoluprací k úspěchu: aneb praktická inspirace pro manažery a zaměstnance. Praha, 2012.

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# **Declaration**

I hereby declare that I have done this thesis independently, all texts in this thesis are original, and all the sources have been quoted and acknowledged by means of complete references and according to citation rules.

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# **Acknowledgement**

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I would also like to express my very profound gratitude to my family and friends for providing me with unfailing support and continuous encouragement, throughout my years of study and through the process of writing this master's thesis.

# Abstrakt

Hlavním cílem této diplomové práce je zpracovat projektový plán přestavby kanceláři a poskytnout podniku aktuální informace pro efektivní řízení spokojenosti zaměstnanců na základě pracovního prostředí, zejména v případě pokud uvažují o přestavbě kanceláři nebo zavedení moderních pracovních podmínek. Přihlédneme jak k teoretickým aspektům problematiky pracovního prostředí a jejího propojení se spokojenosti zaměstnanců, tak k praktické stránce nadcházejícího projektu přestavby kanceláře v mezinárodní společnosti. Dále vytvořit praktický projektový plán pro řízení přestavby kanceláře.

Teoretická část této práce se zaměřena zejména na propojení technických, ekonomických a manažerských aspektů projektového řízení a vlivu pracovního prostředí na spokojenost zaměstnanců.

Hlavní náplní praktické části práce je analýza poskytovaná prostřednictvím vyhodnocení praktické zkušeností osobním zapojením do projektu přestavby kanceláře ve společnosti X a podílel se na konečném rozhodnutí o výsledné podobě kanceláři.

Na základě tohoto průzkumu a analýzy je vytvořen projektový plán zaměřený na projektové řízení přestavby kanceláře a na její propojení se spokojeností zaměstnanců s typy a radami pro podnikání. Tento projektový plán bude užitečný pro nadcházející projekty nejen ve společnosti X ale i pro další společnosti, které mají cíl přepracovat svou kancelář a podpořit zapojení zaměstnanců ke zlepšení svého pracovního prostředí.

Forma online dotazníku a osobního pohovoru byla použita k získání cenných informací o vybraných společnostech.

## Klíčová slova

Podnikový projekt, podnikové inovace, projektové řízení, výkon společnosti, spokojenost zaměstnanců, přestavba kanceláře, pracovní prostředí.

# **Abstract**

The main goal of this thesis is to prepare a project plan and provide the company with up-to-date information for effective management of employee satisfaction based on the working environment, especially in case the company considers to redesign the office or introduce modern working conditions.

The author will take into account both the theoretical aspects of the work environment and its interconnection with employee satisfaction, as well as the practical aspects of the upcoming office redesign project in an international company.

The theoretical part of this work will focus especially on the interconnection of technical, economical and managerial aspects of project management, as well as the effective influence of employee satisfaction and company performance through improving the workspace environment.

A major focus of the practical part of the thesis is an analysis and evaluation of the office redesign project in the engineering company X in the form of a case study.

Based on this investigation and analysis, a project plan outlining the project management of office redesign, its connection with employee satisfaction, and tips and recommendations for businesses will be created.

This project plan will be useful for the coming project in the engineering company X and other companies willing to redesign their office. It will drive employee engagement and improve the office environment.

An online questionnaire form and personal interviews have been conducted to gain valuable insight from selected companies.

## **Key words**

Company project, business innovation, project management, innovation process, company performance, employee satisfaction, office redesign, working environment.

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# Introduction

Effective project management is one of the key elements of modern successful organization. Success of the company contains several factors including working environment and human capital, which are the greatest organizational assets in today's fast moving and innovative world.

Every organization logically wants and needs to be successful, especially in our fast-changing world and competitive business environment. Modern business needs to be innovative and efficient in order to be able to answer to new trends, adapt to changes and grow. Human capital is one of the key factors of a business's success. Another key element is the supportive working environment. It has an impact on employees' satisfaction and drives engagement, as well as helping people to set up an innovative mindset and achieve the organization's goals in today's business landscape.

Business leaders are asking people in their organization to see the big picture, to be creative, innovative, and think out of the box. All this often happens in the workspace, which may not even support such mindset, but make additional requirements for employees instead. Convenient working environment and good office design support employees' needs and drive engagement as well as helping to set up an innovative mindset and achieve the organization's goals in today's business landscape.

However, the working space itself cannot solve all engagement and organizational problems. There are many other factors that need to be addressed during the office redesign project.

"Changing the design of the workplace gets to the heart of all of the issues that make work complicated, distracting, and energy draining. That's why it forces leaders to think about and reimagine strategy, structure, and process. Changing space brings managers and leaders back in touch with how the work really gets done and back in touch with the people and the hidden culture that embodies the real drivers behind behavior and performance" (Miller et al., 2014).

Creative thinking and collaboration are the key factors to develop new ideas, products, businesses, procedures, etc. Innovative approaches and effective project management of devising office workspace environment support new ways of thinking by taking into consideration business, technical, economical, managerial and cultural aspects. Planning, designing, and managing such complex projects requires not only specific knowledge and experiences, but also an open mind and ability to translate work behavior from various working aspects in the future workspace.

"Workspace transformation creates an opportunity to drive other changes for the organization's success in the future" (Stegmeier, 2008).

The theoretical part of this work will focus on theoretical aspects of project management and project plan preparation, as well as effective influence of employee satisfaction through improving the workspace environment. In this part of the thesis, the key

terms and definitions related to the theme will be described and explained. Significant attention is given to interconnection of technical, economical and managerial aspects of project management. At the same time, complexity and key issues affecting workspace design in the below areas are described in the theoretical part of this work:

- Agility
- Culture
- Innovation
- Engagement
- Collaboration

The major focus of the practical part of this thesis is to set up an office redesign project in an international company, and to create a practical project plan. Furthermore, the author's participation in the office redesign project at the engineering company X will be reflected in the practical part. Unfortunately, the official name of the company has to be hidden.

Based on this investigation and analysis, which includes a questionnaire survey answered by employees, a practical project plan of office redesign will be created. This project plan will be a base for realization of office redesign in the engineering company X, It can also help other companies willing to redesign their office and drive employee engagement to improve the office environment. The author used an online questionnaire form and conducted personal interviews to gain valuable insight from the selected company.

The primary goal of this thesis resides in creating a practical project plan in the engineering company X office by focusing on project management of office redesign to improve employee satisfaction.

The secondary goal of this thesis is to provide businesses with a guideline and checklist on how to redesign an office space. Theoretical aspects of the business environment as well as the practical side of company project redesign in the engineering company X will be taken into account.

The author of the diploma thesis works with the following hypotheses:

1. Convenient working environment includes an office design supports employees' satisfaction.
2. Employees are afraid of the management of office redesign, but their involvement in the process and timely communication about the project will support to overcome the changes.

On the course of elaboration of the diploma thesis, the following methods will be used:

- case study of office redesign project of the engineering company X;
- empirical probe – questionnaire and personal interview;
- critical evaluation of professional literature;
- data compilation and synthesis;
- practical project plan for the company.

**The project plan will focus on the practical part of the coming project of office redesign in the engineering company X and contain the following:**

- **Work Breakdown Structure (WBS)**
- **Action plan (Gantt chart)**
- **Time plan schedule**
- **Estimated budget**
- **Risk analysis**

**A guideline and checklist are created in the last part of this thesis. They can be used by other companies to drive successful office redesign projects.**

# **THEORETICAL PART**

# 1 THEORETICAL PART

The working environment has a large effect on employees and their satisfaction (Miller et al., 2014). This chapter aims to provide theoretical background and literature review in order to describe necessary terms and connections.

## 1.1 Project management in organization

The Association for Project Management (APM, 2018) defines project management as "the application of processes, methods, skills, knowledge and experience to achieve specific project objectives according to the project acceptance criteria within agreed parameters. Project management has final deliverables that are constrained to a finite timescale and budget"

According to Veber (2009), project management is "a tool for achieving serious changes that represent a difficult implementation task due to the complexity, duration and coordination need. Project management finds application wherever there is an interest in implementing a change that is important for management by its nature, and it is necessary to involve workers from various departments of the company to be successful". Project management includes planning, organizing, controlling and managing resources of the company that have been set in order to realize certain goals and objectives.

Definitions of the project management by other authors contain more philosophic views. Project management means not only the use of methods and techniques, but also a certain philosophy, a way of thinking and overall working style. (Dolezal et al., 2009)

Nemec (2002) notes that project management is a unique process. It is "a philosophy of approach to project management with a clear goal, which must be achieved in the required time, cost and quality, while respecting the strategy and using specific project procedures, tools and techniques."

Based on these definitions we can infer some benefits of the project management (PMBOK Guide, 2013):

1. The project management process is very well documented, because it should contain descriptions of risks and limitations, their solutions, and many others. All this information can serve as a source of information and knowledge for future decision- making.
2. The project management of each particular project is divided into several phases. It is clearly provable that a certain stage takes specific time and costs, together with clear measurements of accomplished results.
3. Project management teaches employees how to make changes because personal experience can be used in the future to further improve similar changes or improve business processes. The company builds a team of quality employees whose valuable knowledge and experience can contribute to increasing the competitiveness of the company.

4. Project management represents the application of knowledge, activities, skills, tools and techniques to the project to achieve the requirements placed on it and its objectives.

### **1.1.1 Project as a subject of project management**

The subject of every project management is a specific project. The meaning of the word "project" comes from the latin "proiectus", which means to perform or protruding. It is a process of planning and managing large actions (Nemec, 2002).

Project definitions according to the world's authors are not always the same and could be different in specific formulations. For example, Fiala (2002) describes project as "a result of a material or immaterial nature, based on a strategic plan, designed, organized and implemented under the direction of someone in the interests of the owner or the sponsor."

According to Nemec (2002) every project has an aim to realize a certain innovation in start dates and already given deadlines. The project requires the unification of the efforts and skills of many professionals from different areas of human action. Project activities are intertwined with organizational lines.

These definitions are ones of many project definitions, and many similar definitions can be found that express the same. The project should primarily represent a change. A change is a process by which inputs are changed to outputs.

### **1.1.2 Main characteristics of the project**

The project has three basic characteristics that define the environment in which a certain new value is created according to the set objectives. The product of the project can be viewed as an output or result of the project, time, cost and availability of resources (PMBOK Guide, 2013).

Every project is a unique product or service, which could be tangible or intangible. For example, even if office buildings are constructed with the same materials and with the similar terms, they are unique. It happens because of different location, design, circumstances, stakeholders and so on (PMBOK Guide, 2013).

Rossenau (2003) in his book states that every project has a three-dimensional goal: it has to be unique, involve some resources and should be implemented within the company.

Project has to be complex. Moreover, it should have demand for laborious activities to achieve desired result or procedures. Every project has limitations such as quality, cost and time (Veber et al., 2009).

Fiala (2002) describes the following characteristics of the project:

- the outcome of the project must be specified by the project leader
- the success of the project is not clear at the beginning stage
- the duration of the project is limited by time

- the project is carried out outside the normal business routine
- resources for project implementation are limited
- the project has only one clear result

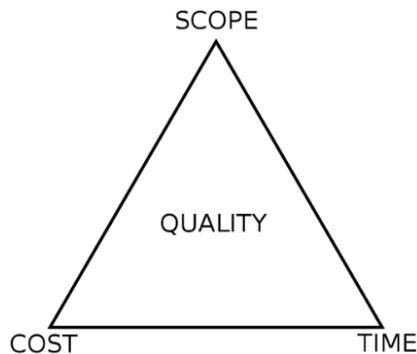
Because of project uniqueness, some activities can be new to the project team. It means that each project should be planned carefully and detail oriented. The project is carried out either by individuals, organizational units, or several organizations at the same time (PMBOK Guide, 2013).

### 1.1.3 The Project Management Triangle

The success of a project means to meet the goal in three dimensions (Rossenau, 2007):

1. scope - what is to be done
2. time - when to do it
3. cost – for how much it should be done

This three-dimensional goal is often called as "triple constraint", "iron triangle" or "project triangle of project management".



*Picture 1. The Project Management Triangle (Rossenau, 2007)*

In order to fulfill these goals, the project manager and his team should search for a balance between them. It is very important, because each goal is conflicting with the other two goals. For this reason, every project should have a detailed prepared project plan, which helps to monitor and control activities.

Project team and stakeholders apply their specific expectations while the success of the project requires a complete fulfillment of each objective and their triple combination. The specific implementation specification always needs a certain time schedule, which has an impact on the project budget. For example, if the financial budget of the project is increased, more efficient resources can be used and implementation time may be shorter. On the contrary, reducing of budget can lead to postponing the deadline (Rossenau, 2007).

All efforts, which are done in order to fulfill all three requirements, lead to project outcome. Usually we consider product or service as an outcome of every project.

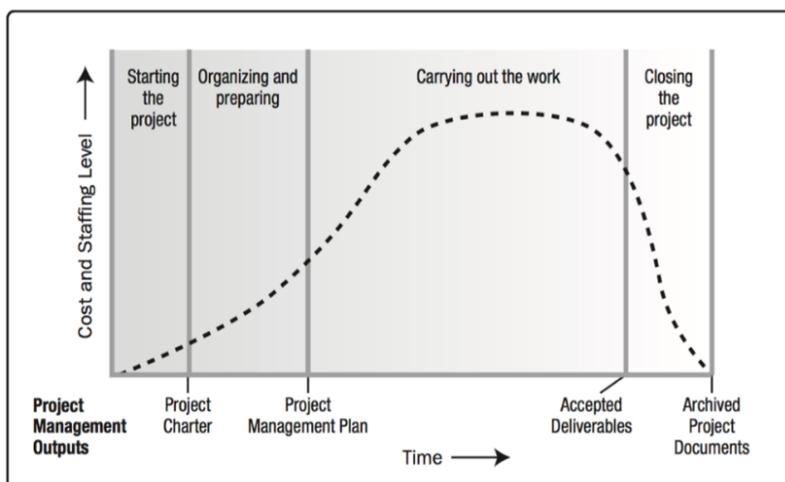
## 1.2 Project life cycle

Companies usually divide each project into several project phases and called them "project life cycle". Each phase of a project is characterized by the completion of one or more outputs. The output is a specific, demonstrable product, such as feasibility study, detailed design or product prototype. The conclusion of the project phase is usually accompanied by a review of these outputs and a determination of whether the project can move to the next phase.

A project phase is a period of time in a sequence of project activities that is clearly separated from other such sections. The project phase includes both the main project deliveries and the decisions that are the basis for the successful execution of the next phases. Each phase pursues its own set goal and the individual timeframe set for its implementation. It is important to note that different phase-to-phase models can be used for different types of projects or sub-projects, which also entails greater complexity of their coordination. In practice, some phases of a project may even overlap over time. They are called concurrent phases (Rossenau, 2007).

All projects can be viewed as the following life cycle structure (PMBOK Guide, 2013):

1. Starting the project
2. Organizing and preparing
3. Carrying out the project work
4. Closing the project



Picture 2 Project life cycle (PMBOK Guide, 2013)

The project life cycle structure generally contains the following characteristics (PMBOK Guide, 2013):

- Cost and staffing levels are low at the start, peak as the work is carried out, and drop rapidly as the project draws to a close.
- Risk and uncertainty are greatest at the start of the project. These factors decrease over the life of the project as decisions are reached and deliverables are accepted.
- The ability to influence the final characteristics of the project's product, without significantly impacting cost, is the highest at the start of the project

and decreases as the project progresses towards completion. Picture 2 illustrates the idea that the cost of making changes and correcting errors typically increases substantially as the project approaches completion.

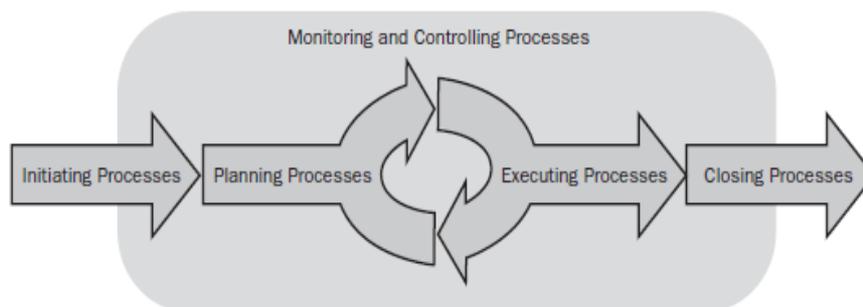
### 1.3 Project phases

Project phase is “a collection of logically related project activities that culminates in the completion of one or more deliverables” (PMBOK Guide, 2013). The aim of project phases is to make it structured and logically organized for management, control and planning. The number of phases, requirements and importance of control depend on complexity, size and possible impact of a specific project.

In order to keep the project organized, there exists four phases of simple project life cycle: initiation, planning, execution and closure.

