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Succesful knowledge sharing practices that boost group performance

Master thesis in collaboration with

Novo Nordisk

Operations and Innovation Management – Global Management

Aalborg University, Copenhagen

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Abstract

The thesis work is about the solutions to tackle the issues, standing as hurdle in achieving the organizational goals. Knowledge sharing is considered an important asset of an organization because it can boast the performance of a team and help to achieve their objectives.

After identifying the barriers with the help of SECI knowledge sharing model, the effects which they have on the decision making are analyzed – then recommendations are proposed based on Sunstein and Hastie (2015) theory.

The collected data in the forms of interviews of the ROS project group along with empirical data obtained from observation is used to find appropriate recommendations.

In the conclusion a brief explanation of SECI model in identifying the barriers, furthermore Tuckman`s model for understanding behavior of a group in a particular stage of development along with Sunstein and Hastie (2015) theory for solution finding is documented.

Acknowledgments

I would like to thank my supervisor for his guidance and encouragement to make me work hard and smartly. I found him very helpful while discussing the issues in this dissertation work. His critical comments on my work certainly made me think of new ideas and techniques in identifying barriers within knowledge sharing practices. Finally, it should not be fair not to acknowledge the support of my parents and friends, who stood behind me all the time.

Abbreviations

NN	Novo Nordisk
SOP	Standard Operating Procedure
ROS	Reduce Overload of SOPs
CEO	Chief Executive Officer
DFP BA	Diabetes Finished Products Bagsvaerd
e.g.	Example given
KPI	Key Performance Indicator
PS	Product Supply
DIKW	Data-Information-Knowledge-Wisdom
KS	Knowledge sharing
KM	Knowledge Management
SECI	Spiral of knowledge creation model

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1. Introduction

Novo Nordisk (NN) is a global healthcare company that goes back more than 90 years. NN is helping people to defeat serious chronic conditions such as: diabetes, hemophilia, growth disorders and obesity. NN is headquartered in Denmark and has more than 42,000 employees in 77 countries and sells its products in more than 165 countries (Novo Nordisk , 2018).

The pharmaceutical industry is continuously developing in response to the global market. In all pharmaceutical manufacturing companies, complying with a series of principles required to assure the high quality of their products is seen as mandatory (ppt. slides ROS).

The safety for human consumption of the manufactured products which NN offers to their customers represents a significant matter. Therefore company`s culture is to always train the employees before they perform any task (ppt. slides ROS). A very important responsibility which employees have while working at NN is to read and understand a certain amount of instructions tutorials known as SOPs before performing a certain task at work (ppt. slides ROS). SOP (Standard Operating Procedure) is a group of instructions which are helping the workers to understand and perform their operations, by complying with the rules of the organization and following industry regulations (ppt. slides training).

1.1 ROS project in all NN sites (Reduce Overload of SOPs)

NN has a highly professional environment which is engaging employees working on different key strategic projects across the organization. One of the important ongoing projects is known under the name of **ROS project**, initials coming from **Reduce Overload of SOPs**. Lars Fruergaard JørgenseN, the President & CEO (Chief Executive Officer) of NN raised a state of urgency and awareness about the SOP overload problem towards all the NN managers (ppt. slides ANQR).

As it was explained before, training employees is very important in order to make sure that workers understand how they have to perform on the work field for the delivery of quality products in the market (ppt. slides ROS). Overloading employees with too many unnecessary SOPs is seen as a major problem which needs to be solved because it`s representing a compliance risk. If the rules and regulations are not followed properly, the quality of the products risks to be affected (ppt. slides ANQR).

The overload with SOPs problem was raised by the CEO of the company on December 2015 and since then initiatives in different areas in NN were taken by employees in order to solve the issue (ppt. slides ANQR).

In Product Supply more specifically DFP BA, Management area, being part of Diabetes Finished Products in Bagsvaerd, the work on ROS project is still in progress.

1.2 DFP BA, Business Support, Training team

The goal realization of ROS project in DFP BA, Management area is to reduce SOPs and the project has two KPIs set by Product Supply (PS). A KPI is a key performance indicator who helps an organization to measure and evaluate how successful the objectives are. The two KPIs settled by PS in DFP BA, Management are presented as following:

1. KPI1 Reducing SOPs by 15% Baseline 92 to 79
2. KPI2 Build/sustain local SOP assignment process

DFP BA, Management area is divided in other 9 departments, each department having around 4 teams within. DFP BA, Business Support, Training team is responsible for DFP BA, Management area, building and planning a structure for training the employees from the 9 departments. It also includes optimizing the processes of training the employees, therefore DFP BA, Business Support, Training team is responsible for taking action regarding ROS project when it comes to DFP BA, Management area.

As the Training team is conducting ROS project, different actions had been arranged since September 2016. In the first seven months there have been very few activities such as organizing workshops with specific local teams from each department of DFP BA, Management area. As the time passed by, the team realized that something was not going right, since their efforts didn't have success and didn't have proper results on ROS project. Therefore it was necessary to have a clear direction and a plan on how to work on ROS project in DFP BA, Management area.

1.3 ROS project group in DFP BA, Management area

Because of the fact that there was no considerable progress on ROS project, after seven months, in March 2017 the project coordinator got trained on how to plan and organize big projects. In regards to what he learnt from training, he decided to form a small group together with the Area Training Supporters and along with the Leader of the Training team.

Therefore the project group working on ROS project in DFP BA, Management area, was formed seven months later in an official way and the project organization was formed as in the following Figure 1:

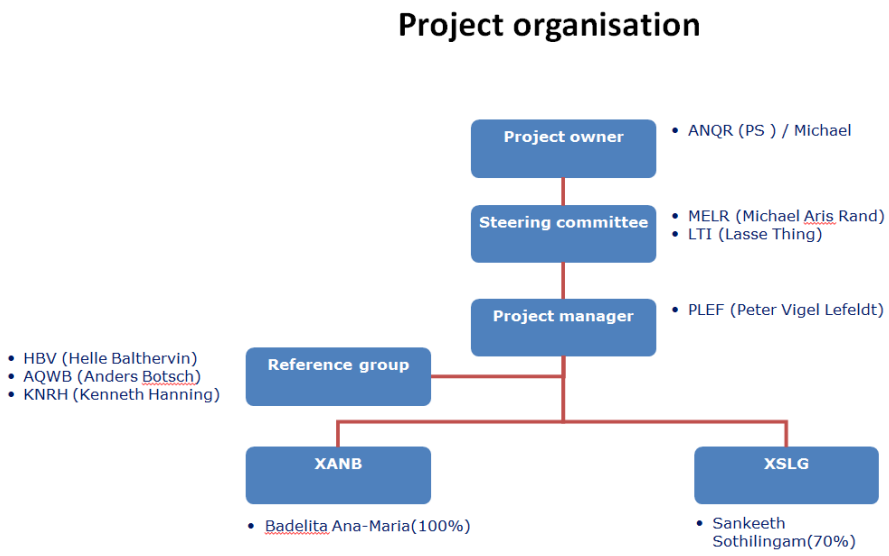


Figure 1. Project organization of ROS group. Source: (ppt. documents ROS)

ROS project owner is represented by top management of Product Supply division of NN seen as PS in the scheme diagram. The steering committee is being represented by the Director of DFP BA, Management area from PS division and the Leader of Business Support, Training team. Most important group members are constituted by the "Reference group". They are the Area Training Supporters, each one being in charge with three departments from the DFP BA, Management area. The project coordinator is seen as the project manager which also has two internees helping with different special tasks on ROS project.

Research question

The most critical issue for the formed project group was that they were not achieving the desired organizational goals and the SOP overload problem was continuously persisting in DFP BA, Management area (ppt. documents ROS). The "Reference group" realized that the possible reason, why there was no significant progress could be standing in the interactions taking place and in the way they were exchanging information. They feel that "Very clear communication…still lacking that. (I) don't think we do enough communication. So (we) need to be clear in (our) communication. And especially with a big project like this, (we) need to have very clear communication" (Appendix 1, pp. 76).

Within each organization the individuals communicate and interact to one another and the relational approach needs structured practices of knowledge sharing. Therefore the knowledge can be successfully linked up among individuals (Huysman & Wit, 2002). As knowledge is a critical resource for an organization there is a need to effectively exploit it. Knowledge sharing is described in the literature as being critical for achieving knowledge creation (Chang, 2005). Many researchers has proved the fact that achieving knowledge sharing is having advantages including team performance, a faster completion of development projects, reductions of cost (Mohapatra, Agrawal, & Satpathy, 2016). Thereby if the members of the group would efficiently share their knowledge will help them to perform better and achieve their objectives in what concern ROS project which they are working on.

Already existing knowledge and interaction within a group is what creates a good environment for the individuals to share their knowledge. Each of the member within a group have respective capabilitites and based on this fact, a group is developing knowledge for how to organize their activities (Niedergassel, 2011). Because knowledge sharing is vital to achieving success, explicating the existing practices of knowledge sharing would give the opportunity to identify possible flows which afterwards can be overcome and knowledge sharing enhanced.

Many organizations have put a lot of effort, time and money into taking actions to develop systems to facilitate the storage and distribution of knwoledge. As a result of failing to share knowledge at least $31.5 billions are estimated to be lost per year by Fortune 500 companies because of different reasons (Kharabsheh, Bittel, Elnsour, Bettoni, & Bernhard, 2016). Also there are many publications such as Davenport and Prusak 1998, Weggeman 2000, KMPG 2000 that talk about the difficulty to introduce and achieve successful knowledge sharing (Huysman & Wit, 2002).

Therefore the author of the thesis was interested to make a research on how efficient flow of knowledge sharing in the ROS project group can be achieved, so that it can help to accomplish their organizational goals (desired KPIs) regarding ROS project.

By focusing on what was discussed above the research question can be formulated as follows:

How knowledge sharing practices can be facilitated between members of ROS project group and how this can help the group to make better decisions so that they can accomplish the organizational goals?

In the following chapter the delimitation in regards of the research question are made, followed by the literature review, methodology and analysis.

Delimitations

Even though ROS project emerged in whole NN organization, this research is focusing only on Business Support, Training team working on Reducing SOPs project within their division which is DFP BA, Management. Other divisions might have different strategies and ways to manage the specific project.

Business Support, Training team will not be analyzed regarding their knowledge on the content of SOPs. The content of SOPs for different teams and their operators represents a limit which cannot be touched since there is a need of content knowledge awareness.

By enhancing their knowledge sharing practices is just one perspective to look at in order to help ROS group members to achieve their organizational goals by taking the right decisions.

The models` used focus was only on analyzing knowledge sharing by looking at group level.

In the literature it is explained how organizational culture can lead into knowledge sharing behavior and can be seen as a motivation, since knowledge is having significant influence in an organization operations (Witherspoon, Bergner, Cockrell, & Stone, 2012). Change management theories couldn't be applied since NN is a big organization and the culture which everybody needs to follow is settled from the above.

2. Literature review

The chapter will contribute to the research with an understanding upon the theoretical concept of knowledge sharing together with its dimensions. Other areas which are in relation with the research question will also be discussed such as group development life-cycle stages; and the barriers that might appear between members of a group.

2.1 Definition of knowledge

Davenport, De Long, and Beers (1998) explain that the term **"knowledge"** represents a "high-value form of information". The term knowledge is different than information and the Data-Information-Knowledge-Wisdom (DIKW) model come much closer to explain what knowledge actually is and how it can be differentiated within the spectrum (Niedergassel, 2011). The DIKW hierarchy will be described further.

2.2 Data-Information-Knowledge-Wisdom hierarchy (DIKW)

The development of the **Data-Information-Knowledge-Wisdom hierarchy (DIKW)** it's a recognized model in knowledge literature illustrated in Figure 2, which is used to explain the differences among the implied levels (Niedergassel, 2011).

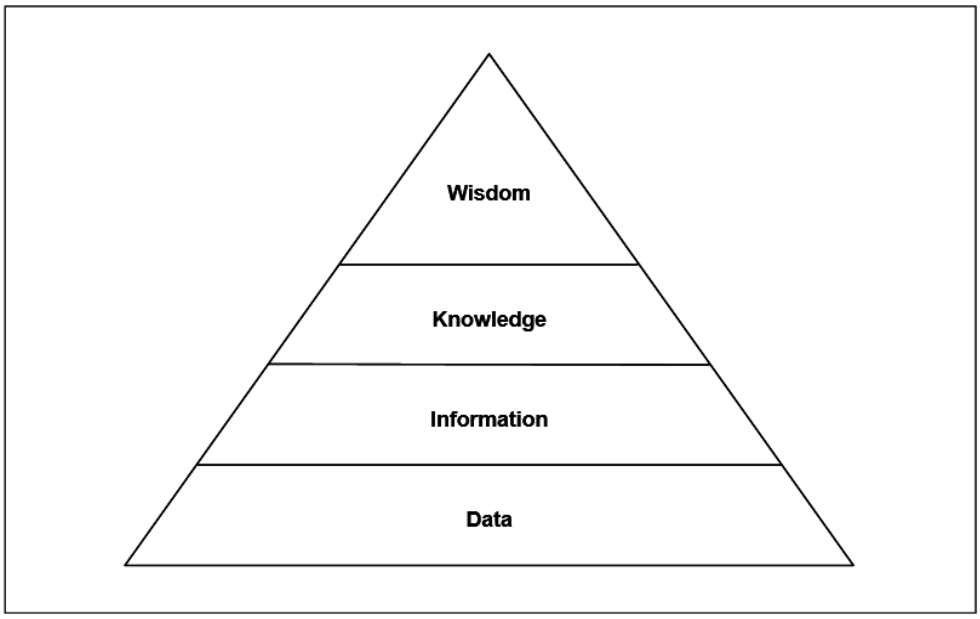


Figure 2. The Data-Information-Knowledge-Wisdom hierarchy. Source: (Niedergassel, 2011)

Many different hierarchical models proposed processes that convert data into information and information into knowledge. Rowley did an analysis on several studies from the literature, having the aim to understand the differences among the models proposed and to develop a common approach among them. She showed that the elements of the hierarchy: data, information, knowledge and wisdom are the common elements appearing, always arranged in the same order. Some authors believe that the higher elements can be defined in terms of the lower elements and some argue the reverse approach, that data can only emerge after the information is there and information can only emerge after knowledge (Niedergassel, 2011).

Data is a representation of a large amount of storied facts, quantitative or numerical raw material. The interpretation of data require human judgment, that´s why may differ from one person to another. Gathering the relevant data in a particular order and form is transforming the data in knowledge (Rayudu, 2010).

From this relevant knowledge, particular pieces of **information** can be extracted when needed. Therefore the meaningful form of data organized in a proper way is considered as information (Rayudu, 2010).

2.3 Knowledge dimensions

In the next section, essential elements which characterize knowledge will be emphasised in order to understand the differences among them. Since the focus of the thesis is on the current knowledge sharing practices within the ROS group, it is considered important to acquire more information about the existing types of knowledge. In order to propose to ROS group with appropriate recommendations, it is necessary to analyze in details what exactly needs to be enhanced in their current practices.

2.3.1 Tacit and explicit knowledge

Taking the simple example of riding a bicycle, both terms can easily be explained. Many people have the ability to ride a bicycle and even though they can be very good at they will find it difficult to explain to other people how they actually do it. Therefore some people might posses the knowledge but is simply too hard to articulate it and this is what defines **tacit knowledge**. Another important characteristic about tacit knowledge is that it is rooted in an individual`s values, beliefs, experience in a specific context. From here it is derived the term of embodied knowledge which explains that tacit knowledge it is linked to individual`s minds (Niedergassel, 2011).

Explicit knowledge on the other way refers to knowledge that is easy to be articulated, transymted and stored using electronic media, such as libraries or archives (Niedergassel, 2011).

Both tacit and explicit knowledge are summarised in the next Figure 3 in order to easily be looked at the differences among the concepts.

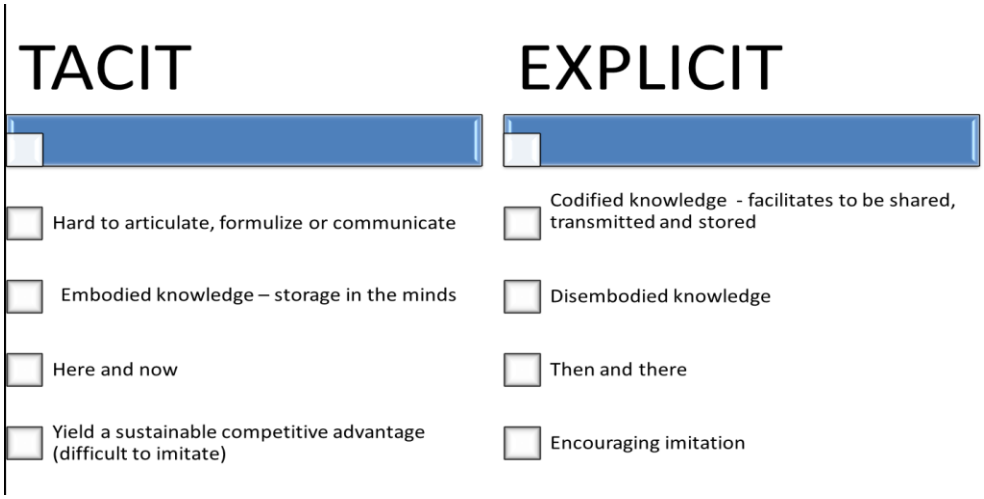


Figure 3. Differences between tacit and explicit knowledge

2.3.2 Personal and social knowledge

The distinction between the knowledge of an individidual and the knowledge of the organization is very important to be made. **Social knowledge** can be accesed by more than one person at the same time, considering the differences among the proposed levels in literature of personal, group, organizational and network knowledge (Niedergassel, 2011). As it can be seen in the Figure 4, individuals have a large amount of **embodied knowledge** and a great ability to identify and solve problems, but can be difficult to share their knowledge within groups (Niedergassel, 2011).

	Tacit knowledge	Explicit knowledge
Individual	• (Technical) skills, habits, abstract knowledge • Problem identification and solving	• Facts
Group	• Principles of organizing activities	• Who knows what
Organization	• Higher-order organizing principles of group coordination and knowledge sharing • Organizational routines and culture	• Organization-wide knowledge archives • Standard operating procedures • Organizational rules
Network	• Procedures for conducting transactions • Organizational consensus on past collaborative experiences	• Knowledge of other actors in network and whom to contact

Figure 4. Relations of tacit and exlicit knowledge to level of personal and social knowledge. Source: (Niedergassel, 2011)

2.4 Managing knowledge in relation to project teams

The systems that promote a knowledge sharing culture increases trust and morale in a collaboration among members of a project team which results in fulfilling the goals more effectively. Managing the knowledge competencies in an in-efficient way, might result in a failure of the project. Realizing the importance of this fact is a very first step in taking initiatives regarding improving knowledge management activities (Srikantaiah, Koening, & Hawamdeh, 2010).

Information is not considered knowledge until is organized in a meaningful way. Having the ability to distinguish knowledge from information is very important in order to have a better understanding about the processes of how to manage the knowledge (Rayudu, 2010). Information and knowledge which is generated during projects can be archived but in most of the cases is destroyed or is becoming a silo from where tacit information is difficult to be retrieved. Looking at the employees, data-bases, documents and processes in projects from knowledge management viewpoint is a new way of discovering challenges that might appear in a group. Usual problems during projects refer to inaccessibility of knowledge, difficulty to locate and retrieve knowledge also poor organization (Srikantaiah, Koening, & Hawamdeh, 2010).

2.4.1 Literature from Knowledge Management

The concept of Knowledge Management (KM) is seen as a recent phenomenon appeared in the mid-1990s and is discussed in many books as point of focus such as Porter 1990, Drucker 1993, Nonaka and Takeuchi 1995, Stewart 1997, Davenport and Prusak 1998 (Huysman & Wit, 2002) . Because of the importance and the crucial role which knowledge sharing is playing in organizations, in the last period KM is one of the most popular concepts discussed by many authors. Researchers are trying to explain and contribute with various opinions about what KM is and how it can be successfully achieved (Huysman & Wit, 2002).

