Sami Säntti

Professional Skills Management (PSM) tool benefits for Finnish industrial company

School of Technology and innovations
Master's Thesis in Industrial management

Vaasa 2024

UNIVERSITY OF VAASA
School of …
Author: Sami Säntti
Title of the Thesis: Professional Skills Management (PSM) tool benefits for Finnish industrial company
Degree: Master of Science in Economics and Business Administration
Programme: Master's Programme in Industrial Management
Supervisor: Ville Tuomi
Year: 2024 107 Pages

ABSTRACT :

Resource skill and competence management are important for every company. Competence and the level of competences can be measured in many ways. The resource-based view (RBV) has long since developed and has been one of the most successful theoretical approaches in the field of strategic management. This study has used the perspective provided by the RBV theory and the results have also been compared to previous studies on competence development and competence management.

The research was conducted as a case study for a Finnish industrial company and its Energy field service department. The purpose of the work was to find out the knowledge management tools they use globally from the end user's point of view, and to list the most important development items based on the data collected from the users.

Data collection was carried out with questionnaires and interviews. When conducting surveys and interviews, the challenges and effects of multiculturalism were considered.

At the beginning of the study, two research questions were defined: 1. What are the most common problems in managing skills and competences with the PSM tool? and 2. What are the most specific aspects of the PSM tool that are useful and should be developed? The research was done by analyzing the data collected through questionnaires and interviews.

The analysis was performed by comparing the results with previous studies and the RVB theory presented in the literature review. In addition, the answers to the questionnaires were checked and the answers were deepened by interviewing all the respondents separately. By using the triangulation method in connection with the comparison, the reliability of the research results was ensured. Suggestions for improvement focus on the usability of the PSM tool, the support system, and the quality and availability of the training material.

With the chosen research methods, the survey answers to the research questions have been solved within the pre-set limits. The results are still used in the development of the PSM system. The study was the first PSM conducted on the subject for the company and lays the foundation for possible further studies on the subject.

KEYWORDS: Competence, Skill, Development

TIIVISTELMÄ:

Resurssiosaaminen ja osaamisen hallinta ovat tärkeitä jokaiselle yritykselle. Osaamista ja osaamisen tasoa voidaan mitata monella tapaa. Resurssipohjainen näkemys (RBV) kehittyi kauan sitten ja on ollut yksi menestyneimmistä teoreettisista lähestymistavoista strategisen johtamisen alalla. Tässä tutkimuksessa on käytetty RBV-teorian tarjoamaa näkökulmaa ja tuloksia on myös verrattu aikaisempiin osaamisen kehittämistä ja osaamisen johtamista koskeviin tutkimuksiin.

Tutkimus tehtiin tapaustutkimuksena suomalaiselle teollisuusyritykselle ja sen Energia sektorin kenttäpalveluosastolle. Tutkimuksen tarkoituksena oli selvittää heidän globaalisti käyttämiään osaamisen hallintatyökaluja loppukäyttäjän näkökulmasta ja listata tärkeimmät kehityskohteet käyttäjiltä kerätyn tiedon perusteella. Tiedonkeruu toteutettiin kyselylomakkeilla ja haastatteluilla. Kyselyjä ja haastatteluja tehtäessä pohdittiin monikulttuurisuuden haasteita ja vaikutuksia.

Tutkimuksen alussa määriteltiin kaksi tutkimuskysymystä: 1. Mitkä ovat yleisimmät ongelmat taitojen ja osaamisen hallinnassa PSM-työkalulla? ja 2. Mitkä ovat PSM-työkalun erityisimmät osa-alueet, jotka ovat hyödyllisiä ja joita pitäisi kehittää?

Kerätyn tiedon analyysi suoritettiin vertaamalla tuloksia aikaisempiin tutkimuksiin ja kirjallisuuskatsauksessa esitettyyn RVB-teoriaan. Lisäksi kyselylomakkeiden vastaukset tarkistettiin ja vastauksia syvennettiin haastattelemalla kaikkia vastaajia erikseen. Käyttämällä vertailun yhteydessä triangulaatiomenetelmää tutkimustulosten luotettavuus varmistettiin. Parannusehdotukset keskittyvät PSM-työkalun käytettävyyteen, tukijärjestelmään sekä koulutusmateriaalin laatuun ja saatavuuteen.

Valituilla tutkimusmenetelmillä löydettiin vastaukset asetettuihin tutkimuskysymyksiin ennalta asetetuissa rajoissa. Tuloksia hyödynnetään edelleen PSM-järjestelmän kehittämisessä. Tutkimus oli tapus yritykselle ensimmänen PSM aiheesta tehty ja luo pohjan mahdollisille jatkotutkimuksille aiheesta.

AVAINSANAT: Competence, Skill, Development

Index

Figures

Tables

Abbreviations

PSM Professional Skills Management
SRR Smart Resource Request
KPI Key Performance Indicator
E&A Electrical and Automation
HR Human Resources
RBV Resource Based View

Introduction

This work focuses on investigating the benefits of the PSM tool used by the Finnish industrial Case company Energy Field Service unit from the users' perspective. Since users operate globally, it is worth researching from different perspectives and gathering information from users from different countries who work at different organizational levels and therefore have different perspectives and requirements. Since today the trend is increasingly towards the use of artificial intelligence-based systems, the PSM information system plays a big role in this from the case company point of view. An active and up to date PSM database has a significant impact on the functionality of the tool and on other systems that use the same database in the case company. In this study, I will not discuss the company's other systems and their purposes in more detail. In the investigated company, the goal has been set that the usage rate of the PSM system should be as high as possible, and naturally a big influence on the usage rate is how the users see the usability of the system and that it is of practical use in their work. When aiming for a high utilization rate, it is also important to learn how to use the system smoothly and that the system should bring added value to the user. In addition, the system's support systems must be in order, i.e., there must be designated key users in the areas.

Monitoring the competence of field maintenance personnel has become an even more important area due to the growing demands of business. The customer's skill requirements have increased, and it is necessary to be able to respond to them more efficiently. The work itself has also become more demanding, as the equipment and systems have become more complicated. In the past, it was enough to know a narrower sector, correspondingly, working with current systems requires broader knowledge and management of several areas. In terms of the success of this research, it is important that the data to be analysed is collected in the field from different online offices and in different countries, to get a picture of how the benefits and problems of the PSM tool are seen in different countries. The collected data is analysed and compared to other, previously conducted studies to see what similarities and differences there are in the results and whether the results are in line with previous studies. The collection of research material

takes place with the help of questionnaires and interviews. This way we get a picture of different operating models and how users in different countries find the tool useful. With the help of the interviews, I try to make sure that the questions have been understood correctly and collect comments on possible differences compared to the answers in the questionnaires. Based on the results, the goal is to form a clear picture of the needs of different areas, to improve the utilization rate of the PSM system, and in the future also to maintain the targeted high utilization rate. It is also important to consider the necessity of a PSM tool from the end user's perspective.

When implementing the PSM tool, a lot of attention was paid to meeting the company's needs, but the review from the user's point of view has not been carried out extensively. From the end user's point of view, the tool must be easy to use and the benefit to be achieved from its use must be known. If the tool does not meet the needs of the end user and causes him mostly extra work, as well as negatively affects the user statistics. Therefore, the results of the study must be carefully analysed. This work focuses on investigating the benefits of the PSM tool used by the case company Energy Field Service unit from the users' perspective. Since users operate globally, it is worth researching from different perspectives and gathering information from users from different countries who work at different organizational levels and therefore have different perspectives and requirements. Since today the trend is increasingly towards the use of artificial intelligence-based systems, the PSM information system plays a big role in this from the case company point of view. An active and up to date PSM database has a significant impact on the functionality of the tool and on other systems that use the same database. In this study, I will not discuss the company's other systems and their purposes in more detail. In the investigated company, the goal has been set that the usage rate of the PSM system should be as high as possible, and naturally a big influence on the usage rate is how the users see the usability of the system and that it is of practical use in their work. When aiming for a high utilization rate, it is also important to learn how to use the system smoothly and that the system should bring added value to the user. In addition, the

system's support systems must be in order, i.e., there must be designated key users in the areas.

Monitoring the competence of field maintenance personnel has become an even more important area due to the growing demands of business. The customer's skill requirements have increased, and it is necessary to be able to respond to them more efficiently than before. The work itself has also become more demanding, as the equipment and systems have become more complicated. In the past, it was enough to know a narrower sector, but working with current systems requires broader knowledge and the management of several areas of expertise.

In terms of the success of this research, it is important that the analysed information is collected in the field from online offices located in different countries, to get a correct picture of how the benefits and problems of the PSM tool are perceived. Different countries have different practices and things are emphasized in different ways, which is why gathering information from a wide area is important. The collected data is analysed and compared to other studies that have already been done in the past to see what similarities and differences there are in the results and whether the results are in line with previous studies. The collection of research material takes place in two stages, with the help of a questionnaire and additionally conducted interviews. This way we get a picture of different operating models and how users in different countries find the tool useful. The interviews also give the opportunity to deepen the answers to the form and give the opportunity to make observations that are not possible through the questionnaire. With the help of the interviews, I try to make sure that the questions have been understood correctly and collect comments on possible differences compared to the answers on the questionnaires. Based on the results, the goal is to form a clear picture of the needs of different areas, to improve the utilization rate of the PSM system, and in the future also to maintain the targeted high utilization rate. It is also important to consider the necessity of a PSM tool from the end user's perspective. When implementing the PSM tool, a

lot of attention was paid to meeting the company's needs, but the review from the user's point of view has not been done extensively enough.

Looking from the end user point of view, the tool must be easy to use and the benefit from its use must be known. If the tool does not meet the needs of the end user and causes him mostly extra work, then the above-mentioned factors lead to the calculation of the usage rate. Therefore, the results of the study must be carefully analysed, and possible corrective measures and changes must be considered.

1.1 Case company

The topic of this study was chosen because the Professional Skills Management (PSM) tool is an important part of case company industrial business today and its importance has grown in recent years. In this research, I focus on the use of PSM tools in the case company Energy Services department. Since I study in the industrial management program, there is a clear connection with my studies, because the personnel's competence, skills and their planning and development directly affect all aspects of the industrial environment. In the research, at the request of the case company, I find out what challenges have arisen from the point of view of competence management and competence development after the introduction of the PSM tool. Second, to identify the challenges and issues arising from the use of the PSM tool in various online offices worldwide.

In the case company, the field service resources have several hundred experts from different areas of expertise and the resources were in located in different countries around the world. A PSM tool has been chosen for the management, development, and monitoring of the company's supply chain, which has been found to work in the field service department. The PSM tool has been developed and customized according to the needs of the company and has been modified during its existence according to the needs, so that it is more suitable for use and responds to changing needs. It has been established

that the qualifications of professionals must be constantly monitored to respond effectively to the demands and needs of customers.

Here I underline that the development of the PSM system during the work is not essential for this study, because the changes are at the level of the program and the study focuses on the advantages and disadvantages brought by the system. However, the structure of the PSM system needs to be opened at this stage so that the reader can get better understand of the research. In the initial phase of the research, the case company had the version 1.0 of the PSM tool in use. In this version 1.0, the PSM roles had to be chosen so that there were six main roles, and in addition to the basic training level, the roles had seven different sub-levels, which included different amounts of training and certification.

The number of certificates to choose from was wide and structure was somewhat confused because several products were collected under some product certificate titles, for example: maintenance for the different type of products under the title there were four different products that differed greatly from each other from a technical point of view. Due to the structure of the certificate, knowing the person's true qualifications was sometimes at a poor level.

As the research progressed, the company implemented the next generation PSM 2.0 system. In the new system, the number of selectable PSM roles has been reduced to two, i.e., either mechanical or electrical and automation (E&A) has been chosen as the main role. In addition to this, the sub-role is always chosen according to which of the seven products the employee focuses on and where he does most of his work. In addition, courses and certificates are selected for the employee according to what the planned tasks require. Naturally, even in this system, it is possible to choose better main roles, if the person's background is sufficiently strong and versatile and the employee has been found to be multi-talented by means of a competence survey. In the new system, the number of certificates has also been reduced. In addition, product-specific certificates are separated. This is clearly different from the old system, where several product

variations were collected under the same title. The separation of product certificates makes measuring a person's real competence easier and more reliable, and the description and understanding of the certificate structure becomes clearer.

With the help of a structured database, the company can monitor better competence level statistics and based on this knowledge, also act proactively from the point of view of resource development. This also considers the number of resources as well as skills and competence levels.

The competence structure of the example company in the PSM 1.0 system is structured in such a way that the employee's PSM role is selected according to the competence background and the level of requirements of the future work. There are different appointment levels for employees as follows: maintenance technician, senior maintenance technician, maintenance engineer, senior maintenance engineer, supervisor, and senior manager. Some of the certificates were mandatory for everyone and the rest of the certificates are selected according to the employee's job description, i.e., the selection is based on what work the person mainly does. Depending on the person's starting level, the education path starts either at the basic level or possibly at a higher level. The starting level is determined by the person's previous skills. For example, with the basic information of a maintenance engineer and a more experienced person, you can choose the position of a senior maintenance engineer as a starting point.

The philosophy of the next generation PSM 2.0 tool has changed so that instead of multiple PSM roles, there are now only two roles to choose from, mechanical and electrical and automation. Such a structure simplifies the selection of roles and eliminates the conflict between HR and PSM roles. There have been situations where the HR role has been smaller than the PSM role and it has led to discussions about the person's salary level, even though the PSM role itself does not affect the person's salary level, it is just a role that is chosen according to the job. In addition, the employee can choose both roles, mechanical and E&A, depending on the person's job description, level of

competence and scope of competence. The training paths are divided into two main lines: mechanical and electrical & automation, which in turn branch out to the following levels based on the person's specialization and the maintenance or commissioning path of various work tasks. On the next maintenance side, there are options to specify a maintenance team leader or a major repair path. In this way, the structure of the system has been simplified and this clearly makes it easier for employees to choose their training path. In the example company, it is recommended to focus on one of the two elective major courses, but it is also possible to get the actual major from the major course, i.e., the so-called in addition to the minor, selected certificates. Of course, the acquisition of additional certificates is always agreed between the employee and the supervisor on a case-by-case basis and the company's requirements are always considered. You can also get a certificate from both main education lines, but maintaining skills and certificates is difficult and time-consuming in practice. Activity-based certificates expire regularly every five years and renewing them is tedious. On the side of product certificates, however, it is different. In the new system, product certificates are decided to become permanent, so they no longer have an expiration date. This also reduces the workload of employees and managers, as they do not need to constantly renew certificates for each product.

Maintaining competence would also require coordinating the person's tasks in such a way that the tasks changed between electrical and mechanical, which also causes a lot of extra work for the field service coordinator. In addition, renewal of the certificate requires that the person has done work entitling to the certificate in the last three years, five years after the certificate was issued. If the person's job description changes, the training needs are determined according to the requirements of the new job. In this case, training is supplemented as needed or a completely new training path is defined for the person.

Table 1. Structure of the PSM 1.0. (Case Company)

Name	Service Technician	Senior-service Technician	Service Engineer	Senior Service Engineer		Superintendent		Senior Superintendent	
				Overhaul	Commissioning	Overhaul	Commissioning	Overhaul	Commissioning
Health and safety, languages	●	●	●	●	●	●	●	●	●
Overhaul, maintenance, repair 1	●	●	●	●		●		●	
Overhaul, maintenance, repair 2		●	●	●		●		●	
Overhaul, maintenance, repair 3				●		●		●	
Installation and commissioning 1			●	●	●	●	●	●	●
Installation and commissioning 2					●		●		●
Installation and commissioning 3							●	●	●
Troubleshooting							●		●

The structure of the PSM 2.0 system is clearly different from the previous version and, as mentioned above, is significantly easier to use. In the new system structure, some of the certificates are type-based, i.e., when the necessary training has been recommended and the certificate has been issued once, for example product certificates for different engine types. Another type of certificates is action based and these certifications must be renewed regularly. The requirements for industry-specific certificates change regularly and it requires the employee to be retrained to maintain the required knowledge and skills at the required level. The activity-based certificate is defined to be renewed every fifth year and the owner of the certificate is informed about it in good time through the automatic training monitoring system. The system is structured in such a way that if a person has done the work enabled by the certificate within five years, he has two options for new certificates. The first option is to renew the certificate by submitting application for renew certificate and attached work reports that show that the person has done the work in question during the period of validity of the certificate, i.e., within the

last five years. Another option is to participate to refreshment training courses of certificate, which is shorter way than the entire training period of the certificate. If there is a situation where the person has no evidence, e.g., a report on the work done and the certificate has expired, all the courses required for the certificate must be completed again. In some rare cases, the certificate may be revoked, and the individual must retake the required courses. This can happen, for example, in a work situation where the work done does not meet the set requirements and it must be done again as work. The reform caused additional costs and a bad reputation for the company. In addition, it must be noted that the certificates are monitored from a quality perspective, because skill level requirements are naturally set for certification systems.

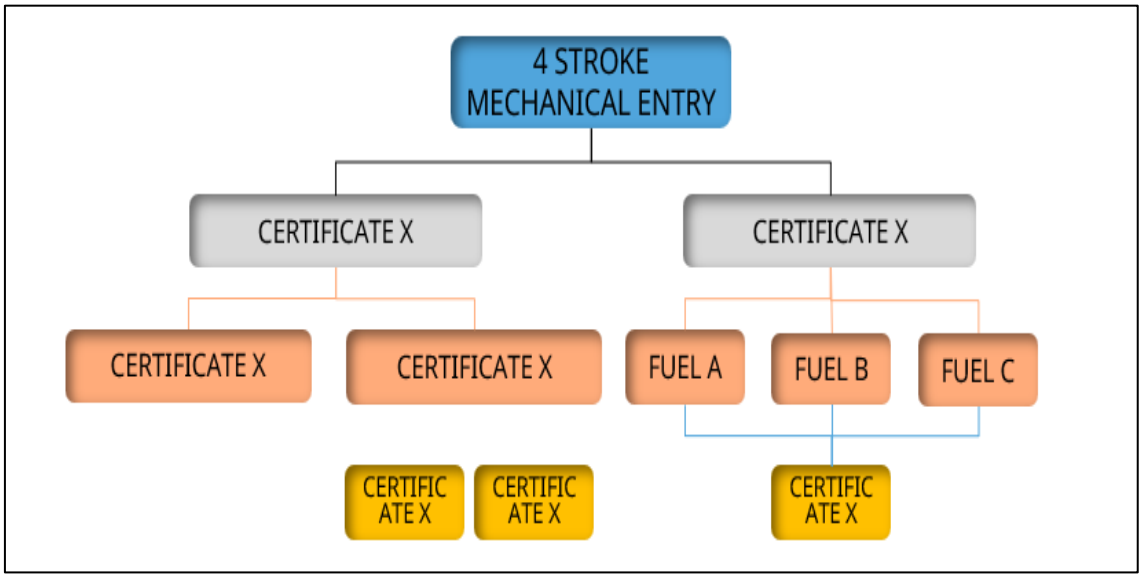

Figure 1. Structure of the PSM 2.0, Mechanical. (Case company)

Above is the structure of PSM 2.0, describing the four- stroke (4S) mechanical certification systems and the main tasks. Entry-level certificates are permanent in type and will no longer expire compared to the previous version 1.0. However, the certificates related to the products, in this case 4-stroke engines, are still of an expiring type, and must be renewed every fifth year. The mechanical and E&A certificate structures have an essential difference compared to each other. In addition to the initial level, certificates based on main attributes are defined in the mechanical certificate structure. The E&A structure, on the other hand, has an entry-level certificate, and in addition to that, all other

certificates are product certificates. The above-mentioned structural difference has caused a lot of questions from the end users. The structure of the four (4) pace automation and electrical (E&A) certification system is described below in diagram form.