The project phase could be divided into the pre-investment, investment and operation, and evaluation phases (PMBOK Guide, 2013):

- **Pre-investment phase** - is the most important part of the whole project. The responsibility is by the top management in the company. They must set objectives and define the project strategy to achieve those objectives.
- **Investment phase** - is the most laborious and most expensive part of the project. Usually the project supervision and project manager are responsible for it.
- **Operation and evaluation phase** - is when the project results are put into use. The achieved results are compared with the planned results and the obtained data are analyzed and recorded.



Picture 3 Example of a Single-Phase Project (PMBOK Guide, 2013)

According to literature, main project phases could be described as following (PMBOK Guide, 2013):

1. **Initiation** – within the initiation phase, customer sets the requirements and defines the strategy, taking into account business needs. Primary financial resources and initial scope are committed. Company should identify internal and external stakeholders and create a stakeholder register. It is very important to define working conditions, possible boundaries and responsible persons, especially when selecting a project manager. The information should be captured in

a main document of this phase - project chapter, which shows functions, features and other required information of future project. After approval of project chapter, the project is officially authorized.

2. **Planning** – based on the project chapter, company should prepare a project management plan with project documents used as outputs. It has to be detailed and should contain not only time schedule, but also costs, technologies, methods and necessary resources. Between the key elements of this phase is work breakdown structure (WBS), which could be used as a map of the certain project. This phase starts only after signing the agreement between both sides.
3. **Execution** – activities of this phase are focused on implementation and coordination of the project. Project management and quality management are part of the project management process in order to achieve the required parameters of the final product. The main goal is to fulfill customer requirements.
4. **Closure** – the last step of project phases, when the final project is delivered to customer, checked and financially closed. The core part is the acceptance of project results by the customer, the client, and subsequent final invoicing. Unfortunately, there are many cases when a project cannot be finished on time. It happens, for example, because of changes during the execution phase or unclear deadlines.

Any project could have different numbers of phases, which usually require different effort and duration. One project team can agree that the project has only two phases, while another project team considers it as a single phase (PMBOK Guide, 2013).

Although, the number of project phases and phases itself can be different, they have similar characteristics (PMBOK Guide, 2013):

- Each phase needs different sets of skills, organizations and locations.
- Each phase should be controlled in order to achieve requirements. They have to be reviewed, tracked and arranged. It is very important to measure and analyze possible changes regularly and define preventive actions as they can anticipate possible problems.
- Each phase ends with the transformation of work product, which should be done during the phase.

There is no standard structure that could be applied for all projects even in the same industry. Some companies try to create policies in order to standardize all projects, while other companies prefer to choose the most suitable approach for the individual project.

## 1.4 Project plan

A well-prepared project plan is an important element leading to a successful project. According to PMBOK Guide (2013), a project plan is a process consisting of defining, preparing, controlling and integrating all subsidiary plans into a complete project plan. By using different tools and techniques, project planning transfer inputs to outputs.

The starting point of a project plan is a project charter that describes the boundaries of the project. The size of this chapter depends on several factors such as availability of information and complexity of the project.

There are other inputs, which are relevant for the project plan (PMBOK Guide, 2013):

- **Outputs from other processes** are important because they provide information about subsidiary plans, baselines. Additionally, necessary updates in these processes have an impact on an overall project plan.
- **Environmental factors** such as industry standards, focus area, organizational structure, and personnel administration are also valuable for developing a project plan.
- Lastly, **organizational process assets** could influence a project plan because of different work instructions, guidelines, evaluation criteria, and organizational standards.

Expert judgment and facilitation techniques (e.g. brainstorming, problem solving, meeting management, etc.) are the main techniques that transform inputs to a project plan. The project plan could be either detailed and consist of several subsidiary plans such as change management, cost baseline, configuration management or scope baseline, or it could include only summary. Although, a project plan is the main document to manage the project, additional documents are also allowed. However, they are not included into the project plan.

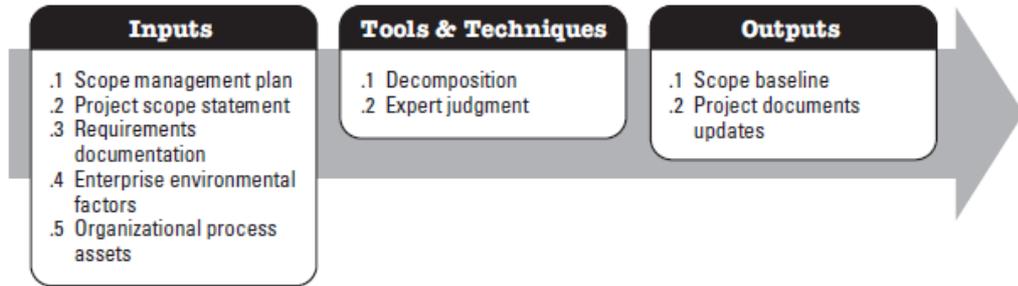
Good project planning leads to successful outcomes, because by creating a project plan, the company knows about necessary activities and deadlines and can manage them. Poor project planning most likely will not deliver good results.

The major parts of the project plan consist of scope management, cost management plan, schedule management plan and risk management plan (PMBOK Guide, 2013). All of these subsidiary plans have various inputs and techniques that have an impact on outcomes.

### **1.4.1 Scope management**

Scope management ensures that all necessary steps are covered in the project in order to complete it successfully. The main goal of this process is to define what has and what does not have to be included in the project.

One of the major parts of the scope management is creating a work breakdown structure (WBS). WBS is a process of dividing a project into smaller and more manageable parts. Usually, a decomposition technique is used for this activity. The decomposition level depends on the required control degree and complexity of the project. Experts collect the information that has to be analyzed in WBS and decide how to break down the project in the best way. The project team usually carries out WBS in order to accomplish the required deliverables. The main advantage of this process is providing a clear vision about the structure. Work breakdown structure has its own inputs, techniques and outputs described in the picture below (see picture 4).



Picture 4 WBS: inputs, techniques and outputs (PMBOK Guide, 2013)

At the beginning, the project team has to decide the deepness of WBS, define working activities, collect required documents, understand standards that could be unique for the specific industry and search for organizational project assets as templates, relevant files from the previous projects, policies, etc.

### 1.4.2 Schedule management plan

Schedule management plan is managing the completion of the project due to time. It includes developing a time schedule, estimating activities duration, and milestones. The biggest advantage of this process is that it provides an overview on main activities for this project and their duration.

The schedule plan may be broadly framed or highly detailed, informal or formal. It could include required control thresholds or created according to the project needs.



Picture 5 Schedule management plan: inputs, techniques and outputs (PMBOK Guide, 2013)

The schedule plan has to be created taking into account a scope baseline (for example, WBS) and other related information such as costs, risks, and communication. It should cover milestones, environmental factors and organizational process assets. It is important because organizational structure, availability of resources and information, and work authorization systems could influence the schedule plan. In addition, the company could have special guidelines, tools, templates and other procedures relevant for scheduling.

Upon an expert judgment, the process of plan scheduling may involve analytical techniques (e.g. scheduling methodology, estimating approached, project management software, etc.) and team meetings in order to develop a schedule management plan.

### 1.4.3 Cost management plan

A cost management plan is a process that provides information on how much the project could cost and control costs through the whole project. The cost management plan starts with estimated costs, where all financial resources are defined. Estimated budget is a prediction of costs based on previous experience. It is usually presented in summary form or activity level. The main advantage of the cost management plan is that it provides information on how much the project costs and it can be managed throughout the whole project.

The cost management plan should be done at the earliest stage of the project planning. The main goal is to keep all activities coordinated and efficient from the cost perspective.



Picture 6 Cost management plan: inputs, techniques and outputs (PMBOK Guide, 2013)

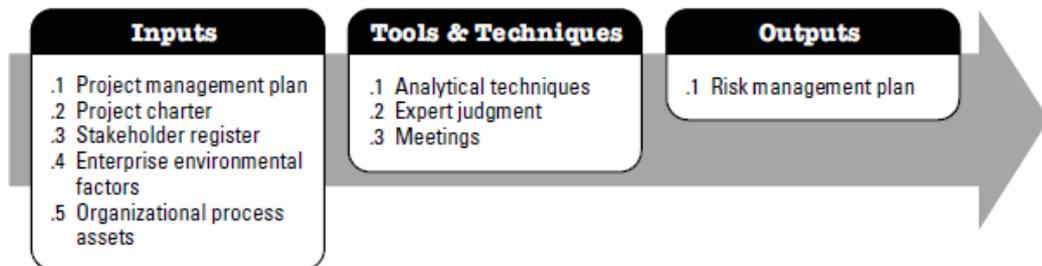
In order to develop the cost management plan, the project team has to include cost-related information from WBS or schedule baseline, taking into account the project chapter with the requirements. Environmental factors and organizational process assets also could have impact on the cost management. For example, market conditions, currency rates, availability of services and materials could influence the cost of the project.

Creation of a cost management plan requires different tools and techniques such as expert judgment that provides information about environment and similar projects. During the cost management planning, the company should choose a funding strategy (e.g. self-funding, funding with debit or funding with equity) and other ways of finance project resources. Usually, the project team led by a project manager organizes meetings in order to make these decisions.

### 1.4.4 Risk management plan

Risk management plan is a process of identifying risks that could appear in the project and how to minimize them. Project risks are usually uncertain events that affect the project in scope of cost, schedule, quality, etc. Risks could be known and are identified in advance, while unknown risks cannot be managed proactively. It is important to focus on risk management when the project is initiated, because moving forward without it could lead the company to more problems and unmanaged threats.

In order to be successful, the company should address risk management carefully and proactively during the life of the project. Planning the risk management helps to control activities that potentially could have a negative impact on the project. It is also important to pay attention to time and availability of resources.



Picture 7 Risk management plan: inputs, techniques and outputs (PMBOK Guide, 2013)

During the planning of risk management, all subsidiary plans and baselines have to be taken into account. The project charter provides inputs such as high risks, requirements, and descriptions. A stakeholder register is important because it contains relevant information about stakeholders and their roles. Environmental factors and organizational process assets may influence risks.

Analytical techniques such as strategic risk scoring or stakeholder risk analysis are used to define and understand potential risks. To ensure an effective risk management plan, the project team may have meetings where they exchange expert knowledge and improve risk plan.

## 1.5 The human capital

Human resource is the key resource for any company because most of its major functions are highly depend on employees. Nowadays an environment changes very fast and innovations are getting more important. Moreover, employees become the most powerful sources of innovations and lead companies to success. In order to decrease turnover and increase productivity, companies should provide required working conditions and keep their employees satisfied with their job.

Human capital could be described as a unique set of abilities and skills that a person brings to the labor market. This set consists of different aspects such as knowledge, intelligence, skills, etc.

Human capital is a benefit for many interest groups: stakeholders, companies, governments, researchers, educational organizations, etc. Additionally, it has a positive impact on the economic growth and development process of a country.

### 1.5.1 Job satisfaction

Job satisfaction is a relevant topic for all who work in personal departments or study human resources. In other words, job satisfaction plays an important role for many companies worldwide. That is why organizations focus their attention on measuring job satisfaction in order to predict behavior of their employees.

Although job satisfaction is quite a popular topic between many researchers and in the literature, there are many definitions of what job satisfaction means, there is no consensus one. According to Harputlu (2014), job satisfaction has different meaning to different people. This depends also on various factors such as personal characteristics, values, age, gender, needs, expectations and feelings. The organization itself has an impact as well because it provides employees with their working environment, tasks, and opportunities for development.

The most popular definition of job satisfaction is provided by Locke (1976). He describes job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences". Locke says the emotions that increase job satisfaction or employee satisfaction have three steps. First is when employees experience some aspects of working environment; second is when workers use certain value standards to evaluate these aspects; and third, when they measure how the perceived working aspects facilitate to achieve preferred value standard (Davis, 2012).

Hoppock (2004) defines job satisfaction as "the employees' subjective reflections or subjective feelings about their working conditions and working environment". In other words, if working aspects provide positive emotions, job satisfaction is increasing. Or if working aspects contradict value preferences, it leads to job dissatisfaction.

Vroom (1964) viewed job satisfaction as personal and emotional reaction towards critical elements of work. Weiss (1967) considered that job satisfaction is the overall attitude about the job, which is influenced by belief, perception and behavior of employees.

When an employee has a positive attitude towards the job, colleagues and company itself, it means that organization meets employee expectations. As a result, employee experiences positive feelings and has a high level of satisfaction. On the contrary, if company doesn't meet personal expectations, employee has a low level of job satisfaction and experiences negative feelings.

Employee satisfaction is the major element in any organization. It helps the company understand perception and expectation from job, working environment, and overall atmosphere.

As Spector (1997) says, "job satisfaction data is helpful in evaluating the emotional wellness and mental fitness of employees so organization can use the information to improve its structure". By raising job satisfaction companies motivate people to go to work, show better results, and not leave their positions. In order to achieve success, companies should keep employees satisfied with their job.

Since people spend plenty of time at work, job satisfaction could have an impact on general life satisfaction even apart from the working place. Some authors, such as Judge and Watanabe (1994), explain the relationships between employee satisfaction in their job and general satisfaction in life.

They defined three types of these relationships:

1. The first type is when job satisfaction has a direct impact on everyday life;
2. The second type presents that employee satisfaction with their work and general life satisfaction are two independent aspects. It means that they do not have influence on each other;
3. The third type is when the lack of overall satisfaction with everyday life could be compensated with job satisfaction or other way around.

Anyway, job satisfaction has an impact on life attitudes. For example, office redesign could enhance employee's satisfaction and not only improve the quality of their work, but also general quality of life for employees. In addition, working conditions, such as salary, definitely have an impact on job satisfaction and satisfaction with life as a whole.

### **1.5.2 Factors that affect job satisfaction**

Job satisfaction is related to various numbers of factors. These factors could be different, and the degree of their influence has been actively analyzed. Up until now, many researches have studied factors that potentially have an effect on employee satisfaction. For example, payments or company's name could be important for some employees and increase their job satisfaction. This satisfaction can be also affected by other factors. L. Fisher and O. Fisher (2005) made a review of studies showing the relationship between employee satisfaction and company performance. According to their findings, some authors believe that good performance of the company is a result of high employee satisfaction. Other authors have an opinion that company's performance has direct impact on job satisfaction.

Factors of job satisfaction could be divided into two groups: external and internal. First group does not depend on personality and covers overall working environment such as salary, working condition, colleagues or atmosphere in the company. On the contrary, the second group is usually linked with personality of employee and relates to work activity itself (Stikar et al., 2003). Internal factors have a strong connection with employee satisfaction and self-realization.

In order to achieve high level of job satisfaction, work should fulfill several aspects:

- support employee performance;
- meet physical and mental needs of employees;
- lead to grow and success;
- allow to develop knowledge, skills and abilities;
- support responsibility and initiative;
- gain recognition, work respect and as a result increase self-satisfaction.

Vroom (1964) defined seven factors that have affect employee satisfaction. They are: company itself, supervision, colleagues, job content, promotion, payment and also working conditions.

According to Spector (1997), all factors could be separated into two main groups: personal factors and environmental factors.

### **1.5.3 Personal factors**

Many studies point out the impact of human personality on job satisfaction. Thoresen et al. (2003) analyzed that positive effectivity of employees and negative effectivity could influence job satisfaction. Research shows that workers with positive effectivity are usually more energetic and enthusiastic, while people with negative attitudes are usually more stressed and express nervous feelings. In addition, positive thinking increases employee satisfaction, whereas negative emotions otherwise decrease satisfaction. Moreover, employees with positive thinking are less sensitive to negative situations at work.

Personal factors observe demographic aspects such as age, gender, personality itself and so on.

#### **Age**

Many researchers noticed that job satisfaction increased with age and seniority (Bulak, 1980). The reason could be related to the position within company, responsibilities, payments and social status. Moreover, age is a relevant variable toward employee satisfaction and needs (Rothe et al., 2011). For older employees factors as status expression, privacy or concentration are more important for older employees (Erlich and Bichard, 2008).

Due to demographic trends the human capital can be categorized into four groups and all these generations could be performing their tasks at work alongside each other in the same workplace. However, each group has their own working preferences and needs. These four generations could be divided as follows (Hammill, 2005):

#### **1. Veterans**

People who were born between 1922 and 1945 usually called veterans, seniors or traditionalists. They grew up with a feeling of duty. For these people it is very important to have an authority at work and respect from colleagues. They prefer discipline at work, clear understanding of hierarchy, formal communication, and individual tasks.

#### **2. Baby boomers**

They were born between 1946 and 1964. Baby boomers have seen a lot of changes during their life, because over the last 50 years a shift from industrial working industry to office based environments occurred (Puybaraud et al., 2010). This generation wishes to be involved in the decision making process. They have a good ethic at work and can collaborate with other team members. In contrast to the previous generation, they value personal touch and communication.

#### **3. Generation X**

This generation was born between 1965 and 1980. People from that time usually have a more entrepreneurial approach to working activities. They feel better if they are doing things on their own without sticking to the rules. However, these types of workers appreciate receiving feedback on how well they are completing their tasks (Murphy, 2010).