KM concept is being defined by McInerney, C. (2002) as “an effort to increase useful knowledge within the organization. Ways to do this include encouraging communication, offering opportunities to learn, and promoting the sharing of appropriate knowledge objects or artifacts.” (McInerney & Koenig, 2011). Other definitions say that by using knowledge will successfully help in making decisions to achieve organizational purposes also improving faster, reduce not just time but also cost and rework (Mohapatra, Agrawal, & Satpathy, 2016)

Holm (2001) has written that “KM is finding ways to get the right information to the right people at the right time so that employees can create, share and reuse knowledge.” Managing knowledge is seen as a wide process that requires an oriented-approach to create, cultivate and share the knowledge. In order not to “reinvent the wheel again” a group needs to find productive ways to learn from their past errors and to avoid mistakes (Mohapatra, Agrawal, & Satpathy, 2016).

KM applied in a successful way helps the individuals increase the effectiveness of operations in order to achieve their objectives. It is a practice which is focusing into transforming the tacit knowledge into explicit form and afterwards defining techniques by which the explicit knowledge will be applied in an effective way when necessary. In order for KM to be successful is not necessary only to share knowledge but only when the knowledge shared is reused by others (Mohapatra, Agrawal, & Satpathy, 2016). Therefore there are 3 level of KM as seen in the following figure:

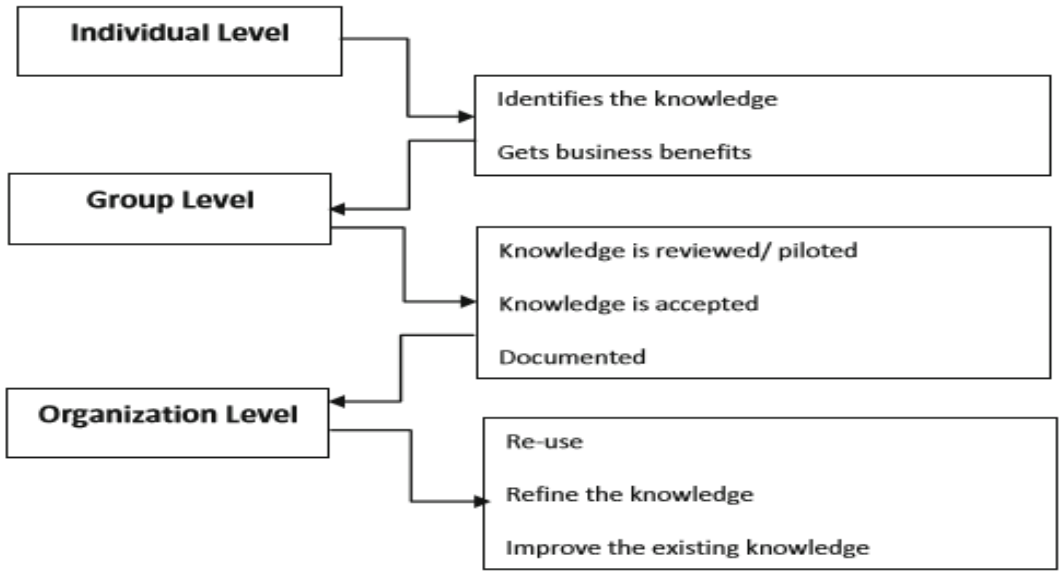


Figure 5. Three levels of KM. Source: (Mohapatra, Agrawal, & Satpathy, 2016)

KM has five purposes and tasks according to North and Kumta (2014):

- Acquiring knowledge which focus on making sure the information is available
- Creating knowledge having the goal of developing knowledge that will lead to innovation

- **Sharing and using knowledge focusing on using the knowledge in a most favourable way and spread it**

- Learning and making sure that individuals are able to reflect and apply upon what was learnt
- Protect knowledge meaning the contribution of individuals which will keep it up to date

Achieving KM would help ROS project group to increase their effectiveness and therefore that would help in achieving their organizational goals. As it was stated earlier, KM is a wide process and in order to be achieved the knowledge has to be successfully managed among all the three presented levels. The focus within this research is looking at the level of individuals and group only and the aspect of KM which will be the specific target is knowledge sharing.

2.5 Definition of knowledge sharing (KS)

Knowledge sharing is described in the literature as being critical for achieving knowledge creation. Many researchers has proved the fact that achieving knowledge sharing is having advantages including team performance, a faster completion of development projects, reductions of cost etc. (Kharabsheh, Bittel, Elnsour, Bettoni, & Bernhard, 2016).

Knowledge sharing (KS) is defined by Helmstadter as "voluntary interactions between human actors through a framework of shared institutions, including law, ethical norms, behavioural regularities, customs and so on…the subject matter of the interactions between the participating actors is knowledge. Such an interaction itself may be called **sharing of knowledge**." (Wah, Loh, Menkhoff, & Evers, 2005)

The definition emphasizes the idea that knowledge sharing is a form of communication performed by human interaction. The social role is seen as a pre-requisite for the purpose of creating knowledge as a valuable resource (Wah, Loh, Menkhoff, & Evers, 2005).

Communication is the core of human relations and is seen as essential in order to accomplish organizational objectives. The process of exchanging messages, thoughts, facts, ideas, opinions feelings or attitudes is defining the concept of communication. The way the information is being transferred from the communicator to the listener is helping to create a perception and a mutual understanding environment (Rayudu, 2010).

2.6 Knowledge and communication

The differentiation among the terms knowledge and communication is important to be understood because acquiring one without the other is not seen as effective (Rayudu, 2010). The flow of information between individuals is defining the concept of communication. Therefore communication can be seen as a tool for the process of transmitting information (Rayudu, 2010). In order for knowledge to have communicative value, needs to be translated into a shared understandable codes and symbols, such as words, numbers or pictures as it can be seen in the next Figure 6.

The pattern which is used to transform the message that needs to be conveyed into symbols or words is seen as communication. A significant role is played by the receiver which needs to accept the information received, take actions upon it and not ignore it (Rayudu, 2010). Patterning

is the process in which information is converted into symbols or words in order to communicate in a clear way the significance of the message (Rayudu C. S., 2010).

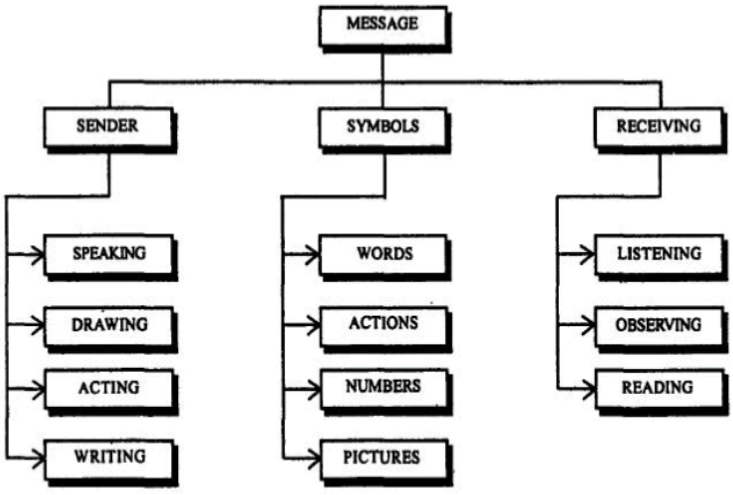


Figure 6. Communication process. Source: (Rayudu, 2010)

The complete process of communication consists of the next eight related concepts, which will be explained further (Rayudu, 2010).

MESSAGE – SENDER – ENCODING – CHANNEL – RECEIVER – DECODING – ACTING – FEEDBACK

The **message** it's the existing information in the mind of communicator and need to be passed from one person to another.

The **transmitter** is the one who initiates and sends the message in order to change the behavior of the receiver.

Encoding is representing an abstract concept which is requiring use of symbols and signs that the communicator is planning to adopt in order to organize and convey the message to the receiver.

Channel is about the method which is selected in order to send in the best way the message. There are various ways to choose from such as face-to-face conversation, telephone, recording, conference etc. Channels can be visuals and as well audio-visuals.

The **receiver** is the person for whom the message is meant for.

Decoding is a process of symbols conversion into ordinary and normal understanding.

Acting is based upon the understanding of the message which the sender tried to convey.

Feedback is an insurance that receiver is taking upon the message which the sender meant. Feedback plays a very important role in order to make the communication effective since it's providing with the guarantee of clearly understand what the sender meant. As well feedback is making the communication complete and effective because is giving the opportunity for corrections or changes in the message wanted to be transmitted (Rayudu C. S., 2010).

Developing an understanding upon the different concepts of data, information, knowledge and communication is essential for investigating current KS practices of ROS group. The current practices with its challenges will be further identified in the Analysis chapter, applying SECI model. The four modes presented in the model will require an understanding on the dimensions of knowledge and communication concept explained before.

2.7 The choice of Nonaka`s model of knowledge conversion

Nonaka`s model of knowledge conversion has achieved an exemplar status and is being cited by authors in many different domains. In 1993 Nonaka and his colleagues surveyed a sample of Japanese managers and got validation for the proposed modes of knowledge conversion. The model has evidence for each of the modes proposed and more case studies were provided as evidence for each single mode (Andreeva & Ikhilchik, 2010).

Nonetheless, the SECI model remains at the core of knowledge conversion theory within KM, and this almost universal attraction to the model may in itself be an indication that some aspects of it appeal to virtually all cultures (Andreeva & Ikhilchik, 2010).

SECI model was chosen by the researcher in the case of ROS group, in order to identify the current knowledge sharing practices between the members and possible challenges arisen. The appropriate model is Spiral of knowledge creation model (SECI) will be discussed below.

Spiral of knowledge creation model (SECI)

The model is explaining the differences between tacit and explicit knowledge on different levels. The central theme of SECI is proposing a dynamic interaction between the four modes

knowledge conversion which will lead to organizational knowledge creation (Chang, 2005). Organizational knowledge is created when the different modes of knowledge are managed is such a way that form a continual cycle (Chang, 2005). The focus of this research has an approach on a smaller scale, having the interest only at from the individual to the group level.

SECI represents a model of how organizations create knowledge as efficiently as possible by interaction of tacit with explicit knowledge.

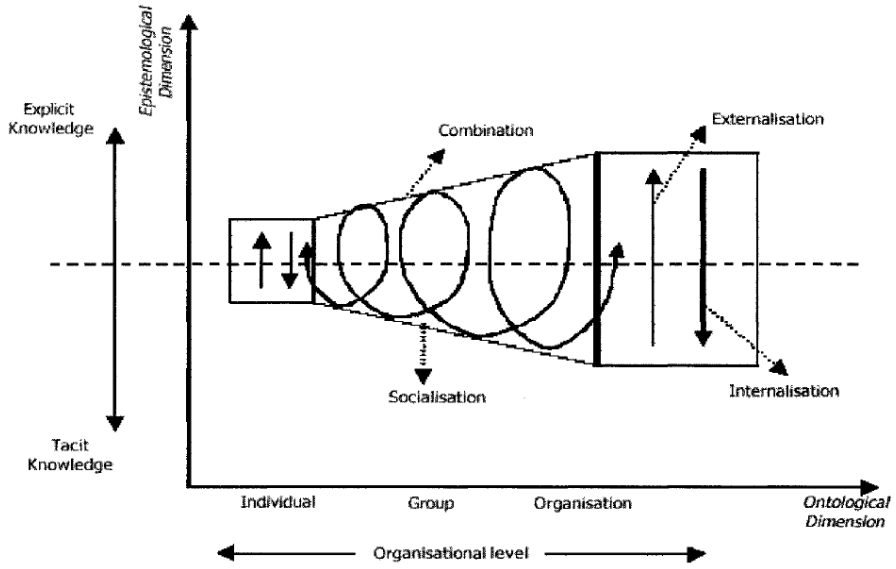


Figure 7. Nanoka`s Spiral of Knowledge Creation. Source: (Chang, 2005)

Nanoka`s (1994) spiral model of knowledge explains how knowledge moves in an organizations starting at the individual level and moving to the group level so that in the end it can reach the organization level. As it can be seen it the Figure 7, knowledge is being increased and it can be amplified only if the interaction among the individual is being efficient. An efficient interaction is characterised by the four modes, Socialization, Internalization, Combination and Externalization, which need to be proper managed as to form a continual cycle (Chang, 2005).

In order for knowledge to be amplified Nanoka and Takeuchi (1995) presented two important activities; (1) first is reffering to conversion of tacit into explicit knowledge; (2) second is about the ability to move the knoweldge from the individual to the group level and further on organization and inte-organizational levels.

Socialization is the process which enables to convert tacit knowledge through interactions between individuals by using various activities, observation, imitation and practice which can be acquired through training rather than the use of language (Chang, 2005).

Nonaka and Konno (1998) explained that personal knowledge is better exchanged by direct interactions between individuals, such as spending time together sharing the same space, rather than through written or verbal instructions (Nonaka & Konno, The concept of "Ba": Building a foundation for knowledge creation, 1998). The mode involve the process of capturing knowledge through direct interaction in order to collect the latest information, and the process of transferring the tacit ideas by creating a common place (Nonaka & Konno, 1998).

Nonaka claims that in order for individuals to acquire tacit knowledge is through shared experiences, fact which would facilitate the sharing process of their ideas. (Nonaka, 1994)

Externalization is the process in which the tacit knowledge is organized in an explicit form or concept which is understood publicly. The expression of tacit knowledge can be translated thorough the use of language, words and diagrams, such as analogies, methaphors or models that help individuals to articulate their ideas or images (Nonaka & Konno, 1998). Moreover Nonaka and Konno (1998) is proposing the use of dialogue technique for the benefit of all the members because it provides with the opportunity to learn and contribute.

Combination is the process of assembling new and existing explicit knowledge into more complex forms such as meetings, communication by adapting formal information systems (Nonaka & Konno, 1998). Nonaka explained the Combination mode in the interview with Scharmer (1996) by giving as example a newly created concept which is combined with existing knowledge in order to make it materialize it into something concrete. This phase is presenting three essential processes in order to assemble new concepts with existing explicit knowledge into something tangible.

- Capturing and integrating new explicit knowledge meaning the importance of collecting public data for combining it.
- The second process is referring at transferring and presenting the new explicit knowledge to the individuals in meetings or by conversations.
- The last process, editing the existing information through use of documents or reports which allow individuals to sort, add, re-categorize and reconustruct the explicit knowledge.

By using the three processes give the oportunity to individuals to create new knowledge justify and agree upon their decisions in order to take practical concrete steps (Nonaka & Konno, 1998).

Internalization is the process in which new knowledge is being converted into tacit knowledge conveyed to an individual or organizational level through various initiatives and practices (Chang, 2005). Nonaka and Konno (1998) claims that this process requires identification of relevant knowledge for use of a group. Techniques as learning-by-doing, training programs under the form of text, sound, video format can help individuals to access, understand and learn new concepts from the knowledge of the organization (Nonaka & Konno, 1998).

2.8 Stages of group development

One of the models widely recognized, who has most influence for describing the stages of development of small groups is introduced in organizational literature by Bruce W. Tuckman in 1965 (Bonebright, 2010). In July 2008 Bonebright found just on Google Scholar 1196 articles in which Tuckman (1965) was cited and 544 for Tuckman and Jensen (1997). Tuckman`s model was frequently used in training for improving the quality of the teams. The model had been tested by Runkel and others (1973) in a classroom setting and it was supported. Reaching to the "Performing" stage it is very challenging because groups tend to get stuck in one stage in the process. Fortune 500 companies, shows that only a percent of 29% of teams are successful in their development (Bonebright, 2010).

Another aspect which is important for a group in order to be more effective and to reach their goals is to be able to understand how the behavior of the members can change at various stages in time. The most well-known model, which helps teams to become more effective by recognizing the stages with their particularities, is Bruce Tuckman`s model (Bonebright, 2010).

Tuckman`s model will be applied further in the research in the case of ROS group, since some of the challenges identified using SECI model, were found also in the characteristics which members have according to the stage they are in at the present moment. In order to explain and elaborate on the barriers, Tuckman`s model was considered as appropriate to support the further investigation. Moreover recommendations will be given regarding what actions ROS group should take in order to reach to the next stage, fact which will help in reaching to the "Performing" stage faster and have significant results.

Tuckman`s Forming, Storming, Norming, and Performing five stages model widely used in order to explain and understand the stages a small group is going through time (Ding, 2016).

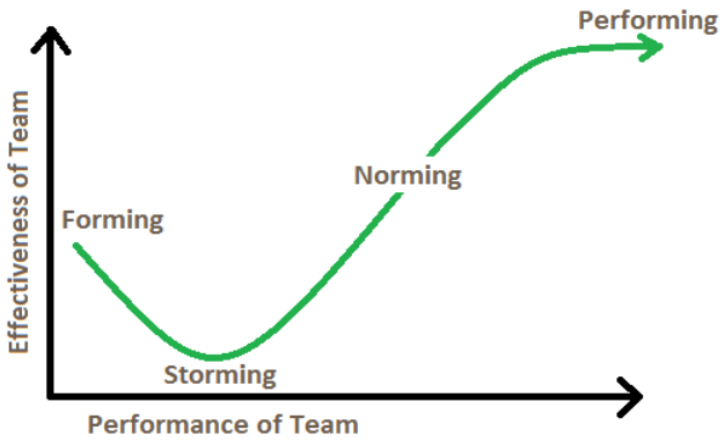


Figure 8. Tuckman`s group development model. Source: (mindtools, 2018)

"Forming" is the first process described in the model, in which the group is making an effort to get to know each other better and establish boundaries of the work and interpersonal behavior. Because of this reason, the members will be characterized by "politeness". At this stage the members agree upon the common goals and develop a mutual understanding about the purpose of the project and what are the benefits of the collaboration. Members of a group should be encouraged to participate in order to gather more ideas for the project plan and be able to shorten this stage.

Secondly, the group starts to push the boundaries formed at the first stage which is creating sort of conflict between the members. This process is called "**Storming"** and it`s appearing once with the practical problems appearing in a group. It is challenging to survive to this particular stage, therefore it is important for the members to frequently communicate and collaborate in order to propose different ideas and suggestions. At this stage the project manager needs to encourage the group members to communicate and interact with one another. This is what is keeping them focused on the teamwork and helping them to avoid conflicts and establish team spirit (Ding, 2016).

The resistance created is overcome in the next phase "**Norming**" when members start to solve and appreciate their differences and see them as strengths. In this stage the group members socialize better which is helping them to have good progress in their work. Because new roles and tasks might be appear, groups have the tendency to go back to the second phase – Storming.

In the final stage "**Performing**" since the structural issues are being solved, the work of the group is getting results from the member`s efforts.

Later a fifth stage was added by Tuckman known as "**Adjourning**" representing the stage when project groups end to exist due to organizational restructuring.

2.9 Definition of a group

According to S.B. Robbins a group is formed "As two or more individuals interacting and interdependent, who come together to achieve particular objectives" (Rayudu, 2010). A group is a gathering of people which have a mutual interest in achieving a certain goal. In order to accomplish an objective, communication skills and interaction with each other are important for sharing the information and make the right choices (Rayudu, 2010).

2.9.1 Why do employees join groups?

There are many reasons why individuals might join a group, but researchers have presented the most important explanations by dividing groups in formal and informal, as it will be further explained (Rayudu, 2010).

- Formal Groups

A group emerging from a formal organization is a precise, official and group that need to follow certain regulations and procedures in order to be under control.

- Informal Groups

Informal relationships that are formed spontaneously among individuals are based on personal friendships, common studies or same qualifications. Informal groups are not part of the organizational structure or have a certain common goal to achieve. Informal groups are commonly emerging in an organizational structure, in order to satisfy their social needs.

2.9.2 Importance of effective communication in groups (Dainty, Moore, & Murray, 2006)**:**

- Helps the individuals to do a better planning by identifying the weaknesses of the plans
- Decisions are improved by effective communication which makes participation of all the members possible and help in integrating the people into deliberating
- Communication help in improving the motivation of employees, as the feedback provides the manager with the opportunity to receive and understand the ideas, reactions and limitations in a better way
- Helps in creating better relations as it help in minimizing the doubts

Communication can be understood in other different ways, for e.g. taking the performance approach, which has the focus on how information is shared and the way people coordinate their actions when take decisions. If a model of transmission would be applied for ROS group, the goal will be to improve the clarity of the leader`s instructions so that the members can understand them better in order to follow them. On the other way, communication can be looked at by improving the way members work together and interact in the meetings also how they coordinate their actions. As a result of the analysis, ROS group needs to communicate and interact more often in order to discuss their valuable information and perspectives about the project plan. Therefore the way members collaborate when they need to work together and take decisions needs improvement.