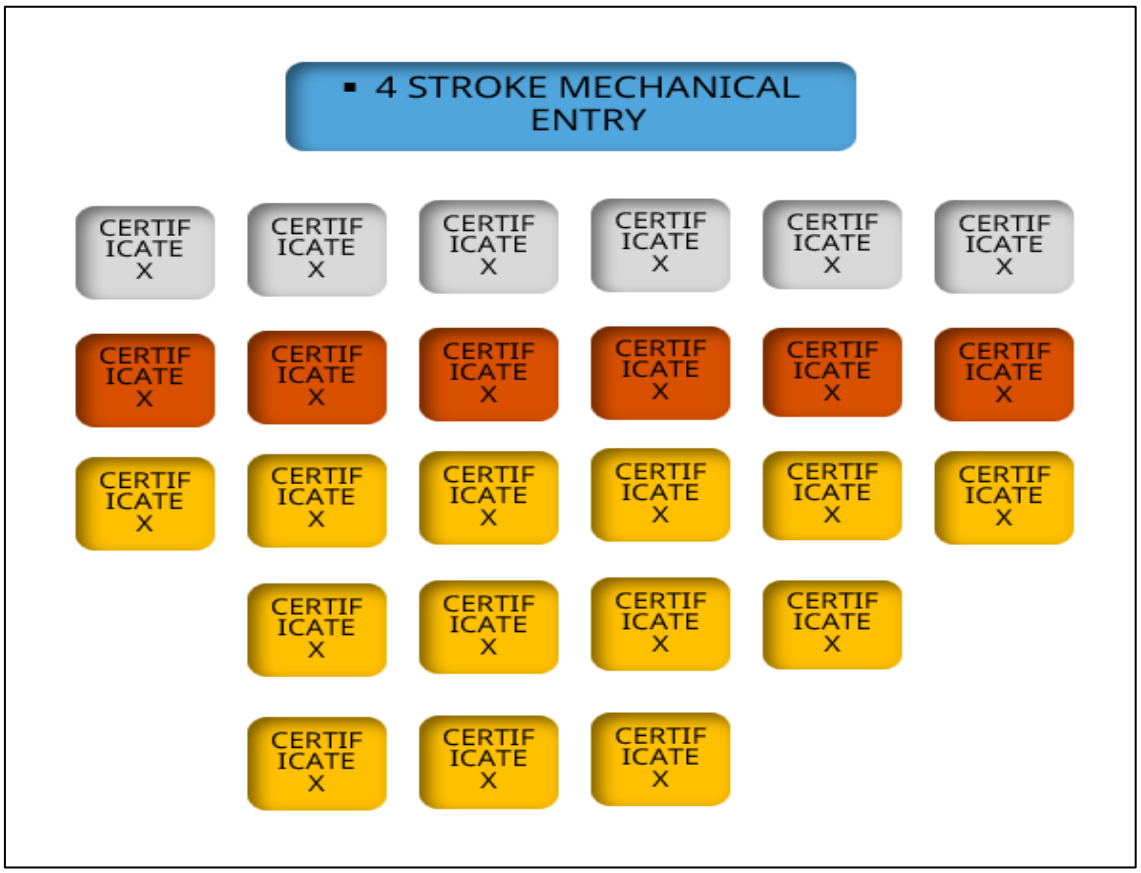

Figure 2.PSM 2.0 structure for Electrical and Automation. (Case Company)

The essential structural difference between the mechanical and electrical/automation (E&A) certificate structure is that the Mechanical structure has certificates named according to the main activities, while the E&A structure only has entry level and after that all certificates are product related. There are also examples of people having taken several training courses and completed a path. However, the region has not determined the work available to maintain the acquired certificates. Thus, the certificates expired after five years, and the person has not witnessed their renewal. In these cases, a better review is needed before starting the training path. In some cases, it is possible to send a person to participate in projects abroad, but in all cases that is not possible due to work permit restrictions and other country-specific related travel restrictions. In that case, it is necessary to consider the greater demand of the area and exactly what kind of skills

are required and what jobs are expected and what is estimated to come. In some countries, operations are concentrated in new buildings and therefore deployment and team leader resources are needed as well.

In another example, in a country or region, the business is fully or partially focused on the maintenance of power plants and products and different types of contracts. There is therefore no reason to increase the resources for commissioning expertise, instead, efforts are made to improve maintenance skills. Therefore, the monitoring and planning of expertise and know-how based on business demand is important from different perspectives, both from the perspective of the company and the employees.

1.2 Research background and objectives

In today's business, the knowledge and skills of personnel must be monitored even more closely. The growing demands of internal and external customers have led to the fact that the monitoring of a person's competence must be more active and up to date to meet the growing and sometimes rapidly changing demands. The case company has a growing number of people working in the industry with a varying number of different skills, most of whom work in a global environment.

Monitoring and competence development are important above all because the service delivered to the customer must be of the highest possible quality. High-quality service and the high professionalism of the staff guarantee customer satisfaction and reduce the need for repairs or replacements. By reducing the need for repairs and new ones, it naturally has cost savings. And secondly, in terms of employee career development, the exemplary company has begun to pay even more attention to the management and development of competence. When a clear career path is defined for the employee and the necessary training is organized according to the job duties, the employee's motivation remains high, and the quality of the work is also high. However, the example company wants to raise the level even further both locally and globally. For this reason, it

has been decided that the current situation of PSM should be investigated in more detail to find out the problems from the perspective of users operating in different countries. Network agencies operating in different countries, regions and customer environments follow the same rules in principle, but there are differences in the handling of education issues due to culture and local legislation. All these above-mentioned perspectives should be taken into account in the research in order to know how to start the development of the tool in the right direction and make effective improvements.

Another important aspect is that the PSM database is used as a data source in several tools used by different departments of the company, which also partially supports this study. In addition, it is important to note that the case company is moving ahead to develop intelligent resource reservation tools. For the use of the automatic system to be possible in the future, the training level of the personnel must be raised to a high level. This means that employee certificates must be up to date, recorded in the database, and the database must be maintained and continuously developed.

The maintenance of the database requires that line managers periodically check that the employee's PSM role matches the task, whether the person has moved to a position outside the field service or whether the person has left the company. Additionally, in some cases a person has multiple PSM roles in the system. The reason for multiple PSM roles is usually that the old roles have not been properly removed from the system. Another common reason is a misunderstanding when using the training planning tool, because it is assumed that individual certifications cannot be selected, but multiple roles are selected. However, some cases multiple roles are required due to multi sills personnel and job scription has wider than normally. In all the cases mentioned above, the PSM database does not comply with reliability and thus causes confusion for individual users and persons using the database. In addition, it should be noted that the database is also used by other software and systems, in which case maintaining and updating the database is very important from this point of view as well. Currently, it is known that not all employees have a defined PSM role in the system and therefore their certificates are not stored in the system. This leads to a situation where not all available resources are

seen through the system and thus their skills cannot be effectively further developed either. Remaining PSM roles effect automated booking system, due to certificates are not visible in the database and therefore booking has not able to do.

1.3 Keywords and definitions

The keywords of this research are competence, competence, and development. Definitions of keywords are explained in this chapter.

1.3.1 Skill

Green (2011, 4) has stated that skill as a definition is widely considered a focus of analytical research and a core target of policy interventions in today's global high-tech era. Skills and its different levels are essential in many different areas, and its effects are examined from several different perspectives. The importance of skill varies from individual to individual as a whole and it is also considered from an economic perspective.

According to Vinot & Roger (2019), four levels can be identified with individual skills: skills required in a job or profession, skills mobilized by an individual while performing his tasks, skills possessed by an individual at a certain time and potential skills of the individual in the future. Recognizing these four levels mentioned above is very important also from the point of view of this research and from the perspective of the example company that placed the work.

In their research (Someshwar et al., 2002) wrote in their research about the importance of competence for innovation and productivity and stated that better competence has a direct effect on increasing innovation and productivity in the companies they studied. Additionally, (Someshwar et al., 2002) states that, from the point of view of productivity and innovation, the best productivity can be achieved by combining the skills of highly trained new employees and experienced employees who have worked

longer. In the company that is the subject of this study, the learning process of more experienced employees is utilized so that they act as trainers for both new and more experienced employees. By this way of working, it is ensured that the tacit knowledge accumulated through experience is transferred to new employees. Thinking about it more closely, in many cases experienced people may not have another channel available to pass on their skills, and therefore this is an important part of the learning and passing on skills process. The on-job training method is part of the learning strategy of the example company, where learning on the job plays an important role in addition to the normal classroom. In addition, in the case of the example company, people are required to have varying amounts of hard and soft skills depending on the tasks. Therefore, it is important that this point of view is also considered when examining the competence development process, even though the topic is not covered very deeply.
When doing research, it is also important to consider how the investments made in developing hard and soft skills have been successful in the example company and how they have influenced the achievement of the set goals.

1.3.2 Competence

Competence as definition, according to Cohen-Scali (2012), has used to describe the actual use of a particular aptitude in each context. In the working environment, the term competences emphasise on the one hand, the role of the specific context of a particular activity as a determinant of the way a worker will approach a given task, and on the other, highlights the fact that work is essentially an individual and/or collective process of problem solving. There is variation in the definition of an employee's qualification level also due to cultural reasons.

In the case company this thesis has addressed, it has been observed that in some countries even the PSM role, which expresses the desired competence, is considered a promotion for the employee and may be directly linked to the amount of monetary

compensation paid to the person. Due to this, there have been situations where an employee has participated in trainings, but the certificates could not be recorded in the system, because the PSM role, which can be read as a promotion, has not yet been granted to the person. When the PSM role is not defined, the development of the person's career path either does not progress at all or progresses very slowly. This naturally lowers employees' motivation to advance in their careers and negatively affects a person's productivity and the quality of the work performed.

1.3.3 Development

Managing the development of skills and competences is one of the most important areas when studying the development process of human learning. In the investigated case company, the field service professionals each have a different number of skills. The Professional Skills Management (PSM) tool, which is tailored to the needs of the example company, is used to monitor employees' skills. The tool provides a clear overall picture of each professional's skill level, and based on this information, it is possible to develop and guide the person's development so that the best possible result is achieved. In field services, many professionals work globally in different tasks and handle a large number of different demanding tasks. The qualifications of professionals must be constantly monitored, and certificates must be renewed and updated to maintain a high level of competence and to meet changing requirements. There are demands from both the bankers and the customers. In particular, the competence requirements related to safety have increased recently. Naturally, the requirements for professional competence have also increased and competence must be updated at regular intervals due to the rapid development of technology. The quality aspect must also be considered, as quality requirements are closely related to certification systems and certificates require the fulfilment of qualification requirements.

Referring Cohen- Scali (2019), the reference to skills emphasizes that it is also possible to develop different skills outside of education programs. For this reason, many kinds of

contexts that enable or limit competence development became relevant. The aforementioned are, for example, workplace, culture, social class, family and friends. Factors stemming from culture and social class can greatly limit the development of a person's skills. For example, in some cultures, restrictions based on gender or social class can almost prevent development. In this case, career development planning emphasizes ways to develop a person's skills despite various limitations. It is also important to stress the reader to understand that encouraging competence development as a part of continuous improvement is very important aspect today, because the demands related to the job duties are constantly increasing. That is why it is important to pay even more attention to the monitoring of competence levels and the maintenance of competence development.

1.4 Research problem and limitations

In this chapter, I will illustrate the research problem and what limitations are expected during the research. I have limited the research in such a way that it has two research questions, and the research focuses on the system from the user's point of view, and issues related to the system software were excluded.

1.4.1 Problem

My goal in this research is to find out what advantages and disadvantages supervisors and end users working at different network branches see in using the PSM tool, as well as which areas should be developed and in which direction. The importance of competence management and competence development is emphasized especially when demand increases. The tightening brought about by time and various work tasks require a broad level of competence and continuous competence development. The goal of the study is to find out, based on the collected information, what are the most important skills development problems in the case of the example company and to compare the

collected information with previous studies. Based on the results, I will propose improvement proposals for the development of the current system. Since the matter has not been studied before from the point of view of field care, it is very important that the problem areas of the current state of the PSM tool are thoroughly clarified. Once the issues are thoroughly investigated, the right changes can be made so that the user numbers of the tool can rise to a higher level. Another point of view and the intended benefit of the database is to improve the quality of the information in the available database. The PSM database serves as a data source for an artificial intelligence (AI)-based resource management tool, so the quality of the database has a wider meaning. The better quality of the database enables more efficient resource management, monitoring of training needs and development, and the introduction of automatic tools in the future. In the case company, it is possible to develop skills in a traditional classroom or with the on-the-job learning method. In addition, it is possible to use a combination of methods, in which case you can learn part by attending a course and reading written material and part by learning on the job by filling out learning cards. The most important thing is that the result is such that it meets the goals set in the work and the certificates can be saved in the PSM tool, so that the information stored in the PSM database is as correct and up to date as possible.

I would also like to point out that since the issues related to the actual development of the PSM tool program and the research and development of the details of the tool would not require my own research, I will mention them here, but I will leave the related issues for the future.

There are two main problems I will consider in this study:

1. What are the most common issues with skill and competence management with the PSM tool?
2. What are the most specific areas of the PSM tool that are useful and what should be developed?

1.4.2 Limitations

Research limitations are set by the large number of users of PSM tools who work in network offices around the world. Therefore, most research is limited by the amount of data to be collected and the time available for data collection. Because the people to whom I send the questionnaire are also interviewed and the time spent must be paid attention to. The estimated duration of the interviews is about half an hour to an hour, and due to the accessibility of the persons, the interviews should be scheduled in a time window of 3- 4 weeks. In addition, the people work in online offices located in different countries, so the problems caused by the time difference pose additional challenges also in terms of interview schedules. Since the interview takes place during the persons' working hours, special attention must be paid to the use of time and the interviews must be carried out as efficiently as possible. On the other hand, the interviewees work in positions where the PSM tool is in constant use and thus essentially related to their job description.

Additionally, similar research reports on the internal training systems of the industrial companies have not been published by the competitors of this case company, nor by many other industrial companies. The comparison of studies is very limited, so in this work the emphasis is on drawing conclusions based on the collected data.

2 Literature review

In the literature review presented in this chapter, I go through the concepts related to the research: Skills management, Skill, Competence development and competence. In addition, I will briefly introduce the WeLearn system used by the case company to manage training. I present the comparative studies in chapter 2.3. ahead.

The research's scientific framework consists of the theory of the resource-based view (RBV) and a literature comparison of similar studies. The results of the research are compared from the end user's point of view to the questions asked in literature review studies. Comparative studies were critically analysed to find possible shortcomings and take them into account when analysing the results.

Due to the limited number of available studies, in the theory section I have dealt with a wider literature by examining studies that are not related to the industry sector but consider the development of resource skills and competence in different sectors.

The material collected in the research will be compared to previous studies related to competence and skills management analysed in this literature review. According to Puusa & Juuti (2020, 80), the researcher has a preconceived notion of the topic, which is reevaluated after the literature review. After the reassessment, the goals and perspectives set for the research may need to be reassessed and possibly changed.

Taylor et al. (2002) state in the summary of their research that companies have a common way of improving their competitive advantage over others by acquiring particularly qualified resources and investing in their development. The method offers companies advantages that are difficult for competitors to match.

2.1 Skills management

Roger (2004) state in his paper that, Competence management brings together company-specific tasks and the employees who perform them. The employee's skill level must be defined so that it corresponds to the tasks planned for him. If necessary, training is supplemented when the level of requirements or work tasks change. The matter must also be looked at from the point of view of what motivates the employee to develop at work and encourages learning, i.e., things must always be looked at from both the employer's and the employee's point of view and strive to find a balanced solution. The training plan should therefore be strictly related to employee career path and be a permanent part of the development discussions carried out during the year.

Roger (2004) also mentions that today's organizations are moving away from the previous rigid model towards a flexible organizational model that adapts more easily to the company's needs. In the new model, smaller Teams are assembled from different professionals and new emerging talents. This naturally leads to the fact that teams typically have professionals from different cultures and team members with different work methods. Due to the factors mentioned above, the requirements arising from culture and operating methods must also be considered in the management of competence. Depending on the culture, the learner is more cautious and may need a little more support at first, while someone from another culture may be bolder and more experimental and not as concerned about possible mistakes. Neither rule out a good outcome, they just require a different approach and way of working in the development of education.

When considering competence management, it must be taken into account that when a culture values a stable operating environment and traditional operating models, and does not want to make quick changes to processes. On the other hand, in other cultures it is possible to work in a naturally changing operating environment and not see rapid changes in operating methods and processes as a disadvantage, as in the first mentioned model. Gronau& Uslar (n.d.) write in their journal that the available expertise is reliable, the expertise cannot be too old.

Gronau& Uslar (n.d.) further mention a possible multi-skilled worker. In some cases, it has become clear that the employee considers his skills as personal property and does not share them with the employer. In this case, the employer is unable to fully utilize the employee's skills. This also causes problems in monitoring skills because the employee's skill level must only be partially recorded in the system. The employee's learning is especially promoted by the motivation for continuous competence development. That's why it's important to constantly monitor the development of skills and try to ensure that motivation is also maintained. One important part is maintaining incentives and giving constructive feedback as skills develop. It is important that competence management is transparent and interactive.

2.1.1 Skill

Green (2011, 4) writes about his research as follows: The definition of competence plays an important role in today's research. The evidence collected from different sources shows that competence has great effects from many perspectives. This is important from the point of view of the research because the support concerns users operating in a global environment and the above-mentioned issues are directly related to the management of competence.

Green (2011) continues, there is no consensus among researchers about what the concept of competence includes and how the concept should be defined. The fact that there is no consensus on the matter naturally leads to different interpretations. Green (2011, 4) also writes that since competence has become such an important factor today, the definition of the concept should be open so that no misunderstandings arise from the interpretation.

According to Vinot & Roger (2019, 13), a person's competence can be divided into four parts on the basis of competence: 1. the skills required by the person's profession, or the job being performed at any given time. 2. the skills required for the job. 3. current competence and 4. skills that may be useful in the future. In addition, it must be noted

that when tasks change, the level of competence requirements changes in such a way that it is possible to acquire completely new competence, or it is necessary to supplement or update already existing knowledge in a certain area of competence.

