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Competence Visualisation

Prerequisites and guidelines for visualising competence

Master of Science Thesis [Product Development, PPUX05]

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Gothenburg, Sweden, 2013

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Abstract

This thesis is executed at Chalmers University of Technology with the focus to visualising competence in organisations. Digitalising information gives possibilities to make data more available direct. The thesis has under 20 weeks been executed with theoretical studies, interviews and analyses to find a solution to collect, store, and use the visualised data. The competence system is presented with requirements, information model and work instructions at the end of the thesis.

The research found differences between theory and reality in use of competence. Still a need of competence related work was obvious at the interviewed organisations. Much of the information stayed in the mind of the manager. Making the unknown known with visualisation of competence gives many advantages. It makes it possible to use the strength and avoid the weaknesses in every employee to optimise the workforce. It could also be used to develop the needed competences with education or directed hiring.

Analysing the organisation to map current situation is a prerequisite to work proactively in planning the future resources. The suggested system is a tool that will help many managers to both communicate better with their employees and make their work more standardised. With more official information, managers have to be more equal in judgement between employees and a fairer work climate based on ability will occur in the organisation and generate a social sustainability.

Today there are many organisations that have problem to use their employees fully work potential. Furthermore these organisations neither understand the possible effect of understand and solving those problems. This research contributes to the product development literature by highlighting the problems and showing how IT could help to solve those problems.

Keywords: Competence matrix, Visualising information, Personal development, Competence search, Competence analysis, Employee grading

Acknowledgements

I want to thank all people that have helped me to finish this thesis. Without the support and thoughts, when the motivation been low and the goal seen to be far away, it had took much longer time with worse quality as a result.

Special thanks

I want to give a special thanks to my supervisor Dag Bergsjö. That helped me for once in the educational area have the possibility to work with a project that felt meaningful and real.

I want also to thank Daniel Runvik for the help and support. With you responsively knowledge have been both time saving and instructive. You have also been my sounding board with many hours listen to my thoughts.

Of course I want to thank the included companies and people that offered their time to give me the possibility to interview them. I do not either want to forget the ones that helped me to come in contact with the interviewee.

In the end I want to thank my family who been with me under the whole educational journey to become an engineer. Without you I never come so far as I did.

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1   Introduction

In the labour market today, more employees are willing to change work than ever before. About one of every third official worker will active search for a new job within the next year (Poolia, 2011). This forces companies to be prepared to fight for both keeping competence within the organisation and attract new competences from other organisations.

Companies that know their current situation and work with competence securement will be in front and have a better chance to succeed (Colucci et al. 2011). Often at companies that economical struggling it is most important to secure competence to ensure growth (Burke & Glennon, 2012). But instead they often have to focus on just keep the face above the surface. More investments and focus is needed to identify, source and develop the needed competence. Cause it lead to higher chance for innovations and steer into a sustainable way to be successful in the future.

Many companies today know the benefits of having employees with high competence to drive the organisation forward in markets that have high competition. The hunt to get top talents is harder than ever (Storm, 2011). The problem by getting the right competence is widespread among small firms in Sweden. 59% of them think that finding right employees is hard (PWC, 2012). The same number was 53% six years before (PWC, 2006). Much of the insecurity is based on that organisations do not know what to look for. They not only seek for people that are capable of solving the task that they are given today. At the same time they want to find candidates with potential to be a leader in the future (Burke & Glennon, 2012). Searching for too many different competences at the same time will in the end increase the need to compromise when recruiting new employees.

Today, with increasing competition, complexity of projects and globalisation the role of quickly gather a project team with right competence becomes critical for success. This is often too complicated for one person to control (Vernadat, 1999). In the past, Swedish organisations were in general stable with predefined jobs, tasks and roles. To maintain or improve the organisation, standardisation of processes and best practices were the procedure most often used (Harzallaha et al, 2006). The person that often handled the question about competence had a widespread overall knowledge about the company (Khilwani et al. 2011). These new complex conditions of today give the need to identify what competences exist inside the organisation. If a needed competence is missing it is a must to quickly be able to find it to become successful.

Continuously following the old obsolete processes with these new conditions gives a work situation that becomes less structured, stable and standardised (Harzallaha et al. 2006). Therefore knowing what strength and weaknesses the company has shows possibilities to put together successful teams or units. These could cover more needed competences to perform the work by using fewer resources (Vernadat, 1999). A way to solve the problem of unawareness by visualising strength and weaknesses has been competence matrices (figure 1).
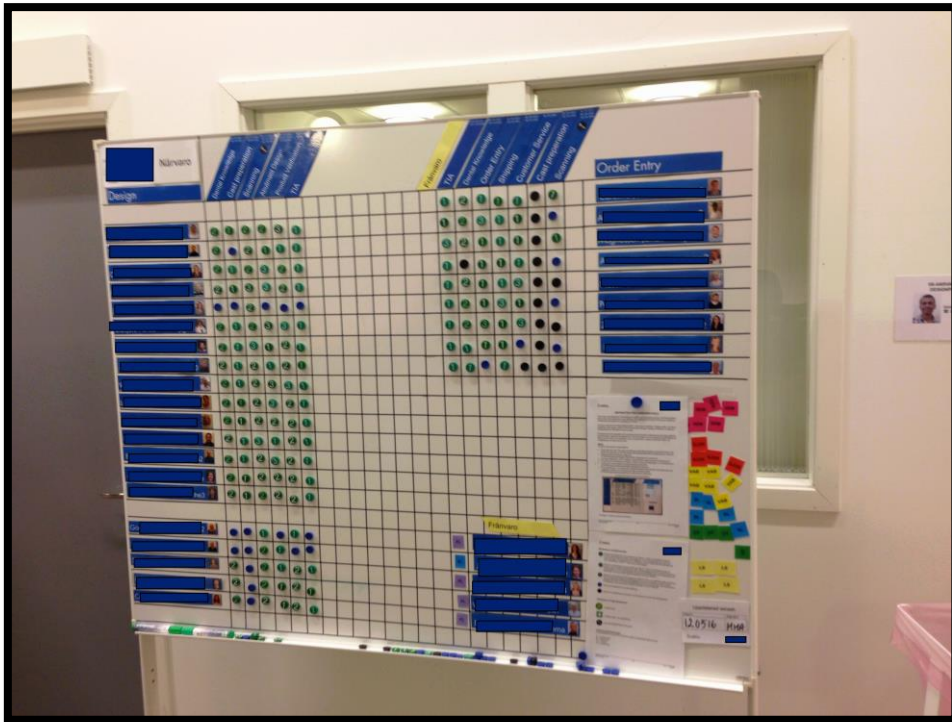
The matrix, which will be explained in chapter 4, has competence categories with predefined levels that visualise the employee's skills. It visualise each employee's unique set of competences the rest of the organisation. But handling a matrix by hand with many people, small dots and lot of information is hard. It gets not only time consuming but also impossible transfer from the board to for example a meeting.

Next step in the development of competence matrices should be to digitalising this type of information. A competence system could be a powerful and time saving tool for many managers and contribute to help employees to strive for better performance.

1.1. Objective

The objective of this thesis is to analyse and develop specifications for a system, based on the competence matrix that visualise current competences among the employees in an organisation. It should also be investigated if the information and the tool could be used to gain other interests in the organisation with benefits and timesaving procedures.

Deliveries at the end of the thesis should be:
- System requirements
- Information model
- Work instructions
- An exemplified layout

1.2. Research questions

These research questions are the overall questions that this thesis will answer in the end. The questions below are first stated by a question and a short explanation of the context is constituted below.

RQ1: *What winning do companies have to value and organise their employees in competences?*

To make the unknown known, the possibility to make changes arise. But are there enough winnings in value employees to justify the needed time and uncomfortable situation for the employee.

RQ2: *What winning do the employee have in get valued and organised due to competence?*

By showing interest in the employee as a person and by this give a better work climate were it is acceptable to talk about personality, performance and inequality. Or does it only generate a situation where people only focus of get high grades instead of good results.

RQ3: *Is there any market for this type of application in a general company?*

The question refers to the market site. Even if the subject may be appreciated are there any companies that is interested to use a system with competence.

RQ4: *What other related subjects could also be covered in a competence system?*

Is there more usage for this kind of system than the theory gives as examples? Is it possible to find pro and cons to use competence approach in not obvious areas.

1.3. Limitations

To give the thesis enough deep and still be able to finish in time, some limitations is necessary. The following limitations have been developed during the thesis. More captured knowledge give a realisation of the complexity toward the subject of competence.

It is important to reflect about the time limit in 20 weeks and not make a scope that is too large to finish in time. In a master thesis project it is also included some mandatory tasks, as opposition of another master thesis and attend two other master thesis presentations.

The result of this thesis should be a database system but no programming should be constituted, only instructions how the system should work and how to use it. It will not be any implementations of the system due to time issues. Only theoretical evaluation should be handled.

The thesis had mainly focus on manager level in interviews. The reason was because other employees only attend their own competence process. They have not experienced the wide range of situation as a manager has.

2   Methods

This chapter has the purpose to explain the procedures that thesis followed to answer to the objectives. It aims to be as exact that anyone could do the same work again and come to a similar solution. The following methodology is presented in chronological order.

2.1   Planning and structure the thesis process

In the beginning of this thesis a planning report was constructed with a task and time plan to follow for the process. This step planned how to accomplish the thesis. The early plan where concluded to a theory, interview, analysis and creation path. The thought was to iterate back to an earlier stage if something were missing.

2.2   Collecting knowledge/theory

The beginning of the thesis work was to collect facts and information about competence as phenomena, existing tools and usage of them. The competence concept was investigated and much research was to see how different definitions could affect a system. The searches were based on books and articles form Chalmers library database, but also other search functions from the web. This collected more knowledge, which helped a lot in later stages and make the result easier to accomplish. The most used word that got combined in the searches was:

- Competence
- Matrix
- Visualisation
- Skills
- Strategy

- Grading
- Personal development
- Analysis
- Management
- Talent

The search was as much explorative as possible in the beginning of the thesis. This widens the field of knowledge before narrowing into the best suitable and interesting area (Kumar, 2011). It was important to both get a wide and a deep perspective to analyse and design a new system without obvious pitfalls. By reading many articles and books to give an understanding was a prerequisite to have possibility to change direction directly during the interviews.

The theory phase was documented continuously to have a firm base to build the thesis upon. Instead of waiting until later of the thesis process and forget many of the assumptions that have been made. A lot of the content to the designed competence system was based on theory. Therefore it was important to investigate other systems that solve the problem with structure and visualisation of competence.

Interviews with people that handle competence in some way at the organisations were carried out. It had to be at least 10-12 interviews from different companies or organisations to get a better overall and general picture with a wider scope than just a single company. It was a goal to obtain companies in different branches and sizes in the research to get an all round, subjective and general view. The interviews were following a semi-structured model (Interview framework). This guaranteed that a specific topic was covered but not exactly with the same questions every time (Harrell & Bradley, 2009). It gave room to adapt the questions to the specific company or take extra attention to a field that seems extra interesting in the interview occasion.

The recorded interviews were afterwards transcribed into short form. It makes it possible for the interviewer to focus on the interviewee and better attendant questions. The question should be about how the interviewed people handle the competence concept in the daily work etc.

If the interviewee seamed to be of interest for extra information to the thesis, further contact was taken for follow up questions. There was for example if they used a similar system or no system at all or where there could be mayor winnings of implement one.

2.3   Summarise facts and analyse

The data from the interviews was reduced into comparable facts or statements. By using a clustering method to categorise the different answers similar with the KJ method to easier pinpoint the key findings (Spool, 2004). Statements was organised by general subjects were they belong. This procedure is multi-dimensional and follows a scheme of list-reduce-organise to be able to see pattern. To give a good analyse about content from the interviews it was important to look at correlations and the differentiations between companies. Were there any differences in how companies work with competence? Do they judge the same things due to values? Etc.

To illustrate the differences from the interviews the result was presented in findings to build the design upon. To be a key finding, it should be from many interviews or something that stands out from the rest. It could also been tips form systems or standardisation that companies use both as good and bad examples.

2.4   Design the competence system

In the end the competence system was designed with all facts, theory and data that was described earlier in the thesis. The creation steps covered structure of information and solution to problems that have come up during both interviews and theory collection. The requirements were presented in a requirement specification that describes the competence system. It is also a priority to understand what is an extra function and what is a critical to make the competence system work as intended in different stages to be able to make some priorities. The structure of the design process was conducted in 5 steps:

1. Including elements of the competence system?
2. What information should be added?
3. What functions should the system have?
4. How should the information be stored?
5. How should it be visualised to the user?

This gave the final competence system that is presented in the end of the thesis.

3   Theoretical framework

This chapter store all the theoretical resources that the competence system is based upon. It is important that explain competence. But it is also important to explain why, how and when it could be used.

3.1   What is competence?

According to Murphy (2012), it is not the technical competence or skills that in general is the problem when something not working in an organisation. It is more often the attitude that fails a new employee in the organisation than real technical skills. But the "right" attitude is as unique as the company it belongs to. All people are special and together it is what makes your organisation as it is.

Working with competence approach in technical, business and social areas help to predict future performance and explain shortcomings (Ley & Albert, 2003). The growing size and complexity of projects force the organisation to create cross-functional teams. This generates needs of transparent data to easy collect the necessary expertise within the group. To be able to work with competence, the definition within the company needs to be stated.

3.1.1   Defining the term competence

The word itself comes from the Latin word "*competere*" and consists of two words "*com*" (together) and "petere" (to strive) "To strive together" (Davidson Frame, 1999). But the meaning is not obvious. A definition could look like this:

> *A specific, identifiable, definable, and measurable knowledge, skill, ability and/or other deployment-related characteristic (e.g. attitude, behaviour, physical ability) which a resource may possess and which is necessary for performing an activity within a specific business context.*

> (Khilwani, Harding, & Tiwari, 2011)

According to this definition competence is both personal and professional abilities to do an effective job. Everything should be able to be measured. But only the ones needed for the specific task should be taken into consideration when judge the ability to do the job. It is hard to measure attitude, especially with the diverse expectations from different managers.

In this paper the definition should be to handle competencies as personal characteristics (knowledge, skills, abilities) that are relatively stable across different situations. There should also include an element of potential in areas where knowledge exists and there is a personal motivation to reach a higher stage of expertise (Ley & Albert, 2003). Competence is about mastery in relation to specified goals or outcomes. It requires the ability to demonstrate and perform specific job-relevant knowledge   and skills. The measurement of competence at work involves performance in the workplace against some work-related knowledge and skill standards. (Bartram, 2011).

3.1.2   History of competence

In history, there exists three main approaches how to look at competence. The different approach managers followed different trends that suit the social environment of their time: The educational (achievement of standard, educational credits), the psychological

(behavioural repertoires) and the business (organisational competencies for competitive advantage) (Cooper-Thomas et al. 2005).

