School of Management

Motivating knowledge workers

Master Thesis MBA 2013

Magnus Dahlberg
Andreas de Haan
01 Oct. 13

Abstract

The emergence of a knowledge based economy facilitated by the globalisation has changed the rules of the game for many organisations. The most valuable assets within many organisations are no longer the physical resources but the knowledge capital. In contrary to the era of industrialisation, these assets are no longer owned and controlled by the companies but by the employees.

The largest challenge for management in the knowledge economy is the need to increase the productivity of the knowledge workers. The most effective approach to increase knowledge worker productivity is by improving their level of motivation.

The question for how to best motivate people in an organisation is neither new nor does it have a single clear answer. To create a situation characterised by satisfaction and motivation, focus should be on the motivator, the factors with the potential of creating long time sustainable results. Factors influencing motivation can be described as either intrinsic or extrinsic relating to their nature of effect. Traditionally, most organisations have been focusing on extrinsic motivators such as monetary incentives to increase motivation. Intrinsic motivators include factors relating to the work itself as autonomy, mastery and purpose.

This study has included a survey where 355 knowledge workers have ranked 29 different motivational factors. The results show the top five factors all are typical intrinsic factors which indicate employees' true commitment and motivation originates in the intrinsic nature of the task being performed.

Another important finding from this study is all of the factors investigated can play a role in order to motivate the individuals in a group of knowledge workers. As a result of that insight, all organisations with the aim to increase knowledge worker productivity have to take the time to find out how to best motivate each single employee.

One way for an organisation to increase individual employee motivation is to start paying attention to personal interests and try to direct different work tasks in accordance with that.

Key Words: Knowledge worker, intrinsic motivation, extrinsic motivation

Acknowledgements

We would like to thank our supervisor Britt Aronsson and our examiner Henrik Sällberg at BTH for helping us through this process and providing us with useful feedback. We would also like to thank Semcon and all the people who took the time to participate in our survey which made this thesis possible.

Last but not least we would like to send a big thank you to our understanding families who has supported us and allowed us the time necessary to perform this task.

Andreas de Haan

Magnus Dahlberg

Table of Contents

Abstract 2
Acknowledgements 3
1. Introduction 6
1.1. The need for motivation 6
1.2. Our purpose 6
1.3. How to motivate - motivation as phenomena 7
1.4. Previous research 8
1.5. Summary of previous research 9
1.6. Importance of motivation of knowledge workers 10
1.7. Research question 11
2. Method 13
2.1. Research method 13
2.2. Research design 13
2.3. Data collection 14
2.4. Data analysis 15
2.5. Ethical considerations 15
2.6. Quality assurance 15
3. Theory 16
3.1. Motivation as needs 16
3.1.1. X and Y theories 17
3.2. Intrinsic- and extrinsic motivation 18
3.3. The two-factor theory 18
3.4. Motivation as drives 21
3.4.1. A powerful new model 21
3.4.2. Drive 22
3.5. Monetary incentives 23
3.5.1. Goal theory 24
3.5.2. Principal-agent theory 24
3.5.3. Expectancy theory 25
3.5.4. Cognitive evaluation theory (CET) 25
3.5.5. Equity theory 25
3.5.6. Crowding theory 25
3.5.7. Incentive alternatives 25

3.5.8. Important parameters 26
3.5.9. Individualising of incentive systems 26
3.5.10. Summary of monetary incentives 27
3.6. Requirement in the knowledge economy 28
3.6.1. Impact on motivating knowledge workers 29
3.7. Summary 29
4. Data from the study 30
4.1. The respondents to the survey 30
4.2. Results 32
4.3. Group differences 33
4.3.1. Gender differences 33
4.3.2. Educational differences 34
4.3.3. Differences because of years at Semcon 35
4.3.4. Age differences 37
4.3.1. Current level of motivation at work 38
5. Analysis 39
5.1. The most important motivators 39
5.2. The least important motivators 40
5.3. Maslow's hierarchy of needs 40
5.4. The two-factor theory 40
5.5. Motivation as drives 41
5.6. Incentives 43
5.7. Individualising 43
6. Conclusion 45
6.1. Implications 45
6.2. Recommendations for further research 46
7. References 47
8. Appendices 52
8.1. Appendix 1: Survey invitation 52
8.2. Appendix 2: Survey 52

1. Introduction

1.1. The need for motivation

The question for how to best motivate people in an organisation is neither new nor does it have a single clear answer. People are different and have different needs as has been discussed thoroughly by classic 20th century motivational authorities as Maslow (1943) and McGregor (1960) to mention a few.

The era of globalisation we are currently experiencing is to a great extent made possible by the speed of information and knowledge transfer across the globe. The globalisation is facilitating a knowledge economy resulting in market growth and productivity increases thanks to the possibility of utilising comparative advantages of different countries (Huang 2011).

The most valuable assets within many companies are no longer the physical resources but the knowledge capital. In contrary to the era of industrialisation, these assets are no longer owned and controlled by the companies but by the employees (Drucker, cited in Switzer, 2008). This lead Peter Drucker in 1969 to establish the expression knowledge worker which since then has been a widely spread term (Hindle, 2008). Knowledge workers use their mind to generate and develop ideas and use their creativity to improve organisational performance (Drucker, 1999). The importance of the knowledge workers is increasing rapidly in the global economy (Switzer, 2008).

The largest challenge for management in the knowledge economy is the need to increase the productivity of the knowledge workers to the same extent as with manual worker productivity during the 20th century. One crucial difference is that the productivity of the knowledge worker has to aim at obtaining quality instead of quantity which was most important when the thoughts of Taylor led the revolution of the manual worker. In order to improve the productivity of the knowledge workers it is crucial to understand what motivates them (Drucker, 1999).

1.2. Our purpose

During our research we have mostly found studies on how to motivate either top management or blue collar workers. This paper will focus on what motivates white collar workers, more specifically those who fit within the definition of knowledge workers. With this approach we will not include or focus on top management even though that group may fit in to the definition of knowledge workers used in this thesis. The reason for making that exclusion is there are a number of studies available investigating how to motivate top management as a group.

Within this thesis we will use the white collar worker definition of Kauhanen and Napari (2012) who describes them as a group having a large degree of intellectual or knowledge related components within their work tasks.

Since the introduction of the term knowledge worker by Drucker in 1969 there has not yet been a concise definition available (Pyöriä, 2005). To establish a definition of knowledge workers for this thesis we start by using the definition of Drucker (1998), describing them as a group who owns their means of production – knowledge. Further, knowledge workers are a group who primarily performs non-routine assignments (Reinhardt et al, 2011) and use their minds to create ideas (Switzer, 2008).

1.3. How to motivate - motivation as phenomena

Motivating employees is a complex field of study. Motivation can be hard to define as both its meaning and its triggers differ between individuals (Ryan & Deci, 2000). Individual differences can be related to personal traits such as prudence, aggressiveness and risk aversion and it is therefore important that organisations understand what drives each individual employee (Kocabiyikoglu and Popescu, 2007; Merchant and Van der Stede, 2012).

The importance of understanding motivation as a concept is exemplified by the fact motivation by itself does not guarantee success or high performance but the lack of motivation will most likely lead to failure. In order to achieve the positive effects of motivation, motivation should originate from factors related to the work itself rather than from external factors. In many cases highly motivated employees will outperform more gifted and competent peers that are not as motivated (Katz, 2005).

Monetary motivational incentives have traditionally been a common approach to motivate employees, independent if they are blue- or white collar workers (Frey and Jegen, 2001). Surprisingly, studies on high performing organisations have not identified bonuses or monetary reward systems as distinctive factors for neither creating nor sustaining high performing organisations (De Waal, 2012).

Designing monetary incentive system that satisfies both the organisation and its employees is difficult. One of the challenges designing a monetary incentive system is explained through the principal-agent theory (Fairburn and Malcomson, 2000). The theory describes the conflict related to separate goals between two parties and their motivational challenges due to information asymmetry (Waterman & Meier, 1998). The standard principal-agent theory is based on incentives for a certain performance. Since it is difficult to objectively relate measures of performance for an employee, this has a tendency of leading to problems (Fairburn and Malcomson, 2000).

A very interesting and important finding within the field of motivation is the understanding there is a difference between the components that are related to satisfaction and motivation and those related to dissatisfaction and lack of motivation (Herzberg, 2003). In practice this means it is near impossible to create a situation where people are motivated by only focusing on changing the factors that are said to be causing dissatisfaction and demotivation. Herzberg (2003) denotes factors that can cause dissatisfaction if missing but are not related to increased motivation if enlarged as hygiene factors.

To create a situation characterised by satisfaction and motivation, focus should be on the motivators which are factors with the potential of creating long time sustainable results. Within the two-factor model focus are put on factors related to job enrichment as achievements, personal growth and the job itself (Herzberg, 2003).

Factors influencing motivation can be described as either intrinsic or extrinsic which relates to their nature of effect. The difference is intrinsic motivation refers to doing something out of its own sake whereas extrinsic motivation refers to doing something believing it will help achieving a separate goal (Ryan & Deci, 2000).

There are a number of reasons for employees to perform a good job (Prendergast, 2008). It could be monetary incentives but there are often also other motivators, like actually being interested in and caring about the work itself. Despite the presence of such intrinsic motivators, research within the field of economics has not provided much understanding for the trade-offs when employees are motivated by alignment of their own preferences instead of monetary incentives (Prendergast, 2008). To further problematize the topic of motivation, there are new kinds of reward structures that have been developed and introduced during recent years. These new reward structures take into account macro-economic events as globalisation, innovations in production and information technology and changing capital markets and have not yet been fully investigated from a motivational point of view (Ezzamel and Willmott, 1998).

To some level monetary incentives work, but it is not always the right measure because it can backfire. Adding monetary incentives to a task may actually reduce the level or quality of the output, especially for tasks involving a degree of innovation or creativity (Pink, 2009). Frey and Jegen (2001) claim there is strong empirical evidence that extrinsic rewards, such as bonuses, affect the intrinsic motivation by what is known as crowding-out and crowding-in effect. By that it is meant extrinsic motivators may have the effect of replacing the original intrinsic motivators.

1.4. Previous research

Most of the previous research we have found on how to motivate employees describes monetary incentives in different forms, either towards top management, blue collar workers or towards all employees. Belfield and Marsden (2003) argues the current literature on performance related pay show a disparity in the outcomes of the systems and different organisations show great differences in the effectiveness of their systems. We agree with the conclusion that the results from all the research that is done are almost contradictory, and we describe some of the different results below.

Studies on high performing organisations (HPOs) where different kinds of reward or Incentive systems were examined revealed bonuses and reward systems are not distinguishing factors for creating and sustaining HPOs but merely hygiene factors (De Waal, 2012).

For blue collar workers, there are some studies with positive results of monetary incentives. For instance, in a large study covering blue collar workers hourly wages were changed to piece rate pay which resulted in an average production increase of 22%. The incentive effect was argued to prove blue collar workers responded to prices just as general economic theories predict (Lazear, 2000).

Pepper et al. (2013) have studied senior executive rewards and found that long term incentive plans mostly do not meet their objectives and cannot be said to be either effective or efficient. Their results show that when extrinsic rewards increase over and above an upper threshold level, the intrinsic motivation decreases. In addition, they also show that if the rewards are below a lower threshold level it may have a harmful effect on intrinsic motivation.

There are studies identifying positive relations between monetary incentives for top management and company performance. One example is Yancey (2010) who have investigated 213 US Credit Unions and found that those with incentive pay programs for their CEO's outperformed those without. One additional finding was that the longer the plans had been in place the better the results.

There are a large number of experimental studies where the effect of extrinsic rewards on intrinsic motivation has been studied in laboratory settings. Pierce et al. (2003) writes that several meta studies on these experimental studies have been made. The results from them vary from showing significant negative results of extrinsic rewards on intrinsic motivation to those showing limited impact of extrinsic rewards.