In his research on the personal quality of skills, Green (2011, 5) wrote that different skills are considered personal characteristics of an employee. Competence can be divided according to the PES concept into three different categories, which are: 1. productive, 2. growing 3. social skills. Naturally, people also have other characteristics, but they are not necessarily useful in terms of productivity, and they do not have development opportunities in such a way that they would be of financial benefit to the employer. In terms of personal skills, Green (2011, 16) also referred to, for example, skills accumulated from leisure hobbies, which may be valuable in themselves, but not significant skills from a work point of view. Of course, this does not exclude all skills acquired in spare time.

The employee's different learning styles must also be considered. Someone learns better by reading and thus familiarizing himself with the subject, while another can learn better by doing practical work, i.e., by using the "on-the-job learning method". It is not important that a person uses only one method when developing his learning, but it is possible to apply several different methods during the learning process. That is, for example, to acquire part of the skill by reading and part by learning on the job, in the sense of how to get the best result. When learning is not forced according to a prescribed model, the employee's motivation remains at a good level throughout the learning process.

According to Green (2011, 11), two general concepts in the workplace are competence, which affects an employee's ability to perform required tasks, while competence refers to the completion of training and other levels of competence required of an employee. The different standards refer to the verification of the employee's qualifications, i.e. the employee has undergone the required training and has valid certificates for it. These are naturally things that do not exclude each other but are important for the success of the

whole. When the employee is competent and has the certificates showing his competence in order, the situation is the best for both the employer and the employee.

As mentioned above in Green (2011) text, an employee can have several strong areas of expertise and not all of them are important for the employer. Although not all skills are important and development able for the employee, it must be ensured that all skills are well known to the employer as well as possible and can be registered in the system. In this case, the employer has a clear picture of what skills it is useful for the employer to develop.

There are many perspectives and opinions on measuring skills using a qualitative or quantitative method. Many researchers resist the quantitative measurement of quality, although there are no good reasons for doing so. According to Green (2011, 11), about the practicality of measuring competence, that in practice and over time, different competence concepts have merged and are often used interchangeably. Misinterpretations naturally easily follow from the fusion of concepts. This naturally means that the evaluator must have a very clear picture of the meaning and differences of the concepts while doing the work and update their information regularly.

Green (2011, 15) wrote, when looking at private skills, a person can have skills that achieve good results at the expense of others, in which case we talk about negative skill. However, in some cases it turns out that the positive external benefits exceed the private benefits and thus the result is positive. In this case, the valuation of competence depends on whether the matter is viewed from a private or external perspective.

In addition, Green (2011) written that from a private perspective, that However, in many fields, such as voluntary work, the work itself is already a vocation and value for the employee. The perspective mentioned above is important when choosing an employee's learning path and defining PSM role differences, and they should be considered. A person who is dedicated to his work is usually motivated and interested in learning more

about his work. This is a good point of view for developing learning because a motivated person is more prone to learn new things than an unmotivated person. It is also good to consider the employee's interest in sharing his knowledge.

2.1.2 WeLearn

Since the term WeLearn appears as one essential part of this thesis, the concept should be opened in this follow text to reader get common understand of it. In this work, I will not focus on the development of the WeLearn system or on exploring the features. In the example company for which this thesis is being made, a personnel competence and course management system called WeLearn is in use. In the system, you can generally see all available course offerings, as well as courses and certificates related to PSM profiles. The PSM system is used by both supervisors and employees with different user profiles. If necessary, a supervisor-level person can manage their subordinates' private profiles, change PSM profiles, add or remove necessary courses, and monitor the status of performance and certificates online. In addition, the system enables adding courses to the user profile of one or more people at the same time. From the person's profile, managers can see the PSM roles selected for the person, which can be changed and deleted as needed. The system also automatically announces the expiration of the certificates, giving the employee time to react to the situation.

The system is directly connected to the Professional Skills Management (PSM) system based on the selected PSM role to the employee and the systems are connected to each other. Based on the PSM profile, the manager and the employee can see the available courses with their schedules. In addition, the system displays the courses needed to complete the certificates, the content of the courses and various performance options, such as classroom training or OJT. The description of the courses also includes available supplementary courses that are relevant, for example, when reactivating an expired certificate.

2.2 Competence development

Competence development is a continuous process and according to recent literature reviews, the trend towards flexible and broad models is becoming more widespread compared to the previously popular trend of specialization in one narrow subject sector and in-depth competence and management of a narrow area. However, both are still options, but the former is currently the most popular method. Competence development and competence management are always so close to each other and partly overlap that both must be considered when developing the other.

Green (2011, 18) wrote in his research that competence consists of different skills that can be acquired in many ways and from different sources, for example educational institutions, learning in connection with work and competence acquired through hobbies. The employer must know the employees and which learning methods suit them best. In this case, it is possible to make a learning plan and thus guide the learning process effectively in the desired direction. If no plans are made and only one learning method is forced, it is easy to drift into a situation where the learning process can, in the worst case, even stop and the employee's motivation to study. Restarting the process always takes time and resources. Green (2011, 12) also wrote about different ways in which different skills and competences can be separated and mapped in a comprehensive way. Different skills can be divided into small groups according to what kind of competence has been accumulated and sorted under different headings. Different skills vary on a case-by-case basis. The content varies from a simple structure to a complex one with a lot of different skills under several headings. This is because, although a large part of my competence is based on education, work experience or general education, I also have a lot of competence that is not based on any of the points mentioned above. In this case, the point of view is emphasized that if the different skills are not described in the right professional terms, confusion and misunderstandings can easily arise as to what the person's correct level of skills is. Naturally, this is one thing that increases the evaluator's responsibility and professional requirements even more.

Eraut (1994) writes that, the employee's interest in continuous improvement through training is growing and is also a favourable development from the company's point of view. In the example company, continuous improvement is featured in discussions and the company encourages employees to develop their skills. The development of competence is an essential issue in terms of this research as well, when examining the challenges related to learning a tool. There are always talents in companies who do not want to stay in their favourite field instead of challenging themselves with university studies or otherwise want to develop their skills outside their core area of expertise. On the other hand, there are also many people who don't want to challenge themselves by leaving their comfort zone, but just want to focus on what they've learned and the area of expertise they've focused on. In terms of continuous improvement, expanding the area of expertise is preferable to focusing on a narrow area, but they are not mutually exclusive. On the other hand, the point of view where the person focuses on a narrow areabut learns about the matter very deeply and achieves extensive expertise must also be considered.

Its special feature is that competence development also considers aspects related to competence management, considering both the employer's and the employee's sides. Both parties have their own needs and plans, and they must not be mutually exclusive. If you look at the matter from the employer's point of view, it is important that competence development is targeted so that it serves the needs as well as possible and is productive. From the employee's point of view, the versatility and scope of competence development are valued and enable the creation of a new career path and thus a change in the job description in the long term. Consequently, there are possibly very large differences in the differences of opinion and in some cases, compromises are reached, which are not always mutually satisfactory solutions.

As Roger & Vinot (2019) wrote in their research, we look at the current development direction of the learning process and how much of the original model remains after the

new changes. They continue that in the new model, the ability of employees to adapt to new learning models, the personal competence and skills of individuals are emphasized. The effect of this can be seen as the requirement levels change and vary on a case-by-case basis. Some tasks require a narrower, higher level of competence in a subject, and another task requires a person to master many areas and be adaptable and flexible in terms of learning. Both features are valuable, and you shouldn't particularly favour either one, but always try to choose the right model according to the requirements of the job.

According to Schoonenboom et. al. (2008) in terms of competence development, it is important that the employee can guide his own learning and influence the choice of learning direction. Of course, the company's important learning development needs must be considered. When the environment is suitable and chosen according to one's own needs, the learning result is more effective than in the case that the limitations have previously been corrected indiscriminately or to a very limited extent. In addition, it is important that the direction of competence development is justified from the person's point of view. In this case, it is easier for the person to understand the necessity of the training from the employer's point of view and thus easier to install himself in the right direction of the training, even if the direction does not completely correspond to the person's own direction in terms of learning and skill development. This is a point of view that the sample company of this study has often come across when training personnel. When drawing up plans, an even more important part of training is that the need for training is justified in an understandable way for the employee. This means that the process starts right from the beginning, when the employer starts preparing the employee's training path, which is naturally related to the person's career development path. At this stage, it is also important that the employee's training and professional development method is chosen in such a way that the best result is achieved. In this case, it means learning that takes place traditionally in the classroom or On Job Training (OJT), i.e., learning on the job method. As a rule, learning in the classroom is the traditional and most popular way to learn and develop skills. If it is accepted that competence cannot

be taught, but must be developed in a professional situation, it is necessary to understand more clearly how it is developed through work: this is the background of professionalization through activity.

Cohen-Scali (2012, 121) wrote that that in some cases it is necessary to accept that learning cannot be done in the classroom, but that competence development must be done through work. According to Cohen-Scali (2012, 42) in several studies have considered the influence of third parties on competence development and the results obtained from the development. This point of view is also suitable for the company for which this research is being carried out. In the company, one essential and widely used method is On Job training (OJT). The OJT method is a popular method in the company as an alternative to traditional classroom learning and has achieved good results in developing professional skills. OJT has several advantages over classroom teaching. Professional learning on site reduces the travel expenses of either the trainer or the trainer, depending on the case, and reduces the load on training resources. Another important factor is the difficulty of traveling from some countries in general. If the learning opportunity is only in the classroom through your education, then in some areas professional development would be clearly lower without the OJT opportunity.

Cohen-Scali (2012, 38) also referred to Champy- Remoussenard's (2005, 37) statement that, the work environment and various tasks encourage continuous learning and enable the production of new knowledge. This is essentially linked to competence development through OJT, which is precisely based on this idea that learning develops from interest in the work task and thus motivates the person to learn new things and, in the longer term, develop even better working methods.

The example company of this study has also found that an interesting job motivates the employee to learn new things and develop skills. In this case, it must be considered when drawing up plans that the training itself is naturally important, but it is even more important that the need and goals of the training have been discussed with the employee.

This means that the process starts as soon as the employee starts to create the person's training plan. The construction of the training plan is essentially related to the career development path and therefore it must be planned carefully together with the employee and ensure that we are on the same page regarding the development of things. Naturally, both the employee's and the employer's requirements and goals in skills development must be considered.

In the discussions with the representatives of the different branches of the network, a perspective on the development of demand-oriented competence has emerged. The competence development needs of regions vary greatly depending on how many companies they have in the region at any given time. In some areas, operations are focused on new sales and the introduction of new equipment, while in other areas, operations are focused almost entirely on equipment maintenance and management of use, maintenance, and various service contracts with customers. This is a point of view that I will return to as the research progresses, and I will consider one of the most important research lines. the fact that training meets demand as efficiently as possible is essential in terms of customer satisfaction and thus has a direct effect on the example company's result. When the competence of the resources is defined as well as possible to meet the demand, a situation is reached where the customer can be served as efficiently as possible. In addition, the use of local resources is more efficient and the sending of resources from other network branches is avoided, which naturally reduces the need for travel and thus reduces the carbon footprint created by travel.

As Green (2011) wrote in his paper, naturally the environment and social factors influence the values of individuals and the direction in which they want to develop their skills. These things have a straight influence on motivation and what kind of skills one tends to acquire. This has also come up in discussions with the maintenance coordinators responsible for different areas. As a rule, the environment guides the learning orientation of individuals. Naturally, the requirements coming from the business of the region also strongly guide the training needs. Some problems are caused by the regions' ability to

train personnel due to the small budget and the difficulties caused by the authority's requirements to send personnel for training to, for example, Finland. Due to these difficulties, the example company has strongly focused on marketing alternative ways to improve the level of competence. alternative ways are learning on the job, i.e., the OJT method and another possible way is to organize training in the target country so that a group of trainees is gathered, and the trainer(s) come from, for example, Finland. On the other hand, it would be important to try to ensure that the environment and the pressure caused by it do not influence too much and guide the direction and needs of the person's competence development. although in general the main direction of competence development must be followed based on the needs at the time, the person must also could influence their own competence development. In this case, the competence development plan can be drawn up so that the so-called minor subject can be a competence development that deviates somewhat from the major but supports it.

Stevenson (2022) write in his article that Ii today's work environments, the focus must be on finding new ways and incentives to develop employees' skills. Taking into account today's requirements and the effects of time and environment. Stevenson (2022) Regarding personal development, Stevenson (2022) also write that, that the development of the employee's skills and career advancement are the most important factors affecting the employee's commitment. This is influenced by the already mentioned employer's opportunity to influence the competence development process and the choice of competence direction. As stated in the research and in the example company and on a personal level, it has been noticed that it is more effective to emphasize the employee-oriented career path development model and competence development. As remote work has increased in recent years, it has also become necessary to emphasize the employee's self-reliance in the learning process, also in the competence development process, in the same way as performing tasks remotely.

Kislik (2014) wrote in her blog that, some of the employees are highly educated and this motivates them to develop their skills further. However, not all of them have this, but all can improve their skills with proper guidance. Educated and motivated employees usually maintain and develop their skills. Of course, this way of thinking is not suitable for everyone, but coaching and support are needed to improve skills. The article emphasizes a way of thinking in which problems encountered at work should be solved more independently and with the help of databases, instead of looking for ready-made answers from superiors or colleagues. In my work, I have noticed a problem-solving model that takes place through networking. When a problem arises, a solution is sought from an expert network without thinking much about it. The method is effective, but it reduces the development of the person's own problem-solving ability. By guiding and supporting people in problem-solving situations, they develop a problem-solving model and over time the need for support decreases. Learning through support is a type of OJT learning.

The downside is that due to social pressure or the environment, a person can get an impulse to acquire skills that they are not really motivated or even career-oriented, which is not really an interesting option for them. In this case, time, money and resources are wasted and the process often has to be started from the beginning. There are numerous examples of restarting the orientation process, both from students starting their studies and from those looking for a career path in working life. In addition, the time spent on the process eats away at the person's motivation to learn new things, and raising the motivation back may require very hard efforts and support measures also from the employer's side.

The importance of background work and learning planning is emphasized to avoid heading towards the wrong learning career. As Green (2011) writes, points out in his research that the acquisition and development of skills must be seen as an investment in the future and that people's skills are developed with the challenges of the future in mind, without forgetting current needs.

According to Gronau & Uslar (n.d.) insufficient recording of the skill level naturally leads to the fact that the database is not up-to-date, and the person's skills can only be used partially or very little. In addition, the development of competence becomes a challenge due to the lack of background information. In this case, the responsibility for recording the level of competence lies partially or very much with the employee himself. If the employer does not know how to ensure that the information level information is up to date, the employee must ensure that the database is regularly updated. In addition, they stated in their work that the need to develop employees' skills should be correctly identified, that they should be able to develop the skills that are needed at any given time. When the database is up to date, it is possible to better identify skills gaps and needs and direct personnel to the necessary training at the right time and according to their current needs. In this way, unnecessary training is avoided, and the right number of employees can be trained. At the same time, possible savings in training costs are achieved. In practice, people's skill levels vary greatly, but everyone can develop their skills. Naturally, the development of competence takes place in different ways for different people, so one learns best by reading and the other through practical work. This is a factor that should be considered when planning employee training. Forcing a certain learning model is not effective and may not give the best result. The support a model in which competence is built piece by piece and thus acquired either through education or work training. Depending on the person, which way of learning is the most suitable at any given time and gives the best result.

In addition, the soft and hard dimensions of competencies should be separated. Laker and Powell (2011) state that typically, hard skills are related to technical knowledge and skills, and correspondingly, soft skills are related to interpersonal and personnel management skills. In addition, distinguishing between hard and soft skills helps in choosing the right employee for various tasks and guides the employee's development in the right direction. In this case, benefits arise for both the employee and the employer. The employer gets the best possible efficiency from the employee, and on the other hand, the employee's motivation level remains high when the skills are assigned to tasks where

the employee is at his best and is also able to develop his skills while working. By acting this way, the employee's motivation also remains at a good level because the work to be performed is meaningful and there are opportunities for development. One important aspect is also that the employee's competence is constantly monitored, and the aim is to continuously develop it in the right direction in terms of career development and to enable the employee's competence to perform more demanding tasks as well.

When forming the competence assessment levels, Wallo et al. (2020) referred to Kirkpatrick's model by Reio et al., (2017), where the assessment levels are divided into four groups: 1. The person's preconceptions and expectations of educational guidance. 2. The person's recently acquired information on the subject or acquisitions. 3. How the person sees the education as improving the ability to perform work tasks and how the work environment can change. 4. How the development of competence is reflected at the business level. By using well-tested assessment levels, the whole can be divided into smaller parts in a controlled manner and thus reduce the occurrence of errors when assessing a person's level of competence.

2.2.1 Competence

According to Cohen-Scali (2012), the term competence is used to describe a person's ability to perform a task. In the work environment, the term competences on the one hand emphasizes the role of the specific context of a certain activity as determining the way in which an employee approaches a certain task, and on the other hand emphasizes that fact. that work is fundamentally an individual and/or collective problem-solving process.

Depending on the employee's skills and personality, different problems can be solved in a different way than another. The use of skills may also require teamwork, so that the problem-solving ability is best suited, while the skills of another employee are at their best either alone or in a small group. In a study of what competence mean, Schneider

(2019) write that when defining a person's competence, motivation and emotional factors have no effect on the person's competence and should be left out of the definition. In addition, the study refers to Roger (2016) that although motivation and desire are important for completing the task, they should not in themselves affect competence. Qualifications can be very different depending on the person, and it must be considered that a person may have several qualifications, but for one reason or another is not willing to use his skills as widely as possible or is uncertain about using his skills. In this case, for example, the importance of the employer's actions is emphasized, that the potential in the employee can be brought out and that it can be utilized as productively as possible.

Mitchelmore& Rowley (2019) wrote, that employees' competence consists of different skills acquired from different sources. The acquired competence enables the performance of the required work tasks. From the employer's point of view, it is important to know the employee's skills and potential, know how to develop skills and guide them in the right direction, as well as the name of the company from the employee's point of view.

2.3 Summary of the comparative research.

The research is carried out by comparing the results obtained from the collected data with previously conducted research. In this chapter, I present the studies used as reference material and analyse the results obtained from them and possible research gaps. To identify the factors affecting competence development and evaluation, I conducted a literature review of previous empirical studies related to the topic.

Competitors of the Case company did not conduct similar studies or those has not published for some reason. Search engines as Google Scholar and Scopus were used to search for studies and articles closest to the topic and listed in the Table 2 below.

Table 2 Comparative research authors and focus of the study.