2.10 Barriers in a group

Different experts have discussed many barriers that might appear in a team. The researcher had selected to present the barriers that were most appropriate to the ROS project group challenges identified by using SECI model which require further examination. Sunstein and Hastie (2015) had developed a theory that helped to identify the mechanisms responsible for group failure

while deliberating and proposed ways for implementing successful practices. One of the researchers, Sunstein, served as administrator of the White House Office of Information and Regulatory Affairs (OIRA) for 3 years (Sunstein & Hastie, 2015). The idea which he presented is that when things turn out to work well is because agencies or individuals are able to share what they know and contribute for a better end result (Sunstein & Hastie, 2015).

2.10.1 Beyond groupthink

The settled norms are influencing the behavior of the group and affect or modify employee's personal performance. This phenomenon may hinder the group's performance that has the pressure to conform to the majority. An individual judgment might be influenced by the result of group pressure; therefore the group might be a victim of the groupthink phenomenon (Rayudu C. S., 2010). Since many researchers tried but didn't find enough evidence to support the issues emphasized by Janis, Sunstein and Hastie (2015) offered a more precise understanding of group failures as an outcome of several decades of research.

An important remark made by Sunstein and Hastie (2015) which is different than groupthink phenomenon, is that groups that have a high cohesiveness are less likely to present vulnerability to groupthink, because they have more interactions where they discuss more alternatives and leaders are avoiding expressing preferential solutions.

2.10.2 Deliberation process in groups

A group is often failing to achieve its purpose according to Sunstein and Hastie (2015), when members deliberate or communicate, because of two types of influences:

Informational signals

People prefer to be silent because they think leader's ideas must be right and not necessarily means they agree with it.

Social pressures

The disapproval of others might lead to personal risks therefore people often stay quiet and decide not to express their views or doubts, in order not to feel foolish or disagreeable.

Four independent problems are identified by Sunstein and Hastie (2015), which groups can experience, because of the influences appeared:

- **Groups tend to not correct one each other's errors, but amplify them**

Sunstein and Hastie (2015) explained that people can be subjects of heuristic or mental shortcuts, biases when they take decisions which might produce systematic errors. A heuristic which

people use can be availability heuristic whenever they answer to questions by taking into consideration personal impressions and intuition about evaluation of things which happened in the past, without make a statistical analysis. Being emotionally affected by recent experiences can affect human behavior and lead them in bad directions. Representativeness heuristic is another heuristic which people use when they have the tendency to compare and match things with their own constructed mental image, rather than follow a rational process when take a decision. People`s decision can be also influenced by framing effects, meaning the way a problem is framed or presented to them. People tend to be vulnerable to the way a problem is framed by someone in terms of losses or gaining perspective. Egocentric bias is also used by people when they tend to think that other people think and act as they do. This can lead to overestimate the ideas of the ones around them. Other biases presented in the literature refer to unrealistic optimism, when people have overconfidence that their decision is the correct one. This can lead people to planning fallacy when projects are underestimating the time to complete tasks compared with the initial estimated plans.

- **Cascade effects phenomenon in which members are following the actions of those who acted first and may continue on a mistaken course, even though actions should have been taken a long time ago**

Before a group is gathering information and after discussing alternatives, the preferred decision is already taken and announced by the leader. The group is also favouring the proposed course even though initially the individuals would have a different opinion. The conclusion of the group discussions would accidentally be the same as the view of who spoke first. Therefore the outcomes of such decisions are very different than the ones coming from the intersected ideas of the subordinates. Moreover people can influence one another when interacting, fact which might affect their individual knowledge and ignore it. There are two types of cascades discussed in the literature such as informational and reputational cascades. Informational cascades occur when people don’t disclose all the information they privately hold and tend to silent themselves. Because of lack of information, decisions taken by the group are not the most effective ones. The contributions which individual have might be incorrect, therefore members choose to believe in wrong group decisions. Members that are complacent and humble, also groups that have a dominant leader are more likely to be victims of the cascade effect. The second type of cascades are reputational, appearing when group members know what is right but they choose to go along with the group decisions in order not to face disapproval.

- **Groups becoming polarized when their members tend to be optimistic and they end up in more extreme positions as a result of internal discussions**

Group decisions tend to be characterized by people that are inclined to have a risk-taking behavior when they deliberate. As a result of discussions groups tend to become more risk-inclined than how they were before discussing.

- **Groups focusing on the information that everybody know already**

Hidden profiles it's a term used for describing the way group members' common information have a higher impact on group decisions, than the information held by few individuals. The knowledge hold by more individuals is more likely to be shared within a group. It is demonstrated that a group will not have good results in the end up decisions, because members neglect information which is only held by some of the individuals. The way members share information has to create an environment in which individuals can debate and contribute to the end decision. The unshared information can have a great impact on how a discussion proceeds. Since shared information is more likely to be mentioned and explored, members of a group tend to experience the common-knowledge effect, described in the literature as the agreement of all the members with original judgments proposed in a discussion.

Studies have shown that groups can be cognitively central when the information held by a person is commonly shared with other members of the group. By contrast, groups can be cognitively peripheral when their individual information might be important and is not shared or known by anyone else. The cognitive peripheral people tend to be more nervous when participating and have little influence and lower levels of credibility while deliberating, even though their opinion is considered to be the most important for reaching to an accurate decision. Because it is difficult for the leaders to hear the views of some of the members, important information might be not taken into consideration. The cognitive peripheral individuals end up thinking that the individuals that are cognitively central are more competitive. Why is this happening? People tend to give higher rating to information which everybody knows already and this is what cognitively central people do.

2.11 Reducing failures by enhancing group work

Sunstein and Hastie (2015) also identified and proposed different approaches from simple to formalized ones, which can turn the barriers a group might encounter while deliberating into successful practices. He proposed eight ways to reduce failures which will be discussed next.

1. **Self-Silencing Leaders**

Members might silence themselves while deliberating even though they might have important information to share. People usually listen to what their leader says because of his high social status or competence and tend to be less active in discussions or have any influence on the decisions. Leaders think that their own information is worth sharing and because of this reason that might lead to other members to silence themselves. The corrective steps should be taken by the leader who needs to indicate their desire to hear others` unique information. By refusing to state their opinion about an issue would allow space for more information to emerge from all the members of a group.

2. **"Priming" Critical Thinking**

Another reason why people might prefer to stay silent is because of risking their reputation in the group and be disapproved. Therefore a way to motivate them to share their unique information would be to create an environment where competing information will be rewarded. Priming is a technique that refers to activating particular memory associations before performing a task or taking actions. Sunstein and Hastie (2015) proposed that before members of a group meet to discuss some issue they should be invited to "think critical" instead of "getting along". In this way members of a group would understand that the goal of their meeting wouldn't be just to cooperate and be friendly to one another but to reach to the right solution. Using "Priming" technique would motivate employees to share their information even if it is opposing the group`s inclination. This environment can be developed by the leader of the group who would create norms that encourage disclosure of the members` information.

3. **Rewarding Group Success**

Sunstein and Hastie (2015) explained that if the majority of the group will be rewarded for their correct decisions and not individual decisions, then members would feel more motivated to reveal what they know. When members of group share information that aims to make group work better, the cascade effects can be reduced and the outcomes of the group will be more accurate.

4. **The Role of Roles**

Each member might have different information to contribute with and if they would feel empowered to speak up they will do it. Before deliberation is starting members should be told that different members have different information to contribute. If they are prepared in advance then the environment created will motivate them to share their opinions even if they are different.

Groups are making good decisions when each member perspective is heard by others who have different roles and are being respected. All the members' views and opinion require independent attention and concern even though it might be challenging to obtain a consensus. This is representing an efficient way to make sure people don't fall into cascades effect and information doesn`t get lost. Sunstein and Hastie (2015) explained and introduced the importance of "equities" members in a discussion. Equities members have different expertise and perspectives thereby can help a group with contribution of their independent ideas. Since their arguments will be distinct, it can become an obstacle for members of a group to reach to a consensus. If everything is going right, using equities ensure that the group learns what they need to know.

5. **Perspective Changing**

Being stuck in old ways of thinking can be a reason why a group might not have good results when taking decisions. Changing the perspective is seen as a useful tactic which might lead to create a successful new strategy.

6. **Devil`s Advocacy**

Allocating members the role of being devil`s advocates meaning they have to deliberate against group`s position or reject it. Avoiding conflict shouldn't be the interest of a leader but commit the members to express their viewpoints even if they are different so that the group can reach to excellent results. A practice which can be considered by the leader of a group is to give confidence and agree with members who have inconsistent positions. Therefore members will feel motivated and will try to develop and elaborate best arguments for their ideas. In a small group this requirement wouldn't be efficient if everyone would be aware of this exercise.

7. **Contrarian Teams**

This method is perceived as a more effective method by Sunstein and Hastie (2015) than the one before. It has been applied to military teamwork and has great potential for other domains. The method is called red teaming and it involves a team that has the task of criticizing the initial plans of a team or group. Red teams can also be used to test worst-case scenarios and evaluate them. The aim is to help identifying the mistakes and improve the plans before taking ultimate decisions.

8. **The Delphi Method**

Leaders can adopt this method by asking the members of the group to anonymously and independently write their opinion before taking a decision. The method can be used via computer networks or in face-to-face meetings. The Delphi method consists in two or more rounds in

which members share their ideas and vote them until they reach to the right consensus. The method has been initially used for forecasting but recent studies show that has been used also to promote information sharing. The advantages provided by Delphi method is the anonymity which reduces the effects of social pressures and also the opportunity which is given to the members to offer feedback on one another`s perspective. Because members are discussing also the reasons why they opted for their view, the errors are easily to be corrected and therefore reduced. Delphi method is also solving the problem of reputational pressure and would motivate individuals to share what they know.

3. Methodology

3.1 Formulation of working hypothesis

In this chapter the emphasis will be on process of how the research question is answered. After conducting some initial talks with the members of the Training team, the research question which has been already introduced in introduction was formulated as follows:

How knowledge sharing practices can be facilitated between members of ROS project group and how this can help the group to make better decisions so that they can accomplish the organizational goals?

In order to answer the question in a systematic way to increase the knowledge, techniques and procedures were followed to collect relevant information and analyze data and facts.

The purpose was to help ROS project group in achieving their organizational goals by improving their knowledge sharing practices.

When formulating the research question the researcher took into consideration the fact that it represents a challenge for the ROS project group and by answering it might have significant contribution to the SOP overload problem. Brainstorming by having consultations with the supervision of the thesis helped the researcher to establish the right direction which would best suit the situation of ROS group. Afterwards reading and critically study literature review to increase knowledge and answer to the questions in the mind towards how communication and interactions can be improved. Also the research for the specific problem is suggesting problems for further research.

After formulating the research question, next steps were considered as essential (Krishnaswami & Satyaprasad, 2010):

- Considering facilities: library facility, competent guidance providing the researcher with valuable feedback and assessment of findings
- The feasibility of the data was explored to make sure if research techniques of analysis were available. The members of ROS project group were willing to be interviewed and permission was granted to access records. Since the researcher was an intern and part of ROS project group, observation method was also possible to use in order to collect data.
- Developing the research plan
- Systematic observation was seen as indispensable for analyzed ROS group current knowledge sharing practices and the barriers encountered. Observation method will be further discussed in details within the collections of methods section.
- Collecting relevant data by adopting the appropriate methods

3.2 Research objectives

The research objectives help in understanding why and how things happened in order to response correctly to the main research question:

- Analyze current knowledge sharing practices within ROS project group in order to identify the challenges within their performed activities
- Analyze and explain the impact of the barriers identified in ROS group knowledge sharing practices
- Propose recommendations on how the identified barriers can be overcome in order to improve the knowledge sharing practices

3.3 Research design

The research design represents the overall plan of the research project providing valid justifications for each choice that was made, based on the research question and objectives. The plan includes identification of clear objectives which needs to be achieved, in order to answer clearly to the research question specifying the sources where the data will be collected and how they will be collected (Saunders, Lewis, & Thornhill, 2012). The research design discusses the selection of related research strategy and the tactics chosen along with their purpose as is going to be discussed further.

3.3.1 Methodological choice of data collection

Method refers to the way of gathering data. This project uses a **multi-method qualitative** study, combining more than one qualitative technique for data collection, such as interviews and observation with qualitative data analysis procedures. The research within this project is an exploratory study therefore the interviews conducted were semi-structured but also descriptive study using structured interviews. In one section of the semi-structured interviews similar specific questions were asked to all of the members of ROS project group. In the other section some of the questions were opened in order for the researcher to be able to discover and gain new insights regarding perceptions about how knowledge is shared among the members of ROS group. Questionnaire wasn't considered as an appropriate technique to be used since establishing personal contact with the ROS group was essential for making sure the interpretations of the answers were clearly understood and for understanding also emotions, behavior and feelings. By using observation technique, qualitative descriptive data was collected regarding the behavior of ROS group members and it gave the confidence that the research findings can be trusted. The qualitative methods used will be explained in the next pages.

3.3.2 Sources of data and evaluation of data collection methods

Table 1 present a complete overview of the collection data, both primary and secondary. The methods will be described more in detail and individually later in this section.

Observations	Peter Vigel Lefeldt (Project manager coordinator) Lasse Thing (Manager Assistant) Area Training Supporters: Helle Balthervin Anders Botsch Kenneth Hanning	- Having short talking with the individual(s)- Participating to different meetings, workshops
Interviews Structured and Semi-structured	Helle Balthervin Anders Botsch Kenneth Hanning Helena Claire Brigoli Frederiksen	- gaining knowledge about ROS project - study the relations among the perceptions and behaviors of employees in the ROS group while working on ROS project - obtaining clarity upon some of the selected and relevant situations
Secondary data		-data regarding organizing, meetings and workshop outcome, plan documents
		-information about tools applied when managing ROS project, power point presentations format

Table 1. View of the collected data in the case study

3.3.3 Structured face-to-face interviews

The researcher used structured interviews in the beginning of the research in order to collect descriptive data about ROS project on which group members are working on. The Team Leader of the group and one of members were interviewed on the basis of one-to-one, asking specific questions about ROS project. Just one of the interviews was recorded since the Team Leader expressed he wouldn't speak so freely if he would be recorded. Since the notes were taken after the interview was performed, important information could be lost. The possibility of freely having conversations with the respondents helped the researcher to overcome loosing information. The researcher purpose was to acquire general knowledge and a deeper understanding upon the work on the ROS project. The level of knowledge regarding ROS project had to be acquired first in order to analyze and understand members` behavior and experiences while sharing knowledge.

3.3.4 Semi-structured face-to-face interviews

Semi-structured interviews in person with each of the four members of ROS group were used in terms of qualitative research to understand more about the interaction among members of the group while working on the specific project.

The researcher developed a list of specific questions on the knowledge basis formed from the academic literature and observations performed in the group in order to obtain data which answered to the research question. The questions were organized in different themes containing specific questions also open questions and follow-up questions, which allowed exploring the issued that have emerged from observation and understand the reasons for members` attitudes and opinions.

Face-to-face interviews had clear advantages because allowed the researcher to establish the trust which was considered important for ensuring the quality of data. To ensure the quality of the data collected from the interviews was triangulated with daily observations and collected documents about the ROS project and the plans or tools members have developed.

3.3.4 Observation

Gill and Johnson (2002) explained that exist four roles that an observer can have (Saunders, Lewis, & Thornhill, 2012). As it is seen in the Figure 9, the complete participant and the complete observer roles don't reveal their objectives within the process of research, more like spying. The situation of a complete participant role it`s presenting an advantage in some situations in which people wouldn't cooperate the same if they would know the identity and the purpose of the researcher. A complete observer role is adopted by the researcher in the situation in which he is not taking part in the activities of the group and just observing their behavior.

The other adopted roles in the model are observer as participant and participant as observer and the main characteristics is that their identity and purpose of their research is clear to all. Observer

as participant role is more likely to be as a “spectator”, on the other way participant as observer role is focusing on fieldwork relationship.

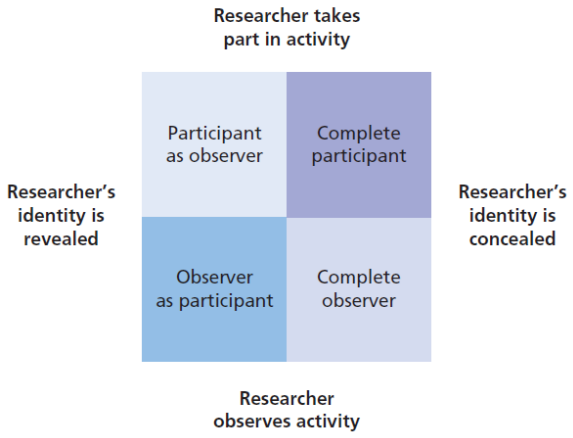


Figure 9. Typology of researcher roles. Source: ((Saunders, Lewis, & Thornhill, 2012)

At some point the purpose as an investigator was revealed to ROS group. The type of observation adopted was the role as a **participant-as-observer**. An internship in NN organization within Business Support, Training team was an opportunity for the researcher to develop a deep understanding about ROS phenomenon and to daily observe how ROS group is sharing knowledge while working on the project. After the trust was developed and the purpose was revealed to all of the members, the researcher was able to ask question to improve his knowledge about their situation. The observer selected from a range of things to be observed only the data which was pertinent to the given study, such as the way knowledge is being shared among the members of ROS project group. The most important way which helped in collecting the **primary observation** data was to keep a diary and write down what happened at different times. Also one of the meetings in which members of ROS group were deliberating was recorded, fact which helped in ensuring the quality of the data and made sure that information was not lost in the process. **Secondary observations** include also ROS group members` interpretations of what happened. The data collected contains also notes of what are the researcher` perceptions along the process of studying knowledge sharing flow, called **experiential data**. Delbridge and Kirkpatrick (1994) explained that “because we are part of the social world we are studying we cannot detach ourselves from it.” Since the research is studying a social phenomenon, participant observation method poses the threat to reliability. In order to

avoid the observer bias, the way in which conclusions were interpreted by the researcher was verification of the information with the members of ROS project group.

3.3.5 Documentary secondary data

The secondary data includes written documents such as emails, group database, power point presentations, tools used by the group while working on ROS project, plan documentation, information about meetings, reports of the workshops, and reports of the Team Leader. Already compiled statistical statements were available and reports for understanding the context of the broader SOP overload topic.

Archival and documentary research served to create insights on knowledge sharing concept and how interaction should take place among individuals forming a small group in an organization. Secondary data within this report is academic document-based found on university library.

3.4 Research philosophy

This research adopted multimethod qualitative study and is having an interpretive approach, since the researcher needed to adopt methods for exploring the social and subjective meaning expressed by members of ROS project group. Methods that allowed to establish trust and to gain an in-depth understanding of the meanings of different situations and opinions were observation and interviews.

In order to help ROS group members to achieve their organizational goals, research was made regarding knowledge sharing among the members of ROS project and the barriers which might appear within a group while deliberating. Using a qualitative research allowed to study members of ROS project group interactions, since the data collection within this study is happening natural being non-standardized.

Interpretivism is the philosophy used in the research, primarily being significant for understanding differences between humans in the roles of "social actors" rather than objects such as computers (Saunders, Lewis, & Thornhill, 2012). The characteristics analyzed are not constant and represent a sum of circumstances, individuals and the specific time on which they came together (Saunders, Lewis, & Thornhill, 2012). The research was conducted among people therefore the way data and information were interpreted on the base of their everyday social roles. The challenge of the researcher was to adopt an empathetic posture and try to understand the experiences of the subjects from their point of view. The interpretivist perspective is highly being recommended to be adopted in fields as organizational behavior and human resource management, as every business situation is a unique one (Saunders, Lewis, & Thornhill, 2012).

The focus was to discover the knowledge sharing challenges within the existing practices of ROS project group.

3.5 Interaction between empirical findings and theory

The research is combining elements of both deduction and induction approaches because the nature of this research is combining theory with the context of ROS project group. At the beginning the research problem was settled after having initial conversations with ROS group members and observing their daily tasks behavior. Then by combining the empirical findings with knowledge from literature review, the research question and objectives were formulated. The researcher developed the theory that there is a relationship between the concepts of achieving successful knowledge sharing for taking better decisions, in order for groups to achieve the organizational goals. Study about knowledge sharing concept in the academic literature took place before data collection and analysis. Van Maanen et al. (2007) explained that the theories can help in understanding the observations and uncover more "surprising facts" which can arise at any stage while writing the report. By analyzing the theories and using models, different barriers were discovered in the way members of ROS project group share knowledge. Afterwards an inductive approach was adopted in the research, meaning the data was collected and explored to understand what themes to put the focus on. If the interactions with ROS group wouldn't have been made, it wouldn't be possible to know what areas to involve in the theoretical framework. Next step was to describe the knowledge sharing practices within ROS group. After identifying their current practices and challenges encountered the focus was on making a synthesis between theory and empirical findings in order to elaborate on the research question and analyze the impact of the barriers identified. Therefore the nature of this research is an interaction between theory and empirical findings.