One study that examines other motivators is Ukko et al. (2009). Their findings did not show any clear motivational effects related to rewarding employees as a group but they did find a positive relation between motivation and employees with autonomy and influence in decision making.

1.5. Summary of previous research

Kauhanen and Napari (2012) claim most studies within motivation and performance are focusing on top management and their incentive contracts. From reading a lot of studies we agree with that conclusion and conclude there are also some studies made on blue collar workers and lower level white collar workers. During our research we have not come across any studies that focus specifically on knowledge workers, their specific traits and how they are best motivated.

Dossi, Patelli and Zoni (2010) have done a thorough study of existing research and found that most of the studies focus on large multinational publicly traded organisations. They claim there is a lack of research on companies that are smaller than these giants. This is also the view that we have got through our review of the existing research.

The studies we have found are mainly focusing on monetary incentives and the results created by implementing them. Since these studies are inconclusive there is a need to look at other motivators to get more knowledge on how to motivate employees. The fact that other things beside monetary incentives are important to motivation is exemplified by Katz (2005). Katz (2005) argues motivation of knowledge workers is dramatically influenced by how they view their assignment and how it is organised and managed.

1.6. Importance of motivation of knowledge workers

Drucker (1999) highlights the need to increase the productivity of the knowledge worker as the primary challenge for organisations in the 21st century. Longenecker and Leffakis (2002) asked 63 productivity experts on how to improve productivity among white collar workers. The key finding they all agreed upon was motivation and additionally they claim there is no substitution for the productivity benefits related to motivation.

Longenecker and Leffakis (2002) stated manufacturing organisations often have on-going initiatives following up and improving blue collar productivity, but very seldom organisations work with white collar productivity in the same way. One of the reasons for this is because it is more difficult to measure and specify outputs in these types of jobs (Hopp et al. 2009). The reason is partly because results are often seen over a longer time period for white collar- compared to blue collar work (Kauhanen and Napari, 2012).

Employees in the knowledge worker group are often working in environments that demand creative thinking and they are supposed to stretch their minds and push new ideas. Decades of research show that it is especially hard to get the kind of commitment and enthusiasm needed for these kinds of tasks only by using extrinsic motivators. Knowledge workers are said to be mostly motivated by how they perceive the task they are performing and the management framework around it (Katz, 2005).

Hopp et al. (2009) argues typical knowledge worker jobs have high knowledge prerequisites and include creativity, an interest in- and the ability to continuously learn as well as taking consideration to emotions and using ones judgement in decision making. These factors put different requirements on knowledge workers then on other more repetitive jobs. Pierce et al. (2003) claim jobs with these kinds of traits are more likely to experience the negative effect of extrinsic rewards on the employees' intrinsic motivation. Drucker (1999) explains what motivates knowledge workers is similar to what motivates volunteers who to a large extent are motivated by an interest and satisfaction from their work itself. Other characteristics influencing knowledge worker motivation are autonomy, continuous learning and challenging and meaningful assignments (Switzer, 2008; Sajeva, 2007 cited in Huang, 2011; Pink, 2009). Katz (2005) emphasises the importance of characteristics as skill variety, task identity, task significance, autonomy and feedback are important for motivating knowledge workers.

The employees in the knowledge worker group are extremely important to any organisation. According to Jacoby (2013) the key thing to succeed with big changes or transformations in a company is to motivate the middle management employees, which often belongs to this group of employees. They need to be motivated to be the drivers of the changes, if they are not motivated you will not succeed with the changes.

Employees belonging to the knowledge worker group can take their knowledge to wherever they want to be and that seems increasingly to be the case as the turnover of knowledge workers in the new economy is higher than among workers in the past (Huang, 2011). Employees in the knowledge economy demand more attention to their personal needs and desires than workers during the 20th century. This can cause great problems for companies, since their most important assets can walk out the door if they are not satisfied, which of course did not happen when physical assets were the most important means of production. Knowledge workers are increasingly aware of this which gives them greater bargaining power than previously (Switzer 2008).

Recent publications confirm there are current and forecasted shortages for engineers in Europe (SCB, 2013 and Semcon, 2012). Under such conditions it is additionally interesting to perform a study like this because of the attractiveness of the knowledge worker employees on the labour market. It is an organisational challenge to retain these employees which will make a study of this area highly relevant for knowledge intense and knowledge dependent organisations.

Deci et al. (1999) show in their meta study that for interesting activities that a person does not only for money but also because he enjoys it, extrinsic rewards decrease the intrinsic motivation for a person. This is very relevant for the group of knowledge workers, because as Hoppe et al. (2009) writes, these employees gets a lot of job satisfaction through other than just financial means, such as peer recognition, task complexity, exposure to smart colleagues and opportunities for self-fulfilment.

Another factor separating the knowledge workers from the rest of the white collar workers and the blue collar workers, at least on the Finnish labour market, is that their wage setting is quite flexible. They are often negotiating their salaries individually instead of following collective agreements (Kauhanen and Piekkola, 2006). This gives them a chance to more directly influence their total compensation, and according to Kauhanen & Piekkola (2006) and Ukko et al. (2009) participation in designing the compensation package is a prerequisite for a good result in motivating the employee with it.

1.7. Research question

This thesis will investigate what motivates knowledge workers. Our focus will be on what motivates this group and not to investigate the relations to organisational performance or financial results as we believe those fields of studies are sufficiently covered.

Based on motivation and incentive theories, this thesis will empirically investigate what motivates knowledge workers the most, with the implied purpose to help create long-term benefits for an organisation. The approach is to use a survey on a large sample of employees from a company with both middle managers and experts. The results from this study will give insights to what motivates knowledge workers which will be presented as the result of this paper.

2. Method

This chapter explains the method used to reach the goal of answering the research question of this Master thesis. It explains how we will reach the goal and why we have chosen a certain way of Research method, the Research design, the Data collection, Data analysis and the Quality assurance of the thesis.

2.1. Research method

Research design is important to help the researcher find things out in a systematically way. It is like map making as opposed to treasure hunting (Rugg and Petre, 2006).

In choosing which research method to use, Yin (2009) describes three different conditions that are significant for the decision. The first one is the type of research question, the second is the extent of control you have over events and the last is if the focus is on contemporary or historical events. Our research question is "What motivates knowledge workers in order to create long-term benefits for an organisation?" and this question is best answered by either survey or archival methods. In the study we don't have any control over the events we are researching and it is a contemporary event which clearly leads to that the survey research method is the one most suitable for this work (Yin, 20009).

We agree with Yin that the research method that can best answer our research question is survey research, and this master thesis will therefore be written using that method. The results from the survey will be presented as a number from one through six and will be used in statistical evaluations and is therefore considered a quantitative research.

The research is performed with a deductive approach. It starts with describing existing theories, published results and models within this field. From that knowledge base a survey is created and will be conducted among a sample of the population to elaborate the area and answer the specific research question.

2.2. Research design

The research has included a study of what is published in this area and the relevant knowledge is summarised in the theory chapter. The survey has then been developed from the content of the theory chapter where we have chosen what we believe are relevant factors for motivation extracted from the different theories investigated. That means we are not studying a specific theory but rather comparing proposed motivators from several of them.

The questions in the survey ask the respondents to grade how motivated they are by certain factors on a scale from one to six. In addition to this there are also some questions about the person answering the survey which will enable us to search for distinctions between groups like age and gender.

To get the best result from a survey the aim should be to get a snapshot of the current state of affairs in a given group, which among researcher is called descriptive work (Janes, 2001)

One of the most important concerns when performing a survey is the representativeness of the sample (Janes, 2001). Since this thesis is about knowledge workers we have chosen to perform the survey among 1319 Swedish employees of Semcon. The organisation we have chosen is active within the areas of engineering services and product information, employing more than 3000 people in Europe, Asia and South America (Semcon, 2013). The survey included all Swedish employees except those identified as top management, which were approximately 50 people.

One of the reasons for choosing Semcon as the object for our empiric study is because we had a great opportunity to reach a large number of people within the knowledge worker group, the group we have set out to study in this thesis. Another reason for choosing Semcon is they are an organisation which have realised the necessity and importance working with employee engagement and motivation. During 2010 in the aftermath of the last global financial crisis, Semcon clearly stated employees are their most important assets and launched a brand strengthening project with the purpose to strengthen employee engagement and to be more efficient at attaining and recruiting employees (Semcon, 2011).

The individuals in the sample group for the survey are all included in our definition of knowledge worker and by their answers we will get input from a large sample from the population we want to study. This is what Denscombe (2007) calls a non-probability sample which does not represent the whole population and cannot be used to infer any results from the sample to the total population.

2.3. Data collection

The data collection was done using an existing web survey solution already in place at Semcon. An e-mail with a link to the survey was sent to the employees that were part of the sample.

The different motivation theories and models described in the theory section shall be seen as a framework on which the questions in the survey are based on. The questions are designed with the Likert scale in mind, meaning the answer alternatives are symmetric and designed to capture the respondents response to given statements (see appendix 1 and 2) (Burns and Burns, 2008). Instead of a standard odd number scale, an even number scale was used. The reason for doing so is both because Semcon as an organisation is familiar to such a survey design and due to the fact there are arguments removing the neutral option forces the respondent to make a more active choice answering the survey (Allen and Seaman, 2007).

From this survey application, the data was exported to Excel to remove unfinished survey entries. Finally, the data was analysed in the statistical program IBM Statistics SPSS 21.

2.4. Data analysis

The data from the survey has been analysed in SPSS Statistics in order to find significant differences related to background data and to find any correlations between different survey factors. We have used ANOVA and post-hoc tests to identify significant differences at 95% confidence intervals, $P<0,05$. To measure correlation we have used the Pearson product-moment correlation coefficient, Pearson's R.

We have calculated an average value for each of the factors and then sorted them in accordance with it. From that, we have chosen the top and bottom five out of the total 29 factors and focused the analysis on them. We have also looked for any distinguishable differences related to background data for our respondents.

In addition to mean values, standard deviation and other parameters given through statistical analysis, we are also presenting the share of respondents who have given a rating of five or six on a factor. The reason for this is that a rating of five or six on a six grades scale clearly can be considered a positive answer and that the person is motivated by that element.

2.5. Ethical considerations

The researcher(s) always have the final responsibility that the research is of good quality and morally acceptable. The authors of this thesis have read the Ethical guidelines published on the Codex site and worked in accordance with them (Codex, 2013).

2.6. Quality assurance

The survey questions were tested on a test group to ensure questions were correctly understood by the respondents (Bryman & Bell, 2005). No significant changes were made to the survey sent out.

Calculations and sorting of the answers has been done by both the authors in order to minimise the risk for any miscalculations.

3. Theory

Within this chapter both classic as well as more recent motivation theories will be described and explained. The purpose of this chapter is to clarify any similarities and differences between different motivational theories used in this thesis in order for the reader to gain an understanding of motivation as a concept from different perspectives. This chapter will also define a theoretical framework for monetary incentives and its implications as well as a section describing how the theories in this chapter are affected by a changing world.

The complexity of motivation as such and the somewhat different methods to approach and manage employee motivation described in the theory section will be visible through both the design of the survey and in the analysis section. How, and in what extent, the theoretical framework set forth in this thesis will be used in the analysis and conclusion sections will to a large degree depend on the result of the survey.

3.1. Motivation as needs

One of the classical motivational theories of the 20th century was established by Maslow (1943) describing motivation as a hierarchy of needs. The needs are organised in levels or a hierarchy ranging from basic physiological up to self-actualisation needs. Viewing motivation as hierarchical needs contradicted the then established view human motivation was all about seeking positive stimuli and avoiding negative stimuli (Pink, 2009).

The first level in the hierarchy consists of the physiological needs necessary for survival including food, water, warmth and sleep. Fulfilling these fundamental needs, the second level consists of needs related to safety and comfort. The third level includes needs for social interaction, acceptance and love as e.g. friendship, family and intimacy. Within the fourth level self-esteem, confidence, achievement, appreciation and recognition are central factors for fulfilment. Feeling valued as an individual and being recognised as a valuable asset within a group are typical needs at this level. The fifth and final level includes self-actualisation needs which could be seen as aiming at realising the full potential of an individual (Maslow, 1943).

