

Employee Retention in IT Industry

Case: Enoro Oy

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<p>Abstract</p> <p>The topic of employee retention is nowadays of a high interest for the IT companies. Voluntary Employee Turnover brings a great deal of undesirable expenses, including finding the new employee, training, integrating into the team and organizing the proper knowledge transfer. This may take a plenty of time and money resources, which eventually influences the business. A loss of the employee working in the company for a long time may also mean the loss of the critical knowledge about the domain, software and technologies that this employee has. Thus, it is important for resource managers in IT industry to pay careful attention to the employee retention and to the ways it can be accomplished.</p> <p>This research is focused on determining the employee job satisfaction facets that affect the employee's turnover intentions the most and, thus, should be carefully managed. The detection of such facets was implemented with the use of job satisfaction survey together with the questions regarding the intentions to leave. The questionnaire was also accompanied by the series of structured interviews with the managers from the case company that supported the analysis of the quantitative data and helped to identify, in which direction the company is currently moving, regarding the employee satisfaction and motivation.</p> <p>Nine job satisfaction facets (Pay, Promotion, Supervision, Fringe Benefits, Contingent Rewards, Operating Condition, Coworkers, Nature of Work and Communication) were examined to have the correlation with the employee's turnover intentions. The correlation coefficients matrix was developed and analyzed for this purpose. The strongest negative correlation was found between the Nature of Work and turnover intentions. The moderate correlation was also found between the turnover intentions and the Supervision and Coworkers facets. The corresponding recommendations on how these facets should be managed were mentioned in the conclusion.</p>		
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Miscellaneous		

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1 Introduction

1.1. Background

It goes without saying that the most valuable asset of any company in the Information Technology (IT) industry is its employees. Undoubtedly, no matter how good the hardware is, it will not produce a new software by itself. For that every company needs skilled and dedicated people, who will produce a valuable and deliverable product.

The CompTIA Properties research (January, 2017), based on the statistics of the year 2016, shows that the demand for skilled tech employees highly exceeds the supply nowadays and continues to grow.

Among the challenges that the IT companies face in hiring employees in 2017, the CompTia (2017) lists the following:

1. Finding the professionals with skills and knowledge in the newly appearing technological fields
2. Having to face the competition with other companies for skilled employees
3. Finding the tech professionals with appropriate soft skills
4. Growing expectations of employees towards salaries
5. Lack of professionals/talents in the specific region

Speaking of the salary expectations, according to the data from the same CompTIA (2017) research, the average wage in the IT industry in the U.S. has been increasing by 2.1% – 2.3% annually during the last three years.

At the same time, the historical data, collected by the Compensation Force (April 2017) shows that all the industries are facing serious increases in the voluntary employees turnover rate, since 2011 the rate has increased by 3.7% and exceeded the peak of the year 2008, when the world faced the infamous financial crisis, and the employers did not have an opportunity to provide people with sufficient working conditions (see Figure1) (ibid.).

The voluntary staff turnover refers to the employees leaving the company, according to their personal will for various reasons (moving to another company, relocation, health issues, etc.) (Mayhew N.d).

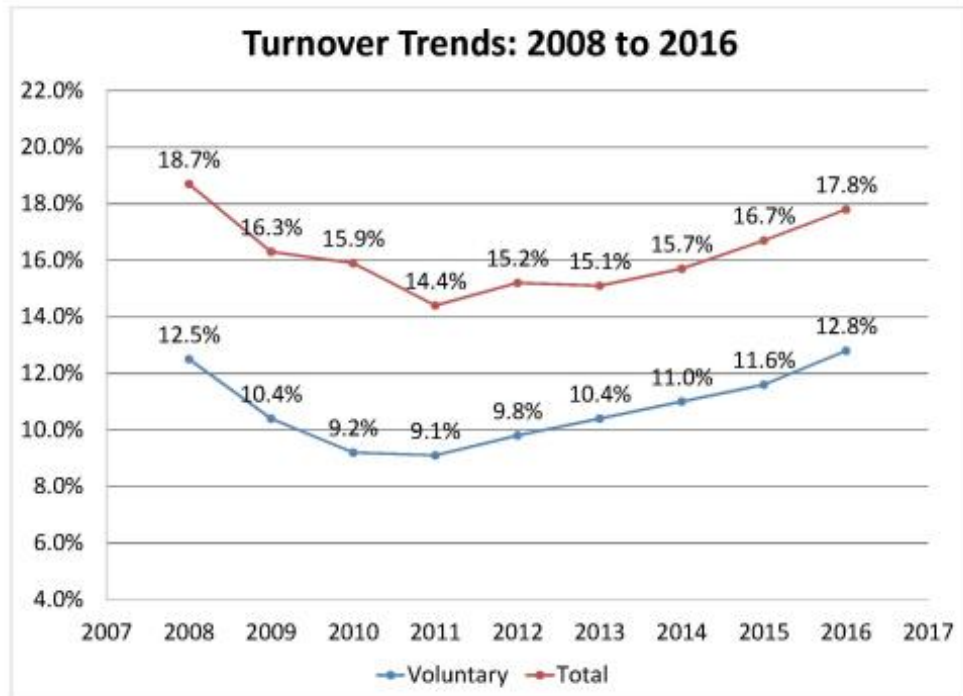


Figure 1 Turnover Trends: 2008 to 2016. (Compensation Force 2017)

It might be fair to ask what does employee turnover cost for a company. The employee turnover costs are not as easily countable, as many other kinds of expenses that the company faces, yet it may highly impact on the company's finances.

When an employee leaves, the company loses the time and money that were spent on training and integrating this employee to the project, as well as the expertise and critical knowledge that this employee has. At the same time, the company should invest even more in finding a new suitable person, training him and organizing the proper knowledge transfer (Thomas 2009). In the IT industry, it becomes even more difficult, since different projects use different technical tools for implementing their solutions. Therefore the resource manager has to find the applicants with expertise in these specific tools (CompTIA 2017).

All this information means a great deal for the resource and project managers in the IT industry. For example, when looking at the data presented above, we

can see that not only finding the appropriate employees is very challenging nowadays, but also keeping them in the company may become even more challenging at some point.

Therefore, IT companies all around the world become more and more interested in finding the ways to keep employees working in the company for as long, as possible. Some may argue that a certain level of staff turnover is healthy and may bring more profit to the company, since it brings new fresh ideas in the minds of new employees, as Janice Lo (2014) puts it in her article "New Perspective on Staff Turnover in the IT Field". However, this research is mainly focused on the ways to decrease the voluntary turnover, as opposed to absorbing it appropriately.

Previous Studies

The research, conducted by S.G. Westlund and J.C. Hannon in 2008 and published in the Journal of Information Technology Management, was focused on how organizations should retain the software development talents. The researchers made an attempt to assess the job satisfaction factors that correlate with the employees' turnover intentions. As a result, they found a significant relationship between the turnover intentions and employees' satisfaction with the nine factors of job satisfaction, which were the following: contingent rewards, promotion, supervision, pay, operating conditions, coworkers, benefits, communication and the nature of work. The researchers have found the strongest correlation between the turnover intentions and the satisfaction with contingent rewards, communication and supervision. The weakest correlation was found between the turnover intention and satisfaction with benefits and working conditions. (Westlund & Hannon 2008)

A group of researchers conducted a systematic literature review of the papers on motivation in Software Engineering in 2007. This review revealed the factors, related to job (de)motivation in software engineering. They were most commonly cited in 92 studies that were selected for the review. As a result, the review indicated that software engineers were motivated according to three main factors: their characteristics, the internal control and the moderators. The review also revealed that de-motivated engineers were more likely to leave the organization or express some other forms of withdrawal behavior

(e.g. absenteeism, passive job behavior). This literature review is discussed in more detail in the “Theoretical Framework” chapter. (Beecham, Baddoo, Hall, Robinson & Sharp 2007)

Tsai’s (2017) research on job satisfaction in IT, published on SpiceWork website, has shown that job satisfaction is not just about one factor, it is about the number of factors working together to create the proper atmosphere. It is also not always about high salaries and stress reduction, in fact the research actually shows that more stressed IT professionals tend to feel happier about their work (ibid.).

Begelow’s (2012) research, published on Tech Target website, has revealed that the challenging working environment is actually, what motivates the IT specialists the most. 32% of IT employees claim to want a job that is intellectually challenging (ibid.).

Following the previous research, the author of the current study was interested in finding out what aspects of the working life were more likely to cause the employee turnover intentions to rise and which aspects might decrease them. Unlike the research, performed by Westlund and Hannon (2008), the current study was not only focused on the software development engineers, but also on the other production positions.

1.2. Research method, objective and questions

The aim of this study was to analyze the needs and wants of IT specialists and find out what their expectations were in terms of working conditions and compensation. The purpose of this research was to provide IT managers with the solutions on how to decrease the turnover rate in the organization, retain the talents and raise and maintain their satisfaction level, as well as to increase the employees’ motivation.

In terms of methodology, the author chose to use the mixed-method research, meaning that quantitative data collection was supported and reinforced by qualitative data collection in one single study. This method was chosen in order to study the subject more broadly through determining both the employ-

ees' and the managerial perspectives of the working situation. The quantitative data was the primary data source for the research and was collected by using a questionnaire distributed among the company's employees. The qualitative data played a more supportive role and it was collected by conducting interviews with the managers of the company. This mixed method strategy is called Concurrent Embedded design and it is described in more detail in the "Methodology" Chapter. (Creswell 2009, 204-214)

The approach for this study was chosen to be inductive. This kind of approach is also called the "bottom up" approach, meaning that the researcher starts from more specific details and proceeds to generalizations moving from observations to theory (Trochim, 2006). Thus, this kind of approach fit the research methodology and objectives well because of focusing first on collecting the data and then building a theory on the basis of this data and observations. The methodology of this research is described in more details in "Methodology" Chapter.

The main objective of this study was to develop an understanding of what working conditions are important to have in an IT company in order to retain employees as well as increase and maintain their level of satisfaction. Another objective was to determine which aspects should be eliminated for this purpose and which should be cultivated.

Thus, the main research question that this study aimed to answer are the following:

- What aspects of employee job satisfaction are related to the employees' turnover intentions?

The supportive questions that helped author to find the answer to the question above, are the following:

- What aspects of the working conditions satisfy employees the most?
- What aspects of the working conditions should be eliminated in order to raise the employees' level of satisfaction?

The author believes that by answering these questions she will be able to provide the resource managers in the IT industry with a clearer vision of what steps should be taken in order for their company to prosper and develop in terms of gaining and retaining the talents.

The choice of this thesis topic was justified by the author's interest in the IT industry and in pursuing a managerial career in IT. Moreover, in order to become a good manager, one needs to understand the employees' motivation and expectations. The topic is also very important nowadays and is of a high interest for many IT companies around the world, including the case company for this study.

1.3. Introducing the context

As it was already mentioned, according to the CompTIA research (2017), the employers in the IT industry nowadays have a number of challenges with finding the professionals with the appropriate skillset. This is mainly because the industry is developing, and the new technologies are emerging all the time. Thus, the working environment for IT specialists is always highly competitive (ibid.). At the same time, according to the CompTIA report (2017), three out of four IT employees feel that their potential is not fulfilled at their current position in the company.

The working conditions that IT companies offer their employees nowadays is another question that needs attention. As De Ramos (2015) describe in their article "What is it like to work in an outsourcing company?", published on AIM's website, the working conditions are quite flexible in these kinds of companies, compared to most of the other businesses that are usually very strict towards schedule, clothings etc. IT companies mostly allow their employees flexible working hours and even working from home whenever it is needed. The clothing and appearance is usually also free, meaning that the employees do not have to wear the traditional business clother unless they want to. (ibid.)

Moreover, most of the companies also offer a number of onside benefits, such as gyms, language classes, launge rooms with some entertainments, and many other benefits. It is also worth mentioning that nowadays the average age of employees working in the biggest USA tech companies is between 27 and 39 according to the data collected by Statista and published in Business Insider (Pelison & Hartmans 2017). This means that the majority of IT employees belong to the so-called "Generation Y", in other words, people born between 1980 and 1995.

1.4. Case company: Enoro Oy

Enoro Oy is a Finnish IT company that is offering its customers software solutions for energy utilities (About us N.d.). The company was founded in 2012 as a result of a merger of three companies: Process vision Oy (founded in 1993, Finland), Elis AS (founded in 1992, Norway) and Porkorn AS (founded in 2005, Norway). Therefore, it has over 20 years of experience, and nowadays it operates in five countries. The biggest offices are located in Espoo, Finland (115 employees) and Dale, Norway (96 employees). It also operates in Hamar, Lillehammer and Trondheim (Norway), as well as in Jyväskylä and Kuopio (Finland). Among the other countries of operations there are: Sweden, the Netherlands and Switzerland. (Livio 2017)

Overall, Enoro has around 300 employees across their offices in Europe and it helps over 400 customers to strengthen their operations. The company also has established partnerships with several leading global system integrators, as well as with selected regional companies. (About us N.d.)

The company offers a complete software solution for the meter-to-cash portfolio, suitable for all market roles (Solutions N.d.). The software solutions, offered by Enoro, have proven to be a good fit for all public utilities including electricity, gas, district heating, district cooling and water. The products cover the whole chain from technical metering point monitoring to cash management and customer service support. Among the services that Enoro provides to its customers there are:

- **Consulting and training.** Enoro consultants support customers through all of the process phases. The company also provides customers with sessions that refer to a combination of consulting and training.
- **Delivery.** The company's delivery service covers all of the phases of software development, starting from the requirements gathering and ending with the implementation and deployment of the system.
- **Support.** Enoro offers support services to software users in different situations. It also offers the Service Level Agreement services according to the customers' needs.

- **Life cycle management.** Enoro provides its customers with the services that are aimed at helping them to use the system efficiently throughout its whole life cycle.

(Services N.d.)

Enoro has established its vision and mission, which are the following:

- **Vision:** “We enable utilities to access the hearts and minds of energy consumers through a personalized energy experience”
- **Mission:** “Making the energy market better”

(Livio 2017)

2. Theoretical Framework

This chapter first looks into the models of turnover in order to describe how and why employees may leave their organizations. After this the chapter proceeds to the theories of job satisfaction and motivation in order to form an understanding of what the existing theories suggest about how organizations satisfy and motivate their employees in order to retain them.

The theories on job satisfaction and motivation can be conditionally divided into two groups, based on the factors that these theories are focused on and based on what they consider to be the most influential for employee motivation. These groups are the following: Needs-Based Theories (also called Content Theories) and Process Theories. (Stotz & Bolger N.d.) After discussing these theories, the chapter briefly describes the current view of the motivation in IT industry.

2.1. Employee Turnover

Employee turnover refers to the percentage of employees that have left the company for various reasons. To find this percentage, the number of employees who have left the company during the year is divided by the total number of employees in the beginning of the year. (Mayhew N.d.)

Two main types of turnover are distinguished: voluntary and involuntary turnover. Voluntary turnover refers to a situation, where an employee decides to leave the organization personally. Involuntary turnover happens when the

company decides that an employee should leave. While involuntary turnover is something that cannot be escaped, voluntary turnover may be avoided. Therefore, managers in different organizations are focused on finding the ways to reduce the voluntary turnover and increase the employees' retention rates. (ibid.) A number of models have been developed by researchers to bring more understanding to the phenomenon of employee turnover.

Perceived Desirability and Perceived Ease of Movement

As Morrel et al. (2001) describe, in March and Simon's view, job satisfaction was the main factor affecting employee's desire to leave an organization. Voluntary turnover is mainly determined by two factors (as shown in Figure 2): Perceived Desirability of Movement and Perceived Ease of Movement (Morrel, Loan-Clarke & Wilkinson 2001).

