Kaunas University of Technology

School of Economics and Business

Knowledge Sharing Using Virtual Communities of Practice: The Case of an IT Enterprise

Master's Final Degree Project

Monika Budrytė

Project author

Assoc. prof. dr. Vestina Vainauskienė

Supervisor

Kaunas, 2023

Kaunas University of Technology

School of Economics and Business

Knowledge Sharing Using Virtual Communities of Practice: The Case of an IT Enterprise

Master's Final Degree Project

International Business (6211LX029)

Monika Budrytė

Project author

Assoc. prof. dr. Vestina Vainauskienė

Supervisor

Prof. dr. Rimgailė Vaitkienė

Reviewer

Kaunas, 2023

Kaunas University of Technology

School of Economics and Business

Monika Budrytė

Knowledge Sharing Using Virtual Communities of Practice: The Case of an IT Enterprise

Declaration of Academic Integrity

I confirm the following:

1. I have prepared the final degree project independently and honestly without any violations of the copyrights or other rights of others, following the provisions of the Law on Copyrights and Related Rights of the Republic of Lithuania, the Regulations on the Management and Transfer of IntellectualProperty of Kaunas University of Technology (hereinafter – University) and the ethical requirementsstipulated by the Code of Academic Ethics of the University;

2. All the data and research results provided in the final degree project are correct and obtained legally; none of the parts of this project are plagiarised from any printed or electronic sources; all thequotations and references provided in the text of the final degree project are indicated in the list of references;

3. I have not paid anyone any monetary funds for the final degree project or the parts thereof unless required by the law;

4. I understand that in the case of any discovery of the fact of dishonesty or violation of any rights ofothers, the academic penalties will be imposed on me under the procedure applied at the University;I will be expelled from the University and my final degree project can be submitted to the Office of the Ombudsperson for Academic Ethics and Procedures in the examination of a possible violation ofacademic ethics.

Monika Budrytė

Confirmed electronically

Monika Budrytė. Knowledge Sharing Using Virtual Communities of Practice: The Case of an IT Enterprise. Master's Final Degree Project supervisor Assoc. Prof. dr. Vestina Vainauskienė; School of Economics and Business, Kaunas University of Technology.

Study field and area (study field group): Business, Business and Public Management.

Keywords: virtual communities of practice, knowledge sharing.

Kaunas, 2023. 67 p.

Summary

Knowledge sharing is essential for a person to grow individually and professionally. In recent years, international businesses have tended to realize the importance of having a good knowledge management system in place. The COVID-19 pandemic, back in 2020 brough a shift to the way of how companies operate with the majority turning to the remote work. As a result, companies needed to adapt their knowledge sharing strategies to more remote possibilities.

To guarantee that the employees are sharing their knowledge and are able to learn from others, more businesses started to adopt innovative tools for knowledge sharing. One of such tools is virtual communities of practice that brings a chance for employees to have a collaborative tool where they are connected with likeminded people. Even though virtual communities of practice are getting recognition as a vital tool in knowledge sharing strategies, there is still a visible gap between companies using virtual communities of practice. Therefore, it is important to understand the knowledge sharing in the virtual communities of practice to understand how the companies could implement this collaborative tool.

Object: knowledge sharing in virtual communities of practice

Research aim: to provide model for knowledge sharing in virtual communities of practice in international organizations.

Research objectives:

1. To conduct an analysis of knowledge sharing practices and tools used in international businesses.
2. To construct a theoretical model of knowledge sharing in international companies by applying virtual communities of practice.
3. To ground a research methodology aimed at understanding knowledge sharing in virtual communities of practice within selected IT enterprise.
4. To present a model of knowledge sharing in an international IT enterprise using virtual communities of practice.

Research methods:

1. Literature that is related to knowledge sharing in international business was analyzed. Various authors were examined to gain broader insights in this problematic area and based on these findings, a theoretical model for knowledge sharing in virtual communities of practice was developed.

2. Based on the findings in the theoretical solutions, the qualitative research method was applied. Observation method for activities in virtual communities of practice was performed. The data collected data was analyzed using MaxQDA platform which allowed to understand what types of knowledge was shared within the virtual communities of practice and it suggested the possible solutions for empowering knowledge sharing in virtual communities of practice.

Knowledge sharing in virtual communities of practice is based on open discussions during virtual meetings and private chats where all members are connected. The members of the communities are open to sharing their personal experience, knowledge gained in the workspace and their opinions of specific topics. However, there is a lack of creation of new organizational knowledge as the members of virtual communities are not documenting their discussions. The additional input from the company would help the members to understand the purpose of virtual communities of practice and would bring a chance for the creation of new knowledge.