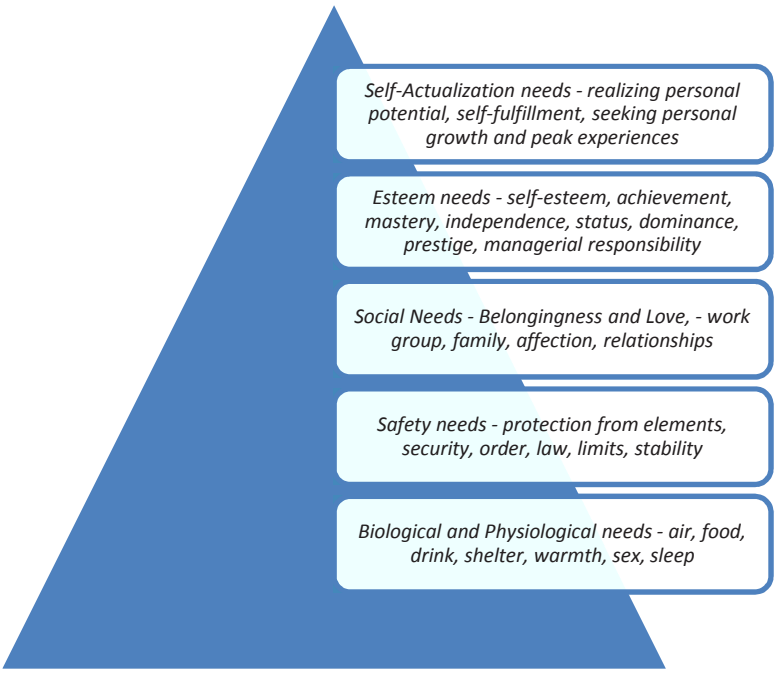

Figure 1. Maslow's Hierarchy of Needs (Free interpretation from McLeod, 2007)

Maslow (1943) argued humans can be characterised as wanting animals striving to satisfy the different levels of needs. Although the needs are organised in a hierarchy, according to the model it is possible for motivators from different levels to occur at the same time even though the needs from one specific level usually is dominant (Maslow, 1943). The fact the hierarchy is not completely strict in this perspective is often neglected when referring to Maslow's model. Viewing the model as it was intended implies organisations must be aware of and understand employee needs are satisfied to different degrees under the same working conditions due to individual preferences (Jacobsen & Thorsvik, 2008).

Understanding and taking into account individuals have different needs and preferences are essential to successfully motivate and engage employees (Pokorny, 2013; Switzer, 2008). The hierarchy of needs implies important prerequisites in order to motivate people to perform better are to make sure they first experience job-security, have a reasonable salary level and perceive acceptance at work (Maslow, 1943).

3.1.1. X and Y theories

The X and Y theories presented by McGregor (1960) is related to Maslow's (1943) hierarchy of needs. McGregor (1960) argues humans endlessly aim to satisfy the different level of needs described in Maslow's (1943) hierarchy. A very important key to understand motivation according to McGregor is that a satisfied need is not a motivator, an insight missed in theory X.

Since the beginning of the industrialisation, and earlier, people have been controlled by management using means such as employment, security and wages which has been efficient as long as people are struggling for subsistence. But once people have climbed a bit further

up in the hierarchy of needs, those means are significantly less effective. I.e. money and other rewards aimed at fulfilling physiological needs will be ineffective for people who already have their physiological and safety needs fulfilled. However, if everyone is treated the same way (e.g. salary levels), when having the physiological and safety needs fulfilled and not paying attention to higher level needs, the ones the organisation needs the most will probably leave for other opportunities or stop being creative. Having the same physiological- or safety motivators as everyone else then act as a negative motivator for the higher level need esteem (McGregor, 1960).

3.2. Intrinsic- and extrinsic motivation

One way of describing intrinsic- and extrinsic motivation is to separate them based on how they are associated with rewards. Extrinsic motivation is to a large degree connected to rewards associated with hygiene factors while intrinsic motivation is more often connected to rewards associated with motivational factors (Ryan & Deci, 2000).

Katz (2005) argues the true commitment and motivation originates in the intrinsic nature of the task being performed. In order to be motivated from the task or job itself, Katz (2005) states work should be like the things you do for fun on your spare time. There are a number of influencing characteristics identified in order to achieve that. Work should enable and encourage use of different skills, abilities and talents. Employee should feel they are part of a task as a whole not just a small part of it. The task should be significant and how the task is performed should in large extent be left to the employee to decide. Finally, it important the employee is given clear and direct information about the effectiveness of the performance.

DuBrin (2010) concludes those working on tasks fulfilling the requirements mentioned above have strong emotional ties to the task they are performing and require a minimum of managing to be well motivated. This is because they focus on the job itself and gets energy from the desire to perform it well.

Relating to McGregor's (1960) findings about motivation it is interesting to see the distinction between intrinsic- and extrinsic motivators. Extrinsic rewards can usually only be spent or used outside work, e.g. salary, extra holiday etc. while intrinsic rewards also has the potential to affect the organisational performance positively since they are directly related to the actual work.

More recent research on intrinsic and extrinsic motivation suggests there is a continuum explaining the degree extrinsic motivation influences intrinsic motivation. This view implies extrinsic motivation can be used as a mean to strengthen, and over time in some cases evolve to, intrinsic motivation (Gagné & Deci, 2005).

3.3. The two-factor theory

The two-factor theory, also known as the motivation-hygiene theory, developed by Frederick Herzberg separates components related to satisfaction and motivation and those related to dissatisfaction and lack of motivation. The key finding suggests there are separate sets of

characteristics related to job satisfaction and job dissatisfaction respectively (Herzberg, 2003). This means satisfaction and dissatisfaction are not on the same continuum where a certain factor determines either satisfaction or dissatisfaction which implies they must be treated separately.

The two-factor theory separates hygiene factors and motivating factors, where hygiene factors are necessary avoid dissatisfaction whereas motivating factors are essential to enable higher employee performance (Herzberg, 2003).

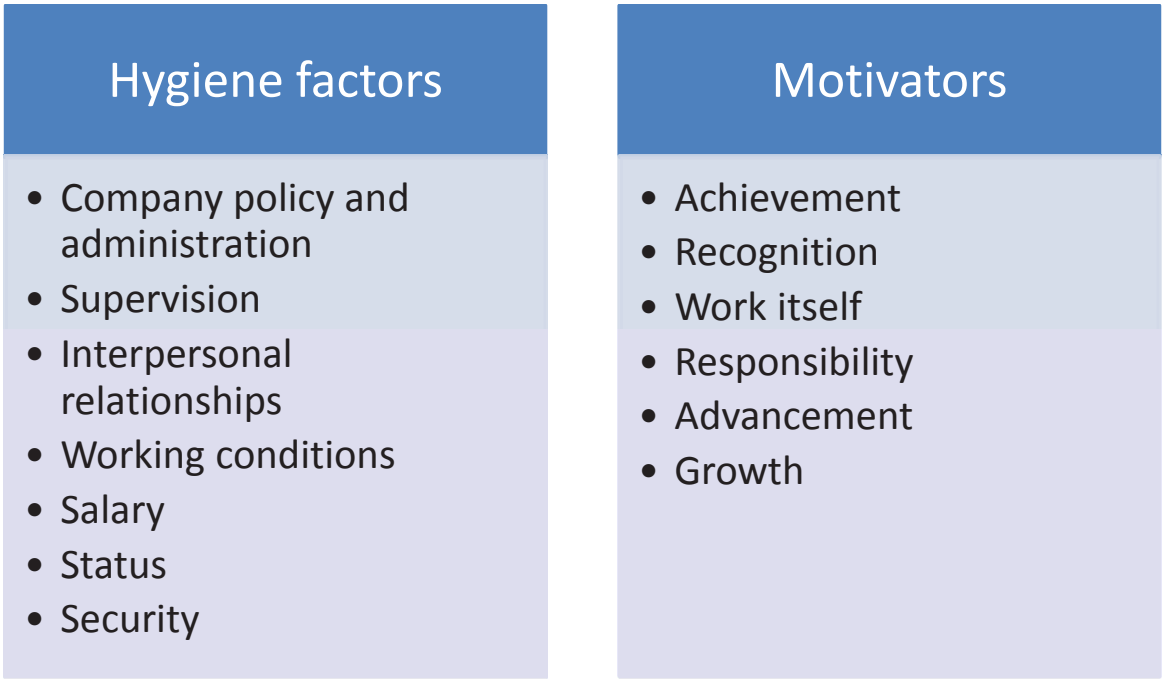

Figure 2. Herzberg's motivation-hygiene theory (Free interpretation of Herzberg, 2003)

There are similarities between the models of Maslow and Herzberg. Herzberg's motivation factors correspond to the two top levels in Maslow's hierarchy of needs, esteem and self-actualisation. To promote a situation characterised by satisfaction and motivation, focus should be on the factors with the potential of creating long time sustainable results – the motivators (Herzberg, 2003).

Herzberg's separation of hygiene- and motivator factors has influenced other dual-factor models, often focusing on the nature of motivation as either extrinsic or intrinsic. Intrinsic motivation refers to doing something out of its own sake, associated with motivational factors, whereas extrinsic motivation refers to doing something to achieve an external goal, associated with hygiene factors (Ryan & Deci, 2000).

The motivation-hygiene theory makes a point in clarifying there is a difference between doing something because you have to and because you want to. Only the latter qualifies as motivation (Herzberg, 2003).

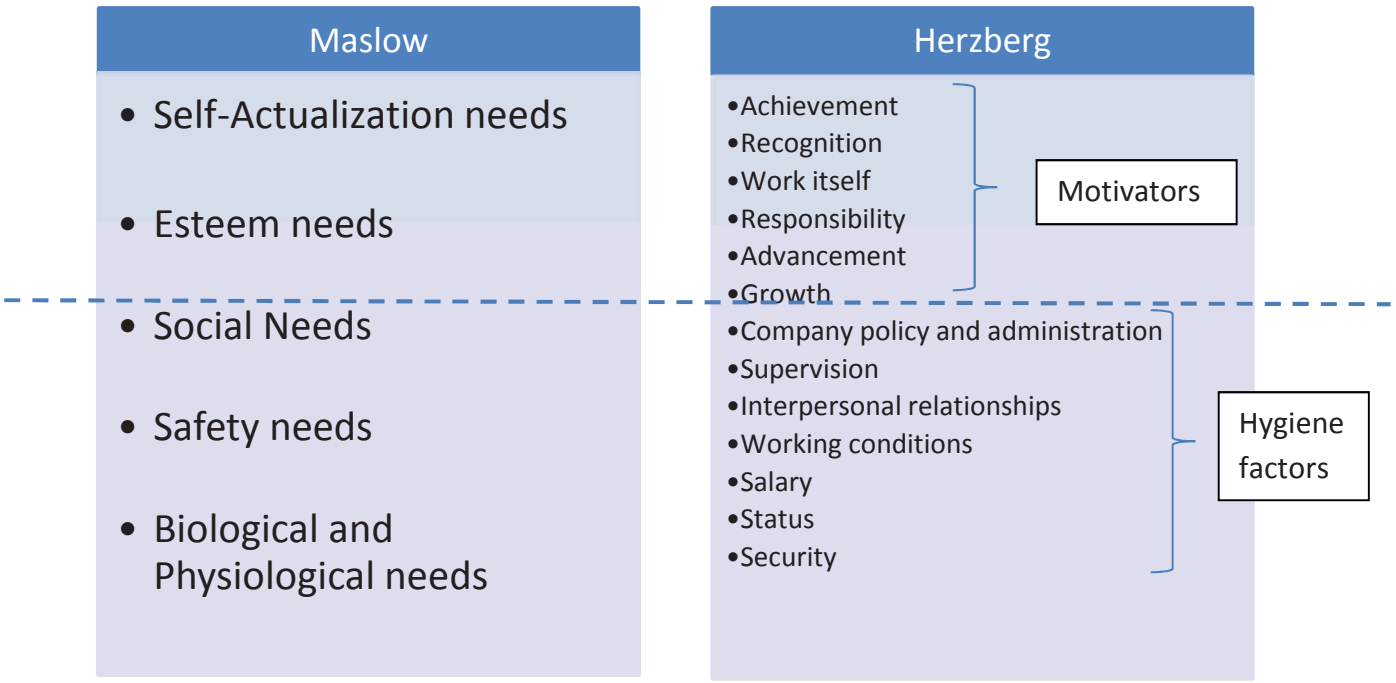

Figure 3. Maslow's Hierarchy of needs compared two Herzberg's two factor theory (Free interpretation of Herzberg, 2003)

Herzberg (2003) states most initiatives aiming at increasing employee motivation have one thing in common, they fail to have a holistic approach. It may be job participation, fringe benefits or advanced bonus system they are all characterised by an "if-then" set up. With their construction, an outside stimulation is necessary for anything to happen. Herzberg (2003) is convinced jobs can be enriched in order for employees to be internally motivated by work itself by focusing on the motivators in his two factor model. When taking on job enrichment in practise Herzberg (2003) distinguishes between horizontal and vertical job enrichment. The horizontal approach only means more of the same which does not change anything than the amounts of tasks. Vertical job enrichment have the approach of including responsibility and accountability for an assignment as a whole, e.g. from order to delivery.