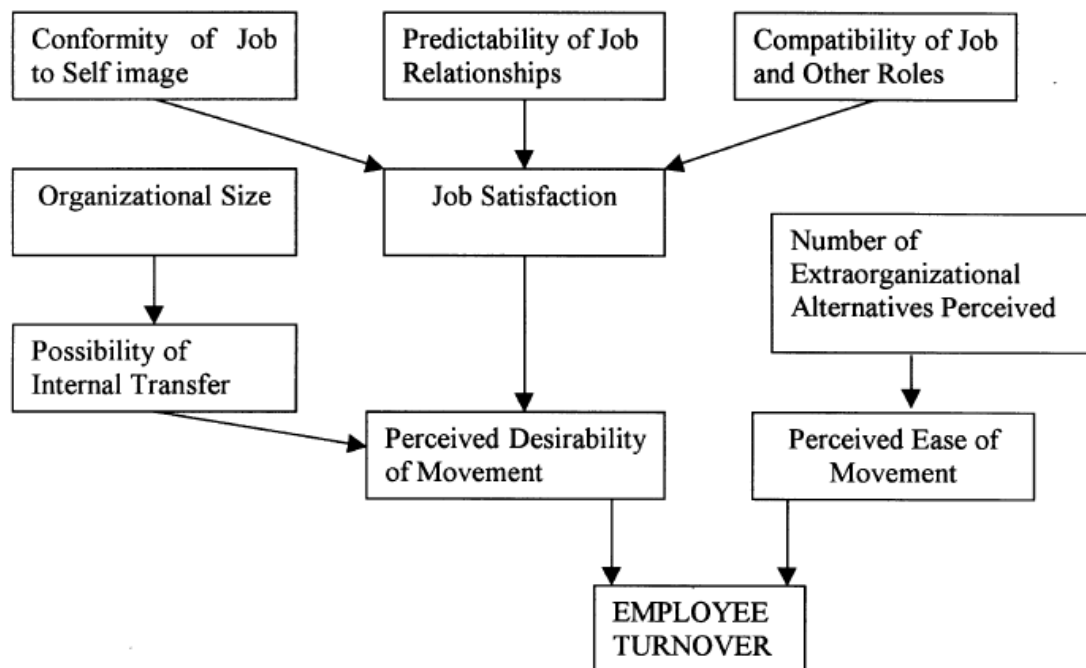


Figure 2. March and Simon's Model (Morrel et al. 2001).

The perceived desirability of movement factor is primarily affected by Job Satisfaction, which combines the job factors, related to employee satisfaction, such as conformity of the job to one's self-image, predictability of job relationships, compatibility of the job and other roles. Another factor that also influences the perceived desirability of movement is the possibility of internal transfer, which, in its turn depends on the organization's size. (ibid.)

The perceived ease of movement is only influenced by one factor, which is the number of extra-organizational alternatives perceived. This refers to the evaluation of the opportunities of finding another placement outside the organization. (ibid.)

According to March and Simon's opinion on motivation, the survival of the organization is basically ensured by the balance of inducements and contribution. The company gives employees various inducements (such as, pay, fringe benefits, rewards, etc.), which aim at encouraging the employees to contribute to the organization, or, in other words, work. The authors of the model believe that when inducements rise, the employees' desire to leave reduces. This is also one of the main limitations of this theory – the overestimation of the importance of pay in terms of motivation. (ibid.)

Casual Model

The model, developed by Price and Mueller in 1986, is called Casual Model. This is due to the facts that it analyses the casual turnover determinants and casual linkages between the antecedent variables and the dependent variable (Morrel et al. 2001). The Figure 3 illustrates the model relationships between the variables that are divided into two categories in this model: exogenous and endogenous (Price 2000). However, Price and Mueller's model was based only on the medical personnel, which puts certain limitations to this theory.

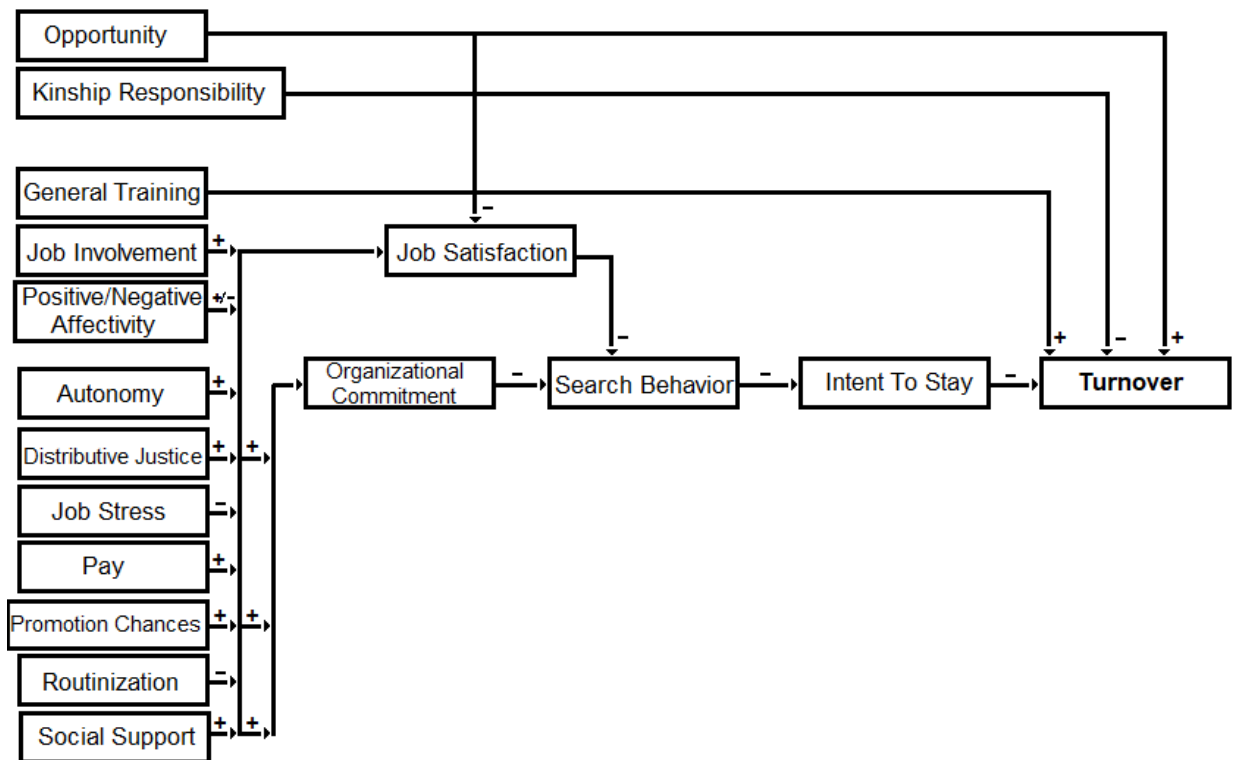


Figure 3 Casual Model (Price 2000, adapted)

Exogenous variables include: environmental (opportunity and kinship), individual (general training, job investment, positive affectivity, and negative affectivity), and structural variables (authonomy, justice, stress, pay, promotion chances, routinization, and social support). This group of variables is considered to be a possible determinants of turnover. (ibid.)

Endogenous variables include: job satisfaction, organizational commitment, search behavior, and intent to stay. These variables are affected by the state of exogenous variables, as shown on Figure 5. This group of variables is also considered considered to be a possible determinants of turnover. (ibid.)

Expanded Model

The following model was developed by Mobley (1977) and is considered to be more comprehensive than the previously described models. Mobley (1977) introduces a turnover decision process with ten steps linked together. The model is illustrated in Figure 4.

According to Mobley (1977), the job satisfaction level (expressed in blocks A and B) is not directly linked to the turnover (block J), but is mediated by a

number of other steps (blocks C-I) that affect the end decision, whether an employee wants to quit or stay.

After employee evaluated the existing job and the degree of satisfaction or dissatisfaction it causes, he or she may proceed to thinking of quitting (block C). However, the other forms of withdrawal may appear as a result of dissatisfaction found in block B. It can lead, for example, to absenteeism or passive job behavior rather than to turnover directly. (ibid.)

The next block (D) refers to the "Perceived ease of movement" of March and Simon's (1958) model. On this stage employee evaluates the cost of leaving and the chances to find an alternative. After this step, employee proceeds to the intention to search for alternatives (block E). This can also be a consequence of some external factors that are not related to job itself. After than the actual search for alternative happens (block F). (Mobley 1977)

According to Mobley (1977), after the alternatives are found, employee proceeds by evaluating them (block G) and comparing them with the current work he or she has (block H). Furthermore, if the comparison favors the alternative job, the intention to quit (block I) will be stimulated and will lead to the actual leave (block J) (ibid.).

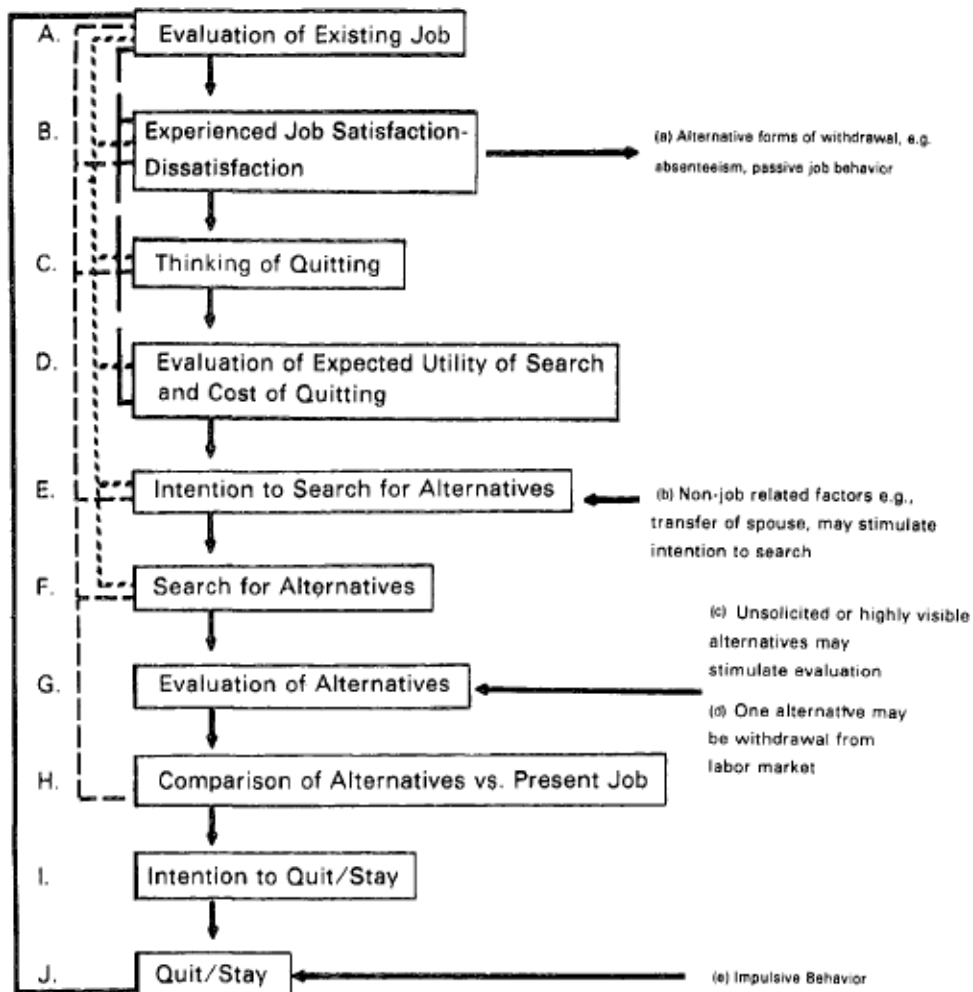


Figure 4. The Employee Turnover Decision Process (Mobley 1977).

Mobley (1977) himself admits that the model is quite heuristic rather than descriptive, he points out that there may be differences in the order of steps, some other steps may be included, while some can be excluded from the model for different individuals.

Summary of the Employee Turnover models

Each of the presentend models in this or that way refers to the Job Satisfaction. Some of them claim it is the most important factor in the employee turnover intentions, the others tend to think it is just one of the factors that may possibly lead to the actual turnover.

However, all of the models show that the way employee makes decision to leave the company or the job position may not be that easily described and understood. This is a complex process, which should be managed in many

different directions and different stages, including, but not limited to, the overall employee job satisfaction/dissatisfaction.

2.2. Needs-based theories of employees motivation

The needs-based theories are focused on the idea that for an employee to work productively, his or her needs should be satisfied by the employer to the certain extent. In other words, the needs-based theories are concentrated on what motivates people from within: the physiological, social and moral needs of people. Most of these theories assume that all of the individuals have the same set of needs and strive to satisfy them. (Stotz & Bolger N.d.)

This part of the chapter describes the most well known content theories, such as Maslow's Hierarchy of Needs, Alderfer's ERG (Existence, Relatedness, Growth) Theory, Herzberg's Two-Factor Theory and McClelland's Acquired Needs theory.

Hierarchy of Needs

The most famous and prominent motivation theory was developed by Abraham Maslow in 1954. The Hierarchy of Needs is based on the idea that every person has five certain levels of needs. Each individual progresses through them, starting from the lowest level and reaching to the top. (Carpenter, Bauer & Erdogan 2012, 641) The hierarchy of needs is often illustrated as a pyramid with the primary needs at the bottom and high-level needs on the very top, as shown on the Figure 5.

According to Maslow (1954), each individual goes up this pyramid as a ladder, taking one step up at a time. After one need is satisfied, the person proceeds to the next level that was not yet relevant, when the previous need was in focus. Similarly, the satisfaction of the lower-level need is no more motivating, as soon as person reaches the next level. (Boeree 2006)

Below is a more detailed description of these levels:

- **Physiological needs.** These needs include the need for air, food, water, sexual intercourse etc. The basic human needs that are required for survival, subsistence and reproduction.

- **Safety needs.** This level includes the need for shelter, healthy environment, employment, safety from physical damage etc.



Figure 5. Maslow's Pyramid of Needs

- **Love and Belonging needs.** This level of needs is also called “social needs”. It includes the need for the contact with other people, creation of the lasting relationship, love, friendship etc.
- **Esteem needs.** This level includes the need for recognition, self-esteem, status, respect from peers etc.
- **Self-actualization needs.** After all of the previous needs are satisfied, the “self-actualization needs” appear in one’s focus. On this level, the individual desires to have the personal growth, achievements, self-development, new challenges etc. This is the highest level in the Maslow’s hierarchy.

(Arnold, Silvester, Patterson, Robertson, Cooper & Burnes 2005, 312)

Numerous managers of different levels and in different organizations adopted this theory. In terms of motivating employee, Maslow’s hierarchy suggests organizations to provide employees with satisfaction of these needs on every level. The *safety needs* can be satisfied by, for example, the number of healthcare benefits, stability on the workplace and retirement plan. The *social*

needs can be satisfied through friendly environment, open and direct communication on the workplace and company team-buildings. The *esteem needs*, in their turn, are satisfied through promotion, reward system and recognition. Finally, *self-actualization needs* can be satisfied by the opportunities for employees to grow, develop their knowledge, skills and their career, and have some new challenging tasks. (Carpenter et al. 2012, 643)

It is also of a great importance for managers to try to understand, which level of needs this or that employee occupies at the moment in order to better understand how to motivate that person. When an employee is seeking for satisfaction of the social needs, it will be rather inefficient to motivate him or her through promotion or recognition, while these factors would help to motivate the person that has already reached the level of esteem needs. (ibid., 642)

Maslow's Hierarchy of needs has been subjected to criticism from the academic community due to the methods the author used in his research. Most of his findings were based on the information collected from a rather small number of people and processed based on his own ideas, without any scientific proof (Boeree 2006). The researchers also claim the Maslow's theory to be not a real-life concept due to the fact that not every individual has the same set of needs, some mentioned needs may be neglected, and some other needs may appear for different individuals (Arnold et al. 2005, 314). The history also witnessed a number of artistic geniuses that reached a certain level of self-actualization, despite the fact that they did not have their lower-level needs satisfied due to the poverty, poor health, lack of recognition and a number of other reasons.