3.6 The nature of the research design

The purpose of the research project is changing over time therefore the study have more than one purpose, such as descriptive and exploratory.

Prior to data collection a **descriptive** research strategy was adopted. In order to focus on the concerned aspects of how members of the ROS group share information, it was essential to gather descriptive data about knowledge sharing and group interactions, also descriptive knowledge about the ROS project they are working on. In order to answer to the research question and the research objectives, it was necessary first to develop an understanding of the communication problem that exists among the members of ROS project. In the beginning the focus of the research is broad therefore an **exploratory** research is convenient, providing flexibility towards the new results that will arise. Using an exploratory study allowed the flexibility to ask open questions in the semi-structured interviews, to investigate and clarify the

issues which members are having regarding knowledge sharing. Gaining knowledge from searching and exploring the literature is also a characteristic of the exploratory research which helped to understand the problem. Depending on the members of ROS group behavior and actions, the direction of the research became narrower. The actions observed combined with the knowledge from literature review, influenced the course of the analysis and gave the reason why choosing to analyze their current knowledge sharing practices in order to identify their challenges and provide recommendations for overcoming them. For doing so, it was also collected **descriptive** information to have a clear picture about the modes of knowledge sharing model, stages of group development and about ways to identify and overcome barriers that might appear in a group.

3.7 Research strategy - Single case study

By using a case study the researcher was provided with the ability of using different data collection methods and analysis for exploring and explaining real world phenomena, in this case how knowledge is shared among the members of a group and what barriers they might encounter (Saunders, Lewis, & Thornhill, 2012). The case study strategy allowed the researcher to gain an understanding about the concept of knowledge sharing and how the current practices of the group analyzed unfold, while working on ROS project.

This specific study case is an in depth understanding about how flow of knowledge sharing can be improved in the ROS project group in order to help the group achieve the organizational goals. The purpose is to understand the interaction and how the members of the group share knowledge in the selected situation in which they are solving the overload SOP problem in DFP BA, Management department. Being a unique case, Yin (2009) is distinguishing among case studies as being a single case study.

3.8 Reliability and validity of data

To ensure validity and reliability of the project several actions were taken. Because of the fact that mainly the interviews were semi-structured, allowed to ask follow-up questions on topics and use different ways to ask questions to make sure the answer is correctly understood. The percentage of responses and the quality of information received was improved also in terms of interpretation the misunderstandings and bias was reduced. The reliability in case of observation was assured using more independent individuals whom agreed on their ratings of the same event. Also the repeatability of same observations over time ensured the reliability of the comparisons that can be made.

Validity of the data was assured by asking various similar questions to all of the members of ROS project group in order to compare their perceptions and opinions upon same situations. The accuracy of the answer given by respondents in the interviews was checked by observation. Also the findings from the interviews were compared to findings from observation.

4. Analysis

4.1 Current knowledge sharing activities adopted while working on ROS project

In the following chapter the current knowledge sharing practices of ROS project members will be analysed. The analysis is based on the contributions from the literature review and from the empirical findings in the specific group. The methods used for collecting data were discussed in Methodology chapter and the literature review.

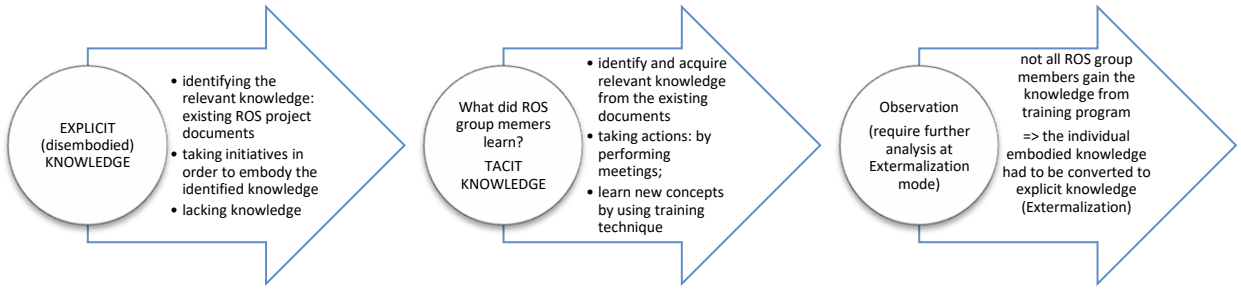
The interest is to examine and understand how the knowledge is being shared between the individuals of the ROS group, by applying the four modes which SECI basic model of KS has described. SECI model point of focus are the four modes of KS and how they are being managed among individuals in a group.

ROS project group will be further analysed according to SECI model, using primary data from observation and interviews, secondary collected data, in order to clearly identify the areas which might require further analysis. Each of the mode will be analyzed and concluded individually.

First phase presented in SECI model is called Internalization and it takes place when new created knowledge of organization is converted into tacit (Chang, 2005).

4.1.1 Internalization

The explicit knowledge that needs to be understood and internalized can be found in various such as documents, text, sound or video, forms that facilitate the process of emboding the knowledge (Scharmer, 1996). Practical examples will be given further, in order to analyze what initiatives members of ROS project group are taking in order to embody the explicit knowledge in their actions.



- **ROS group identifies the relevant knowledge**

Nonaka and Konno (1998) explained that in order to succesfully convert explicit into tacit knowledge, first individuals have to identify the knowledge which is relevant for their case.

In order to reduce the SOPs in DFP BA, Management division, the members of ROS group needed first to understand what are the requirements and suggestions settled by ROS project owner (ANQR), the director of Product Supply division of NN. The specific documents about ROS project represented the explicit knowledge which needed to be embodied by individuals in order to make sure first that everyone clearly understands it. It was observed that this was considered very important by the group, because the members of the group needed to act according to the specific steps settled by top management.

ROS group identified the documents provided from top management, as being relevant and useful knowledge. The members of ROS group are aware of the SOP overload problem and the steps to follow in order to solve it. The researcher was assigned access to the common platform where employees can share their information, therefore the documents were searched on Global share online platform. The information regarding the two settled steps by the top management were found in documents format, as they are illustrated in the Figure 10.

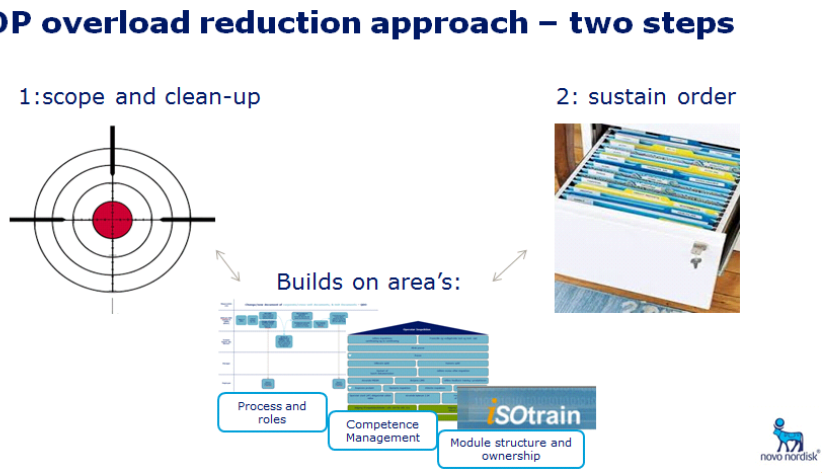


Figure 10. The two settled steps of solving SOP overload problem. Source: (ppt. slides ANQR)

- **How ROS group learned and understood the documents from top mangement**?

The initial talks with the members of the group proved that they understood and acquired knowledge from the information provided, under the form of documents. The documents contain information about the strategy on how ROS project should be solved. As it was explained in the Introduction chapter, NN employees need to be always trained before performing any task in the

organization. The initial talks with ROS members and the interviews performed, gave the researcher the understanding about the strategy proposed from top management, as it will be explained next.

First step in reduction of SOPs process is to **clean-up** the training sessions regarding SOPs, which employees need to read and understand and the important second step is **to sustain an order**. In order to explain the steps proposed, it is required to understand what a training session is.

A training session is an online record of an employee which contains the modules that are assigned in his training process (ISOtrain doc). The Training Coordinators can edit the modules, add or remove SOPs from their structure (ISOtrain doc). A module contains from 3-15 SOPs and an important observation to be made is that employees cannot be assigned or de-assigned with particular SOPs but only with whole modules. Reducing SOPs of an employee (clean-up step) has become a challenging task because of this reason. Taking for example an XY employee that is assigned with a particular module which contains 10 SOPs from which only 8 are necessary for him. If 2 SOPs will be removed from the particular module of XY employee, the changes within the module will affect all the employees that were assigned with that module. For XY employee the unnecessary SOPs can be removed, but removing them might become a problem for other employees for which the 2 SOPs are important. Therefore it is important to make sure that the removed SOPs are not affecting anyone in a negative way. A module is created in a way that allows to be assigned to more employees from different teams even if they have different tasks to perform at their job. Changes in a particular module which is shared among more employees having different tasks, will affect all of the employees assigned with that particular module. Therefore reducing SOPs cannot happen by looking at individual scale, but by looking at the modules structure. That is why the second step proposed is explaining that an order has to be created and sustained.

Because some of the role teams present similarities with other teams, Training Coordinators created some basic modules which can be shared among employees of more teams (ISOtrain doc). This fact created a chaos because some employees are getting assigned in their modules with SOPs that they don't actually need. As it can be seen in the picture, in order to build the **structure of the modules**, it was proposed that first has to be identified the job functions, **processes and roles** of employees within each team. In that way the structure of the modules can be created on the basis of the job functions identified and an order can be established. By looking at each job functions identified, the modules structure can be build in a way in which the employees fulfilling that role will be assigned only with the necessaries SOPs for their duties. ROS group members explained that by creating an order, employees will experience a significant reduction of SOPs in their training session. Moreover for sustaining that order it is proposed that all of the information which has to be gathered, containing the structure of the modules assigned

to particular job functions, should match and be registered online in a model called **Competence Management** House.

- **What actions ROS group took to embody the knowledge?**

Identifying the relevant knowledge is not enough for completing the Internalization process, but using techniques as "learning-by-doing or using" can help the individuals to understand and learn from the explicit knowledge (Nonaka & Konno, 1998).

Consistent with the available documents, it was observed that ROS group members also took actions in order to make sure that the knowledge was clearly transferred and understood by each member. The Team Leader and the project manager of the group performed various meetings in which the matter was clearly explained to all. As a result of their understanding, the members of ROS group detected an important issue. They observed that the chaos was created also because a single SOP is being part of the structure of more modules. Taking the example of XY employee, let`s say he is assigned with 10 modules in his training sessions. Within the 10 modules the same SOP can replicate around 3 times, as one of the ROS group member stated in an interview: "(we) need to be more clear in the way (we) use the modules, so (we) don't have the same SOP in 10 different modules." (Appendix , pp. 87). The members decided that the SOPs would be significantly reduced if an SOP would have a unique place in just one module. Therefore it became important to find the right module for an SOP to be in, so that the rest of them existing in other models structure can be removed.

When they calculated the general average of SOPs allocated per employee it was necessary to look at the total number of SOPs allocated to the entire division, which was 145.713 SOPs. The total amount of employees was 661, therefore the general average of SOPs allocated per a single employee would result in 220 SOPs. As it was explained in the Introduction, the first KPI which needs to be executed by ROS group is to reduce SOPs by 15% from the number of 92 to 79. Since the rate of an employee is 220 SOPs, it was deduced that the number is having such an increased value in comparison with the normal value 92, because some SOPs are being duplicated in the training plan of an employee. Therefore it was deduced that is necessary to eliminate the SOPs duplicates from the training plan. ROS members successfully internalized the explicit knowledge and embodied it in their actions, by understanding and knowing how it is workings. They proved their understanding by using the knowledge from which other ideas which require action have arisen.

By using the concepts explained in theory about Internalization process and by analyzing ROS group members' behavior in a practical situation according to the theory and collected data, the researcher didn't find any challenge that group might encounter. Firstly they identified the relevant knowledge for their case and afterwards they took actions in order to embody the knowledge by performing meetings.

- **Training program technique**

The project coordinator didn't have experience or knowledge on how to work with big projects like ROS project, as it was also stated by one of the ROS group members "Peter has no experience in managing projects, so there was no plan. And we didn't know…we were just saying, hey we may have some input. Or, if we gonna do something we would like to know when and how and what." (Appendix 1, pp. 82). As the project coordinator realized he is lacking in knowledge regarding project management, he decided to learn more by getting practice from a training program. Nonaka and Konno (1998) explained that the technique as training program sustain the "learning-by-doing" concept helping the members to understand and learn new concepts from the knowledge organization.

The training program in project management duration was seven days therefore only the project manager and just one of the Area Training Supporter were trained. It was observed that not all of the members were trained because of lack of time, therefore it was required that the personal knowledge had to be passed to the level of social knowledge. As Niedergassel (2011) explained is important to make the distinction between individual knowledge and social knowledge. Individual knowledge has the focus of tacit knowledge which is embodied in a person`s mind, while social knowledge can be accessed and understood by everyone in the same time (Niedergassel, 2011). In order for all the members of ROS group to gain the knowledge which the project coordinator and his colleague learned from training, first the knowledge had to be transformed from tacit to explicit knowledge. This subject will be resumed later, at the Externalization process, since it is representing a different knowledge mode.

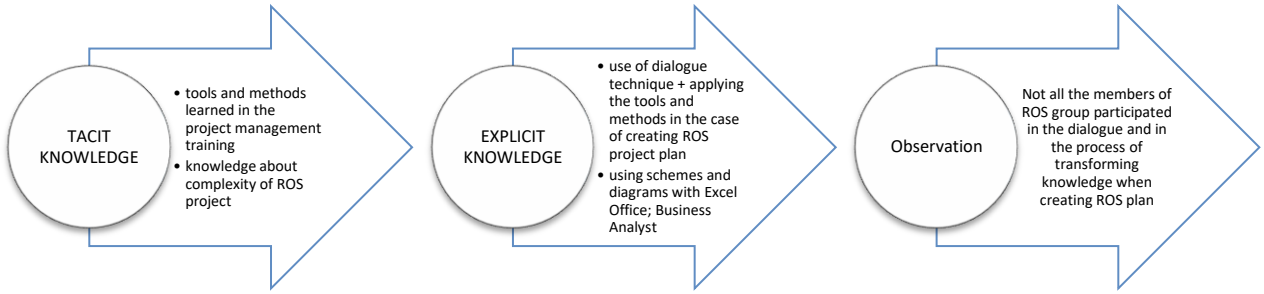
Observing the behavior and the conclusions of ROS group members regarding the information which was provided from top management, the initiatives which they took by performing a training program, the researcher ascertained that the individuals are not encountering challenges within the Internalization process. The idea which has to be observed is that not all the members had performed the training, therefore only some of them used the training technique in order to learn new concepts about project management. This observation require further analysis in order to examine if there are any challenges, but in the Externalization process which will be explained next.

The second mode from the first stage of SECI model, called Externalization has the point of focus the way tacit knowledge is being converted into explicit.

4.1.2 Externalization

In order to convert tacit into explicit knowledge there is a need of using different models or tools that can be easily understood by everyone. The techniques which are proposed in the literature to be used by Nonaka and Konno (1998), in order to articulate the tacit knowledge are words,

language, concepts, diagrams, analogies and sketches, also considered necessary is the use of dialogue to trigger the process and help the members to learn and contribute.



- **Models, tools and dialogue for creating explicit knowledge**

As it was discussed before, the project manager and one of the Area Training Coordinators were trained in order to acquire knowledge about how big projects should be managed. In the training program they learnt what tools and methods they have to use in order to manage a project and how they have to apply them in practice. The tools and methods proposed to be used while managing a project in the training program:

- Establish the structure of Project Organization
- Brainstorming method
- S.M.A.R.T. Hierarchy of objectives – setting the objectives with its deliverables
- Milestone planning tool for illustrating project schedule
- Risk analysis and Risk management tools

As it was explained before, the project manager and the Training Supporter had to pass the knowledge acquired so that everybody can easily learn from their experience and knowledge. The project manager started to develop a plan and document it, using the models proposed in the training, so that everybody can learn from his personal knowledge.

- **How the project manager used the dialogue technique to trigger Externalization**

By taking help from the two interns who were hired especially to perform special tasks within ROS project, the project manager applied the knowledge acquired from training in the specific case of ROS project. Using dialogue method the project manager explained the procedures to the interns and what it has to be done in order to convert his knowledge into explicit forms. As a result of brainstorming method, explanations and discussions using words and language, the three of them developed the tools used in the ROS project plan.

The way the project manager converted the knowledge acquired in the training, by applying it in the case of ROS project, will be briefly presented as it follows.

The first step in organizing ROS project was to clearly set the objectives by using S.M.A.R.T tool as it can be observed in the Figure 11. The deliverables of the project (noted in light blue) had to contain specific and tangible results that show the steps of realizing the project and to help tracking it at every moment. A method was suggested in the training to be used for identifying the deliverables. First, the project manager guided the interns to identify all the deliverables that can came in mind by brainstorming and writing them down using language. After discussing upon the results, next step was to organize the deliverables in work streams (dark blue) by making analogies, which resulted in ANALYSE; WORKSHOPS; TRAINING; COMMUNICATION. Each of the work streams contains more deliverables which can be divided at their turn. In order to track and execute the deliverables, the Milestone planning tool was used, choosing Microsoft Project Program which allowed performing changes at any time. The common goal realization (green box) was settled by the project manager as reducing SOPs. Linked to the purpose, the 3 key indicators were established (marked in red boxes) from which first two are actually representing the KPIs, settled by the upper management from Product Supply. It was observed that even though ROS project plan was documented, it was still not having clear steps therefore the plan was in a continuous change.

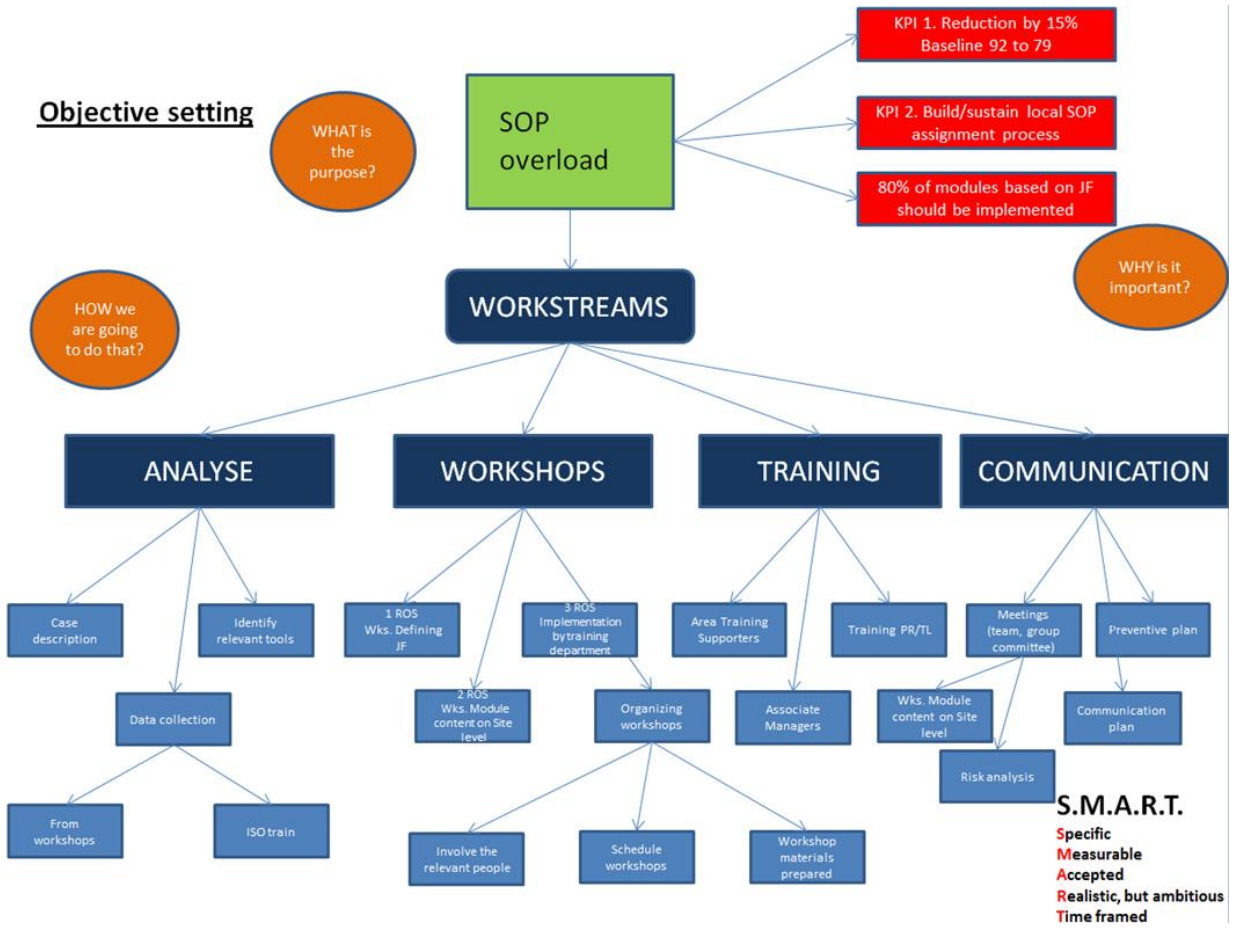


Figure 11. Hierarchy of objectives. Source: (ppt. documents ROS)

One of the other necessary tools while planning ROS project, was Risk analysis matrix. Using this tool helped to map the risks and consider an immediate preventive plan for them. The level of risk was calculated by taking into consideration how high or low was the probability for a risk to arise and what would be the consequence of the risk to happen. Another essential tool considered was Risk management, which helped in managing the risks and set up actions as preventive plans for each of the risk emerging.