Principle	Motivators involved
Removing controls, keeping accountability	Responsibility and personal achievement
Increasing accountability for individual work	Responsibility and recognition
Providing complete natural units of work	Responsibility, achievement and recognition
Granting additional authority	Responsibility, achievement, and recognition
Making reports directly available	Internal recognition
Introducing new and more difficult tasks	Growth and learning
Assigning individuals specific or specialised tasks, enabling them to be experts	Responsibility, growth, and advancement

Figure 4. Principles of vertical job enrichment (Free interpretation from Herzberg, 2003)

3.4. Motivation as drives

More recent motivational theories and models emphasises the importance of having a holistic view on factors influencing employee motivation (Nohria et al, 2008 and Pink, 2009).

3.4.1. A powerful new model

Nohria et al. (2008) describes a model for motivational drivers based on four common work related motivation measurements. Within their model, the factors engagement, satisfaction, commitment, and intention to quit can successfully be described with the drives to acquire, bond, comprehend and defend.

The drive to acquire in part relates to the lower level needs described by Maslow (1943), but also higher level needs as personal development and social status. One significant characteristic for the drive to acquire is the fact it seems to be relative, meaning goods or statuses acquired are evaluated in comparison to the peers of the receiver. (Nohria et al, 2008). For some employees status is an effective motivator, Auriol and Renault (2008) argues organisations can give high performing persons an extra boost through symbolic rewards. Using status as a means for rewards, it is necessary to keep in mind the increase in status for one person indirectly decreases the status for others which could have negative effects. A basic requirement and strong motivator related to the drive to acquire is recognition. DuBrin (2010) argues that especially employees that are proud of their contribution find it important to be recognised for their accomplishments. Referring to a study where 66% of the employees said recognition and appreciation was the most significant motivator of all.

The connection, commitment and feeling of belonging employees have towards their colleagues, team and organisation as a whole is represented by the drive to bond. The potential downside of the drive to bond is it may be focused on such a level the organisation is at risk of being sub-optimised (Nohria et al, 2008).

The drive to comprehend originates in a view of employees similar to the Y-theory of McGregor (1960) assuming employees requests and are motivated by challenging assignments that both enables them to develop professionally and represents a meaningful contribution. Organisation failing to appeal to this drive is at risk of losing their most talented employees (Nohria et al, 2008).

The fourth of the drives described by Nohria et al. (2008) focuses in part of very basic needs as security and stability. The drive to defend also relates to organisational transparency and objectivity.

The four different drives described in the model are independent and equally important. One interesting characteristic for the model is it is most successfully put to use when an effort to increase employee motivation takes all four factors into account at the same time. It seems the model as a whole is more efficient than its components added together separately (Nohria et al, 2008).

Another interesting finding is individual managers have a significantly high influence on the employees perception of the different drives, even though there might be organisational policies restricting the actual scope of possible actions. Employees to a large degree seem to understand such limitations and appreciate relative small measures under such circumstances. The implication is employee motivation to a significant degree is influenced by whether managers hide behind corporate policies or actually tries to do something despite limited resources or acting space (Nohria et al, 2008).

3.4.2. Drive

Another model supporting the views and holistic approach of Nohria et al. (2008) is presented by Pink (2009). The model challenges the up to date prevailing assumption human motivation primarily consists of a biological drive and a drive to respond to positive and negative stimuli. It is suggested there is a third drive which is based on intrinsic motivation. This third drive does not relate very well with motivators based on negative and positive stimuli, which rather tends to result in less of what it was intended to stimulate e.g. creativity and innovation. With rapid decreasingly number of blue collar and routine white collar jobs, particularly in the US and Western Europe, it is to a greater extent important to focus on how to stimulate the kind of thinking related to creativity and innovation rather than algorithmic, linear thinking in order to maintain competiveness (Pink, 2009).

Pink (2009) concludes scientific awareness of this third drive has been present for at least half a century but business has not yet adopted to this new knowledge. Within his own interpretation of the third drive, Pink (2009) argues it consists of three elements, autonomy, mastery and purpose.

Autonomy is the desire to be in control of one's own life. From a workplace perspective it includes being able to affect what is being done, when it is being done, together with whom and how it is being performed (Pink, 2009). With increased levels of autonomy employees will trust their own efforts, initiatives and decisions which will lead them to take more responsibility and to be more accountable for the results of their work (Katz 2005). Nonaka (1997, cited in Switzer 2008) claims that autonomy and personal freedoms are highly valued especially by the Knowledge worker who often sets their own agenda and decides how to perform their daily tasks.

Mastery can be described as a lifelong strive to excel within an area of interest. A prerequisite for mastery is engagement which addresses the importance of both including employees in decision making and being responsive to employees needs and wishes (Pink, 2009).

The third of the three elements is purpose which can be described as the desire to be part of something that really matters in a larger context (Pink, 2009).

Relating to Herzberg's (2003) two-factor theory, it is important to get hygiene factors, such as salary, off the table in order to have the sought after effect of intrinsic motivation positively related to innovation and creativity (Pink, 2009).

3.5. Monetary incentives

A method used by many organisations in order to increase motivation among employees is different kinds of monetary incentives. A lot of research has been done in order to evaluate the results from them, but the results are very diverse.

The motives for organisations to use incentives are according to Merchant (2012) to support the importance of the desired result areas and to motivate employees to achieve and exceed performance targets. Incentives also provide the stimulus for alignment of employee natural self-interests with organisational objectives.

Three reasons for using incentives described by Merchant (2012) include information as rewards help employees to prioritise between competing result areas. The second reason is to enhance motivation among the workers who need incentives to put in the extra effort the company wants. The final reason is to help organisations to attract and keep the best personnel.

Monetary incentives are not the only form of rewards but their use is very common. Merchant (2012) describes three different ways that they can be used, either as performance based salary increases, short term incentives plans or long term incentives plans.

There are a number of different theories concerning incentives. Some of them are almost in opposition of each other. One factor explaining the differences is there are researchers from different fields of study as economy, psychology and behavioural science performing research within motivation.

A common belief is that a principal using incentives and monitors the activity of an agent will cause the agent to work harder and perform better. Contradictory theories from the research field of social psychology claim the effort put in to work by the agent will be reduced by the increased monitoring and that these negative effects of motivation will precede over the positive ones causing the total effect on stimulus to be negative (Dickinson and Villeval 2007).

One of the differences relating to the different research fields is according to Frey and Jegen (2001) concerns intrinsic motivation. They claim economists often choose to completely disregard from intrinsic motivation when designing their models. Frey and Jegen (2001) argue the reason economists do that is because of the difficulty determining which parts of employee motivation are intrinsic and which are extrinsic.

An example highlighting the neglecting of intrinsic motivation is Kunz and Pfaff (2002) that states intrinsic motivation is only a hypothetical construct and which does not affect the evidence of the widespread agency theory. They admit hidden costs of rewards exist, but they claim their empirical evidence shows the undermining effects are not contradictory to the agency theory. Kunz and Pfaff (2002) further claim the negative effects seldom prevail over the positive and that a company easily can avoid the negative ones.

Benabou and Tirole (2003) describe the academic discussion about incentives as two very different views much like a long-standing paradigm clash. The economists firmly believe incentives promote effort and performance, acting as positive reinforcements for the desired behaviour of organisations. Within psychology incentives are much more controversial. It is argued incentives might impair performance and act as negative reinforcement, particularly in the long run. The reason for this according to Benabou and Tirole (2003) is that incentives weaken employee confidence in their own capabilities or the value of the rewarded job.

A number of different theories have been presented by researchers within this area. Some of the most used ones are briefly presented below.

3.5.1. Goal theory

DuBrin (2010) argues all major theories of employee motivation contains goal setting as an elementary activity. The goal theory states employees that get hard specific goals perform better than people who are given none or unspecific goals of the type “do your best”.

3.5.2. Principal-agent theory

One of the biggest reasons for the success of the corporate organisational form is the separation of ownership and control of an organisation. But this structure also causes a conflict of interest between employees and the owners or leaders of an organisation. One way to mitigate this conflict is by trying to align the interests of the two parties with each other. This can be done by making part of the compensation depending on performance (Berk & DeMarzo, 2011).

Kunz & Pfaff (2002) describes the agency model as containing a risk neutral principal employing a risk adverse agent to perform a task. There are different types of models but they all have two main features which are the presumptions about conflict of interests and informational asymmetries.

The standard principal-agent theory is based on incentives for a certain performance. Since it is difficult to objectively relate measures of performance for an employee, this has a tendency of leading to problems (Fairburn and Malcomson, 2000). The problems often relate to separate objectives between two parties and their motivational challenges due to information asymmetry, which originates because the parties does not have access to the same information due to their different roles (Waterman & Meier, 1998).

3.5.3. Expectancy theory

The expectancy theory is according to DuBrin (2010) based on the assumption the energy employees put into work depends on the amount of compensation they expect to get back. It is based on three factors, valence, instrumentality and expectancy. Valence as the value or attractiveness of the compensation, instrumentality as the probability the performance will lead to a certain outcome and expectancy is the assessment of the probability that his work will lead to the wanted result (DuBrin, 2010).

3.5.4. Cognitive evaluation theory (CET)

CET describes if an employee has an initial interest and liking of the task he is supposed to perform, which will provide a level of intrinsic motivation from performing it. If the organisation chooses to introduce a reward for the same task, this can undermine the intrinsic motivation of the employee. These phenomena can especially be seen when rewards are narrowly connected to performance criteria that can be interpreted as being of a controlling nature. This then leads to an undermining of the perception of self-determination, and as a result a lowering of the intrinsic motivation (Pierce et. al. 2003).

3.5.5. Equity theory

Kraizberg et al. (2002) describes that in the equity theory the employees opinion of the relationship between what they add to the company and what they get back, in comparison to their colleagues inside or outside the organisation determines to what degree they feel the relationship to their company is fair or not. If the employee feels that it is unfair he is believed to do something to improve the situation, which can mean demanding better compensation, changing jobs or putting in less effort at work.

3.5.6. Crowding theory

Frey and Jegen (2001) write that external rewards or punishment can undermine or strengthen the intrinsic motivation, this is called crowding theory. The crowding-out effect is an important anomaly in economics, because it goes against the fundamental economic law that higher financial incentives increases supply of something.

Dickinson and Villeval (2007) write that the reason for this is the monitoring in a reward system lowers the self-esteem and self-determination of an agent. The agent can also interpret the monitoring as an expression for suspicion from the principal and this causes the agent to lose his motivation.