#### **4. Generation Y**

People from this generation are the newest entrants to the working environment. They were born between 1981 and 1994. This generation prefers to balance work and life. They are goal orientated and have high expectations from work (Murphy, 2010). They actively use new technologies, have the ability to multitask and prefer creativity at work.

#### **5. Generation Z**

People from this generation were born between 1995 and 2015. Nowadays they are between 4-24 years old. It is the youngest group on the planet. Usually people born at this time can easily adapt to new technologies as they were born in a high-tech time. They prefer to communicate by mobile devices instead of real communication.

Preferences in working environment can also be different. Older employees usually prefer cell offices and quiet working environments, while young employees choose open and hectic working places (Earle, 2003). In other words, Baby Boomers, for concentration, prefer quiet rooms and private offices. For them, privacy is more important because it provides additional opportunity to express status. Younger generations find open spaces beneficial because they provide more social interaction and flexibility (Rothe et al., 2011). Additionally, for formal communication Baby Boomers choose meeting rooms, while Generation X and Generation Y prefer informal areas even for formal communications (Joy and Haynes, 2011).

Furthermore, Erlich and Bichard (2008) found that older employees feel better while working with papers rather than completing tasks on the computer. From this perspective, they require larger desks, but hard evidence is missing. Lastly, for Baby Boomers climate comfort and lighting are more important because of physical deterioration. For Generation X and Generation Y personalization and furniture are more valuable than for older generations (El-Zeiny, 2012; Haynes, 2011).

#### **Gender**

Numerous studies demonstrated that men are usually more satisfied with their job than women if they have similar working conditions. Moreover, women are less satisfied because of lower salaries and stressfulness (Ermisch and Wright, 1991).

On the contrary some studies state that women are more satisfied with their job than men. The reason is that women and men have different social positions and expectations. For example, men give more importance to growing opportunity and payments, whereas women value social relationships and working conditions (Spector, 1997).

Regarding the working environment, El-Zeiny (2012) and Rothe et al. (2011) found some minor gender differences. For example, men tend to attach more consequence to status expression. They want to visualize their position. Female employees require opportunities to personalize their working area and climate control is more important for them.

## **Personality**

It is important to explore differences in personalities. The most famous approach "Big Five", states that five personality traits: extraversion, conscientiousness, emotional stability, agreeableness and openness could roughly cover human personality (Hartog (2015).

- extraversion is common for sociable and assertive people;
- conscientiousness is related to organized people;
- emotional stability express human feelings as anxiety and so on;
- agreeableness used for friendly people;
- openness encompasses exploration, creativity and diversity of interests.

Nevertheless, there are connections between the big five traits and major organizational behavior such as working environment. For example, extraversion is usually associated with active social communication. That is the reason why extraverts prefer collaboration and social interaction at work, whereas introverts value privacy and they require more concentration (Oseland, 2009).

## **Working pattern**

Variability of working activities, interesting tasks, responsibilities, ability to use knowledge or experience, also have impacts on job satisfaction. Kubalak (1982) wrote that the more knowledge and experience employees implement in their job, the more satisfied they are.

Moreover, preferences and needs are directly dependent on working activities. For example, employees that need a high level of concentration could feel dissatisfaction in open spaces. For people who need to collaborate with other employees, open spaces are more comfortable. On the other hand, for people who mostly work individually, privacy is the key element (Rothe et al., 2011). Often private spaces have people from the top management of the company.

According to Hoppock (2004), top management in organization has higher job satisfaction than regular employees. Additionally, climate comfort seems to be important for all workers, regardless of activities they are doing (Rothe et al., 2011).

## **Employee mobility**

As mentioned above, job satisfaction depends on working tasks. At the same time, different working activities require different levels of mobility. Some employees are in the office more often and their needs in personalization, space, climate comfort, aesthetics or status expression are higher than for employees who spend less time there. In addition, for employees who spend more time in the office it is important to feel pleasant and comfortable at the working place (Rothe et al. 2011).

## **1.5.4 Environmental factors**

A comfortable working environment encourages employees to be more effective and productive. It develops their skills and competences, and provides organization services on a high level.

There are many environmental factors that could affect job satisfaction. The main factors are working condition, growing opportunities, communication, supervision, colleagues and rewards. These factors could have an impact on job satisfaction and overall performance of organization.

### **Physical workplace**

The physical workplace environment has an impact on employees' activities, and it is viewed as the overall well being of every company. It covers office layout, lighting, noise, temperature, furniture, climate comfort and other aspects (Vischer, 2007). These features, including design and decor in the office, support the aesthetic side of the workplace and lead employees to better performances. In addition, people want to have comfortable working conditions. They want to work in safe, clean, well-equipped and modern workplaces (Green, 2000). Brill (1992) states that office redesign could increase employees' performance by five to ten percent.

Furthermore, these aspects play one of the main roles in building the network and relationships at work. That is the reason why they need to be suitable so people will not be stressed at work (McCoy and Evans, 2005). For example, noise from crowding, conversation, telephones and not enough lighting could have negative impacts on employees.

### **Rewards**

Rewards motivate employees to perform certain tasks, and they have direct influence on job satisfaction. Some studies proved that if employees are not satisfied with their rewards, performance of their work decreases and the company has high turnover, lack of loyalty and commitment, and internal conflicts (Heng, 2012). For this reason, companies should set up efficient rewards in order to enhance performance of employees and achieve organizational goals.

Rewards can be divided into two groups: financial and non-financial. At the same time, rewards could be extrinsic and intrinsic. Intrinsic rewards are connected to the job itself. It is a result of attaining some project or completing a certain task. In other words, intrinsic rewards consist of feelings to be a part of successful team, being appreciated and recognized by a supervisor, or having a good job performance and sense of achievement. On the other hand, extrinsic rewards do not connect to the job itself. They include payments, promotions, benefits and security (Chandrasekar, 2011).

### **Management and leadership style**

In organizations, changes and other developments are made by individual employees or teams usually managed by supervisor. Each leader has their own leadership style, which has a major impact on the employee morale. As a result, morale of employees has an effect on their performance. Leadership style obviously has an influence on job satisfaction, employee performance, turn over and contributes to companies' success.

There are different styles of leadership. For example, transformational style associated with ideal of leader, inspirational motivation, individualized consideration and influence tends to be the most effective style of leadership. In practice, transformational style leaders and subordinates have the same law and they are equal. In this case the

role of the supervisor is to be a trainer for employees, assist them in getting their work done and guide the team.

In many cases when companies have a problem it is with miscommunication between employees and their leader in terms of sharing information between them. Moreover, if supervisor support employees, it could lead to positive results, job satisfaction and higher performance in the company (Blay, 1964).

### **Communication and collaboration with colleagues**

Since people spend the majority of their time at work, the collaboration between colleagues becomes an important factor leading to job satisfaction.

Additionally, numerous authors noticed the importance of communication and knowledge sharing between employees (Joy and Haynes, 2011). Communication helps employees express their thoughts, and keep informed about relevant information. Moreover, good communication in the company plays a key role for building trust and open relationships among employees (Robinson et. al, 2004).

Unfortunately, communication might interrupt employees from concentrated work. That is one reason why companies should provide places for concentration and communication in the office. Erlich and Bichard (2008) in their study showed the contradicting interaction between concentration and collaboration.

Management should provide employees the opportunities to know each other and try to increase trusting relationships at work. It is not only improving collaboration between colleagues and overall atmosphere, but also raises outcomes (Gallup, 2006).

### **Training and development**

Other factors that have an impact on job satisfaction are opportunities for employees to develop their knowledge, skills, learn new things, and grow within the company.

Training activities such as workshops or other development programs play an important role for personal improvement and help employees be more productive with their work. When companies provided employees with different career development opportunities, they got a feeling the organization had a long view for them, which positively affected job satisfaction (Robinson et al, 2004). Moreover, by attending developmental programs, employees started feeling more confident, their positive attitude towards the job increased, as well as the level of satisfaction.

Harter et al. (2002) states that if a company provides employees opportunities to develop their skills and advance their career, workers feel meaningful and safe. All these aspects help employee gain promotion and recognition. As a result, promotions have an impact on payment, supervision, autonomy as well as support the desire of psychological growth (Arnold and Feldman, 1996; Locke, 1976).

Growing opportunities also have an impact on working spaces. Being in the office, usually people like to personalize their space and visualize the status. That is another reason why employees are motivated to develop their skills and get a promotion, in order to improve their working environment and express status.

### **Work - life balance**

Work life balance could be explained as organizational support for flexible working hours, dependent care, and personal or family leave. It is the ability for employees to combine tasks and responsibilities at work with interests and activities outside of work (Armstrong, 2006).

Work-life balance plays an important role in people's lives. First, this balance could decrease working absence and minimize the degree of stress that could be a reason for employee underperformance and dissatisfaction with life responsibilities. Secondly, work-life balance has a strong connection with overall harmony in life and psychological well being of employees (Clark, 2000). Thirdly, by providing workers balanced work-life, the company increases employee satisfaction and companies' commitment, which positively affects companies' performance improvement.

According to Tremblay (2006), employees that have not balanced work and life are more sensitive to family problems, they are less satisfied with their job, and stressed. Moreover, it could lead to healthcare problems. Many employees view flexible working hours as one of the main aspects of work-life balance.

### **1.5.5 Employee needs in the workplace**

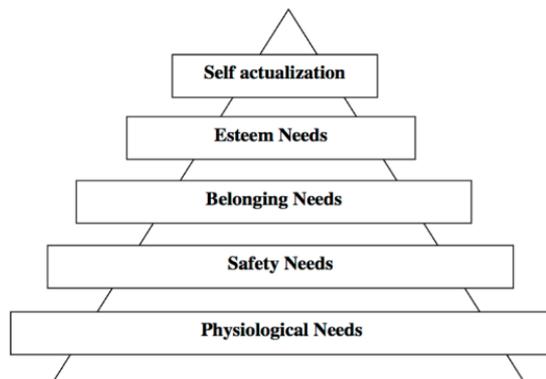
In order to create a successful workplace, we have to identify main employee needs and understand their preferences. Although, different people doing different activities have different requirements, there are some basic elements that should be clarified.

There are many psychological literatures, including environmental psychology, which study peoples behavior in different environments, depending on their needs, motivation, personality, expectation, and perception. Oseland (2009) in his paper, reviews main psychological focus, finds connections with working areas and office design. Due to personality theories, preferences in working environment depend on whether a person is an introvert or extravert. For example, introverts prefer working alone and more calming environments. For extroverts, it is better to work amongst co-workers. In real life, people usually have personalities that are a mix of extravert and introvert. It means that their preferences depend on many factors including mood and type of activity (Eysenck, 1967).

Another personality theory says that employees needs relate to locus of control and all people can be divided into two groups: internals and externals. In the office, externals need more supervision and they show better results working in open-plan areas. Conversely, internals require less supervision and prefer flexible working. These characteristics also depend on the profession which people choose.

On the other hand, there are motivation theories that describe relationships between level of interest and person's performance. The key theory is Yerkes-Dodson Law, which states that people can have better results if they are motivated. Moreover, to increase the performance of employees, companies should design stimulating environments (Yerkes and Dodson, 1908).

Another popular theory “Hierarchy of Needs” by Abraham Maslow (1943) describes five tiers of people needs connected to their working environment. For example, esteem and self-actualization, relates to organizational aspects of the working space i.e. prestige, autonomy, rewards and responsibility. Also, psychological and safety needs relate to the main functions of office buildings such as providing security, comfort and refreshment facilities. As a result, if companies do not offer employees a comfortable working environment, basic human needs will not be fulfilled, and they will not be as productive.



Picture 8 The model of Maslow's Hierarchy of Needs Theory (Armstrong, 1999)

Additionally, this theory supports Herzberg in his Motivation-Hygiene Theory, which says that organizational factors such as achievements, responsibility, and recognition motivate people to achieve better results (Herzberg et.al., 1959). Poor hygiene factors, which are related to working conditions, such as daylight, temperature, noise, or privacy lead to reducing employee performance and overall dissatisfaction.

A new field of psychology named environmental psychology describes the interrelationship between people and the physical settings they are in. According to Hall (1963), the key aspects are territoriality and privacy. It means that people prefer interpersonal distance between each other. This distance also depends on gender, age, or culture. Moreover, spaces that do not offer some privacy may discourage interaction. Often employees mark out their space using symbolic boundaries such as documents, personal artefacts, and cabinets.

There is also a difference between crowding and high density. Crowding refers to the number of people per specific area, whereas crowding is viewed as a subjective feeling depending on activity. For example, high density in a call center may not feel crowded compared to other activities. Also, workspaces with lighter colors and more daylight are noticed as less crowded (Stokols, 1972).

Evolutionary psychologists argue people usually seek places that support social gatherings where they can share stories and food, but at the same time they need privacy to restore and relax. Due to evolutionary psychology, office spaces should meet these basic needs (Oseland, 2009):

- workspaces should allow employees to gather, especially with refreshments and food;

- environment should be interesting and motivating and allow people to move around rather than sitting in one certain place;
- privacy and ability to concentrate;
- enough lighting and views outside;
- provide control of temperature and ideally natural ventilation;
- safety.

In the end, if people's basic needs are not met people cannot achieve their maximum results, and their health could be affected. Employee needs should be balanced with organization needs; but it should be acknowledged that people are the key elements in the company and if they are not treated well then the company is unlikely to perform well. Ideal workspace should provide people the opportunity to socialize, share food or drinks and at the same not disturb others. It should have good daylight, greenery, natural ventilation, and comfortable working density.

## **1.6 The working environment**

Nowadays, many companies understand the potential of their working environment to influence employee satisfaction. Most employees think that superior design of working space leads to superior performance of organization, makes an organization more competitive, and has a positive effect on overall productivity in the company.

Some companies also use working environment and office design as a tool to attract new employees and boost organizational performance. However, many companies miss understanding that office design also needs to be managed and improved. Unfortunately, for some managers investing money in office re-design is overhead and unnecessary spending. This assumption is not correct because working environment has a powerful influence on human psychology. It can inspire enthusiasm, increase productivity, and make the employee feel better (Miller et al., 2014; El-Zeiny, 2013).

The working environment could be viewed as a powerful tool to achieve higher efficiency at work, better communication among employees, and improvement of managerial behavior. In addition, the office environment has an impact on interaction and creativity of employees (Bodin-Danielsson and Bodin, 2008). For example, when flowers and plants were added to the work place, employees in the company demonstrated innovative solutions and showed more creative thinking. Different colors have the same impact on the space user as well (El-Zeiny, 2013).

Creating a better working environment is necessary for all companies who want to be successful (Miller et al., 2014). By investing in the working environment companies increase employees' motivation and as a result, they generate higher profits (Bodin-Danielsson and Bodin, 2008).

### **1.6.1 Factors influencing working environment**

There are several significant factors, which have influence on the working environment including colors, acoustics, lighting, carpeting and plants.

## Colors

Colors have a significant effect on human's health either directly or indirectly. The more time people spend without direct contact with nature, the more relevant for them are colors in the office or at home (Feher, 2016). However, poor coloring has indirect or subconscious impacts. It can cause health problems such as headache, loss of appetite or interest in working activities, nervousness, and eye illness.

In color design many factors should be considered. For example, type of activity within the area, the amount of time people spent in this place, necessary amount of lighting, shape of space, and many others. Moreover, colors have psychological and therapeutic effects on people. The following chart shows the main colors and an effect they have.

<b>Color</b>	<b>Effect</b>
Red	Aggressive color that makes place visually smaller. This color associates with new ideas but does not help to develop them. Red should only be used together with other colors.
Orange	Warming, festive and stimulating color. Also makes the area seem smaller.
Brown	Dark brown could be suitable as background for colorful material, while light brown is used for calming areas. This color is common for floors. Although, it is not recommended to use brown in large areas as it could cause apathy.
Yellow	Can increase happiness, encourages taking contacts and refreshing. Sometimes makes places visually smaller. Bright yellow recommended to use only for small details as an element for bringing sunshine into the space. In general, yellow color associates with positive and life-affirming atmosphere.
Green	These colors used in order to create a balancing and calming environment. It is also called as "therapeutic symbol of balance". Green helps to maintain the proper dimensions of area.
Blue	Interior with this color has a harmonious effect, nevertheless it is a cold color. Blue space is also good for developing ideas.
White	It is the best background for colorful materials. Usually white is used with other colors as it has strong clarifying and transparent effect.

Grey	This color is the most ordinary and somber color. Light grey is great for spaces with colorful elements and could be used as a transitional color.
Black	Do not recommend to use it as a main color in interior design as black reserves all light.

*Table 1 The psychological effect of different colors (Feher, 2016)*

### **Lighting**

Lighting is one of the most important elements in office design because it not only affects peoples' health through the eyes, but also has an impact on overall health through light radiation.