Monika Budrytė. Virtualios praktikos bendruomenės kaip dalinimosi žiniomis įrankis: IT įmonės atvejis. Magistro baigiamasis projektas vadovė Doc. Vestina Vainauskienė; Kauno technologijos universitetas, Ekonomikos ir verslo fakultetas.

Studijų kryptis ir sritis (studijų krypčių grupė): Verslas,Verslas ir viešoji vadyba.

Reikšminiai žodžiai: virtualios praktikos bendruomenės, žinių dalinimasis.

Kaunas, 2023. 67 psl.

Santrauka

Žinių dalinimasis yra svarbus asmeniniam ir profesiniam tobulėjimui. Pastaraisiais metais, tarptautinės įmonės pradėjo pastebėti gerai veikiančios žinių valdymo sistemos svarbą. COVID-19 pandemija 2020 metais pakeitė daugelio įmonių veikimo būdą – dauguma parėjo į nuotolinį darbą. Dėl šios priežasties įmonės turėjo pritaikyti savo žinių dalinimosi strategijas prie nuotoliu dirbančių darbuotojų.

Tam, kad užtikrinti darbuotojų žinių dalinimąsi bei mokymąsi vienas iš kito, įmonės pradėjo naudoti inovatyvius žinių dalinimosi įrankius. Vienas iš tokių įrankių yra virtualios bendruomenės, kurios darbuotojai gali bendrauti ir dalintis žiniomis su kolegomis turinčius tokius pačius interesus. Nors virtualios bendruomenės pripažįstamos kaip svarbi dalis žinių dalinimosi strategijoje, yra pastebima spraga tarp šios priemonės naudojimo tarptautinėse įmonėse. Todėl yra svarbu suprasti žinių dalinimąsi šiose virtualiose bendruomenėse, kad jas būtų galima įdiegti į žinių dalinimosi strategijas.

Objektas: žinių dalinimasis virtualiose bendruomenėse

Tyrimo tikslas: pateikti žinių dalinimosi virtualiose praktikos bendruomenėse modelį.

Tyrimo uždaviniai:

1. Atlikti žinių dalinimosi praktikų bei naudojamų įrankių tarptautinėse įmonėse situacijos analizę
2. Sukonstruoti teorinį žinių dalinimosi tarptautinėse įmonėse, taikant virtualias praktikos bendruomenes, modelį.
3. Pagrįsti tyrimo metodiką skirtą suprasti žinių dalinimąsi virtualiose praktikos bendruomenėse pasirinktoje IT įmonėje.
4. Pateikti žinių dalinimosi tarptautinėje IT įmonėje, taikant virtualias praktikos bendruomenes, modelį.

Tyrimo metodai:

1. Buvo analizuojama mokslinė literatūra susijusi su žinių dalinimusi tarptautinėse bendruomenėse. Įvairių autorių darbai buvo nagrinėti siekiant plačiau suprasti šią probleminę sritį ir remiantis šiais tyrimais buvo sukurtas teorinis modelis žinių dalinimuisi virtualiose praktikos bendruomenėse.
2. Remiantis teoriniais sprendimais buvo pritaikytas kokybinis tyrimo metodas. Atlikti virtualių praktikos bendruomenių stebėjimai, kurie leido surinkti duomenis tyrimui. Surinkti duomenis buvo analizuojami naudojantis MaxQDA platformą, kuri leido suprasti kokios rūšies žiniomis buvo dalintasi virtualios praktikos bendruomenėse bei leido pasiūlyti galimus sprendimus skirtus stiprinti žinių dalinimąsi virtualiose praktikos bendruomenėse.

Žinių dalinimasis virtualiose praktikos bendruomenėse remiasi atviromis diskusijomis virtualių susitikimų metu bei privačiais pokalbiais, kurie sujungia visus bendruomenės narius. Bendruomenių nariai atvirai dalinasi savo asmenine patirtimi, darbo vietoje įgytomis žiniomis ar savo asmenine nuomone apie konkrečias temas. Tačiau šiose bendruomenėse trūksta naujų organizacinių žinių kūrimo, kadangi virtualių praktikos bendruomenių nariai nefiksuoja savo diskusijų. Papildomas įmonės įsitraukimas padėtų nariams suprasti virtualių praktikos bendruomenių tikslą bei sukurtų galimybę kurti naujas organizacines žinias.