Authors name and year	Focus
Araújo, J and Pestana, G. 2017	In this case study, combined the physical and social concept of well-being at work and investigate how employees can be motivated to develop their skills regarding soft and hard skills.
Bak et al. (2019)	Demand for Hard and Soft skills in the supply chain.
Bromiley and Rau (2016)	Operations management Resource Based View: Another view (Criticism)
Bukartaite & Hooper (2023)	The research focuses on stakeholders' views on the skills needed in the future as artificial intelligence (AI) becomes more common.
Davis& DeWitt (2021)	Organization Theory and the Resource Based view
Kock et Al. 2006	Emphasis on competence development strategy and learning environments.
List et al. (2022)	Lean Management training consider Hard and Soft skills
Wallo et Al. 2020	The factors that enable and prevent HR professionals from evaluating the results of formal and informal competence development activities.

2.3.1 Competence development formal and informal approach an

In the results of the literature review, Wallo et. Al (2020) pointed out, that there is limited research on formal and informal skills development assessment. The finding is in line with the researcher's own observations regarding the availability of comparative studies. According to Wallo et Al (2020), learning is divided into two categories; for competence development implemented as formal and informal learning. In this work, I call casual learning the on-the-job learning method (OJT). In their study, Wallo et Al stated that it is problematic to evaluate the performance of learning models implemented in a different way. Wallo et al. (2020) continue that, key factors in promoting employees' learning are

the key role of top management, a structured learning outcome model and fair evaluation of completed trainings.

2.3.2 The learning environment and its importance to the learning outcome.

According to Kock et Al (2006), they emphasized the importance of the learning environment in terms of learning outcomes. Naturally, a good and encouraging learning environment motivates people to perform better. Kock et al (2006) also brought up the meaning and importance of informal learning in their support. Everyday learning is a method that is growing in popularity and with its help it is possible to replace the traditional classroom learning model in some cases.

According to Araújo& Pestana (2017), employees are understood as the company's human capital, which is a significant asset in terms of success. A competitive advantage compared to others is sought in many ways, and the development of employee competence is an important part of this thinking model. Araújo& Pestana (2017) also states in their article, that the employee would be motivated to develop his skills, companies invest in an inspiring environment and the availability of the necessary aids. In addition, Araújo& Pestana states that when developing skills, hard and soft skills, and measures to encourage their acquisition are considered. An important perspective in this study is also the transfer of competence from older employees to younger ones through tutoring. Davis& DeWitt (2021) write that, the resource-based view (RBV) theory has long ago developed and been one of the most successful theoretical approaches in the field of strategic management.

According to Barney (1991), the RBV theory based on the assumption that the company's products are seen as valuable assets that cannot be replaced or imitated, and this allows the company to develop its resources in the direction it wants. When the resources are the right expertise for the business and the necessary certificates are valid, the benefits mentioned in his research are possible to achieve.

2.4 Resource based view (RBV)

Zahra (2021) writes in his article about RBV as follows: The resource-based view (RBV) has emerged in recent decades as a theory that must be considered when analysing a company's resources and ways to maintain achieved competitive advantages and how new competitive advantages can be developed. Additionally, Cardeal & Nelson (2012), cited Barney (1997) that RBV focuses on resources fulfilling the VRIO framework, which according to the theory provide a competitive advantage for the company. However, RBV has received less attention, and the real root cause of how a company should manage resources to achieve competitive advantage has not been sufficiently explored. Zahra quoted the statement of Barney& Clark (2007,5) in connection with the researchers, why are there variations in the performance differences of companies when situations change and from time to time? The phenomenon is interesting from the point of view of this research also, because one of the cornerstones of the PSM system is resource management and predictability to maintain a competitive advantage.

In addition, Barney& Clark (2007, 57) continues that according to VRIO framework, a potential resource must have four essential characteristics: 1. The resource must have the ability to take advantage of the opportunities offered by the company and combat threats. 2. Be unique from the perspective of the company and competitors. 3. Be difficult to reproduce. 4. Knows how to use the company's organization effectively. The RBV theory offers managers a way to better identify their organization's valuable and rare resources. Usually, resources with special skills are acquired separately, but some resources have valuable and rare skills that are not shown at the start, or the skills have been acquired over time and overlooked.

The characteristics form the framework for the RBV theory called VRIO (Barney 2007, 29) which allows us to define and explain which resources are important for the company's operations and where it should focus, has presented below.

1. **Value**: Does the company have the resources to respond to environmental threats and opportunities?
2. **Rarity**: Is the scarce resource only used by a small number of competing firms?
3. **Imitability**: Is it a problem for the company to extract the resource and does it cause additional costs?
4. **Organization**: Is the company's organization capable of supporting the development and maintenance of rare resources?

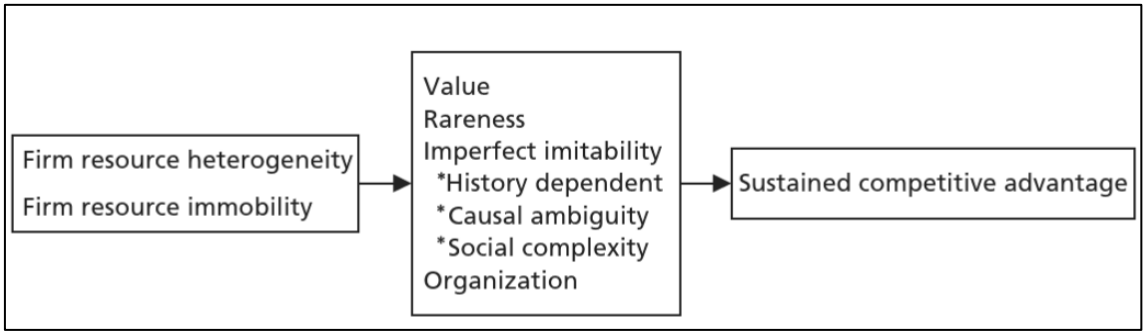

Figure 3 VRIO framework (Barney& Delwyn 2007, 69)

Of course, not all resources can be rare and hard to replace. Bryman& Clark continues again that when the competition of companies is based on imitation, the advantage can be momentarily gained by the company that knows how to use conventional, less valuable resources efficiently. In this case, investing in less unique resources and increasing competence can bring a significant competitive advantage. This means that a company may have a few rare and valuable resources to contribute to the company's level of expertise and thus competitiveness. Continuous development maintains the competitive advantage brought by traditional resources. Ahn et al (2022) write in their article that, it is possible for the company to increase its performance and improve its positions in the competition compared to other competitors by investing in the use of internal resources and the development of competence.

In addition, Zahra (2021) states in his article that start-up companies have succeeded in making the resource management system more efficient by determining the number of

resources needed more precisely and even by reducing the number of resources, which naturally lowers resus costs.

Barney& Clark (2007, 72) concludes the chapter by stating that, it is argued that a company with rare, valuable, and hard-to-repeat resources according to the VRIO definition can lose the competitive advantage brought by these resources if it does not know how to organize its operations correctly and efficiently. In this case, it is usually a company run by weak management.

As Freeman et al (2021) write in their article, RBV treats resources instrumentally to achieve high performance and competitive advantage over others. It seems that there has been a change over time. Freeman et al. (2021) state at the end of the study that over time RBV has become an even stronger person. Naturally, humanization follows a different timeline and environment, where soft skills and competencies are emphasized.

Locket et al. (2009), what is essential is not so much what kind of resource it is, but how the resource is used and what it can do. They continue, it is possible for resources to have several skills that can be used in different ways in different tasks when situations change. The naturally managers must be aware of the resource's skill level and competences to be able to use resources efficiently.

From a critical point of view, it must be stated that, any research in the literature review does not provide an answer to how management is able to identify rare and valuable resources. Research showed that in some cases, management is unable to utilize valuable resources effectively, which may be because they have not been able to recognize the potential of the resources. The RBV model has also received criticism from researchers. Bromiley and Rau (2016) state in their research that solutions that are easy to implement according to the RBV model should be avoided because they can be easily copied and do not meet the RBV definition of resources.

2.5 Hard and Soft skills

The management of hard and soft skills has grown into an important aspect in today's competence management. Bukartaite & Hooper (2023) write in their research, based on observations in today's world, when development is moving towards a work environment and workplaces where technology plays a growing role. In the environment described above, the need for hard and soft skills is emphasized based on the responses of the participants in the study.

Lista et al. (2022) stated in a research summary that by finding a suitable combination between a traditional teaching method focusing on hard skills and an active teaching method focusing on soft skills, it is possible to achieve significant improvements in Lean Management (LM) training.

According to the latest research, the management of soft skills has grown in popularity compared to the management of hard skills. In their study, Bukaraite & Hoopen (2023) also stated that not a single person who participated in the study said that hard skills are more important. Recent research results also point to a changed environment and attitudes. Bal et al. (2019), stated in the findings part of their study that soft skills, such as communicating with people, behaviour, and other social skills, were seen as more important than hard management and decision-making skills.

The management perspective of hard and soft skills is an essential aspect when looking at the factors related to the management and development of competence. In this study, however, the perspective is only partially considered. Considering the influence of hard and soft skills in management would require a separate study. By only partially taking the perspective into account, I gained a strengthened and expanded theoretical framework that is more suitable for this study.

At the end of their article, Schultheiss & Bakes-Geller (2022) claim that employees' need for hard and soft skills varies by occupation. Based on the results of the study, the motivator for the acquirers of soft skills was career advancement and possible advancement, while, correspondingly, in professions where hard skills were acquired, the motivator was the maintenance of competence to maintain employment. The observation is interesting because the study pays attention to hard and soft skills and how they affect the use of the PSM system when and users consider the career path of employees.

According to Laker& Powell (2011), preparing soft skills is a more difficult process than developing hard skills. That's why it's good to work hard to develop and transfer soft skills, because if you lose resources that have soft skills, developing them is a laborious and time-consuming process.

3 Methodology

Chapter 3 describes the background and design of the study. At first, the research methods used in the study are presented. The semi-structured interview is described in a separate chapter. The material supporting the research has been collected from various sources as university databases, books, and articles which are all listed in the references. Additionally, case company PSM documents has used as background material. At the end of the chapter, it is described how the material was collected from the field. The collection of data was carried out in two stages, which first included the information collected with questionnaires and in the second stage interviews with people. In addition, it has been described on what basis the persons from whom the information has been collected have been selected. Data collection from users was carried out in practice by sending a questionnaire, which users had two (2) weeks to answer. In the next step, all those who answered the questionnaire were interviewed also, which made it possible to confirm and supplement the answers already given in writing. The results of the interviews and content of the notebook were analysed and compared with the answers of the questionnaires.

The theoretical framework of the study consists of the RBV theory, previous studies on competence development and the management of hard and soft competencies. Originally, the study was intended for comparison with the results of previous studies, but since comparative studies were limited, I expanded the reference framework with the RBV theory and the results of studies of hard and soft skills.

Since the users of the PSM system are physically located in different countries, a questionnaire has been chosen as the most effective data collection method. In addition, the conducted interviews ensure the answers to the survey. However, it must be emphasized that conducting interviews on a larger scale would have been too time-consuming and therefore not a recommended way to collect information on a larger scale. Instead, use questionnaire as a main source and selected interviews to confirm results.

In addition, the conclusion describes how the results have been compared to previous studies and the RBV theory presented in the literature review. In addition, the answers and interviews considered the differences brought about by multiculturalism. The last chapter consider to ensuring the reliability and validity of the research, as well as possible further research opportunities and ideas.

3.1 Case Study approach

This research is an empirical case study and uses a qualitative method. Since there is limited amount of comparative material available on the subject, I ended up choosing an inductive approach. Focusing on the resource base view (RBV) theory, supplemented by the results of similar studies presented in the literature review.
According to Gillham (2000, 1-2), a case study aims to find answers to research questions by examining different materials and evidence. According to Gillham, no single piece of evidence alone is enough to answer the question, but evidence and material must be collected from several sources. According to him, the best result can be achieved by combining material collected from several different sources.

Regarding the qualitative case study, Simons (2009, 5) states that subjective data collection is an essential part of the issues affecting the success of the case study. He also states that by correctly interpreting the collected data, it is possible to analyse how people act in different situations and what they think about things, and then find answers to research questions and understand the subject being studied more broadly.

3.2 Semi- structured interview

The interviews were conducted using a semi-structured interview method. According to Hirsjärvi and Hurme (2022, 80), in a semi-structured interview, some aspects of the interview are locked but not all, leaving room to be flexible with the order of the questions and the flow of the interview. This interview model is particularly suitable for this study because the interviewees are from different cultures and the level and style of the conversation varies from country to country.

A semi-structured interview method was used in the interviews. The research was conducted as a case study for the case company by collecting research material from the company's network offices in different countries. According to Bryman (2008), qualitative research is a research strategy in which data collection and analysis usually emphasizes words rather than quantification (Bryman 2008, 366). The research material collected through surveys and additional interviews fulfils the characteristics of the qualitative method described above. Due to its openness and flexibility, qualitative research is most suitable for carrying out this research.

When conducting the research, the multicultural nature of the respondents had to be considered. According to Schneider (2011), multicultural interviews typically involve an interviewer and an interviewee whose backgrounds, experiences and positions differ from each other. The background of the interviewees varied greatly depending on the site and position in the company. The position of the interviewees in the company varied in relation to the interviewer, but in practice this had no effect on the progress of the interview. The researcher's previous experience of working in a multicultural environment and the knowledge gained through university studies about how to handle mother communication with interviewees from different cultures helped the interviews move forward.

3.3 Data and analysis of the data

Two different models were used in the data collection of the study: 1. pre-sent questionnaires and 2. Additional interview with the same people. The questions were prepared in such a way that they progress from the basics to more detailed questions. Data from the field was collected between 25.09.2023- 17.10.2023. A summary of the collected data is presented in Table 4.

The questionnaire sent to the interviewees contained eleven (11) questions. I chose the interviewees from different network offices based on my previous knowledge and to get a comprehensive sample worldwide. The sample size is limited because the time window set aside for the interview was two weeks, and interviewing a larger group would have taken too much time from both the interviewer's and the interviewee's point of view. The anonymity of the interviewees has been considered and the person's position in the country is mentioned in connection with the answers, not the position in the company's organization, and it cannot be inferred in any way.

Table 3 Research data table

Research question	Method	Amount of Data	Description of the data	Analysis
1	Interview	10	Semi structured interviews	Thematic Content analysis
2	Questionnaires	10	Questionnaires with same questions as interviews	Thematic Content analysis
3	Document analysis	5	PSM related documents from the case company.	Content analysis
4	Dashboards	2	PSM utilization rate related dashboards	Content analysis
5	Research reports	6	Skills management, RBV and Hard & soft skill research reports	Content analysis

Based on the experience from the researcher's work and discussions with other people developing the PSM system, respondents to surveys and interviews were selected from 10 different countries. The titles of the interviewees ranged from coordinators to

department heads. The common denominator for all interviewees was that they regularly use the PSM tool in their work. The countries where interviews are from: Argentina, Australia, Bangladesh, Ecuador, India, Pakistan, Panama, Senegal, Finland, United States. There was one participant from each selected country except Bangladesh, where I interviewed two people.

The attitude of the interviewees was very positive, because they saw the support related to the use of the PSM tool in practice and thus related to their work tasks, which naturally increased the motivation to participate in the interview. The average realized interview time was 45 minutes. Most of the interviews took place in the planned half hour, but a few interviews lasted the whole hour. The discussions were very fruitful and in some interviews the discussions went deeper than in others, which is why the interview times varied slightly. I sent the interview questions 2 weeks in advance and all the respondents had prepared their answers in advance. Because the interviewees had prepared well in advance, it was possible to go through the questions effectively and, if necessary, focus on the details without deviating greatly from the planned interview time window.

The questions were prepared in such a way that the questions were related to each other and at the end of the questions, the basic research question was also approached. The red thread running through the questions led from the basic questions related to the interviewed organization and ended with the actual main question, how the advantages and disadvantages of the PSM system were perceived in different countries and from the perspective of different users. In addition, during the interviews, the problems faced by the users were clarified and sometimes they were solved as if by-product of the interview.

When collecting data from the field, I used two methods, 1. questionnaires and 2. supplementary interviews. Interviews were conducted for all 11 people to whom I sent the question form. Supplementary semi- structured interviews were conducted to enable the quality of the material and the collection of more extensive information. Due to

cultural factors, in different cultures you do not want to write everything down on paper, but according to experience, it is possible to find out more extensively through interviews. It must be stressed out that cultural factors must be taken account, when considering data collection methods.

3.4 Reliability and validity

According to Carmines & Zeller (1979), reliability refers to how it is possible to get the same results with the used measurement method when repeating the measurement. In addition, he points out that every measurement has a margin of error, and a perfect measurement cannot be achieved even under ideal conditions.

Replication of this study using the same questionnaire as well as a semi-structured interview to collect data leads to similar type of the results. The questions have been prepared in such a way that it is possible to use them when studying a similar system and the questions are comparable.

The material used as a comparison ingredient, the RBV theory and the Hard and Soft Skill-based view create a reliable foundation for the foundation.
The researcher who conducted the study has more than 20 years of experience in the pilot company and works full-time in matters related to the use and development of the PSM system in the current.

The survey and interview questions and the interviewees for the study were reviewed with the General Manager of the case company, and the questions and interviewees were found to be appropriate.

The research results are compared with previously available similar studies to confirm the results. In addition, the results are compared with the company's documents and measured utilization rates by regions. Additionally, the results of the study were verified

by the people working in the development of the company's PSM system. It is possible to repeat the research using the method described in the report.

The sources used in the empirical case study are presented in the bibliography. The answers collected through the surveys are presented in a table, and the material collected through the semi-structured interviews has been recorded and the observations made during the interviews have been recorded.

To make sure reliability of the research results, triangulation method has used. Stake (2005, 453-454) writing that triangulation is a well-known way to reduce misinterpretations in qualitative case studies. Several ways to shed light on research results and meanings is called triangulation. Of course, the observations made in research are never completely reproducible, and in this case, triangulation helps in the interpretation of the observations. By doing this way, the observations of actions could be reliably analysed by triangulation, comparing the findings with previous studies and the RBV theory.

4 Results

Chapter four presents the empirical findings and research results question by question. The results present both the answers to the question forms as well as the issues raised in the supplemental interviews and possible deviations from the answers on the form. the interview and the questions on the form were the same. However, the interviews were conducted semi-structured to achieve the best result.

The results are based on questionnaires the Professional Skills Management (PSM) tool sent beforehand to the regions and countries together with invitation letter to interview. Target group of questionaries send was selected based on person place in the Field Service organisation structure. Basically, people selected working mainly in the Service coordinator positions or other resource booking related positions. The answers were analysed based on the selected criteria to get the best picture of user experiences and the advantages and disadvantages of the current system. In addition, the analysed material has been collected through dedicated interviews. The interviews give a broader and better picture of the situation in the field than the survey, because the selected interviews have a long experience of using the software and were able to give deeper feedback about the challenges and problems arising from the use of the PSM tool. The interviews also have PSM users in their teams, so they have a better understanding of how PSM works in the big picture and how much it affects the team leader's daily work in different areas. There are natural differences between regions, because organizations in organisations better understand the use of PSM, but others have more challenges and therefore the need for support also differs. There is also PSM user data collected before and that I’m going to use as support material in research.