For people natural light from the sun is the most convenient and useful, however, it is not possible to receive it all the time. That is the reason why lighting should be closer to natural sunlight. Working productivity and mood of employees could be also improved by having the best possible lighting at their working spaces.

According to research made by Feher (2016), appropriate lighting has a positive impact on health, productivity, safety and overall atmosphere at work. Optimal lighting could also reduce health hazards such as dry eyes. The positive influence of lighting and colors at a workplace on one's state of mind could improve employee performance. That is the reason why it is necessary to have optimal lighting in working areas.

Unfortunately, for some companies it could be expensive to provide light that is bright enough. However, when we are talking about human health, it is worth it. For example, not enough lighting could cause the risk of tiredness and injury of eyes. Enough lighting, on the contrary, has positive impacts on employees (Feher, 2016).

### **Acoustics**

Sound and noise also have a relevant impact on people. Even if humans are not aware of noise, they react to it. For many people having a comfortable sound environment is the main priority in the office. Well-designed offices should follow the rule that the right noises can be heard, and unwanted sounds are not. It does not mean that the work place has to be silent. On the contrary, people feel better if they hear natural background sounds that belong to environment. Moreover, some sounds could even increase the ability to concentrate on working tasks and improve working memory.

At the same time, noise could be the cause of many problems such as stress, tinnitus, hypersensitivity and others. Moreover, sometimes noise can reach a harmful level, causing employees to have difficulty with hearing or ringing ears.

In order to provide a comfortable acoustics environment, companies can use acoustic panels that control and decrease unnecessary sounds. Usually they are fixed into the wall or used as floating boards (Feher, 2016).

## **Carpeting**

For many years carpeted floors were the most popular choice for office interiors. However, when they became the possible reason for allergies and dirtiness, they were practically removed from all working areas.

Nowadays, many companies have modern textile carpets, which are different from ones used before. The old carpets were thick and had to be fixed with sturdy glue, which required strong emissions. They were difficult to clean and were collecting a huge amount of dust. Modern carpets consist of compact fiber, which can be easily washed and removed. They can be any possible size and may be designed according to individual preferences.

One more advantage of modern carpets is soundproofing abilities, which can decrease the noise level (Feher, 2016).

## **Plants**

Because people spend more and more time inside the office plants have become an important element, which brings nature closer to any building. Many studies prove that plants improve quality of the air because they are able to absorb harmful elements released from materials in the buildings, laptops, and other electronic devices. Plants also increase the humidity in the room, which is low especially during winter time when offices use a heating system.

Plants can also be used for improving the aesthetic side of a work place. Plants have a positive influence on employees' mood and give an optimistic image, which are both beneficial for companies. Plants can decrease noise level and echo in working space.

Many companies use plants for covering flaws of the space, connecting different working areas, or improving the overall aesthetic image of the organization (Feher, 2016).

## **1.6.2 Types of office workspaces**

Nowadays, there are many different types of working places. They can vary from traditional models such as private offices to modern open-spaces.

Open-spaces became very popular in 1970, when many companies decided to create more flexible working environments (Brennan et al., 2002).

Many companies prefer open-spaces mainly because of the lower costs in maintenance and constructions. Work stations can be separated by easily movable screens, plants, shelves, or other office furniture.

Like any office type, open-space has its advantages and disadvantages. From one side, it facilitates greater communications. In open-plan offices each employee is provided less space, which could lead to increased collaboration between colleagues and better knowledge sharing. Additionally, open-spaces have lower energy consumption and are financially beneficial for companies.

From another side, open-space offices decrease productivity because many employees are involved in communication during the working day. In addition, employees are

less satisfied with open-spaces as they have less privacy, and lower ability to concentrate because of the noise and other distractions (Brennan, Chugh and Kline, 2002). According to El-Zeiny (2013) the lack of private space in open-plan offices can decrease productivity by 40 percent and increase mistakes by 27 percent.

Bodin-Danielsson and Bodin (2008) defined seven office types:

- Cell office - a private room in the office, which usually has access to a window and all necessary amenities could be found in this room.
- Room in a shared space – a room for maximum of 3 people. Sometimes it also has some divisional elements in order to keep privacy to employees at their workplaces. Usually necessary amenities arranged outside of this room because of space limitations.
- Small open-space – shared space for maximum 9 employees.
- Medium open-space – common area for maximum 24 people in the same room. It is the most popular office type in Europe.
- Large open-space – a shared room for more than 24 persons. Usually this place is organized for a group of people. It also has screens between workspaces in order to reduce noise and arrange some privacy.
- Flex office – it is an open-space, which does not have personal workstations. Employees have opportunity to choose their working place freely not only inside the office, but also outside. It is the most adaptable type of office.
- Combi office – a place consists of open-spaces as well as personal rooms. It also has additional spaces for making phone calls, organize meetings and so on.

The most modern offices do not have only one office type. They usually combine four areas where people can learn, focus, collaborate and socialize. For example, worldwide company SAP has an open-office environment. In addition, the company provides employees conference rooms, co-working cafes, individual meeting rooms, areas for presentation, and a collaborative innovation hub. Many other famous companies such as LinkedIn, Airbnb and Cisco also have similar office designs. So in today's world the goal of many organizations is a shift away from one certain office type to multiple office plans (Morgan, 2015).

## **1.7 The effect of working environment on the employee**

People spend plenty of time at their work during the day. For many of them their environment is very important. That is why people invest money into furnishing their homes. But some companies forget that working space has the same impact on people's lives as their home. People usually have a need to customize their working space in order to feel like they are at home and in a safety zone. Many companies do not provide their employees proper working space, meeting rooms, lobbies and so on. (Miller et al., 2014). Some employees do not even have their own personal workplace so every time they take a desk which is available according to their preferences (New York Times, 2012).

But in today's competitive environment, organizations should take care of workplaces. Because working environment is one of the most important aspects that increase employee satisfaction and company performance. Employees who are satisfied with their working environment have better productivity results, they feel happier, and are healthier.

Some authors even noticed that good interior design in the office has a positive impact on productivity of employees (El-Zeiny, 2013). Additionally, nowadays customers' requirements are increasing, and companies should speed up a transfer of knowledge they have. In response to this fact, working environment and office design are considered to be important aspects for knowledge sharing.

The working environment is a powerful aspect for all companies and leaders have to think about redesigning processes. Moreover, "Changing the design of the workplace gets to the heart of all of the issues that make work complicated, distracting, and energy draining" (Miller et al., 2014).

### **1.7.1 Connection between working environment and employee satisfaction**

Working environment directly relates to overall employee satisfaction and indirectly has an impact on company performance and turnover (Brennan et al., 2002).

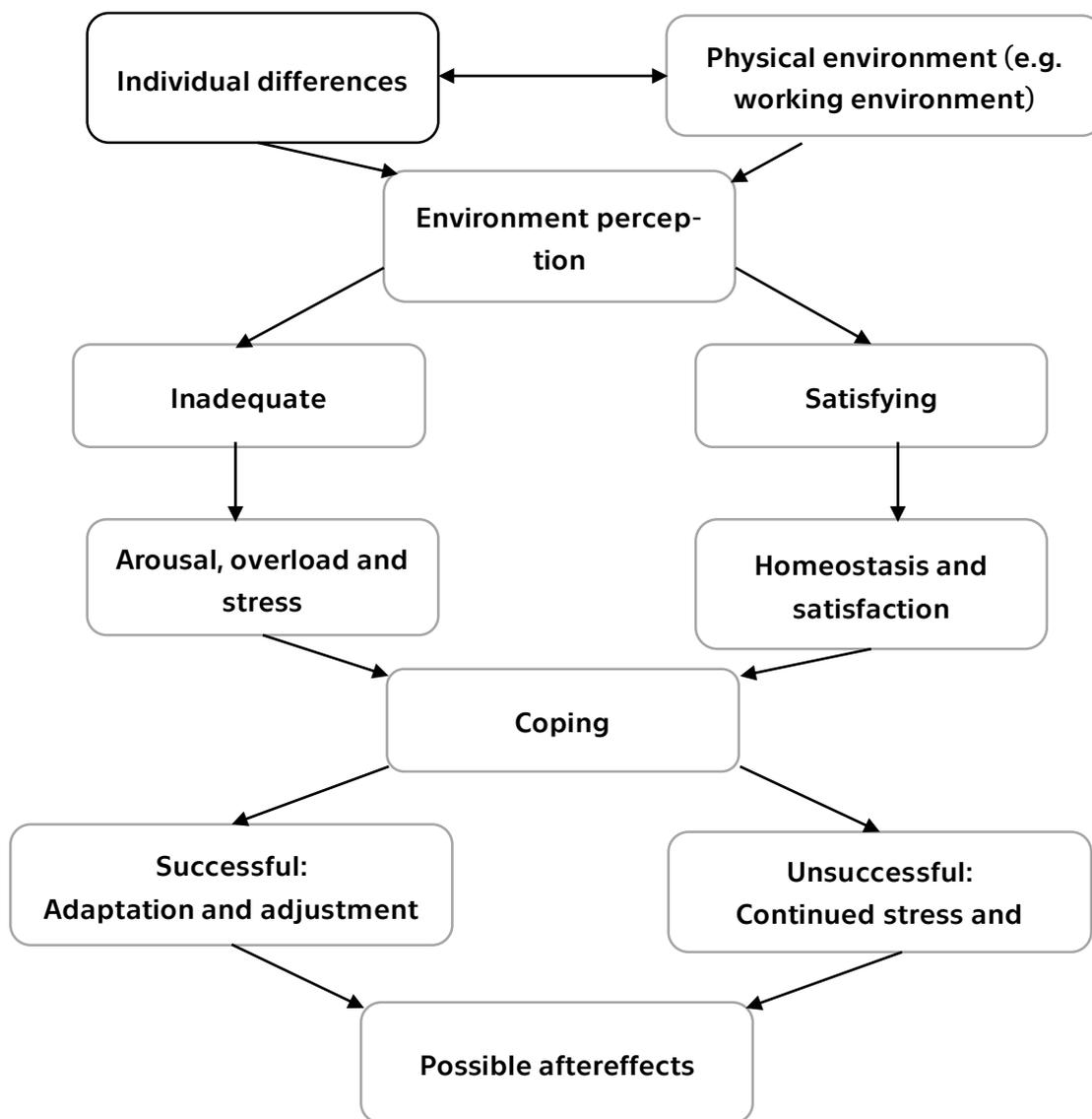
Working space should be understood as a proper tool that could increase productivity in organizations. When companies invest their capital into the quality of workspaces they enhance the overall performance of an organization. Unfortunately, many managers do not realize the vital role that the working environment plays. It is easier to see the connection between company's performance and new technologies than the connection between working space and performance.

According to Miller and co-authors (2014) many companies believe the stereotype that great office design can be very expensive. They view redesign as a luxury tool for styling and aesthetics, but not as a tool to achieve better performance in the organization. Although designing a workspace is a powerful way to improve productivity of employees and raise their ambitions. Some companies view office design as a key element of innovation processes with the main goal to become a worldwide leader. For example, if we have a look at famous companies such as Google, eBay, Facebook, Intel, Yahoo and so on, we notice the same story on how office redesign changed corporate culture and how modern spaces could support growing innovations.

In an interview for the New York Times, Ron Bundy, chief executive of the Russell Index Group, said that the working environment has helped him to shift his office from a status representation to an office space with a significant engine in the corporate culture. He also added that new office designs gave an opportunity for employees to shine (New York Times, 2012).

In this case, satisfaction can be understood as a complex interaction between employees and their working environment. Bell and co-authors (2011) created the model which shows the relationship between working environment and behavior.

According to this model, individual aspects and working environment are relevant for perception of the environment. Working environment can be viewed as either satisfying when the main needs are fulfilled, or inadequate when there are not enough stimulations. When employees are not satisfied with the working environment it leads to stress, arousal, and overload. In this case, a person should change their perception by adapting to the environment or changing the situation.



*Table 2 The Environment-Behavior relationship. (Bell et al., 2001)*

In addition to this mode, some studies say that employee satisfaction cannot be studied independently from working environment. Moreover, companies should redesign their offices in order to build better working environment's that meets employees' wishes and needs.

## **1.8 Conclusion**

In today's fast changing world, the importance of working environment and good office design is increasing. Innovations such as knowledge sharing and communication become the major factors that lead companies to success. Office design should support this.

The project needs the standardization of the experiences, skills, and efforts of many professionals. Project activities should be in line with the organization's strategy and goals. Successful achievement of organizational needs is determined on the interdependence of individual activities.

Nowadays there is a growing need for new office concepts in organizations because the working environment has an impact on job satisfaction. There are different office types, which have been widely studied. For example, open spaces, cell offices, actively-based offices and others. Some companies prefer a design that combines different office types and includes other areas, which could support a better working environment. According to literature, employees are usually less satisfied with open space offices due to numerous drawbacks. Negative effects are caused by noise, lack of privacy, lack of space, uncomfortable climate, lighting and lack of privacy.

Many worldwide companies notice how office redesign changed corporate culture and how modern spaces could support growing of innovations. All these lead to increasing job satisfaction. Employees who are satisfied with working environment, have better productivity results, they feel happier, and even healthier.

Working environment is a powerful aspect for all companies and leaders should think about redesigning processes.

# **PRACTICAL PART**

## 2 PRACTICAL PART

### 2.1 Corporate project plan of office redesign of selected company

Before starting the process of office redesign, the company should create a project plan. The project plan helps the company to identify goals, reduce risks, estimate required budget and materials, avoid missing deadlines and define the schedule. Due to project plan, it is easier to manage certain tasks and have an overview of the project as it breaks down the large project into smaller tasks.

The practical part mainly contributes to providing a support with the real project of office redesign and prepare a project plan to the company. The building blocks for this project plan in the theoretical part of this thesis contain literature review, description and characteristics of different types of the project phases, delineation of factors influencing working environment and employee satisfaction.

The practical part starts with presenting the engineering company X together with a description of the working environment. In order to understand employee needs and preferences, relevant for the future office, the author collects data and analyzes. Based on the findings, the project plan for the office redesign in the company is presented.

After describing the project and defining needs that have to be accomplished, the project plan is created. It covers the following aspects that are important on the earliest stage:

1. **Scope management (Work breakdown structure)** shows a systematic plan of what has to be done in the project.
2. **Action plan (including Gantt chart)** contains an overview of all main activities, their connections and duration.
3. **Cost management plan** covers estimating budget and necessary resources.
4. **Schedule management plan** consist of reconstruction schedule as well as office occupation during the process of the office redesign.
5. **Risk management plan** describes possible risks during the project.

Additionally, the author of this thesis focuses on exploring the relationship between working environment and employee satisfaction. Consequently, the outcome of this thesis is to provide new insights and evidence concerning the personal differences in preferences, needs and working activities in relation to working environment and office design.

Findings and outcomes from this thesis are valuable not only to the engineering company X, but could be also used as practical manual and guideline for other companies willing to redesign their offices.

## 2.2 Company description

The company X has been a very famous company, brand and automotive manufacturer for almost 100 years. Since the beginning, the goal of the company X is to build the perfect sport car. With every model and every development, the company is improving their products.

The company X has several subsidiaries that offer several technical services related to automotive and similar areas, for example engineering, finances and consulting.

The engineering company X a subsidiary company that provides development expertise and services in high quality following the best practice of the company X. It provides innovative engineering services for vehicles, which are oriented to the future. The company deals with many components related to automotive, starting from small ones to the whole vehicle. Portfolio of the company ranges from designing individual components to planning and implementing engineering projects or vehicle developments. Always, the concept of company X is to create high quality and luxury cars.

The engineering company X focuses primary on different engineering topics related to vehicles, such as electronics development, testing, integration, functional and software development, vehicle body structures, chassis and other vehicle systems. The engineering company X has a valuable contribution to the overall engineering activities in the company as it supports manufacturers with innovative ideas in the scope of vehicle connectivity systems, advanced driver assist systems, electro mobility and car structures.

The foundation of the engineering company X in Prague is closely related to cooperation with the Czech Technical University in Prague (CTU) since 1996. After a few years of successful collaboration between the university and the company X, the office of the engineering company X (a subsidiary of the huge automotive group) was opened in Prague in 2001. The cooperation started with the faculty of mechanical engineering.

Later the company broadened the collaboration with the CTU and nowadays the engineering company X works with the faculty of electrical engineering, the Czech Institute for Informatics, as well as the newly opened Institute of Informatics, Robotics and Cybernetics (CIIRC). It is very beneficial for research and development projects in the field of autonomous driving, advanced control algorithms and big data processing.

The engineering company X has several departments in Prague:

1. **Function and software development** – focuses on control engineering, functions development, hand-coded software, quality assurance and functional safety.
2. **Electronics design** – handles activities correlated to electronics life cycle development, creating circuit design, consultations related to electronics and testing.
3. **Electronics integration** – the major focus of this department is an automotive software validation on electronics hardware, which is also called as hardware-in-the-loop testing.