Some further researchers also tried to expand Maslow's theory and to make some amendments to it. For example, Rowan (1998) suggested the following corrections to the hierarchy:

- There can be two types of the esteem needs: the need for esteem from other people around and the need for self-esteem that derives from within the person. These needs should be separated in the hierarchy.
- There also can be two types of self-actualization needs. One of these needs refers to the person actualizing the real self, while the other one

refers to a more mystical closeness to humanity or supreme being, meaning religion.

- The need for competence should also be included to the hierarchy. This need refers to the person's desire to be good at something and master his or her skills in something.

(Arnold et al. 2005, 315)

ERG Theory

This theory was developed by Clayton Alderfer in 1969 based on the previously described Maslow's Hierarchy of Needs. Alderfer grouped some of the needs specified by Maslow and created three basic categories of needs that are common for each individual (Carpenter et al. 2012, 644). These needs are the following:

- **Existence.** This category includes the first two levels of the Maslow's Hierarchy (Physiological and Safety needs). It refers to needs for food, water, air as well as pay and benefits from the work and the working conditions themselves.
- **Relatedness.** This category of needs refers to Maslow's love and belonging needs, including relationship with the people around, significant others, family etc. Unlike the existence needs, relatedness needs strive for mutuality. Moreover, relatedness needs are not only about the positive relationship, but also about the expressing mutual anger or hostility.
- **Growth.** The last category refers to the last two levels of Maslow's Hierarchy: Esteem and Self-actualization needs. This refers to the individual's needs to make a productive impact on the environment, as well as him/herself.

(Alderfer 1969)

Alderfer's theory is considered to be more flexible than the Maslow's theory in a sense that ERG theory claims that every person can move from one group of needs to the other at any point of time. Moreover, more than one group of needs can remain in focus simultaneously. Thus, this theory can better explain the situation, when an individual reaches the Growth needs, without satisfying the lower-level needs. (Carpenter et al. 2012, 645)

ERG theory also has the “frustration-regression principle” that suggests that when a person is frustrated in the satisfaction of one need, he or she may move to the other one (Alderfer 1969). Thereby, when an employee fails to obtain a higher job position (Growth need), he or she might regress to the Relatedness need and start spending more time socializing with peers or with family (Carpenter et al. 2012, 645).

According to this principal, Alderfer (1969) suggests the following seven propositions:

1. The less existence needs are satisfied, the more they will be desired.
2. The less relatedness needs are satisfied, the more existence needs will be desired.
3. The more existence needs are satisfied, the more relatedness needs will be desired.
4. The less relatedness needs are satisfied, the more they will be desired.
5. The less growth needs are satisfied, the more relatedness needs will be desired.
6. The more relatedness needs are satisfied, the more growth needs will be desired.
7. The more growth needs are satisfied, the more they will be desired.

(Alderfer 1969)

Two Factor Theory

Another widely known and used theory of motivation is Two Factor Theory or Motivation-Hygiene Theory, developed by Frederick Herzberg in 1959.

Herzberg (1968) proposed two factors that are related to satisfaction and motivation of employees at work. Those are the following:

- **Hygiene:** company policy and administration, supervision, relationship with supervisor, work conditions, salary, relationship with peers, security.
- **Motivators:** achievements, recognition, work itself, responsibility, advancement, growth.

(ibid.)

After conducting a research, Herzber (1968) understood that different factors were named by employees to be satisfiers and dissatisfiers. For example, the strict company policies would be considered dissatisfying, while more friendly company policies would not necessarily lead to job satisfaction. Thus, Herzberg (1968) concluded that there are two kinds of factors. One of these group is responsible for level of dissatisfaction (Hygiene factor). The other group is responsible for satisfaction itself (Motivators). (Carpenter et al. 2012, 646)

Thus, according to the Two Factors theory, Hygiene factors are those factors that have to be maintained on a certain level in order not to cause dissatisfaction. The Motivators are those factors that actually influence the motivation of the employee and are very important for managers to use properly in order to maintain the certain desired level of job satisfaction among employees.

(Alshmemri, Shahwan-Akl & Maude 2017)

A good example of this theory would be a situation, in which the working conditions are on a bad level. For instance, it is too hot or too cold in the office, the colleagues are too competitive and not friendly, the supervisor is very strict, and so on. In such conditions, the job dissatisfaction of the employee will most probably be on a rather high level. None of the motivators factors will help to solve this problem. Even if the employee will receive promotion and more responsibilities, it will not decrease his or her dissatisfaction level.

This example shows that regardless of the high interest that managers pay to motivators due to the fact that those factors improve satisfaction level, it is very important to not forget about hygiene factors and maintain them on a proper level in order not to lose the organization's talents.

The figure below shows how the hygiene factors should be managed according to Herzberg.

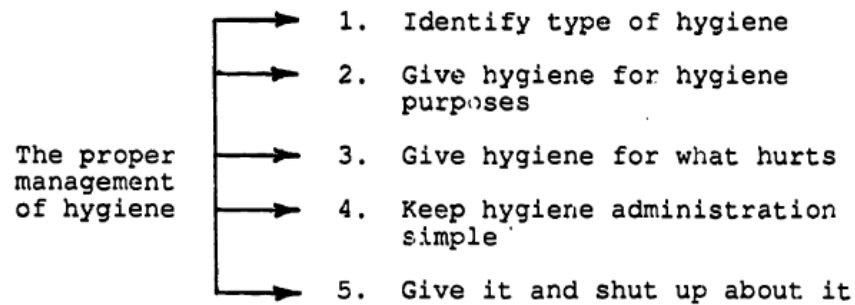


Figure 6. The 5 rules for administrating hygiene (Pardee 1990, 12).

Herzberg's Two Factor theory has also been criticized by the academic community for the doubtful research approach. While Herzberg has utilized the semi structured interviews, some researchers claim that the results of the research may be different, if he has utilized the questionnaires. In 1971 a group of researchers have actually tested the Herzberg's theory using the questionnaires and had come to different results. This shows that Two Factors Theory sometimes may not be valid. (Brenner, Carmack & Weinstein 1971)

The critics of Herzberg's theory also mention that his grouping of factors is not very correct, since it does not take into account that some individuals may obtain job satisfaction form the factors that would cause dissatisfaction in other individuals. (Carpenter et al. 2012, 647)

Acquired Needs Theory

The Acquired Needs Theory was developed by David McClland in 1985. Unlike Maslow or Herzberg, McClland (1985) did not divide different needs into classes or groups. Instead, he classified people according to what need drives them more. According to the Acquired Needs Theory, individuals have three main types of needs. One of these needs becomes dominant due to person's life experience, background, culture etc. Those three needs are the following:

- ***Need for Achievement.*** If this need is dominant in the person, he or she is more interested in succeeding. Meeting the deadlines, executing the tasks and getting the feedback right away. However, people with high need for achievement are not suitable for managerial roles, since they are not interested in coaching, meetings, in delegating the responsibilities etc. These activities are seen by them as a waste of their time,

while they could achieve much more by executing their own tasks and pursuing their goals.

- **Need for Affiliation.** If this need is dominant, the person is more likely to strive for interpersonal communication and belongingness. Need for affiliation drives people to spend more of their time with friends and people they like. Such people also want to be accepted by others and be liked. They depend on what other people think of them. Thus, high need for affiliation may not be good for managerial position, since on such position, one has to be strict and give critical feedbacks at some point.
- **Need for Power.** The high need for power drives people to have control over the situation and over other people. People with dominant need for power want to influence others to do the things they wouldn't do otherwise, they are interested in competitive environment and strive to achieve a higher status or position. This need is considered to be a good feature for managers due to all of the abovementioned attributes.

(Carpenter et al. 2012, 647)

This theory had a great amount of support from academic community, since it takes into account the individual peculiarities of each person. The needs in this theory are called "acquired" due to McClelland's idea of needs being acquired through individual's life experience and can be changed over time.

(ibid., 647)

In terms of human resource management, this approach differs from that of Maslow in the fact that according to Maslow every person goes through the same set of needs and can be motivated by the same things, as other individuals, at certain point. However, McClelland claims each individual has his or her own driving force and should be motivated according to this force. For example, while in Maslow's perception one individual can be at some point motivated by good interpersonal relationship and at the other point by high achievements and recognition, in McClelland's perspective the individual with high need for affiliation will not be as much motivated by achievements or promotion.

Summary of content theories

The content theories of motivation are all focused on the personal needs that people have. Hierarchy of needs and ERG theory both claim that every person should go through the same set of needs levels in his or her life. Two factors theory, in its turn, claims that these needs can be divided into two groups. Each of these groups has its own effect on the employees. However, Herzberg also thinks that these sets of needs are standard and will fit every individual. McClelland goes further in his theory and claims that there are different types of individuals, depending on what factors drive them more and which needs are predominant in the individual.

All of these theories suggest that managers should understand, what each and every employee's needs are at the moment, including what stage in the hierarchy of sequence he or she occupies at the moment. This requires a careful work with individuals and focus on their personal needs, wants and desires. Even though some of these theories may seem to be outdated, they still are valid for human resource management and are widely utilized.

2.3. Process theories of employees motivation

Process theories are mostly focused on how the individual's motivation appears and sustains in the person. These theories analyze and describe the factors that make individuals behave in a certain way or stop behaving in the other way. (Stotz & Bolger N.d.)

This section of the chapter describes such process theories, as Adams's Equity Theory, Vroom's Expectancy Theory, Locke's Goal Setting Theory, Skinner's Reinforcement Theory and Job Redesign Theory.

Equity Theory

Equity theory was developed by J. Stacy Adams in 1963. According to Adams, employees' motivation depends on how equally they are treated compared to others (Buchbinder & Shanks 2007, 28).

The following terms are important for understanding the Equity Theory:

- **Input.** The contribution of particular person to the job and the organization. The skills, knowledge, education, loyalty and experience are the attributes that are considered to be input.

- **Outputs.** What person gains from the work. Salary, experience, recognition, treatment and social rewards can be perceived by employees as outputs.
- **Input/Output ratio.** A correlation between the amount of employee's input and the amount of output he or she receives from the organization.

(Carpenter et al. 2012, 651)

In order to estimate the equity level, an employee compares his or her input/output ration with the same ration of the other person, executing the same kind of work. This can be done either internally (the ratio of the colleagues from the same organization is taken into account) or externally (the ratio of the employee from the other company(s) is taken into account). (ibid., 651)

The outcomes of such comparison may be the following:

- An employee finds treatment **equal**. If the ratios are considered to be equal by employee, he or she will be motivated to maintain the current level of contribution (input) and act in the same direction, as previously.
- An employee finds him/her-self **overrewarded**. The original theory claims that overrewarded employees tend to start working harder in order to balance out the ratio. However, further researchers on this topic have not confirmed this statement. Instead, people would rather feel their input is actually bigger than that of the referent employee.
- An employee finds him/her-self **underrewarded**. In this case, employee may feel that the situation is not fair and try to somehow balance out the ratios or even leave the situation (quit the position).

(Arnold et al. 2005, 322)

The equity may also be perceived differently by different people. Researches have found that not all the employees are that much concerned about inequity and some individuals are willing to give more than they receive. However, other individuals are willing to have a bigger output, without extra efforts.

(Carpenter et al. 2012, 654)

Adams perceived that employees are willing to balance out the inequity they observe and according to this theory they may do this in the following ways:

- **Alter their input or output.** Make their input or output either bigger or smaller in order to balance the ration. For instance, if the person is underrewarded, he or she may choose to put less efforts into their work in order to give input that equals the output he or she receives.
- **Distort the perceptions of themselves or others.** Change the way they percieve their or others inputs and outputs. For instance, if the person is overrewarded, his or her inputs may then be percieved bigger than they were initially percieved, so that the treatment would be seen as equivalent.
- **Select another referent.** A person may choose a different co-worker for comparison. For example, if employee feels underrewarded, he or she may take into account the other employee that receives the same or even less output.
- **Leave the situation.** An employee that feels inequality and is very conserned about it may dicide to change the position to the one that offers a more balanced input/output ratio or even leave the organization in favor of another one that offers fairer treatment.

(ibid., 652)

Equity theory has been further expanded by researchers into organizational justice theories. In these theories the differences were identified between the distributive and procedural justice. Distributive justice refers to person's belief, whether he or she receives fair rewards. While the procedural justice refers to person's belief, wheather the decision on who will receive which reward was carried out fairly. (Arnold et al. 2005, 323)

Expectancy Theory

Expectancy theory was developed by Victor Vroom in 1964 (Buchbinder & Shanks 2007, 28). This theory assumes that each employee asks him/her-self three following questions before starting to execute certain tasks:

1. Am I qualified enough to perform the task?
2. Will this performance actually lead to the expected outcome?
3. Is this outcome actually desirable?

(Carpenter et al. 2012, 657)

These questions relate to the three variables, identified by Vroom, respectively: expectancy, instrumentality and valence (ibid., 657). On the **expectancy** level employee is considering his or her previous experience, the difficulty of the goal and how much control they have over their performance. When it comes to **instrumentality**, employee is considering to which extent he or she trusts the supervisor's promise of a certain outcome, in case the performance was appropriate. In the question of **valence**, employee tends to consider how desirable this outcome is for him or her. (Arnold et al. 2005, 320)

According to Vroom (1964), the "Motivational Force" is the product of multiplying all of the mentioned variables, as follows:

$$\text{Motivational Force} = \text{Expectancy} \times \text{Instrumentality} \times \text{Valence}$$

Therefore, before attempting to perform one action, employee considers its motivational force and decides to execute the task with a higher motivational force, meaning that an employee is capable of performing the task on the appropriate level, the promised outcome worths the action and is desirable by the employee and person trusts the supervisor's word and believes the expected outcome will be received, in case of a high performance (Carpenter et al. 2012, 657).

From the human resource management standpoint, all of three variables can be used in order to increase the motivational force of the job duties. In order to enhance the expectancy, for example, organization might make sure that employees are capable of performing the assigned tasks. This can be done through different kinds of training for employees and development of their skills. Speaking of instrumentality, organization might make the rewarding system more transparent and visible for employees. Some rewarding programs or award systems can help in achieving this. Moreover, in order to influence valence, managers need to know what each particular employee values most in order to offer the corresponding reward or bonus for performance. In order to achieve this, some questionnaires or one-to-one meetings with employees can be used. (ibid., 657)

However, the Expectancy theory does not take into account, why exactly this or that employee values or not any particular outcome. Instead, it is more

interested in the question “How much you value something”, rather than “Why you value it?” (Arnold et al. 2005, 322).

Reinforcement Theory

Reinforcement theory was developed by Burrhus Frederic Skinner in 1953. The idea of this theory refers to the Skinner’s conclusion that the individual’s behavior may be altered by the consequences of this behavior (Buchbinder & Shanks 2007, 27). Skinner distinguishes four main type of reinforcement that may be used in order to achieve the desired behavior of the employee or remove the undesired one (Carpenter et al. 2012, 659). These types are the following:

- **Positive Reinforcement.** This method is used to increase the frequency of positive behavior. It includes encouraging the desired behavior through praising it or giving bonuses. This reinforcement should be used properly, so that employee could see the connection between the behavior and encouragement and would be motivated to repeat the action again.
- **Negative Reinforcement.** This is another method for increasing the positive behavior, but through removing the negative consequence, as soon as the desired behavior is performed. At the same time this method, when used improperly, may cause the undesired behavior to happen. For example, employee may start avoiding or ignoring the unpleasant consequence, instead of behaving in the desired way.
- **Extinction.** This method is aimed at reducing the negative behavior through giving neither positive, nor negative reaction. In other words, when using this method, manager is simply ignoring the undesired behavior of an employee.
- **Punishment.** This is another method aiming to reduce the frequency of negative behavior. This method refers to giving the negative reaction (punishment) for negative or undesired behavior.

(ibid., 659)

The systematic approach to applying the reinforcement theory has also been established and is called Organizational Behavior Modification (ibid., 660).