With the help of the qualitative methods used in the analysis of the results, it was possible to conclude the different benefits and demands of the PSM tool in different areas. Based on the surveys and interviews, I was also able to distinguish the different needs of the regions and what kind of development the networks must improve the use of the PSM tool.

4.1 Notes during interviews.

The original plan to collect research material by sending a questionnaire to a group of 50 people turned out to be difficult to implement and I ended up collecting material using a hybrid model instead. In the hybrid model, based on the organizational chart, I determined 10 interviewees from different organizational levels who worked on the PSM tool in different roles and to varying degrees. The questionnaire was included in the interview invitation and was asked to be filled in beforehand. In addition, the answers were reviewed during the interview. The interview complemented and opened up the background of the answers clearly and revealed things that could not have been concluded from the written answers. For example, it was reported about the training received to use the PSM tool and that the tool can be used, but the interview revealed that in some cases the training had not met the person's needs and the level of competence had remained insufficient. It became clear in several answers that there is a lot to learn. This is an example of a contradiction that could not be directly deduced from the question on the form. All those invited to the interview accepted the invitation and had a positive attitude towards the study. The interview time was limited to half an hour. Some of the interviewees had enough time and there was little discussion about the questions. On the other hand, there were interviewees with whom the questions were thoroughly discussed, and they found common features also with the challenges appearing in their own work.

All sent inquiries and interview requests were answered with approval. All participants were interested in the topic and were keen to answer questions. I noticed during the interviews that there were differences between the answers on the form and the answers in the interview. This is because by focusing more deeply on the question, the matter opened better for the interviewee and therefore the answer became more specific and, in some cases, clearly changed from the answer on the form. In the interviews, there were considerable differences in the selection criteria for the PSM role by business area. When choosing a PSM role, most areas only emphasized the need for the business side. However, 20 percent of the respondents also consider the employee's own

development goals and long-term development plans when choosing a PSM role. The importance of maintaining the person's motivation was also emphasized and it was seen that with a positive attitude towards the person's own development needs, the person's motivation can be maintained and thus the quality of work performance is also better.

The interviews revealed clearly different practices in the selection of PSM roles by country. In one model PSM roles have been selected based on the company's requirements and the employee's job description and skills. This is of course the general line of the company and the PSM role should be chosen so that it meets the requirements of the work to be performed in the best possible way. depending on the role, the trainings, and certificates that the employee must obtain are defined. However, there are exceptions, according to the study, 10 percent of the answers also consider development plans in the employee's own interest. In some cases, an employee has a defined PSM role where they must work harder to meet training requirements. according to respondents, this is a way to motivate a person to develop and expand their skills effectively. Of course, this is not the way the company usually wants it, but it has been found to be a working way of working in some areas.

4.2 Results of questionnaires and interviews.

Table 4. Questionnaire results.

Question	1	2	3	4	5	6	7	8	9	10
1. How many billable FS resources you have in your organization.	65	76	30	104	80	34	85	90	71	22
2. How often you use Professional skills management tool (PSM) in your work? A. Daily, B. Weekly, C. Monthly	2	2	3	1	2	2	2	2	2	3
3. Have your organisation billable resources all PSM role selected? If not, why? (0= No, 1=Yes)	1	1	1	1	1	1	0	1	1	1
4. Have people in your organization aware of benefits of the PSM tool? (0= No, 1=Yes)	1	1	1	1	1	1	1	0	0	1
5. Do you think PSM toll is user friendly? Scale 1 to 5 (1= disagree, 5= agree)	3	4	3	3	4	3	2	4	3	5
6. Do you prefer PSM tool structure is suitable for your use? Scale 1 to 5? (1= disagree, 5= agree)	4	5	5	3	5	4	3	4	3	5
7. Are you get proper training for the PSM tool? (0= No, 1=Yes)	1	1	1	0	1	1	0	0	0	1
8. How well you aware of features on the PSM tool? Scale 1 to 5 (1= disagree, 5= agree)	4	4	4	3	4	3	4	4	3	4
9. Are you aware how PSM database is connected to other tools like SRR? (0= No, 1=Yes)	1	1	1	0	1	1	1	1	1	1
10. What would you like to change in the PSM platform?	Dashboard for line managers needed	OJT related matter should be better informed	Data clean up, Recertification process.	Platform should be more user friendly	OJT related matter should be better informed	Remove basic courses from the Superintendents profiles.	Make it more user friendly. More reports and reminder feature available	Platform should be more user friendly	Structure should be more user-friendly.	Nothing to change
11. What benefits you see usage of the PSM tool?	Several and find out that PSS is backbone for other tools	Give better view of resouces and certificates	To maintain team competency and to be compatible with other operations tools requirements such as SRR, Planning board.	Follow up career parths should be more user friendly	More user friendly visibility of resource certificates	Supports me in the setting up development targets for each engineer.	Beter visibility to see where teams are from skills and competences point of view.	Support way of working to manage competence and skills needs	Easier follow person career path, promotion, etc.	The PSM tool provides a clear career path for technical resources. As a field service resource, you will have a clear understanding of what the company expects from you, and it also enables line managers to design a training

4.2.1 Number of billable resources per organisation

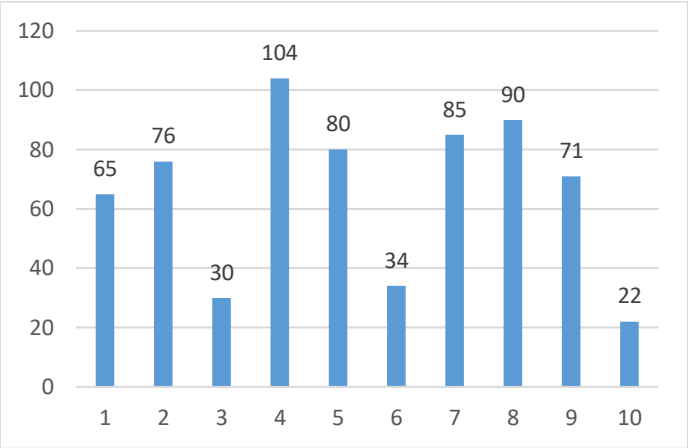

Figure 4. Number of resources in organisations. (Question 1)

Figure 3 above describes the number of resources of the interviewed organizations. There were large differences in the number of personnel in the organizations by country and by manager. There were 22-104 organizations. A larger number of subordinates naturally places more demands on the manager, and therefore the maintenance of the PSM system is more challenging even in larger organizations. The size of the organizations helped form an overall picture and served as background information when analysing the answers.

4.2.2 How often you use the PSM tool?

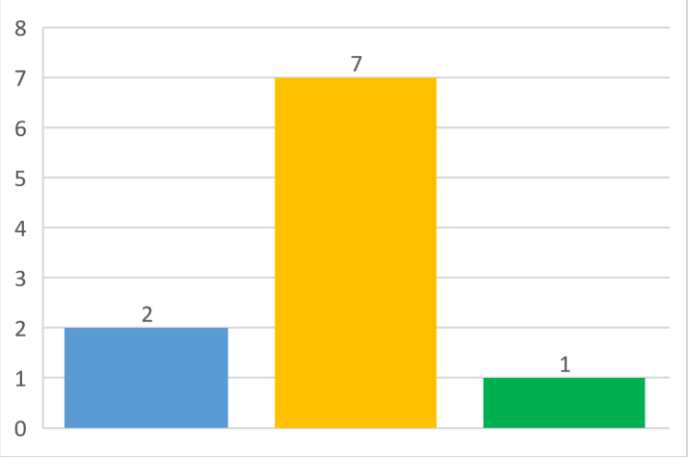

Figure 5. How often you use PSM? (Question 2)

Figure 4 above illustrates how often interviews use the PSM tool. Based on the answers, 70 percent of the respondents use the PSM tool weekly. 10 percent used the tool daily and the remaining 20 percent used the tool monthly or less often. Based on the interviews, I found that in the group of those who use the tool monthly, the use varied more in practice than in the other groups, and the interval of use was sometimes shorter than a month and sometimes a little longer. There were no significant changes in the responses of daily and weekly users. Variation is explained by the defendant's position.

Managers in higher position use the tool less, while a person working as a maintenance coordinator, for example, uses it every day. However, the research does not bring out the position of the respondents and interviewees in the organization in more detail, but the position is presented only on a general level. The issue was also not addressed in the question form, as the questions were considered neutral. It was positive to note that the usage rate of the PSM tool is good, regardless of the person's position in the organization. The interviewees work in different countries and at different levels in organizations. All the interviewees were aware of the necessity of the PSM tool, its features and the tool's purpose in the big picture, i.e. how PSM is connected to the systems that use the database and supports their operation. Based on the feedback received from those who use the tool less often, there is room for improvement in making the tool easier to use. When

rarely used, the complexity of the tool is emphasized and recalling the operating methods is relatively difficult and time-consuming. The responses of frequent users of the tool were positive and they did not experience any problems during use. The selection of the PSM role and the selection of the necessary certificates were perceived as challenging at first, but once the structure was understood, the problems no longer appeared. The interviews also revealed the interest of PSM users working at different levels in using the tool in terms of monitoring competence.

Regardless of the person's position in the organization, the tool is used regularly even if they did not actually actively coordinate resources in their work, but due to their position and job description, are responsible for maintaining certificates and PSM roles. There was a slight variation in this by region, because usually supervisors and coordinators are responsible for monitoring and developing skills in the PSM system, but in some organizations, people were appointed separately for these tasks whose job description did not include resource coordination. Is it difficult to say whether work practices should be harmonized or not? When operating in different countries, there are differences in practical operating models, which may not make sense to change. As a result, the operation of the process can become difficult and, in the worst case, even stop.

4.2.3 Have all billable resources PSM role selected?

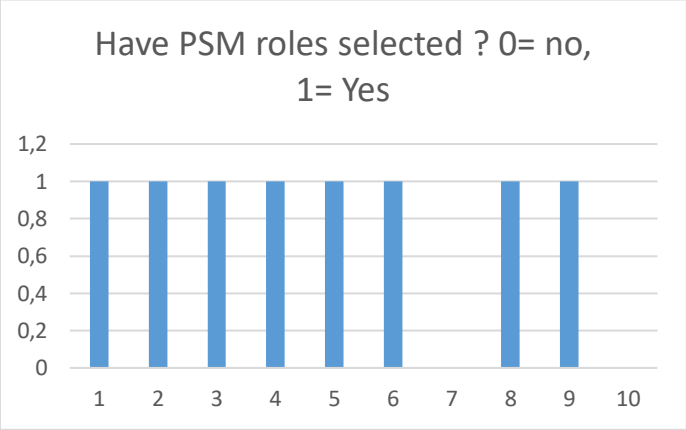

Figure 6. Have PSM roles selected? (Question 3)

Figure 5 illustrates the distribution of responses. 90 percent of the respondents have ensured that PSM roles are defined for the organization's employees. 10 percent of the respondents had not defined a PSM role for everyone, as new employees have joined the company, so they have not yet defined a PSM role. Based on the answers, it can be concluded that most respondents understand the importance of defining the role of PSM and that it is important for the health of the database.

> *"Yes. Earlier, everyone had flaws in the roles, but in the last two years, we have completed all this". (I5)*

Defining the PSM role at the very beginning of the employment relationship is something that has not been emphasized enough, and therefore some of the respondents have paid less attention to its definition. There is also some ambiguity in determining the PSM role when the employee is still on probation and in the HR system with trainee status. In addition, the interviews revealed that at the beginning of the employment relationship, there was no clear line in defining the role of PSM and there were variations in practices not only in the countries but also in the network branches. The instructions should clearly define how the PSM role is chosen and what it means from both the manager's and the employee's perspective. Although the PSM role is assigned to the employee at the very beginning of the employment relationship, he still does not have certificates, so

he cannot be booked for work manually or using artificial resource booking tools. The above-mentioned issue should be emphasized in the instructions, because then the threshold for granting the PSM role may decrease. However, the interviews revealed that everyone knows the definition of the PSM role, but its importance and the resulting problems in system maintenance were not as well-known as has been assumed.

4.2.4 How organisation is aware of benefits of the PSM tool

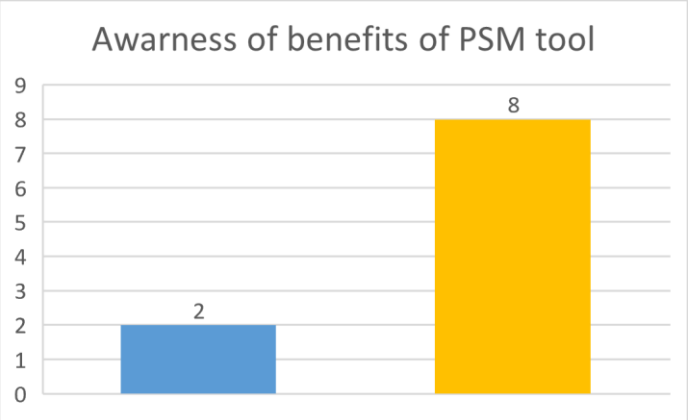

Figure 7. Organisations awareness of benefits the PSM. (Question 4)

Figure 6 above illustrates that users of PSM tools are aware of the benefits brought by the tool. Based on the responses for question number 4, 80 percent of the respondents were aware of the benefits of the PSM tool and why it is used. On the other hand, even twenty (20) percent did not know about the benefits and purpose of the PSM tool.

> *"They know the importance of the tool and the kind of information the people can gather out of it at one place and especially for the long-term business needs and competence building." (I8)*

> *“They understand the benefits, but no role. Therefore, they don't put too many attentions, and we are working on that to make them understand the reason why we have PSM that will help them also in handling certifications and validate their knowledge” (I9)*

Both answers are directly related to PSM training and how well or poorly the supervisor has ensured that the employee has received PSM tools induction training and other available information. The interviews revealed that some supervisors have made participation in PSM training mandatory for all employees of their field service team. There is no consensus on the way of working, so there are differences in the work methods of supervisors, which partly explains the results of the study. Instead, there should be clear instructions that clearly describe the way of working and the order of use of the tool.

The monitoring of the use of the PSM tool should also be extended to this area. The interviews also revealed a lack of the overall picture at the end-user level due to the lack of advertising. Because the overall picture was not understood, end users felt that using the tool only increased their workload, and the need for the tool in terms of the functionality of other tools was not at all clear to most end users. In this case, the promotion of the PSM tool becomes particularly active. When the users have told the tool before the release what it really is and why it should be used and to make sure that the database is always up to date.

4.2.5 Do you think PSM tool is user friendly?

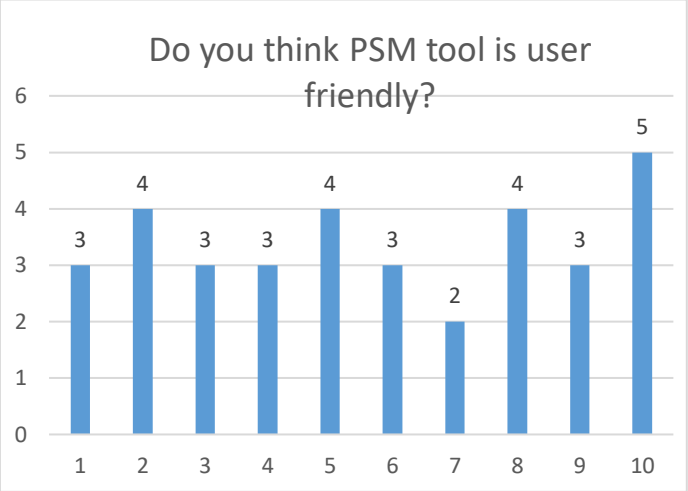

Figure 8. Is it PSM tool user friendly? (Question 5)

Figure 7 above illustrates the distribution of responses. 30 of the respondents found the PSM tool mostly user-friendly and gave the answer 4. 50 percent answered 3, which means they were only half satisfied with the system. 20 percent answered 2, which means they were only partially satisfied. There was a reasonable dispersion in the answers, and a large part of the respondents were clearly not satisfied with the usability of the system, there were shortcomings and room for improvement in several different areas.

It is also worth noting that none of the respondents and interviewees were completely satisfied with the system's usability, and on the other hand, no one completely denied the system's functionality. The answers emphasized the difficult usability of the system and the rigid structure of the software, which takes a lot of time to use and learn. In the

daily use of the tool, its use requires a lot of knowledge of the whole, so that the system can be used at a satisfactory level.
According to one interview:

> *The PSM tool is user friendly, I would say it's a four out of five. Because I agree that there is always room for improvement in our operations. (I8)*

Some of the respondents tell during interview that they had noticed a problem that was caused by a clear programming error in the use of the program. However, the programming error had not been reported to the correct address and therefore the problem still existed. Reporting detected program errors and giving feedback were not described clearly enough, which is why end users do not know how and where to leave feedback. This was naturally due to deficiencies in the instructions and description of the feedback process.

From another point of view, however, none of the respondents were completely disappointed with the system. Despite everything, every respondent and interviewee had a positive attitude towards the PSM tool and were ready to use it and give feedback and thus help in the continuous development of the tool. Describing the feedback process and reporting in the instructions is naturally the responsibility of the author of the instructions. The processes should be described in more detail, and the feedback systems and instructions for use should be explained in the instructions, so that the end users understand the operating methods. The lack of a functional description of the processes raises doubts about the functionality of the system and thus reduces interest in utilizing and using the tool. Instead, the system is handled incorrectly and thus the certificate database is no longer up to date.

4.2.6 Do you prefer PSM tool structure is suitable for your use? Scale 1- to 5

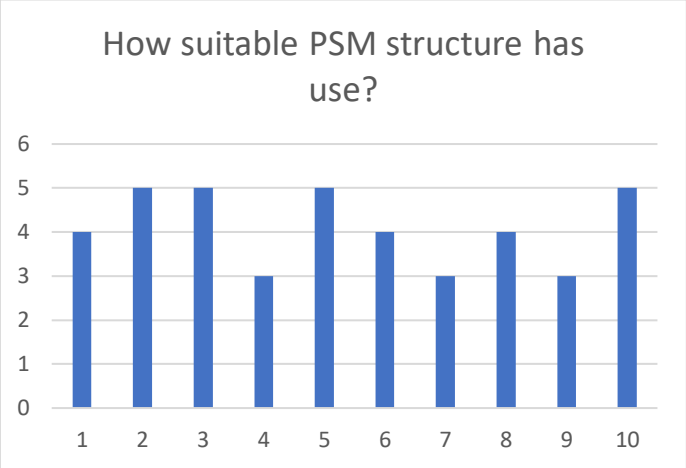

Figure 9. How suitable PSM structure has use? (Question 6)

Figure 8 illustrates how the respondents see the structure of the PSM system in practice. 30 percent of the survey respondents were satisfied with the structure of the PSM tool, and it met their needs in terms of using the tool. 40 percent of the respondents were partially satisfied with the structure and the remaining 30 percent were only partially satisfied with the structure. In the interviews, there were difficulties in defining the PSM role, because there were too many roles to choose from and, on the other hand, there are too many skill levels to choose from.