4. **Complete vehicle** – performs a wide range of activities related to innovative product development such as power electronics, cooling systems, vehicle packaging, battery modules and developing a fast-charge infrastructure.
5. **Car body** – designs the entire vehicle development cycle from conceptions to series always using special production techniques and innovative combinations.
6. **Chassis** – the focus of this department is design of chassis, their testing and optimization, braking system, driving-dynamic testing and wheel rim optimization.

Different departments are actively collaborating not only with each other, but also with other subsidiaries from other countries of the engineering group.

### **2.2.1 Working environment in the company**

The engineering company X has around 1000 internal employees (200 of them are in Czech Republic). More than 70% of them are engineers. If more staff are required for customer projects, the company outsources external employees or draw them from the development center in Germany.

The official website of the company X states, "Our working world is created by the individuals who work with us. Individuals who are characterized not only by outstanding technical competence, but also their openness, communicativeness and friendly demeanor. Our customers notice that, and it is what makes us so successful as a company."

According to the engineering company X insights, the success of the company depends directly on their employees and engineering skills, because every unconventional and new idea in the company starts with people. High quality professionals are very important in the automotive industry. Special attention in the company paid on collaboration between departments and employees from different locations. For future innovations and developments, it is necessary to exchange knowledge and involve technical experts from different fields in automotive.

The company offers flat hierarchy and friendly atmosphere that supports employee satisfaction and highly pleasant working environment. The company permanently provides trainings and seminars for employee development not only in technical field, but also in managerial, personal or project-based. These activities are necessary for the success of the company and communication between international teams. Additionally, the company has many working benefits such as flexible working hours, special events, language courses and so on.

For the engineering company X working environment is one of the most important aspects that increases employee satisfaction and company performance. The company understand office design as one of the key elements of working environment and invest in office redesign. New working space could increase employee satisfaction, support growing of innovations and develop higher company performance.

This thesis investigates the project of office redesign in the engineering company X in Prague and analyzes current working environment. It also explores employees' needs and preferences, and provides new ideas, supporting the company with the project of new office design.

## **2.3 Data collection**

This chapter describes different components of methodology that were used in order to collect data relevant for evaluation. These consist of research design, study area, methodology and data analysis.

### **2.3.1 Research design**

Research design usually describes the strategy of the research. This study used a descriptive research design, because in order to receive information, participants had to answer questions starting with how, what, who, when and which. These kinds of questions are usually preferred when the goal is to identify and gain information of a specific problem. Also, descriptive research design helps to receive a large number of responses from different people. The advantage of this research design is that these questions support understanding of people's behavior and perception regarding data collection. Responses usually have natural settings that provide an accurate and meaningful picture for the research area.

### **2.3.2 Study area**

The engineering company X in Prague was chosen as a study area for the research. The engineering company X was selected because it is a subsidiary company of a famous manufacturer in the automotive field. But the main reason to choose this company was the personal working experience of the researcher and opportunity to be involved in the real project of office redesign in the company.

The target group of this study were internal and external employees of the engineering company X. In order to receive overall responses, target group was not limited by age, education, profession and other factors. On the contrary, the goal of the research was to collect data from many employees from different departments and different working spaces.

### **2.3.3 Research methodology**

One of the methods for collecting data was studying primary and secondary data. Primary data was always gained by researchers for the first time and collected by questionnaire or interview. Primary data collection through online surveys and personal interviews in the company helps to gain original information from employees which is not easy to observe and obtain.

For this study secondary data was gained through different sources such as websites, publications, internal documents provided for this study, etc. Especially useful was the company's magazine, which is an official journal in the company and reports about existing projects, current innovative development and other general topics related to

the engineering company X. Techniques for collecting relevant and valid data were questionnaire, observation and interview.

### **2.3.4 Questionnaire**

For this study, data was obtained by using semi-structured questionnaire. It means that all participants received absolutely the same questions in the same manner.

All data was collected online through internal company surveys. Some questions were related to general information about the employees and the company. The major part was focused on current working environment, employee needs and preferences for the future office design as well as connection between working environment and employee satisfaction within the company.

The respondents of the questionnaire were employees from the engineering company X, which perception of working environment was important for future analysis and outcomes.

### **2.3.5 Observation**

For this study, observation was used to gain nonverbal responses from employees. This method helped to understand how people feel in this working environment and if they have enough resources to perform their job.

The key reason for observation is an opportunity to see people's behavior and perception of working environment in natural settings. Although, findings from observation could be subjective as we could notice people's behavior without knowing the real motivation or feelings.

The biggest advantage of observation for this thesis is that the researcher is not only the author of the study, but at the same time a participant and has personal experience in the company's working environment.

### **2.3.6 Interview**

Nowadays interviews could be not only face to face, but also via telephone, skype or other platforms. This study used personal one on one interviews with several participants.

Before processing the interview, insights from existing literature were studied and used as an inspirational tool for open questions. These questions were structured in categories. In order to get valuable information in a limited amount of time, the interview guide was prepared in advance and the pre-test was made. Although, during the interviews, the guide was not precisely followed because participants had to answer open questions and mention different thoughts they had in their minds. But it seemed more natural to let participants answer the questions in their own and unconstrained way. In this case a question guide was used as a supportive instrument for the researcher and helped to keep oriented during the interview.

Interview was very suitable and beneficial, because it helped to ask open questions and study individual experience in detail.

Several employees from different areas in the engineering company X were randomly chosen and interviewed for the purpose of the thesis. Interviews were conducted in Czech and English languages. Each of them took around 30 minutes.

In addition, it would be relevant to point out that the researcher is also an expert in this company. This might be an advantage and support people to express their thoughts and opinions to the person they already know.

### **2.3.7 Data analysis**

Collected data from the questionnaire were analyzed in percentages in order to easily understand and analyze findings. Received answers were checked for consistency and presented in pie charts, bar charts and tables. Findings from observation and interview were studied in detail and summarized.

The aim was to understand current perception of working environment, find how employees are satisfied with office design and which aspects require changes as well as prove the fact that working environment affects employee satisfaction.

## **2.4 Presentation of final results**

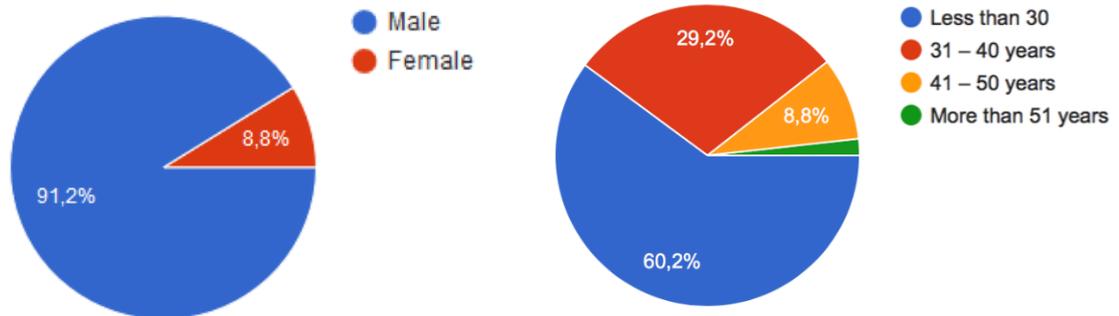
The engineering company X in Prague now has around 200 internal and external employees. The questionnaire was issued in the period from the 18<sup>th</sup> of September to the 1<sup>st</sup> of October 2019. Employees of the company were contacted via internal e-mail with the link to online survey. Although, the participation was voluntary, responsive rate was 64%. It means that representative sample for evaluation was achieved. Due to Mugenda and Mugenda (2003), in order to consider questionnaire significant, responsive rate should be more than 50%.

### **2.4.1 Personal characteristics of the respondents**

In this section were identified personal characteristics of the respondents in the engineering company X. This study consists of demographic characteristics as well as definition of employees' personality.

## Gender and age of respondents

The goal of this task was to identify the gender of respondents in order to see gender disparity and identify the major age group in the company to understand which generations are working together in the same environment.



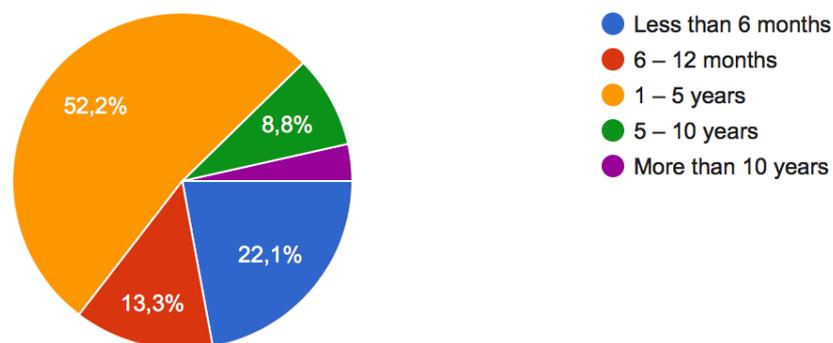
*Table 3 Gender of respondents*

*Table 4 Age of respondents*

The results show that 91,2% of respondents were male and only 8,8% were female. More than the half of respondents (60,2%) are less than 30 years old. This group followed by employees between 31-40 years (29,2%) and then 41-50 years which made up 8,8%. The lowest group are respondents within the 51 years and above, which made 1,8% of all employees. It means that in the engineering company X most employees are young people, especially from Generation X and Generation Y. Young generations find more beneficial open spaces as they provide more flexibility and sociality.

## Length of employment in the company

The study pursued to establish how long people are working in the company in order to prove that they had an experience to provide reliable information.

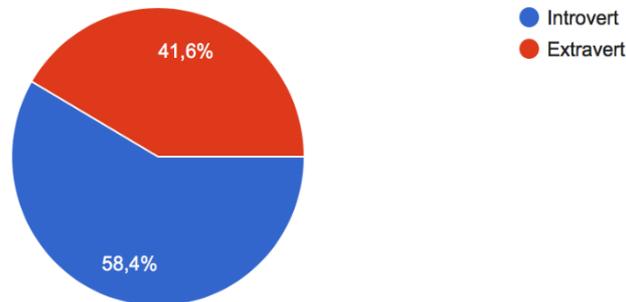


*Table 5 Length of employment in the company*

The result shows that 52,2% of the respondents are working in the company between 1-5 years and 13,3% are in the company more than 6 months, but less than one year. Around 22,1% are new in the company with working experience less than half a year. The rest of respondents had worked for the organization more than 5 years already. Due to these statistics, we can presume findings valuable, because the majority of respondents have reliable information and experience in the company.

## Personality

The researcher ought to determine which type of people are working in the office as it could have an effect on preferences and needs in the working environment.



*Table 6 Personality*

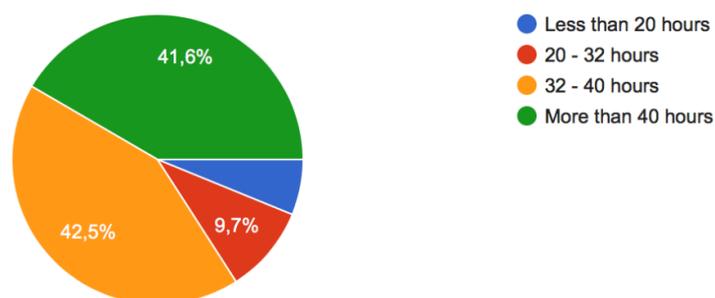
As indicated in the table above, more than the half of respondents are introverts (58.4%). The remaining 41,6% are extraverts. It means that at work there is about the same amount of people: one group that need social interaction and another group that require privacy. Future office design should fulfill preferences of both groups.

## 2.4.2 Activities patterns

This section shows how many times employees are present in the office over different activities. Additionally, the aim was to identify which activities the employees spend more time and what working conditions they prefer.

### Time in the office

The responses show how many hours per week employees spend in the office in order to identify significance of working environment in people life.

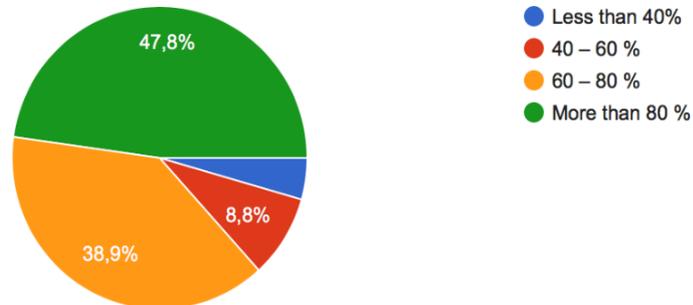


*Table 7 Time in the office*

From the results, around 42% are in the office more than 32 hours and 41,6% are even more than 40 hours per week. It means that usually employees spend around 8 hours per day and 9,7% of the employees spend at work up to 32 hours or less than 20 hours (6,2%). Usually these people are external employees or students

### Time spend at the personal desk

The following responses describe how many times the employees are working at their own tables. The purpose of this question was to find out the importance of having personal work space in the office.



*Table 8 Time spend at the personal desk*

The table defines that 47,8% of respondents spend more than 80% of the working hours at their tables. Another 38,9% consider their work at the table between 60-80% of their overall working time. 8,8% of the employees responded that they are present at their table 40-60%. The rest (4,4%) made their work at the table less than 40% of their working time. It means that a personal working place is an area where the employees spend most of their working time. This personal place has the biggest impact on working environment perception.

### Working activities

The study calculates the percentage of the working time spent on a certain activity with the aim to identify major activities, because office concept should support these activities.

Activity	Average time (in percentage)				
	less than 20%	21-40%	41-60%	61-80%	more than 81%
Individual work	2,65	13,27	23,01	<b>37,17</b>	<b>23,89</b>
Attending meetings	68,14	<b>27,43</b>	2,65	1,77	0
Skype meetings	66,37	<b>25,66</b>	5,31	1,77	0,88
Phone calls	98,23	0,88	0,88	0	0
Business trips	85,84	12,39	0,88	0	0,88

*Table 9 Working activities*

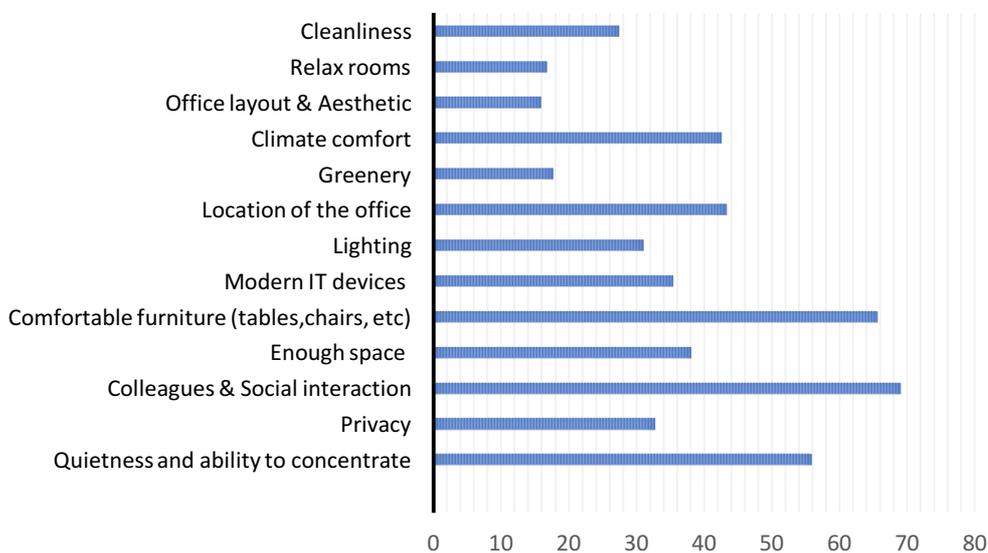
According to the findings, the most common activity is working on individual tasks at the personal desk. Then the employees attend meetings (usually 21-40% of their working time) so they spend time in the meeting rooms. Or they are doing skype calls (mainly 21-40% of working time). The lowest amount of time the respondents spend on business trips (less than 20%) or making phone calls. As a result, considering working activities, an individual working place is again the most important.

### 2.4.3 Working environment

The concept of the current office, workplace use and other important points related to working environment are discussed in this section.

#### Aspects that are the most important in the working environment

Respondents were asked to select five factors that are the most important for them.



*Table 10 Aspects that are the most important in the working environment*

From the findings, the most important factors in working environment are:

- **Colleagues and social interaction** – this is important for 69% of employees and it is an important factor leading to job satisfaction.
- **Comfortable furniture** such as tables, chairs, etc. - 65,5% of employees consider this aspect as one of the most relevant.
- **Quietness and ability to concentrate** – for 55,8% this factor is important especially while doing individual tasks.

Less important are greenery (only 17,7% of employees voted for having plants in the office), relax rooms (16,8% of the respondents need it) and the lowest rate has office layout, which only 15,9% find important in the working environment.

### The most convenient working area in the office

The following responses identified which areas in the office people find the most convenient and they enjoy spending time in.