3.5.7. Incentive alternatives

According to Merchant and Van der Stede (2012), incentives can be both positive in the form of rewards and negative as punishments. Monetary incentives are one of the most common forms and they can be divided in three categories. Performance-based salary increases where some part of the raise is merit based, short-term incentive plans that generally are paid over periods of one year or less and long-term incentive plans often in the form of ownership where creating long term value is rewarded.

3.5.8. Important parameters

Merchant (2012) writes that before starting designing an incentive system, it is important to define the desired performance and decide who is responsible for reaching the sought after results.

According to Merchant (2012) there are seven criteria to consider when designing an incentive plan. Rewards should be valued to the employees, they should be large enough to have an impact, they should be understandable, they must be timely, the effect of the incentive should be durable, they should be reversible and finally they must be cost efficient for the company.

Kauhanen and Napari (2012) write that in order to achieve a good result from an incentive plan an organisation need to identify good performance measures. This is difficult since it is often hard to measure the impact of an individual employee to the organisational objectives.

Another factor that has an impact on the design of Incentive systems that Kauhanen and Napari (2012) points out is performance measures having a large portion of uncertain risk are expensive for the company, since a risk adverse agent wants to be compensated for bearing that risk.

Kauhanen and Piekkola (2006) highlight a number of important parameters when creating a well-functioning performance-related pay system (PRP). Some of them are; Employees should feel they are able to affect the outcome, the organisational level of the PRP should be close to the employee, employees should be familiar with PRP, the level of payment should be high enough, the reward frequent enough and employees should participate in the design of the PRP.

Kauhanen and Piekkola (2006) show that the features and designs of a performance related pay system are important for its effect on motivation among the employees. While Belfield and Marsden (2003) explain the major driver of the performance outcome is not the choice of pay system, but the relationship between how you can monitor the work environment and the pay system. Combinations matching each other perform better than those that do not.

3.5.9. Individualising of incentive systems

Babcock (2005) says that directing specific rewards to the personnel that value them is more vital than ever. Preferences among the employees today are moving targets that continuously change, both by personal likings but also by personnel turnover. Therefore the HR specialists need to understand their employees and their preferences. The better they perform within this field, the better they will be at responding to the demands which will increase the chance to better motivate the employees in the end.

Also Pokorny (2013) writes that organisations should understand their employees as individuals to successfully motivate and engage them. One way to better understand the

goals that employees desire and strive to attain is to get insights into the values of the personnel. According to Pokorny (2013) values are a human motivational construct and act as a personal set of standards or criteria. Her studies show that employees believing they are well-rewarded and well-recognised are more efficiently retained, more productive and also more pleased with their job.

To better manage the rewards and adopt them to different types of employees, Pokorny (2013) has divided the personnel she has studied into four different groups. They are: Drivers whose motivation comes from success and self-enhancement, pioneers where self-directed work, learning and trying out new things are the important factors for motivation. Stabilizers who seek to balance risk and reward and prefers team based reward and recognition instead of competition, and the altruists that have a drive for self-transcendence.

3.5.10. Summary of monetary incentives

A lot of studies have been done in order to examine the results of monetary incentives, but the results from them varies a great deal and it is therefore difficult to be certain about the actual effects. A few of the results are summarised below.

Ukko et al. (2009) writes that their study did not show any significant result in either way on motivation from rewarding employees with monetary means. But for the employees that have more autonomy in work and possibility to be a part of decision making, they could see more positive results from rewards. Nisar (2006) shows that monetary incentives influence the employees to focus on the things that provide the biggest reward, but it does nothing to improve the overall motivation.

Pepper et al. (2012) shows that long term incentive plans for top executives does not give the sought after results and are neither efficient nor effective from organisational point of view. Results from their study show that intrinsic motivation decreases when the monetary incentives rises over an upper threshold level. Rewards also have a harmful effect on intrinsic motivation if they are below a lower threshold level.

The experimental study of Dickinson and Villeval (2007) show average results from tests are highest when monitoring from the principal is the lowest. In accordance, the average results are lowest when control is tightest. They claim this provides evidence of the crowding out effect and that it must be taken into account by organisations. The results are especially clear when reciprocity can be inferred and when the relationship between principal and agent are on a more personal level.

Lazear (2000) has done a thorough study of blue collar workers in a factory that mounted windshields on cars where a new management changed compensation from hourly wages to piece rate pay. The result was workers behaved just like the economic theories predicted they would and the average production performance improved by 22%.

Another study that is positive to monetary rewards is Yancey (2010) which shows that out of 213 Credit Unions the ones that had incentive pay programs for their CEO outperformed those without. The study also showed that the longer the pay schemes had been running the better the outcome was.

Pouliakas (2010) finds conclusions in support of monetary incentive having a positive effect on employee performance if they are considered large enough. It is also shown in this study that if you have a bonus and take it away it has a clear negative effect on motivation. The positive effect of monetary incentives has a tendency to diminish after a few years since the employees gets used to the reward.

Gneezy and Rustichini (2000) write that according to their laboratory experiments the size and timing of the reward is important. Larger rewards will lead to better results, but the introduction of a reward, where there previously were none could in some cases lead to lower results.

According to Pierce et al. (2003) more than 140 experiments have been conducted in order to research the consequences of external rewards on intrinsic motivation. To conclude all these studies, several meta analyses has been done and the results from them show everything from limited to negative results of rewards.

3.6. Requirement in the knowledge economy

The requirements on management have changed and will continue to change as an effect of the globalisation and emergence of a knowledge economy (Huang, 2011).

Switzer (2008) writes that companies needs to understand the importance of the new sets of skills that the knowledge worker brings and understand how vital it is to generate, maintain and manage that knowledge. Some of the new skills that come with the knowledge worker are according to Milne (2007) research and information management, strategic thinking and personal leadership.

Milne (2007) argues sharing of knowledge is one of the basic requirements of a knowledge based organisation, and the challenge for companies is to create an organisational culture where knowledge sharing is the standard. This can be a bit threatening for the employees since this is the opposite of what has often been rewarded in the old economy. Employees are now supposed to share the thing that historically having given them their position and financial rewards.

Drucker (1998) believes that a lot of what is taught in and used in the name of management today is very much out of date. He claims we must change the way we manage to a way that better fit the reality of today. One of his opinions is that the belief there is one right form of organisation for all purposes is absolutely wrong. Future managers need to have a toolbox of different organisational structures and apply the best one for each situation.

3.6.1. Impact on motivating knowledge workers

The first step when taking on the challenge to improve the productivity of the knowledge worker is to understand what motivates them (Drucker, 1999).

Switzer (2008) concludes organisations need to adapt to the individual needs and desires from the knowledge workers. Some of the new needs and desires described are, freedom to develop and manage their own work, direct involvement in company policies, inspiring work that involves continued development and especially a great deal of autonomy.

Pokorny (2013) states organisations need to concentrate more on getting to know their employees as individuals to successfully motivate and engage them. She claims the models for incentives today are stuck in a dated belief that employees are mostly motivated out of self-interest. Instead it is suggested there is an increased desire among employees requesting meaning and connection in all aspects of their lives, including the relationship with their organisation. Factors like collaboration, participation and social and immersive experiences will be important in the work environment to make employees feel motivated.

3.7. Summary

The theories presented in this chapter are the foundation upon which the survey is created. The questions in the survey are formulated based on our interpretation of the theories taking into account we wanted to limit amount of questions in the survey.

In our opinion, the theories of Maslow can be visible through Herzberg's two factor theory where Maslow's two top levels represent Herzberg's motivators. Motivators and hygiene factors are distinguishable through the survey, and thus indirectly Maslow's higher and lower levels of needs. Questions in the survey are also possible to relate to the two models describing motivation as drives, even though the questions are not explicitly matching the components of the respective models but rather our interpretation of their intent on a general level.

Finally, the survey is constructed to enable separation of monetary incentives when analysing the results.

4. Data from the study

4.1. The respondents to the survey

The survey was sent to 1319 persons working at Semcon Sweden using their Semcon e-mail addresses. One reminder was sent out two weeks after the initial dispatch. The majority of the recipients are working at customer sites using customer e-mail addresses. Of the 1319 recipients, no survey invitations bounced, 646 or 49% of the e-mail invitations were opened and 370 recipients started the survey. The number of complete answers received was 335 which is 25% based on total recipients or 52% of those who opened the e-mail. Similar surveys, but only with six questions, sent out by the HR department at Semcon Sweden have historically had a response rate at 30-50% of the total recipients.

A response rate for the survey in this study at 25% may seem low but given the factors that not all recipients have the Semcon e-mail as their primary e-mail address, as indicated by 51% not opening the e-mail at all and that the survey was answered completely by 52% of those who opened the e-mail resulting in a total sample of 335 answers gives us confidence the data used for analysis is relevant.

In the survey, in addition to the questions covering motivation, the respondents were asked background questions about their gender, age, educational background and how long they have been working for Semcon as well as what their current level of motivation at work were. The results from that are described below.

Age and gender of those answering:

AGE	FEMALE	MALE	TOT
<25 years	4	2	6
>54 years	8	30	38
25-34 years	42	77	119
35-44 years	33	74	107
45-54 years	16	49	65
TOT	**103**	**232**	**335**

Table 1. Age and gender distribution

Educational background of the respondents in the survey:

EDUCATION	FEMALE	MALE	TOT
Advanced vocational training (KY)	7	23	30
Elementary school		1	1
University or college	83	168	251
Upper secondary school (gymnasium)	13	40	53
TOT	**103**	**232**	**335**

Table 2. Educational background

Years the persons have worked for Semcon:

YEARS	FEMALE	MALE	TOT
<2 years	31	88	125
>8 years	21	55	76
2-4 years	26	46	73
4-6 years	16	28	44
6-8 years	4	15	19
TOT	**103**	**232**	**335**

Table 3. Length of employment

Current motivation of the population studied.

MOTIVATION	FEMALE	MALE	TOT
'1'	3	4	7
'2'	3	14	17
'3'	15	29	44
'4'	32	68	100
'5'	34	81	115
'6'	16	36	52
TOT	**103**	**232**	**335**

Table 4. Current motivational level

4.2. Results

The total results of the survey are as follows:

FACTOR	STD. DEV	AVG	SHARE 5/6
Having meaningful and interesting job assignments	0,8	5,4	90%
Having an inspiring work where you continuously develop your skills	0,9	5,4	86%
The company provides opportunities to learn and develop professionally	0,9	5,3	82%
Having challenging job assignments where you can use a wide variety of skills and abilities	1,0	5,2	80%
Having the necessary responsibility and authority needed to perform in your work	0,9	5,1	79%
Flexible working hours, possibility to work from home	1,0	5,0	76%
There is a culture that promotes teamwork, collaboration and encourages sharing of best practices	1,0	5,0	74%
Getting praise and recognition, feedback for performed work	1,2	5,0	74%
There is a culture that fosters mutual reliance and friendship among co-workers	1,0	4,9	71%
Having a competitive salary	1,2	4,9	72%
Having a go-ahead spirit within the company	1,0	4,9	73%
Rewards are tied to individual performance, e.g. salary setting	1,2	4,8	68%
Receiving clear and direct information about the effectiveness of your work performance	1,0	4,7	61%
Having a secure employment	1,2	4,7	60%
Performance bonuses based on personal performance	1,4	4,6	66%
There are transparent career opportunities available	1,1	4,6	59%
Having the autonomy to design and perform job assignments according to your own discretion	1,0	4,6	57%
The processes for performance management are fair, trustworthy, and transparent	1,1	4,5	55%
There are clearly defined roles, responsibilities and authority	1,1	4,5	53%
Receiving a promotion	1,4	4,4	55%
The best people are given opportunities for advancement	1,2	4,4	52%
Participation in goal setting	1,2	4,3	48%
Benefits within work (e.g. company car, cell phone etc.)	1,3	4,1	42%
Benefits outside of work (e.g. event tickets, keep fit benefits etc.)	1,4	3,9	39%
Possibility to directly contribute and influence company policies	1,2	3,9	34%
Understanding and believing in the organisations mission and vision	1,3	3,9	35%
Performance bonuses based on corporate performance	1,4	3,8	35%
Participation in design of reward systems	1,3	3,6	23%
Participation in stock options or owner shares programs	1,5	3,2	22%

Table 5. Summary of results from the survey

All factors have been analysed for correlations. The tests indicated no strong correlations which mean the factors can be reviewed individually. The only correlation worth mentioning is between “There is a culture that fosters mutual reliance and friendship among co-workers” and “There is a culture that promotes teamwork, collaboration and encourages sharing of best practices”. Those two factors have a positive correlation of 0,7010 at a 99% significance interval ($P<0,01$). Expressed in percentage, the two factors explains each other in 50,3% of the cases which – given how the questions are expressed, is not very surprising.