This includes five stages, which are the following:

1. Identifying behavior that requires modifications.
2. Determine the level of the baseline of this behavior.
3. Determine the reasons and consequences of this behavior.
4. Installing the reinforcement.
5. Measure and maintaining the behavior.

(ibid., 660)

It is also important to develop a particular schedule for reinforcement. It can be presented on continuous basis, meaning the positive behavior will be encouraged every time it is performed. Or it can be repeated on the fixed ration schedule, meaning that the behaviour will be encouraged after certain repetition of performing it. It can also be established on fixed intervals or period of time. Or it can be provided on a random basis, without any interdependences. (ibid., 660)

Goal Setting Theory

Goal setting theory of motivation was developed in 1990 by Edwin A. Locke together with Gary Latham. This theory argues that employees are mostly motivated by the properly established goals (Buchbinder & Shanks 2007, 28). The theory was proved to be valid by multiple studies on various levels of employees (Carpenter et al. 2012, 667).

However, it is not sufficient to simply give employees a goal, according to goal-setting theory, goals should possess a number of features in order to actually motivate employees to achieve them (Carpenter et. al. 2012, 667).

These features are the following:

- **Specific.** It is not sufficient to say “do your best” and wait for employee to accomplish all the assigned goals. The goals should be specific, meaning that one should be able to certainly understand what is needed from him or her and how can it be achieved.
- **Challenging.** As a matter of fact, relatively challenging goals are more likely to produce higher employee performance, than easy ones. This holds true only when employee accepts the goal and commits to it. Challenging goals tend to lead to higher rewards, which also increases employee’s interest in achieving it.

- **Feedback.** Or in other words Knowledge of Result. It is important for employee to know, how well he or she managed to complete the task and how should the goal be adjusted in future.
- **Commitment.** In order for employee to expose high performance in achieving the goal, he or she should be committed to it. Notwithstanding the fact that the goal may have all of the features, listed above, it is highly unlikely that an employee will be passionately pursuing the goal without a personal commitment.

(Arnold et al. 2005, 327)

This theory is well-accompanied by the SMART goal setting that stands for “Specific, Measurable, Achievable, Relevant and Timely”. According to this method of setting the goals, it is important for goals to be set as precise, as possible and to be measurable, meaning that numbers should be involved. For example, instead of saying “We need to increase our sales!”, it is better to rephrase it into “We need to increase our sales of product X by 20%”. It is also important to add some time limit, for instance, “by next year/month/quarter/etc”. Yet, the goal should remain achievable, meaning that, if it is not possible to increase sales by 20% in given period of time, it is better to either prolong the time frame or lower the expected increase level, otherwise employees will not be motivated by the goal. (Carpenter et al. 2012, 667)

Regardless of the fact that the goal-setting theory was highly supported by the academic community, it has also received its portion of criticism. For example, Austin and Bobko in 1985 found four aspects of the goal-setting theory that were not researched and may have caused the failure of the theory (Arnold et al. 2005, 329). Those factors are the following:

- The goal-setting approach neglects the quality-focused goals and pay more attention to the quantity-focused goals.
- The theory does not take into account that organizations often have conflicting goals and it is not possible to achieve all of them.
- The goal-setting theory is more focused on individuals, rather than groups, while in most organizations group performance can be more important.

- The goal-setting theory has not been proved to be valid in a real-work environment, outside the laboratory.

(ibid., 329)

However, after Austin and Bobko expressed their ideas, numerous research has been conducted on each of the mentioned area. For example, Crown and Rose (1995) proved the goal-setting theory can actually work on the group of people. The application of a theory outside the laboratory conditions was also proved to be valid.

However, the implication of a theory on a novel tasks can be quite harmful. Since when employees receive an unfamiliar task, the goal-setting approach can make them concentrate to much on the strategy, rather than on performance. (Arnold et al. 2005, 330)

Job Design Theory

Many motivation theories assume that motivation belong to the person or comes from within the person. However, there is also a different view on the origin of motivation. Some researchers have identified that motivation comes from the nature of work. Thus, the way the job is designed has a significant impact on the employee's motivation and satisfaction. (Carpenter et al. 2012, 662)

The "traditional" job design, according to Frederick W. Taylor, has the following tendencies: "minimizing skill requirements, maximizing management control, minimizing the time required to perform a task" (Arnold et al. 2005, 337).

The traditional job design is focused on costs minimization through reduction of labor costs. However, such design results in low motivation and satisfaction of personnel, as well as negative attitude to the job. (ibid., 337) Therefore, a significant job redesign was required and researchers have come up with the following ideas for this:

- **Job rotation.** Since variety was perceived to be important for employees, frequent job rotation could help to achieve it. In this method, people move around the set of similar jobs.

- **Job enlargement.** Enlargement can be either horizontal or vertical. Horizontal enlargement brings more similar tasks to the employee's job, increasing variety. Vertical enlargement brings more responsibilities and more challenging tasks, this gives employee some autonomy and freedom in decision-making.
- **Semi-autonomous work groups.** In this method, a group of employees may be assigned a task and is entitled to decide how to go about accomplishing it. This also gives employees more autonomy and decision-making responsibilities.
- **Self-managing teams.** This method refers mostly to the groups of a higher-level employees (professionals, managers, etc.). Here employees are also given more autonomy to decide how to accomplish the tasks and sometimes even to decide what are the tasks themselves.

(ibid., 339)

The other solution for job redesigning was suggested by Hackman and Oldman (1976, 1980) and was called "Job characteristic model". This model includes five main characteristics, which are important for job satisfaction and motivation of personnel. (Carpenter et al. 2012, 665) These characteristics are the following:

- **Skill variety.** Identifies, to which extent this particular job requires a variety of skills.
- **Task identity.** Identifies, whether the job produces the whole outcome, as oppose to just some part of an end product.
- **Task significance.** Identifies, to which extent the particular job influences the work or life of other people.
- **Authonomy.** Identifies, to which extent an employee is eligible to make decision and choices during their working process.
- **Feedback from job.** Identifies, to which extent the job gives employee information on how well it was done. This does not include the feedback from other people.

(Arnold et al. 2005, 341)

Skill variety, task identity and task significance are considered to be influential towards what is called '*experienced meaningfulness of the work*', while autonomy influences '*experienced responsibility for outcomes of the work*' and feedback from the job affects '*knowledge of the actual results of the work*'. All of these states result in high motivation, satisfaction and work effectiveness, according to Hackman and Oldman (1980). (Arnold et al. 2005, 341)

Summary of Process theories

All of the process theories are focused on the external factors that affect the employee's motivation and job satisfactions. They tend to tell more about either employee's reaction to some external situations or the external reaction to some employee's actions (like in reinforcement theory, for example), rather than focusing on more personal and deep causes for satisfaction or dissatisfaction and on employee's need. Thus, such theories seem to be more applicable for the big organization, where it is highly unlikely that a manager has time and resources to follow each employee's personal development in terms of needs and aspirations. However, some amount of personal work with employees is still required in these theories.

2.4. Employee Motivation in IT industry

A great number of research has been previously made in the field of motivation and job satisfaction of IT staff. However, this topic is still relatively new and not fully researched, due to the fact that the IT industry itself is growing and changing rapidly and new aspects of it appear every year, if not every month.

IT Staff Motivation and Development by Mike Sisco

Mike Sisco (2001) in his book "IT Staff Motivation and Development" has shared some basics of how to manage IT employees correctly in order to motivate them to work more productively that he gleaned from his experience of leading the IT organization and working in IBM.

First of all, according to Sisco (ibid., 1) a manager needs to assess the employees. Understand, what drives them, in order to find what can be used to motivate them. A manager at this point is to identify the employees' individual

needs and wants, as well as their career needs and wants. The one way to do this is to ask an employee directly, what is it he or she wants and needs, in some cases employees might need some help in identifying, what is important for them. (ibid., 2)

Sisco (ibid., 5) claims that the broad categories of individual's needs and wants include: security, money, job satisfaction, title or position, flexibility, continued education and learning opportunities, part of winning team or company, working for strong management, positive work environment, being needed, recognition.

After manager identifies what drives employees, he or she should implement some actions in order to promote these motivators. After individuals' needs, Sisco (ibid., 6) turns to team needs. Author claims that teams, just like individuals, also have their personalities, desires and needs. Therefore, it is also important to identify, what drives the team and what actions should be implemented to motivate them. The motivators of the teams in the organization are usually the following: success, clear vision, defined plans, understanding the importance of the group's mission, strong management, defined objectives. The motivators can be again identified through direct discussion with the team. (ibid., 7)

The next important step, identified by Sisco (ibid., 7), is setting goals and objectives. In this aspect Sisco (2001) supports the Locke's and Latham's (1990) idea of importance of goal-setting for employees' motivation, which was described earlier in this paper. Author claims that a clear goal and vision may result in a powerful motivator for the employees (Sisco 2001, 7).

The clear goals should be established at all the levels of the IT company: the organization itself, each department, each team within department, individual resource. The levels here are listed in the priority order, meaning that manager should start from identifying the goal for the whole organization and go down the levels to each individual person. This way the goals of the lower-levels will be aligned with the organization goal. (ibid., 8)

After the individuals' motives are identified and the goals are established, a manager may start working towards achieving the goals and helping employees

to satisfy their needs and wants. This can be done through establishing a performance plan, a training plan for employees and a career plan. These plans should be developed, keeping in mind the company's needs and each team's needs. (ibid., 11)

Sisco (ibid., 25) also claims that the other important step in motivating the IT employees is empowerment. It creates a more productive and dedicated staff. This should be implemented on every level of the organization and should go to the extent, required for the company to run almost on its own, without manager supervising every step of the employees. (ibid., 25)

Then manager should also pay attention to reinforcing the team, since it's the team and its members, who create success. Both victories and defeats should be shared in a team. It is important to appreciate every individual's work and express it directly, reward the correct and desired behavior of the employees and reward their accomplishment in their work. (ibid., 26)

We can now safely assume that Sisco (2001) has gleaned many of his methods from the theories of motivation, listed previously in this chapter. The goal-setting theory is considered by Sisco (2001) to be the best motivator for the IT staff. Some of his ideas have also derived from the needs-based theories, like importance of recognition and employees' professional growth, importance of understanding the employees' needs and wants. He has also expressed some ideas, considering reinforcement, saying that the desired behavior should be noticed and rewarded. (ibid.)

Motivation in Software Engineering: A systematic literature review

In 2007 a group of researchers from University of Hertfordshire and The Open University conducted a systematic literature review of different articles, researches and other papers on topic of motivation of Software Engineers. The objective of their study was to identify, whether Software Engineers could be considered to be a homogeneous group, which factors motivate them, and which can demotivate and what models are used in Software Engineering sphere to address the employees' motivation. (Beecham et al. 2007)

For this study, researchers have selected 92 papers from 70 different authors that answered at least one of their research questions, which were the following:

1. What are the characteristics of Software Engineers?
2. What (de)motivates Software Engineers to be more (less) productive?
3. What are the external signs or outcomes of (de)motivated Software Engineers?
4. What aspects of Software Engineering (de)motivates Software Engineers?
5. What models of motivation exist in Software Engineering?

(ibid.)

After carefully selecting the appropriate papers, the researchers have presented the results on each separate research question in form of statistics of frequency, which this or that factor was mentioned in the reviewed literature (ibid.).

Question 1 – Software Engineer characteristics. Out of all the selected works, 43 papers answered this question. These papers identified total of 24 characteristics of software engineers. Researchers have divided these characteristics into three main groups: “raw” characteristics, control factors (of whether an individual will possess the characteristics), moderators (the strength of the characteristics in the person). (ibid.)

A total of 16 raw characteristics were defined, the most commonly mentioned of which were: growth oriented, introverted (low need for social interactions) and autonomous (need for independence). As for control factors, three of them were defined and the most commonly cited was personality traits (e.g. introverted, thinking). And finally, five moderators were identified, of which career stage and culture were the most commonly cited. (ibid.)

Question 2 – (De)motivators for Software Engineers. The total of 62 papers have answered this question. Here, again, researchers have distinguished three groups of factors: motivators, demotivators and implementation factors (issues that influence how effective the motivators will be). (ibid.)

Out of 21 identified motivators, the most commonly cited was identify with the task (meaning having the clear goals, personal interest, clear purpose of tasks, etc.). The other popular factors were: employee involvement and good management. Among 15 demotivating factors, the most commonly mentioned were: poor working environment, poor management and poor pay, as well as lack of promotion opportunities. Researchers have identified five implementation factors that have to be considered before implementing the motivators, and the job-fit factor was the most commonly mentioned in the papers, followed by tailoring practices and temporal effects. (ibid.)

Question 3 – The external signs and outcomes of (de)motivated Software Engineers. A total of 18 papers have answered this question and six external signs were identified among them. The most commonly mentioned was retention, as an outcome of the (de)motivated software engineers, meaning that the motivated employees are more likely to stay in the company, than demotivated employees. (ibid.)

Question 4 – The aspects of the work that (de)motivate Software Engineers. Again 18 papers have answered this question and a total of nine aspects were identified from these papers. The most cited ones were change and challenge, followed by problem solving and benefit. Meanwhile, only demotivating factor, related to the nature of work itself, was identified in only two papers, which was software process/lifecycle – maintenance. As well, as only one implementation factor, related to the nature of work, was identified, which was again job-fit, mentioned in five studies. (ibid.)

Question 5 – Models of motivation in Software Engineering. The total of 17 studies have answered this question. eight models were identified in these papers and the most common ones were: job characteristics theory model and models, focusing on software engineer job satisfaction. (ibid.)

In conclusion, the researchers noted that the greater amount of studies on motivation of Software Engineers appeared after 1995, compared to the previous years (ibid.).

3. Methodology

In terms of methodology for this study, the author decided to adopt the mixed-method approach, combining the qualitative and quantitative data collection methods in one study. This method helps utilizing the strengths of both quantitative and qualitative methods of data collection and bring more value to the research (Östlund, Kidd, Wengström & Rowa-Dewar 2010).

The aim of this study was to form an understanding of what aspects of working life influence the employees' turnover and retention rates and how those factors could be managed and improved. The overall employees' motivation was also taken into account and its correlation with the turnover intentions was studied within the research.

3.1. Mixed method research

The idea of the mixed method approach was initially introduced by Campbell and Fisk in the 1959, when the researchers utilized the mixed method in their study of the validity of psychological traits. The researchers also encouraged others to use the two methods of data collection in tandem. After that, triangulation was developed by Jick in 1979 as a means for seeking convergence between the qualitative and quantitative methods of data collection. (Creswell 2009, 14)

The mixed method approach gained popularity quite quickly due to allowing to examine the same situation from different perspectives, as well as due to enriching the understanding of the phenomenon through discovering the deeper dimensions. Jick (1979) states that the mixed method approach allows to neutralize the weaknesses of one method by the counter-balancing strengths of another method. In the mixed method research, it is important to not only collect and analyze both kinds of data, but also to successfully use them in tandem in order to improve the overall strength of the research and make it better than just qualitative or quantitative research separately (Creswell 2009, 4).

Eventually, the researchers started to integrate the two data types together, and the results from one method could be used to identify the usage of the other method. Alternatively, for example, two data types could be merged into

one database and analyzed together in order to reinforce each other. (ibid., 14)

The following table compares the three methods of data collection:

Table 1.3 Quantitative, Mixed, and Qualitative Methods		
Quantitative Methods	Mixed Methods	Qualitative Methods
<ul style="list-style-type: none"> • Pre-determined • Instrument based questions • Performance data, attitude data, observational data, and census data • Statistical analysis • Statistical interpretation 	<ul style="list-style-type: none"> • Both pre-determined and emerging methods • Both open- and closed-ended questions • Multiple forms of data drawing on all possibilities • Statistical and text analysis • Across databases interpretation 	<ul style="list-style-type: none"> • Emerging methods • Open-ended questions • Interview data, observation data, document data, and audio-visual data • Text and image analysis • Themes, patterns interpretation

Figure 7 Quantitative, Mixed and Qualitative Methods (Creswell 2009, 15).