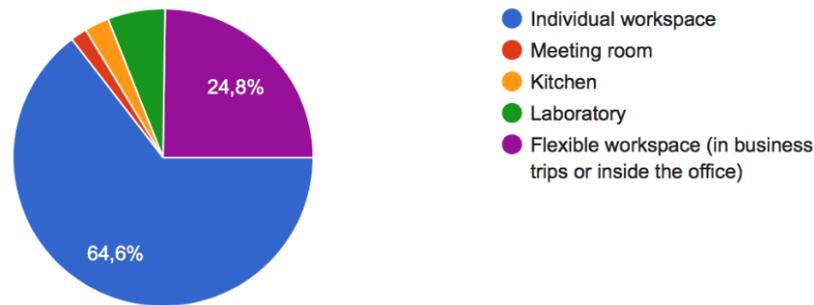


Table 11 The most convenient working area in the office

As shown on the table above, 64,6% of all respondents prefer to spend their time on individual activities at their own workplaces. Then 24,8% are flexible with their workplaces and could work elsewhere. Laboratory is a favorite place for 6,2% of employees and kitchen is only for 2,7% of all respondents. Lastly, just 1,8% consider meeting rooms as the most convenient place in the office. Findings again prove the importance of personal working place.

### Places preferred for individual work

The study sought to define places that the employees prefer for their individual work.

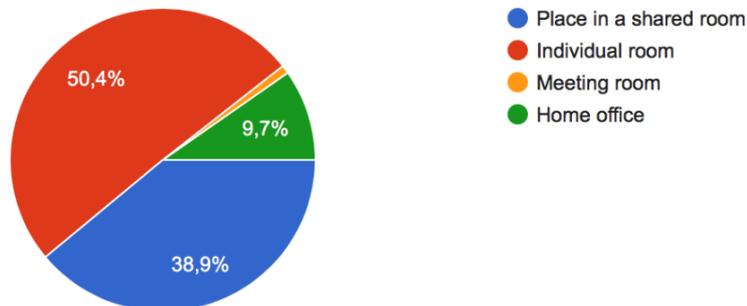


Table 12 Places preferred for individual work

For individual tasks, individual rooms (50,4%) and personal place in a shared room (38,9%) are the most preferable places to use. 9,7% consider "home office" as the best option for individual work. Meeting rooms were rated as not suitable for individual activities (0,9%). The reason of such preferences could be because of noise and interruptions while the employees have to concentrate on individual tasks.

### Places preferred for teamwork

The responses show which places the employees prefer for team work and collaboration with others.

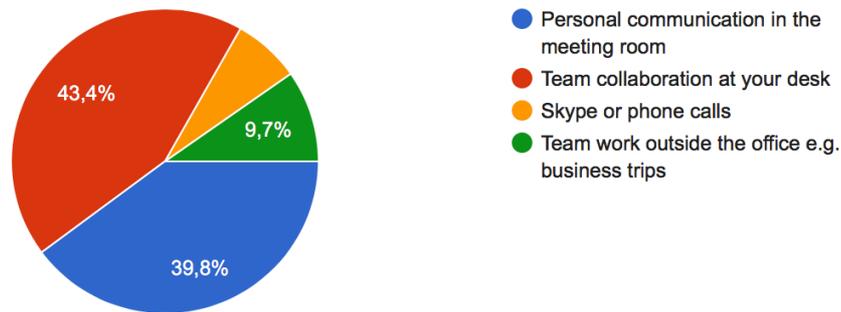


Table 13 Places preferred for teamwork

For communication and completing tasks in the team, the respondents choose personal communication at their desks (43,4%) or in the meeting rooms (39,8%). Team work outside of the office prefer 9,7% of the employees. The remaining 7,1% use skype or phone calls in order to solve tasks together with others. Findings show that the employees prefer communication in person instead of making calls. At the same time they can do it either at their desk or in the meeting rooms.

### Personalization of working space

Personalization considers to be an important factor towards employees' satisfaction with working environment. The following table defines how many people personalize their working place e.g. have personal items reflecting the relationship with family, friends or plants, symbols of achievements, etc.

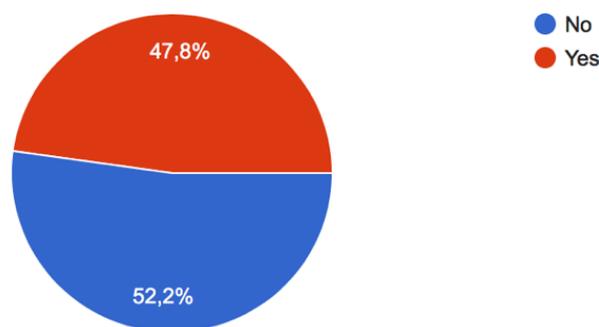
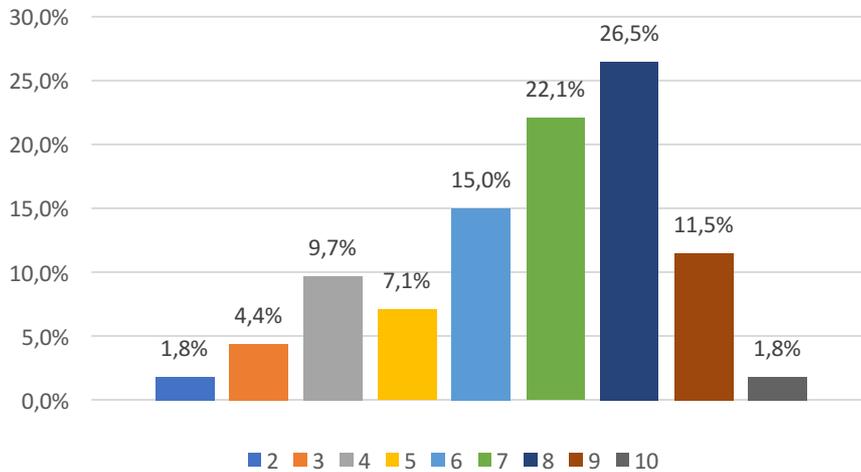


Table 14 Personalization of working space

The graph shows almost equal ratios of employees who personalize their working place and who do not consider it important.

### Satisfaction with the current working environment

The respondents were asked to rate how they are satisfied with the working environment in the company from 1 to 10 (1 – very unsatisfied and 10 – absolutely satisfied).

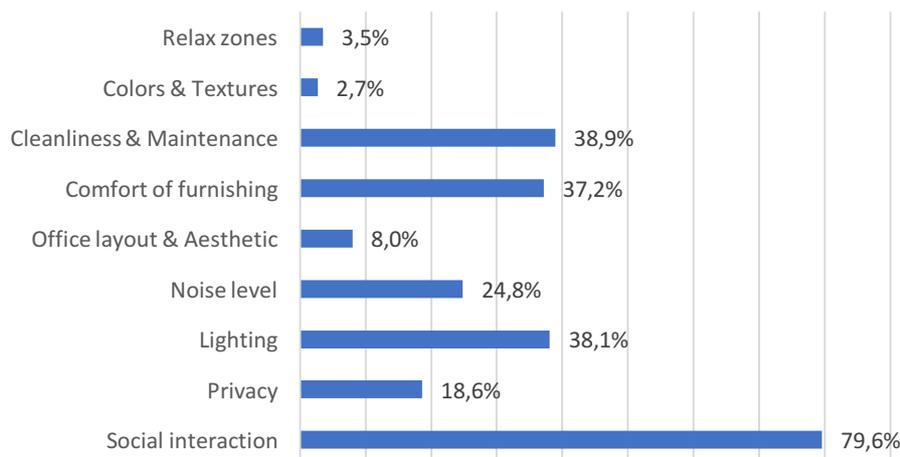


*Table 15 Satisfaction with the current working environment*

The majority of the employees are satisfied with current working environment and ranked the current office with 8 (26,5%), 7 (22,1%) and 6 (15%) from 10. Moreover, 11,5% are very satisfied with working environment and 1,8% are absolutely satisfied. 7,1% consider it as acceptable. The rest are less satisfied. It is important to notice that no one said that he/she is very unsatisfied with working environment.

### The most satisfying aspects in the current working environment

The findings indicate aspects that are the most satisfying in the office right now. Respondents were asked to choose three factors from the list.



*Table 16 The most satisfying aspects in the current working environment*

From the graph it is clear that social interaction (79,6%) is the most satisfying aspect in the company. Then lighting (38,1%), cleanliness (38,9%) and comfortable furniture (37,2%) rated by employees as satisfying. On the contrary, relax zones and colors should be improved according to responses.

### Missing aspects in the office

The aim of this study was to find aspects that have to be changed and improved from the employees point of view.

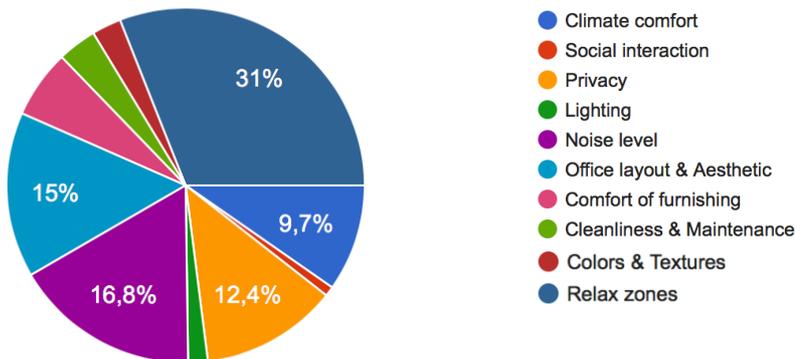


Table 17 Missing aspects in the office

The results from the table indicate that relax zones are the main missing aspect in the office for 31% of respondents. Another 16,8% of employees say that office layout and aesthetic should be improved. Between the main aspects to be changed are privacy and climate comfort. This table proves the fact that most people are satisfied with social interaction and cleanliness.

### Connection between working environment and overall work satisfaction

The responses in the table answered the question if working environment effects overall work satisfaction from the employees' perspective (1 - no effect, 10 – high effect).

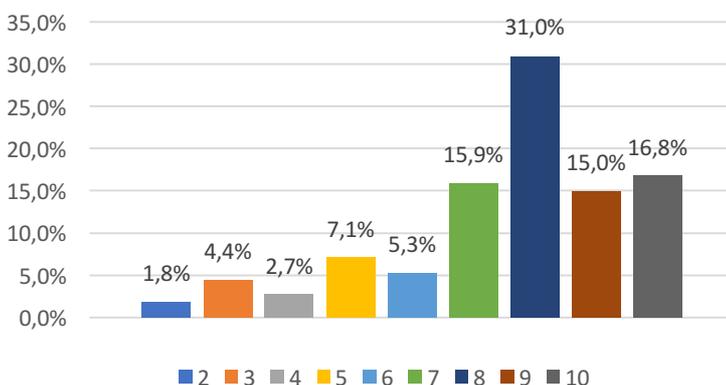


Table 18 Connection between working environment and productivity

The table proves the fact that the majority of employees believe that working environment is an important element that could increase their overall work satisfaction (more than 90% of responses were above 5 points from 10). A good working environment could be viewed not only as a tool for styling, but also a tool to achieve better performance of the organization.

## **2.4.4 Insights from the interviews and observation**

Several interviews were done at the same time as the questionnaire was issued. They lasted for around 30 minutes each with the main goal to receive detailed information about needs and preferences from the employees face to face.

As was mentioned before, the interview was supported by a short guide with relevant questions, which was prepared in advance and was used as a tool to keep oriented during the interview.

From the findings, some people said that they spend most of their time in the office, that is the reason why they want to feel comfortable and have a nice background in the office. Unfortunately, sometimes current open-office environments distract them from completing the tasks, especially nowadays when there are a lot of online meetings (for example meeting in Skype). The main goal of office redesign is to provide better comfort to the employees: offering more privacy and reducing noise.

Some of the employee's responses proven the above statement are shown below:

"Open space office layouts are really bad for when you need to concentrate on difficult tasks. I understand why they could be useful in some cases, but as a programmer they are killing my productivity with the constant noise and distractions"

The employees appreciate having a modern and technological office. Additionally, some people would like to have a more colorful working environment, which will follow office design trends of the 21<sup>st</sup> century. Several people noticed that they miss relax zones in the company.

"Well designed offices with relax zones are becoming a standard. Working style has changed in the recent years and the current office layout may not reflect that (for example Skype meetings)."

"The company should provide relax rooms where possible to spend short breaks which finally increase the productivity".

Most of the interviewers mentioned that working environment including office design, has an impact on their satisfaction and productivity.

"Companies should try to design offices that creates pleasant environment for employees. In my opinion a well designed office can positively affect performance and satisfaction of each employee. In addition, it could bring the employer a step forward in comparison with its competitors».

In addition, office design should be representative and appear candidates, because first perception of the company for new comers and visitors connects to working environment.

"It should look more modern and attractive in order people feels more luxury and it can impress visitors. Fully adjustable tables and chairs should be natural. Companies should show their products in order people fees more integrated and visitors have better overview of what does the company do."

Unfortunately, some employees are afraid of the project management of office redesign. The most important reasons are:

- The employees are afraid of changes;
- They do not want to leave their comfort zone;
- A new office could turn out to be in the contrary with personal preferences;
- They are afraid that construction company will not provide high quality;
- Noise and distraction during redesign process.

"When the employees have not seen the plan before so the company is doing redesign on their own, employees could be afraid if it would be better."

"Every employee is afraid that every change is going to be for the worst. Because it often is - when an external company is hired and they ignore requests from people who are spending in the office a considerable part of their life".

That is the reason why the employees' involvement in the process and timely communication about the project support to overcome the changes. This thesis and data collection could be used as a bridge between the employee's needs, their preferences and the organization goals which are responsible for the office redesign.

The author of this thesis agrees with the opinion of colleagues that planning office redesign will have positive impact on productivity and overall employee satisfaction. There are a few aspects that the author feels could be improved, such as creation of new relax zones; this would be a great benefit while taking short breaks.

## **2.4.5 Conclusion**

In order to define current perception of working environment in the company and find answers on the relevant question for future redesign, primary data were collected by online questionnaire. In this chapter, results were presented in different charts and tables, analyzed and described.

Findings from this questionnaire are representative for evaluation as they reached responsive rate for 64%. More than 90% of all respondents are men, which was predictable according to internal gender statistics. In the engineering company X, primary age working is young people from the Generation X (60,2%) and Generation Y (29,2%). Most of them are in the company more than one year.

The most satisfying aspect is social interaction in the company, which is also one of the most important aspects to the employees. It means that the company has a friendly atmosphere between employees. Additionally, lighting, cleanliness and furniture rated by the employees as the most satisfying aspects. However, there are some factors that need to be improved and implemented into the new office. For example, many people say that relax zones are missing as well as say that aesthetic and office layout should be changed. Some employees suggest that greenery and small meeting rooms for a maximum of three people would be beneficial.

Due to the fact that many young people work in the engineering company X, it would be beneficial to have open spaces in order to provide more sociality and flexibility.

Although, according to personal factors, more than the half of employees are introverts that require privacy.

The employees consider their personal workspace as the main place where they spend the majority of their time and prefer to complete tasks. Almost half of respondents answered that they spend more than 80% of their working hours at the personal desk. Additionally, 64,6% of employees find that their individual workspaces that are the most convenient are in the office and the best place for concentration.

For many companies, employees are the key asset. According to the engineering company X insights, the success of the company depends directly on their employees. And findings from this study show that for many employees working environment is very important. Office design is one of the major aspects of working environment, because employees spend plenty of time at work. Office design should be pleasant and supportive. That is the reason why the company decided to investigate the topic of new office design, in order to make it modern, more convenient and fulfil employees' needs.

The findings from the online questionnaire, interviews and observation helped to determine where the company is now and where it wants to be in the future.

## **2.5 Concept of the new office design**

Nowadays the engineering company X has an open office type of working area. This means that the employees mostly sit close to each other without any wall or other barriers separating them to ensure privacy. Only management of the company has their personal rooms. Private rooms have also human resource department, finance department and administration. Other departments have their own areas, which are separated by walls. Each employee has an individual desk with drawers and a chair. Storage is shared between several people in the team.

There are three floors and two buildings occupied by the company at the moment. But one of the main goals of the new office is to have all employees in the same building. That is the reason why the company decided to rent more space in the main building of the engineering company X and relocate all employees from another building to a new one. The engineering company X in Prague is permanently growing and the importance of having a reception desk becomes obvious. Currently there is only a main reception desk for the whole business center used by several companies. In the new office design, the engineering company X will build its own reception area. The necessity of having a reception desk is not only because it supports branding and vision of the entire company, but also helps visitors when they are entering to the office.

In the new office the company will have two floors with open office areas. The first floor will be used mostly for meetings and interviews. That is the reason why small, medium and large meeting rooms will be located primarily there. They will be created from the beginning. Several working areas for management, administration and a few more departments will be located on this floor.

The second floor will be occupied by engineering departments. It will have a few meeting rooms and a few small quiet areas. Each floor will have bathrooms, kitchen and relax zones.