The educational approach was developed from the educational discipline and was focusing on proven knowledge with clear values or grades (Cooper-Thomas et al. 2005). The standard and certificate from an education or experience become transferred to the person. If the person passed through an education he or she is capable to handle the specific role like other with same background as a minimum standard. This gives a fast and exact value to judge the candidate about and could easily difference them apart.

In the 70ties raised the approach that behaviour (or personality) was a better grade to predict a work related success (McClelland, 1973). McClelland stated that if a student had the motives and personal traits to achieve an outcome of a project gave a better probability to success. This in comparison to the student only showed knowledge in a theoretical test. McClelland defined competence (cited in Markus et al, 2005, p.118):

> *"A generic body of knowledge, motives, traits, self images and*
> *social roles and skills that are causally related to superior or*
> *effective performance in the job."*

But to focus only on behaviours and attitude distinguish top performers and see technical skills as unimportant is dangerous (Mansfield, 1996). At least the minimum technical requirements need to be specified.

The last approach, developed closer toward modern time, is the business approach where the competence should be seen as needed knowledge by the situation (Markus et al. 2005). If the skills and personality is aligned with the company´s interest, these exact skills become needed competences for the organisation. This forces the organisation to be more flexible to follow what competences are needed at the moment. In the end both personality and technical skills is needed and should be searched for as well (Mansfield, 1996).

These three approaches are often used in collaboration today. In most cases the assessment focus on current ability and future potential (Fallaw et al. 2012). Depending on what is important both for the job and the organisation. Competence should be regarded as an ability to know, to know how and to behave (Harzallaha & Vernadat, 2002). There is also difference in the way different groups looking at competence. The human resource department sees it often as a certain combination of individual skills. In compare to knowledge management that often focuses more on employees' technical skills or professional experience when predicting whether an expert will successfully solve a given problem (Ley & Albert, 2003).

3.2   Core competence

A trend in modern time is to outsource parts of the former organisation. Explanting reasons to this is often that the company want to focus on their core competence. So what do companies mean with core competence and how could they know which competence that they should focus on?

Core competences are the special abilities and skills that been learn, coordinated and used to meet customers' requirements (Giardino & Pearce, 1993). The core competences are what makes the organisation unique and get competitive advantages in the market. The

first step is to identify what core competences the organisation holds. To be certain that the competences should be seen as core competences, they should follow some criteria before it could be seen as valid (Gallon et al. 1999):

- Is the critical technical capacity lead to competitive advantages?
- Could it be translated into customer value?
- Is it difficult to gain or imitate for others?
- Is it expandable to other markets?

If there is a positive answer the core competence could be seen as valid. Then arise the next question, is the company owner of the core competence or if it is borrowed from outside the organisation. By owning the competence needs excellence from both external and internal parts. Gallon et al (1999) means that external gives recognition at the market as a leader and the internal give the understanding what is of importance to the disciplines inside the organisation.

If the organisation appreciates the employees as their core competence could also give positive effects on the motivation among the group that holds the specific competence. But without clarification of basic terms, recognise the right employees and show what your intention are, your analysis will be a costly and time-wasting process (Fletcher, 1997).

When searching for core competence, a possible result is that the organisation does not possess any own core competence. But the investigation alone could be worth it all. To know what competences that exist today could be a ground to start a strategic thinking upon (Gallon et al. 1999). A good way is to design a strategic core competence framework. It is a set of competences with existing, potential and desired competences that in the future will secure the development of the technical capability (Colucci et al. 2011). It is a first step to understand what to look for and appreciate within the organisation to create economical and social sustainability. It also gives the possibility to not only search for the competence, but also educate employees that have the right base of skills and commitment to be important key employee to build the company upon.

3.3 Competence management and models

To be able to do a good and effective job, employees need to understand the expectations and what is counted as good performance. A competence model explains just that (Mansfield, 1996). The competence model is a combination of competences that is used as a job description. It forms a ground for judgement instead of making the decision on a feeling that should be avoided at any cost (Long, 2011). Without a standard data collection process the selection is made on friendship, personal knowledge, recommendations of colleagues and other grounds that are non-scientific (Hoag, 2001). There exist some different models that are widely used in this area. Three solutions differ according to Mansfield (1996) in:

One-fit-all model
A broad model that explains the requirements of a wide group, as example all managers in the organisation without notice that they lead different types of groups.

Single-job model
This model is based for a key role. Collect 10-15 skills and traits that should be searched for. The model is good to find candidates with right competence but is time consuming.

Multi-job model
This model is a combination of the two above. Building the model with block of different competences but is still able to customise for important positions.

A problem with traditional competence models is that it often focusing on soft elements (Vernadat, 1999) and not accomplishments (Teodorescu & Binder, 2004). Although it seems obvious the technical skills or knowledge must also be included to a technical employ (Mansfield, 1996). The technical aspects are often the main consideration for a manager when deciding who will have the job in comparison to human resource personnel that often focus on behaviour. But all over, the competence model is often too vague and broad formulated. Therefore it is important to have the same definition all over the system. (Teodorescu & Binder, 2004).

The required competences come from assessing existing skills of the workforce to see what is missing. This collection should be done by self-assessment from employees (Ley & Albert, 2003). Mansfield (1996) argues that is important that the jobholders and managers are involved to feel that they own and influence the process themselves.

3.3.1   What competence are we searching for?

To be able to find the person who will be most suitable for the job the organisation needs to know what they want to find. The organisation needs to do their homework to define the individual competence required for the work (Lindelöw, 2008). The requirements are defined in terms of required technical and management skills but also social skills (Ley & Albert, 2003). The understanding of what competence that is minimum required for the job both including technical and personal skills could make both the recruitment process quicker and the implementation into the organisation better (Colucci et. al, 2011).

It is especially good to focus on competence in situations when the demand quickly changes. The idea of depending (or stable) competences is "if a person is capable of doing task A, then he or she will also be able to perform task B (Ley & Albert, 2003). Therefore it is not important that the candidate have experience about exactly the same task.

It is far from new to talk about the preparation of requirements and demands. Already the antic Greece philosopher Plato talks about knowing what to find is a precondition:

> *"And how will you inquire into a thing when you are wholly ignorant of what it is? Even if you happen to bump right into it, how will you know it is the thing you did not know?"*
>
> Meno dialogue by Plato

Instead of just filling a vacancy, a hiring (internal or external) should be an opportunity to develop the organisation with new competence. A good start is to work with demand analysis to explore what is really needed in the organisation (Lindelöw, 2008). It has been shown in Lindelöw's implementations to work with demand analysis some positive effects:

- It clarifies internal how the organisation sees the position. What it is included and what expectation to achieve for the newly employee
- It is a strategic document for feedback and development for the employee. By identify the people's strength and weaknesses the ability in doing a good job in the future increase.

Lay and Albert (2003) means there is two different types of competences, general and specific. Into general counts the skills and knowledge that is important for all people in a specific role. The specific competency instead is often learned on the job. This should be less focused on in external searches but is important for internal tasks. But still it is often the specific competences that are searched for even if it is impossible for someone outside the company to possess the required competences. This gives a problem that the profile of demand does not suit along with the market. It is rarely any problems with finding people with right academic background. The problem is to find people with right experience (Cappelli, 2012). Very often companies want to fill their vacancies with exactly the same person that leaved. Gladly with all the experience that the one who left gained in his/hers employ for a long time.

3.3.2   Problems with competence related work

So why is not the analysis with job specific requirements done with the quantity that is should be? According to Lindelöw (2008) it is a matter of when, how and why. When should the manager have time for work with demand analysis? They have already much to do as it is. How should they do it? Theory misses methods to proactive work with competences. The last question is about the sceptic relations to measure and grade skills rather than results. Instead of clarify limitation and messages people often like to discuss and reasoning toward a consensus decision (Lindelöw, 2008). Therefore it is needed to both give a system that contribute to achieve strategic change in the organisation environment and it is okay to talk about personality and skills (Colucci et al. 2011).

3.4   Competence matrix

The competence matrix is a tool that visualising competence within the organisation by each individual. The matrix should visualise what the person could do at the moment rather than know. Example:

> *A medical student could have top result in a theoretical test of brain surgery*
> *but not be able to really perform a removal of a brain tumour* (Brand, 2009).

It is important to both look at current ability and secure future competence to ensure that the organisation could continuously stay in front of the competition. O'Connor (1999) means that tools as the competence matrix is an obvious stage in a continuously improvement approach. Which means to focus on the element that troubles you in the job and get better at it.

The matrix for an individual employee looks as a simple row with information in columns. It should act as an official journal for the employee with information that the organisation wants to store to ensure that the information not get lost. What should be included in the matrix varies between different organisations, projects and missions. Some example of the competence matrix includes up to 135 different competences with the preliminary focus to find hidden knowledge or skills among the employees (Holmdahl, 2010) and some have just the critical competences for the given task or project (O'Connor, 1999).

If the matrix should gain any interest, the competences have to represent the skills needed for the position and should reflect the job description according to O'Connor (1999). Further it is important to develop the formulation together with the people that should be using it. The group of employee working at the position knows best what that means to

work as them (Mansfield, 1996). Even if people have different perspective on what their job includes. They together with the manager would come up with a good definition that represents the daily work.

The competence could be divided into several parts with both technical and personal skills, education etc. Goodwin (2006) says the matrix should have personal competences to steer the employees into wished behaviour. These behavioural criteria should in opposition to the technical be the same for everyone in the organisation.

The behavioural competencies could be sorted in many ways. Bertram (2011) have for example stated 8 great competencies in his competence framework (see table 1). These are as headlines for behavioural judgement.

Table 1. SHL 8 greats competencies (Bartram, 2011)

Leading and Deciding	Takes control and exercises leadership. Initiates action, gives direction and takes responsibility.
Supporting and Cooperating	Supports others and shows respect and positive regard for them in social situations. Puts people first, working effectively with individuals and teams, clients and staff. Behaves consistently with clear personal values that complement those of the organisation.
Interacting and Presenting	Communicates and networks effectively. Successfully persuades and influences others. Relates to others in a confident and relaxed manner.
Analysing and Interpreting	Shows evidence of clear analytical thinking. Gets to the heart of complex problems and issues. Applies own expertise effectively. Quickly learns new technology. Communicates well in writing.
Creating and Conceptualising	Open to new ideas and experiences. Seeks out learning opportunities. Handles situations and problems with innovation and creativity. Thinks broadly and strategically. Supports and drives organisational change.
Organising and Executing	Plans ahead and works in a systematic and organised way. Follows directions and procedures. Focuses on customer satisfaction and delivers a quality service or product to the agreed standards.
Adapting and Coping	Adapts and responds well to change. Manages pressure effectively and copes with setbacks.
Enterprising and Performing	Focuses on results and achieving personal work objectives. Works best when work is related closely to results and the impact of personal efforts is obvious. Shows an understanding of business, commerce and finance. Seeks opportunities for self-development and career advancement.

3.4.1 Grading evaluation and self-assessment

By visualise different categorise, it should be clearly divided in the matrix. The competences should be grade by numbers from blank to 4 as an example in table 2. The numbers represents the amount of skills where the blank could stand for no knowledge or ability to do the work and 4 stand for expert or role model:

Table 2. Examples of start grading by number

Grade	Technical task	Behaviour
(Blank)	No knowledge at all, no use in my work,	Never
1	Ability to work after detailed instructions	Seldom
2	Ability to work after few instructions.	Sometimes
3	Ability to plan and work alone.	Often
4	Expert or role model with ability to set strategy and give training to others	All the time

It is necessary to define the competence by a description to explain the expectations of each number. It is also highly important that the numbers and the terminology is the same all over the company to have comparable facts to base decisions upon.

When collecting information to the matrix it is important it comes from the employees themselves. A self-assessment is the best way to assess information that gives the employee a chance to reflect upon their skills and behaviours (Zwell, 2000).

The manager discusses the grades with the employee. If a grade seems to be incorrect the manager have to tell the employee that he or she disagree with the employee in a constructive way (Hoag, 2001). To sometime change a rating that manager and employee disagree about with discussion will only strengthen the relation, expectations and communication. It is important that the manager differ on the professional employee and private person. Hoag (2001) further stress the importance to have a process that is non-frightened for the employee. Otherwise it is easy that the employee gets defensive and sees the talk more as an evaluation than a place for development as it should be. The assessment needs to be about the employee and the rates have to be based on individual knowledge, performance and behaviour not in comparison to other's result or rates (Hoyle, 2005).

Many employees have the concern to be compared to other if the result becomes available in the organisation. But to have gain of the collected information, it has to be official across the company (Hoag, 2001). Other concerns are about comparison and the possibility to get promotion. That the best openings go to a person with better grading to the position. Yes, the person that best suits the position should be the one that gets the job. The solution requires an open climate and inform directly about the use of the system. Hoag (2001) argues that a model about official rates should attract most of the employees. Especially regarding how the judgement should be without the prejudiced thoughts as the manager's friendship and personal feelings about the employees.

By having a search tool it is easy to investigate if the competences exist within the organisation (Colucci et al. 2011). To use a database as a warehouse give the possibility to match the profile of the employees with the needed tasks. Even if the profile do not match exactly could a close match be good enough to do the job.

When several individual competence lines are put together it becomes a matrix. When centrally stored in a database, the focus is changed from the individual to organisational analysis. According to Zwell (2000) it is the manager that could keep an eye on the department's strengths and development needs. He or she should ensure that needed

competences are possessed to perform the job. By using a central database guarantee that everyone that uses the system have same definitions to work from.

This makes data more transparent and could be used all over the world in the organisation (Ley & Albert, 2003). It could still be hard to compare different departments. In some cultures people have the tendency to overrate their competence and some underrate. Management should not only focus on the specific values between different departments. But it could be a good tool that gives a hint of different organisational strengths and weaknesses to show where the available resources could get best effect.

3.4.2   Information visualisation

The way information reach the ones whom need it can vary from case to case. For example according to Hoag (2001) the information gives the opportunity to internally recruit other employees with the competences that best suit the specific project. Another visualisation is the competence analyses that could look as figure 2, where the strength and development areas in the organisation are clearly shown. It is just a selection of what information the database could contain.

Subject	Mary	Jon	Jack	Daniel	Linn	Peter	Johan	Average	Max	Min
Thermodynamic	2	1	3	4	2	3	3	2,6	4	1
Fluid mechanics	3	2	3	5	2	2	4	3,0	5	2
Vibrations	4	3	4	2	2	5	3	3,3	5	2
Dynamics	4	4	3	4	1	5	1	3,1	5	1
Metallurgy	1	2	3	3	2	2	2	2,1	3	1
Design of expects.	3	5	4	3	3	3	5	3,7	5	3
Process of Concept	2	5	3	2	3	3	5	3,3	5	2
Quality Systems	2	2	4	2	1	4	3	2,6	4	1
Release process	2	3	3	3	2	2	2	2,4	3	2
Customer needs	3	2	5	4	1	3	2	2,9	5	1
Application engr.	3	2	5	2	1	2	3	2,6	5	1
Mentors or teachers: Areas of departmental expertise	Development needs		Retirees		New Hires					

Figure 2. A skills and development matrix that to show the group to understand the need and strength

Besides the skills of each employee the matrix show the need of development and status of experts in the organisation. To be ahead of the competition, it is important to take care of the strength fields as core competences. Pinpointing the expert area gives a signal that the organisation has the competence to handle complex projects in the specific area (Hoag, 2001) It is also important to eliminate the weaknesses by recruit new, educate current employees or outsource the tasks to external part.