4.3. Group differences

We have looked at the results for each of the different groups as age, gender etc. of the study to see if there are any significant differences between them. The conclusion is that some significant differences exist between how the respondents from different groups rank the factors. These differences are interesting to discuss and will give input and suggestions for further research. However, when reviewing the most important factors there are only smaller changes how factors rank internally among the five most vital. The differences for each group are presented below.

4.3.1. Gender differences

19 out of the 29 factors have significant differences based on the gender of the respondents. The five largest gender related differences are described below.

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
						Lower Bound	Upper Bound		
Having a competitive salary	0	232	5,06	1,026	,067	4,93	5,19	1	6
	1	103	4,59	1,530	,151	4,29	4,89	1	6
	Total	335	4,92	1,221	,067	4,79	5,05	1	6
Flexible working hours possibility to work from home	0	232	4,88	1,089	,071	4,74	5,02	1	6
	1	103	5,39	,807	,080	5,23	5,55	3	6
	Total	335	5,04	1,036	,057	4,93	5,15	1	6
The processes for performance management are fair and trustworthy	0	232	4,34	1,144	,075	4,19	4,49	1	6
	1	103	4,83	,991	,098	4,64	5,03	1	6
	Total	335	4,49	1,121	,061	4,37	4,61	1	6
Receiving a promotion	0	232	4,30	1,375	,090	4,12	4,48	1	6
	1	103	4,77	1,409	,139	4,49	5,04	1	6
	Total	335	4,44	1,400	,076	4,29	4,59	1	6
Benefits outside of work, e.g. event tickets, keep fit benefits etc.	0	232	3,75	1,371	,090	3,57	3,92	1	6
	1	103	4,35	1,334	,131	4,09	4,61	1	6
	Total	335	3,93	1,386	,076	3,78	4,08	1	6

Table 6. Gender differences, note: 0 Male, 1 Female

When comparing the results between answers from males and females some differences are notable. Males rate “Having a competitive salary” clearly higher than what the female does. While females rate “Flexible working hours, possibility to work from home”, “The processes for performance management are fair, trustworthy, and transparent”, “Receiving a promotion” and “Benefits outside of work (e.g. event tickets, keep fit benefits etc.)” considerably higher than males.

It is an interesting fact that the female knowledge workers in the study do not rate the salary as high as the males. This could be one reason for some of the differences in wages between male and female and would be an interesting area to do more research in.

Even though there are some differences in the rating of the individual factors based on gender, there is only one difference in the five most important factors when comparing the female and male results with the grand total. The difference is female knowledge workers rate “Flexible working hours, possibility to work from home” as the fourth most important factor and “Having challenging job assignments” as the number six, instead of the opposite for the total population.

4.3.2. Educational differences

There are three factors that have significant differences based on educational level.

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
There are transparent career opportunities available	1	1	4,00					4	4
	2	53	4,26	1,211	,166	3,93	4,60	1	6
	3	30	4,40	1,037	,189	4,01	4,79	2	6
	4	251	4,70	1,064	,067	4,56	4,83	1	6
	Total	335	4,60	1,095	,060	4,48	4,72	1	6
There is a culture that fosters mutual reliance friendship among co-workers	1	1	5,00					5	5
	2	53	4,57	1,065	,146	4,27	4,86	2	6
	3	30	5,00	,743	,136	4,72	5,28	3	6
	4	251	5,02	1,004	,063	4,90	5,15	1	6
	Total	335	4,95	1,003	,055	4,84	5,06	1	6
Having meaningful and interesting job assignments	1	1	6,00					6	6
	2	53	5,19	,856	,118	4,95	5,42	3	6
	3	30	5,63	,615	,112	5,40	5,86	4	6
	4	251	5,45	,754	,048	5,36	5,54	2	6
	Total	335	5,43	,766	,042	5,34	5,51	2	6

Table 7. Educational differences, note: 1 Elementary school, 2 Upper secondary school, 3 Advanced vocational training (KY), 4 University or college

The option representing elementary school only consists of one respondent which makes it difficult to use that information for any conclusions. What is interesting to pay attention to is there are indications that higher educational levels may result in rating availability of transparent career opportunities as more motivating. Given the fact we are investigating knowledge workers and that the group representing education at university or college level accounts for 75% of the total respondents it is a factor well worth paying attention to.

The top five factors for the different educational levels are to a great extent the same as for the total population, although we can see some small differences. The groups with no University or college education rate “Flexible working hours, possibility to work from home” as one of the top five instead of “Having challenging job assignments”.

4.3.3. Differences because of years at Semcon

Six of 29 factors significant differences related to employment time.

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Performance bonuses based on corporate performance	1	124	3,92	1,406	,126	3,67	4,17	1	6
	2	72	3,49	1,482	,175	3,14	3,83	1	6
	3	44	3,64	1,448	,218	3,20	4,08	1	6
	4	19	3,58	1,346	,309	2,93	4,23	1	6
	5	76	4,24	1,264	,145	3,95	4,53	1	6
	Total	335	3,84	1,413	,077	3,69	3,99	1	6
Getting praise and recognition, feedback for performed work	1	124	5,13	1,012	,091	4,95	5,31	1	6
	2	72	5,21	1,020	,120	4,97	5,45	2	6
	3	44	4,82	1,386	,209	4,40	5,24	1	6
	4	19	5,21	,713	,164	4,87	5,55	4	6
	5	76	4,61	1,337	,153	4,30	4,91	1	6
	Total	335	4,99	1,154	,063	4,87	5,12	1	6
Having an inspiring work where you continuously develop your skills	1	124	5,48	,738	,066	5,34	5,61	3	6
	2	72	5,53	,822	,097	5,33	5,72	3	6
	3	44	5,43	,818	,123	5,18	5,68	3	6
	4	19	5,32	,885	,203	4,89	5,74	3	6
	5	76	5,13	1,037	,119	4,89	5,37	2	6
	Total	335	5,39	,858	,047	5,30	5,49	2	6
Receiving clear and direct information about the effectiveness of your work performance	1	124	4,93	,921	,083	4,76	5,09	2	6
	2	72	4,74	1,021	,120	4,50	4,98	2	6
	3	44	4,75	,892	,135	4,48	5,02	3	6
	4	19	4,21	1,084	,249	3,69	4,73	2	6
	5	76	4,33	1,025	,118	4,09	4,56	2	6
	Total	335	4,69	1,000	,055	4,58	4,79	2	6
Having meaningful and interesting job assignments	1	124	5,41	,796	,072	5,27	5,55	2	6
	2	72	5,64	,737	,087	5,47	5,81	3	6
	3	44	5,50	,731	,110	5,28	5,72	3	6
	4	19	5,21	,631	,145	4,91	5,51	4	6
	5	76	5,26	,755	,087	5,09	5,44	3	6
	Total	335	5,43	,766	,042	5,34	5,51	2	6
Having a secure employment	1	124	4,90	1,153	,104	4,69	5,10	2	6
	2	72	4,56	1,243	,147	4,26	4,85	2	6
	3	44	4,61	1,104	,166	4,28	4,95	2	6
	4	19	4,05	1,433	,329	3,36	4,74	1	6
	5	76	4,64	1,042	,120	4,41	4,88	2	6
	Total	335	4,68	1,172	,064	4,55	4,81	1	6

Table 8. Employment length differences, note: 1 <2 years, 2 2-4 years, 3 4-6 years, 4 6-8 years, 5 >8 years

There are some differences between the top five factors when we compare people after how long they have been working at Semcon. The employees with less than two years at the company have the same five factors as most important as the total population but in a different order.

The group having worked 2-4 years at Semcon say that “Getting praise and recognition, feedback for performed work” is among the top five instead of “Having the necessary responsibility and authority needed to perform in your work”. The group having worked 4-6 years at Semcon states “There is a culture that promotes teamwork, collaboration and encourages sharing of best practices” and “Flexible working hours, possibility to work from home” are more important than “Having challenging job assignments” and “Having the necessary responsibility and authority needed to perform in your work”.

Those who have worked 6-8 years at Semcon rated “Getting praise and recognition, feedback for performed work” and “Having a go-ahead spirit within the company” higher than “Having challenging job assignments” and “Having the necessary responsibility and authority needed to perform in your work”. The veterans with more than 8 years at the company are more motivated by “Flexible working hours, possibility to work from home” than “Having challenging job assignments”.

4.3.4. Age differences

Six of 29 factors have significant differences related to age.

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Getting praise and recognition, feedback for performed work	1	6	4,67	1,033	,422	3,58	5,75	3	6
	2	119	5,29	1,001	,092	5,10	5,47	1	6
	3	107	4,81	1,175	,114	4,59	5,04	1	6
	4	65	4,86	1,197	,149	4,56	5,16	1	6
	5	38	4,84	1,346	,218	4,40	5,28	1	6
	Total	335	4,99	1,154	,063	4,87	5,12	1	6
Participation in goal setting	1	6	3,17	,753	,307	2,38	3,96	2	4
	2	119	4,44	1,154	,106	4,23	4,65	1	6
	3	107	4,32	1,087	,105	4,11	4,53	2	6
	4	65	4,02	1,329	,165	3,69	4,34	1	6
	5	38	4,18	1,291	,210	3,76	4,61	1	6
	Total	335	4,27	1,193	,065	4,14	4,39	1	6
Having a competitive salary	1	6	3,50	1,643	,671	1,78	5,22	2	6
	2	119	4,76	1,302	,119	4,52	4,99	1	6
	3	107	5,14	1,085	,105	4,93	5,35	2	6
	4	65	5,00	1,146	,142	4,72	5,28	1	6
	5	38	4,87	1,212	,197	4,47	5,27	2	6
	Total	335	4,92	1,221	,067	4,79	5,05	1	6
There are transparent career opportunities available	1	6	4,33	,816	,333	3,48	5,19	3	5
	2	119	4,79	,999	,092	4,61	4,97	1	6
	3	107	4,64	1,041	,101	4,44	4,83	2	6
	4	65	4,58	1,158	,144	4,30	4,87	2	6
	5	38	3,97	1,262	,205	3,56	4,39	1	6
	Total	335	4,60	1,095	,060	4,48	4,72	1	6
Having an inspiring work where you continuously develop your skills	1	6	5,33	1,211	,494	4,06	6,60	3	6
	2	119	5,60	,693	,064	5,47	5,72	3	6
	3	107	5,32	,948	,092	5,14	5,50	2	6
	4	65	5,22	,910	,113	4,99	5,44	3	6
	5	38	5,29	,835	,136	5,01	5,56	3	6
	Total	335	5,39	,858	,047	5,30	5,49	2	6
Receiving clear and direct information about the effectiveness of your performance	1	6	4,17	1,169	,477	2,94	5,39	3	6
	2	119	4,93	,841	,077	4,78	5,09	3	6
	3	107	4,56	1,066	,103	4,36	4,76	2	6
	4	65	4,58	,967	,120	4,35	4,82	3	6
	5	38	4,53	1,179	,191	4,14	4,91	2	6
	Total	335	4,69	1,000	,055	4,58	4,79	2	6

Table 9. Age differences, note: 1 <25 years, 2 25-34 years, 2 35-44 years, 3 45-54 years, 4 45-54 years, 5 >54 years

The group of 25-34 year olds seem to rate getting praise and recognition, feedback for performed work higher than the other groups. The group of <25 years rate participation in goal setting as well as having a competitive salary a lot lower than the other groups.