The new office design includes updating walls, carpets, doors, installation new lighting system, purchasing furniture for individual working places and meeting rooms as well as equipment for kitchens and bathrooms. Completely new relax zones will be constructed on each floor.

The office design will be done by architects following the modern trend bringing nature into the working space. The new office of the engineering company X aims to ensure visual connectivity between people and nature.

There are several key elements in the new design:

- Natural lighting
- Greenery
- Minimally processed materials
- Natural accent details (living walls)
- Ergonomic furniture

The new office design will be a powerful tool not only for current employees, but also for the company itself to ensure the image and attract new talents.

## **2.6 Practical implementation of the redesign project plan in the company**

The main goal of this chapter is to provide a practical manual for the future office design in the engineering company X, taking into account information received from employees and analyzed in the previous section of this thesis. This chapter includes WBS, action plan (Gantt chart), time schedule, estimating budget and risk analyses.

### **2.6.1 Work Breakdown Structure (WBS)**

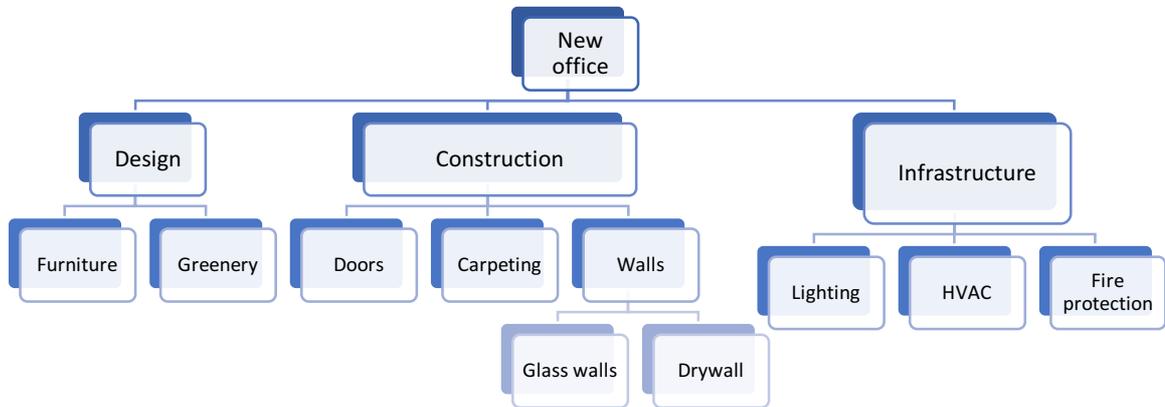
In order to have systematic plan of what has to be done, the study contains work breakdown structure (WBS) which helps to manage the whole project. The work breakdown structure is a good starting point for the office redesign.

The work breakdown structure is decomposed into several work packages. Firstly, they are broken down according to the trade discipline and then by type of work or phase. In order to initiate, plan, execute, monitor and control the whole process of the office redesign, the author created WBS that represents the new office outcomes.

The WBS were created by completing the following steps:

1. Main deliverables of the new office were identified according to a working type;
2. Each main category was decomposed into lower level entries;
3. The final WBS was checked for completeness in order to be sure that the work breakdown structure addresses all main objectives of the office redesign.

The following work breakdown structure shows three main groups: design, construction and infrastructure. By keeping these activities separate, it is easier to understand and track the activities that belong to each group.



*Table 19 WBS of the new office*

In the new office, the design will be changed and done by architectures. The design consists of procurement new furniture for individual working places, meeting rooms, kitchen and relax zones as well as arranging more plants in the office. The aim of the new office design is to be connected with nature through the office. The company prefers ergonomic furniture, natural accent details such as a “living wall”, and live plants.

According to the construction, old carpeting and doors will be removed and new ones will be installed. Walls will be scrubbed and newly painted in white color. In addition, glass walls will be implemented in some meeting rooms and relax zones in order to provide employees areas that encourage brainstorming and rejuvenation. Additionally, glass doors and walls will bring to the company beautifully modern office layout and aesthetics.

Natural lighting is one of the key elements in the new office, because it supports welcoming working environment and makes the employees feel healthier and even more productive. HVAC (heating, ventilation and air conditioning) are also one of the major elements of comfortable working environment. New system of fire protection will be installed in the office in order to keep people working there in safety.

In this work breakdown structure (WBS, the main areas for office redesign in the engineering company X were covered. WBS is the first step of starting the project, which helps to arrange large amount of activities in a structured way. Necessary activities, estimating budget and time schedule for the project are presented separately in the next sections.

## 2.6.2 Action plan

After creating the work breakdown structure, the next step is to make an action plan that shows major actions that have to be done for each work product in order to proceed an office redesign. The biggest advantage of an action plan is the ability to easily have an overview of all main activities and their connections. It does not only highlight important steps in a systematic way, but also provides an estimate time plan. It is an important point, because some activities could run in parallel and it may help the company to save time and money.

Since the author identifies all major steps for every work product in the action plan, it helps the company to track the progress toward the goal and stay committed though the office redesign project.

The action plan presents activities to be performed for the work products, their connections and duration in a specific area in the office. Based on the fact that it is not possible to process office redesign in the whole Building at the same time, the construction company will be doing redesign partially, starting in the building X on the 3<sup>rd</sup> floor.

The main limitations of doing redesign in the whole office at the same time are:

- Budget
- Employee relocation

That are the reasons why the office will be reconstructed step by step. Building X (third floor) was an optimal starting point, because this area was not used as working area by the company before and there are no employees sitting there.

The table below shows an action plan for Building X 3<sup>rd</sup> floor as an example. Same activities will be done systematically in the whole office. Although, duration changes are possible due to different conditions and space.

<b>The new office</b>			
<b>Work package</b>	<b>Actions</b>	<b>Duration (Days)</b>	<b>Predecessor</b>
<b>Design</b>			
1. Furniture	1.1.Plan and design new furniture	2	3.1., 4.1., 5.1., 6.1.
	1.2.Procure new furniture	2	1.1.
	1.3.Remove old furniture	2	None
	1.4.Move in new furniture	2	3.6., 4.6., 5.5., 6.4.
2. Greenery	2.1.Plan greenery	1	1.1.
	2.2.Procure new plants	2	2.1.
	2.3.Remove old plants	1	None
	2.4.Move in new plants	1	1.4., 2.1., 3.6., 4.6., 5.6., 6.4., 7.6., 8.6., 9.6.

<b>Construction</b>			
<b>3. Doors</b>	3.1. Plan and design new doors	2	None
	3.2. Demolition of old doors	1	None
	3.3. Demolition cleanup	1	3.2.
	3.4. Procure new doors	2	3.1.
	3.5. Install new doors	2	3.3, 4.5, 5.5, 6.4.
	3.6. Cleanup	1	3.6.
<b>4. Carpeting</b>	4.1. Plan and design carpeting	2	None
	4.2. Demolition of old carpet	1	1.3., 2.3.
	4.3. Demolition cleanup	1	4.2
	4.4. Procure new carpet	2	4.1
	4.5. Install new carpet	2	4.3, 3.3, 5.3., 6.4
	4.6. Cleanup	1	
<b>5. Glass walls</b>	5.1. Plan and design glass walls	2	None
	5.2. Demolition of old walls	2	1.3., 2.3.
	5.3. Demolition cleanup	1	5.2.
	5.4. Procure materials	2	5.1.
	5.5. Install glass walls	3	3.7., 4.6.
	5.6. Cleanup	2	5.5.
<b>6. Drywall</b>	6.1. Plan and design drywalls	2	None
	6.2. Scrub walls	3	1.3., 2.3.
	6.3. Paint walls	2	6.2.
	6.4. Cleanup	2	6.3.
<b>Infrastructure</b>			
<b>7. Lighting</b>	7.1. Plan and design new lighting	3	3.1., 4.1., 5.1., 6.1.
	7.2. Demolition of old lighting	2	None
	7.3. Procure new lighting	2	7.1.
	7.4. Install new lighting	2	7.2., 7.3.
	7.5. Test new lighting	1	7.4.
	7.6. Cleanup	2	7.5.
<b>8. Heating, ventilation and air conditioning</b>	8.1. Plan new HVAC	2	None
	8.2. Demolition of old HVAC	2	None
	8.3. Procure new HVAC	2	8.1., 8.2.
	8.4. Install new HVAC	2	8.3.
	8.5. Test new HVAC	1	8.4.
	8.6. Cleanup	1	8.5.
<b>9. Fire protection</b>	9.1. Plan new fire protection	2	3.1, 4.1, 5.1, 6.1
	9.2. Demolition of old fire protection	2	None
	9.3. Procure new fire protection	2	9.1.

	9.4.Install new fire protection	2	9.3.
	9.5.Test new fire protection	1	9.4.
	9.6.Cleanup	2	9.5.

*Table 20 Action plan for the new office*

Every activity begins with a planning and design made by architect in order to ensure that the company's requirements and expectations are met. For every work package, major activities were identified, their connections as well as estimated duration. Most of them consist of planning and design, demolition, procurement, testing and cleaning up.

In order to schedule tasks and easily see which actions are next in the project and which of them are running behind, the Gantt chart was created. It shows the duration of individual activities through horizontal bar graphs. Estimated time is added to an addition column in the chart. The total office reconstruction of the certain area in the Building X lasts for 21 days as it is shown in the Gantt chart below. This bar chart presents in order to provide an overall summary of the main activities, their relationship and duration without major details.

The author created the Gantt chart in six steps, which are listed below:

1. Main activities were identified for each work product.
2. Days were chosen as a proper time scale to represent the length of each activity.
3. Estimated time to complete each task was defined.
4. The sequence of tasks and their order of precedence was taken into account.
5. Main activities were drawn on vertical axis.
6. Time span of the office redesign is illustrated on horizontal axis.

The main goal of creating the Gantt chart was an ability to monitor the progress of the project, covering main activities and estimate time.

The following Gantt chart represents the process of the office redesign in a certain area in the office. As it was mentioned before, it is not possible to ensure reconstruction in the whole working area at the same time due to budget and employee relocation. The mentioned process will be repeated consecutively until the whole office will be renewed. The next chapter shows the total duration of the project including office occupation during reconstruction.

Gantt chart																							
		Time (days)																					
	Actions	Duration (Days)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Plan and design	New furniture	2																					
	Greenery	1																					
	New doors	2																					
	New carpeting	2																					
	Glass walls	2																					
	Drywalls	2																					
	Lighting	3																					
	HVAC	2																					
	Fire protection	2																					
2. Procurement equipment/material	New furniture	2																					
	Greenery	2																					
	New doors	2																					
	New carpeting	2																					
	Glass walls	2																					
	Lighting	2																					
	HVAC	2																					
	Fire protection	2																					
	3. Demolition and cleanup	Old furniture	2																				
Greenery		1																					
Old doors		2																					
Old carpeting		2																					
Scrub walls		3																					
Unnecessary walls		3																					
Old lighting		1																					
HVAC		1																					
Fire protection		1																					
5. installation	New furniture	2																					
	Greenery	1																					
	New doors	2																					
	New carpeting	2																					
	Glass walls	3																					
	Paint drywalls	2																					
	New lighting	2																					
	New HVAC	2																					
	New fire protection	2																					
6. Testing	New lighting	1																					
	HVAC	1																					
	Fire protection	1																					
7. Cleanup	New doors	1																					
	New carpeting	1																					
	Glass walls	2																					
	Drywalls	2																					
	New lighting	2																					
	New HVAC	2																					
	New fire protection	2																					

Table 21 Gantt chart for the office redesign

The project of the office redesign will be considered as complete when the installation of all work products is done, safety standards are followed, and the company expectations are fulfilled.

### 2.6.3 Time schedule

The time plan schedule is a necessity for each project. In order to finish the project on time it is critical to have a defined time schedule.

The project of office redesign in the engineering company X will be done systematically in different areas occupied by the company. Right now there are three different areas: X (including two floors), Y and Z. One of the reconstruction goal is to move the

whole department from building Z to building X, where the company will rent an additional working space. As a result, the company will have all departments in the same building as X and Y connected via bridge inside the building. The space in building X and Y will be extended. This change is beneficial especially for employees, because the communication would be more convenient within one building.

The table below shows the clear view on what is happening and when according to floors and square meters. The required activities, their duration and relationship are presented in the action plan. They will be consecutively repeated in the whole office of the engineering company X during the office redesign project.

#### Reconstruction Schedule

	I.	II.	III.	IV.	V.
	today - 31.3.2020	1.4.2020 - 30.9.2020	1.10.2020 - 31.12.2020	1.2.2021 - 30.4.2021	1.5.2021 - 31.7.2021
X 2NP	800		800	800	800
X 3NP	1250	1250	500	750	1250
Y 4NP		1100	1100	1100	1100
Z 3NP	260	260			
total	2310	2610	2400	2650	3150

Table 22 Reconstruction time schedule

The project of office redesign is divided into five phases focusing on time, size of the office space on each floor and buildings. The reconstruction is already started with the 2<sup>nd</sup> floor in the building X, which is a new working area for the company and there are no employees working there now. That is the reason why the office redesign was started from this area. At the same time, the reconstruction is ongoing in the same building, but on the upper floor. In order to move from building Z to building X and sooner leave building Z, reconstruction works are in progress in the building E as well. According to the plan, first activities will be finished on 31<sup>st</sup> of March 2020.

The next stage starts right after the first one with continuing redesign in the building A on the third floor and in the building Z on the third floor. Additionally, reconstruction will start in the building X on the fourth floor, where will be located most of the departments. The main goals of the second stage is to finish work in the building Z and completely move from this area.

From 1 October 2020 till the end of July 2021 will be the most active time of reconstruction in the whole office. All installations and cleanup should be finished by the end of July 2021 and signed over to the company in August 2021.

#### Office occupation

	today - 31.3.2020	1.4.2020 - 30.9.2020	1.10.2020 - 31.12.2020	1.2.2021 - 30.4.2021	1.5.2021 - 31.7.2021
X 2NP	occupied	under reconstruction	occupied	occupied	occupied
X 3NP	occupied	occupied	partially occupied / under reconstruction	under reconstruction/partially occupied	occupied
Y 4NP	under reconstruction	occupied	occupied	occupied	occupied
Z 3NP	occupied	occupied	N/A	N/A	N/A
			+additional space?	+additional space?	

Table 23 Office occupation during reconstruction

From the table 23 is visible that the employees will primary stay in the same floor, but they will be moved from their places to other parts of the office. Although, if it is required the company will have to find alternative working space for some departments from the beginning of October 2020 till the end of April 2020.

Although, period of office redesign could not be convenient for employees, as it requires moving and going out of the comfort zone, it is necessary for the future modern office. A relocation plan was made at the beginning stage along with a time table.

#### **2.6.4 Estimating cost calculation**

Before running the project of office redesign, it is necessary to create an estimated budget in order to have an expectation on how much money will be needed. Before making the final decision about suppliers, the construction company reviewed several options and choose the best one according to price, quality and design fit. Their decision was approved by the project team of the engineering company X. From some suppliers the company received a quantity discount. It is beneficial not only from the budget point of view, but also more convenient for transportation. For example, the furniture for the whole office except kitchen equipment will be purchased from the same company.

Estimating price calculation includes not only all activities and materials, but also a contingency budget in case of unpredictable setbacks, which was defined for 5%.

Estimating budget is done separately for the building activities, required during office redesign and approximate cost of materials based on data known from suppliers. External construction company calculates estimated prices. Lastly, it is approved by the internal team, responsible for the office redesign in the engineering company X.

Estimating price calculation is presented in the table below. It is necessary to notice that the total idea of the budget calculation is stable, but the prices had to be changed due to confidential information of the company as well as supplier's names had to be hidden until the office redesign will be done.

Table below shows cost of every item, their quantity and summary.