The visualisation should be viewable for several combinations as organisation, position, skills, experience, status of employment etc. This gives a more exact hit-rate than the classic key word search that is often used in HR-systems (Colucci et al. 2011). Therefore to establish a semi-automatic approach for finding right competence within the company could help all management but also the employees themselves (Ley & Albert, 2003).

3.4.3   Visualise in manufacturing

The matrix could preferable be used in the manufacturing area. The system could be used both for planning the daily job and training requirements. The different uses between project-based and manufacturing are that a manufacturing competence matrix should be

less dimensional. The employee should only be graded as competent or not competent to perform an operation as in the educational approach (Feld, 2000). A matrix of a production site (See figure 3) shows easily when the ability to perform an operation. In the example below the numbers represent different levels:

1. Stands for performing under supervision
2. Stands for the ability to work independently
3. The same definition as level 2 but also have the responsibility to educate other

Also the colours (blue (under training) and black (restrictions)) is visualised to inform the shift of work what conditions todays work have. It is important to declare what the operators can do. But sometimes due to licenses or physical limitation etc. it is important to show who cannot do certain operations as well.

Figure 3. Skill matrix for training in manufacturing (Fernlund, 2013)

This information could also be used together with a planning programme to get right competences at right place in the manufacturing process. The absent of an employee that could manage the specific workstation could stop the whole production line (Bhatnagar & Saddikuti, 2010). The matrix makes it possible to visualise which competence that needs to be in the factory to be able to produce a certain order etc.

When using the matrix, management could make efficiency changes in the personal force and pinpoint the key personal of the operators. In some cases the salary system is based on the competence matrix there an operator that could operate many different stations get higher pay. This is special useful when manufacture small series with variations to be able to work flexible and suit the upcoming situation.

3.4.4 How could the competence matrix be used?

The competence matrix is a communication tool. But tools like this could make the wanted result become easier to achieve. When managers uses the matrix correctly they has the chance to show that they stand for an open culture. Where it is okay to have strong and

weak sides and that everyone is different (O'Connor, 1999). If the matrix works correctly the grades is accepted within the group. It shows that the manager has a clear mind of employee's ability and that he or she is fair in treatment to everyone. O'Connor (1999) have the meaning that it shows quickly negatives among the employees if someone is rated to high, to low or is treated in wrong way.

3.4.4.1 Personal Development

Almost all companies nowadays attracting new people to their company with the possibility to grow and develop within the organisation. It is essential to see the personal development as a necessary approach in an environment that is continuously shifting (Lindelöw, 2008). The matrix could be used as a tool with basic information when having personal talks between the manager and the employee for personal development and challenges in the daily work to show where the development is needed or wanted. An act that many managers thinks is hard to execute (Lindelöw, 2008). Unfortunate many companies have a development process that often feels as criticism to current proficiencies and learning needs in a punitive form. The development sees as a demand to keep the job instead of an opportunity to growth (Zwell, 2000).

The matrix should act as a reference point for expectations. If the employee clearly shows that he or she is not comfortable with some elements within the job. The matrix is a good place to show it without sound complaining (O'Connor, 1999). To ease the attitude and make the situation more comfortable for the employees a self-assessment should be carried out. The values should be updated before meeting the manager. By reviewing their own abilities and proficiencies will make the employees to think about their strong and weak skills and build a ground to start a discussion from (Zwell, 2000). The negative about self-assessment is that people often is slice wrong in assessing weaker points. But better to have it when discussing with the manger than nothing at all.

To have knowledge about a person strength and weaknesses give also a great opportunity to form a vision for the employee. These discussions are opportunities to develop employees to meet the long-term need of competence within the organisation (Goodwin, 2006). It is important to show the correlation between own development and organisational need for the employee to raise the feeling of usefulness and importance. The manager discusses what the employee has to improve to be able to meet these competences. He or she may offer education or some work tasks directed towards the specific competence area (Holmdahl, 2010). It is one of the manager's most important roles to help his employees to develop and Freeman (2006) cited Jack Welsh:

> *"In an environment where we must have every good idea from every man and woman in the organisation, we cannot afford management styles that suppress and intimidate. To be successful, we must learn to inspire and motivate. We must "influence"."*
>
> *(Jack Welsh, General Electric)*

Still it is important to ensure the employee owns the development process. The manager could only help with the right tools and environment to succeed (Hoag, 2001). This process may not always immediately and completely fill the gaps in the department's capabilities. But it set the process moving in the right direction. It is important that the employees also have their own reasons to develop and not only for the organisation. Then it is easier to get motivation and strive to achieve personal results (Lindelöw, 2008).

The assessment and meetings shall not be to often but either not to long apart between (Zwell, 2000). Once in every 6 months seems to be the proper times to be able to show result and change but not too long forget the last assessment with the manager (Lindelöw, 2008).

3.4.4.2   *Planning and competence coverage*

It exists some alternative ways to use competence matrix in projects. First, the information could be used in planning next to project description and resource plan to ensure the team consist of the competences needed to perform a good work (See figure 4) (Goodwin, 2006). To become a successful organisation, the synergies of the individuals have to become greater than the individuals themselves. When creating a team only the available employees are eligible. Therefore it consist a need to continuously work with strategic hiring and development policy. It is important to identify what competence the organisation really need. The goals cover the need of today, future and use the resources more efficient (Colucci et al. 2011). This type of competence system contributes to help the employees to get a wider understanding, be more flexible to change assignments and tasks that required at the moment.
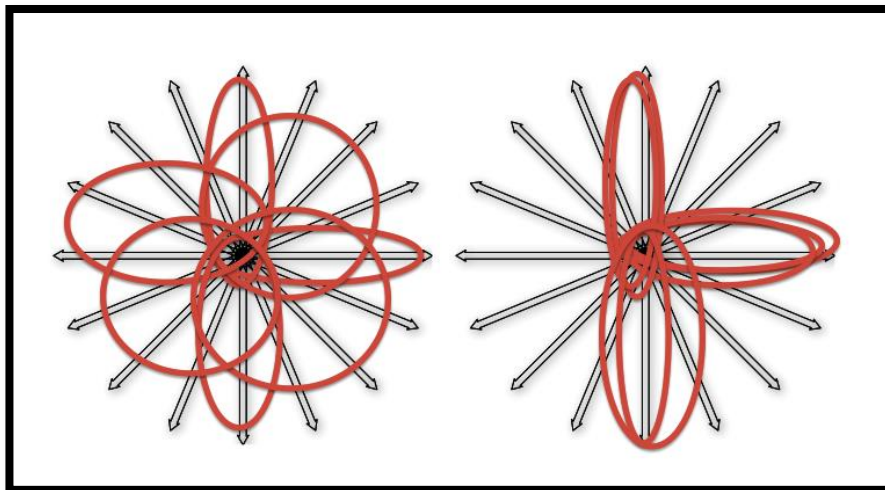
Figure 4 Good and bad competence coverage in a project

The matrix could also be shown for the project group to visualise member's unique competence and explain why they are in the team (O'Connor, 1999). This helps each member to understand their role in the group and encourages them to share their expertise with other. (Khilwani et al, 2011). Everyone in the group needs to feel they are contributing to the final result to get motivated.

Diversity gives different angle of attack to problems and develops a better solution than people with the same background. It is important to cover many needed competences as possible. If the team members have to similar knowledge their view could get negate on others solution. According to Holmdahl (2010) it is a risk with gets to similar competences within the group. It could lead to a concurrence situation between the members where they become rivals instead of helping each other. It could be shown in figure 4 that represents the knowledge coverage; too similar competencies could miss needed competences and generate a concurrence situation.

The matrix makes it also possible to see if a project missing a critical competence. For example an IT-project need IT competence. This gap may be filled temporary by a

consultant. But if the department have many projects within a specific area, the organisation should probably own the competence instead.

The information from the matrix should also be used to investigate how the personnel competence is used. It would not be necessary to hire a specific employee with a higher competence level than the situation need. It is always better to find suitable level of competence to each task. If there is obvious that the skill level is higher than required by the job is sometimes a sign that it is possible to manage the personnel more efficient and cut down on unnecessary costly employees (Goodwin, 2006).

Management could also use it to show evidence that the team have enough competence to do the project with a great outcome to stakeholder (Holmdahl, 2010) (Khilwani et al. 2011) With analysis it is easy to see whom that is the key person both internal and external. It also visualise the ones that are important to retain at the company (Khilwani et al. 2011). It is also important to not lock the competence in a single person. Today when employees change workplace more rapidly than ever it is always a risk to lose critical competence.

3.4.4.3 Competence analysis
The most strategic outcome from the competence matrix is the competence analysis of the organisation. It is a possibility for companies with strategic documentation to proactive work to cover the wanted competence. This by use both education of old employees and recruitment of new ones. The competence matrix information gives an insight of the current situation with average competence level, experts and education fields (Zwell, 2000). The strategic documentation should be connected to the core competence and should be stored in the system (Colucci et al. 2011). It is up to the manager to keep the direction of the competence towards the strategic goal (Zwell, 2000).

The competence system is a good base for recruitment. Both because all jobs are in detailed described with needed competencies and the profile of demand is already composed (Lindelöw, 2008). This speed up the process and make it more accurate. The competence blueprint of the organisation is the foundation that all strategic work is based on and perhaps the first management tool in the toolbox.

3.4.4.4 Evaluating competence from work
To measuring work performance and value the competence is hard due to work is often connected to result of projects. A good project could turn out into a disappointing result and a badly performed project could get a smash hit. This makes it hard to transform the result into individual values to judge by competences (Davidson Frame, 1999). It is important that project leader send feedback to managers about daily work situation have been for the employee.

High performers often compensate for low performers in a team (Holmdahl, 2010). It is not only bad for the motivation but the positive feedback is non-existent from managers. This problem could lead to wrong base to give feedback by. It could make the grade higher of employees that not have the capability. This makes the matrix values unpredictable. To promote someone that is a low performer often makes a miss-satisfaction in rest of the group and the trust to management gets hurt (Holmdahl, 2010). To reach a good result by the matrix it is important for the manager to communicate with the employees why and how the grades are that way it is.

4   Result from interviews

This chapter present the main outcomes form research interviews that been carried out. It is structured in key and other related findings. The included organisations are not named due to policy restrictions but the operative branches have been truck manufacturing, IT, telecom, consultant, provisions, healthcare & fashion. In total have 12 interviews been performed with 9 different companies.

4.1   Key findings

To be classified as a key finding the subject has been discussed in more or less all interviews. The finding is also in interest of the specification of the tool.

4.1.1   Difference between consultant and project-based organisations

It was a big difference in approaches against tools as a competence system from different branches. In the consultants business, where the organisation hiring consultants to other organisations it is important to understand what the person are able to perform right now. This knowledge is then matched to the hiring firms requirements.

"All my consultants need to be saleable. I do not care what the done before it is about what they could perform right now "

The companies that had competence tools pointed out a need for an open and not to rigid organisation. It have to be possible to loan or transfer people between the units to get a win out of the system. It is no need for the employees to understand and see the strength of the group because everyone is seemed with an individual effort. The competence system gives a huge advantage to managers and resource planning to search and find the right employee.

The approach in many project-based organisations was in many ways different to consultant business. Often it is the unit that get a mission or project to handle internally. It is the job position that decides what you are capable to do rather than your individual competences. It is then the manager who plans the resources and all information about the employees in the unit go thru the manager. The individual viewpoint disappeared and is replaced with standard descriptions.

"The position description is what I expect of my employees"

It was neither easy to change to another department in the project based organisation. Even due almost all companies promoted internal mobility. This was because they thought it makes a disordered situation where employees come and leaved all the time.

In project base organisations the work should follow a framework and as long the department could deliver a wished result in the end it is good enough. According to managers it is more important to visual the strength of the group that will carry out the work instead of the individual approach.

4.1.2   In the head of the manager

One of the most consistent and frequented subjects from the research interviews was the power and responsibility the manager has in the organisation. Often they had some guidelines to follow but it was most up to the individual manager to coach, develop and

motivate the employees. Many interviewed managers talked about the lack of tools to help them with both daily and strategic decisions that collects all information at the same place.

All interviewed organisations had a strategic approach to have individual talks between the employee and manager. But often whatever goals, visions or wishes comes up during the talk no one else have access to the information. The most important were that employees could trust that the talk and keep the information confidential.

"It is about to giving knowledge to the manager about the desire to move and hope that he have the feeling to see the future opportunities for the employee"

Many managers makes own resource tools in excel to control their unit. They often saw the benefit to have a common tool for the organisation to be able to make candidate list, find specific competence etc. It has been obvious when talking to people that tries to influence managers to use organisational-wide tool that managers often feels they already have control over their own unit. They see no advantage to solve personal questions at an organisational level. They use their own experience about the employee instead of using a systematic approach.

4.1.3 Competence have different meaning in different companies

During the interviews many different definitions of competence have been obvious. When managers use it with different meanings it could quickly get confusing. The difference in meaning and use makes it hard to see a pre-defined definition of competence.

"We working with competence, its often about to giving your knowledge to others"

In the research the educational approach have appeared the most. It was often easier to get direct values for result than grade about employee's behaviour. Some companies use the behavioural approach in together with the educational. As example a company stressed the importance of employees helping other with their own experience as a competence. But still most talked about what educational program the employees graduate from.

4.1.4 Many solutions that partly solves the problem but not uniformed

Many of the organisations where interviews have been held had some system or methods to solve tasks as planning the resources, employee search and personal meetings but not uniformed. Often it is the manger that has some method that solves the problem for the moment but not uniformed all over the company. The problem with information that stays within the unit is still there. Only 3 of 9 companies had an IT-program that token care of competences and they was connected to IT-branch or similar and had made it themselves.

Some other thoughts were that organisations had a database that maybe could be used to solve a search function. But few had access to it and it was not used in that way today. The information is there but no one has told the organisation how to use it.

"They offered me to buy HR solution but only presented some checklists"

Some companies gets offer to buy solutions from specialist HR firms. These offer where often not to buy a system but rather to have access to forms that could help to solve issues in a structured way. It gives guidelines to do a good work but still the information needs to

be collected and it is locked into a paper or file. Therefore did some manager prefer the idea with a solution that where a system, gladly web based.

4.1.5 Develop competence is both hard and take time by training/education

It is very hard to develop competence according to several companies. For example it is difficult to develop competence by only a single educational course. It ends up in knowledge how to do but not the ability to perform the work tasks. Often it is easier to bring competence from outside the company with a consultant to solve a task quickly but to a higher cost. The consultant sometimes stayed in the organisation for years in the end.

"It takes at least 6 months to build a new competence"

All organisations were aware of finding the need and develop new competences as soon as possible gives big advantages. But many also thought it is hard analyse the unit and find clear needs. Often the initiatives needed to come from the employees themselves.