Moving between the PSM and WeLearn systems and finding out the certificates and courses according to the PSM role were also perceived as difficult according to interviews comments also:

> *I find it challenging in navigating back option. (I3)*

> *"Well, the system looks good and all, but it's hard to understand how to choose the right role, certification or training you need to do to cover it". (I9)*

The same certifications and required courses create confusion for end users on how to cope with different needs and how to manage when the PSM role needs to be changed.

In the instructions, the fact that to complete courses and certificates are not lost from the system even if PSM roles are changed or deleted is not brought out clearly enough. I felt that a simpler role structure would make it easier to choose roles. The complex PSM role structure has also caused misunderstandings in the selection of PSM roles and in some cases several roles have been chosen for an employee because the necessary certifications have been defined for him or her. The problem is due to poor understanding of the process due to lack of information sharing. With a little further investigation, users realized that the PSM role is always selected according to the requirements of the main role, and the necessary additional certificates are added individually to the person's learning profile as needed.

It was also revealed that there are regional and country-specific differences in the definition of the PSM role. In the second model, the PSM role is selected for the employee according to business needs. The role to be changed if the needs of the business direction and demands has change. This is naturally a model that should generally be always followed. As I mentioned above, regions have different ways of doing things. In the second created model, the employee's PSM role is chosen to be equal to or slightly higher than their competence, in which case the person is encouraged to strive for a better level of competence. Business requirements are naturally considered, but they are not delivered solely according to their needs. The instructions should of course be updated so that users know what the accepted operating methods are when choosing the PSM role. In the interviews, the lack of a security component in the PSM system's certificate structure was also brought up. The growing demands of customers regarding safety certificates are an essential part of today's field maintenance operations. Field service personnels in the areas must have an even greater number of valid safety certificates to be able to work on the customer's premises. They must also be more aware of the correct working methods and the possible safety requirements of the customer. Therefore, managers and superiors responsible for the resources of the regions raised this question up in interviews.

4.2.7 Has proper training for the PSM tool use arranged?

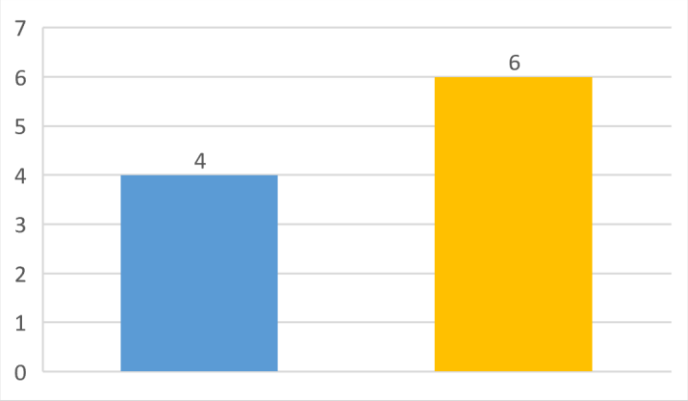

Figure 10. Have PSM training arranged? (Question 7)

Figure 9 above shows that there are shortcomings in the training of the PSM system in the regions. The seventh question focused on whether the person has been professionally trained to use the PSM tool. Based on the answers to the survey, 60 percent of the respondents had received appropriate training and the remaining 40 percent had not. In addition, the interviews deepened the topic, and it became clear that the available online training and readable training material had been used, but the training material was still considered insufficient and did not clarify things clearly enough. The answers of the interviewees emphasized the importance of self-examination of the tool's features and learning by experimenting, as one of interviewed comment:

> *I have had your support in in terms of getting more familiar with it, so but when I started the role, I would say I wish I had gotten more training on it, but training is one thing, it's about using it and getting familiar with it so. (I7)*

Of course, this should not be the case, but the training material should be such that by adopting the training material and following its examples, the student learns to use the key features of the PSM tool. Naturally, smooth use and learning of all the features of the tool happens with use. The respondents had learned to use the PSM tool well, but they felt that learning was laborious and time-consuming, as learning was largely based on experimenting and then learning the features of the tool. There are also differences

in the levels of key user support in different regions. Key users nominated by region, where a key user sits in a network office in a country and serves a larger area from there. This has naturally led to the fact that the network offices where the key holder sits have received better support and guidance. It's not about the key users' desire to provide support, but the difference that in-person support works more efficiently than remote support in this case. The threshold to contact a key user remotely is also higher than when working in the same office space. The answers also brought up the problems caused by the language barrier, which occurs in areas where the knowledge of the English language is weaker.

From another point of view, the level of training has also clearly improved, and the interviewees gave positive feedback from areas where key users are active and have been able to support each other in various end-user questions. The response time from the end user's point of view has also shortened, as the local level of expertise has increased and there is no need to wait for a response from a central function key user or developer operating in a different time zone.

The positive that all the interviewees had received information about the online training available and had shared the training material with their subordinates who use the PSM tool in their work. The interviews also revealed that the regions have made PSM training mandatory for all billable resources and thus received a better level of competence from the time the employee was hired.

4.2.8 How well you aware of features on the PSM tool?

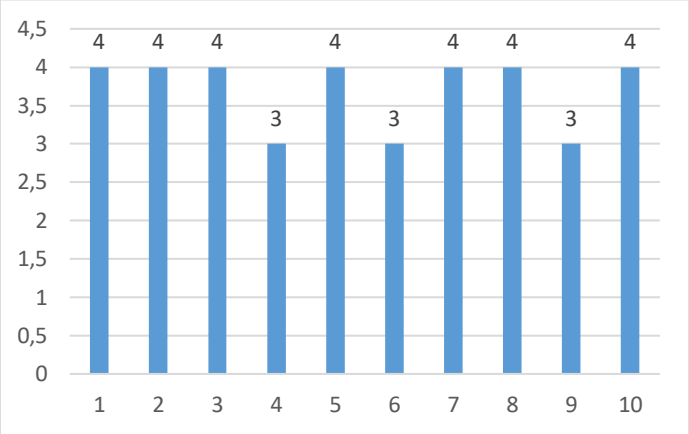

Figure 11. Awareness of the PSM features (Question 8)

Figure 10 illustrates how well the properties of the PSM system are known. When considering how well-informed users are about the features of the PSM tool, it became clear that there is variation in information in different areas. This question was essentially related to the previous question, how good PSM training did the end users feel they received. Based on the answers, none of the respondents were fully aware of the different features of the tool. 70 percent knew the features of the tool well and answered 4 on a scale of 1 to 5. The interviews revealed that this group had also received a good introduction to the use of the tool and had organized training to distribute the material to their subordinates. 30 percent of the respondents answered 3, meaning they were partially aware of the system's functions. In this case, 30 percent of the group training had not been completed, and the distribution of information to subordinates had not been organized systematically. This was naturally a part of the reason for weak knowledge of PSM functions.

Taken as a whole, it can be stated that all respondents were, on average, well informed about the features and possibilities of use of the PSM tool. Interviews also comment about self-study and learning by using the tool. Below one example during discussions:

Again, it's the more you use it the more aware of it. (I7)

The respondents also had a clear picture of how PSM was connected to the training management system of the example company WeLearn. From the point of view of the end users, it is also important in which position the person works and how well they should be aware of the different features of the tool and what requirements are required of them to perform the necessary procedures. It is not necessary to know all the features of the system, depending on what the end user uses the tool for and how extensive the use is. If a person also acts as a key user of a PSM tool, he should naturally be aware of the features compared to a regular end user. This is also important in terms of competence development, so that end users are not unnecessarily overtrained. Instead, we focus on the right kind of training so that the user can perform the tasks required for their job-related daily tasks.

4.2.9 Awareness how PSM database is connected to other tools like SRR?

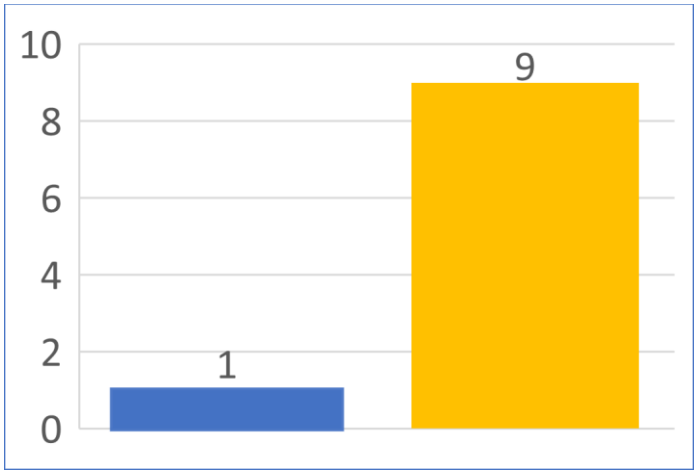

Figure 12. Awareness of PSM connection to the SRR? (Question 9)

Figure 11 above illustrates awareness of the PSM connection to the SRR system. Ninety (90) percent of the respondents were aware of the PSM database connection to other systems and tools of the example company. The interviews also revealed that through the training they had understood how the PSM database is in the big picture. 10 percent of respondents were not aware of the integration of PSM databases with other systems,

which partially explained the low number of users in some areas. It also became clear in the answers and interviews that clarifying the overall picture of PSM users is incomplete and helps to find out why there is some variation in user levels between regions. Weakness in promotional activities is visible and needs to be improved to increase awareness of PSM and what it entails. When users better understand the necessity of the PSM system's database and what benefits the up-to-datedness of the database has for them directly and indirectly, they have a higher motivation to use PSM. Here, the necessity of training and the quality of the available training material are emphasized again. It is also necessary to consider how skills are developed and whether different training methods are needed on a case-by-case basis. In some cases, shared material and online training are sufficient, while in some cases face-to-face teaching is the way to deliver the training. However, the sufficient qualifications of the persons must be ensured regardless of the case. In the next generation PSM system, the roles and certificates have been changed, but the database is still connected to other systems and the correctness of the database has been emphasized even more.

In addition, the quality of the PSM database must be emphasized. An up-to-date and correct database is very important for the reliability of other systems. The maintenance and monitoring of the PSM database are things that should be emphasized to the end users of the system and their supervisors. The impact of a poor quality PSN database on the quality of other systems is significant, and in the worst case, the impact even extends to the field.

Although the PSM tool is tightly linked to the company's WeLearn course and certification tool, users struggle to understand how the system works and how the WeLearn system works when modifying employee PSM roles. In the interviews, it was revealed that there are difficulties in editing user profiles in several different areas. The end users of the networks have not found WeLearn training material in the system, so that they could have familiarized themselves with the operation of the system independently. Therefore,

has had to organize additional training. After additional training, the situation has improved considerably.

4.2.10 What would you like to change in the PSM platform?

Based on answers, I separate ten (10) main ideas to change PSM platform.

- Dashboard for line managers
- OJT related matter should be better informed.
- Data clean up, Recertification process.
- Platform should be more user friendly.
- OJT related matter should be better informed.
- Remove basic courses from the Superintendents profiles.
- Make it more user friendly. More reports and reminder feature available.
- Platform should be more user friendly.
- Structure should be more user-friendly.
- Satisfy with current structure and don’t want change nothing structure related.

Based on the interviews and answers from the survey, the PSM platform should be more user-friendly from many points of view. Also, several answers claim, better user-friendliness highlighted essential in terms of structure, platform, and tool features in general. The flaws that appeared in the answers are fundamental and directly affect the user experience of the end user. 30 percent of respondents indicated that usability should be easier to use, and the same came up when I interviewed people through Teams. Another need for change that came up 10 percentages of the answers and in in the interviews, was better and clearer instructions for the learning path of on-the-job training (OJT). Based on the answers, end user point of view it is difficult find answer for problems from instructions and usage is not so smooth when working according to the current instructions. Finding OJT cards related to certificates in the system is uncertain and because the OJT requirements were not known. In addition, there is a lack of awareness of the

various learning opportunities offered by the OJT path, which was also evident when interviewing users.

The use of the OJT learning path is low in the example company and probably one of the most important reasons is the lack of proper guidance. In addition, supervisors are not aware of how the OJT learning path should be overseen in different situations. If the OJT requirements have been met and the supervisor has approved the different parts, then the use of the system is clear. However, in situations where some part of the performance required to obtain the certificate is missing and the missing part should be replaced in some other way, such as compensation based on experience, this method is still unclear to many managers.

However, it is important for the employee's learning that the certification can be carried out with several different operating models. For persons working in different positions, the certificates must be filled out using different templates. Some jobs have so little in the office that classroom teaching doesn't work, instead, employee must use the OJT learning path and possibly online courses. If the employee's supervisor is not aware of the different operating models for filling out the certificate, the learning process may stop and getting the certificate delayed. This naturally has a negative effect on a person's learning motivation.

Connecting the tool to the company's other tools and modifying learning profiles through the systems was perceived as difficult. The interviews revealed difficulties in using the system and learning to use it. Based on the answers, it became clear that the difficulties were mainly since the training material had not been found and the material already distributed was partly incomplete. In addition, it was not entirely clear which entity should be contacted in problem situations. This is where the shortcomings in defining the key user network and naming people came to the fore. The key users should also have been mentioned in the shared training material or notified to the users in another way.

The interviews also revealed that not everyone understood the difference between the completed course and the accepted certificate. Deficiencies appeared at all levels: management, end user and employee.

In addition, when I examined the training database, it turned out that several employees had already completed several courses, but the necessary part of the amount required for the certificate was missing, so the certificate could not be issued. certificates whose status was missing only one course. When investigating the matter, it became clear that most of the pending certificates could be accepted using the motivation letter route.
Let's examine the change needs of the PSM tool from a typical point of view, based on the answers of those who were satisfied and learned to use the system smoothly. This group expressed their satisfaction with the current structure in both questionnaire responses and interviews and saw no need for change.

This is partly because some of the interviewees had received a better introduction to the use of the PSM tool and they had also adopted the use better. The interviewees who had a positive user experience also understood the benefits brought by the tool both in terms of their own work and the career development of their subordinates. The understanding of the whole was also at a better level compared to the interviewees who had a weaker orientation. Better education is very regional and country specific. Some of the networks have organized training in a more structured way than others. Areas that organize training better usually also have designated key user(s) and thus you are able to provide better support to end users. This is naturally reflected in the statistics as higher user levels and more competent end users.

Cleaning the database of extra PSM profiles and certificates also came up in the comments of the survey respondents. Additional training and support were needed to transfer profiles. There was some uncertainty about the retention of certificates if user profiles are changed. Naturally, the validity of several PSM profiles for the same user causes a backlog in the recertification process, and from the user's point of view, its

implementation seems laborious. After the elimination of redundant roles, the number of certificates to be renewed will decrease significantly and the number of training needs will decrease. Again, in connection with the farewell to the certificates, the importance and quality of maintenance work reports were also brought up. The above are things that have a direct impact on the implementation of the re-certification process, because the Work Reports are proof of the re-approval of the certificates.

Simplifying the structure of the certificate and removing additional foundational courses from upper-level degree requirements was seen as one necessary improvement goal. In the current system, foundation courses are a prerequisite for a higher-level diploma, even if the required courses have already been completed earlier. This will be fixed in a new system coming soon. In the new system, the basic courses also do not expire, so they do not have to be repeated every five years, as is done in the current system. Of course, it has also been possible to accept the basic courses in the past if they have previously been successfully completed. However, the system's rigidity and insufficient instructions have caused uncertainty among end users. While doing the research, this ambiguity came up at several stages while conducting the interviews.

The structure of PSM was also perceived as difficult to understand. Based on the interviews, several PSM user roles and several different skill levels made it difficult to choose both the role and the training path. The respondents had different ideas about strengthening the educational path. Some of the respondents had understood that the educational path must always be started from the beginning, while some had understood that the definition of the competence level is based on the person's previous experience and competence. the respondents were also not aware of how to act in a situation where the hired person has previous experience with the products and has certificates that have expired. In this case, the reactivation of certificates is possible in the same way as when dealing with other expired certificates, i.e., the person must complete a supplementary course either in classroom training or through the OJT procedure.

It also became apparent that there have been misunderstandings about the purpose of the HR role and the PSM role. The respondents have assumed that the PSM role affects the salary, and therefore, in their case, the manager has chosen the employee's PSM role to be unnecessarily low. At the same time, however, the demands of industry and resource customers have shown the need for expertise. In the future PSM system, the structure has simplified and made more user-friendly based on the feedback received from the current system.

Based on the interviews, there is a general need for PSM control panels for supervisors. Various control panels already exist, but they do not yet meet user requirements and therefore require more development work. The absence of control panels causes difficulties in understanding the PSM system in big picture. In addition, information about the existence of the already existing PSM control panel has been poorly shared and not all stakeholders have had access to the control panel. Since the system is difficult to understand, it naturally also has a negative effect on user levels.

4.2.11 Benefits of using the PSM tool?

There was a consensus that the PSM tool is the backbone of the monitoring program for resource allocation and competence development. The users' view was clear that PSM helps to understand and manage the situation of current skills and competences and where there is a need to improve competences. The PSM database has received a lot of support when considering the personnel development plan based on the requirements of the industry and stakeholders. Following the employee's career path was also seen as a useful feature and it was brought up in the answers of several interviewees. With clear statistics, the possibility of errors is less, and the manager has a comprehensive view of the eligibility and eligibility status and status of each certificate. The automatic reminder to the employee and supervisor about the expired certificate is also a feature that facilitates management and traceability.

Also from a higher-level perspective, the PSM tool was perceived as a functional system for monitoring education levels. In addition, all interviews and operational area understood the importance of system integration, data up-to-date and maintenance. In general, the responses were very similar when looking at the benefits of the PSM tool from the user's perspective. Although there was variation in the number of resources under the supervision of the interviewed persons, the tool was still felt to be very necessary when working in both a larger and a smaller group.

Based on the answers, end users are not very aware of the PSM system's ability to monitor resource skill levels and react to changing resource needs. As the systems develop, the monitoring of skill levels becomes more precise and thus the trainings can be targeted even more precisely to the right resources. It is also possible to better monitor the validity of certificates and react to situations where the certificate has been in the running mode for too long and then get it acquired.

A key common factor in the answers was the visibility of degrees and certificates, what has been completed and is valid with available resources and what skills they have otherwise acquired. In general, the system was found to be very user- friendly and no major problems were found. However, the interviews and answers revealed that there is room for improvement in the system, but no fundamental problem had been detected in the system. In large organizations, tracking certificates would be significantly more difficult without the PSM tool.

The planning of competence development was also perceived to be easier with the introduction of the PSM tool. Setting development goals for employees was perceived to be smooth and structured after using the PSM tool. Possibly expired certificates are also easier to detect and reactivate if necessary. This avoids possible retraining of employees. During the interviews, users received feedback regarding the development of the consumption system.