<b>SUMMARY BUILDING WORK</b>				
<b>BUDOVA :</b>		<b>AVENIR BUILDING B</b>		
<b>no.</b>	<b>description</b>	<b>pcs</b>	<b>unit price</b>	<b>total price without VAT</b>
001	Design drawing, obtaining redesign permission	1	120 000 CZK	120 000 CZK
002	Building Works - Demolition	1	200 000 CZK	200 000 CZK
003	Floor Surface	1	600 000 CZK	600 000 CZK
004	Glass partitond	30	20 000 CZK	600 000 CZK
005	HVAC	1	300 000 CZK	300 000 CZK
006	Doors	40	15 000 CZK	600 000 CZK
007	Electrical	1	280 000 CZK	280 000 CZK
				<b>2 580 000 CZK</b>
	Movement of material, protective elements adjacent structures and routes, coordination	5,00%	2 580 000 CZK	129 000 CZK
<b>TOTAL BUILDING WORK WITHOUT VAT</b>				<b>2 709 000 CZK</b>
<b>no.</b>	<b>description</b>	<b>pcs</b>	<b>unit price</b>	<b>total price without VAT</b>
003	Work tables and furnitures	200	3 000 CZK	600 000 CZK
004	Work chairs	200	1 200 CZK	240 000 CZK
005	Meeting room small	5	30 000 CZK	150 000 CZK
006	Meeting room middle	6	50 000 CZK	300 000 CZK
007	Meeting room large	2	150 000 CZK	300 000 CZK
008	Kitchen equipment	2	120 000 CZK	240 000 CZK
009	Relax rooms	3	40 000 CZK	120 000 CZK
010	Writable board + decor	8	70 000 CZK	560 000 CZK
				<b>2 510 000 CZK</b>
<b>TOTAL WITHOUT VAT</b>				<b>5 219 000 CZK</b>

Table 24 Estimating price calculation

Building activities includes the following:

- **Design drawing** – the company hired an architect to design the new office in creative and professional way. Architect's work costs 120 000 CZK.
- **Demolition** – before starting to implement the new office design, company has to knock old unnecessary constructions down or completely destroy them. For this work the company estimates to spend 200 000 CZK.
- **Floor surface** – the old carpet will be changed for a commercial-grade carpet in the whole office. Purchasing and installation cost 600 000 CZK.
- **Glass partition** - installation of glass partition is necessary in open-space office, because it provides noise reduction and create some privacy. Glass partition will be implemented for meeting rooms, small private rooms and relax area. In total the company needs 30 glasses for 20 000 CZK/each.
- **Heating, ventilation and air conditioning** – they also will be changed for new ones, although right now most of employees satisfied with climate control.

However, keeping the office well ventilate and with the comfortable temperature is very important as it effects productivity and health of employees. HVAC costs 300 000 CZK.

- **Doors** – doors will be changed according to new office design. In total the company needs to purchase 40 doors for 15 000 CZK/each.
- **Electrical** – investing in electrical parts, especially in lighting, is a key element for an optimal working environment. Basic lighting will be installed in the company for the total cost of 280 000 CZK.

Besides the reconstruction activities, the company has to purchase comfortable furniture. Taking into account that there are 200 employees in the engineering company X, the firm has to provide 200 working places. Each personal working space should include working desk, furniture and chair. Different equipment is needed for small, medium and large meeting rooms. They usually consist of big table, several chairs and writable board. Kitchen also requires to be rebuilt. At the moment in the company there are no relax rooms, but as was mentioned in the questionnaire – relax rooms are a missing factor for convenient working environment and employee satisfaction. In the future offices should have three relax rooms with sofa, chairs and refreshment zone. It will cost in total 560 000 CZK. The office redesign shall not exceed 5 219 000 CZK in total cost.

### 2.6.5 Risk analysis

Potential risks in the engineering company X office redesign are presented according their impact and likelihood. The main goal is to define possible risks that have the biggest possibility to occur as well as risks that have the biggest negative impact, because they are the critical ones.

<p><b>High impact and likely to occur</b>            Changes requests during redesigning            Private workplaces become smaller            Contractor delays</p>	<p><b>Low impact and likely to occur</b>            Materials are not suitable            Lower productivity during reconstruction            Lack in staff            Defective design</p>
<p><b>High impact and unlikely to occur</b>            Estimating budget is not enough            Availability of resources and materials            Accidents such as fire, collision, etc.            Constrictions are against safety rules            Internal and external communication            Late instructions            Errors in project plan            Vandalism            Corruption            Employees unsatisfied with a new office design            Inadequate quality of work</p>	<p><b>Low impact and unlikely to occur</b>            Environmental risks            Time pressure</p>

Table 25 Risk analysis

During the project of office redesign could appear some unpredictable and uncertain events related to schedule, cost, scope or quality. Risk analysis could be an important tool in order to identify risks and managed them in a productive way.

The aim of risk analyses is to identify potential negative effect and complete necessary steps to eliminate them or even prevent from occurring. According to the table above, the company can prioritize possible risks by the impact and likelihood, paying the key attention to risks with high impact and high likelihood.

## **2.7 Office redesign guide**

Project plan and project management itself consist of many aspects which the organization needs to focus. They have to be planned properly and taken into account. These aspects were described above in the real project plan of the office redesign in the engineering company X. The author of the thesis has intention to summarize key points which need to be consider during the project plan preparation of the office redesign in order to cover key factors and decrease complexity.

The following guide takes into account all critical aspects necessary for the project of office redesign including a checklist at the end.

Fist of all, the company has to answer six of the most important questions:

**1. Why does the company need office redesign?** - management has to define priorities and the main purpose of office renovation. It is very important to consider possible needs in the future due to industry and number of employees.

The company has willingness to allocate all employees from different generations in one building and create a modern office considering employees' preferences and needs.

**2. How much it will cost?** – estimating a budget is one of the most complex parts in the whole project, because according to available financial sources, the company creates the project scope. Budget should include working activities such as mechanical, electrical, constructing, and it must allow for purchasing furniture, doors, windows, boards, etc. The company also has to include an additional budget for contingencies. In is very common when companies find a partner who is responsible for the financial part of the project.

Estimating budget for office redesign in the engineering company X was presented in the chapter above and was calculated with the total price 5 219 000 CZK.

**3. Who will be a responsible person?** - the project manager has to be selected and responsibilities must be described. Although many people are usually involved in the office redesign, one person has to coordinate the whole project. For example, the project manager has to communicate with stakeholders and suppliers, delegate tasks or manage a budget.

In the engineering company X the responsible person was defined and nowadays coordinates the whole project, however a few more people are included into different tasks.

**4. When does the project start and end?** - time schedule is important for managing milestones and making check-in points. The company should define the needs that have to be accomplished and the dates.

The office redesign in the engineering company X is already ongoing, but according to the time schedule it will be finished in August 2021.

**5. Where will the employees work during the actual reconstruction?** - usually office reconstruction requires relocation of employees to other places for a certain amount of time. It is necessary to accommodate the employees in a comfortable and safe working environment.

In the engineering company X the whole office redesign is divided into five stages, when the employees will have to move from their personal working places to other zones in the office.

**6. What does the company need to meet the requirements?** - the company has to get into details what the employees need in the office such as furniture, storage places, preferred working area, meeting rooms, etc. The project manager should make a decision if the company has to buy a participial item.

In order to receive insights from the employees in the engineering company X, the author of this thesis made a questionnaire, organized interviews and added personal observation experience. The findings are presented above and were used as a supportive tool for the redesign project in the company.

These questions have to be answered at the earliest stage before the real office redesign starts. Answering them could be beneficial for the companies as they cover all necessary aspects, which are relevant for building pleasant office space where people enjoy working.

## **2.8 Office redesign checklist**

The checklist for office redesign is presented in order to confirm if the company has done all the key steps.

- The project manager is selected
- Stakeholders and their responsibilities are clearly defined
- Current working environment is analyzed
- Needs and preferences for the future office are received
- The employees' wishes are taken into account
- The project goals are defined
- The estimating budget is calculated
- The project plan is approved
- The main milestones are determined
- Time schedule is created
- An external project partner is selected
- Constructors are engaged
- Opportunities for cost savings are noted
- Design and office layout are created
- Furniture suppliers are defined
- Design is approved by an architect and the company
- A relocation plan for the employees during the office redesign is developed

This checklist could be used as a manual for office redesign projects. There are many factors that have an impact on office redesign such as preferences, current office, industry, etc. According to these factors, the checklist could be changed.

## **2.9 Conclusion**

Effective project management and a well-prepared project plan are one of the key elements of modern successful organization. Project plan defines scope, objectives, needed resources, timing and deliverables in order to deliver specific and measurable outcomes to the organization. Project plan defines approach and processes the team will follow to manage and deliver the project in line with the project scope. It delivers a message to stakeholders in order to have clear understanding about the project.

The company needs to allocate its assets properly and decide each project, fulfill its strategy and answer to the business needs.

Success of the company contains several factors including working environment and human capital, which are the greatest organization assets in today's fast moving and innovative world. The performance of organizations relates to people who are working there. Satisfaction of employees is the major element in the company. That is the reason why many organizations worldwide focus their attention on increasing employee satisfaction. As a result, they receive greater working productivity and improve the overall performance.

Employee satisfaction depends on personal factors and environmental factors. Personal factors observe demographic aspects such as age, gender, personality and mobility. Environmental factors usually include working conditions, growing opportunities, communication, supervision, etc.

Usually employees spend the majority of their time in the office, and they should feel comfortable with the place they are working. Some companies use working environment and office design as a tool to attract new employees and boost organizational performance. Some of them view office design as a key element of the innovative process in becoming a worldwide leader. The working environment could be viewed as a powerful tool to achieve higher efficiency at work, better communication among employees and improvement of managerial behavior.

There are many different factors that have to be taken into account during office redesign such as lighting, carpeting, air conditioning and aesthetics. In addition, types of workplaces should be taken into account. Each type of office space has advantages and disadvantages. For example, open offices can increase collaboration between colleagues, but at the same time they can be noisy and distract from completing tasks. Effective project management is a key element leading to the goal of the project. Necessary activities such as planning, organizing, controlling and managing resources have to be made in order to finalize the project. Every project has four main phases: initiation, planning, execution and closure.

The main goal of this thesis was to prepare the project plan for the office redesign in the engineering company X in Prague and provide the company with actual information for effective management of employee satisfaction based on the working environment. This goal was completed.

According to the engineering company X insights, the success of the company depends directly on their employees. The company views working environment as one of the most important aspects that increases employee satisfaction and company performance. Office design is the key element of working environment and the company invests money to improve it.

The practical part of this thesis investigates the current project of office redesign in the engineering company X in terms of analyzing current working environment, exploring employees' preferences and creating a project plan that includes WBS, action plan, time schedule, estimating budget and risk analysis. Moreover, the author of this thesis was involved in a project team and had an opportunity to participate in the office planning. It was also an advantage for the construction company because an opinion of the youngest generation in the company has been taken into account. It means that the new office will be suitable and attractive for new talents. The author will continue taking part in the project of office redesign in the future.

During the research, the author proved two hypotheses:

1. "Convenient working environment including office design supports employees' satisfaction and helps to achieve organization goals in today's business landscape". This hypothesis was confirmed.

For the majority of employees, the working environment and office design are the key elements that provide opportunity to feel better at work, have pleasant working conditions and be more satisfied with their work. Based on the questionnaire, more than 90% of employees in the engineering company X consider working environment as a tool that positively affect overall work satisfaction.

According to findings, the majority of employees in the engineering company X are satisfied with the current working environment. The most satisfying aspect is social interaction in the company, which is also the most important aspect to the employees. However, there are some factors that need to be improved. For example, many people say that relax zones are missing as well as aesthetic and office layout should be changed.

2. "Employees are afraid of the project management of office redesign and their involvement in the process and timely communication about the project will support to overcome the changes."

This hypothesis was confirmed.

During the personal interviewing and questionnaire, the author of this thesis investigated the experience of employees with the project management of office workspace redesign. The results of this research shows that employees are afraid with coming changes and suggest to receive more information about the project plan and request to be more involved in the coming project. Also, it was very appreciated from their side the questionnaire and interviewing where they have opportunity to share their thoughts and suggest solutions.

The guideline and checklist were created as the last part of this thesis. They should help other companies willing to redesign their offices and drive employee engagement together with improving office environment. That was the second goal of this theses, which was accomplished.

This thesis takes into account both the theoretical aspects of the work environment and its interconnection with employee satisfaction together with practical aspects of the upcoming office redesign project in an international company.

Based on this provided investigation and analysis, the project plan focusing on office redesign project has been created. In the new office the company will have two floors with open office areas. The first floor will be used mostly for meetings and interviews. The second floor will be occupied by engineering departments. The activities divided into three main groups: design, construction and infrastructure. They have nine work packages in total. By keeping them separate, it is easier to understand and track the activities that belong to each group. Most of work packages consist of planning and design, demolition, procurement, testing and cleaning up. The project of the office redesign is already started. All installations and cleanup should be finished by the end of July 2021 and signed over to the company in August 2021. The office redesign shall not exceed 5 219 000 CZK in total cost. During the project of office redesign could appear some unpredictable and uncertain events related to schedule, cost, scope or quality. They were presented in the risk analysis table.

This project plan, guideline and checklist will be useful for coming projects in the engineering company X and other companies willing to change office and drive employee engagement together with improving office environment.

A convenient working environment not only supports employees' needs and helps to set up an innovative mindset and achieve organizational goals, but also has an impact on employee satisfaction. Employees who are satisfied with their working environment feel happier and healthier. Companies should redesign offices in order to build better working environment that meets employees' preferences and needs and as a result improve employees' satisfaction.

To meet employees needs and follow with modern business trends, it is critical to have a well-prepared project plan, which is a necessary step before starting any project.

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## Appendix 1 Questionnaire

1. How long are you working in our company?
  - a. Less than 6 months
  - b. 6 – 12 months
  - c. 1 – 5 years
  - d. 5 – 10 years
  - e. More than 10 years
  
2. How many hours per week are you spending in the office?
  - a. Less than 20 hours
  - b. 20 - 32 hours
  - c. 32 - 40 hours
  - d. More than 40 hours
  
3. How long are you working at your table in percentage (it should include time spending at your desk and NOT include time for meetings, home-office, etc.)?
  - a. Less than 40%
  - b. 40 – 60 %
  - c. 60 – 80 %
  - d. More than 80 %
  
4. How long are you spending on each activity in percentage during your working hours? Please select one answer for each activity:

	Less than 20%	21 – 40 %	41 – 60 %	61 – 80%	More than 81%
Individual work at your desk					
Attending meetings					
Skype meetings					
Phone calls					
Business trips					

5. Choose an order for areas according to the time you spend where (from longest to lowest):
- Individual workspace
  - Meeting room
  - Flexible workspace (in business trips or inside the office)
  - Kitchen
  - Laboratory
6. Which options below suits you the best for your individual work?
- a. Place in a shared room
  - b. Individual room
  - c. Meeting room
  - d. Home office
7. Which option do you prefer for teamwork?
- a. Personal communication in the meeting room
  - b. Team collaboration at your desk
  - c. Skype or phone calls
  - d. Team work outside the office e.g. business trips
8. Choose **five** aspects that are the most important for you in the working environment:
- Quietness and ability to concentrate
  - Privacy
  - Colleagues & Social interaction
  - Enough space
  - Comfortable furniture (tables, chairs, etc.)
  - Modern IT devices (laptops, mobile phones, etc.)
  - Lighting
  - Location of the office
  - Greenery
  - Climate comfort
  - Office layout & Aesthetic
  - Relax rooms
  - Cleanliness
9. How satisfied are you with your working environment from 1 to 10 where 1 is very unsatisfied and 10 is absolutely satisfied?
- 1 2 3 4 5 6 7 8 9 10
10. Do you personalize your working space (e.g. you have personal items reflecting your relationships with family or friends, plants, symbols of achievements, etc.)
- 1. No
  - 2. Yes \_\_\_\_\_

11. Choice **three** aspects that are the most satisfying for you in the office:

- Temperature
- Climate comfort
- Social interaction
- Privacy
- Lighting
- Noise level
- Office layout & Aesthetic
- Comfort of furnishing
- Cleanliness
- Colors & Textures
- Relax zones

12. What do you miss the most in the office?

- a. Climate comfort
- b. Social interaction
- c. Privacy
- d. Lighting
- e. Office layout & Aesthetic
- f. Comfort of furnishing
- g. Cleanliness
- h. Relax zones

13. Do you think office working environment effects your productivity? from 1 to 10 where 1 means the no effect and 10 means higher effect?

1 2 3 4 5 6 7 8 9 10

14. Gender

- a. Male
- b. Female

15. Age

- a. Less than 30
- b. 31 – 40 years
- c. 41 – 50 years
- d. More than 51 years

16. What type of person are you?

Extravert/ Introvert

## **Appendix 2 Interview**

1. What is your current position in the company?
2. How long are you working in the company?
3. How many hours per week are you spending in the office?
4. How long are you working at your personal desk?
5. Which activities are the most common during your working day?
6. Which options do you prefer for teamwork/ individual work?
7. What are the most important aspects for you in the working environment?
8. How satisfied are you with your working environment?
9. What do you like the most in the current office?
10. What do you miss in the office?
11. Do you think office layout and working environment effect your overall work satisfaction?
12. Why do you think companies should redesign their offices?
13. Why do you think employees could be afraid of office redesign?
14. What do you expect from the future office?

### Appendix 3 Current office design



*Picture 9 Current office design (Internal pictures of the engineering company X)*



*Picture 10 Current office design (Internal pictures of the engineering company X)*



*Picture 11 Current office design (Internal pictures of the engineering company X)*



*Picture 12 Current office design (Internal pictures of the engineering company X)*

#### **Appendix 4 Office concept after redesign**



*Picture 14 Future office design (provided by the construction company)*



*Picture 13 Future office design (provided by the construction company)*



*Picture 15 Future office design (provided by the construction company)*



*Picture 16 Future office design (provided by the construction company)*