The project manager understood the information which he acquired from the training program and he successfully applied it in the case of ROS project. Using dialogue technique to trigger the Externalization mode, the interns also participate to document and apply the knowledge learned and explained by him. After the documents were done, the Training Supporter and the Team Leader agreed upon the results of the work. The observation to be made is that the project manager didn't involve all the members in dialogue in order to convert the tacit knowledge into explicit. Nonaka and Konno (1998) explained that the dimensions of the Externalization mode is first involving others for participation and contribution using dialogue technique and second translating the tacit knowledge into understandable forms. The researcher concluded that even though overall it was a successful transformation of tacit into explicit knowledge, not all the members of ROS group participated or contributed in any way at that moment. In the literature Sunstein and Hastie (2015) claimed that neglecting information held by some members it`s representing an obvious problem why groups are not performing well. Since ROS group is not having significant results on reducing SOPs, the challenge has to be overcome. Therefore the use of dialogue technique by involving all the ROS group members will be addressed further in the recommendations chapter.

- **Schematic representations and diagrams**

Another example is provided, that demonstrates that tacit knowledge is easily converted into explicit by ROS group members. In order to explain the level of complexity of ROS project, Excel Office was the program primarily used for developing different statistics. As it was explained before in the Internalization step, ROS members deduced that deciding in what module should be placed a particular SOP, will help in removing the same SOP from the rest of the modules, fact which will considerable reduce SOPs. The irrelevant SOPs assigned to employees tend to promote a wrong approach about the process of read and understand SOPs, because it can be perceived as a waste of time (ppt. slides ANQR). Members of ROS group tried to analyze this situation by having the upper view of it as it can be seen in the next Figure x. It was observed that in order to reach to conclusions and create the diagrams, all the members participated and contributed with their knowledge.

Assignment

EMP	ASSIGNED	DEPT
AKVC	456	5724
WHMA	450	5701
AIRM	430	5724
MNRN	421	5724
CATJ	413	5701
LNQM	409	5724
GMJ	405	5701
PHHS	404	5702
MXQL	399	5724
DTPE	396	5702

Module content

QBIQ_NR	Amount_of modules
Q123895	18
Q144207	15
Q130633	13
Q116178	13
Q002199	12
Q124187	12
Q123600	12
Q005912	11
Q142383	11
Q174686	11

Figure 12. Schematic representations of SOPs Overload problem. Source: (slides presentation)

In the Figure 12 can be seen a list with "Top 10" employees that are assigned with most big amount of SOPs, having their initials on the first column. For example, employee having the name initials AKVC from the department 5724 it is assigned with 456 SOPs in total. A lot of the assigned SOPs are not relevant and it can create a risk in the way AKVC employee is following the compliance rules.

Another remark that can be made is by looking at the Module content column at the most rated "Top 10" SOPs that are founded in more than 10 modules. By using Excel Office, ROS group showed how the same SOP with the code Q123895 is founded in 18 modules.

Another program used in order to convert the tacit knowledge and to represent the overload problem was Business Analyst. The project manager used his experience with the program and analyzed the overload of SOPs problem by representing and interpreting it in a better way. It was observed that he involved all the ROS members in the dialogue, explaining the representation of overload problem in Business Analyst and asking for contribution.

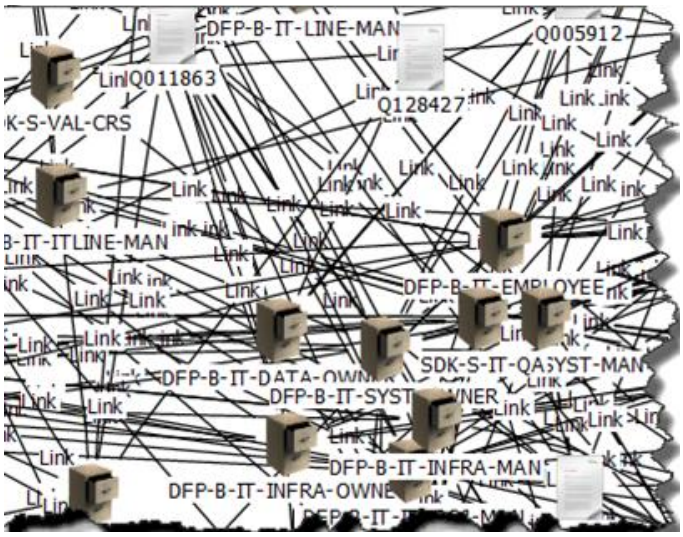


Figure 13. Representation of overload problem in Business Analyst. Source: (slides presentation)

The modules are represented by grey cupboards and the SOPs are denoted as white documents in the Figure 13. Is can be clearly seen that one SOP is assigned to more than one module and this fact created a mess in the structure of the training plan. Generally speaking, each SOP is approximately found on 2 or 3 modules.

The examples provided shown that the members are using different tools, methods and programs to transform their personal knowledge into explicit and also they use the dialogue technique in order to develop explicit knowledge. The challenge which the group encounters is that in some cases, such as when documenting the ROS project plan, the participation and the contribution process of all the members has to be improved, since designing the project plan is an important step for a group to perform well.

As it was explained in the literature review, Combination stage is happening when explicit knowledge is converted into tacit (Chang, 2005).

4.1.3 Combination

Within combination phase, explicit knowledge of individuals is combined in order to form more complex set of explicit knowledge. This is made by using different practices such as information exchange, communication, meetings as it will be discussed (Nonaka & Konno, 1998).

- **Combination of explicit knowledge by exchanging information**

ROS project group has adopted various ways in order to exchange information and communicate. ROS group organized workshops with the other teams from the departments of DFP BA, Management division. The workshops were necessary for solving the overload problem because the input and knowledge of the teams were essential in making a decision regarding what job functions they perform and what the structure of the modules should contain for their roles. ROS group has just the generic overview of the modules content of SOPs, therefore they needed the knowledge from the managerial positions and from experienced workers. Also as Nonaka and Konno (1998) is explaining, the first process within Combination mode, is to first collect and integrate existing explicit public data in order to assemble new concepts. The workshops were introduced in September 2017 and it was observed that, because at that time there was no clear plan which needed to be followed or any clear responsibility, some of the results of the workshops were lost, which created problems later in the process of solving ROS project. Why the results were not written down? Lack of interest and not having clear instructions from the project manager regarding documentation of the workshops. One of the members of the ROS group stated in an interview that “when (you) leave the workshop then (you) need to have some clear roles and responsibilities for the actually go for it. But (we) didn’t have that…so a lot of workshops (I) think right now, (you) don’t have the result” (Appendix 3, pp. 94). The challenge identified in conformity with theory explained by Nonaka and Konno

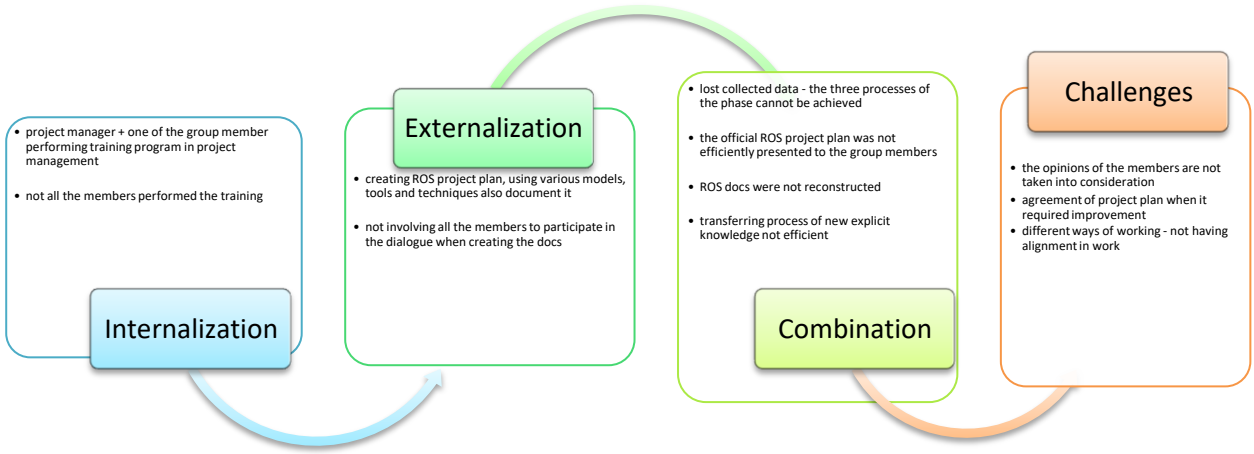
(1998) and by use of data from interviews and observations, is that the first process within Combination mode referring to capturing and integrating the public knowledge has to be improved. If the data is not efficiently collected, the other processes which are referring at transferring the data and editing the existing information cannot be achieved either. Also according to the HIKW model, knowledge can be developed only by finding the right patterns through the information (Niedegarssel, 2011). Since information is missing, it might represent a challenge for the group to generate knowledge.

Since transfer of explicit knowledge with other teams or group is about knowledge sharing at a different level, such as organizational level, it is to be taken in consideration for further research, so it will not be discussed in detail in the thesis.

- **Combination of knowledge sharing by using communication**

a) KS among project manager and group members

Initially in the Internalization mode, explicit knowledge was embodied by the ROS project manager and to the one of the Area Training Supporter, when getting trained on how to work with big projects. Secondly, conversion of tacit into explicit knowledge was successful made by using different tools, models and techniques which were presented in the Externalization process. It will be further analyzed how the individuals of ROS group communicate the explicit knowledge. Nonaka and Konno (1998) explained that the second process within Combination phase is transferring and presenting the new explicit knowledge to members through meetings or by having conversations.



After the models containing ROS project plan were documented, the project manager had the obligation to get a second opinion on the results from the group member who also followed the same training program. After he explained the results and transferred the new explicit knowledge, the Training Supporter colleague, asked for the documents to be send by email so he can take a closer look into it. The project coordinator convinced him to agree upon everything in the conversation saying that "there is no other way to go around this". After he agreed on the results of the work, next step was to share the explicit knowledge and get clearance of the Team Leader as well. The rest of the ROS members group were just informed that the documents are done and can be found on the cloud but the knowledge was not verbally presented to them at that very moment, but after 2 months. Since the answer was also positive, the documents had become the official plan of ROS project. After 2 months when the plan was finalized, the project manager presented the ROS overview plan with rest of ROS group members. Since the plan was finalized way before its presentation in the meeting, that's the reason why there were not too many suggestions. Neither discussion about alternatives regarding project plan was encouraged by the manager, therefore the members listened and agreed upon the knowledge received on ROS project plan. When the group members were asked about how ROS project plan was communicated, their answer was "He briefly showed it […] Of course Peter has done some overview or information about it to us, but still…And it could also be part of the communication plan. It should be actually!" (Appendix 1, pp. 82). According to the second process presented by Nonaka and Konno (1998) within Combination mode, transferring the new explicit knowledge to the individuals is essential for giving the opportunity to the members to agree upon their common decisions. The way the project plan was communicated is not seen efficient and requires improvement, since the group members were not totally aware of it.

Also Nonaka and Konno (1998) described the last process of Combination phase referring at editing the existing information by using documents in order to sort and reconstruct the explicit knowledge. In the interviews conducted by the researcher, the members were asked their opinion about the plan which was documented and they "still see some issues that (you) need to work on. But that`s because (I) have years of experience with projects" (Appendix 1, pp. 81). As well it was observed by the researcher that the group members didn't think the plan was clear enough because they would like to know clearly when and how or what has to be done (Appendix 1, pp. 82). In order for the plan to be improved, the last process of Combination phase is required to be efficiently achieved.

b) KS among group members

Another example of how group members are presenting their explicit knowledge is as follows. One of the group members developed in excel a tool which was helping him to have an overview of each team with its modules and the content of them. As it was given a number of examples before in the Externalization mode, members of ROS group are efficient in converting their tacit into explicit knowledge. The researcher observed that the tool was very useful but nobody else

knew about it. The researcher introduced the tool to the other members of the group and it proved to be helpful among all the members. The researcher tried to find out why the explicit knowledge was not transferred to the other group member as well. He stated the reason for not sharing it such as "the tool wouldn't be useful for other departments, since all the departments differ one from another". His colleagues were asked if they feel the same about the differences among the departments but their reply was on the reverse. They think that even though the areas are different they could find an alignment in the work "the way how (we) do it now is just like, oh (you) do this and (I) do another way and (we) are not really aligning it. So (I) don't think is the best way (we) are doing it right now." (Appendix 1, pp. 95). The researcher explained the situation to the project manager as well and he thought that one reason might be because of competition among the members of the group. By analyzing the findings with the particularities of the Combination phase, it can be observed that the second process of transferring the new explicit knowledge is not efficiently achieved.

Since members of the ROS group are not communicating in a very efficient because the three processes such as collecting and integrating, transferring and editing or reconstructing the explicit knowledge require improvement, the researcher concluded that the way explicit knowledge is shared in ROS group is not successful. KS can be hindered because of three challenges identified which require further analysis. The first challenge is that ROS group members` opinion is not considered as a necessity; the second one is the fact that everyone agreed on ROS plan, even though they actually thought it require improvement; and the third one is the fact that members have different ways of working and prefer to work individually instead of share their knowledge and find an alignment in their work.

The last mode called Socialization will be also analyzed, which is focusing on how tacit knowledge is shared between individuals (Chang, 2005).

4.1.4 Socialization

The process of Socialization includes interactions which allow individuals to create common knowledge by sharing their insights about their experiences through various activities (Nonaka & Konno, 1998). Nonaka and Konno (1998) claims that Socialization mode sustains the capture of knowledge through direct interactions and the transfer of ideas by spending time together in the same environment. In the case of ROS project group, a meeting took place among the members of ROS project group, giving the opportunity to the researcher to observe the behavior of the members while they were directly interacting one with each other.

The outcome of the meeting was supposed to be about deciding on how the results from the first workshop should be implemented, also appoint whom and what have to do for solving different tasks. The project coordinator suggested building a new setup starting only with one department,

which was to update and rename the existing modules. He also suggested that would be easier if the modules will be split among skilled and non-skilled workers. The project manager mentioned that the work had to be individual and to be taken very seriously for the next two days, meaning that the time should be granted only for this particular task and nothing else. Only after this step would be completed, ROS group can go on to the next step which would be looking into the content of modules and see what can be removed and what not. The researcher observed and documented the behavior of the members during the meeting and how they interact and colaborate, as it is seen in the next table:

	ROS group members							
Meeting for deciding how to implement the results from the first workshop	Lasse (Team Leader	Peter (project manager)	Helle (Area Training Supporter)	Anders (Area Training Supporter)	Helena (Area Training Supporter)	Kenneth (Area Training Supporter)	Ana Maria (intern)	Sankeeth (intern)
Offer directions - leadership		X						
Offer ideas, identify risks			X		X	X		
Seeking opinions and alternatives								
Challenging – seeking justification						X		
Being responsive to the initial idea	X	X	X	X	X	X		

Performing group roles	Not present	Spokes person, decisio nal role	Giving suggesti ons	approvin g	Giving suggesti ons	Seeking justificat ion	recor der	Underst anding the plan
Summarizi ng		X	X			X		

Table 2. ROS project group deliberation meeting

The members of the group were also engaged in the discussion by asking different questions in order to make sure that they understood correctly the plan which the project manager proposed. Some of them were addressing various risks that might appear but in the end they all agreed that the plan is having a good approach. The researcher observed that the plan was already settled and there was no question to change anything, even though the members might have experience and knowledge to add inputs. ROS group started to work upon the plan and they realized it was not possible to be done in the two days settled not even for one team. Since it was more complicated as they expected to be, at that time it was established that every Monday they have to work on the proposed plan. The Team Leader was also responsive to the plan even though he was not present at the meeting. In time the researcher observed that the group` expectations were too high and unrealistic and a lot of additional risk came up which they were not aware before. Therefore the group members didn't continue on it. The way members of the group shared their knowledge might affect in a negative way the way they took decisions about their actions and plans. Another observation to be made is that the meetings performed by ROS group members were very rare or short due to the lack of time.

The way ROS group members collect and discuss knowledge through interactions is not seen as an effective process. As a task of a group they should think, brainstorm, deliberate, criticize and in the end select the best decision for taking the right course. The members` purpose of participating in the meeting was to learn and understand the knowledge about the plan proposed by the project manager therefore they didn't discuss any possible alternatives that might exist.

4.1.5 Conclusion part - use of SECI model

By using SECI model, the first research objective was achieved. The investigation upon ROS current KS activities helped in identifying the challenges which need further research. The challenges appeared in their KS practices are resumed as follows:

- Internalization: not all the members performed the training program for managing projects
- Externalization: not involving all the members of the group to participate in the dialogue when creating the documents for the ROS project plan

- Combination: lost data needed to be collected– the three processes of the mode cannot be achieved

  The official ROS project plan was not efficiently presented/transferred to the group members

  ROS project plan documents was not clear enough and required improvement, but they were not reconstructed – the opinions of the members were not taken into consideration – even so, agreement upon ROS project plan

  ROS group members have different ways of working and prefer to work individually instead of share their knowledge and find an alignment in their work – transfer process require improvement

- Socialization: rare interactions among ROS member group because of lack of time

  Interactions are not efficient – not discussing different opinions, alternatives and ideas - leading to bad decisions

4.2 ROS group development

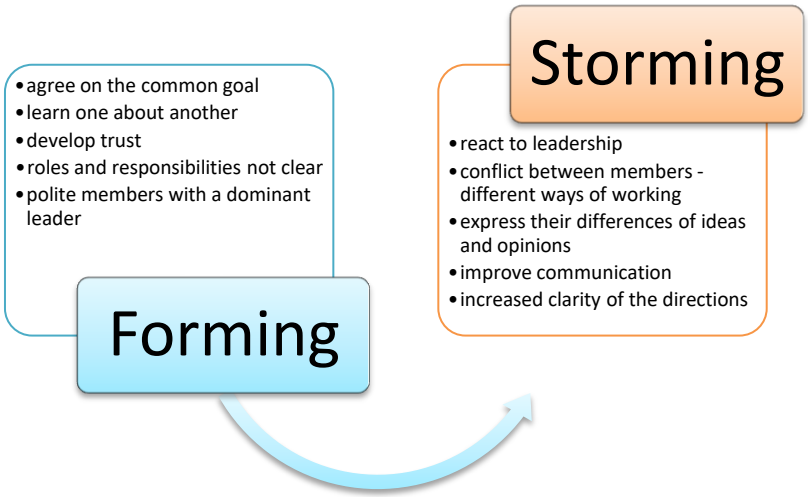
In order to elaborate on the challenges identified in the knowledge sharing practices of ROS group, the researcher decided to explain them in more detail and show their impact.