Some examples of on-the-job training have been up for discussion where an employee moves to another department for a couple of months to learn and work near the competence. To later return to their "home" department with new competence. Practical experience out run the theoretical heavily according to some interviewees. But still it takes a couple of months. However within the development area a time period of couple months ahead is few companies that plan and work proactive.

4.1.6 Experience is the most important factor

Many companies in Sweden count competence highly by work related experience. A common used sentence in organisations that been heard during this research is "If you do not worked with the task you do not know how it is". Again the consultant organisation is more proactive but they grade and define competence by work related experience as well.

The attitude and personality is things that have to be right. But the first that many organisation look for is a person that worked with the same assignments earlier with good references. Therefore it could be problematic to judge the competences in the system. If the definition only matters how long you have worked with the task and not what ability and flare you do the tasks.

"After at least 3 years you are able to work all alone"

One meaning against this way of thinking is the personal development aspect. One organisation mean that if a person got the same work assignments again he or she will get up and running quickly. But it is a matter of motivation and challenging work tasks. There have also been thoughts about a maximum of 4-5 years before a move is necessary to keep the employee challenged.

4.1.7 Behavioural and personal question could not be official

In many of the interviewed organisation it exist standardised way to handle personal meeting with work situation, comforting among colleagues and behaviours. One common subject is the reluctance feeling that comes with personal meetings. It seems to be something with open up to someone else that makes people vulnerable.

"It is not possible, not here, no, never. The employees need to be comfortable"

Many thinks it is important to not make any information official that could make the majority of the personnel uncomfortable. It had to be something that the employee and manager share with each other in trust. Many also think the possibility to make more information official in the future will increase. But today it is not an option.

4.2   Related findings

Some related findings have also been taken into considerations. These findings do not have the impact to change direction of the creation but to make a general tool they need to be taken into consideration.

- *Employees is hired to same position but in different levels and with own titles*

In larger organisation it is exist a need to categorise employees with positions, levels and titles. The position and level is defined and structured but the title is often up to manager and employee to set together. The focus is on position and not what strength and weaknesses that individual have to bring to the table. It is also a clear connection to the competence model where every position exists of common requirements.

- *Global problems with employee databases*

One organisation that operates world wide came up that it exist some problem in both Sweden and rest of Western Europe with sepsis against storing personal information and grades connected to your performance and behaviour. It is a difference between generations in grading and value related questions. In general the younger thinks it is a chance to improve and the older a sign that they are not performing well enough.

They had also problems in countries as for example Germany that has strong union restrictions against storing personal information. It seamed to be a subject that not would be able to overcome but the difficulties needs to be aware of when operates in the area.

- *Company values seems to be important to communicate but…*

Many interviewees stress the importance of company values that is the same all over the company. The employees should feel affinity and strive towards a common behaviour. Sometimes these words feel empty and hard to connect too. Often employees that present good result get away with a poorer behaviour than other lower performer.

But in some few companies the correlation between result and behaviour where obvious. An example where it was equal rated between behaviour and performance with references to the values. If one of them where low the final grade could at highest be partly performing in the overall judgement. To make connections to core value they need to been working with continuously and be updated to the daily work.

5 Requirement specification of the competence system (Result and analysis)

This chapter will handle requirements, information model, work instructions and layout structures of the IT-system. The main purpose is to analyse how the system is designed. More detailed information will be provided in the appendices to give full instructions.

The chapter is divided in 6 stages, which summarised explains how and why the system is designed. The requirement specification is a combination of input from theory and research.

5.1 Stage 1: Analyse of including elements of the competence system

The first stage was to decide what areas that should be included in the system. If the system could solve many functions, it would become more frequently used. Collecting many functions uniformed gives the manager more control and possibilities to analyse than if several different tools or systems are used. The included element is bulled and explained below:

- Personal contact information

Everyone in the company should have their own personal page with contact information that everyone could get access too. This is a good way to use the information of the system in a broader range.

- Competence

The job description should be translated into competences to find right employee to the specific assignment. It makes the expectations clear both from ordering side and for the employee. It is important to define and level all competences the same in the organisation to have similar grading base to judge upon.

- Work situation/ development plan

It is a small step from discussing competence, development and goals to discuss personal comfort at the work place. This together with competence, development and goals should be a base for personal meeting between the manager and individual employee.

- Experience backpack

Experience is the most essential factor in job description according to the research interviews. To store former jobs and projects will show that the employee possesses knowledge in valuable areas.

- Search and visualisation

Right information has to be presented at right time. To be able to find right person, competence or analyse settings a search function needs to be developed. The visualisation should be a result of a search and are presented in a competence matrix or list of people depending on the intention of the search.

5.2 Stage 2: Result of including information

The idea of this system is to structuralised collect and share as much useful information as possible. It is important to deliver right information to right person at the right time. It is also important that the employee owns the responsibility to keep everything updated.

Below is just an example of including information. Other categorises and bullets should be possible implement as specification to the customer needs.

- Personal contact information
  - Name
  - Title, position
  - Department, unit, Manager
  - Mail, phone, Address etc.
  - Time at company
- Competences
  - Definitions for each competence with levels
  - Grading by self assessment on specific competences
  - Workstation, tools, driver license, first aid training etc.
  - Responsibilities (Subject, first, backup, reporting to etc.)
- Personal meeting information
  - Company values
  - Wellness question (work situation, behaviour etc.)
  - Feedback from projects
  - Goals, development & future plans
- Experience (digital CV)
  - Former projects and work related experience in competences
  - Educations, language etc.

5.3 Stage 3 Analyse smart functions to visualise competence

The functions of the system are presented in a list of requirements (Appendix Requirement List). Because the objective of the thesis is to visualise competence some functions should be further explained due to that subject.

- Search

The search function should be added to be able to both make a list of possible candidates that match with searched criteria and competence matrixes that match searched competences.

- Competence matrix

The competence matrix should act as a pop-up window. It should be possible to search for single and/or combined criteria. It is important to have the possibility to store the matrix and send the result to other as a presentation. This gives a solution that makes it possible to share the information in a way that is not possible with the competence matrix board today.

- Set of competences connected to position

The competence should be defined, levelled and stored. To get it more manageable every employee only assesses competences that are needed in their work situation. The competence model and set of including competence should be developed in collaboration between managers and employees with the ability to change by time. This to prevent that the needed competence get missed in the quantity of all competences inside the company.

- Former experience become visualised

Old experience is hard to judge. It may be out of date due to development in technology or society. Therefore this function should store information and visualise experience without

put values in the matrix. Instead of a grade that symbolise the ability to perform right now, a colour should appear that mean some general knowledge exist in the employee.

- Development become visualised

The same as for experience, development should be visualised. Old courses and training could get a colour to represent some knowledge. Progressing education another colour to represent that the competence probably will increase in the near future.

5.4 Stage 4: A Result how to connect & store data

An information model (Appendix Information model) that describing where and how the information could be stored has been designed. The information model is also further described and explained in belonging sheets to helping in translate into action and minimise misunderstandings. If the programmer has better solutions to problems, the information should be updated to show how the competence system is constructed.

5.5 Stage 5: Result of visualisation/layout suggestions

This stage presents an example on layout. To divide the design suggestions from each other, tags or flaps should be used. This is a simple way to move between the different parts and it will be more intuitive to find right information. The example of the different designs (Appendix example of layout) includes:

- Employee Profile (public contact)
- Competences (self-assessment & responsibilities)
- Personal & goals (goals, development, work situation and behaviour)
- Digital CV (former experience & projects)
- Search (both persona and competence)
- Competence matrix

This gives enough room for each subject and the possibility to update part by part. It should also be possible to only implement one or some of the parts.

5.5.1 Example of layout

The layout should be simple. If it is complicated it is a higher risk that the user think its problematic and stop use it before giving it a real chance. It should be informative and easy to overlook. See Appendix Examples of layout for full layout example with explanations

An important page is the employee profile (See figure 5) that should be the same all over the company. It should work as an employee database (in conformity with social media pages) with contact information to search for. With fill-in fields it is easy to store the information on specific places.

Figure 5. Examples how the employee profile could look like

To show more information in the same matrix (see figure 6) some smart functions could be added as background colour. This should be a tool both to make analysis and a standardised format to present in meetings or to employees. It should be possible to filter the columns to get priority in increasing or decreasing with a filter function. If the viewers recognise the layout for, it will be easier to make own conclusions faster after a while.

Figure 6. Example on competence matrix

5.6 Stage 6: Result and analyse of work instructions

This chapter explains implement and use the system to get the most out of it. More detailed version could be read in Appendix Work instructions.

5.6.1 Implementation work

Before the employees should start to work with the program some specifications (Appendix Pre-settings of the system) have to be made. This to suit the specific company needs (see figure 7). It is important to make a well working system from the start. Otherwise it is easy that many users think it is not worth the effort. These tasks should be lead by a responsible implementer to ensure that all the pre-conditions are meet before implementation. Below some bullet points summarise what the general organisation need to handle before the system could be up and running.

1. Organisation scheme

The employees need to be organised in the database as the reality with department, units and projects to give right belongings.

2. Competence/skill definitions

The competences need to be defined and put into different levels. Workshops and other brainstorming sessions could be used. The same definitions shall act all over the organisation.

3. Core values and behaviour definitions

The core values and wished behaviour need to be defined with levels to ease the response from the employee and to decide what behaviour that is wished in the organisation.

4. Decide job descriptions

All positions should be expressed in competences. It shows the expectation and what is important to focus on in the job.

5. Add basic information to employees

The employee profiles need to get basic information as contact info for each employee.

6. Access

Some information shall be seen as private and only the individual employee and his/her manager should have access to. This has to be decided with manager level and admin personnel before the competence system could start to be used.

Presetting

Insert organizational scheme

Name & define competence/ skills

Name & define behavior/ vaules

Create Job descriptions

Add personal profiles

Accesses
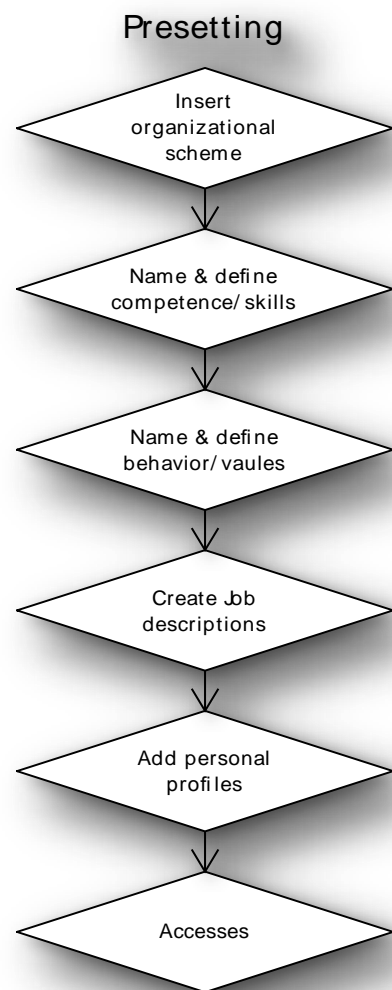
Figure 7. Workflow in pre-setting the system

5.6.2 Continuously updating data

After the set-up by implementer and managers the employees shall add all information (see in top of figure 8). If one person should add all information it would be a huge workload. But to lower the workload employees should be responsible of their own information. After the first time, it is few major updates to perform from time to time. (For further detailed see Appendix continuously work)
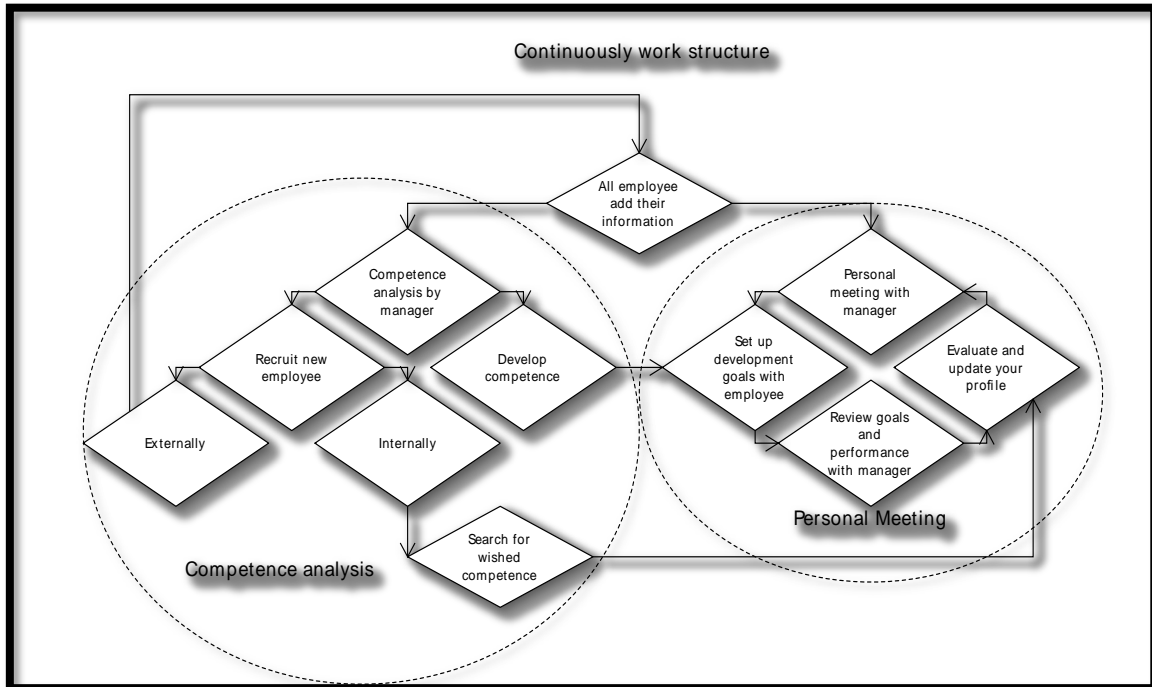
Figure 8. Illustration of work structure fo competence analysis and personal meeting

The personal information is split in several areas to give the possibility to update step by step. Below explained in bullets when and why it should be updated.

- Contact information – Time: Direct

Should be included in the introduction plan to be able to get searched by other. It is more important in the beginning before the contact network been established.

- Future plans and work situation – Time: Before first personal meeting

It takes a couple of months before it is possible to answer. The employee needs to get installed and feel the social environment.

- Competence and digital CV – Time: Couple of months or direct

Two cases, the first is in project-based organisation where it is better to wait a couple of months. The second is in consultant business where it is important to fill in directly. This gives the resource planner a chance to sell the profile to customers.

5.6.3 Search and analyse competence to get resource optimisation

The competence analysis (left in figure 8) is one of the big advantages for the manager. It is possible to analyse the resources and needs to ensure the unit has all needed competence to perform as expected today and in the future. If there are competences that is not used to it full capacity. It is also an opportunity for the rest of the organisation to use the available

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workforce better. Or another solution is to remove resources that do not seems to be necessary to the organisation.