For most of the ages groups there are no differences on the top five list compared to the total population. But the group of 35-44 years old place “Flexible working hours, possibility to work from home” and “Having a competitive salary” among the top five instead of “Having challenging job assignments” and “Having the necessary responsibility and authority needed to perform in your work”. While the youngest group with those being under 25 years old states they are more motivated by “Flexible working hours, possibility to work from home” then by “Having the necessary responsibility and authority needed to perform in your work”.

4.3.1. Current level of motivation at work

The background factor, “How would you rate your current motivation at work?” is not surprisingly significantly related to several of the survey question at a 95% confidence interval. 13 out 29 factors have significant differences depending on how motivated the respondents have rated themselves.

The current level of motivation at work does not affect the top five list much either. Three of the groups placed “Flexible working hours, possibility to work from home” as number four or five instead of “Having challenging job assignments” and “Having the necessary responsibility and authority needed to perform in your work”.

5. Analysis

5.1. The most important motivators

From the calculated average value that each factor has got in the survey we choose the five with the highest result in order to point out which were the most important ones. The five factors that the respondents to the study have given the highest average rating are:

FACTOR	AVERAGE	SHARE OF 5 OR 6
Having meaningful and interesting job assignments	5,4	90%
Having an inspiring work where you continuously develop your skills	5,4	86%
The company provides opportunities to learn and develop professionally	5,3	82%
Having challenging job assignments where you can use a wide variety of skills and abilities	5,2	80%
Having the necessary responsibility and authority needed to perform in your work	5,1	79%

Table 10. The five most important factors, note: "Share of 5 or 6" shows the share of the respondents that has rated the factor as a 5 or a 6

These results are very much in line with what Katz (2005) writes on how to motivate technical professionals which are to be considered knowledge workers. Katz (2005) theory states true employee commitment and motivation originates in the intrinsic nature of the task being performed. For many professionals it is a lot about doing interesting and challenging tasks to further develop professionally. The view the worker has about the job at hand, including how the information, decision-making, mission and rewards is organised and managed has a great impact on motivation.

In order to achieve motivation from a task, Katz (2005) argues work should be like the things you do for fun in your spare time. The five factors the respondents have ranked the highest in the survey are well connected with the characteristics representing tasks facilitating intrinsic motivation in Katz (2005) model.

DuBrin (2010) supports these findings as he writes that employees doing something they are interested in and like are easier to keep motivated to do a good job. The reason for this is that their focus are on the task itself and they get a drive and will from it to perform well. This is very much in line with the definition of intrinsic motivation that has been used in this thesis where the motivating factors is viewed as either intrinsic or extrinsic (Ryan & Deci, 2000).

The three elements in the model based on intrinsic motivation described by Pink (2009), autonomy, mastery and purpose are clearly present within the five highest ranked factors.

5.2. The least important motivators

The five factors that the respondents to the study have given the lowest rating are:

FACTOR	AVERAGE	SHARE OF 5 OR 6
Possibility to directly contribute and influence company policies	3,9	34%
Understanding and believing in the organisations mission and vision	3,9	35%
Performance bonuses based on corporate performance	3,8	35%
Participation in design of reward systems	3,6	23%
Participation in stock options or owner shares programs	3,2	22%

Table 11. The five least important factors, note: "Share of 5 or 6" shows the share of the respondents that has rated the factor as a 5 or a 6

One of the most notable results of the least important factors are that the frequently used factor "Participation in stock options or owner shares programs" is ranked last of all the 29 factors. These kinds of Incentives are according to Merchant (2012) long term and are aiming at rewarding creation of long term organisational value. Another commonly used factor "Performance bonuses based on corporate performance" is also one of the lowest ranked in the survey.

5.3. Maslow's hierarchy of needs

The population studied all have a decent education, a well-paid job and a belonging in a work group and have therefore to a great extent the basic needs at the first three steps of Maslow's needs fulfilled. And according to Maslow (1943) it is then natural that they focus on the need above the first three.

All the five most important factors can be considered as either Esteem needs or Self-Actualisations needs which is the two highest levels in Maslow's hierarchy of needs. These two can be seen as a person trying to feel valued as an individual and being acknowledged as a respected asset within a group or when aiming to reach his or her full potential. We can conclude that the population are prioritising the needs in the way that Maslow predicted they would.

5.4. The two-factor theory

The table below presents the questions from the survey relating to Herzberg's (2003) two factory theory. The five highest rated questions in this breakdown are identical to the top five from the total questions which gives us strong arguments motivators, using the terminology of Herzberg (2003), accounts for a majority of the factors related to job satisfaction.

Hygiene factors and motivators	Classification	AVG	SHARE 5/6
Having meaningful and interesting job assignments	M	5,4	90%
Having an inspiring work where you continuously develop your skills	M	5,4	86%
The company provides opportunities to learn and develop professionally	M	5,3	82%
Having challenging job assignments where you can use a wide variety of skills and abilities	M	5,2	80%
Having the necessary responsibility and authority needed to perform in your work	M	5,1	79%
Getting praise and recognition, feedback for performed work	M	5,0	74%
Having a competitive salary	H	4,9	72%
Receiving clear and direct information about the effectiveness of your work performance	M	4,7	61%
Having a secure employment	H	4,7	60%
Performance bonuses based on personal performance	H	4,6	66%
Having the autonomy to design and perform job assignments according to your own discretion	M	4,6	57%
Receiving a promotion	M	4,4	55%
Benefits within work (e.g. company car, cell phone etc.)	H	4,1	42%
Benefits outside of work (e.g. event tickets, keep fit benefits etc.)	H	3,9	39%
Performance bonuses based on corporate performance	H	3,8	35%
Participation in stock options or owner shares programs	H	3,2	22%

Table 12. Questions relating to Herzberg's two factor theory, M = Motivator, H = Hygiene

What is worth noticing is having a competitive salary is a factor rated relatively high. It is regarded as more important than a typical motivator as receiving a promotion and two other questions relating to authority and feedback. Herzberg (2003) notices that even though salary is considered to be a hygiene factor, it is the factor in his model that has the most evenly distribution between being related to job dissatisfaction and job satisfaction. Relatively speaking, salary is neither a large contributor to job dissatisfaction nor job satisfaction.

5.5. Motivation as drives

The two models reviewed aiming at having a holistic view on factors influencing employee motivation have interesting differences when comparing the results from the survey. The model described by Nohria et al. (2008) is very broad, covering 19 out of the 29 questions in the survey according to our interpretation. The importance of the factors involved is fairly evenly distributed among both the highest and lowest ranked factors. The model fails to cover two of the top five ranked factors but includes all of the questions related to hygiene factors in the survey. In our opinion, the model does not offer any help or guidance distinguishing the most influencing factors.

FACTOR	Classification	Classification	AVG	SHARE 5/6
Having meaningful and interesting job assignments	Purpose		5,4	90%
Having an inspiring work where you continuously develop your skills	Mastery	Comprehend	5,4	86%
The company provides opportunities to learn and develop professionally	Mastery	Comprehend	5,3	82%
Having challenging job assignments where you can use a wide variety of skills and abilities	Mastery	Comprehend	5,2	80%
Having the necessary responsibility and authority needed to perform in your work	Authority		5,1	79%
Flexible working hours, possibility to work from home	Authority		5,0	76%
There is a culture that promotes teamwork, collaboration and encourages sharing of best practices		Bond	5,0	74%
There is a culture that fosters mutual reliance and friendship among co-workers		Bond	4,9	71%
Having a competitive salary		Acquire	4,9	72%
Having a go-ahead spirit within the company	Purpose	Bond	4,9	73%
Rewards are tied to individual performance, e.g. salary setting		Acquire	4,8	68%
Receiving clear and direct information about the effectiveness of your work performance	Authority		4,7	61%
Having a secure employment		Security	4,7	60%
Performance bonuses based on personal performance		Acquire	4,6	66%
There are transparent career opportunities available		Acquire	4,6	59%
Having the autonomy to design and perform job assignments according to your own discretion	Authority		4,6	57%
The processes for performance management are fair, trustworthy, and transparent		Security	4,5	55%
There are clearly defined roles, responsibilities and authority		Security	4,5	53%
Receiving a promotion		Acquire	4,4	55%
The best people are given opportunities for advancement		Acquire	4,4	52%
Benefits within work (e.g. company car, cell phone etc.)		Acquire	4,1	42%
Benefits outside of work (e.g. event tickets, keep fit benefits etc.)		Acquire	3,9	39%
Possibility to directly contribute and influence company policies	Purpose		3,9	34%
Understanding and believing in the organisations mission and vision	Purpose		3,9	35%
Performance bonuses based on corporate performance		Acquire	3,8	35%
Participation in stock options or owner shares programs		Acquire	3,2	22%

Table 13. Questions relating to the drive-models

The model emphasising authority, mastery and purpose as distinguishing elements influencing employee motivation (Pink, 2009) is considerable more accurate when reviewing

the results from the survey. It covers the top six rated questions from the survey and none of the hygiene factors. What is worth noticing from the results of the survey is two factors related to purpose where among the five lowest ranking factors. To be able to influence company policies and to understanding and believing in an organisation's mission and vision does not seem very motivating, relative to other factors, by the group investigated.

5.6. Incentives

Merchant (2012) describes three reasons for using monetary incentives and one of them is to enhance motivation among the employees. This is frequently used in a lot of organisations, but this study does not show that the knowledge workers rate them as especially important for their motivation. In the survey we are asking the respondents to grade seven different types of incentives. The ratings of them are seen in the table below.

FACTOR	AVERAGE	SHARE OF 5 OR 6
Having a competitive salary	4,9	72%
Rewards are tied to individual performance, e.g. salary setting	4,8	68%
Performance bonuses based on personal performance	4,6	66%
Benefits within work (e.g. company car, cell phone etc.)	4,1	42%
Benefits outside of work (e.g. event tickets, keep fit benefits)	3,9	39%
Performance bonuses based on corporate performance	3,8	35%
Participation in stock options or owner shares programs	3,2	22%

Table 14. Monetary incentives, note: "Share of 5 or 6" shows the share of the respondents that has rated the factor as a 5 or a 6

The factors that are based on individual performance are found in the middle of all the factors, while the two relating to corporate performance are among the three with the lowest average values. These knowledge workers are apparently more motivated by incentives that are close to them and that they can affect the outcome of, just as the theory describes below.

One reason for the relatively low rating on all the monetary incentives could be that designing an effective incentive system is a difficult task. Merchant (2012) and Kauhanen and Piekkola (2006) mention ability to affect the outcome, payment level and payment frequency as some of the factors organisations usually struggles with.

5.7. Individualising

One area that is claimed to be increasingly important is individualising how employees are motivated. Organisations need to look at individual needs and desires for each and every one of their employees (Switzer, 2008).

Pokorny (2013) has described four different groups of employees based on what they are motivated by. An organisation can use this differentiation in order to direct different motivational investments to the people most interested in each one of them. From the results of this study we can conclude that these knowledge workers can to a great extent be considered as pioneers. A pioneer is someone who is mainly interested in self-directed work,

learning and trying out new things (Pokorny, 2013). Those are factors the investigated population have rated as most important in order to motivate them. Therefore it is important for Semcon to prioritise these kinds of questions in order to be efficient in motivating their employees.

When analysing the results for the different sub-groups in the study we could see some small differences where one or two factors has moved from place 6-10 to the top five. The differences between the groups are too small to prompt for differentiated motivation programs for the sub-groups and thus possible get a slightly better result. Organisations need to do like Babcock (2005) suggests which is to develop a number of specific programs and direct them to the employees according to values and preferences.