During the stage of planning mixed method research, the following four aspects should be considered:

Timing: Timing of the data collection should be considered. This refers to determining, whether the quantitative and qualitative data will be collected simultaneously or in phases (sequentially) and which data type should be collected first (ibid., 206). In this research, it was decided to collect the data simultaneously, meaning that no specific order of the data collection was not developed due to the fact that the two data types collected do not depend on each other.

Weighting: This factor refers to prioritizing, meaning that researcher has to determine which method of data collection has which weight in the research. These priorities depend on the interests of the researcher, as well as on what the researcher wants to emphasize in the study more (ibid., 206). In terms of current research, the quantitative data collection had a higher priority, since it is the main part of the study, which answers the main research questions. The qualitative data collection had lower priority and served as supportive data for the quantitative method results and was used in order to interpret the quantitative data and draw the conclusions.

Mixing: It is important to determine, how the data should be mixed in the study and when should it be done. Mixing can happen during the data collection, analysis, interpretation or at all of these stages. In terms of “how” mixing can be done, there might be the following ways: connecting, integrating or embedding (ibid., 207). In case of current study, the embedding is used, meaning that the actual data is not directly connected or integrated, but one set of data is used as a supportive information.

Theorizing: This factor refers to whether the theories and/or frameworks will be explicitly or implicitly used in the study (ibid., 208). In this study, the theories are explicitly used and guide the entire research.

According to the decisions made in terms of these four factors, the corresponding strategy was chosen for the research. The Concurrent Embedded Design is a proper strategy for this study, since the data is collected simultaneously and is mixed in the embedding way, meaning that qualitative data serves as a support for the quantitative method findings. In this method, different data types can answer different questions, so that one will play the role of supportive data, while the focal point is on the other type of data. In this case, the data may be seen as two different pictures, used for understanding the overall problem. (ibid.9, 214)

The figure below shows the different kinds of concurrent designs, from which researcher can choose, based on the preferred timing, mixing method, etc. The Concurrent Embedded Design is seen as a big picture with the smaller part inside, where both of them are analyzed together.

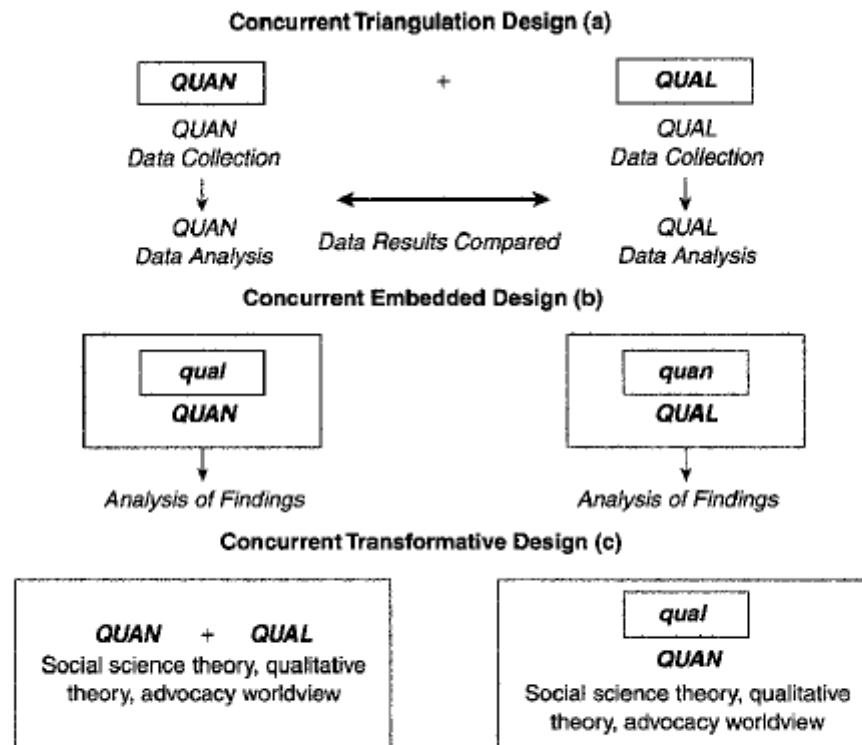


Figure 10.3 Concurrent Designs

SOURCE: Adapted from Creswell et al. (2003).

Figure 8 Concurrent Designs (Creswell 2009, 210)

3.2. Quantitative data collection

The quantitative data collection for this study was performed based on the Job Satisfaction Survey, developed by Paul Spector in 1985. This survey consists of 36 items that are to be scored by the respondents on a scale from one to six, where score one represents strongest agreement, while score six represents strongest disagreement (Spector 1985). These 36 items are divided into nine facet subscales (four items per facet), which Spector (ibid.), based on the literature review, identified to be the “aspects of job satisfaction”.

Back in 1985 Paul Spector realized the Employee Job Satisfaction was not sufficiently studied in the human service public and nonprofit organizations. Moreover, the existing job satisfaction scales could not apply to the listed areas. Therefore, Spector decided to design a brand-new job satisfaction instrument to measure job satisfaction in human service. However, it can be also successfully applied in other spheres, as noted by Spector (1985).

The nine job satisfaction facets, included in the survey, consist of: Pay, Promotion, Supervision, Benefits, Contingent rewards, Working Conditions, Coworkers, Nature of Work, Communication. Out of 36 items, 19 items are negatively worded, meaning that in order to assess the job satisfaction, based on these items, researcher needs to reverse their scaling, so that for negatively worded items scale six equals to one and vice versa.

Spector's Job Satisfaction Survey was successfully applied in over 50 different researches, including the studies in IT industry. This survey has proved its validity and has gained a notable popularity among researchers in the employee job satisfaction, employee turnover, employee retention and many other topics, related to human resource management and employee satisfaction. (Spector 2011)

However, since the main purpose of this study is to evaluate the correlation between the employee job satisfaction and turnover intentions, the author was in a position to slightly modify the Spector's survey by adding the section on Turnover Intentions, consisting of four items (two positively worded and two negatively worded items). Therefore, the analysis of the quantitative data was mainly focused on assessing the correlations between each of the nine aspects of the job satisfaction and the turnover intentions, assessed in the last section.

In addition, the demographic section was also included into the employee retention survey in order to assess also the correlation between the turnover intentions and demographical factors. This part consisted of seven questions, including age, gender, employment duration, education, position in the organization and country of employment (since the case company for this research is operating in five countries around Europe).

The survey was created using the online survey service, which ensures the anonymity of the respondents and helps to gain the responses as fast, as possible, since filling out such online survey takes only around 15 to 20 minutes per person. A link to the survey was distributed among the company employees by the company HR manager, which ensured a higher reply rates and quicker replies. Thus, after two weeks of collecting the data, the survey reckoned 63 responses, eight of which were omitted due to the fact that some

questions were left without answers. In total, 55 responses to the survey were collected using the quantitative data collection method.

3.3. Qualitative data collection

In addition to the quantitative data collection, the qualitative method was applied. In the scope of this part of the research, the author conducted a series of structured interviews with the managers from the case company. The main purpose of the interviews was to obtain an understanding of how the current turnover situation is perceived by the managers, what are the possible causes of this situation, how it is tackled at the moment and how, in their opinion, it should be handled. The interviews were organized through e-mails, allowing participants to have some time to think over the questions and prepare the answers.

Five managers were selected from the company with the help of the company's representatives and were asked the following questions:

1. What is your opinion about the rate of voluntary turnover in your organization? Is it high or low?
2. Do you think that voluntary turnover is an issue?
3. What factors in your opinion impact the employee's turnover intentions?
4. How do you think those factors can be reduced or eliminated?
5. What is your organization currently doing to reduce voluntary turnover?

After the responses to these questions were collected, the author proceeded to the analysis part.

3.4. Data analysis

Quantitative data analysis

The quantitative data in this research was first analyzed through exploratory data analysis, in which the minimum, maximum and mean values for each separate variable (both dependent variable and independent variables) will be

presented and discussed. The results will be presented in the pie charts and bar charts to illustrate the highest and lowest values.

After that, the correlation between the score of the job satisfaction facets and the score for the turnover intentions was analyzed using the correlation coefficient matrix. The correlation coefficient is expressed as a number from -1 to 1, representing the strengths and the direction of the correlation. -1 coefficient represents the perfect negative correlation (when one variable goes up, the other variable goes down to the exact same extent), while 1 coefficient represents the perfect positive correlation (when one variable goes up, the other variable also goes up to the same extent). The lower numbers represent weaker correlation and 0 coefficient says there's no correlation and the variables are totally independent (see Figure 9). (Saunders, Lewis & Thorhill 2009, 459)



Figure 9 Values of the correlation coefficients (Saunders et al. 2009, 459)

Qualitative data analysis

Since qualitative data were collected through email interviews, it has already been in the electronic format, suitable for data analysis. Thus, no transcribing or other similar methods of data processing was used before starting the data analysis. However, the electronic data still had to be reviewed before the analysis part in order to remove the possible typographical errors. (Saunders et al. 2009, 487)

For analyzing these data, the process of summarizing of meanings was undertaken. For each of the interview questions, author summarized the answers, received from all of the respondents. Thus, author got the picture of the overall situation in the company, regarding the topics, risen in the interview questions.

3.5. Reliability and validity

The reliability of this study is ensured by careful research design, data collection and data analysis, as well as by comprehensive literature review on the subject. All of the research phases were explicitly described by the author in this thesis, as well as all of the choices made through working on this paper.

The research method was carefully selected by the author after studying the corresponding literature and reading the previous similar researches. The method has proven its effectiveness in such kinds of studies. It allows researcher to study the subject deeper and more broadly, looking into issues from different perspectives and angles.

Considering the quantitative part of the research, the amount of respondents was big enough to make the predictions about the population, without knowing the population's standard distribution. The questionnaire was also conducted online through the specific survey tool that ensures the anonymity of the respondents. In author's opinion, this leads to the higher rate of the honest replies from the respondents.

As a template for questionnaire, the Job Satisfaction Survey, designed by Spector (1985), was selected. This survey has already proven its validity in over 50 different researches, performed all around the world in different industries and with different levels of employees (Spector 2011). This survey was utilized together with the standard demographic questions and several items, related to the turnover intentions.

As it is seen from the demographical part of the quantitative data, the respondents belonged to different age categories, had different working experience, job position and education. The respondents were also of both genders, notwithstanding the fact that the percentage of men was significantly higher. This variety leads to a broader and more diverse understanding of the phenomenon. The research also included different kinds of IT workers, without focal point on Software Development Engineers only, as it can be seen in the previous researches of this topic. This fact also points out to the more diverse understanding, not limited to only one perspective.

The managers that participated in the interviews, performed during the qualitative data collection, were also quite aware of the current situation in the company and were willing to help with the research in order to obtain the beneficial results for the company. Thus, author may conclude that their responses were also reliable and honest, since they represent the interested party and are motivated to obtain the most valuable results.

4. Research results

The research part of this study took approximately one month. The quantitative data was collected first, due to the relative easiness of collecting it through the internet. The qualitative data was collected later, not intentionally, but mostly due to the human factors, since interviews are more demanding in terms of conducting than an internet-based questionnaire. The whole research was performed with the help of a case company representative, who distributed the questionnaire link among the company employees, as well as the interview questions among the managers. This way of distributing has proven its effectiveness due to allowing the researcher to obtain the required number of responses in a relatively small timeframe.

4.1. Questionnaire

The quantitative data was initially divided into the three following parts:

1. Demographics
2. Job satisfaction
3. Turnover intentions

Thus, the data was analyzed by the author in the same order. First of all, the big demographic picture was developed and then the job satisfaction and turnover intentions parts of the questionnaire were analyzed with the help of descriptive statistics and correlations matrixes.

As it was already mentioned earlier, the survey received 63 responses. Eight of them lacked responses to some questions, and they were, thus, omitted, leaving 55 responses to be analyzed in the quantitative part of the research.

Part one: Demographics

Enoro Oy is a multinational company, which is currently working in five countries across the Europe. Therefore, the first question of the questionnaire was meant to specify from which countries the respondents were and analyze the data based on this. However, despite the fact that the company is multinational, out of 55 responses, 48 were from Finland, three from the Netherlands, two from Switzerland and one from Sweden (see Chart 1).

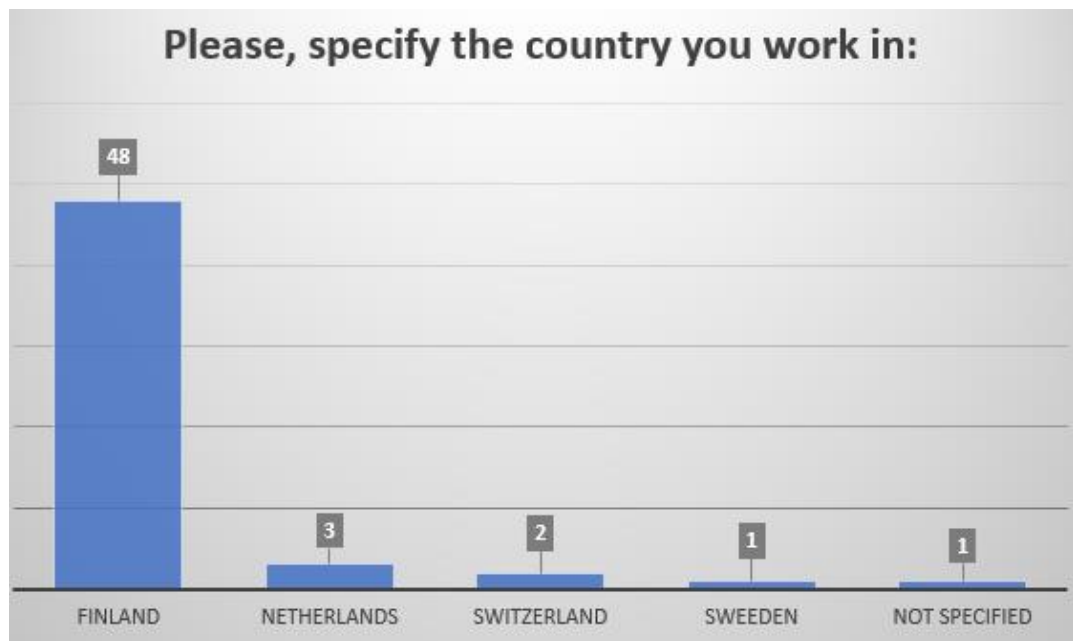


Chart 1 Question 1: Please, specify the country you work in.

In the next question about the respondents' age, there were five options to choose from: under 20, 20-29, 30-39, 40-49 and 50-59. As we can see from the answers, most of the respondents (45% or 25 people) belonged to the 30-39 age group. The next 36% or 20 respondents were between 40-49 years of age. The third option received 13% of the replies, meaning that seven respondents belonged to the 50-59 age group. Finally, the least common age group among the respondents was that of 20-29 year olds, which was only 6% or three people.

According to this statistic, we can say that the statement about the IT workers being mostly from 27 to 39 years old that was published in Business Insider (Pelison et. al. 2017) is definitely correct in the case of Enoro Oy.