Content

List of figures

List of tables

Introduction

Knowledge sharing is one of the most important concepts in the world nowadays. The ability of a person to learn new abilities allowed him to survive, however this learned knowledge needed to be shared with others to ensure the growth of the community.

Knowledge sharing is important in the personal and professional life of an individual. International businesses are starting to understand the importance of right knowledge management strategy in the company. As the world went into lockdown back in 2020, it was important for the companies to ensure the knowledge exchange between employees and therefore more virtual knowledge sharing tools were adapted into daily business operations. For the companies it is also important to ensure that employees are communicating with one another and are creating team spirit in their community. However, there is a visible gap between open and collaborative knowledge-sharing tools such as virtual communities of practice. Virtual communities of practice are an effective way to share knowledge between individuals that are connected by the same interests and international businesses should put more emphasis on creating open spaces for these communities to strive.

Even though it is witnessed that virtual communities of practice have gained popularity, there is still a visible gap of this collaborative tool being used in knowledge management strategies by international business. Thus, the primary goal of this master thesis is to understand how the knowledge is shared in virtual communities of practice. The master thesis aims to provide a theoretical model that explains the knowledge sharing in virtual communities of practice.

To achieve the objective, the master thesis will first conduct a literature review to understand the knowledge management strategies in international business and how virtual communities of practice can be used as a tool for empowering the knowledge sharing in the companies. Next, qualitative research will be conducted where virtual communities of practice will be observed in an IT enterprise to understand the knowledge sharing practices in the company. Finally, the collected data will be analyzed to understand the selected case.

The findings of the master thesis are expected to contribute to existing literature findings on knowledge sharing practices and how virtual communities of practice can be used as a tool for knowledge sharing. The study will also provide insights into the chosen case. Ultimately, the goal of master thesis is to create recommendations for the international businesses on how to make the virtual communities of practice a great tool for knowledge management in the company.

Object: knowledge sharing in virtual communities of practice

Research aim: to provide model for knowledge sharing in virtual communities of practice in international organizations.

Research objectives:

1. To conduct an analysis of knowledge sharing practices and tools used in international businesses.
2. To construct a theoretical model of knowledge sharing in international companies by applying virtual communities of practice.

3. To ground a research methodology aimed at understanding knowledge sharing in virtual communities of practice within selected IT enterprise.

4. To present a model of knowledge sharing in an international IT enterprise using virtual communities of practice.

Relevance of the topic: During Covid-19 pandemic international business was thrown into remote working. Even though online knowledge sharing tools were easily adapted in the companies, the methods to share knowledge using communities were not adapted as much and are not viewed as a crucial tool in knowledge sharing. This paper will analyze the current situation in their international business settings and how the knowledge can be shared using virtual communities of practice.

Research methodology: The research combines theoretical solutions and empirical methods. Scientific literature analysis was performed to identify the theoretical solutions for knowledge sharing in virtual communities of practice. Additionally, theoretical solutions brought an understanding of what knowledge types can be shared in virtual communities of practice. Based on the findings in the theoretical solutions, the qualitative research method was applied. Observation method for activities in virtual communities of practice was performed. The data collected data was analyzed using MaxQDA platform which allowed to understand what types of knowledge was shared within the virtual communities of practice and it suggested the possible solutions for empowering knowledge sharing in virtual communities of practice.

Structure of the thesis: The thesis consists of four chapters. The first chapter discusses the current problems of knowledge sharing in international business and presents the lack of collaborative knowledge sharing tools such as virtual communities of practice. The second chapter provides theoretical solutions for knowledge sharing in virtual communities of practice. The third chapter discussed the research methods, what research design and data analysis methods were applied. The fourth chapter presents the findings of empirical research, combining the textural and visual data, together with discussions and limitations of the empirical research.

1. Problem analysis of current knowledge sharing in the context of international business

1.1 The importance of knowledge sharing

One of the most fundamental activities in businesses is knowledge sharing. According to previously done research – knowledge sharing is an interaction between individuals where the raw material being shared is knowledge. (Castaneda, D. I., & Cuellar, S. (2020)) In this process, people can share their experiences, skills, or tacit and explicit knowledge they have. Within companies, knowledge sharing can be a process where information and experts' experiences can be included in the practices applied. Looking from a broader perspective, knowledge sharing allows the company to understand what knowledge they have access to within the organization. The process of knowledge sharing is a critical part of the organization in the creation and application of organizational knowledge. (Castaneda, D. I., & Cuellar, S. (2020))