When ROS group members were asked what is their opinion about knowledge sharing their answer was that "some are very eager and very comfortable about knowledge sharing and some of (us) are definitely not." They believe "(we) are very different persons and also in collaborating themes, schemes, […] (we) are very different in our opinion on how to do things and (we) don't have a standard."(Appendix 1, pp. 79). Some of the members think that this is representing a big challenge and they don't feel comfortable when new implemented ideas are always changing the way they have to do their work. Because of that, members of ROS project group believe that "(we) really need to work on how to be aligned and how to work for a standard way of solving (our) jobs." (Appendix 1, pp. 79).

The researcher observed that when individuals are in groups they act differently than when they are alone. In social situations individuals change their behavior and nobody seems to discuss about alternative ways of doing things as they confessed in the interviews. Finally they always agree on the initial idea proposed by the project manager, even though they think something needs to be changed or requires improvement. Tuckman (1965) explained that in order for a group to be more effective and achieve the goals there is a need to be able to understand how group`s behavior changes over time. Tuckman`s model presented 5 stages through which a group is going through and explained that each stage builds on the previous one. If one is missed, it might affect in a negative way the last "Performing" stage where all the groups try to reach (Bonebright, 2010).

First “Forming” stage is characterized by positive and polite members who have a dominant leader, also members at this stage agree on a common goal and develop understanding about the project (Bonebright, 2010). Since the group was formed unofficially seven months before the ROS project plan was documented, the members can be placed in the process of going out from first “Forming” to the second stage called “Storming”. In the last period they learned a lot about each other`s way of working and trust was established among the members. The individuals of ROS group agreed on the common goal of reducing SOPs in DFP BA, Management division, but still they don’t have clear roles and responsibilities, thereby they don’t know exactly what it needs to be done.

In order for the ROS group to reach to “Storming” stage they need react to leadership and improve communication so that they can express their differences of ideas and opinions. As Ding (2016) claims the encouragement of members to participate and collaborate helps the group to shorten the time to be in the “Forming” stage. “Storming” stage is also characterized by a conflict appearing among the members because of their differences of opinions (Ding, 2016). The conflict is a normal characteristic of this stage and in order to take advantage of it, communication and collaboration skills need to be improved among the members (Ding, 2016). As it was concluded in the end of analysis using SECI model, the process of involving all the members of ROS group in participation requires improvement. Also the interactions are very rare and not efficient since not taking in consideration the opinions of the members can lead to bad decision making.



By analyzing current knowledge sharing practices using SECI model, the researcher found out that Combination and Socialization modes require improvement. In order to understand better members` behavior, it was identified by looking at the characteristics of the first two stages of Tuckman`s model that the challenges encountered make part of the process through which a

group is getting developed. Tuckman`s model also concluded that the challenges can be overcome if the communication and collaboration are improved among the members.

4.3 Effect of challenges identified on the decision making process

Sunstein and Hastie (2015) discussed about the importance of interactions and of discussion considering alternatives and ideas of all the members before reaching to a conclusion. In the next part, the barriers identified using SECI model will be analyzed explained in order to discover the impact which they have and later see how they can be overcome. Different situations were identified above in SECI model, analyzing the way members interact and collaborate when they have to take important decisions on how to achieve their goals. Sunstein and Hastie (2015) presented two major influences that a group might encounter while deliberating; first one is informational signals and the second type social pressures.

4.3.1 Informational signals

Sunstein (2015) explained that members of a group tend to think that the leader is right and he knows what he is doing. Therefore they prefer to agree instead of wondering if the information is right and to be critical about it. In the case of ROS group meetings, the individuals are not thinking in a critical way upon the project manager shared ideas. The members of the ROS group were asked how they feel about their project manager decisions. Most of them had definitely answered "(I) trust him. (I) find him very treasured for this department." (Appendix 1, pp. 85) Only one of the group members thinks "he is not used to have these big projects, but he is doing a good job (I) think. (I) am not totally convinced about this is the right thing to do all the time. And sometimes a little bit coincidently how they do it, but (I) mean he is doing a good job." (Appendix 3, pp. 98). Since the ROS project is a difficult project to be solved, when members of the group don't have clear solutions to it, they might prefer to conform to the norms coming from the project manager.

4.3.2 Social pressures

Sunstein (2015) explained that people tend to avoid personal risks that might appear because of disapproval. Therefore they prefer to be silent instead of disagreeing with the leader who seems to have a clear opinion. In the case of ROS group, it can be taken as an example the situation explained in the Combination mode of KS, in which the Area Training Supporter who also got the same course as the project manager had to give feedback on the plan results and documents regarding ROS project. Initially he wanted to take a closer look but after the project manager convinced him that there is no other way to do it, the Training Supporter decided to follow as

project manager addressed. Also there are other situations appearing when members of ROS group need to take decisions and even if they felt that might not be the right one, they just conform to it.

Because of the influences, according to Sunstein and Hastie (2015), a group might encounter one or more from the four different problems which might hinder their performance:

- **Amplifying the errors of the members instead of correcting them**

Sunstein and Hastie (2015) presented concepts as heuristics and biases that might produce errors in the way a group is making decisions. According to the analysis, ROS group members didn't encounter this problem. Even though they feel that their opinion is not appreciated as before, the individuals have the desire to correct the errors of their colleagues when they are aware of them. For example, when the project manager communicated the results of the ROS project plan to his colleague, he didn't ask for any kind of feedback regarding the plan. Another example would be the fact that one member said about the project plan that requires improvements, even though the opinion was not taken into consideration.

Because of the fact that before there were more meetings, members were feeling more motivated to share their ideas with each other. The members declared that they feel their ideas are not appreciated as before as it was stated also in one of the interviews "Early on (we) were involved in everything, but now it`s just Lasse and Petter going on." (Appendix 3, pp. 97). The way knowledge is shared at the moment is more "over the coffee machine" and the motivation of contribution to ROS project has decreased in the last period (Appendix 3, pp. 97).

- **The cascade effect**

In theory cascade effect phenomenon is the situation in which members of a group are following some actions and might continue on a mistaken course. Sunstein and Hastie (2015) explained that the group might favor the idea taken by the leader without discussing alternatives; therefore the outcome of the discussions might take a wrong course compared with the one in which all the opinions are taken into consideration.

ROS members tend to encounter this problem in their work on project. Before even the project manager got the course and he learnt how important is to develop a plan with clear steps and document it, ROS project group started to take actions and organized workshops. The researcher observed that group members didn`t have a clear purpose and they didn't consider the time spend for them and other employees by doing the workshops. Most of them were convinced that taking the results from the workshops will clearly help to reduce SOPs. Even though there were no proper results coming out from the workshops organized, they continued the process involving the rest of the teams as well. The members also lost some information from some of the teams.

As it was discussed before because of lack of interest and now having clear responsibilities on their duties, the results coming out from some of the workshops were not documented therefore forgotten. After the plan was made, the members realized that the workshops were not totally effective so they needed to organize another session of workshops. Taking in consideration that ROS group thinks that the time granted for solving SOP overload problem is representing a challenge since they have to work on their daily tasks as well, the direction which they had took was not an effective one. It didn't give them any proper results and lost their precious time.

Sunstein and Hastie (2015) presented two types of cascades, such as informational and reputational cascades. Informational cascades refer to lack of information of individuals and preference to agree with the group decisions even though it might not be correct (Sunstein & Hastie, 2015). All the members of the group were aware of the fact that the methods which they started to act upon had no results since last seven months. Therefore informational cascades are not applicable in case of ROS group. The second type called reputational cascades might appear in a group when the members know what is right to do but in order not to face disapproval they might go with the group decision (Sunstein & Hastie, 2015). They continue to work applying the same method, even thought it was an uncertain situation. A member of ROS group stated that he "was kind of a big opponent in the beginning. (I) was against the way they did it in the beginning, because this is not gonna work." (Appendix 3, pp. 93) The members think that if the attitude towards solving the ROS project would be more mature and stable, that would motivate them to share ideas (Appendix 3, pp. xx).

Moreover the researcher observed that because alternatives are not discussed and just approved by the ROS members, can lead them into a wrong direction as it already happen. ROS plan was not discussed and since the members think that it requires improvement, might negatively affect the decisions that group will take in the future according to the plan and lead them in wrong directions which will take their time.

- **Group becoming polarized**

Group polarization occurs when individuals of a group take decisions that lead to more extreme opinions than they were having before discussing (Sunstein & Hastie, 2015). When ROS group discuss their concerns don't tend to become more extreme. The roles and responsibilities are not clear enough and they feel that there is a need of conform with initial opinion of the project manager. Even though this is happening, they are discussing about the risks that might appear and don't adopt more extreme positions.

- **Groups focusing on information which everybody knows already**

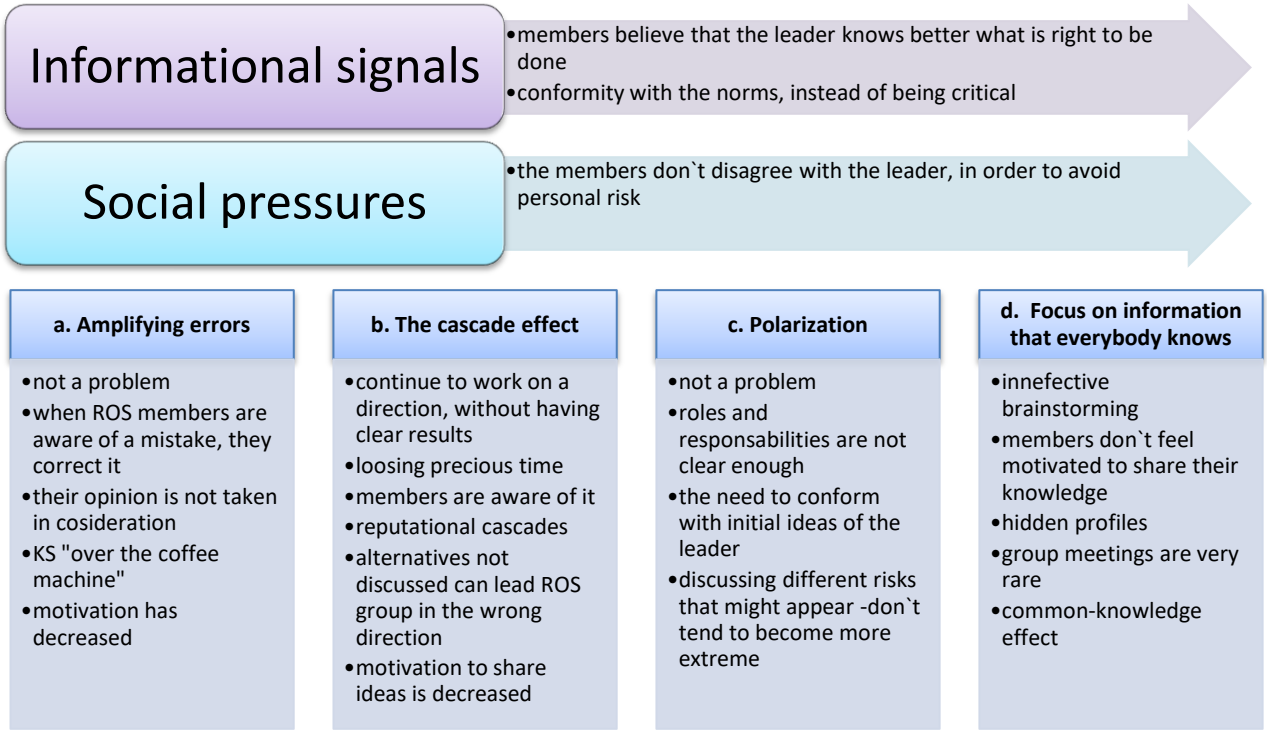
The problem is appearing when members of a group don't consider sharing their tacit knowledge and their focus is kept on the information which everybody knows already. Sunstein and Hastie (2015) explained that groups tend to share the common knowledge and neglecting the individual

knowledge, concept so called hidden profiles. The unshared information can have a bad impact on the way members take decisions. The individual knowledge can provide critical perspectives to different ideas proposed and therefore the group can benefit in the end by taking the right decision (Sunstein & Hastie, 2015).

As it was discussed before, ROS group members don't feel too motivated to share their tacit knowledge since they feel is not taken into consideration. Also the meetings are very rare when they have the opportunity to share their tacit knowledge. Therefore the chances to share knowledge and the motivation for that have become very low. Since individual knowledge seems to be neglected in the interactions and collaboration among ROS members, according to the literature they are experiencing the hidden profiles issue. Sunstein and Hastie (2015) also described the common-knowledge effect as the agreement with original ideas suggested in a deliberation. The members are currently experiencing common-knowledge effect because they always agree with the initial judgments which are proposed by their leader.

4.4 Conclusion of analysis

According to Sustein theory, the barriers appeared in ROS group while working on overload project, were identified as follows:



Whenever there is a meeting in which deliberation need to take place, such as ROS project plan evaluation or deciding how the next step of the plan should be implemented, group`s final judgment is reflecting the project manager` initial opinion. According to theory, for a better making-decision, alternatives need to be critically discussed, studied also re-examined (Sunstein & Hastie, 2015). This is implying the evaluation of risks and being aware of all the pros and cons before making a correct decision.

Also according to Tuckman`s model, ROS group need to reach to "Performing" stage in order to have significant results and to increase their productivity. As it was analyzed, ROS group is just in the beginning of the process, passing from the first stage to the second one "Storming". They are almost qualified to reach to the second stage, since the members of ROS group started to realize they have different ideas and ways of working. In order for ROS group to continue to develop as a group they need to take various actions, which will be proposed in the recommendation part. One of the steps towards development is also improving communication and interactions so that the differences which appear can be easily expressed and discussed in the meetings. By improving the ability of the group to communicate and collaborate, KS practices will be facilitated among members of group which will improve their decisions and the chances to achieve their organizational goals.

5. Recommendations

In this chapter, recommendations will be provided based on the key issues identified in the analysis along with knowledge collected from the literature review. Applying SECI model, it was concluded that the way ROS members interact when they deliberate, requires improvement. Improving the communication and interaction among the members will help them take better decisions and achieve their organizational goals.

5.1 From "Forming" to "Storming"

By using Tuckman`s model it was ascertained that members of ROS group are passing from the first stage to the second one. Once with reaching to "Storming" phase, members are facing with an appeared conflict of ideas and opinions between them. "Storming" phase claims that conflict between members is a normal characteristic of this stage and in order to take advantage of it, communication and collaboration skills need to be improved among the members.

ROS group members are challenged by different phenomena which is changing their behavior in meetings when they should share their opinions and knowledge. By analyzing ROS members` behavior using Sunstein and Hastie (2015) theory, were identified the barriers which a group encounter while collaborating. In order to achieve effective KS, ROS members have to overcome the barriers identified. The model presented by Sunstein and Hastie (2015) consists in eight approaches which have the focus to bring success in groups interactions while deliberating.

The actions recommended to take so that ROS group can reach completely to "Storming" stage according to Tuckman`s group development model, will be explained in the next section. Even though passing to "Storming" stage means a troublesome phase in their development cycle as a group, ROS group should shorten the period within "Forming" stage. Groups usually fail to reach to "Performing" stage because they might get stuck in one of the stages.

1. First step should consist in recognizing the need to move out of the first stage
2. Frequently organized meetings between members of the group to work on common tasks
3. Establish clear roles and responsibilities
4. The project manager should encourage the members to participate communicate and collaborate

In the way the project manager can collect more ideas about project plan and the risks which can emerge, also avoid misunderstandings and conflicts which arise because of little communication. Understanding the benefits of collaboration in effective decision making is an important matter, thereby ROS members should be aware of the advantages and disadvantages of the concept.

5.2 Eight approaches for overcoming barriers

In order to encourage the members of a group to share their valuable information and perspectives leaders have to create such an environment in which they increase diversity among members. Sunstein and Hastie proposed 8 approaches which leaders can use. Recommendations will be provided for ROS project group by using these 8 approaches, according to the barriers identified in the analysis.

1. Inquisitive and Self-Silencing Leaders

In the analysis it was concluded that members of ROS group experience the cascade reputational effect. Reputational cascades are appearing when members tend to silence themselves and go with a group decisions without expressing their ideas, in order to avoid the risk of disapproval. Moreover the findings showed that members of ROS group tend to agree with the project manager decisions. Because they don't have yet clear responsibilities and roles, the members prefer to conform to the norms coming from the project manager, effect being explained as informational signal.

The correct step which the project manager should take in this case is to let everybody know in the performed meetings, his desire to hear the information coming from each individual. The project manager can adopt the "fifteen-minute rule" allocated to each member in meetings, specifically having the purpose of hearing others` information. That does not require that a member has to talk for 15 minutes but just he cannot go over the limit of this time unless there is a special reason. In that way members of the group will feel they are involved in the decision making process and will get the satisfaction to contribute to achieving the goals. Moreover the project manager could allow first to hear others opinion instead of expressing his first. Even though lack of time is representing a challenge for the members of ROS group, sharing the information held in people`s mind might change the direction of their decision and going in the right direction save a lot of time.

2. "Priming" Critical Thinking

Hidden profiles concept which is defined as members sharing more the common knowledge which everybody already knows and tend to neglect the individual knowledge. Since the individual knowledge can provide critical perspectives on ideas proposed which enable the group to reach to the right decisions. In order to reduce the effect of hidden profiles and improve deliberation, the project manager can use "Priming" method. Before asking the members for a meeting to discuss, the project manager can use a technique which will help the members to make the right associations in their memory. The project manager can use different words for the name of the meeting such as "think critical" instead of just discussing. In that way the manager can create an environment in which the goal is to hear opposing ideas before taking the right decisions. Using "Priming" technique, hidden profiles and reputational cascades will be significantly reduced and deliberation will be improved in ROS group.

3. Rewarding Group Success

In order to motivate members to reveal what they know and reduce the effect of hidden profiles and cascades, members should be rewarded in the case that majority of correct group decision. Encouraging members to focus on the results of the group and not on individual results, members would feel their interest is to declare and reveal exactly what they think or know without feeling influenced by thinking about their own risk or reward. Taking the example of the Training Supporter case analyzed in the Combination phase, he didn't transfer his knowledge about the tool developed by him to his colleagues. The researcher observed that the tool was efficient for all the members, so the reason provided by him such as differences among the departments is not correct. Therefore an environment should be created in which members focus should be on the group results and not on the individual results.

4. The Role of Roles

If members of the group have different roles thereby different knowledge background, their contribution of ideas would be also different. Sunstein and Hastie (2015) explained that when people are being told before they start to deliberate that they have different specialization, is representing a trigger for their motivation to share what they know regardless the differences which will arise. In order to empower and motivate the members to contribute with their different ideas, the project manager should start by saying that each member will have different and relevant information to contribute. Also when there is an important decision to be taken, ROS group can imply some members from other teams which would have the common knowledge about ROS project and can provide with different views or propose risks which might not be taken in consideration without their contribution. Taking for example the meeting described within the Socialization mode, turned out that, members of ROS group didn't consider all the risks which might emerge if the decision would be taken. Thereby when they started to perform the task established they realized it was not that much simple as they thought it would be. The decision didn't have any results, so the members didn't continue to work on it. When discussing alternatives about how a particular task should be implemented or performed, ROS group can involve a manager and a worker from a particular team to ask what would be their opinion upon the suggestion proposed. By involving the right people`s opinion, ROS group can reach to the right decision which will increase their performance as a group and ensure that they learn what they need to know.

5. Perspective Changing

By analyzing the current KS practices the researcher found in the Externalization mode that the project manager didn't involve all the members in the dialogue while transforming his tacit into explicit knowledge. Thereby the members were not provided with the opportunity to contribute with ideas on constructing the project plan, even though they believe it requires improvement. It

is recommended that if the plan will be enhanced and reconstructed, by involving all the members in dialogue would allow the flow of information and emerge to new ideas. Also it will ensure the awareness of the members on the objectives of plan and help them to set clear roles and responsibilities in order to achieve them. Taking in consideration the opinion of other members when constructing the plan might change the perspective on how the ROS project should be developed and might lead the group to create a successful new strategy.

6. Devil`s Advocacy

Sunstein and Hastie (2015) explained that this proposal wouldn't be efficient for small groups. In order to achieve best results members of a group shouldn't be aware of the manager intentions. The practice is suggesting that for motivating individuals to share what they know, the manager should show confidence to the individuals who have inconsistent ideas, in the beginning of a deliberation. By agreeing with the ideas presented, individuals would elaborate as much as they can their arguments to justify them. Since ROS group is a small group, this practice can be difficult to perform, but the important conclusion is that the leader should create an environment in which members are committed to express different viewpoints. Understanding that conflict ideas will drive their decisions in the right direction and in that way they can achieve excellent results.