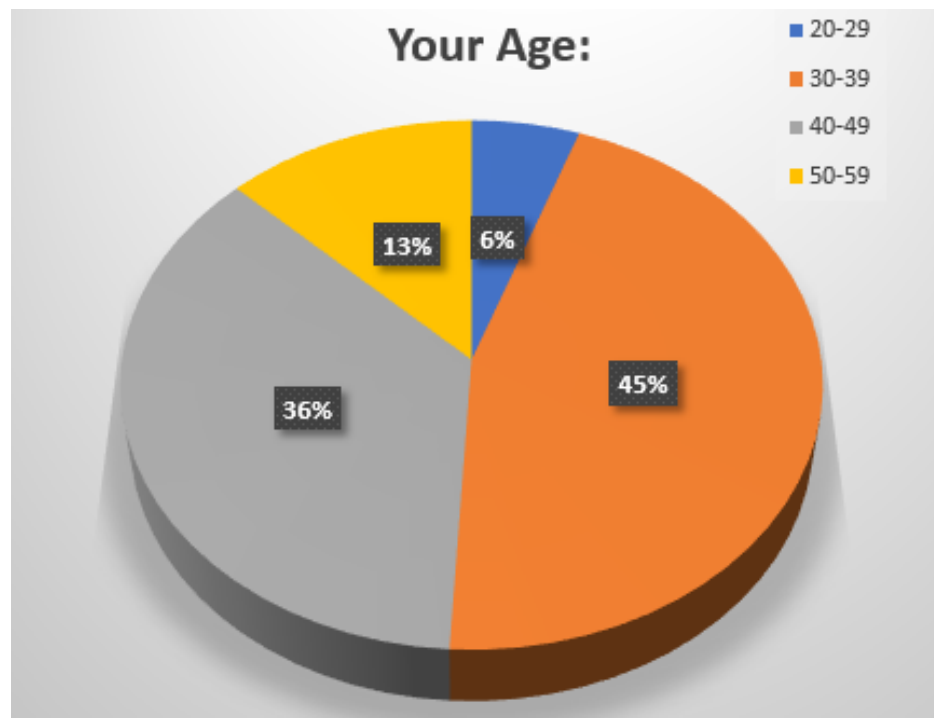


Chart 2 Question 2: Your age

The next question was regarding the respondents' gender.

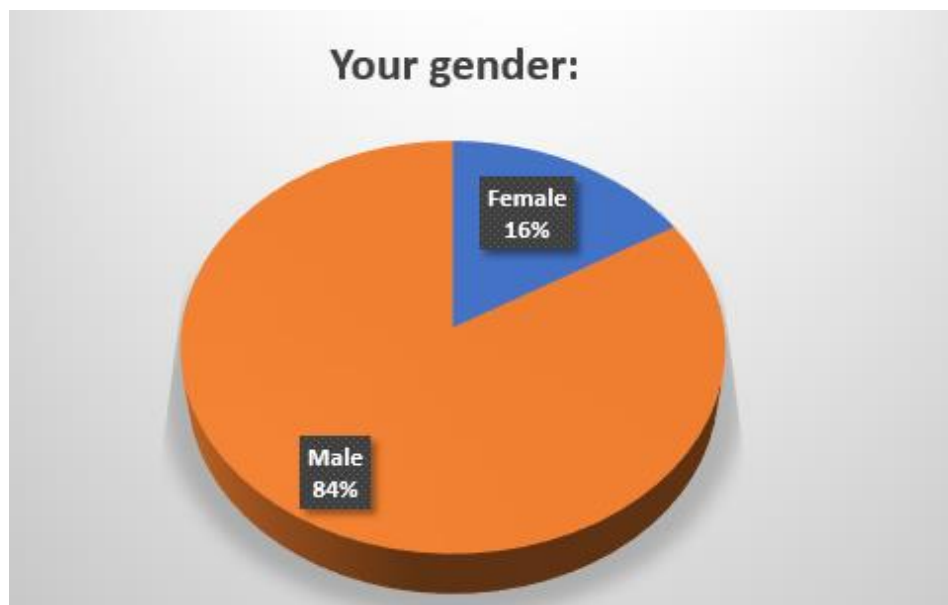


Chart 3 Question 3: Your gender

On Chart 3 we can see that in terms of gender, Enoro Oy is predominantly a male company, with males occupying 84% (46 respondents), while the females have 16% (nine respondents). A slightly negative correlation (-0,33) was also found between the gender and experience variables in the second data analysis par, meaning that the women tended to have less working expe-

rience in this particular company. However, a slightly positive (0,34) correlation can also be observed between the gender and the position in the organization, meaning that women are somewhat more likely than men to occupy the managerial positions.

The next question was about the level of education of the respondents.

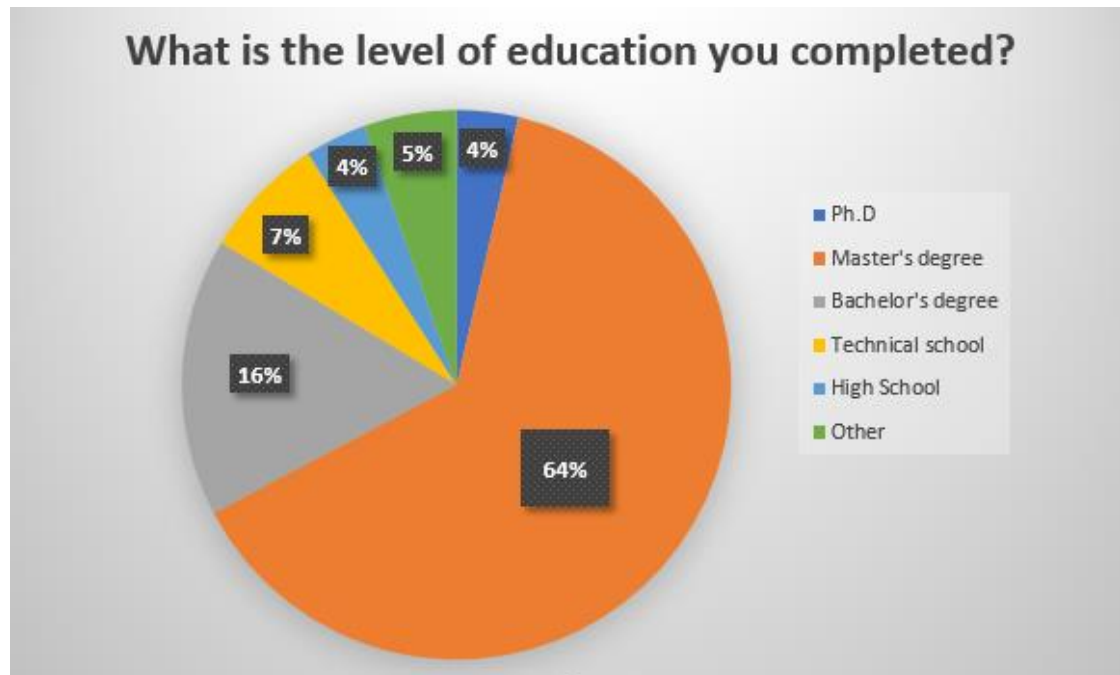


Chart 4 Question 4: What is the level of education you completed?

According to the responses to this question (see Chart 4), most of the respondents have completed the Master's Degree (64% or 35 people). 16% of the respondents (or nine people) have completed the bachelor's degree and the rest 20% of respondents have selected the other four options (Technical school, High school, Ph.D. and Other).

The question five asked for how long the respondent have worked in the current company. For this question, respondents had six options to choose from less than one year, 1-5 years, 6-10 years, 11-15 years, 16-20 years, over 20 years. As it can be seen on Figure 13, most of the respondents, (18 people or 33%) have selected the option 6-10 years. Then 13 people or 24% of respondents have worked for 1-5 years in the company. Nine people or 16% have worked for less than one year, seven employees or 13% of respondents have worked for 11-15 years in the company and eight people or 14% of the

respondents have worked for over 16 years in the current company, two of them have been working for over 20 years already.

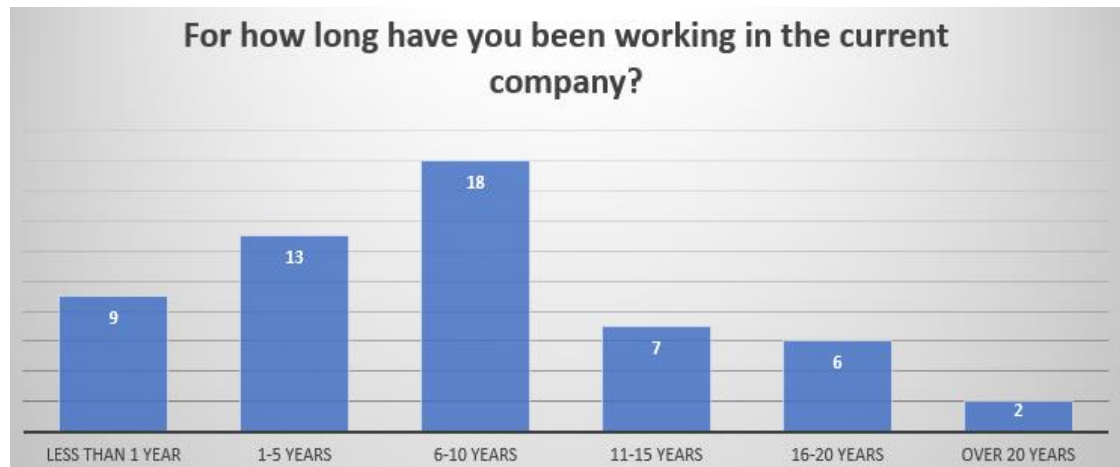


Chart 5 Question 5: For how long have you been working in the current company?

The last question was about the position, the respondent currently occupies in the organization.



Chart 6 Question 6: What is your position in the organization?

This question had four options for respondents to choose from: managerial, engineering, other production position (including business analysts, designers, etc.) and other non-production position (including the company office managers, genitors, support services, etc). As we can see from the managerial (40% or 22 respondents) and engineering (49% or 27 respondents) are quite close to each other in numbers and occupy a big

amount of the graph, while other production positions only account for 11% (six respondents) and none of the respondents belonged to the non-production group.

This is the results of the demographics part, which will be further analyzed together with the main part of the questionnaire in order to find the possible correlations between the demographical aspects and the employee satisfaction and/or turnover intentions.

Part two: Job satisfaction

The biggest part of the questionnaire is based on the Spector's (1985) Job Satisfaction Survey and has 36 items (statements). These questions are conditionally divided into nine parts (four items per part), each of which represents one of the employee satisfaction facets: Pay, Promotion, Supervision, Benefits, Contingent rewards, Working Conditions, Coworkers, Nature of Work, Communication.

Therefore, these facets will be analyzed separately in order to gain the understanding of the current level of employee satisfaction regarding each separate factor and after that to analyze, if there are any statistically significant correlations between each separate satisfaction facet and the level of turnover intentions.

Pay

The items, related to this facet where the following:

1. I feel I am being paid a fair amount for the work I do.
2. Raises are too few and far between.
3. I feel unappreciated by the organization when I think about what they pay me.
4. I feel satisfied with my chances for salary increases.

As we can see, two of the items are negatively worded and should be reversed for analysis. In order to reverse the items scores, author has decided to subtract each original score for the negatively worded items from seven. This way score six becomes one and score one becomes six. After transposing the scores, author has summed the values for these four items and has calculated the mean satisfaction level for this facet. The possible

scores for each of the facets in the survey vary from four to 24 (four items with one being the lowest score and six being the highest score).

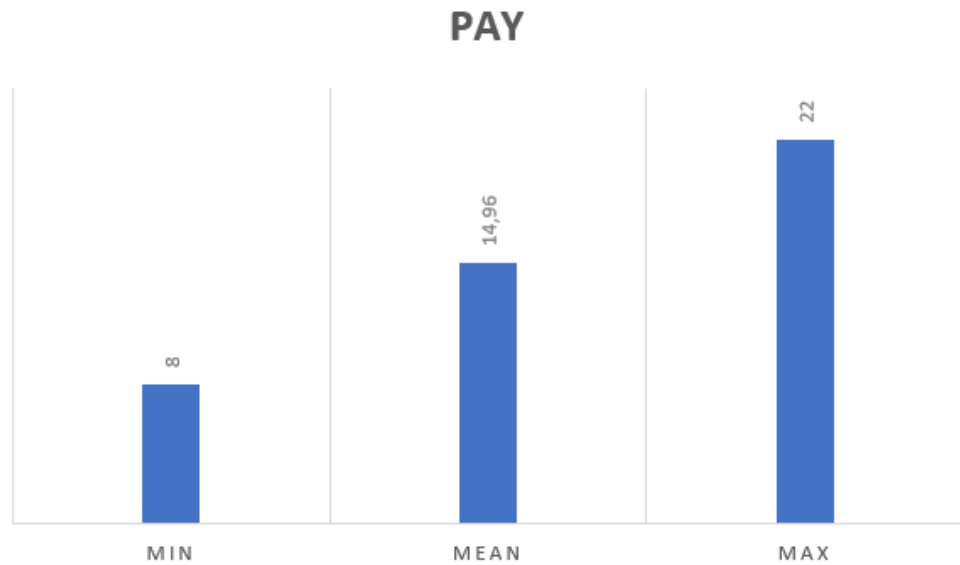


Chart 7 Satisfaction with Pay

As a result, the mean satisfaction level on this facet is 14,96, with the min score among respondents is eight and the max score is 22 (Chart 7).

Promotion

The next facet is Promotion and four items for this facet are the following:

1. There is really too little chance for promotion on my job.
2. Those who do well on the job stand a fair chance of being promoted.
3. People get ahead as fast here as they do in other places.
4. I am satisfied with my chances for promotion.

In this case only one item was negatively worded, the first one, so author had to reverse the scores for this item the same way it was done in the previous part.

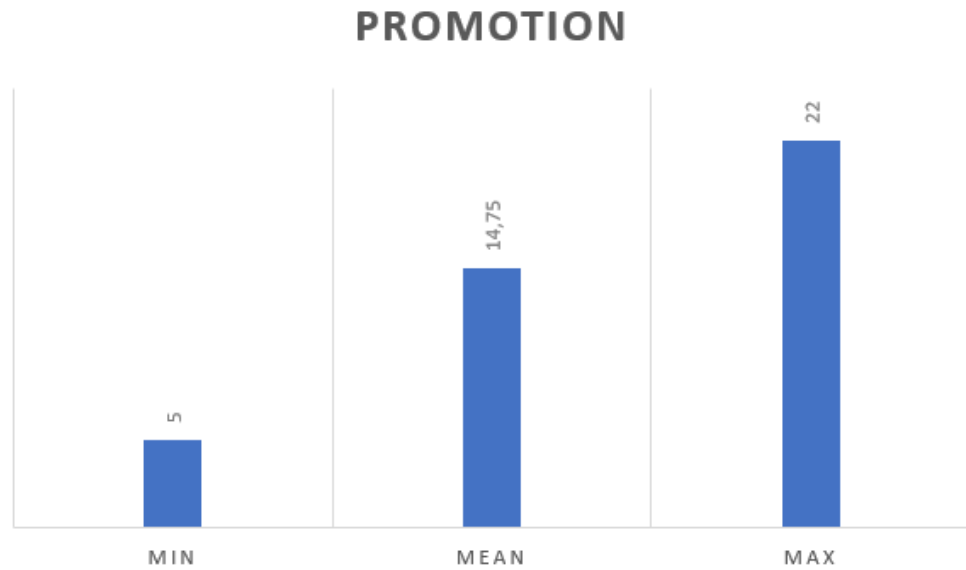


Chart 8 Satisfaction with Promotion

In case with promotion satisfaction, the results are quite close to the pay satisfaction. The mean score is 14,79, while the min score among respondents is five and the max score is 22 (Chart 8).

Supervision

This facet included the following four items in the questionnaire:

1. My supervisor is quite competent in doing his/her job.
2. My supervisor is unfair to me.
3. My supervisor shows too little interest in the feelings of subordinates.
4. I like my supervisor.

Two of the items here (numbers two and three) have to also be reversed before analyzing.