The possibilities to search for right competence in a specific person have also a lot of positive aspects. It is important to optimise the existing resources in the organisation before hiring resources form outside to a higher cost. By a long term strategy the manager could steer the employees towards new competences with education and training to fill the future need of the organisation instead.

Too make a successful usage of the system, the manager should:

1. Analyse the competence need of today and in the near future

2. Match the competence of the unit with both needs of today and tomorrow

3. Identify shortage or overstocking of competence

4. Optimise available competences that exist in the organisation

5. Decide to fill the competence gaps by training or need to be hired from outside

6. Set development plans with the employee to cover the competence gap or add resource from outside to fill the competence gap

The competence matrix could be used both to analyse the gap and to illustrate for a direction board or decision makers your needs. Because it is often a situation where the manager need an approval to hire new people to the organisation. To show everything from capacity on different projects to work load on key competences makes decisions easier. By understanding where competence is lacking the whole organisation could highlight a problem before it make any negative result on future projects.

5.6.4 Personal meeting between manager and employee

The employee's satisfaction with his or her work situation is important for the company to be able to keep employees over a long time. In personal meeting between manager and employee it is important to find possible worries for the employee. The personal meeting is important and a standardised structure is needed (see the right part in figure 8).

A standardise structure:
1. Prepare before the meeting

Fill in the profile and think of how the employee is behaving at work. Do also think of new areas where the employee needs to develop. Being well prepared has many winnings. It makes somewhere to start from and ease the discussions.

2. Share a comfortable environment

It is important that the employee feel comfortable at work. Start to discuss the evaluation from the system. Why do the employee feel as he or she does and how could it be improved. It is important that managers have the guts to discuss how they feels that the employee behaves in a constructive way and listen a lot to the employee's feelings.

3. Evaluate competence, set goals & development needs at the meeting

Next step is a discussion about the work task. Make sure that the competences represent the actual job. Continue with discussing the grading from both employee and manager.

Talk about strengths and weaknesses in a constructive milieu to build the new goals upon. Finally set the development areas and goals with time, content, actions and expectations to the system to make them visualised.

4. Review meeting

The reviews should be held continuously and preferable at least every sixth months. It is a checkpoint how the work is going and adjusts the goals to adapt to new reality. The second meeting do not have to be fundamental as the first, more a check that everything is fine.

5. Evaluate goals

Before new goals and development plan shall be set, it is time to evaluate the old ones. It is important to review the goal, work situation and behaviour to build new challenging goals upon. Grade and comment is a good value for the employee to understand the expectations and realise what the new goals contents.

5.6.5 Digital CV - Do not forgot the past

The digital CV (or consultant CV) is mostly used to sell profiles by experience to customers in consultant business. It is important for the organisation to not lose the knowledge from old experience. This could give a hint if candidates to a position have more knowledge than current work task.

It is most used in recruitment and could visualise an extended range of competences own by the employee. Therefore the manager should look thru the CV's of his or her unit to ensure that they are updated and correct.

6   Test and implementation

In a development process it could be good to develop the system step by step with the most important features first. Also if the company does not want all parts but rather choose the ones that they need to complement current system. Therefore a priority lists is needed where the resources should be headed in the development process. In the requirements (Requirement List) it is the column of priority that will be explained below.

1. The competence assessment and visualisation

The keystone in the system is the competence assessment and visualisation. To take control over the situation and analyse the needs against current competence helps all managers to plan their resources. This makes the unit more robust against planned and unplanned shifts in the workforce.

First priority set includes:

- Competence (definitions with levels) connected to the employees,
- Divide the employees into units and department
- Chance to grade the individual employee in self assessment
- Search function
- Visualisation (list and competence matrix)

2. Digital CV

The second range of features includes storing old experience to the system. To be able to store old project with competences, comments and time is a condition for consultant firms to use the system. Most of the information should be searched to find more specific information or unique experience. This feature should be attractive to management in having control over the employees. But the employees themselves have few gains from these features except from good opportunities if the digital CV includes valuable competences.

Second priority includes:

- Store former projects and work related experience
  - Time, comments and including competences
- Store education and language with levels
- Make it searchable and visual by the search function and matrix

3. Contact page

The third range of features includes connecting a profile page to visualise all contact information to the employee. This gives a reason for employees themselves to use the system to find other employees instead of using an extra portal.

Third priority includes:

- Add employee information (title, contact information etc.)
- Add picture
- Make it as "homepage" when clicking on a employees name in personal search

4. Personal meetings section

The last step in the implementation is to involve the information about behaviour and wellness into the system. This information should be a base for the personal meeting.

Therefore questions about the work situation, the employee's behaviour and company core values are incorporated in the system. It is also good to connect goals and development in the same system as the analysis of the unit.

This last step should include:

- Add questions with definitions and answering alternative
- Store goal and development plan
- Future vision and mobility
- Add responsibility part where tasks could be connected to employees
- Store statistical element to make analysis and presenting in marketing proposes

6.1   Implementation issues to overcome

It is important for companies that get the system implemented knowing what issues they have to overcome. As quoted below, it is the way the organisation make the introduction that make the base for a successful system.

> *"It is not always we know or analysed before we make a decision that makes it a great decision. It is what we do after we make the decision to implement and execute it that makes it a good decision" /William Pollard*

Some problematic are stated below in bullets. Of course even more could be a reality depending of the organisation.

- All employees have to be in the system to make it useful

In many organisations there is consultants from outside the organisation. They are often also outside competence systems. This makes the competence analysis toothless. To have control over what competence the organisation really possess, everyone needs to be in it.

- It is a lot of work for the company before the system is up and running

Even it is possible to have an implementer that is responsible for the implementation form outside the organisation. Competences and values need to come from the organisation itself to give substance. The process (workshops, meetings etc.) to get answers could be held by the implementer, but the existing personnel need to spend many hours until the implementation is done and the system is ready to be used.

- Manager needs education to use the competence system

Even if the goal is to have a program that makes the usage intuitive. It is hard to understand if someone does not show how and why it should be used. Therefore a summary with both training and a detailed work instruction specialised for the company needs to be performed to ease the continuously work for managers. Many managers have not worked with competence approach and needs education in the as well.

- Open culture is an postulation

To discuss personal strength, weaknesses and how comfortable employee is on the work place is hard for most people. The discussion should be about giving the employee right assignments and prerequisites to get the most out of him or her instead of what they cant do. One big advantage is by visualising grades is it become hard for managers to treat employees unfair without it shows among colleagues.

7 Discussion

The discussion chapter aims to show possible pros and cons by using competence systems. It should cover the most important parts of the thesis and base the conclusions.

7.1 Competence approach

Competence is a good way to show what the employees are able to do. The system should be used to show every employee's uniqueness and what they could give to the organisation. To visualise what is expected in more general aspects than, is a reminder of expectations and also a sign why they are employed.

The theoretical definition about competence is a good. But it feels a little too academically mind-set. In a small company with few managers the mind-set before implementation could be agreed in consensus at a meeting. But in an organisation with hundreds of managers it have to be specified with a uniformed description that it only could be interpret in one way. The significant difference from the interviews could be the most significant problem in implementing a competence system.

To work with competences, the organisation needs to trust that employees perform the wished task according to his or hers competences. Also without experience from the same task earlier. If the organisation set competence alike with experience the individual mind-set disappears and it does not reckoning the unique skillset he or she has. This makes many possible advantages disappear. Repeatedly without knowing they ever exist. It is a mind-set that needs to be changed or adapt by managers all over the organisation.

7.2 Visualisation of personal data gives a fair leadership

It has many advantages by making information both digitalised and visualised. The digitalisation gives an opportunity to store much more information, measure more and have better control over the organisation. Hence there is a balance between have control and to control the employees.

Employees have always been judged for their performance and behaviour. A competence system should give a fairer discussion about competence and behaviour instead of unawareness. Instead of letting the manager use his or her own preferences, friendships and feelings the judgment is based on discussion and is rated by common definitions. To be forced to talk about work-related feelings forms a need to be accurate and fair. Otherwise it will be shown immediately among the employees. If the official "rank" does not closely agree with the unofficial it will generate a bad atmosphere in the group.

7.3 Grades, a motivator or a stress factor

The grades point out employee's strength and weaknesses. Getting the positives by strengths and the challenge to improve weaker sides should be a motivator. But if a specific number is to low according to employee's own expectations it could easy be a stress factor instead. Therefore it is important to put focus on the individual in the communication with the single employee and not in comparison to other. But when talking to the whole group it is important to point out the positives by the unique competences that the group holds together.

Some people think it is hard to grade the own performance and behaviour. It is uncomfortable to be confident in own performance and the expectation that follows with the grades. But thus it may seem hard, if the total number of an employee is to low according everyone's (own, colleagues and managers) expectations is a sign that the single employee is not competent enough.

Another grading problem are that it is only theoretical to think it is possible to visualise all information. It is important the responsible management have the feeling of what to official share with rest of the organisation and what to keep by themselves.

7.4   Winnings for the management

A competence system should ease the work for managers. But to do so, it have to be used right. To be careless with information that employees have leaved in trust is a sign that he or she not should be a manager. A good manager will get even better with the system and a bad could get even worse. One big challenge is to start working proactive with strategy of future needs. This should continuously guide managers' towards right way.

Having a tool that collects useful information on the same place gives advantage on quickly find right information. They do not need to store paper in a file or make the manual data transfer between systems etc. Measuring is the base of all improvement. To be able to see weaknesses and eliminate them will strengthen the company and stand stronger in the competition. It is impossible to be best in every category and it is not needed either. To be successful, it is important for the organisation to find their core competences and focus on their competitive advantages. The system helps to find both categories and gives the possibility to adjust.

It is an ethical question how to take care of the employee who is not competent enough. The most suitable solution is to find assignments that fit the person but often it is not possible. At the same time it could be hard to fire the person according to employment laws. In the end the organisation ends up in a situation where they do not want the employee to stay but have no right to get rid of the person.

This way of thinking about competence needs to be translated into projects. To divide the project to find all needed competences is hard. Today it more usual that a title gets the assignment without regards the person behind it. The individual set of competence could cover several tasks instead. It could lower the need of different employees in the project or finding a specific competence that is needed to pass a stage of the project.

7.5   Development

Development of competence takes long time. For companies that want and need to develop their employee internally a strategy for education is necessary. Working proactive with analysis of today and strategy for 1-3 years ahead is a condition to be able to use education as a weapon in the market competition. According to Lindelöw (2008) strategy thinking is something that many organisations attempt to do but often fails due to time issues on key employees, standard methods and fear of changes. To solve the problematic is to thinking ahead and letting the employees know the need and why they should improve their competence portfolio.

7.6   The competence system

The competence system could be implemented in many different types of companies with a range of including employees. The system could likely be used to analyse current situation before a expansion phase. To have the competence processes and routines all worked out before the expansion gives advantages in both recruitment and are able to take care of the employee during that process.

If the system gets too big with several thousand of employees it is a possibility it generates new problems that is not covered in this thesis. For example could the definition of competence be hard to have same meaning all over the company. Difference in in culture, leader style and educational level etc. 50-500 employees should probably be the optimal range. Not be too small to have everything on paper and not too big to invest in an even bigger system with resource planning as well.

The largest impacts will the system have on organisations with several departments/units. Especially if they act within nearby work areas and in companies that quickly expand or decreasing the workforce. Then managers could relocate employees to optimise the organisation and possible output of current units.

The system needs to have low maintenance. When it is up and running there should be easy for a person working within IT to add new categories of question or competence. If it is too rigid it will only work great in the beginning but by time lose capacity and effectiveness due to changes in requirements. It is possible to offer a service contract with update possibilities and in that way not only sell a product but rather earn money several times later in the product life time.

With the possibility to both implement it feature-by-feature and unit-by-unit it is a great chance to convince organisation of the positives. It is good to test in a small scale to show the benefits before taking the decision to implement in whole organisation. But the synergies of mass get loss. Having much data is one a condition to get better value and metrics. It will also get better by time. More data give better metrics and the analysis could be better performed. A start in a small scale that is not surly easier than a large one because the first step is to implement a new way of thinking. Both managers and employees need to change their old organisational thinking and replace it with an individual approach. Where everyone should be proud of what they could contribute to the organisation instead of searching for possible rivalry situation among colleagues.

8   Conclusions

Getting competence approach to work requests an openness and organisational strategic thinking. Showing faith in people and their capability in an open and thoughtful work climate is also a need. The management need to create discussions about development that not are uncomfortable.

Even if organisations do not invest in a new system the thought about trust and believes in the individual is something that should be focused upon in a new mind-set. Here research as this thesis should contribute to emphasise that sort of thinking, help for managers and fair treatment to all employees. This is more thoughts that reply to RQ4 and where far from obvious in the beginning of the thesis.

As a response to RQ1 the competence system gives the management an opportunity to use their resources better. Posting right work assignments at the best available employees will generate expertise and a feeling of being valuable. When taking in new employees to the group, it will never be a question of why and what he or she should bring to the table.

The analysis by competence gives the manager a snapshot of the organisation and gives new and better possibilities to improve and develop than before. To use the resources better by education and hiring will also contribute to both economical and employment sustainability where the employee stays longer inside the company. In though economical times with downsizing the workforce it is important to understand whom the management should keep by competence mapping.

Answering RQ2 the employees themselves get more control, both in conversation about their effort and development process. Knowing their performance and competences gives more and direct communication. The individual have an opportunity to understand expectations and how to use colleague's competence to achieve a common goal. Managers also need to grade the employees fairly when grades become official. If anyone has to low grade according to everyday work, the colleagues will be the first to notice. The downside is the possibilities of stress factors, uncomfortable situation and manager that use the information wrongly. But to summarize, the possible effect had to hold positive before negative sides.

The presented material in this thesis gives a good base to program the system upon. The implementation of the system has difficulties but with good change management it could be successfully used. It is not anything new beside common sense, but the information that usually stays within the manager gets more visualised and official. It is the meaning of this thesis that the competence system should be used in it is full version to get synergies from the different parts. To ease the problematic with discussion between employee and manager, it should be the foundation before and in personal meetings.

It is also the meaning that systems as this have a value and many organisations would invest to this type of application if it were available at the market to answer RQ3. Some companies had partly own systems, which point out a market. Some mentioned available products not solve the task today in a proper way. One suggestion was because it do not exist an all-in-one solution at the market currently. Something that seemed interesting with the specification of this thesis.

8.1 Future development work

Next step in the development process is to program and validate the system. It is a prerequisite to get a company agreed to test the system part by part. It is most interesting how the analysis and the actions influence the future. This gives a need to test over time.

In the development area a good future feature should be resource planning where the competence chapter should be connected to a planning program. Then a resource-planner could search a needed competence and direct allocate the employee to a project. It would be easier to see how the workload is used and optimise competences that are used more often than other. Another good feature should be an analysis toolbox to be able to easy take data from subject and time to both see development and use the data as valued metrics to help future decisions.