7. Contrarian Teams

This recommendation of Sunstein and Hastie (2015) is proposing to apply the red teaming method, in which one team has the role of criticizing the suggestions proposed initially. In the case of ROS group, the use of method would help the members to evaluate better their plans and develop different alternatives before taking an ultimate decision. Looking at the example provided in Socialization mode, it can be noticed that members of ROS group don't propose different alternatives and tend to agree with the initial decision of the project manager. ROS group can use the idea of contrarian teams proposed in their meetings. The members can split in 2 different teams, from which one should be the red team. The idea would be that the red team has to bring criticism to the suggestions proposed by the other team. In that way the mistakes of the suggestions will be identified and group members` motivation to participate and collaborate will increase.

8. The Delphi Method

Delphi technique is proposed in the literature in order to provide a solution for structuring communication process within a group. The method consists in two forms, first the paper-and-pencil version and the second the computer version. The Delphi method gives the opportunity to individuals in a group to share their ideas anonymous more than just one time, until the group reach to the right decision. Since the votes are anonymous, the barriers regarding social pressured discussed can be overcome also give the opportunity to all the members to provide

feedback to any suggestion, identify and correct potential errors and also motivate them to share ideas.

Developing a questionnaire and send it to all the members to be completed, will help the members to summarize the results of their ideas. Based on it another questionnaire can be designed so that the members can reevaluate their initial answers by evaluation the responses of their colleagues and provide with another round of feedback. Since members of ROS group are pressured by the time, Delphi method can be used under the form of a computer program which is easily gathering the answers from members in real-time in a communication system.

6. Conclusion

The purpose of this thesis was to answer to the next research question:

How knowledge sharing practices can be facilitated between members of ROS project group and how this can help the group to make better decisions so that they can accomplish the organizational goals?

The theoretical concept of knowledge sharing was used to develop a framework in order to answer to the research question. SECI knowledge sharing model described the dynamic between the four modes of knowledge conversion and clearly made the distinction among the concept of tacit and explicit knowledge. SECI model provided the possibility to evaluate the current knowledge sharing practices of ROS project group and identification of challenges which needs to be overcome in order to improve the way members are sharing knowledge in the group. Furthermore the behavior of members as a group was analyzed by using Tuckman`s model which combined with the conclusions emerged from SECI model helped in a better understanding of the challenges they encounter by looking at their stages of development.
Furthermore theory of Sustein and Hastie (2015) was identified as appropriate for showing and explaining what the impacts of the barriers identified are, following with proper recommendations on how they can be overcome.

Synthesizing the literature review with the empirical findings in the analysis, it leaded to the identification of various challenges appeared within the four modes which need to be overcome in order to facilitate ROS group` knowledge sharing practices. Within the Internalization mode it was identified that not all the members of the group got trained in project management, thereby in the case when the project manager, who performed the training program, needed to transform the knowledge acquired in explicit knowledge easily understandable for the rest of group members.
Considering SECI model theory combined with empirical observation, it was discovered that even though the project manager used the dialogue technique in the Externalization mode, not all the members were involved in the process of creating the documentation of the project plan.
Concluding the Combination mode, it was revealed that processes involved such as capturing data, transfer of the information and reconstructing the data if necessary, are not efficiently achieved by ROS group. Members of ROS group are having gaps in their essential data which needed to be captured, didn't transfer the information about ROS plans at the right time to all the members by the project manager and since the documents required improvement in their opinion, the plans were not reconstructed. Regardless of what the feedback would be, the documents have become the official version since everybody agreed on them. It was also identified that members have different ways of working thereby they prefer to work individually.

Analyzing the Socialization mode of SECI model, it was concluded that interactions among members are rare because of lack of time and also deliberations are not efficient because alternatives are not discussed before reaching to the ultimate decision.
The overall conclusion of SECI model analysis combined with empirical findings was that the members of ROS group tend to agree with the suggestions proposed by their manager even though they might think is not the right one and don't feel motivated to share their knowledge or prefer to remain silent, facts which lead to make the process of taking decisions not efficient.

Afterwards it was necessary to analyze the challenges identified by using Tuckman`s model which is describing the life cycle stages of a group. It was identified that currently they are in the process of passing from "Forming" to "Storming" stage. The conflict which the members described as being different and having different ways of working and also the fact that a group is characterized by a dominant leader seem to be normal aspects of the particular stage and don't have to be considered as a dispute by members of the group but as an advantage.

By looking at the conclusions arisen from the use of SECI model combined with Tuckman`s model, the theory proposed by Sunstein and Hastie (2015) was found relevant for showing and explaining what the impacts of the identified barriers can have on the decision making process of a group. The challenges within knowledge sharing practices identified were further elaborated by Sunstein and Hastie (2015) theory and categorized in the two major influences informational signals and social pressures.
With the intention of overcoming the barriers identified and transform them in successful practices within ROS group, eight different approaches were proposed in the recommendation by using Sunstein and Hastie (2015) theory.
It was concluded that, in order for ROS group to achieve their organizational goals they need to improve the way they share knowledge by using one or more of the eight approaches proposed with the purpose of overcoming the barriers identified, fact which will enhance their process of deliberating and help to take the right decisions.

7. Perspectivation

KM concept is a wide concept defining ways to create, share, use and reuse knowledge in order to improve the deicison making and to achieve the objectives faster, to reduce time, cost and rework. KM can be perceived as a succesful process not only when knowledge is shared but when knowledge shared is reused by others (Mohapatra, Agrawal, & Satpathy, 2016). KM presents five distinct purposes from which knowledge sharing is one of it. In the literature review it was explained that there are 3 levels of KM process. The three levels defined are individual, group and organizational stages (North & Kumta, 2014). The focus within the report was kept on

the specific part of knowledge sharing dynamics at individual and group level. After investigating how knowledge can be efficiently shared among the individuals of ROS group, it is considered for future research to examine how knowledge can be shared further from the group to the organizational level, in that way achieving a succesfull process of KM where the knowledge shared can be reused by others. An example can be taken by looking at the way ROS group is sharing knowledge with another group such as when they are performing workshops. Differences should be expected in ROS knowledge sharing practices when looking at the next organizational level. For a smaller group, creating a stock of knowledge might be simple but when the size is increased with different proffesionists orientation, the situation might become more as a challenge. Therefore the organization needs to develop new organized principles of group coordination and knowledge sharing (Niedergassel, 2011).

Communication between members of ROS group was proposed to be investigated in the report. Communication can be looked at from many angles, and another angle would be to investigate how ROS members oral and written communicate by looking at the clarity of the messages transmited and how it is transmited. Not presenting strong communication skills can infuence in a negative the way an individual express and articulate their ideas (Dainty, Moore, & Murray, 2006).

Prior to 1880 communication was seen as an inborn quality. Today it is observed that in order to communicate effectively, there are particular skills which need to be acquired such as speaking skills, listening skills, writing skills and reading skills. So that the effort of effective communication can be achieved proper training is recommended (Rayudu, 2010).

In the literature it was also explained by Sustein and Hastie (2015) that people who are cognitive peripheral tend to be more nervous in meetings and because of that reason they also have little influence and lower levels of credibility when deliberating. The author claimed that cognitive peripheral individual tend to think even themselves that their opinion is not right and give higher rating to cognitively central. The cognitively peripheral individual usually held information which is considered to be the most important for reaching to the right decision in a deliberation. Improving communication skills can help individuals to overcome the feelings of nervousity when participating in meetings and express easily their ideas. In that way people the group can benefit from the opinions which are shared in an efficient way. 7C`s model developed by Francis J. Bergin, help the individuals to communicate the messages intended in a better way. In order for the communication to be more effective 7C`s model is proposing 7 basic principles to be followed.

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Appendix 1

Semi structured interview - Area Training Supporter

Interviewer: Ana Maria Badelita (student) in the following referred to as “Ana”

Interviewee: Helle Balthervin

In the following referred to as “Helle”

[00:00 – 33:28]

Ana (00:38)

So, first question is why NN believed that more information the employees will read and understand (R-U), like SOPs, they will be more aligned with the rules and under GMP requirements?

Helle (01:09)

Ya, that’s correct. We had an understanding that in order to do things correctly, you have to R-U a lot of information or instruction about how to behave, about how to do your job. So, you were supposed to read everything about the process, instead of just the single job task that you have to do. So there was overload of R-U for employees. Now it`s changed, now we are more specific on only the task. If you have a task described in the SOP, then you need to read it otherwise…no. You might need to know about it, but then you can do it through myDocs system. But in order to be in GMP compliance, you need to sign up for it in Isotrain, if you have a direct task in the SOP.

Ana (2:20)

Do you think this changed because of the fact that maybe they are afraid that if they read too much information they feel tired or overloaded with information?

Helle (2:28)

You won`t be able to remember all the information that you read. If you read like 500 documents, you won`t remember very much.

Ana (2:37)

And then might be you will be out of the compliance, or it is a risk

Helle (2:41)

Yes! It`s a risk. It` actually a quite high risk, I think, that they might be out of compliance.

Ana (2:47)

In your opinion why do you think SOP overload happened? Who would be responsible for that? Do you think what happened was in purpose?

Helle (3:02)

Not necessarily on purpose, but more the concern that we were not sufficiently, or didn't have enough sufficient instructions, descriptions on processes. So "better safe than sorry" more than just "directly to the task".

Ana (3:33)

So this is like an unconscious process which happened and now in the end when they realized it, they don't know exactly who is responsible for that, is just that they need to change it and that`s it.

Helle (3:47)
I think they know that the Quality organization is responsible for the overload of SOPs because they are asking for all of this information, due to the inspection that we have had. So Audit findings and everything. And perhaps, as NN we weren`t clear and more specific directly description of tasks, instructions.

Ana (4:24)

And did you observed before that the overload with SOPs is hard to deal with for employees?

Helle (4:34)

They might have said that I am reading all these SOPs and I don't really understand why I should read them. And they sort of like went up to a wall, because no one could do anything about it.

Ana (4:47)

And did they try to communicate to their manager or you tried to communicate to Lasse?

Helle (4:53)

Yeah but again, nothing was done because we couldn't…like we didn't know what to do. We were just stacked because we knew it was like…

Ana (5:05)

But I am asking. Before Lars send the email that….so even if you would say to your manager, they would be like, no this is what you have to do!

Helle (5:15)

Exactly! Yes, yes.

Ana (5:200

The situation with REGO, I`m curious if you expected that it could be managed in such a simple way? Did you know it before that there are not so many modules you have to go through. And it was done in a very simple way in 30 minutes. Did you think about that before? Or you were overloaded with tasks and you didn't think about that before?

Helle (5:50)

No, I knew that, we had been through this a lot of times. So it`s an on going process with REGO, which is actually good, which is why I say, like in REGO`s team. And he is really in control of this process. He is very good at that, which some managers could help, could learn from..you know…

Ana (6:16)

And did you try to tell Peter before that it might be that we don't need a workshop and it`s just need for a meeting. I know because I was the one scheduling this and he was telling me he is not sure he wants to allocate the workers again for this.

Helle (6:30)

Yeah…aa..we had some discussions about it, but it might be just on the way or walk and talk and stuff like that…Yeah..it might have been missed. But again I think that perhaps before we schedule the workshops we need to talk, the group, the project group and us the ATS because we know the team. So before we just schedule ahead, because well every team has to go through this workshop, we might need to talk because we know the teams.

Ana (7:03)

It might be that the steps were not clear and that` s why these things were happening?

Helle (7:06)

Yeah, yeah!

Ana (7:09)

And what happened last year, you already answered I think. But I was wondering if it was the same process, or he misunderstood...maybe you were doing something else or you were trying to reduce the SOPs, was it different?

Helle (7:27)

That wasn't the purpose of the meeting. The purpose was just to get the overview of what was the training needed, uhm yeah. So was just clean-up, knowledge for REGO because he was new manager.

Ana (7:41)

So you were doing these things, before even the SOP reduction?

Helle (7:44)

Yes! Yes, before the project.

Ana (7:49)

Ok. And do you think it's important to learn from the mistakes from the past, and then "not to reinvent the wheel again"? Because this is what kind of happened in this case…

Helle (8:00)

Yeah, yeah it`s very important. And in that case, as we talked about at the last team meeting, that we need to share this knowledge about how to set up training and how to not just say yes, you want this SOP on this and this module. But you need to be aware that we can`t just put it in 5 different modules, because then we are back to, before score with the SOP production workshop. So yeah, we need to share that, we need to make the LOB aware of that, so they won`t just fill up again.

Ana (8:44)

In your opinion what drives knowledge sharing behavior in organizations? From your experience, I guess you were working in other companies before?

Helle (8:50)

Yeah, of course…I worked in different organizations. Uhm knowledge sharing facilitations from Training department, that`s very important. Very clear communication…and we still lacking that. I don't think we do enough communication. So we need to be clear in our communication. And especially with a big project like this, we need to have very clear communication, not just to

the BA Man, the top managers, but also the local managers. And also for the employees for instance.

Ana (9:29)

And do you see any difference regarding knowledge sharing comparing with the places you have worked before and the team you are now in?

Helle (9:38)

Yeah, we are not that good at it, to be frankly. We had much more focus on communication, we had a plan for communication whenever we did a project, like a tool in project managing process. And I think just the knowledge behavior, the way of doing this, the culture among us. ATS and Peter and project office, is that we need to be more aware of that. We need to understand LOB in order to act on their needs and we need to elaborate on that, much more that we do at the moment.

Ana (10:26)

And who was taking the initiative for doing the tool? The manager or it was all of you?

Helle (10:32)

It was us. Yeah. It was our responsibility to make sure. We didn`t have board meetings like that. It was just an understanding.

Ana (10:46)

It was coming naturally?

Helle (10:46)

Ye! Ye!

Ana (10:49)

And in what conditions you think you would enjoy sharing knowledge, which you consider to be good knowledge to be shared? Maybe sometimes, you feel hindered by some things, like I would like to say what I think but maybe I would be quiet in this moment. Sometimes is happening this to me, maybe to you as well…and I think to all of you. And that`s why is kind of like people are feeling they are not heard and then they preferred to be quiet.

Helle (11:25)

Oh ok! But if any project is important or if any message is important than you have to stick with it and be loyal with the fact that you need to communicate this. And also to follow up. And yes if you are not met with understanding, then you have to search within yourself how can I otherwise do it so that I am still heard. You could do like walk and talk afterwards, with the person that you said, well I think I had some challenges with this. I didn't get my message to you. You can do a walk and talk on that. Or you can…which I am not a fan of, you can send an email. But face to face communication is much better. Uhm preparation is very important and I think that you need to really prepare what you are saying, perhaps send something ahead saying today I would like to discuss this and this with you. I would like you to think about this and this. And then at the meeting say or state that this is the purpose of the meeting, this is the purpose of what we are going to talk about and I am very happy if you could contribute to our discussion.

Ana (12:49)

That`s very good. Do you enjoy passing on what you know if you find some new efficient practice. For ex Anders found this new tool and when I come and I asked you, you didn't know about it. So if you would find some tool like this you would feel you would like to share it?

Helle (13:15)

Yes! Yes! It`s very important because if someone finds, you know the expression "…danish one…" to get a great idea you need to share it. Of course you are free to say this is my idea, but I think is so good and I get a good response so I would like to share it with you.

Ana (13:41)

And do you think something would hinder you to share it? You would feel free, ok I did this and I really wanna share it, I don't care what maybe will be the response or maybe they would not feel is a good idea or something?

Helle (13:44)
I would have this thoughts, before I share it, and then to make sure that I say it I share it with relevant people, rather than the once that would just uggh I don't know, why do I need this for?

Ana (14:09)

And that would be colleagues or?

Helle (14:11)
Colleagues yes, stakeholders…uhm depending on what kind of experience do I have that I need or would like to share.

Ana (14:23)

Did you feel appreciated by the team colleagues, when the knowledge you share in the team proved to be worthy? Did they appreciate you? I was reading in some books that reward is very important in this case…and then people are gonna do it more and more.

Helle (14:40)

Of course they will! And also sometimes can be too much, that people are very eager, that listen to me I am here I have something to share. But also I think it`s very important that you understand that yes, to limit. I don't have to say anything all the time and I don't have to share everything at you. Because it has to give value to the one that is listening to this knowledge that I am sharing and otherwise everyone share it. I had that discussion with myself before I share anything. Because if it doesn't give any value to them I don't need to share it. So yeah..

Ana (15:21)

So in this team, did you feel when you were sharing, that you were appreciated? Or it was just like…ok, they are listening to you and then maybe they are not taking it or trying it. Do you think they are lacking in this? Maybe if they would put more focus on this then the knowledge sharing would really boost among you?

Helle (15:45)

Aah, both because some of us are very eager and very comfortable about knowledge sharing and some of us are definitely not. So of course this personal education about that, but at the same time I think it`s important still to do it, even though I don't get the acknowledgment or something.

Ana (16:14)

Are you effectively collaborating and discussing problems, issues, new learning, new ideas and new insights trough a shared knowledge space with you colleagues? If you are aligned? Because I realized, when you have a meeting, everybody has a different opinion and then Peter is there he is listening to you, but he is doing what he wants anyway. Then Kenneth has a different opinion, Anders has a different opinion and nobody is trying to merge the ideas and all of us agree on something.

Helle (16:45)

That's the big challenge, very big challenge. Because we are very different persons and also in collaborating themes, schemes, whatever wanna call it, uhm we are very different in our opinion on how to do things and we don't have a standard. I would like to have more standards, I would like to have more alignment in the standing of the systems that we are using and not just changing them all the time or thinking that we can do it in a new way. Don't think in a new way!

Get to learn the system first and then you can say I have challenges and this, ask your colleagues and they might get some input and then say ok, this is really a problem, ok let`s think new. Improvement...yes but really we are so different and we really need to work on how to be aligned and how to work for a standard way of solving our jobs. And it also comes with the understanding of LOB. We need to combine those two things.

Ana (18:00)

I`m not sure if I totally understand, what could be the misunderstandings between…?

Helle (18:05)
Yeah the needs of the LOB. We just say if one manager or an employee says something then ok everyone wants that. No they don't. And we are not very good at asking further questions to elaborate on the problem or the challenge that they see. So problem solving is something we need to get much better at. And we do that by asking questions to them, asking into their needs, to really dig in to the problem or their needs. What is it? Is it something that we can solve right here? Is it something that we need to work on? Do we need to have some kind of development together or…?

Ana (18:54)

Very good ideas! And what about the best practices? Now we have this meeting once in a month with sharing best practices, but as I see is like everybody as individual. Sankeeth told me that him and Gorski, they were both doing something, like they developed a best practice together and then maybe somebody wants to get in. I think that working together in a best practice, is as well a way of knowledge sharing. And do you think somebody would take initiative on this…to collaborate on things and then doing best practice? Maybe if you would do this could improve the knowledge sharing among you? For ex. Next month two of you have to combine and share best practice, then maybe it would improve a little?

Helle (19:50)

Yeah, but I think we need to not have it like you need to perform. It should be, if you have something you have to perform. But do it in a relaxed way, do it feeling comfortable, feeling I am in control of this, I really believe in this idea. Or this is really, it just gave me a cake when I did like this and they have value, it might just be a small thing but it gave value to the customer and so well I want to share this. And that was good, it doesn't have to be like big project or anything. And you didn't need to feel obligated that you need to perform. I didn't perform Friday because I was really busy but also I didn't feel like I have something to share.

Ana (20:41)

Yep, I agree. If I would be here, I wouldn't perform either because I don't have what to.

Helle (20:46)

No. And still we are in a process of finding our way on how to do this, but I still think it's a very good idea to share best practices.

Ana (20: 54)

And what about Peter? Me and Sankeeth we are sharing a lot of information. Sankeeth told me that Peter presented the ppt slides which we discussed and I have worked on them. I was amazed that he actually understood what I put there because we never discussed after. Was that a nice way for you to get an overview of what is happening with the SOP project plan, because we have start to plan it?

Helle (21:24)

Yeah, yeah. I still see some issues that you need to work on. But that's because I have years of experience with projects.

Ana (21:29)

But that is actually why we are sharing, because the feedback from you is really important, that's how you improve actually. We will work on this.

Helle (21:40)

But I have spoken to Peter about that as well and he had a lot of assignments, when he went to that course, in managing projects. So I think you are still working on that and then along the way come other assignments and so I have to put …..But I think in the end you will make it.