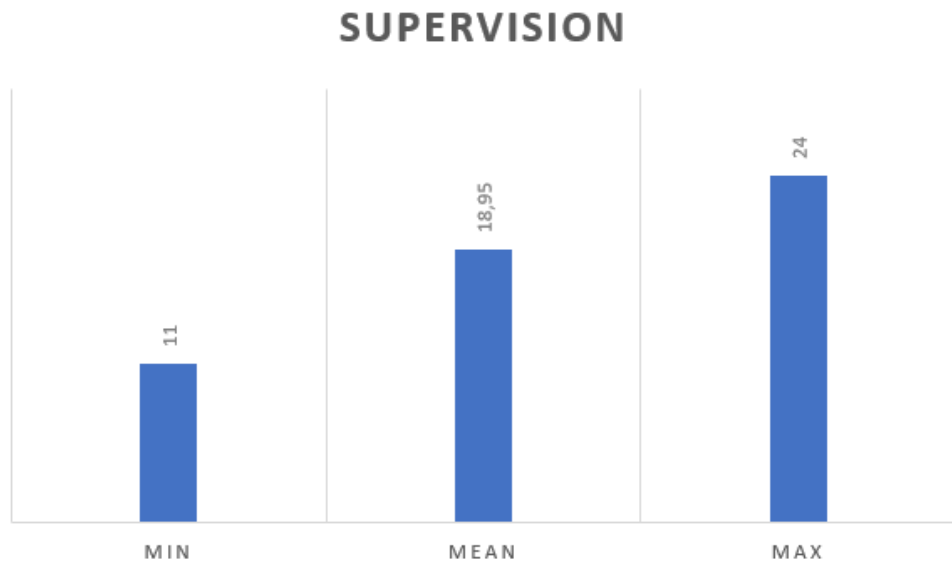


Chart 9 Satisfaction with Supervision

The Supervision facet scored relatively high in the questionnaire and got the score 18,95 as a mean, with min score being 11 and max score being 24 among the respondents (Chart 9).

Fringe benefits

The next facet is Fringe Benefits and the following four items in the questionnaire belonged to this facet:

1. I am not satisfied with the benefits I receive.
2. The benefits we receive are as good as most other organizations offer.
3. The benefit package we have is equitable.
4. There are benefits we do not have which we should have.

The scores for items number one and number four were reversed for analysis.

FRINGE BENEFITS

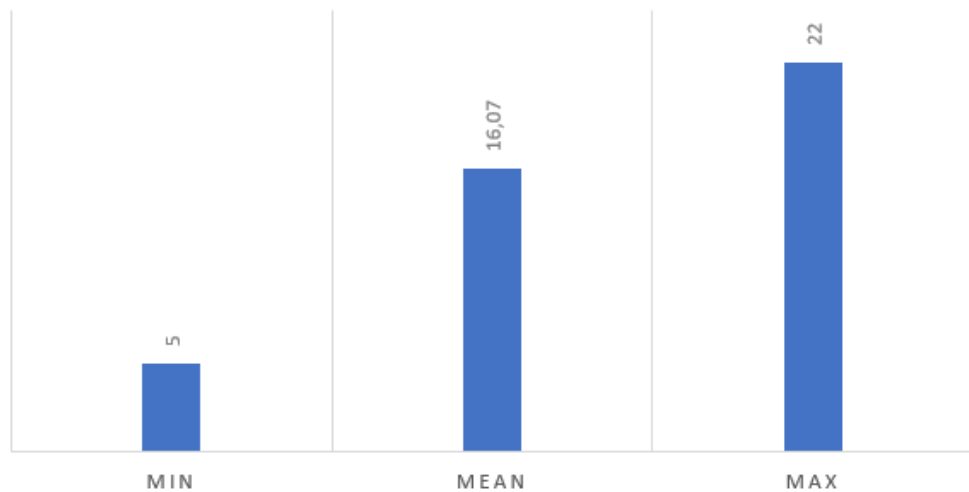


Chart 10 Satisfaction with Fringe Benefits

As it can be seen from the graph above, this facet scored 16,07 as a mean, with min score of five and max score of 22 among respondents (Chart 10).

Contingent rewards

The Contingent Rewards facet was associated with the following four items:

1. When I do a good job, I receive the recognition for it that I should receive.
2. I do not feel that the work I do is appreciated.
3. There are few rewards for those who work here.
4. I don't feel my efforts are rewarded the way they should be.

In this case three items out of four are negatively worded and have to be reversed for the analysis: number two, three and four.

CONTINGENT REWARDS

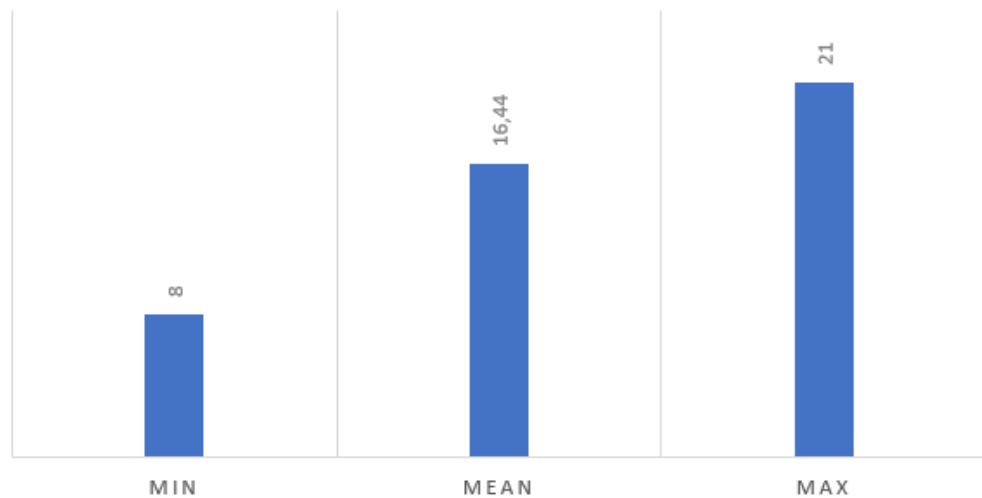


Chart 11 Satisfaction with Contingent Rewards

As a result, Contingent Rewards scored a mean of 16,44, with min score of eight and max score of 21 (Chart 11).

Operating conditions

This facet was analyzed with the following four items in the questionnaire:

1. Many of our rules and procedures make doing a good job difficult.
2. My efforts to do a good job are seldom blocked by red tape.
3. I have too much to do at work.
4. I have too much paperwork

Among these items, three are negatively worded and had to be reversed for further analysis: number one, three and four.

OPERATING CONDITIONS

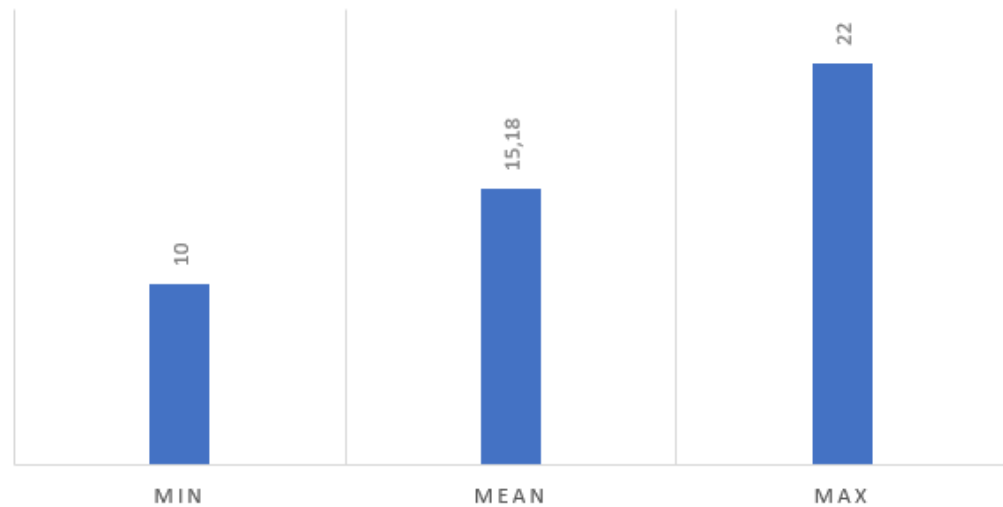


Chart 12 Satisfaction with Operating Conditions

Operating Conditions has a mean score of 15,18, which min score of ten and max score of 22 (Chart 12).

Coworkers

The items from the questionnaire that were related to Coworkers satisfaction are the following:

1. I like the people I work with.
2. I find I have to work harder at my job because of the incompetence of people I work with.
3. I enjoy my coworkers.
4. There is too much bickering and fighting at work.

Among this four items two are negatively worded and have to be reversed: numbers two and four.



Chart 13 Satisfaction with Coworkers

As a result, this facet has scored 19,27 as a mean, with the min score of twelve and the max score of 24 (Chart 13).

Nature of work

This facet was reproduced by the following four items in the questionnaire:

1. I sometimes feel my job is meaningless.
2. I like doing the things I do at work.
3. I feel a sense of pride in doing my job.
4. My job is enjoyable.

One (number 1) of these four items was reversed before analyzing.

NATURE OF WORK

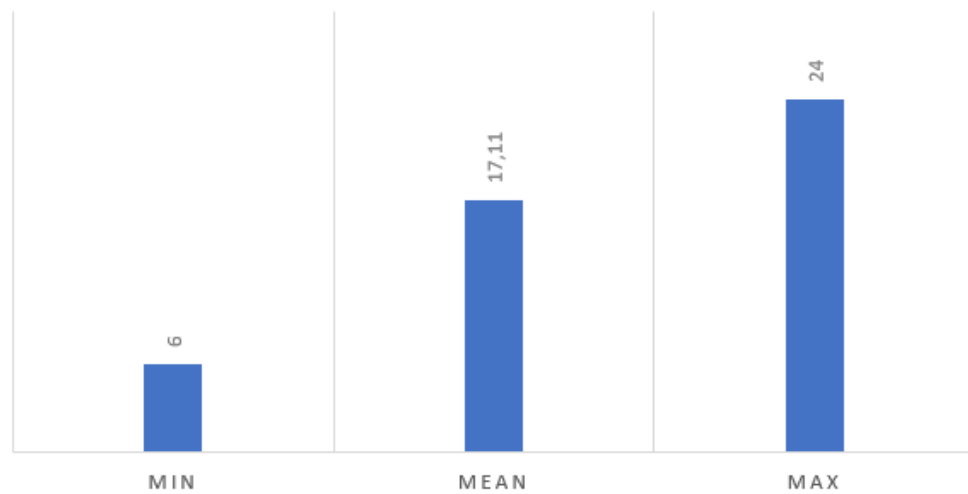


Chart 14 Satisfaction with Nature of Work

As a result, for this facet the mean score is 17,11, with min score of six and the max score of 24 (Chart 14).

Communication

This is the last employee satisfaction facet, used in the survey. The items, related to this facet are the following:

1. Communications seem good within this organization.
2. The goals of this organization are not clear to me.
3. I often feel that I do not know what is going on with the organization.
4. Work assignments are not fully explained.

For this facet, three items were negatively worded: number two, three and four. The scores for these items were reversed.

COMMUNICATION

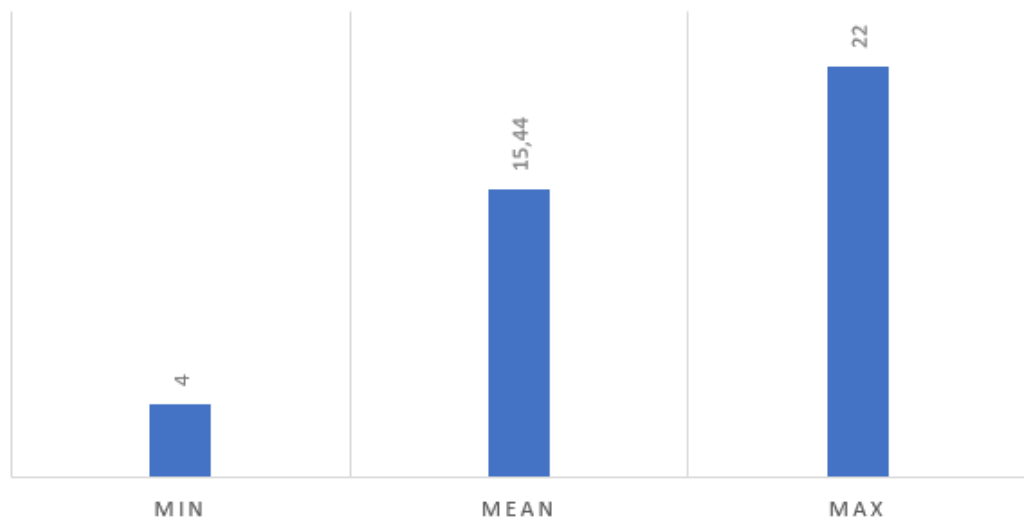


Chart 15 Satisfaction with Communication

Communication satisfaction level mean score is 15,44, with min score of four and max score of 22 (Chart 15). In the scope of this questionnaire, this min score appeared to be the lowest one and the lowest possible with such grading scale.

Turnover Intentions

The turnover intentions within this study was analyzed through four items, added by the author. These items are the following:

1. I am often considering quitting my job
2. I do not want to leave my current job
3. I am thinking of changing my job in the next 12 months
4. I am planning to stay at my current job for the next year or more

The items number one and three are illustrating the intention to leave the current organization, while items two and four are illustrating willingness to stay within current organization. Thus, the items two and four were reserved for the analysis in order to focus on the turnover intentions and study if they change with regard to different facets.

TURNOVER INTENTIONS

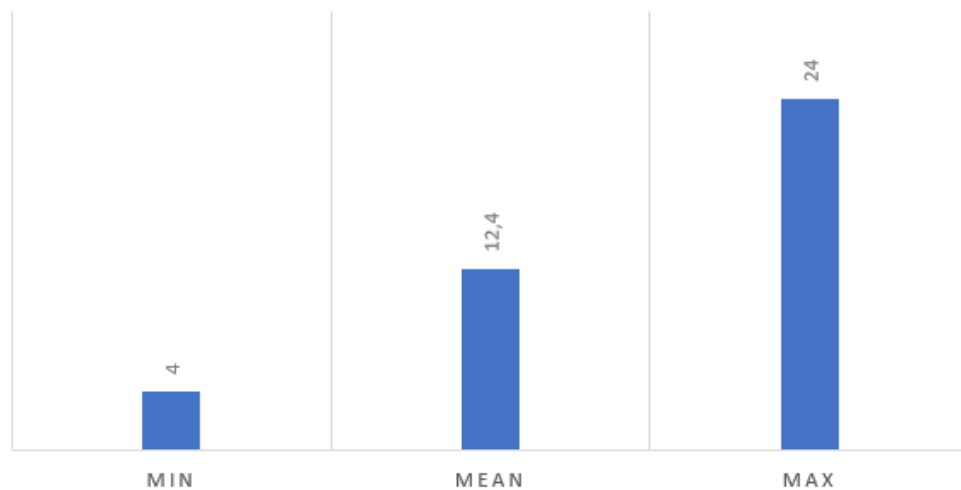


Chart 16 Level of Turnover Intentions

In case with turnover intentions, the lower result, the better, so the min of four is a good sign. However, the max of 24, which is the highest possible score, is also saying about some intentions to leave. Turnover intentions mean score is 12,4, which is the lowest mean score among all of the previously analyzed results (Chart 16).

The Correlation Coefficients

After performing the descriptive analysis of the research results, author had to determine, whether there is any significant correlation between the variables in the research. For this purpose, the Correlation Matrix was created, using the sums of all the nine facets of employee job satisfaction, found during the previous results analysis phase. The correlation coefficient is a number on a scale from minus one to one, showing to which extent the variables are related and in which direction. Sharp minus one coefficient means there is a strong negative correlation between the variables, meaning that, when one variable goes up, the other one goes down. Sharp one coefficient, in its turn, stands for the strong positive correlation, meaning that two variables go up and down simultaneously. Zero coefficient means there is no kind of correlation found between two variables. (Taylor 1990)

In this study, the correlation coefficients between the satisfaction facets and turnover intentions were all negative, which means that satisfaction level goes

down, the turnover intentions level goes up and vice versa, when satisfaction level goes up, the turnover intentions level goes down (see Table 1).