When considering the benefits of a PSM tool, one perspective is the reduction of errors in the development and management of resource learning. When the system has a clear structure, it is easier for the manager or supervisor to get a picture of the current state of competence and form a picture of the direction of the person's development process. When you know how to form an overall picture of the location of resources, it is possible to plan training needs and transfers of resources as needed. The use of resources on a global level also becomes easier with the use of the tool. Information about the location of expertise enables a more efficient use of resources, both from a cost perspective and considering the effects of the environment and customer satisfaction. The selection of the resource to be used so that the level of expertise meets the requirements of the internal and external customer is linked to the up-to-datedness and correctness of the PSM database.

Choosing a PSM role for new employees was perceived as problematic. Often, the PSM role has not been assigned to the employee, even though the HR role was assigned to him at the very beginning of the employment relationship. In the interviews, it was revealed that, especially if the role of an intern has been defined for the employee in the HR system, it is unclear whether a PSM role can even be chosen for him. The instructions should mention that the PSM role is an entry-level role that does not yet include courses or approved certifications and that the role must always be selected at the same time as the HR role. In addition, the importance of the PSM role to a person's salary level has been misunderstood at both the supervisor and employee levels. The conflict has been caused by the fact that in some cases the HR role has been smaller than the PSM role. This has led to discussions about, for example, the employee's salary level and job duties.

Another thing that has caused problems has been choosing several PSM roles for an employee. In practice, the multiple PSM role model is possible, but it causes overlaps in required courses and easily leads to double completion of courses and then causes extra work and costs. In the new system, this problem is eliminated because the definition of PSM roles has been simplified and there are fewer roles to choose from. In addition, the

new PSM roles are basic level roles and can no longer be assumed to be higher than the person's HR role.

In addition, the interviewees were unclear about the difference between courses and certificates. There has been a perception in several fields that an approved course corresponds to a valid certificate, but this is not the case. In the interviews, several cases emerged where courses had been organized for the employees and had been properly attended, but it had remained unclear to the managers and supervisors that several courses were required for the certificate to be valid and only then was the certificate received. acquired in the system. Apparently, this has frustrated the workers and raised questions about why certificates have not been received. This has naturally had a negative effect on people's learning motivation and willingness to develop their skills. After the interviews, corrective measures have been started in several areas to bring the pending certificates to the acquired state.

Based on the observations I made in the interviews and when studying the system on a practical level, it became clear that the use of the system is perceived to be more appropriate, and its benefits are better understood in areas where the promotion has been implemented correctly and as planned. It is difficult to understand the benefits of the PSM tool without clearly described background information and how the tool is related to other resource management systems used by the company. The features that make the user's work easier should also be brought out more clearly with concrete examples already in the marketing phase. By acting in the manner mentioned above, the learning and implementation process of the system goes smoothly, and the users are in a better position so that the new system becomes part of their work routines. Interviews and surveys revealed that in many areas the purpose and benefits of the PSM tool were not known. Also, the assumption that the PSM system is difficult to use and misunderstandings about the effects of the PSM role on the employee's HR role have weakened the usage rate of the PSM tool. It turned out that the information had been shared at various press conferences and by request, but the material lacked a clear description of the purpose of the tool and in some cases the information had been completely ignored. It

became clear in the discussions that there is more organized communication with the different regions. Information and Question and Answer (Q&A) events should also be organized in smaller groups to generate discussion. Regular activity monitoring based on feedback from key users is also necessary and possible to implement through key user communities established in different systems. It was turned out that with a little additional information and guidance, it was possible to activate the use of the tool and get the learning process started. When working and communicating with regions, you will see no arguments for using the PSM system. Instead, the benefits of using the system began to be seen very quickly and the activation of personnel certificates also started to rise.

4.3 Looking results from PSM tool promotion point of view

In the interviews, I pay attention to the fact that internal marketing plays a key role in the development of competence in defining the direction and in raising a person's motivation. Without proper marketing, it becomes difficult to motivate an employee to learn something new. It is important that the goal of the learning process is clearly defined, and the list of measures and requirements required to reach the goal is reviewed in detail. When a person has a clear picture of the learning path to follow, it is easier for him to maintain motivation. If the direction and the necessary measures remain unclear, motivation is easily lost and the learning process is either prolonged or, in the worst case, completely stopped. In the case of the PSM tool, it has been done so that the tool has been introduced to the managers first and they have named the key users for the system. Training for users has been organized to some extent and it is assumed that everyone will automatically adopt the new system. Not enough attention has paid to understanding the overall picture of the end users of the tool. Based on the interviews, it became clear that many of the end users are not aware of how the PSM tool is related to other tools used by the example company and how the systems support each other. However, users do not need a completely detailed process description, instead they want to understand the tool's operation in the big picture. The lack of training and the lack of

understanding the big picture have naturally reduced interest in using the tool. However, the use of the tool is at a satisfactory level worldwide, but the full level of use has still not been reached. In addition, there is still a shortage in the number of persons approved certificates. There are a lot of unfinished tasks, and their completion is slow.

Based on the interviews and the answers to the questions, it can be clearly seen that before the actual implementation, communication, and marketing of the product to the operational management of the regions must be taken care of. The management must understand the benefits brought by the new tool, as well as the daily routines and business of the region, as well as the impact on global operations. It must be noted that the management must be sell out the new tool and the operating model it brings with it to their subordinates and further to all end users. In addition, regions must select key users who will be trained to provide support to end users. It is important to pay attention to the up-to-datedness of the information and material to be shared and to ensure that the information is available to all those using the system. Information and high-quality material make it easier to learn and adopt the use of the tool, to monitor the training and competence levels of the resources. While studying the training material, I noticed flaws in several descriptions of the system and the information is scattered in places so that it is difficult to form an overall picture. Naturally, misunderstandings and mistakes in the use of the tool follow from the issues.

When operating at the user level, it is important that the system process is accurately described. The learning experience for users is more motivating when they have a clear understanding of the system's process. The set qualification goals, and their attainability should be clarified also. In the case of the PSM tool, the structure of the process is complex and understanding it partly required a lot of research from the end user. When learning is too difficult and time-consuming, users start to give up. In this case, the importance of supporting the learning process is also emphasized and in this case the position and importance of key users is emphasized. The regions must have named key users who are ready to support and solve the problems that have arisen. Naturally, the

training of key users and the up-to-date information must also be taken care of. In addition, key users must have support persons, defined as software developers, who are able to provide support when necessary.

4.4 Comparison of the results to the previous research

When I compare the results of the study with the conclusions of Wallo et al.'s study, they show similarities. Wallo et Al (2020) stated in their study that assessing the competence of HR professionals makes it difficult to do the job due to three main factors, which are:

1. Management lack of commitment and awareness.
2. Lack of proper metrics.
3. Absence of an evaluation process.

These findings are consistent with the results of this study. Based on the results of this study, it became clear that the management is not sufficiently committed to the assessment and development of competence. The metrics needed to evaluate the competence of the PSN control panel are also incomplete, and thirdly, the process of evaluating the competence of employees is not systematically structured, which can be seen, for example, in the selection and distribution of PSM roles being difficult. for employees.

Regarding the development methods of the PSM system, based on the survey, several points emerged, the most important of which were:

1. Establish easier usability of the tool,
2. Training options related to OJT
3. The structure of courses related certificates should be simplified.

These findings are consistent with Wallo et Al. (2020) of the results of the study with Kock & Al. (2006) stated in the results part of their study that only one factor does not necessarily affect the development of competence. In this study, it became clear that

competence development is approached in different ways and the results of the study are in line with their findings. In some cases, the development of an employee's skills is defined solely based on the company's business needs, and another way is to consider the employee's own development plans as well. Kock et Al. (2006) stated that the need for training arising from the needs of customers is often a sufficient reason for developing skills, although this should not necessarily be the case. In connection with this research, based on the feedback received from different areas, it has become clear on several occasions that in practice other needs are considered in the need for competence development and in defining the direction, such as the employee's own competence development. needs and long-term plans from the manager's direction. In addition, the competence acquired by the employee from elsewhere and its possible development are considered, so that the competence can also be used in the company.

In this study, the example company considers the needs of customers, and competence is mainly developed in accordance with business requirements. At this point, the results differ somewhat from those of Kock& Al (2006), because in the companies they studied, external requirements are not as important as in this study. This is since the example company under study operates in a very customer-oriented manner and constantly takes customer requirements into account. On the other hand, in some of the company's locations, the training plan also considers the employee's own plans for longer work assignments, not just the company's needs. In other words, there are also differences in the company's internal operating procedures.

At this point, the results are consistent with Kock et al. (2006) In the results of their study, they pointed out the positive effect of a favourable learning environment on learning outcomes. The results of this study are in line with Kock et al. (2006) from the observation that a favourable learning environment needs the support of a functioning management, a functioning support network, which also includes a network of key users and up-to-date training material. All these mentioned things came out clearly from the collected material.

As Wallo et al. (2020) highlighted in their research of importance of the local management support, they findings are in line with this research findings as well. The local management support role and related problems came out clearly. In addition, I noticed that different levels of supervisors had varying degrees of skill-related deficiencies. Although the top management was sufficiently well informed about the issues, there were gaps in competence at the next lower level. These shortcomings have naturally affected the degree of use of the tool in the regions because the local management has not had a clear picture of the necessity of the PSM tool and the benefits it brings. The above-mentioned findings are consistent with the results of the study by Kock et Al (2006).
Regarding the main development targets of the PSM tool, the study clearly revealed the most important development targets and three main points about the benefits of the PSM system:

1. The system helps supervisors and subordinates in managing and developing competence.
2. The tool gives a broader overview of subordinates' skills.
3. Helps to monitor the development of the employee's career path.

Furthermore, based on the collected observations, it can be stated that the tool works and is useful at all levels of competence management. Especially the work of those in the highest positions becomes faster and easier. The advantages of the tool are especially emphasized when managing a large group of employees. In addition, the management has better visibility for monitoring skill levels. It would be very difficult and therefore in many cases even impossible for large groups of employees to know how to manage data if the work had to be done manually.

In addition to the advantages mentioned above, the investigation revealed clear shortcomings regarding the use of the tool:

1. Development of training material
2. Designation of the support system and key users.
3. Better usability of the PSM tool.

The shortcomings are mainly due to insufficient marketing of the product, which includes informing about the benefits of the PSM tool as an essential part. When the PSM 1.0 system was put into use, things were a bit unfinished in many areas and, for example, the support functions were new, and not all areas had been assigned key users. For the future PSM 2.0 system, advance notification has been improved, which means that lessons have already been learned from the problems that emerged in connection with this study. It is important that key users are named, and that each area knows what to do if problems arise when using the system, as well as who to turn to if you need direct support in problem situations. In addition, insufficient information has also affected the management's poor level of knowledge about the following benefits of using the tool. The weak knowledge of the management naturally results in the lack of support from them. This emphasizes the point that information is key when looking at the matter from many angles.

In the study, the factor that essentially emerged that affects the usability of the PSM system is the management's lack of understanding of the system and its intended use. In several interviews, it became apparent that the management is not that well informed about what the system is used for and who uses the system, i.e., acts as end users. This observation is naturally related to the implementation process of the system and how communication has been handled in the initial phase and in different phases. The lack of understanding of the system has been a factor in the lack of management-level support and the slow increase in the system's utilization rate. The same conclusion about the necessity of management support and understanding the system in the big picture was reached (Kock et al, 2006). An observation very much in line with the results of their

study on this matter. Corrective measures have already been implemented during the investigation and the utilization rate has clearly increased.

On the other hand, the results revealed differences in understanding the use of the PSM tool and the benefits brought by the tool at the management level, which is partly explained by the variation in the quality of communication. There are similar skill gaps at the management level as there are PSM training levels for end users. The differences are explained by how the training and information sharing has been carried out and how attention has been paid to monitoring competence.

From the point of view of other organizations, the findings are important so that they know how to consider the shortcomings revealed in this study and address them already at the beginning of the project. The sharing of information into models should be considered and the organizations operating in different countries require close training instead of just training material and self-study. Country-specific requirements should also be better considered. Factors resulting from cultural differences and language skills are essential in terms of competence development. In addition, too optimistic expectations are often placed on English language skills, and based on that, the learning material is produced in English. In practice, however, in many countries learning is practically possible or implemented in the users' own mother tongue.

5 Conclusion and discussion

In this chapter, the first part examines the conclusions of the study, and the second part examines the validity and reliability of the study. In the third part, discussion and look at possible further research on the topic.

5.1 Conclusion

The availability of the reference material used in the study was limited. Therefore, I expanded the analysis of the material discussed in the literature review and thus obtained a strengthened theoretical framework.

When comparing the research results with the RBV theory, note that although the example company has special and valuable resources, the focus is on developing and maintaining the competence of traditional resources. The development and maintenance of resources creates a competitive advantage for the company, even if the competence is not unique, Bryman& Clark (2007) also state in their book. Naturally, competence development has a positive effect on employee motivation and retention in the company. However, in some areas the resources change as the skill level increases. The phenomenon occurs especially in countries where education is a prerequisite for career advancement.

The two main goals set at the beginning of the research were:
1. What are the most common problems in managing the skills and competences of the PSM tool?
2. What are the most specific areas of the PSM tool that are useful and what should be developed?

The RBV theory emphasizes the importance of preserving valuable and rare natural resources and utilizing the competitive advantage gained from them. The results of this

study revealed the regions' interest in developing resource expertise and maintaining expertise. Based on the company's documents and discussions, it was also revealed that in some areas turnover of resources is common if resources are not taken care of. Rare and valuable resources that have gone to another company are difficult to replace. The possible restoration of lost resources is also a difficult and expensive process. The analysis of the results gave an answer to the question posed by the objection.

First question: What are the most common problems with managing skills and competencies in PSM tools?

Based on the answers, it became clear that the PSM system was used regularly, regardless of the size of the organization, and PSM roles were mainly defined for resources, and the staff is aware of why the PSM system is used. After examining the case company documents and dashboards, it turned out that the Key performance indicator (KPI) of the PSM system is measurable and the case company has a reasonable dashboard system for monitoring KPI values. In addition, based on the evaluated documents, there are work processes for evaluating competence, regardless of whether learning takes place in the classroom or on the job (OJT).

As presented in the theoretical chapter, Wallo et al. (2020) stated in their study that there are three main factors makes the job difficult due to three main factors, which are:

1. Lack of management commitment and awareness.
2. Lack of appropriate metrics.
3. Absence of an evaluation process.

The results of this study confirm points 2 and 3 above. However, there is a noticeable difference in point 1. The results show that there are regional differences in the commitment and competence of local government. Based on the examined documents and research results, the tools and evaluation processes needed to measure competence are in order.

In an earlier study presented in the literature review chapter, Kock et al. (2006), emphasized the importance of the learning environment in terms of learning outcomes. The results revealed shortcomings in the availability of learning material and suggestions for improving the quality. Several respondents pointed out that they have been able to improve the competence management of their subordinates with the help of the PSM tool. In the absence of detailed training material, users have had to learn the features of the system themselves. This naturally causes differences in skill levels. Naturally, some learn better by using the program and others lose their motivation to learn. However, the interviews showed that some users felt that learning to use the PSM tool while using it was a meaningful and natural way of learning.

Based on the answers, the benefits brought by the PSM system had not been internalized in all areas. PSM system training was not successful in all regions or countries, which was evident from the responses and interviews. However, through self-study, the users of the system had gained a good understanding of the system's advantages. The connection of the system to other systems and the importance of a high-quality PSM database were also well understood.

Second question: What are the most specific areas of the PSM tool that are useful and what should be developed?

Based on the results, it can be concluded that there are three main advantages of the PSM system from the end user's point of view which are listed below:

1. The system helps supervisors and subordinates in managing and developing competence.
2. The tool gives a broader overview of subordinates' skills.
3. Helps to monitor the development of the employee's career path.

In addition, based on the collected observations, it can be concluded that the tool works well and is useful at all levels of competence management. The work of those in management positions goes faster and easier. The advantages of the tool are especially emphasized when managing a large group of employees. In addition, the visibility of the coordinators for monitoring the skill level is better. It would be very difficult and, in many cases, even impossible for large groups of employees to know how to manage data if the work had to be done manually.

Analysing the responses collected in the survey and interview, the three most important PSM system development targets emerged, which are listed below:

1. Development of training material
2. Designation of the support system and key users.
3. Easier usability of the tool.

End users especially appreciate the ease of use of the system. With the new system, it is already clear that the feedback received from the field has been considered and usability has been changed in an easier direction.

Improvement was hoped for in the training material. The third important point is support for the use of the system, securing the system and naming key- users by region. The competence of key users must be taken care of. In addition, it is important to convey information through key users to end users.

The resource-based view (RBV) theory was introduced in the theoretical chapter. The RBV (Barney, 1991), model emphasizes the uniqueness of the product and the importance of resource development from the perspective of the company's needs. It is very important that the valuable and rare skills of the resources are identified, and the resources are retained. Developing the skills of the resources brought out in the

interviews in accordance with both the company's and the person's own wishes creates a motivating learning environment and increases the person's motivation to develop skills.

Based on the results of the research, competence is developed in accordance with the company's business needs. The RBV theory is an integral part of the research because identifying valuable and rare resources is important for the company. The PSM tool helps managers of different network branches to manage and detect valuable resources and develop them further. According to the RBV theory, it is difficult to imitate the special competence of rare resources, but it can still be used to develop the competence of ordinary resources, for example through the OJT learning process.

On the other hand, it must be considered that the company under study is not exclusively dependent on RBV resources. The company, on the other hand, aims to also improve its traditional resources with the help of the PSM tool. The observation is in line with the criticism presented by Bromiley& Rau (2016), according to which the RBV model focuses only on rare, valuable, and difficult or impossible to copy resources, which is not necessarily the best way to work.

However, it is noticeable that attitudes are changing. The studies related to hard and soft skills presented in the theory section indicated an increase in the appreciation of soft skills. The results of this research revealed that the development of employees' competences is not considered in all areas only from the perspective of the company's needs, instead the employee's own long-term competence development direction and interest is considered.

In the study, the factor that significantly affects the usability of the PSM system is the lack of understanding of the system and its purpose, which is affected by the support of the area's management, the designation of designated key users and the training of personnel. The same conclusion about the necessity of management support and

understanding the system in the big picture was reached in their study (Kock et al. 2006), which was presented in the theory section. An observation that is very consistent with the results of their study on this issue. Corrective measures have already been started during the investigation and the utilization rate has clearly increased.

From the other organizations point of view, the findings are important so that they know how to consider the shortcomings revealed in this study and address them already at the beginning of the project. The sharing of information into models should be considered and organizations operating in different countries require close training instead of just training material and self-study.

Based on the results, to improve the level of expertise and know-how, it is worth considering a better sharing of information when starting the implementation processes. The shared information and material should be detailed, but it is also worth making sure that the overall picture of the product can be understood. During the research, several points emerged that some parts of the PSM tool were well understood, but some parts and their existence were not widely understood. It is also important that the end users understand where the PSM tool is useful in their own work and how the benefits of the tool affect the whole.