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Appendix

Interview framework

Interviewer: Per Fernlund
Time: Around 50 minutes

Competence

- What is competence to you and your company?
  - Are there documented competence profiles within the company?
    As example what it takes to work with a specific role
  - If yes, how do you create/updates these profiles?
- What symbolise a successful employee in your organisation?
  - How much values the behavioural aspects contra the technical?
- How do you in the organisation work with competence analysis with current personnel and future needs?
  - Do you have any helpful tools?
  - How do you measure if it is a need of more or other competences?
  - How do you document this work?

Recruitment

- If you need to recruit a new member to the unit, how does it work?
  - Who takes part?
  - What tools is used?
  - How many steps are there in the process?
  - Is there any different between extern and intern recruitment?
- How does the competence be measured at the candidate?
  - Do you perform any test or other method to get values?
  - Has the result any use after the candidate becomes employed?

Competence Development

- How do you work with competence development today?
  - Do plans, goals etc. get documented in some way?
  - How do you work with personal meetings? Tools? Standardised?
  - Do you think your company have right tools for all personal questions?

Resource optimisation

- Is there any system that visualises what competence/experience/knowledge that exists in the company?
  - Could you locate specific competences in your company?
  - Could you se a winning in having such system?
- Do you believe your company could use a database with competence and behaviour to search for to find the best suitable candidate for each job?
  - What should be required to successful implement such system and how should it be used to fulfil your needs

Requirement List

Area	Function	Priority
Set up	Add the organizational scheme to the system with department, units	1
Set up	Store competences with definitions to different levels and restrictions	1
Set up	Possible to create profile for each employee	1
Admin Employee account	Connect the employee to department, units and position	1
Admin Employee account	Full access to employee own account, login with company ID	1
Admin Employee account	Manger connected to employee account and unit	1
Lay out	Separate all pages from each other by tags (Example profile page, competence chart, Personal & goals, Digital CV, search)	1
Competences Chart	Show the standard competences that is connected to employees profile	1
Competences Chart	Add new competences with definitions, levels and restriction by managers in a later stage	1
Competences Chart	Be able to change and add competences to employee profile by manager	1
Competences Chart	Access to fill in employee section in self assessment	1
Competences Chart	Access to fill in manager section in employee assessment	1
Competences Chart	Store the competences grade from both employee and manager to personal account	1
Competences Chart	Approve by sign the final grade by both employee and manager	1
Public	Only the common grading should be viewable for manager level except employee and his/her manager	1
Search	Only manager level should be able to search for competences	1
Search	The search should be split into two, one personnel and one visualization part	1
Search	Search both by stored block/position competences and single competences from list	1
Visualization	Show all persons that pass the criteria from search in a list	1
Visualization	Show all criteria in matrix that is specified in the competence search	1
Visualization	Show the stored information that follow both personal and criteria specification in a matrix	1
Visualization	Matrix is illustrated in a pop-up window	1
Visualization	Possible to save the matrix in a excel-sheet	1
Competence matrix	Visualize the max level for each searched skill criteria in the matrix	1
Competence matrix	Visualize an average level for each searched skill criteria in the matrix	1
Personal profile	Add and store basic information in the employee profile when creating the profile	2
Personal profile	Be able to add and store contact info in personal page by employee	2
Visualization	The person that fulfill the criteria shall be clickable to get to their public profile	2
Personal profile	All profile pages should be searchable and viewable in search tag	2
Digital CV	Be able to store current and former projects with including competences and own comments	2

B

Digital CV	Be able to store former experience with time period, company, description and including competences	2
Digital CV	Be able to store educational (Time period, school, orientation, Short title, comment and internal (check box))	2
Digital CV	Be able to add language with defined level of writing and speech	2
Public	All Digital CV should be public for manager level	2
Responsibility	Store responsibilities with definitions	2
Responsibility	Connect responsibilities to profile first or second in charge	2
Search	It should be possible to search for all information that is not restricted due to its private culture	2
Set up	Store behavior and core company values with definitions, category & number of answers	3
Set up	Combine competences to roll descriptions, block as project leader with possibility to change later on	3
Digital CV	Visualize old project during a defined time period before archive	3
Personal and goal	Show work-situation, behavior and values titles by name and definition when holding the pointer over them	3
Personal and goal	Be able to fill in check-boxes to answer the work-situation, behavior and values question	3
Personal and goal	User are able to fill in comments under work-situation, behavior and values	3
Public	All Personal and goal tag should be not viewable for everyone except employee and manager	4
Personal and goal	Save goal, time, actions, comment in the system and keep it visual	4
Personal and goal	Move the stored goal to review mode when the end time have passed	4
Personal and goal	Be able to review and make changes to goals	4
Personal and goal	After valued the goal it should be archived	4
Personal and goal	Store development plan with competence, time, actions and comments	4
Personal and goal	Be able to review, make comments & change the development plan	4
Personal and goal	After valued the development plan it should be archived	4
Personal and goal	Store future plans as text	4
Personal and goal	Be able to fill in interest in moving to other places and make the information searchable (check boxes)	5
Personal and goal	Visualize feedback from projects	5
Personal profile	Be able to load a picture to your profile	5
Digital CV	Visualize project (unit) and project leader, connected to the employee	5
Visualization	If the employee don't have any value in the visualized competence but it exist in former experience/project experience a color should be added instead	5
Visualization	If the employee have some education in progress the color behind the number in the matrix should be different	5
Visualization	If the competences have a restriction (required education/training etc.) it should show an restriction mark instead of a value in the Cell if the employee don't fulfill it	5
Statistical	Store updates under a decided time period to be able to make analysis	5
Statistical	Be able to take out statistical element form specific department, units, responsible manager by admin	5

C

Appendix Information model

Language
- -id
- -Name : String
- -Description : String

Language knowledge
- -id
- -language_id
- -Employee_id
- -level_of_speech : Integer
- -level_of_writing : Integer
- -Comment : String
- -added_date : Date
- -updated_date : Date

Education
- -id
- -Employee_id
- -Description : String
- -Title : String
- -Location : String
- -start_date : Date
- -end_date
- -Added_date
- -updated_date
- -Short Title : String
- -Internal : Boolean

Wellness Questions
- -id
- -Question_name : String
- -Question_type_id
- -Alternative_type_id
- -Description : String

Wellness question types
- -id
- -Name : String
- -Description : String

Wellness alternative type
- -id
- -Name : String
- -Alternative labels : String
- -Num of alternatives : Integer

Chart Wellness Answer
- -id
- -Question_id
- -Employee_id
- -Answered_date : Date

Wellness Comment
- -id
- -Question_type_id
- -Employee_id
- -Comment : String

Goal
- -id
- -Employee_id
- -Goal_number : Integer
- -Description : String
- -Goal_caregory_id
- -Result : String
- -Start_date : Date
- -achieved_by_date : Date
- -Actions : String
- -Comment : String
- -Reviewed : Boolean
- -Review_value : Integer
- -Review_comment : String
- -Created : Date
- -Updated : Date

Goal Category
- -id
- -Name : String
- -Description : String

Employee Responisbility relationship
- -id
- -Employee_id
- -Responsibility_id
- -Active : Boolean

Responsibility
- -id
- -Name : String
- -Description : String
- -Create : Date
- -Update : Byte

Project experience competence relationship
- -id
- -Standard_competence_id
- -project_experience_id

Project Experience
- -id
- -Empoyee_id
- -Unit_id
- -Comment : String
- -Added_date : Date
- -updated_date : Date

Competence chart
- -id
- -Created : Date
- -Employee_id
- -updated : Date
- -Completed_date : Date

Development Chart
- -id
- -Employee_id
- -Updated : Date
- -Future_comment : String
- -Other_service : Boolean
- -Other_site : Boolean
- -Abroad : Boolean
- -Move_comment : String

Employee
- -id
- -Name : String
- -Title : String
- -Personal number : Double
- -Manager_id
- -Created : Date
- -Updated : Date
- -Hired date : Date
- -Resigned : Boolean
- -Mail : String
- -Phone : String
- -Address : String
- -Zip code : String
- -City : String
- -Info (comments) : String
- -Driver_licens : Boolean
- -First_aid : Boolean

Former experience
- -id
- -Employee_id
- -Description : String
- -Title : String
- -Company : String
- -Start_date : Date
- -End_date : Date
- -Added_date : Date
- -Updated_date : Date

Employee position relationship
- -id
- -Employee_id
- -Position_id
- -Created : Date
- -Changed : Date
- -Active : Boolean

Former experience competence realtionship
- -id
- -former_experience_id
- -Standard_competence_id

D

Competence Development

-id
-Development_number : Integer
-Standard_competence_id
-non_standard_name : String
-Target_value : Integer
-Actions : String
-Start_date : Date
-End_date : Date
-Comment : String
-Employee_id
-reviewed : Boolean
-Review_value : Integer
-review_comment : String
-Created : Date
-updated : Date

Standard Competence

-id
-Name : String
-Defintion : String
-Max_point : Integer
-Restricted_if_zero : Boolean

Position standard comptence relationship

-id
-Position_id
-Standard_competence_id

Position

-id
-Name : String
-Description : String

Level

-id
-Name : Integer
-Parent_position_id : String
-Description : String

Employee department relationship

-id
-employee_id
-Department_id
-Created : Date
-Changed : Date
-Active : Boolean

Unit employee feeback

-id
-Emploee_id
-Unit_id
-Created : Date
-Workeffort : String
-Positives : String
-Improvement_needs : String
-Archived : Boolean

Manager unit relationship

-id
-Manager_id
-Unit_id
-Created : Date
-Active : Boolean

Employee unit relationship

-id
-Employee_id
-Unit_id
-Created : Date
-Changed : Date
-Active : Boolean

Employee Competence Assessment

-id
-Parent_chart_id
-Standard_competence_id
-Non_std_name : String
-Employee_point : Integer
-Manager_point : Integer
-Final_assessment_point : Integer
-Employee_approved : Boolean
-Manager_approved : Boolean
-Comment : String

Department

-id
-Name : String
-Description : String
-Parent_department_id

Unit

-id
-Name : String
-Parent_unit_id
-Description : String
-Active : Boolean
-Parent_department_id

0..*
1
0..*
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1
0..*
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1
0..*
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0..*
0..*
0..*
0..*
0..*
1..*
0..*
0..*
1
0..*
1
1
1
0..1
0..*
0..*
1

E

Explanation to information model

Class	Attribute	Type	Explanation
Competence)chart	id	id	Connect)the)employee)and)the)competence)chart)together
Competence)chart	Created	timestamp	For)statistical)element
Competence)chart	Employee_id	id	
Competence)chart	updated_date	timestamp	For)statistical)element
Competence)chart	completed_date	Date	When)do)the)chart)get)completed
Competence)Development	id	id	
Competence)Development	Development_number	integer	A)sequence)number)to)split)them)apart
Competence)Development	Standard_competence_id	id	in)what)competence)area)are)the)development
Competence)Development	non_standard_name	String	If)isn't)a)Std_competecne)a)name)should)be)written
Competence)Development	Target_value	integer	a)number)of)what)result)the)development)should)end)in
Competence)Development	Actions	String	be)able)to)fill)in)what)action)should)be)taken
Competence)Development	Start_date	Date	Start)date
Competence)Development	End_date	Date	When)should)it)end
Competence)Development	Comment	String	Comment)of)the)development)overall
Competence)Development	Employee_id	id	
Competence)Development	Reviewed	Boolean	1=reviewed)0=not
Competence)Development	Review_value	integer	number)of)how)well)the)development)been
Competence)Development	Review_comment	String	comment)before)archived)it
Competence)Development	Created	timestamp	For)statistical)element
Competence)Development	updated_date	timestamp	For)statistical)element
Department	id	id	
Department	Name	id	The)name)of)department
Department	Description	id	What)included)in)the)department
Department	department_id	id	Is)there)any)department)above
Development)Chart	id	id	
Development)Chart	Employee_id	id	
Development)Chart	updated_date	timestamp	For)statistical)element
Development)Chart	Situation_comment	String	Comment)about)work)situation
Development)Chart	Behaviour_comment	String	Comments)about)the)behavior
Development)Chart	Value_comment	String	Comments)about)the)values
Development)Chart	Future_comment	String	Vision)comment
Development)Chart	other_services	Boolean	Checkboxes
Development)Chart	Other_site	Boolean	Checkboxes

F

Development Chart	move_comment	id	Comment that specifies the checkboxes
Education	id	id	the possibility to store information to visualize in the CV and search by
Education	Employee_id	id	
Education	Description	String	Field to describe the education/training
Education	Title	String	Educational title
Education	Location	String	Location of the education
Education	Start_date	Date	When did it start
Education	End_date	Date	When did it end
Education	added_date	timestamp	For statistical element
Education	updated_date	timestamp	For statistical element
Education	Short_title	String	MSc, BSc etc.
Education	internal	Boolean	Check box to searchable for internal educations
Employee	id	id	Every employee have a own class with objects including contact information and position in the company
Employee	Name	String	Name of the employee
Employee	Title	String	Title to specify the job role
Employee	Personal number	Double	Added personal number
Employee	manager_id	id	Some employees are managers, then it gets in Charge of the unit (except projects), department etc. with access to the profiles
Employee	Created	timestamp	For statistical element
Employee	Hired_date	Date	date to store how long the employee been at the company, both with experience and statistic
Employee	Resigned	Boolean	If employee have left it could be good to deactivate the person but for a time still have them in the system to do analysis
Employee	Mail	String	Add Contact info
Employee	Phone	String	Add Contact info
Employee	Address	String	Add Contact info
Employee	Zip_code	String	Add Contact info
Employee	City	String	Add Contact info
Employee	Info	String	Own field to add info
Employee	Driver_license	Boolean	check in box if the employee have DL
Employee	First_aid	Boolean	check in box if the employee have FA training
Employee department relationship	id	id	Relationship where the employee belongs
Employee department relationship	Employee_id	id	
Employee department relationship	department_id	id	
Employee department relationship	created	timestamp	For statistical element