Ana (22:09)

Some things which are really important should be shared and then everybody could put their input there…

Helle (22:16)

I would like to have that overview of the project. I would like that…I worked with share point before, so what I would like is that we all have access to that share point, where we could see things. Because then I can also look in if I am in doubt with anything. I can just look and see well ok there, oh they are in control with that. So, if we could have like some kind of share point page to do that, and I don't know if that's what Sofie and Peter is working. But that would be a

nice thing. The task overview that Sankeeth and Gorski is working on is also share point, so if you have that overview it would be nice.

Ana (23:18)

Did you feel that you have the knowledge of what this project is all about from the beginning, because we never made this plan before?

Helle (23:24)

We didn't have it from the beginning and we didn't know. It was just like, well take it on, this big project and do whatever you can in order to succeed. And Peter has no experience in managing projects, so there was no plan. And we didn't know...we were just saying, hey we may have some input. Or, if we gonna do something we would like to know when and how and what.

Ana (24:00)

And when do you think this change happened? Or maybe it didn't change yet?

Helle (24:05)

We are not there yet at all. But we are on our way. We still…we made a huge step when Peter was on that course. So that changed a lot….and acknowledging that he cannot solve it alone. We are a team and we need to support each other in doing this. And also we need clearance from Lasse, that this is what we need to do above with all the tasks. But yeah…

Ana (24:47)

Yeah! Do you know the order of the established steps settled in the project plan and what is their purpose?

Helle (24:53)

No! Because we don't know the project plan. He briefly showed it, but again if we had the share point site, we could look at it in peace and quiet and whenever I have time to do that. Of course Peter has done some overview or information about it to us, but still…And it could also be part of the communication plan. It should be actually!

Ana (25:21)

It`s not clear enough? That's why I was asking you.

Helle (25:23)

No it`s not clear enough!

Ana (25: 24)

Because we did this, but is not clear yet. You know the first workshop…and then the second workshop and then we are doing this…

Helle (25:32)

Continuously change all the time. And also in order to support Peter and his way of presenting the project and how the proper of the steps in the project is. It`s important that he has this. So that`s a learning that he has done from this project and which we all bring with us to the next project.

Ana (25:59)

Do you ever feel the responsibility of reducing SOPs is too heavy to be on your shoulders? Like maybe sometimes, you are thinking I could do this but I would just let Peter do it, because he is the one taking the…

Helle (26:12)

Yes, sometimes because Peter has the experience in Isotrain. And I need his knowledge. I know that I am more and more trying myself first, but I still need…I feel like I need to ask him again. Is this how we do it? And then I do it. And again that's just because he is the sub user. So aa…

Ana (26:39)

And because this is such a big project and if you would make some mistakes it`s…?

Helle (26:43)

Yeah and again it`s a project plan, it`s a communication plan. What do, when? What are the assignments? Split it up in what how to do it? Fine! I need 4 people to help with this assignment. Do it like this! And then I`m fine and then I do it. But sometimes we need some information on that.

Ana (27:05)

And do you feel that nobody is taking responsibility for this, and just waiting for Peter to do something about it? They are just working on their tasks and then maybe they are not too focus on this? Because we don't have this share point and we don't exactly what`s happening. And then they are thinking in the back of their mind that Peter is working on the project?

Helle (27:29)

No! No no…I don't know. For myself I can say I`m not relying on Peter to do it. I am relying on Peter to help me. I also have a lot of other tasks and projects and short deadlines. And I need to prioritize this project, and I have had several workshops. I feel like I haven't have the enough sufficient support from the project team in order to follow up on the workshops to aa…. We had an agreement that they would follow up. They would do the excel list competence matrix, whatever to draw down, to collect the information that we discuss on the workshops. So I feel like I have an extra extra extra assignment on that. Which is actually make me push it a little, if you understand what I mean. To delay the process. Simply because it`s just overwhelming the job that I need to do. So yes, you can say some of us are relying on Peter but in a way that we need the support from the project team. And we haven't have that. I haven't have that enough. And and I just don't have enough focus or time to say I am only doing this. Because I also some project or some assignments that I need to do. And also again I think we need to not forget that LOB is our most first customer. So we have to solve those tasks. And we can`t rely that the help desk can do that on all the tasks.

Ana (29:25)

But who could help you in this? Did you try to ask for help?

Helle (29:32)

Yeah we had an understanding. Or I believed I had an understanding with Peter that the project helpers was gonna help with that. And I didn't get that help. So yes, I have a few assignments that`s lying and that was great help that you could that with 5724. I have 4 or 5 workshops that I haven't done yet. I have started on it but I don't have the rest of it. Because I haven't have time to do it.

Ana (30:03)

Do you think I could do it, for example?

Helle (30:05)

Ye sure, you could do some of it. And some of it is just my notes and how do I give that to you…So I think that looking back, I think we should have been even more precise in who is responsible for what.

Ana (30:27)

I am not so busy, this I am telling you. And in the end of the workshop, you can just tell me exactly in the end of the workshop and then I have a lot of time to work on. And then you can take this off your head. So the thing is that they were talking in Danish, so I really don't understand what to do with this…

Helle (30:45)
That`s right! That's the difficulty. Yes, but it`s not 2 workshops that you had…I need the information from the IT workshop. I would like that. It department

Ana (31:02)

It was..oh yeah the first workshop. It is…

Helle (31:04)

Uhm yeah and the 2 others, I don't, I have that. But again it was mixed up when Lia was here and whatever. So there were some problems with that I didn't get it and yeah. A mixed up, misunderstanding most of it…

Ana (31:23)

And do you think you personally trust Peter? Or it`s about in his professional judgment, in his experience, in his devotement which he proved towards NN. Because he works here from more than 20 years.

Helle (31:34)
Yes I trust him. I find him very treasured for this department. I also have the feeling that sometimes he is overloaded and he doesn't want to just do Isotrain things. Which I fully understand. He needs to do something else. But he also needs to share his knowledge and experience to others so that they can take over. That's a very important learning for // That he really need to give up on most of this Isotrain thing to others, so that others can do that.

Ana (32:13)

And when Helena left, and she had some teams and departments…did she transferred her knowledge regarding maybe some important things, or the level they are in regarding the SOP reduction project?

Helle (32:30)

AA yes of course she did some knowledge sharing. Also because I asked for it. But she was very far and so I had to start all over again. And it`s very difficult. They have a lot of SOPs assigned and they don't have resources so we need to do a lot of preparation. But thank God I`m very much into Isotrain, I am very much into the idea above the project, that we need to reduce because if you only have the task…If you have a task in the SOP, you need to read it, otherwise out. Use myDocs or just get a rid of it. So I don't have a problem with communicating that and doing those things. But I still need some feedback and collaboration with the LOB. So yeah…so it`s hard work and it`s time that I need to use for that.

Appendix 2

Structured interview - Area Training Supporter

Interviewer: Ana Maria Badelita (student) in the following referred to as “Ana”

Interviewee: Kenneth Hanning

In the following referred to as “Kenneth”

Impartially transcript

Ana (00:45)

Peter told me that all started when they received an email in September 2015 from Product Supply(Lars), and the problems that require to be solved in the presentation as well are: clean ISOtrain, and then to look into the content of SOPs to see if it`s not relevant for the employee, then it needs to be diassigned. But we are doing in this department is just to clean the ISOtrain, right? So we are not looking into the content of SOPs?

Kenneth (00:46)

Yeah, we also are, I mean, so we try to take some SOPs away from them because they have too much. So not relevant SOPs, we need to remove them…identify them and remove them.

Ana (01:01)

But I saw that in ISOtrain you might be assigned with one course to different modules, so you can find in one module the same courses as in other module, but once you sign for it, then is not necessary to sign again.

Kenneth (1:19)

Because it take it in other places. But even though is kind of redundant, that means it goes on in several modules, will still have too many unique SOPs, so we need to cut a lot of them off.

Ana (1:36)

Ok, so the problem is the unique SOPs, not that the SOPs are appearing all the time in all the modules? That is not a problem?

Kenneth (1:44)

No, is not really, just make it more complex, I mean it shouldn't be in all the different modules because then we cannot...is not so clear where it belongs to, who owns it. I mean we need to get rude of the unique SOPs…we need to be more clear in the way we use the modules, so we don't have the same SOP in 10 different modules.

Ana (2:06)

Ok, but actually the problem is that, how do you know which one from the unique SOPs you should remove, that mean you need to look into the content of the SOPs?

Kenneth (2:16)

Yes, exactly.

Ana (2:18)

And Peter told us that we are not doing this.

Kenneth (2:20)

Not really, I mean, we should, well we need to place that responsibility to the process owners and process support, their academics supporting the operators. So they need to look into the SOPs and say, ok is this really relevant for us or for the operators? Maybe is only a minor role stated in the SOP that something, they need to review and say ok…is this content really relevant for you, and decide no is not relevant or yes it is relevant.

Ana (2:52)

So what we are doing is kind of helping them, giving them an easier structure, and then they can look exactly: Actually now we know what to remove and what not.

Kenneth (3:00)

Exactly, so we just say: look at this, looks for us…, it looks like a lot, we don't know what it is but you guys you know Is this really relevant for you, all of this? And then they can say yes or no. So that's the thing about the content. And also when you do a SOP, then just say: look at the content, who should have this SOP? Not all the Bagsvaerd but only a selected person. That's also a way to look into the content. So really review the SOP and say, instead of sending it to all of the people in Bagsvaerd, only send it to process supporters or people working on this machine, instead of everybody gets it. One example is calibration. I had to read the SOP in calibration because it says it`s relevant for all in Bagsvaerd, and Im never gonna work with calibration, so something went wrong. So look at the content, say who is relevant for and then address it and then we can diassigned all the others. So that's a way to look into the content. But we cannot do that because we are not, we don't know anything about the process. Officially we don't know anything about the processors. We only know about the frames, I mean modules and ISOtrain and everything. So we cannot say this is gonna…We are gonna say this looks a bit messy, try to aah…

Ana (4:19)

Ok. I saw in ISOtrain that the training coordinators are the ones assigning the modules or deciding exactly, with the manager of that team or department, deciding exactly what module they should assign. Then they look into the competence house, so they have kind of a structure, to make it easier. They take it from there and assigning to the employees.

Kenneth (4:48)

So you could say that the competence house was built up to give this competences overview. So when there is a new person starting, then you just make it together with leader or some experts, with some experienced people from the line of business… so made the house and say ok when you start here, you should be assigned these modules, these are the basic modules. And then is actually the leader who will hear from us, ok this is for the new employee. We will assign him these modules and then TC will assign him some modules. And every time that he should be

assigned or de-assigned. It`s actually should come from the leader. That's not the way it really worked because we know better than them.

Ana (5:28)

I thought that you are training coordinators but I just found out that no.

Kenneth (5:32)

Yeah. Officially we are not. Officially...is only Peter who is training coordinator. This is just because we had too few resources and suddenly we were, oh you are going to help us with that. And we said no no, we are not going to do that work.

Ana (5:48)

So what you are exactly doing according to the training?

Kenneth (5:52)

We are implementing competences houses, making sure that they are up to date. We are implementing job training plans JTPs, ensuring that the job to do in a described way.

Ana (6:09)

Isn`t this kind of the same thing actually? These training coordinators are taking from competence house…

Kenneth (6:15)

Yeah but they actually, the training coordinators formally, their roles is that they get an email you should assigned this and de-assigned this. And they don't need to know anything else. So actually is just a very kind of framed work to do and more administrative and not really academic person who should do it. But now because we had lack of resources and Lasse changed

the whole thing, now we should also do it there. And that's annoying for us that we don't like work like this. But for the understanding of the whole process, it makes sense.

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Ana (8:12)

But, you mean that if you need to be a manager than maybe you would have some modules from other teams?

Kenneth (8:17)

Yeah, than we have. Actually so this is the house for process supporter. And then maybe if you are I don't know, depending on what you want, we also have a house for leader. So you should start here as a leader, than we have a specific house for leader. If you start here as an operator, then operator house for them, they can start a blue one and then become a green one, because that's more complex.

Ana (8:40)

I was trying to understand the process. So a new employee doesn't have this problem, being overload with SOPs, but once you get in different positions, than you get to be more overload into the process.

Kenneth (8:54)

Exactly! When you learn more and more, your skills….you get more and more of that. Because already the first package you get might already be a little bit too big. But again as you move on and you are more experienced, you get a lot of more SOPs. And then what we don't do, we don't select and review. I mean maybe as they move along they start working with some of these things because now they are almost qualified to that. So we don't move it, we still keep it. So could be, we should to do some regularly reviews and say ok…

Ana (9:33)

But what do you mean, they still keep it, in isoTrain? You sing for it, then you don't need to read it again…

Kenneth (9:40)

Yeah, no! Only I mean the SOPs have every third year, you need to read it again, or at least they need to review the SOPs. So quite often some changes are happening to the SOPs, so quite often you have to read it again. I mean the other SOPs I read…because every half year they need to update it and somehow maybe something changed.

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Ana (10:47)

Maybe in the future, I saw in the ppt presentation, it will be an IT system there and if is not your task or you are not doing it anymore you can just press a button there and then of course it send to somebody and that person can review it.

Kenneth (11:11)

But the problem is that is really difficult to have the knowledge to decide whether they should have it or not! Because we are not into that knowledge. We don't really know what they need to do, I mean what they need to know. Cause again we know a lot about the frames, and how the system works. And the leaders or maybe the process supporters know about the process itself, you know how to fill the insulin on a glass. And they don't know a lot about the frames. So that's way… So ideally it would be really nice if someone sit over here and knew everything about the processes … he should have this one definitely, he should not have this one. Because they are not really sure about it themselves, if they need it or not. But they know better than we do. So that's what it makes it complex. And there is no near guidelines to who should have what.

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Appendix 3

Semi structured interview - Area Training Supporter

Interviewer: Ana Maria Badelita (student) in the following referred to as “Ana”

Interviewee: Kenneth Hanning

In the following referred to as “Kenneth”

Ana (00:45)

Why do you think NN believes that more information employees will R-U, more aligned will be with the rules and under GMP compliance? They thought about that before, now they want to change it?

Kenneth (1:05)

Ah, because they were told that you need to document things, have standards. And then they said ok, more standards the more compliance…So they realized now we are overloaded with information, so we can`t remember anything in the end. So can`t remember the core competences we need to add…too much information.

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Ana (2:15)

Did you observe before that overloading with SOPs is hard to deal with?

Kenneth (2:22)

Yeah…I mean it is hard to deal with because it`s kind of standing joke that this…ok in Novo all of you have read…And everybody knows that we can`t remember. Is just like yeah we sign it, we read the SOP but we don’t understand it, because is way too much. That means we just read them very superficially and not really in depth.

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Ana (3:57)

Did you expect some situation to be solved in a more simple way? And you didn't feel like sharing it? You just comply with what was about to happen?

Kenneth (4:31)

I was kind of a big opponent in the beginning. I was against the way they did it in the beginning, because this is not gonna work. Is not gonna work like you are going to take out this information and put it in a sheet and then you expect the LOB to actually do something on their own to kind of clean up the best. Is not gonna happen, they are not gonna do it by themselves. They need to be hold by their hand all over the way. Because they don't have the resources, they don't have the overview to do it. In the beginning they said aaa they will do it, they don't have to do anything. But after a couple of months they came back ok…they can`t do it!

Ana (5:12)

And did you give them another suggestion?

Kenneth (5:14)

Well, actually I just said that this is not gonna work. We need to be there all the time. Can`t expect them to do anything, if we are not there, they are not going to do it.

Ana (5:24)

So you were not agreeing with what exactly?

Kenneth (5:30)

With the setup…the workshop was ok in itself. But when you leave the workshop then you need to have some clear roles and responsibilities for the actually go for it. But we didn't have that. So

I`m gonna do it sometimes…so a lot of workshops I think right now, you don't have the results…and then you wasted them against the information.

Ana (6:15)

Do you think it`s important to learn from the mistakes, past errors, in order to not have to reinvent the wheel again?

Kenneth (6:21)

I actually believe that Peter, he learned some from it. So I think yeah it`s important.

Ana (6:31)

In your opinion what drives knowledge behaviour in organization? Because I think you were working in other places before, and I think you have some differences, comparing the places you were working before?

Kenneth (6:49)

An overall forum where we can share…Right now I think specially in Bagsvaerd or on the sides, we have a lot of knowledge but we never really share it, because we just optimizing the own department, like SOP optimizing. Then we don't have the extra time just to step back, and look at it and try to share it.

Ana (7:17)

Anders said that each team and department has different teams, and that`s why you don't feel sharing the knowledge with a colleague or getting feedback of what you are doing and improving that thing. Do you have the same opinion?

Kenneth (7:35)

No, I still think we can do a lot of things involved. We are aligned in Training and just rolled out in different areas and it might be some variations. But the way how we do it now is just like, oh you do this and I do another way and we are not really aligning it. So I don't think is the best way we are doing it right now.

Ana (7:59)

Did you see any difference from where you were working before? If you could see some improvement what would you suggest?

Kenneth (8:11)

The problem is actually that everybody is busy especially LOB.

Ana (8:24)

So you think that if you would have more time than maybe this would work very good?

Kenneth (8:28)

Yeah yeah, they would be better. More mature, if it wasn't this fire fighting culture we are using, if we would be more mature, more stable then we could actually step back and share the ideas.

Ana (8:44)

In what conditions you think you would enjoy to share the knowledge which is considered to be the right knowledge to be shared?

Kenneth (8:57)

Yeah, I mean…early on that was a lot more, we had meeting with the train partners, train supporters or different sides. It`s almost gone now and it's a shame because we had actually the drive to do something and share the ideas with other guys, and right now there is no really incentives to do that…there is no meeting, actually it`s been worse.

Ana (9:29)

Do you know why that stopped?

Kenneth (9:32)

Actually, one thing is that the whole training partner thing kind of stopped, and then it was taken over by leaders instead. So the training partner job title was taken over by leader. And that means they are more interested in optimizing their own and not sharing all these best ideas across. And I also thing the empowerment law…that`s what I think is what it is.

Ana (10:07)

Do you enjoying passing on what you know if you find some new efficient practice? Because usually really enjoy to share their knowledge and if they don't it means something is hindering them?

Kenneth (10:23)

It is fine passing on with the knowledge and see other people like it and use it. I would say it`s important.

Ana (10:34)

Did you feel appreciated by your tea, your colleagues, when the knowledge you shared in your team proved to be worthy?

Kenneth (10:40)

Yeah, a little bit. I mean, it`s been cut down a lot the last year, I think. In the forum to come up with ideas inspiring it`s been cut down a lot. So is not really appreciated now. But when you come with something, yes they do it.

Ana (10:56)

But why it has been cut down? Because of this project or the stress it`s going on?

Kenneth (11:01)

No, mostly because we are just doing the other way. Early on we were involved in everything and I was, but now it`s just Lasse and Petter going on with that thing. So…

Ana (11:12)

Are you effectively collaborating and discussing problems issues new learning new ideas and new learning and new insights through a shared knowledge space to your colleagues?

Kenneth (11:20)

Not really, it`s over the coffee machine.

Ana (11:25)

Are you effectively working on developing best practices together with your colleagues?

Kenneth (11:30)

Yeee…kind of. I was doing more early on but we are still trying to do it, I would say it. But it`s up to yourself, to do it.

Ana (11:50)

Did you feel you have the knowledge of what this project is all about from the beginning? Or maybe this happened in time, after Peter made the project courses for being a project manager, and then he started documented the things?

Kenneth (12:12)

I think I had the knowledge, I mean all the isoTrain gymnastic have all the knowledge to do that, like taking all the data out. It was not all clear in the beginning. Actually I heard about this for a long time. And nobody wanted to do it, with whole the clean-up. It`s been there for several year. But we in Training, it`s not ours, it`s actually QA or GMP. But in the end it ends up on Training. Yeah in the beginning wasn't that clear but then they got some inspiration from some on the other sides.

Ana (14:41)

Do you feel that nobody is taking the responsibility on reducing the SOPs and waiting for Peter do to something about it?

Kenneth (14:47)

Noooh...not really, is not really motivating for us to do it anyway honestly…it`s not…

Ana (14:55)

Do you think you personally trusting Peter or is about the trust in his professional judgment? Because he has experience working at NN?

Kenneth (15:08)

No I mean, he is doing a good job. I mean he is not used to have these big projects, and he is doing a good job I think. I am not totally convinced about this is the right thing to do all the time. And sometimes a little bit coincidently how they do it, but I mean he is doing a good job.