After studying the results, I state that it can be emphasized that there are clear differences in understanding the necessity of the PSM tool. Some users are aware of the benefits brought by the tool in the work of their subordinates. However, there are also users who do not have an idea of the benefits of the tool in their own work, and they do not have a clear picture of the benefits of the tool in the big picture. The observation mentioned above confirms the observation made earlier about the variability of management support.

In discussions with users of the PSM tool, it became clear that there are many misunderstandings even in basic matters. The problems start with choosing the right PSM role. The previous system had too many PSM role options and was susceptible to confusion. There are also cases where the PSM role has been selected entirely under the wrong product line. The end users have clearly brought up the problems related to the basics and the fact that support functions and key users are needed more than estimated.

5.1.1 Development suggestions

Since this research was done from the user's point of view, the suggestions for the development of the PSM tool are listed from their point of view. The study emphasized that: 1. The system should be easier to use. 2. The support system must be functional, designated by key users. 3. Training material should be developed to make it easier to understand.

The case company already has functioning systems for monitoring competences. The user-level control of the PSM system is a control panel, but it still does not meet the requirements and needs of users in all its features. Not all end users are aware of the features of the PSM system and their usage possibilities either. Additionally, the PSM dashboard has been developed and is available to users but has not been promoted well enough. Based on the results of the study, more attention should also be paid to information and training, not only for the PSM system, but also for other systems and tools. Looking at the results from the perspective of the process and how PSM processes could be developed with more consideration from the user's perspective, the study revealed that the learning development process should be streamlined - PSM 1.0 is too minimally complex a process to manage and requires a lot from the end user. When doing this research, the PSM 2.0 system has been implemented. The new system has already partially considered the user's wishes for ease of use. However, the results of this study should be considered when developing the 2.0 version further. Also, the comparison of 1.0 and 2.0 could be considered more in future studies after the completion of 2.0.

According to the RBV theory, it is important to identify the valuable and rare skills of resources. Identifying valuable and rare resources is also an issue that the PSM tool provides assistance with but does not fully resolve the issue. The possibilities of the PSM tool in the management and identification of expertise must be further developed and the instructions updated, so that end users know how to use the possibilities offered by the tool more effectively. Further studies should also pay more attention to how resource expertise has been identified and how the identification process could be made more efficient. It is very important that the level of people's competence is known to the management so that the use of resources can be planned as efficiently as possible.

This study investigated the influence of cultural factors on the use of the PSM system. In future studies, more attention should be paid to the challenges of usability brought by different cultures and possibly a separate study should be conducted solely from the perspective of different cultures.

5.2 Discussion

This chapter consider with the practical implications, the generalizability of the results, and a discussion of possible further research on the topic regarding issues that could not be clarified in this study or were limited to the outside of the study.

5.2.1 Practical implications of the results

The results of the research can be used in the example company in the development and implementation of the next generation PSM system. Many people use the system to determine training needs for PSM roles and resources. The functionality of the system from the end user's point of view is very important when aiming for a high utilization rate. When developing a new PSM system, the PSM system's weaknesses and suggestions for improvement must be considered. The goal is to ensure that the errors and shortcomings

of the old system are not repeated in the new system. Gathering information from the global field is time-consuming and therefore difficult to implement in connection with every development project. However, with the help of research, it is possible to plan further studies or collect similar data from people using different systems.

This study shows which points in the PSM system should be developed and which are the biggest problems from the user's point of view. There are country-specific differences in the selection of the PSM role and the design of the training structure. Hard and soft skills and their needs are emphasized differently by region. That is why it is important that the case company knows the operating methods of different countries, so that the system can be modified so that use runs as smoothly as possible. Conflicts can cause the usage rate of the PSM tool to decrease. By evaluating the resources and their expertise accurately from RBV's point of view, efforts must be made to better identify special and valuable expertise. The research shows that part of the region has already made further development plans considering the resources own ideas, although the focus has been on companies that meet the requirements.

5.2.2 Generalizability of the results

According to Simons (2009, 163), in a case study it is not so important to generalize the result of the study, but instead to present how the results of the study can be used and utilized in other contexts and studies. In addition, it can be stated that due to the nature of the case study, the results of the study can only be partially generalized. The number of comparative studies was limited, and the available research reports are partly of a general nature. Skills management and competence development at a general level with the same principles, regardless of the field. However, a direct comparison with a company manufacturing similar products would enable a deeper interpretation. Comparing the results of this study with similar studies, I noticed that the results are generally uniform, regardless of the researched field. The same general principles are repeated in the management and development of employee learning. However, when you go deeper,

differences start to appear and therefore the results of the study cannot be completely generalized.

5.2.3 On Job Training (OJT)

Based on the research data, it can be stated that the on-the-job learning system (OJT) is also an essential place in terms of the benefits brought by the PSM system. The advantages brought by the OJT learning method are significant from many points of view. For example, implementing training in practice is easier and more cost-effective. It is essential that end users are aware of the possibility of OJT in the system and that they have been trained and advised on where and how documents related to the study course should be processed. The marketing department naturally plays an important role in increasing the utilization rate of OJT. Information about the benefits of the OJT learning path must be well documented and the information must be presented in a high-quality manner, and the results of OJT learning should be evaluated in the same way as classroom training.

5.3 Future research

The model used in the study to collect data using a questionnaire was a viable method because the people using the PSM system are physically located in different countries. Interviewing, on the other hand, is not a recommended way to collect information in possible follow-up studies, at least on a larger scale. This study also interviewed all persons to whom the questionnaire was sent. It is a good way to strengthen and deepen the quality of the answers, but it is laborious and takes a relatively long time. If there are more than 10 interviewees and each interview lasts from 45 minutes to one hour, it is too time-consuming. Instead, selected interviews are recommended to complement the collected information.

Based on the results of the study, it can be concluded that the PSM system itself is functional and end users see it as a significant advantage in monitoring education levels and planning training paths. This study was an example of the company's first study of the PSM system from the user's perspective. Since the material was collected only from people using the PSM system, the study did not consider local management and personnel to be trained. The determining factors of the PSM system were also not considered in the study.

Those interviewed for the study worked in the PSM system in tasks related to their work. The research did not interview managers of local industries, in which case it would be possible to get a different perspective on the research. The study also did not collect information from the staff being trained and their experiences with the PSM system. In possible follow-up studies, these research directions could be considered and made into separate studies.

When I did my research, users often brought up the need for a tool to meet their needs. If the research were to go further, it would be interesting to investigate what regional differences there are in the use of the tool and how feasible the various changes would be. However, this study was limited and did not allow to delve into all the details. In a possible follow-up study, it would be possible to focus on a narrower area and to focus more deeply on the material already collected and with the help of additional material to analyse what measures would be needed to implement each requirement in the area and to what extent it would be possible to implement the changes.

By comparing the results with previous studies on the subject, I notice that there are also differences in the internal training methods of the example company. This came up both in the survey responses and in the interviews. Consider future research, it would be interesting to find out in more detail to what extent there are differences in operating methods from country to country and how many operating models are in use worldwide in different organizations in the company. In addition, it would be interesting to find out

what measures would be required to unify the methods of operation and whether the methods of operation have an effect in terms of the usability of the tool and the benefits obtained from it.

In connection with the interviews, there were suggestions of persons who could also be interview, but the idea had to be abandoned for scheduling reasons. Since the interviews were conducted on a global level, the challenges caused by time differences and the time available to the interviewees had to be considered so that the interviews did not cause too much strain on their schedules.
As organizations change and the number of start-up packages and training needs of new users is also increasing. Key users of PSM systems are not in all respects at the level that is required of key users to be able to provide initial training to new users. The systematic naming, training and regular monitoring of key users is an important skill development support in the process and should be given more attention. This is something that needs to be paid attention to in possible further research.

The attitude to work is naturally caused by many factors, one of the most essential of which is cultural factors. This is something that should be studied as a whole and as a separate study. Also consider how to change the attitude to not complete task in price but keep up effect way of working.

During the research, several opportunities came up to conduct further research using different perspectives. By limiting the topic to a narrower area, for example Asian or African regions only and taking the cultural perspective more strongly into account, it would be possible to get different results on the topic. Available time limited conducting interviews on a larger scale. With a larger sample it would be possible to get a more accurate picture of the PSM tool's problems and areas for improvement. The study is the first conducted for Example Company's PSM system, and the collected material opens the possibility to continue and expand the study in the future.

In this study, I did not delve into the problems of the WeLearn system, but possibly in future studies, the WeLearn system could also be examined more closely. The WeLearn system has a direct impact on the usability of the PSM system, so it would even require its own separate study to clarify things.

A hard and soft skills approach could be considered more in future research on this topic. The importance of hard and soft skills in today's working life has been emphasized. Therefore, their impact on the management and development of competence should be examined more closely also from the perspective of the PSM system.

References

Ahn, S., Kim, K-S., Lee, K-H. (2022) Technological Capabilities, Entrepreneurship and Innovation of Technology-Based Start-Ups: The Resource-Based View. Journal of Open Innovation.

Retrieved online: Technological Capabilities, Entrepreneurship and Innovation of Technology-Based Start-Ups: The Resource-Based View (sciencedirectassets.com)

Araújo, J. & Pestana, G. (2017). A framework for social well-being and skills management at the workplace. International Journal of Information Management Volume 37, Issue 6, December 2017, Pages 718-725

Retrieved online: https://www.sciencedirect.com/science/article/abs/pii/S0268401217305996

Bak, O., Jordan, C., Midgley, J. (2019). The adoption of soft skills in supply chain and understanding their current role in supply chain management skills agenda: A UK perspective. Benchmarking: An International Journal. ISSN: 1463-5771

Retrieved online: https://www.emerald.com/insight/content/doi/10.1108/BIJ-05-2018-0118/full/html.

Barney, J. B. (1991), Firm resources and sustained competitive advantage, Journal of Management, 17(1), pp. 99-121.

Barney JB (1997). Gaining and Sustaining Competitive Advantage. Addison-Wesley: Reading, MA

Barney, J. B and Clark, N. (2007) Resource-Based Theory: Creating and Sustaining Competitive Advantage. Oxford University Press.

Bromiley, p., Rau, D. (2016) Operations management and the resource based view: Another view. Journal of Operations Management. Volume 41, January 2016, Pages 95-106

Retrieved online: https://www.sciencedirect.com/science/article/abs/pii/S0272696315000984

Browaeys, M. & Price, R. (2015). *Understanding cross-cultural management* (Third edition). Pearson.

Bryman, A. (2008a) *The end of the paradigm wars*, in Alasuutari, P., Bickman, L., and Brannen, J. (eds.) The Sage Handbook of Social Research Methods, London, Sage.

Bukartaite R., Hooper D. (2023). Automation, artificial intelligence and future skills needs: an Irish perspective. European Journal of Training and Development, 47 (10), pp. 163 - 185, Cited 0 times. DOI: 10.1108/EJTD-03-2023-0045

Carmines, E. G. and Zeller, R. A. (1979). Reliability and Validity Assessment. SAGE Publications, Inc.

Champy-Remoussenard, P. (2005). Theories of activity between work and training. Revue Savoirs, 11–50.

Cohen-Scali, V. (2012). Competence and Competence Development. Verlag Barbara Budrich.

Davis, G, F., DeWitt.T (2021) Organization Theory and the Resource-Based View of the Firm: The Great Divide Journal of Management Volume 47, Issue 7, September 2021, Pages 1684-1697 © The Author(s) 2021

Retrieved online: https://doi-org.proxy.uwasa.fi/10.1177/0149206320982650

Ellström, Per-E., Kock, H. (2008). Competence development in the workplace: concepts, strategies and effects. Asia Pacific Education Review Asia Pacific Education Review, 2008, Vol 9 No1, p.5-20

Retrieved online: https://link-springer-com.proxy.uwasa.fi/article/10.1007/BF03025821

Eraut, M. (1994). Developing professional knowledge and competence. Repr. 1996. - Repr. 2000. - Repr. 2001 (Routledge Falmer). Transferred to digital printing 2010.

Freeman R.E., Dmytriyev, S.D., Fhillips, R.A. (2021) Stakeholder Theory and the Resource-Based View of the Firm. Volume 47, Issue 7. Sage Journals

https://doi.org/10.1177/0149206321993576

Green, F. (2011) What is Skill? An Inter-Disciplinary Synthesis published by the Centre for Learning and Life Chances in Knowledge Economies and Societies at: http://www.llakes.org

Gronau, N., Uslar, M. (n.d.). Requirements and recommenders for skill management. Retrieved online: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=164c1c695f6fbcff1e312379c316205fc07adb71

Gillham, B. (2000) Case Study Research Methods, London Bloomsbury Publishing, 2010

Hirsjärvi, Sirkka,. Hurme, Helena, (2022). Tutkimushaastattelu : teemahaastattelun teoria ja käytäntö. P. 80. Gaudeamus Oy 2. painos.

Kislik, L (n.d.) Workplace Wisdom Blog: How to Help Your Employees Be More Self-Reliant

Retrieved online: https://lizkislik.com/how-to-help-your-employees-learn-self-reliance/

Kock, H., Gill, A., Ellström, P-E. (2006) Practices of Competence Development in the Workplace: Relations between learning environments, strategies and learning outcomes in SMEs. ECER, Geneve

Laker, D.R. and Powell, J.L. (2011), The differences between hard and soft skills and their relative impact on training transfer. Human Resource Quarterly, Vol. 22 No. 1, pp. 111-112

Retrieved online: https://www.researchgate.net/publication/230377527_The_Differences_Between_Hard_and_Soft_Skills_and_Their_Relative_Impact_on_Training_Transfer

Lista, A.P., Tortorella G.L., Bouzon M., Thürer M., Jurburg D. (2022). Soft and hard skills development in lean management trainings. International Journal of Lean Six Sigma, 13 (5), pp. 1137 – 1158

Retrieved online: https://www.emerald.com/insight/content/doi/10.1108/IJLSS-06-2021-0116/full/html

Lockett, A., Thompson, S., Morgenstern, U. The development of the resource-based view of the firm: A critical appraisal. Retrieved online: https://doi.org/10.1111/j.1468-2370.2008.00252.x

Mitchelmore, S., & Rowley, J. (2010). Entrepreneurial Competencies: A Litera-ture Review and Development Agenda.

Retrieved online: https://doi.org/10.1108/13552551011026995

Nuno, C., Nelson, A. (2012) Valuable, rare, inimitable resources and organization (VRIO) resources or valuable, rare, inimitable resources (VRI) capabilities: What leads to competitive advantage? African Journal of Business Management Vol. 6(37), pp. 10159-10170, 19 September 2012 DOI: 10.5897/AJBM12.295 ISSN 1993-8233 ©2012 Academic Journals

Retrieved online: http://www.academicjournals.org/AJBM

Palmi, P., Errico, F., Fortunato, L., Fietze, S., (2020). Managing the professional skills of the future: A model to support competence management. Law and Economics Yearly Review Volume 8, 2020

Puusa, A., Juuti, P. (2020). Laadullisen tutkimuksen näkökulmat ja menetelmät

Gaudeamus

Ritchie, D, A., Scheider, W. (2021). The Oxford Handbook of Oral History. edited by "Interviewing in Cross-cultural settings" Page 51. Oxford University press 2011.

Schneider, K. (2019). What Does Competence Mean? Scientific Research Vol.10 No.14(2019). Retrieved online: https://www.scirp.org/html/4-6902933_96778.htm

Schneider, K.,Schiller, F. (2019). Scientific Research What Does Competence Mean? Vol. 10 No.14(2019), Article ID:96778

Schoonenboom,J., Sligte, H., Moghnieh, A., HernÃ¡ndez-Leo, D., Stefanov, K., Glahn, C., Specht, M., Lemmers, R. (2008). *Supporting life-long competence development using the TEN Competence infrastructure: a first experiment*. iJET Volume 3, Issue 2008, Jul 16, 2008 ISSN 1863-0383

Retrieved online: https://www.learntechlib.org/p/45174/.

Schultheiss, T., Backes-Gellner, U. (2022) Different degrees of skill obsolescence across hard and soft skills and the role of lifelong learning for labor market outcomes. Industrial Relations: A Journal of Economy and Society 2023, Vol.62 (3), p.257-287

Retrieved online: https://onlinelibrary.wiley.com/doi/pdfd-

irect/10.1111/irel.12325

Simons, H. (2009). Case Study Research in Practice. SAGE Publications Ltd.

Someshwar, R, Jianmin, T., Weimin, W., (2022). The Importance of Skills for Innovation and Productivity. Retrieved online: IPM 4 rao.qxd (researchgate.net)

Stake, R. E. (2005). Qualitative case studies, pp. 443-466, in a book ed. by Denzin, N. K, & Lincoln, Yvonna S. The Sage Handbook of Qualitative Research. Third Edition. Sage. Thousand Oaks, London, New Delhi.

Stevenson, C. (2022) 4 Ways to Improve Employee Skill Development. Retrieved online: https://trainingmag.com/4-ways-to-improve-employee-skill-development/

Taylor Coates, T., McDermott, C. M., (2002). An exploratory analysis of new competencies: a resource-based view perspective. Journal of Operations Management. Volume 20, Issue 5, September 2002, Pages 435-450. Retrieved online: https://doi.org/10.1016/S0272-6963(02)00023-2

Vinot, D. & Roger, A. (2019). Skills Management. Wiley-ISTE.

Wallo, A., Kock, H., Lundqvist, D., Coetzer, A. (2020). Understanding Factors That Enable and Inhibit Assessment of Outcomes of Competence Development. Sage 2020

Zahra, S.A, (2021). The Resource-Based View, Resourcefulness, and Resource Management in Startup Firms: A Proposed Research Agenda. Journal of Management Volume 47, Issue 7, September 2021, Pages 1841-1860 © The Author(s) 2021, Article Reuse Guidelines. Retrieved online: https://doiorg.proxy.uwasa.fi/10.1177/01492063211018505

Appendix 1. PSM Questionnaire sent to interviews

PSM_Questionnaire.docx

PSM Questionnaire

1. How many billable FS resources you have in your organization.
2. How often you use Professional skills management tool (PSM) in your work?
    a. Daily?
    b. Weekly?
    c. Monthly?
3. Have your organisation billable resources all PSM role selected? If not, why?
4. Have people in your organization aware of benefits of the PSM tool?
5. Do you think PSM toll is user friendly? Scale 1 to 5 (1= disagree, 5= agree)
6. Do you prefer PSM tool structure is suitable for your use? Scale 1 to 5? (1= disagree, 5= agree)
7. Are you get proper training for the PSM tool?
8. How well you aware of features on the PSM tool? Scale 1 to 5 (1= disagree, 5= agree)
9. Are you aware how PSM database is connected to other tools like SRR?
10. What would you like to change in the PSM platform?
11. What benefits you see usage of the PSM tool?