6. Conclusion

The research question for this master thesis was “What motivates knowledge workers?”, with the implied purpose to help create long-term benefits for an organisation. We can conclude that the population of knowledge workers that have been studied are most likely to be motivated by factors like:

- Having meaningful and interesting job assignments
- Having an inspiring work where you continuously develop your skills
- The company provides opportunities to learn and develop professionally
- Having challenging job assignments where you can use a wide variety of skills and abilities
- Having the necessary responsibility and authority needed to perform in your work

All of these factors are to be considered to be intrinsic motivators using the definitions of Ryan & Deci (2000) or motivators relating to Herzberg’s (2003) model.

The results do not indicate models like the principal-agent or expectancy theories are wrong in their ideas stating employees are motivated by monetary incentives. They still get quite a high average grade by the population studied and individuals generally answer they get some motivation from them. What our study shows is most of the studied group of knowledge workers are more motivated by intrinsic factors including different forms of autonomy, mastery and purpose.

From the results of our study we can conclude that even the lowest ranked factor out of the 29 is valued as a 5 or a 6 by 22% of the population. This shows that each of these factors can play a role in order to motivate each individual employee in a group of knowledge workers. All organisations with the aim to increase knowledge worker productivity have to take the time to find out how to best motivate each single employee.

6.1. Implications

Having distinct intrinsic factors as the top rated elements in this study suggests organisations can put less focus on developing advanced monetary incentive models for their knowledge workers. On the other hand, it is by no means uncomplicated or uncontroversial to change organisational structures to fulfil the prerequisites necessary in order to achieve increased knowledge worker productivity driven by motivation.

Relating to the principles of vertical job enrichment (Herzberg, 2003), we believe those principles are important findings to keep in mind when approaching motivation of knowledge workers. Too often, initiatives aimed at strengthening the employer brand, increasing the results in employee surveys or similar activities end up in focusing only at a few factors failing to adopt a holistic approach which according to our findings are necessary to successful making use of motivation to increase productivity of knowledge workers.

Since the implication of e.g. a meaningful and interesting job is individual, it will take a lot of effort for the management to first find out every workers specific requirement and then try to fulfil those conditions. One way for an organisation to increase individual employee motivation is to start paying attention to personal interests and try to direct different work tasks in accordance with that. The Importance of interest in the tasks also highlights the importance of recruiting employees with curiosity in the business of an organisation.

6.2. Recommendations for further research

The question of how organisations in an efficient way should find out individual needs and preferences related to motivation and how to fulfil them in a feasible way is an area with the potential for a lot of further research. We are convinced the organisation successful within this area will experience benefits related to increased productivity for their knowledge workers. In addition these organisations will most probably obtain positive side effects as improved ability to attract and retain knowledge workers.

We believe the differences found in this study related to gender are worth paying further attention to. One important part of such a study could be to investigate if power structures within organisations have any impact on the results. Men are overrepresented in top management positions within most organisation affecting e.g. design of reward systems which is a factor potentially influencing how incentives are perceived.

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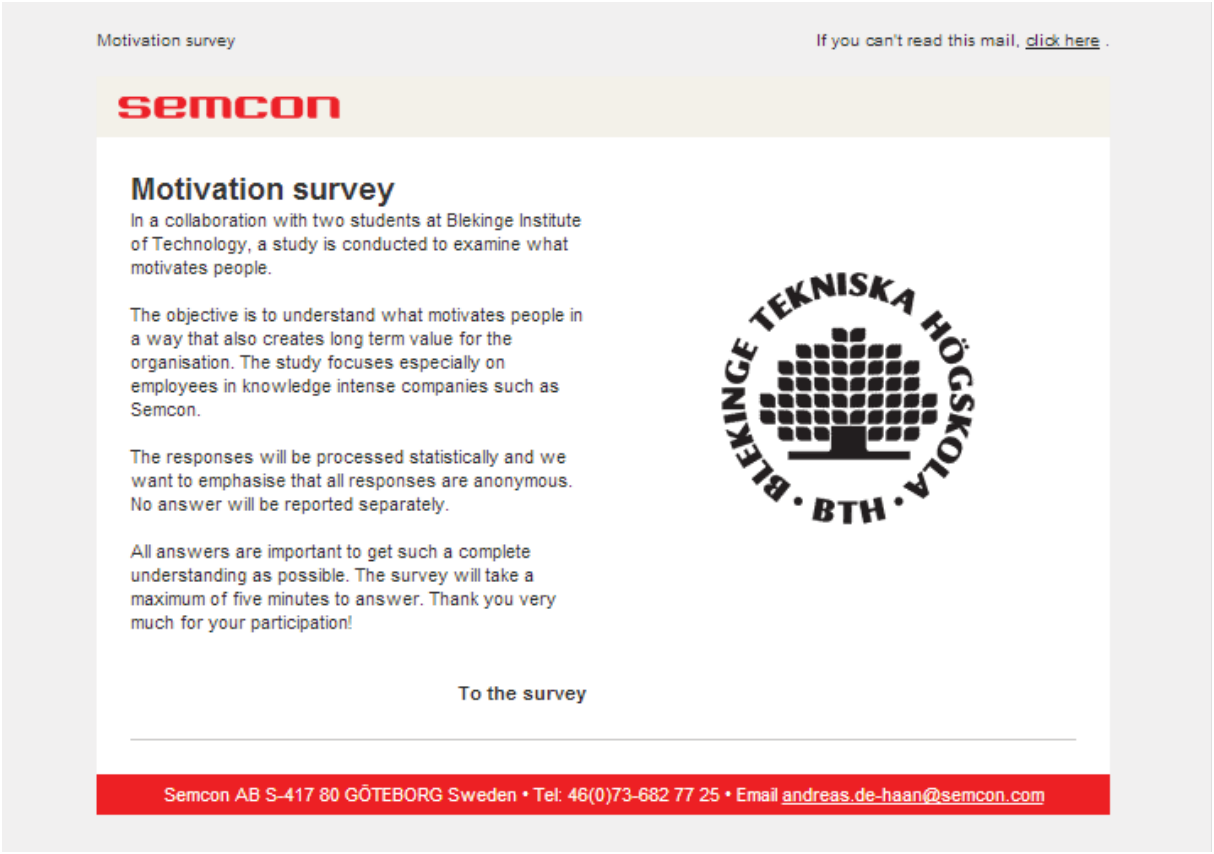
8. Appendices

8.1. Appendix 1: Survey invitation



Motivation survey

If you can't read this mail, click here .

semcon

Motivation survey

In a collaboration with two students at Blekinge Institute of Technology, a study is conducted to examine what motivates people.

The objective is to understand what motivates people in a way that also creates long term value for the organisation. The study focuses especially on employees in knowledge intense companies such as Semcon.

The responses will be processed statistically and we want to emphasise that all responses are anonymous. No answer will be reported separately.

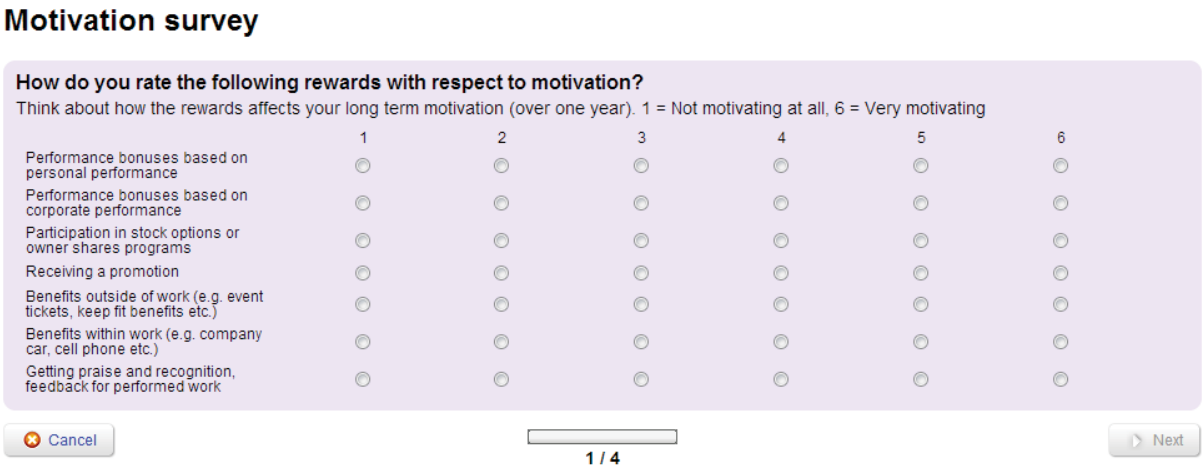
All answers are important to get such a complete understanding as possible. The survey will take a maximum of five minutes to answer. Thank you very much for your participation!

BLEKINGE TEKNISKA HÖGSKOLA · BTH ·

To the survey

Semcon AB S-417 80 GÖTEBORG Sweden • Tel: 46(0)73-682 77 25 • Email andreas.de-haan@semcon.com

8.2. Appendix 2: Survey



Motivation survey

How do you rate the following rewards with respect to motivation?

Think about how the rewards affects your long term motivation (over one year). 1 = Not motivating at all, 6 = Very motivating

	1	2	3	4	5	6
Performance bonuses based on personal performance	○	○	○	○	○	○
Performance bonuses based on corporate performance	○	○	○	○	○	○
Participation in stock options or owner shares programs	○	○	○	○	○	○
Receiving a promotion	○	○	○	○	○	○
Benefits outside of work (e.g. event tickets, keep fit benefits etc.)	○	○	○	○	○	○
Benefits within work (e.g. company car, cell phone etc.)	○	○	○	○	○	○
Getting praise and recognition, feedback for performed work	○	○	○	○	○	○

Cancel

1 / 4

Next

Motivation survey

How important are the following conditions in order for you to feel motivated at work?

1 = Not important at all, 6 = Very important

	1	2	3	4	5	6
Rewards are tied to individual performance, e.g. salary setting	○	○	○	○	○	○
Participation in goal setting	○	○	○	○	○	○
Participation in design of reward systems	○	○	○	○	○	○
The best people are given opportunities for advancement	○	○	○	○	○	○
Having a competitive salary	○	○	○	○	○	○
There are transparent career opportunities available	○	○	○	○	○	○
There is a culture that promotes teamwork, collaboration and encourages sharing of best practices	○	○	○	○	○	○
There is a culture that fosters mutual reliance and friendship among co-workers	○	○	○	○	○	○
Having a go-ahead spirit within the company	○	○	○	○	○	○
Having challenging job assignments where you can use a wide variety of skills and abilities	○	○	○	○	○	○
Having an inspiring work where you continuously develop your skills	○	○	○	○	○	○
The company provides opportunities to learn and develop professionally	○	○	○	○	○	○

Cancel | Previous | 2 / 4 | Next

Motivation survey

How important are the following conditions in order for you to feel motivated at work?

1 = Not important at all, 6 = Very important

	1	2	3	4	5	6
Having the necessary responsibility and authority needed to perform in your work	○	○	○	○	○	○
Having the autonomy to design and perform job assignments according to your own discretion	○	○	○	○	○	○
Receiving clear and direct information about the effectiveness of your work performance	○	○	○	○	○	○
Flexible working hours, possibility to work from home	○	○	○	○	○	○
Having meaningful and interesting job assignments	○	○	○	○	○	○
Possibility to directly contribute and influence company policies	○	○	○	○	○	○
Understanding and believing in the organisations mission and vision	○	○	○	○	○	○
The processes for performance management are fair, trustworthy, and transparent	○	○	○	○	○	○
Having a secure employment	○	○	○	○	○	○
There are clearly defined roles, responsibilities and authority	○	○	○	○	○	○

Cancel | Previous | 3 / 4 | Next

Motivation survey

How would you rate your current motivation at work?

1	2	3	4	5	6
Not motivated at all					Very motivated

Gender

- Select -

How old are you?

- Select -

How long time have you worked at Semcon?

- Select -

What is your highest completed education level?

- Select -

Cancel | Previous | 4 / 4 | Finish