Variable	Pay	Promotion	Supervision	Fring Benefits	Contingent Rewards	Operating Conditions	Coworkers	Nature of Work	Communication	Turnover
Pay	1	0,46	0,31	0,36	0,43	0,21	0,25	0,21	0,27	-0,38
Promotion	0,46	1	0,35	0,66	0,55	0,09	0,15	0,38	0,49	-0,42
Supervision	0,31	0,35	1	0,43	0,51	0,29	0,49	0,60	0,68	-0,53
Fring Benefits	0,36	0,66	0,43	1	0,53	0,28	0,21	0,37	0,50	-0,32
Contingent Rewards	0,43	0,55	0,51	0,53	1	0,20	0,14	0,31	0,56	-0,40
Operating Conditions	0,21	0,09	0,29	0,28	0,20	1	0,40	0,07	0,33	-0,16
Coworkers	0,25	0,15	0,49	0,21	0,14	0,40	1	0,48	0,32	-0,51
Nature of Work	0,21	0,38	0,60	0,37	0,31	0,07	0,48	1	0,46	-0,70
Communication	0,27	0,49	0,68	0,50	0,56	0,33	0,32	0,46	1	-0,41
Turnover	-0,38	-0,42	-0,53	-0,32	-0,40	-0,16	-0,51	-0,70	-0,41	1

Table 1 Correlation Matrix between the Employee Job Satisfaction Facets and Turnover Intentions

Among the nine facets of the employee job satisfaction, the one that had the strongest negative correlation coefficient was the Nature of Work facet with the coefficient of -0,70. This means that the respondents that are less satisfied with the nature of work, tend to have a higher turnover intentions, while those, who are satisfied with the nature of work, are more predisposed to have a lower turnover intentions.

Apart from Nature of Work, two facets had a moderate negative relationship with turnover intentions. One of them is Supervision, which has a coefficient of -0,53. And the other facet is Coworkers with a correlation coefficient of -0,51.

Some kind of a weaker correlation can be observed for Promotion (-0,42), Communication (-0,41), Contingent Rewards (-0,40) and Pay (-0,38). While the weakest correlation with the Turnover Intentions among all of the analyzed facets was for Fringe Benefits (-0,34) and Operating Conditions (-0,16). The coefficient of the last satisfaction facet (Operating Condition) means that there is no relationship between the extent to which the respondent is satisfied with this facet in his or her work and his or her intention to leave the organization.

The same analysis of correlation coefficients was also performed with the demographic data and turnover intentions (Table 2). The purpose of this analysis was to determine if there is any correlation between the demographic factors and the employee's turnover intentions. For that purpose, the answers to the demographic questions were assigned with the numbers in the ascending order, so that the correlation could be built on these numbers. For example, the age groups were assigned in the following way: 20-29 = 1, 30-39 = 2, 40-49 = 3 and 50-59 = 4. So, the higher the age, the higher the number. The same approach was applied towards all of the other questions. In gender, one was for men and two was for women, only due to the order they were in the initial questionnaire.

Variables	Age	Gender	Education	Experience	Position	Turnover
Age	1	0,06	-0,08	0,01	0,17	-0,15
Gender	0,06	1	0,04	-0,33	0,34	-0,01
Education	-0,08	0,04	1	0,27	0,20	0,05
Experience	0,01	-0,33	0,27	1	-0,16	0,05
Position	0,17	0,34	0,20	-0,16	1	0,02
Turnover	-0,15	-0,01	0,05	0,05	0,02	1

Table 2 Correlation Matrix between the Demographics and Turnover Intentions

However, no significant relationships were found between the variables. Thus, the demographic factors were not considered in the conclusion.

4.2. Interviews

The qualitative data for this research was collected through the set of email interviews with the managers from the case company. The purpose of the interview was to find out, what do people on managerial positions in this organization think about the current level of turnover in the organization, what in their opinion should be done in order to reduce this level and how the organization actually tackles this issue at the moment.

Although five managers were selected from case company for the interview, only three of them have participated. Below are the interview questions together with their answers, summarised by the author:

1. *What is your opinion about the rate of voluntary turnover in your organization? Is it high or low?*

Two of the respondents noted that the voluntary turnover was relatively low in Enoro company, while one of the managers claimed it was medium and presumed it was due to employing more of new and younger specialist that tend to switch their work places more often, while the older employees that have spent quite a long time with the company, are “very rooted”, meaning that they are less likely to leave the organization. The other respondent also noted that even though the voluntary turnover level is quite low in the organization, there was a slight increase in the end of 2017, probably due to the upbeat economy.

2. *Do you think that voluntary turnover is an issue?*

This question brought quite different answers from the respondents. One of them noted that the voluntary turnover was not an issue, since organization should have some “healthy level of turnover”, which is also good for the employees, since they can obtain the new experience. The other respondent also noted that the voluntary turnover is not a big issue, since the majority of people that leave the organization, have not worked very long, so it is not very difficult to replace them, while it also gives organization a possibility to recruit some top talents. The third respondent had quite an opposite view, saying that new talents are quite difficult to teach to work independently due to the nature of the domain and the software the company works with. This knowledge transfer can take at least six months, which means that the organizations is quite negatively impacted, when key individuals leave, and the company need to pay more attention to this issue.

3. *What factors in your opinion impact the employee's turnover intentions?*

For this question, all of the respondents mentioned the new career opportunities and challenges that other companies can offer to the employees.

The low work satisfaction was also mentioned, as well as the higher salary, offered in the other organizations. One of the respondents also mentioned the family situation that can sometimes impact the turnover intentions.

4. How do you think those factors can be reduced or eliminated?

One of the respondents mentioned that the company should grow in order to make a room for employees to also grow personally and as specialists, the company should also put more emphasis on the employees' career aspirations and work with them. The other respondent mentioned that the more inspiring work, as well as a possibility to learn the new technologies and the possibility to grow in their career (to managerial positions), should help in reducing the factors that lead to higher turnover intentions. One more respondent also mentioned the more interesting work as one of the factors that may help, as well as the good atmosphere at work and the open ways for employees to develop themselves. However, one of the respondents mentioned that it is quite difficult to somehow impact some personal factors that may lead to the higher level of employee's turnover intentions.

5. What is your organization currently doing to reduce voluntary turnover?

At the moment, the company is putting extra emphasis on the employees' personal development and growth. They gather the feedback and are planning to make the corresponding changes in their daily work. They also try to motivate their engineer to work with the new technologies. The other way the company is going to pursue is making their strategy stronger and clearer in terms of communication, so that the employees do not have any uncertainty. The company is focused on making this strategy value based and derive it from the strong company culture.

5. Discussion

Primary findings

The focal point of the research was the correlation between the employee job satisfaction factors and the level of turnover intentions. It was decided to conduct the questionnaire, utilizing the Job Satisfaction Survey, developed by

Paul Spector, and modified by adding several items, related directly to the turnover intentions in order to define the possible correlations between these factors.

As a result of the comprehensive employee job satisfaction analysis, the Correlation Coefficients Matrix was developed, showing the strongest negative correlation coefficient between the Turnover Intentions and the Nature of Work satisfaction facet, as well as some moderate correlation with Supervision and Coworkers facet. These findings mean that even though these three facets did not show the lowest level of employee satisfaction (mean score of 18,95 for Supervision, 19,27 for Coworkers and 17,11 for Nature of Work), the company's management should pay more attention to the mentioned facets, since the low satisfaction on them tends to raise the level of turnover intentions among the company's employees. Let us go specifically into each facet.

Nature of Work. This facet brings us back to the process theories of motivation, especially to the Job Redesign theory. Some methods from this theory can be used by the company in order to more effectively manage the employees' perception of the nature of their work. Such factors, as skill variety, task identity and task significance should be taken into account, since they influence the '*experienced meaningfulness of the work*', which relates to the nature of work. The Goal Setting theory can also work in this case, since designing the strong and powerful goals may also influence the employees' perception of their own working duties.

Supervision. This facet refers to one of the Herzberg's hygiene factors, which affect the demotivation of the employees, while not being able to produce motivation even when being at the high level. Such hygiene factors should be paid a careful attention to. Vroom's Expectancy theory can also be mentioned here, since it also focuses on the level of trust and cooperation between the supervisor and the employee.

Coworkers. This facet is also one of the hygiene factors in the Two Factors theory, which should be paid careful attention to. It can also refer to the social level in the Hierarchy of Needs, Relatedness need in the ERG theory and the need for Affiliation in the Acquired Needs theory.

However, these findings differ from the finding of the research, performed by Westlund and Hannon in 2008, in which researchers determined the strongest correlation between the turnover intentions and the satisfaction with contingent rewards, communication and supervision, while the satisfaction with fringe benefits and working conditions. This may be explained by the cultural differences of the respondents, since Westlund and Hannon (2008) performed their research in USA, while current study was mainly focused on Finland. It can also depend on the population size and the time difference. It is highly possible that the situation in the IT industry was different ten years ago.

The qualitative data collection part has also shown that at the moment the company is mostly focused on the employees' personal development. The company also tries to motivate their employees to work with new technologies, which can have a better impact on the Nature of Work perception. Some respondents also mentioned that the more inspiring work should be provided to the employees, so that their perception of their work will be enhanced. However, some respondents pointed out that employee turnover may not be a big problem for both the company and the employees, leaving the organization. This opinion is also quite correct, even though it is not considered in this study. Some organizations need a healthy rate of turnover in order to have the new fresh talents and technologies coming to the company.

Secondary findings

Since a big part of the quantitative data collection was focused on the employee job satisfaction, the statistics on this matter were also collected and can also be considered in the conclusion.

The lowest results regarding the mean satisfaction level had the Pay and Promotion facets (14,96 and 14,75 respectively). The relatively low result was also associated with Operating Conditions and Communication facets (15,18 and 15,44 respectively). While the most highly scored facets were Coworkers and Supervision (19,27 and 18,95 mean score respectively), which were defined to have the moderate correlation with the employee turnover intentions. Meaning that nowadays the company is managing these aspects quite successfully.

The overall employee turnover intentions may also be considered, as the secondary finding, since the main purpose of the research was not to simply determine the level of turnover intentions, but to find the correlations between this level and the level of employee satisfaction with different aspects of the work.

The mean score for the turnover intentions was significantly lower than the score of all the satisfaction facets (12,4). This aspect also had both the lowest possible score (4) and the highest possible score (24) in the responses.

Limitations

The quantitative data were collected from the case company employees using the anonymous online survey. However, there is a possibility of having somewhat skewed scores for the questionnaire, in case the respondents suspected their responses could have been transferred to their managers. Author believes, the turnover intentions part is especially sensitive to such limitations. The same limitation may apply to the qualitative part of the research, since participating managers had to express their thoughts and compare them with what the company is currently implementing. Thus, some of the respondents might not be willing to answer honestly, due to the suspicion of their answers being handed to their managers or revealed in some other way, including the publicity.

The study was primarily focused on one specific company in one country, which means that the results of this research might not be applicable for the IT companies, working in other locations or other business domains.

6. Conclusion

The topic of this research is Employee Retention in IT Industry, suggesting that the main purpose of this study was to understand, how to retain the employees in this fast-growing industry, where trends change rapidly, and new technologies appear almost every day. The demand for the high-level professionals in IT is very high nowadays, while the supply is quite low, and it is getting more and more challenging to find suitable professionals for the arising positions. Moreover, it takes time and money investments to teach the

new team member to act independently, to integrate him or her into the team and conduct a proper knowledge transfer. Thus, managers in IT companies are interested nowadays in retaining the talents in order not to spend time and money on finding the new professionals and integrating them, as well as not to lose the critical knowledge the currently working employees might have in terms of the product the company develops. Therefore, Enoro Oy, a Finnish software development company, has shown its interest in the current research on employee retention and has agreed to grant author the access to the data collection.

Author believes that the main research question of this study (What aspects of the employee job satisfaction are related to the employees' turnover intentions?) was answered as a result of the research. The aspects, influencing the employees turnover intentions the most were identified and the methods to manage them and try to reduce them were also found during the literature review part of this study.

Future research

This research was mainly focused on the relatively big organization and primarily on Finnish respondents. Author believes it would be valuable to replicate this study on some smaller companies from different countries.

The smaller companies might have the different issues regarding the employee motivation and different factors, leading to employee's turnover intentions. Performing of the study in different countries with people from different backgrounds may also show different results and help to understand the possible significance of cultural, national and other demographical factors.

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Appendices

1. Questionnaire

a. Demographics

i. Please, specify the country you work in

ii. Your age

_Under 20 _20-29 _30-39 _40-49 _50-59

iii. Your gender

_Female _Male

iv. Please, confirm that you work in IT industry

_Yes _No

v. What is the level of education you completed?

_High School _Technical School _Bachelor's degree

_Master's degree _Phd. _Other

vi. For how long have you been working in the current company?

_Less than a year _1-5 years _6-10 years _11-15 years

_16-20 years _Over 20 years

vii. What is your position in the organization?

_Managerial _Engineering _Other production position

_Other non-production position

b. Job Satisfaction

Please, state your level of agreement with the following statement, where 1 is disagree very much, 2 - disagree moderately, 3 - disagree slightly, 4 - agree slightly, 5 - agree moderately, 6 - agree very much. For each of the statement specify one number, which comes closest to reflecting your opinion about it.

i. I feel I am being paid a fair amount for the work I do.

ii. There is really too little chance for promotion on my job.

iii. My supervisor is quite competent in doing his/her job.

iv. I am not satisfied with the benefits I receive.

- v. When I do a good job, I receive the recognition for it that I should receive.
- vi. Many of our rules and procedures make doing a good job difficult.
- vii. I like the people I work with.
- viii. I sometimes feel my job is meaningless.
- ix. Communications seem good within this organization.
- x. Raises are too few and far between.
- xi. Those who do well on the job stand a fair chance of being promoted.
- xii. My supervisor is unfair to me.
- xiii. The benefits we receive are as good as most other organizations offer.
- xiv. I do not feel that the work I do is appreciated.
- xv. My efforts to do a good job are seldom blocked by red tape. ("Red tape" refers to over-strict attention to the wording and details of rules and regulations)
- xvi. I find I have to work harder at my job because of the incompetence of people I work with.
- xvii. I like doing the things I do at work.
- xviii. The goals of this organization are not clear to me.
- xix. I feel unappreciated by the organization when I think about what they pay me.
- xx. People get ahead as fast here as they do in other places.
- xxi. My supervisor shows too little interest in the feelings of subordinates.
- xxii. The benefit package we have is equitable.
- xxiii. There are few rewards for those who work here.
- xxiv. I have too much to do at work.
- xxv. I enjoy my coworkers.
- xxvi. I often feel that I do not know what is going on with the organization.
- xxvii. I feel a sense of pride in doing my job.
- xxviii. I feel satisfied with my chances for salary increases.
- xxix. There are benefits we do not have which we should have.
- xxx. I like my supervisor.
- xxxi. I have too much paperwork (e.g. work with documentation)
- xxxii. I don't feel my efforts are rewarded the way they should be.

- xxxiii. I am satisfied with my chances for promotion.
- xxxiv. There is too much bickering and fighting at work.
- xxxv. My job is enjoyable.
- xxxvi. Work assignments are not fully explained.

c. Thought of quitting, intentions to quit

Please, state your level of agreement with the following statement, where 1 is disagree very much, 2 - disagree moderately, 3 - disagree slightly, 4 - agree slightly, 5 - agree moderately, 6 - agree very much. For each of the statement specify one number, which comes closest to reflecting your opinion about it.

- i. I am often considering quitting my job
- ii. I do not want to leave my current job
- iii. I am thinking of changing my job in the next 12 month
- iv. I am planning to stay at my current job for the next year or more

2. Interview

- i. What is your opinion about the rate of voluntary turnover in your organization? Is it high or low?
- ii. Do you think that voluntary turnover is an issue?
- iii. What factors in your opinion impact the employee's turnover intentions?
- iv. How do you think those factors can be reduced or eliminated?
- v. What is your organization currently doing to reduce voluntary turnover?