G

Employee)department)relationship	updated_date	timestamp	For)statistical)element
Employee)department)relationship	Active	Boolean	1=)current)0=old
Employee)position)relationship	id	id	
Employee)position)relationship	Employee_id	id	
Employee)position)relationship	position_id	id	
Employee)position)relationship	Created	timestamp	For)statistical)element
Employee)position)relationship	updated_date	timestamp	For)statistical)element
Employee)position)relationship	Active	Boolean	1=)current)0=old
Employee)unit)relationship	id	id	Relationship)where)employee)and)units)gets)connected
Employee)unit)relationship	Employee_id	id	
Employee)unit)relationship	unit_id	id	
Employee)unit)relationship	created	timestamp	For)statistical)element
Employee)unit)relationship	updated_date	timestamp	For)statistical)element
Employee)unit)relationship	Active	Boolean	1=)current)0=old
Employee)Competence)assessment	id	id	Data)to)the)assessment)sheet
Employee)Competence)assessment	Competence_chart_id	id	
Employee)Competence)assessment	Standard_competence_id	id	
Employee)Competence)assessment	non_standard_name	String	if)there)is)no)std_competence)that)matches)your)need)you)should)be)able)to)add)a) new)one
Employee)Competence)assessment	Employee_point	integer	Point)on)the)std_competences)from)the)employee
Employee)Competence)assessment	Manager_point	integer	Point)on)the)std_competences)from)the)manager
Employee)Competence)assessment	Final_assessment_point	integer	Agreed)point)together
Employee)Competence)assessment	Employee_approved	Boolean	1=approved)0=not)approved
Employee)Competence)assessment	Manager_approved	Boolean	1=approved)0=not)approved
Employee)Competence)assessment	Comment	String	Comment)after)discussion
Former)experience	id	id	
Former)experience	Employee_id	id	
Former)experience	Description	String	Own)comment)as)a)description
Former)experience	Title	String	Title)on)the)old)assignment
Former)experience	Company	String	what)company)were)it)at
Former)experience	Start_date	Date	For)how)long)did)you)work)there
Former)experience	End_date	Date	For)how)long)did)you)work)there
Former)experience	added_date	timestamp	For)statistical)element
Former)experience	updated_date	timestamp	For)statistical)element

H

Former)experience)competence) relationship	id	id	Connect)the)experience)with)the)possible)closeable)competences
Former)experience)competence) relationship	former_experience_id	id	
Former)experience)competence) relationship	Standard_competence_id	id	
Goal	id	id	
Goal	Employee_id	id	
Goal	Goal_number	integer	The)following)goals)to)make)difference)between)them
Goal	Description	String	Field)to)fill)in)what)you)mean)with)the)goal
Goal	Goal_category_id	id	Personal,)organization,)result)based
Goal	Result	String	What)do)the)want)in)the)end
Goal	Start_date	Date	When)do)we)start
Goal	Achived_by_date	Date	When)shall)we)end
Goal	Actions	String	How)should)we)do)it
Goal	Comment	String	Is)there)any)further)comments
Goal	Reviewed	Boolean	If)the)goal)is)review=1)then)it)should)be)archived)not)directly)visually)
Goal	Review_value	integer	The)review)should)be)with)a)number)1Z5)how)satisfied)the)effort)to)fulfill)the)goals)been
Goal	Review_comment	String	be)able)to)tell)why)the)value)are)as)it)is
Goal	created	timestamp	For)statistical)element
Goal	updated_date	timestamp	For)statistical)element
Goal)category	id	id	
Goal)category	Name	String	personal,)result,)organizational)etc.
Goal)category	Description	String	define)what)difference)them)apart
Language	id	id	Every)language)that)should)be)able)to)chose)shall)be)in)this)class)to)pick)from)list
Language	Name	string	Name)of)the)language
Language	Description	string	If)there)is)need)of)some)description
Language)knowledge	id	id	Class)to)add)knowledge)in)different)levels)of)language)to)be)searchable)
Language)knowledge	Employee_id	id	
Language)knowledge	Language_id	id	Pick)a)language)from)the)class
Language)knowledge	Level_of_speech	integer	Number)1Z5)to)describe)the)knowledge
Language)knowledge	Level_of_writing	integer	Number)1Z5)to)describe)the)knowledge
Language)knowledge	Comment	String	
Language)knowledge	added_date	timestamp	For)statistical)element
Language)knowledge	updated_date	timestamp	For)statistical)element

I

Level	id	id	
Level	Name	integer	levels)1Z5
Level	Parent_position_id	id	What)position)does)it)connect)to
Level	Description	String	Description)of)every)level
Manager)unit)relationship	id	id	Relationship)where)manager)and)units)gets)connected
Manager)unit)relationship	manager_id	id	
Manager)unit)relationship	unit_id	id	
Manager)unit)relationship	created	timestamp	For)statistical)element
Manager)unit)relationship	Active	Boolean	1=)current)0=old
Position	id	id	
Position	Name	String	Name)of)the)position
Position	Description	String	Description)what)it)means
Position)Standard)Competence) relationship	id	id	Relationship)where)position)and)competence)gets)connected
Position)Standard)Competence) relationship	position_id	id	
Position)Standard)Competence) relationship	Standard_competence_id	id	
Project)experience	id	id	
Project)experience	Employee_id	id	
Project)experience	unit_id	id	Often)a)number)that)tell)who)is)in)the)team
Project)experience	Comment	String	Own)comment)as)a)description
Project)experience	added_date	timestamp	For)statistical)element
Project)experience	updated_date	timestamp	For)statistical)element
Project)experience)competence) relationship	id	id	Connect)the)experience)with)the)possible)closeable)competences
Project)experience)competence) relationship	Standard_competence_id	id	
Project)experience)competence) relationship	project_experience_id	id	
Standard)competence	id	id	The)competences)that)is)stored)in)the)database
Standard)competence	Name	String	Name
Standard)competence	Definition	String	what)are)the)meaning)of)the)competence
Standard)competence	max_point	integer	Is)there)a)yes/no)question)or)1Z5)etc.
Standard)competence	restricted_if_zero	Boolean	Should)it)be)a)restriction)opportunity)to)the)competence?)If)there)is)a)0)a)cross)mark) appears)in)the)matrix

J

Examples of layout

The Layout suggestion is just an example of how the functions could look like to have an idea of how to solve the layout problematic. In the end, it is up to the developer how to solve it. But all together with the information model and requirements it is a full description of how the system is thought to work. The layout should be as simple as possible. Only very basic adjustment should shift from company to company. If a standardised layout is used it is gets easier to implement by each time.

Profile page

The profile page (figure 9) should visualise as much information as possible. It should be as a presentation about the employee. It is a good way to get in contact with right person before creating your own contact network within the organisation. In the example it is split into two section where the first is about official work information and the second how the reach him/her with contact information. A picture is also there to connect name with a face that you could run into several times without knowing that is the same person.

Jan Andersson	Infotechno AB

	Position*:	Project Leader
	Level*:	3
	Title*:	PL7Mech
	Company ID*:	Janan
	Department*:	R&D
	Units:	SWIT
	Manager*:	Erik Karlsson (erkar)
	Personal number	1975-03-04
	Hire Date*:	2011-02-01

Add7foto

Contact information

Mail	Jan.andersson@infotechno.se
Home Phone:	(+46) 031 25 31 00
Work phone	(+46) 031 - 24 45 12
Mobile Phone:	(+46) 070- 298 28 72
Address	Skolvägen 23
Zip Code	411 34
City	Göteborg
Info:	

*Pre7defined7data

Figure 9. Personal page with picture, work related information and contact information

This page should be searchable for the whole organisation to give a feeling of both community and that everyone could be reached. Much of this information should be stored in an employee class as strings and be founded from the search.

K

Competence Chart

The competence chart (figure 10) is where the employee and manager should add values to the competences. Employee should add one column, manager one and the last together after discussion. This layout should only show the competences that are connected to the work description but still important it is possible to change by time. A good feature is to have the definition showable when holding the pointer over the competence name. It is a good way to connect definitions with grades.

Skill/Comptence Chart

Employee*:	Jan Andersson		Year:	2013
Department*:	R&D		Quarter:	Q1
Position*:	Project leader		Completed date:	2013&03&12

Competences**:	Employee	Manager	Final Assessment	Comments
Planning				
Time management				
Technical knowledge				
Leadership				
Communiction				
Act indendently				
Experience in role				
Inovation				
Negotionating				
Risk management				
Interpersonal relations				
Cost management				
Budgeting		!		
Standard Methods				

Add/Change Competence

Responsibilies

Unit	Subject	Duty	Reporting to	Alternative responsible

Add   Changed

Stored Responsibilty

Unit	Subject	Duty	Reporting to	Alternative responsible

Performed by manager _____   Performed By Employee _____

*Pre&defined!data!from!profile!definitions
**Competences!is!connected!to!position!and!title

Figure 10. Competence chart

It is also important to visualise responsibilities. To see who are responsible for the task makes it easier to understand the importance and not forget important tasks. People that have many responsibilities should also get the recognition for it. The sign shall also be

included and presented to see approval by both employee and manager. Examples could be labour union represent or first aid responsible.

Personal and Goals

This layout should be simple and when holding the pointer over the categories a description or definition to the question should appear. In figure 11 the subjects that commonly appear in core values etc. It is a good opportunity to show the employee a wished behaviour at the company. As comment earlier in the thesis the step from discussing competences to personal comfort at work is not far. When filling the questionnaire the answer should be stored to future discussion and statistical elements where the answer should be anonymous.

Personal(&(Goals

Name:
Jan(Andersson

Work%Situation

	Really(Bad	Bad	Acceptable	Good	Very(good
Colleagues					
Work(load					
Job(assignments					
Motivation					

Comments	

Work%Behaviour

	Really(Bad	Bad	Acceptable	Good	Great
Leading(&(Deciding					
Supporting(&(Cooperating					
Interacting(&(Presenting					
Analyzing(&(Interpreting					
Creating(&(Conceptualizing					
Organizing(&(Executing					
Adapting(&(Coping					
Enterprising(&(Performing					

Comments	

Company%Values

	Seldom(Demostrated	Often(Demostrated	Role(model
Respect			
Openness			
Performance(every(day			
Busineess(spirit			

Comments	

save

Figure 11. Personal & goals, (work situation, work behaviour & company values)

M

This page should be restricted for everyone except employee and manager. It is important that the company could decide what type of categories, questions, definitions and answer alternative that should be included.

Feedback is what the system is all about. Sometimes it is a need for transporting the feedback from the ones in charge for the work to the manager (example in figure 12). A feedback function from project or unit leader should be implemented. This is very important in larger consultant companies where the manager could not have frequently contact with the employer. When looked at the feedback it should also be possible to archive to avoid too much information visualised.

The goal procedure should be stored, reviewed and achieved. It is important to store time to have a plan to follow. When the time past by it should be in review form. It has to be possible for both employee and manager to contribute with suggestions of goals but in the end the manager needs to be the one to approves it.

The personal development (figure 13) is the same as the goal section (figure 12) but should be used to remember what the employee should focus upon in work. It is also to show the rest of the organisation that the employee will develop in the competence. Therefore should the competence be connected to the matrix, indicating the employee strives to get better.

Personal Development

New Development plan

Number	Competence	End result	Actions	Time period	Comments
1					

Save

Stored Development plans

Number	Competence	End result	Actions	Time period	Comments
1					

Archive plan   **See old plans**

Future career plans

Vision (5-10 years)

Intrested in another service within the company

	Other service at the office	Other site	Abroad
Yes/no			

Comments	

Save move

Figure 13. Personal and goal (Development and Career section)

The future career plan should only be a text that reminds the employee where he or she wants to be in the future. Many companies have different direction to choose from (often specialist, project leader, manager). This direction is good to explain, why they want to be in a certain role in the future.

The interest in move section comes from every company that strive to work with internal mobility. To make the mobility official thru discussion get the manager time to search both for opportunities for the employee and find new resources before the employee leaves. It is also possible to find an employee that suits a new position and location instead of searching for people that have no interest of moving to other locations.

O

Digital CV

The CV page is the one that visualises and store experience, projects and other subjects as education and language within the system (figure 14 & 15). These sections should have a lot of information but only the last couple of years need to be visualised. The rest should automatic be archived. The experience should be shown in a list, to easy be able to overlook and give a standardised way for managers to recognise the view form time to time.

Digital CV

Employee*:   Jan Andersson
Department*:   R&D
Position*:   Project leader

Store project information

Project ID   Project leader   Included competences

Comments

Store information

Former project

Project ID   Project Leader   Included competences

Comments

Change information

Add former Experience

Time period   Title   Company   Description

Competences

Store information

Figure 14. Digital CV part 1

Figure 15. Digital CV part 2

It is also good to store knowledge in IT or other tools. If the company do not think it is a competence and store it that way instead. Everything should then get searchable to match people as good as possible to the requirements. This information should only the employee has the power to change. Management should find an ordinary CV with a summary that should be clickable from the personal profile page.

Search tool

As mention in the thesis the search should be split up in two. One part should be to find the right people and the other to visualise it in the matrix. The first part (figure 16) is where all criteria that scale down the number of possible candidates. Each field have the own firm place to easy show the searcher the possible options that are available.

Search

Part.1.People.search

Person information

Name: [   ]   Surname: [   ]

Company.ID: [   ]   Phone.nr: [   ]

Work descriptions

Unit/project/
work.unit: [   ]   Manager: [   ]   Position: [   ]   Level: [   ]

Department [   ]   Experience.in.the.company.(years): [   ]

Mobility

intressed.in.move? [   ]   intressed.in.moving.to: [   ]

Educational/training

Year   Institution   orientation   licens/title Education.area
[   ]   [   ]   [   ]   [   ]   [   ]

Competence in persons

competence level
[   ]   [   ]   [Add single competence]

                            [Add competence profile]

The field that have many options should be presented as filtering roll down. Competences should be possible to browse among the stored ones. It is important that a message if the search is over critical (no match with candidate). The searcher does not remember when he succeeds but rather when he or she fails to find right information.

The second part (figure 17) decides what is visualised in the matrix. To create a matrix the searcher need to both search on the people (rows) and what to visualise (columns), by this be able to make more advanced analyses.

Part.2.skill.visualisation

Educational/training (only.check.in.boxes)

Year   School   orientation   Short.title   Remove.internal?

First.aid   Driver.licence

Competence

Single.competence   [Add.another.competence]   [Show.all.competences]

Competence.by.position   [Add.competence.profile]

Language   [add.language]

CompanyFactss (only.check.in.boxes)

Years.in.company

[Search]

Figure 17. Search part 2 Visualisation

All available information that could be of interest in the system should be included in the visualisation search. But on the same time it is important that it not give to many choices. Then it easy gets messy and not as simple as it should be. If the searcher chose to many categories it gets a disordered matrix with to much data at the same place.

Competence matrix

The matrix has been discussed in chapter 3 so no further explanation is required. Here the data should be visualised and it is important that the data is the same all over the company.

Competence)matrix

Personnel	competence	Competence)1	Competence)2	Competence)3	Competence)4	Competence)5	Competence)6	Competence)7	Education	Year)in)the)company	Swedish	English	Interested)in)a)move?	driver)licens	First)aid)training
Person)1		3	3	2	4	4	3	4	MSc	6	5	3	Yes	Yes	yes
Person)2			3	1	4		2	1	BSc	15	5	3	No	Yes	No
Person)3		4	3		2	2	2	4	Internally	5	5	4	No	Yes	No
Person)4			1	2	4	3		2	Internally	12	1	5	No	Yes	No
Person)5		3	2	2	4	4	3	3	MSc	6	5	4	Yes	Yes	No
Person)6		3		4	2	4		3	MSc	3	2	4	No	Yes	Yes
Person)7		4	3		2	4	2	1	MSc	7	5	3	No	Yes	No
Person)8		4	1	2	1		4		Internally	9	5	3	No	Yes	No
Person)9		1	2	2	1	4		3	BSc	14	5	3	Yes	Yes	Yes
Person)10		4	3	3	4	2	3	2	MSc	7	2	4	No	Yes	No
Person)11			2	2	4	4	1	2	BSc	12	4	4	No	Yes	No
Person)12		1	1	3	2			4	Internally	13	4	4	No	Yes	Yes
Person)13		4	2	1	3	2	3	3	BSc	12	4	4	Yes	No	No
Person)14			1	4	1	2	4	3	Internally	8	1	5	No	Yes	No
Person)15		3	1	4	1	2		4	MSc	11	5	4	No	Yes	No
Avarage		3,1	2,0	2,5	2,6	3,1	2,7	2,8		9,333					
Max		4	3	4	4	4	4	4		15					

Under)education/development)goal

Former)experience)but)not)included)in)current)job)description

X)==)restrictions)to)work)within)the)area

T

Appendix Work instructions

This chapter is divided in two parts. The first part to set up the system and the second is how to use the system continuously. It explains how and mostly why some actions should be done. The instructions are on a general level, due to it needs to be specialised to different companies. It should be as a ground to build a specified framework to work by in the specific organisation.

Pre-settings of the system

The pre-setting could be lead by personnel at the company or an implementation specialist. The information has to be from the company and much of it exists already, it just needs to be digitalised and stored. This is not part of the programming, it is rather where the programming should end and specialisation should start.

1. Organisation scheme – where everyone stands relative to each other

A scheme of the organisation is the first to get in order. This is often something that already exists in almost every organisation. It just needs to be translated into the system to decide the role and correlations of departments, units and project teams. When create a new profile the first step is to connect the organisational scheme to gather information to the personal profile as manager, position etc. This step is like setting up an empty shell to fill with people later on. In bullet form:

- Form the company
  - Departments
    - Units that belong to each department

2. Competence/skill definitions

The competences should be added before the system could start to get used. Workshops, seminary and education to decide how each position could be stated with competences instead of work tasks. All competences should be stored into database of competences. These competences should be compiled and defined with detailed levels.

It is important to be able to separate the best from the rest and also a lowest acceptable standard. It has no use if the levels are stated to high or low to get around uncomfortable situations. The levels need to build a discussion in each company because the references also are different from time to time. This job is huge and requires lot of hours to construct but it is the first step to make the company to competence based.

- Education to the ones that should define the competence to have same definition
  - Workshops to get many different ideas of competences
    - Compile it to a common list
      - Level and define each competence with specific numbers

3. Core and behaviour definitions

In conformity with competence the core values of the organisation need also to be defined. Almost every company in the research have their own core values that employees shall strive to act and work towards. These core values are often clearly communicated but sometimes feel as empty word. Therefore some standard categorise

as colleagues, workload, assignments and motivation should be added and defined with an answerable range to give a good base to the personal talk.

It important to ensure values and wished behaviour is established in the organisation. Often companies have some standardised forms that could be digitalised. Otherwise some new have to be produced and defined. These definitions should really explain how an ideal employee acts. It should be unique and could not be copying from other organisations only because it sounds nice. In a good system, statistical elements could be collected to measured to put focus and resources into problem areas.

- Define categories to get answer (behaviour, work situation, core values etc.)
    - Define questions
        - Decide answer alternative and descriptions of every question

4. Form job descriptions

One of the biggest problems in organisations is what is expected from the employees. To make this clear it is important to make a role description together with the employees. In the end should the role description be translated into what competences that is needed by the position.

Later, sets of competences could be established in block of competences for a certain position. This ensures employees not have to put to much time on evaluating their work and behaviour. Only right amount of information should only be presented. This is also a god base for a profile of demand in the recruitment process. If the work is halfway there and just need to add few specialisation competences, it would save time for both managers and recruiters.

- Define a role description – what I do at work?
    - Translate the role description in competences – what do I need to know to be able to perform the expected outcome.
        - Analyse the role description for correlations where it is possible to design blocks for future compositions of roles.

5. Add managers, employees, responsibilities and their basic information

Add employees to the organisation scheme where they belong in the organisation. Decide also who is manager at each unit that is specified in stage 1 etc. Base information as position and other contact information that not change rapidly shall also be connected to the profile in this stage.

- Add all Employee profiles to the organisational scheme
    - Decide who is manager at each group/unit/department
        - Put the profiles where it belongs in the organisation scheme
            - Add the information as position, level and hire date

6. Access

The access problematic has to be solved. Some information shall be seen as private and only the employee and manager should have access to it. Who should have access to different page, to search for what and be able to change in the profiles? It is up to the company to decide. Below some examples is bulled:

- Employee profile page
  - View: Everyone
  - Change: Employee (Manager as admin for position, department etc.)
- Competence page
  - View: Everyone
  - Change: Employee (self-assessment) Manager (assessment)
  - Sign for both employee and managers before it becomes official
- Personal page
  - View: Employee (manager only near the personal meeting)
  - Change: Employee (manager only at personal meeting)
- Digital CV
  - View: Employee, manager level & resource planner
  - Change: Employee
- Search
  - View: Employee (only person profile search), managers and resource planner (full search)
  - Searchable: Employee (only person profile search), managers and resource planner (full search)

Continuously work

After the framework is established the employees shall add all information (see figure 18). If one person should add all information it would be a huge workload. But when the employees have control over their own information, the work is within the time of 2 hours that should be bound to prepare for the personal meeting.

After the first input, there are no major updates to perform from time to time. Only when there are changes in work assignments, contact information or assessment. It is important that the system give more value than it is requires time from the users. Therefore if the time that requires keeping it updated is within the recommended effort today the value should increase.
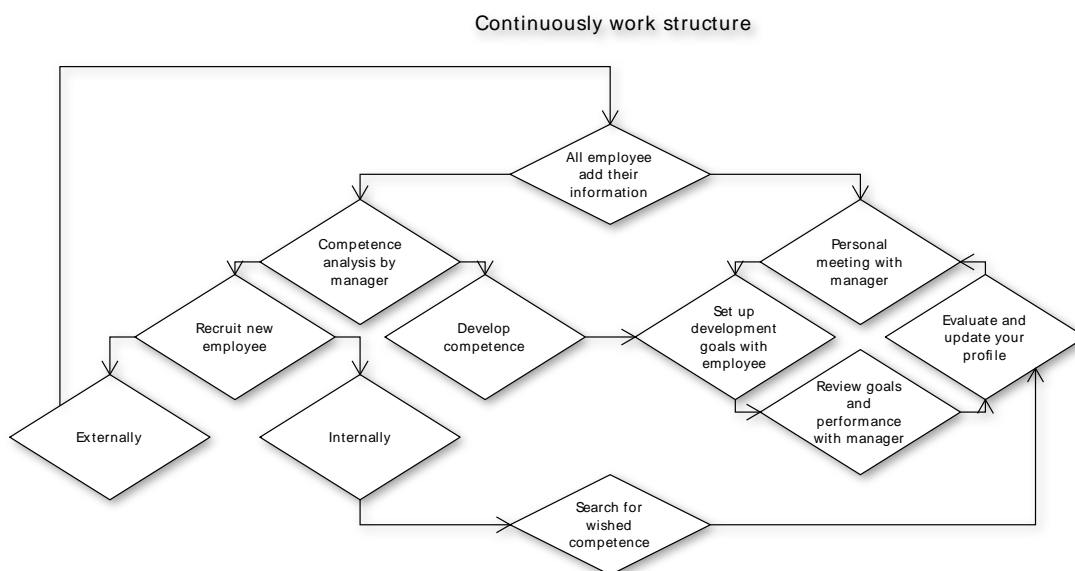

Figure 18. Illustration of work structure fo personal meetings and competence analysis

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Employee information

The personal information is split in several areas to give the possibility to do it step by step. The contact information is done in the beginning and is enough for a new employee until it is time for the first personal meeting with the manager. The personal profile should work as a page where everyone in the company could find contact information and other useful information as e-mail, phone number and workplace and is even more important before you are able to establish an own contact network and learn who to contact in which matter.

For consultants it is important to have an updated digital CV to be able to sell the competence and experience to customers. The more experience employees have, the easier it gets to sell their services and higher fee could be charged. By this type of organisations it is important to not only fill in the experience from current company. The employee should in the beginning share for example the last 5 years of experience from other organisations. This visualises what competence the organisation have judged the new employee by in the recruitment process.

It takes some time to get installed on the workplace and get introduced to the work tasks. Therefore it is also hard to evaluate performance and behaviour in the beginning. It takes some time until you get a feeling of the other co-workers and work tasks.

The work structure to a new employee should be:

1. Fill in contact information

Should be included in the introduction plan. It gives winnings to easy be able to be found and search for other contacts. The employee shall be responsible to keep their profile updated themselves.

2. Digital CV

To be available for more projects where your former experience could give you a unique competence this part is good to fill in the beginning. It is highly important for consultants but not critical for an employee in a project-based organisation. Then it is no hurry. Within 6 months when the employee is up and working most digital CVs should be completed.

3. Self-assess your competence

Fill in the competence sheet after introduction phase when the employee has been introduced in the work tasks. It is first the possible to have a feeling of strengths and weaknesses in the daily work. Then they also are searchable for your unique competence combination.

4. Behaviour and well being

Fill in or update before every personal meeting. But only minor things should be waited to the personal meeting. If some problem occurs it should be discussed with the manager direct and not wait to the personal meeting.

Search and analyse competence to get resource optimisation

The competence analysis is one of the big winning for the individual manager. Here it is possible to look over the resources and what competences that are needed to ensure that

the unit has what it takes to perform as expected. It is important to both cover the need of today and the future visionary needs. The manager has the opportunity to analyse more and set up different scenarios.

As an example: An employee has been at that position in 4 years and may think of moving in the career, what happen then? What competence do we need to gain to be at the same level as earlier? Or another example: If the unit has too high workload and need to recruit a new member, what competences areas do we need to unburden current employees?

To plan the resources could give an advantage both internally and externally if the unit gets a reputation to always have competent members and deliver employees to the rest of the organisation without ever loosing capacity.

- Search for department, unit etc.
    - See the workloads and where the unique competence are
        - Make plans that answer what happens if the workforce changes
            - Make candidate list for key positions

The possibilities to search for unique competence in a specific person have also a lot of winnings. In consultant firms it is critical to have sellable employees. Sometimes a generalist is required and then it is not what specific competences you choose. It is more important that the person have right base set of competences and attitude. But sometime specific competence is critical to a customer and to quickly find that specific person could give the big value both for the customer and for the individual that feels important to the company.

Also in in-house projects it is important to ensure that the competence do not exist in the organisation before a temporary consultant were hired to a higher cost. It is possible that the person at the workstation next to you in the office has the competence that you need. He or her could then solve your problem quicker and to a lower cost. On the negative it is a risk that the group form a go-to-person culture that will take others time to help other instead of focus on their own work tasks. This has to regulate by the manager to not run to the "expert" in the team with small questions rather than think him or herself.

- Design some profile of demand
    - Search for the most valuable competences by priority order
        - Select the available employee that is closest to the criteria, do not chose a person that is overqualified

For the manager level it should be possible to search for all valued competences, affinity (departments, units, projects etc.), language, education etc. It is important that the company could add categories of information after time. As the system is designed now the easiest way is to add new categories for grading as a competence with definition and levels (the levels could be Yes/No, 1-5 etc.). Then it could be everything between knowledge, required performance, test result etc. After discussion with managers that have used different kind of searchable databases where that they often missed subject/competences to search from. They did not remember the time they succeed to search but the times they did not. Therefore it should be easy to add a new

subject. It would probably not solve the problem directly but the subject would be filled in next time the employee should update their information (within a year).

- Include only highly valuable competences to do not filter away competent people

The competence matrix should be used to illustrate your needs in a simple and obvious way for direction board or decision makers. It could be everything from capacity in projects to work load on key competences. This makes the function to store the wanted illustration to excel or other transferable format to send it to other people by mail etc.

In a manufacturing milieu the illustration should represent the possibility to rotate on workstations and clearly show the relationship between education/training and flexibility in work situation. It could be presented on a screen in connection to the manufacturing area or workstations. It could be predefined to a set of competences or work shift as standard to ease the setting before the shift. The employee that works at the shop floor could get connected to a specific unit that could be updated instantly by the shop floor manager. By doing this its always-updated information with the employees that work at the moment.

- Store the matrix by excel
    - Present the wanted findings to ease decisions/work

Personal meeting with manager
The personal information is very important that only the employee and his or her closest manger have access to. Here the employee should feel comfortable and is it the manager's responsibility to ensure that the meeting is held. The system should help in planning and preparation before the meeting.

Today more and more companies state personal development as a competitive advantage in their employ branding. Therefore it´s important to work standardised and strategically to meet the employees expectations. Below the stages is explained to use the system.

1. Prepare before the meeting

It is important to prepare both for manager and employee to get a significant discussion. Fill in the profile, competence page and think of new areas where the employee want and need to develop. It is also very important that the employee reflect over the work tasks and responsibility. The preparation and first meeting is preferable done in the beginning the year in the first quarter and for managers it is important to plan careful to get time for all his/her employees.

2. Set goals and developments needs

The discussion from the meeting should result in goals and development for the employee. The relation between the individual goal and the overall organisational goal shall be obvious to the employee to show the importance of the goal. It is also important to take actions by the work situation and set goals to improve the well being at the workplace. An example that is a hot topic in many organisations is to not work much overtime and make balance in the everyday life or focus on own work tasks instead of help other.

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3. Review

After 6 months it is time to review the goals and discuss how it progress, are to low or to high. Do the employee need any further aid or resources to pass the goals or do they higher the expectations to get a challenge. This meeting do not need to be as detailed as the first one, but still important to catch small things in daily work that could be improved.

4. Evaluate goals

Before new goals shall be set it is time to evaluate the old ones. It could be done in the end of the year to sum the happenings from the past year. It could also be the beginning of the meeting explained in stage 2. It is important to review the goal, old project and work situation (likely with values) to get a base to build new challenging goals upon.

Digital CV - Do not forgot the past

In the digital CV page, information of former experience should be stored. Both project and working life experience outside the company should be included by description and summarised in competences. This give the winning if the competences do not is in current role description show that you have an understanding from the area and could easy learn it again. It may also terminate a possible insecurity for a recruiter that you really are capable to perform outside your defined role. It is up to the employee to describe the past role in competences.

The project leader of a certain unit should also have the possibility to give feedback to the belonging employee. Especially when the project leader does not have an organisational connection to the employee the system could be a good transporter for the information to the manager before the personal meeting.

This type of digital CV (or Consultant CV) is often used today both internally and externally to keep track of applications in a recruiting process. Problems with this type of system are that it is hard to judge old experience against each other. The technology has been quickly developed the last decade. Experiences for 5 years ago do not guarantee that it is useful today. Therefore it is better to only flag that the employee has worked with it than value the experience it self.

Education and language are examples of information that also should be inserted in the section to get more searchable information that could be of interest. If the customer are located in another country it could be a good act to send an employee that a comfortable with the local language and have a wish to move to the area. This type of competence should also be easy to add if new requirements occur to pass new demands.

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