Even though the company may have a system of how to ensure knowledge management, it still may not lead to success. The knowledge shared through experiences can allow the company to create a competitive advantage in comparison to other companies. Knowledge sharing within the company can also allow the business to lower costs, shorten development cycles, improve customer satisfaction, and improve the performance of the employees. (Farhan A, Muhaimin K, (2019))

In the past decade, businesses have been developing the technology of information use and communications. Due to these implications, businesses were able to introduce new ways of working such as virtual teams, organizations, or teleworking. The ability to introduce virtual working allowed the companies to minimize the barriers of geographical places and allowed the company to hire employees that are experts in their sector. However, within virtual teams the company needs to ensure constant knowledge sharing, otherwise, the teams will not succeed. (Davidavičienė, V., Al Majzoub, K., Meidute-Kavaliauskiene, I. (2020)).

The research analyzing the aspects of knowledge sharing has been increasing in numbers during the past decades. As the main purpose of knowledge management is to systematically increase knowledge exchange, shared knowledge application in daily life ensures the constant creation of new knowledge within the company. By doing this, businesses ensure that a knowledge management strategy brings value. (Farhan A, Muhaimin K, (2019)) Furthermore, the success of knowledge management policies in the company results in a bigger interest from the employees to share the knowledge they have already obtained.

One of the main essential parts of the modern organization is teams and their development. Businesses are putting efforts into motivating employees to share their knowledge since knowledge sharing between team members allows for the creation of a system that helps to increase the efficiency of work. (Farhan A, Muhaimin K, (2019)) The knowledge sharing among employees that are working in virtual teams can be motivated by a few factors. These factors vary from motivation, culture, language, and conflict to the technology the company uses. The main factor that increases knowledge sharing within teams is employee motivation. When workers are motivated to share their knowledge with coworkers, they are more collaborative, and the knowledge-sharing process is smoother and enhanced. This motivation can be increased using the newest technologies that allow the team to communicate easily and brings the ability to share, store and gather the information being shared with the team. The combination of motivation and the right IT tools used leads the team to create more trust between one another and it also helps while promoting knowledge sharing since trust between

employees is one of the key elements while trying to enhance knowledge sharing (Davidavičienė, V., Al Majzoub, K., Meidute-Kavaliauskiene, I. (2020)).

However, there are factors that reduce knowledge sharing among the team members. First, the main reason why knowledge sharing is not happening within the team is the conflict between coworkers. Conflict is the main reason that stops knowledge sharing. Team members are reluctant to share their expertise with their teammates when there is conflict. This problem needs to be solved by team leaders. While solving this problem team leaders need to motivate the employees to share their knowledge. Secondly, cultural diversity also reduces knowledge sharing. When employees come from different backgrounds, the company needs to ensure that everyone feels safe and welcome to share their knowledge. While hiring new employees' team leads need to find a way how to overcome cultural differences. Additionally, the new hires need to be cohesive with current team members. (Davidavičienė, V., Al Majzoub, K., Meidute-Kavaliauskiene, I. (2020)).

Teams that participate in knowledge sharing efficiently are more prone to challenges during projects and perform better on the daily basis in comparison to other teams without knowledge sharing. Moreover, better performance on the daily basis allows the teams to be effective while solving problems and creates an environment where employees are exposed to different sources of information. However, the team environment should promote knowledge sharing otherwise, on an individual level it will reduce the impact of knowledge sharing. (Farhan A, Muhaimin K, (2019)) The main person that can influence the knowledge sharing between the team is the leader. As mentioned before, while creating a team, the leader needs to take into consideration different cultural backgrounds, and personalities so that the team can work together. At the same time, the team leader needs to ensure that there is trust among the employees and that he can provide help of employees' needs. The leader can ensure that employees would feel empowered to make changes by creating a co-creation environment. With a positive attitude and direct relationship with the employees, the leader ensures that everyone is motivated since they will feel the changes around them. The leader becomes the key person while ensuring constant knowledge sharing between the individuals in the company (Garro-Abarca V, Palos-Sanchez P, Aguayo-Camacho M (2021)).

As the teams consist of individual employees, knowledge sharing is also an important factor on an individual level. As it was mentioned previously, knowledge sharing within the team was found to be increasing the levels of adaptability to stress and project challenges as well as better daily performance. When employees are exposed to knowledge sharing, they broaden and present the knowledge they have already obtained. Participation in knowledge sharing makes individual workers more innovative and open to creative ideas. Moreover, when individuals become more creative, they usually have an increased number of ideas they can bring to the company. (Farhan A, Muhaimin K, (2019)) Individual employees that are exposed to knowledge sharing are more likely to be innovative. As a person adapts and becomes innovative, he will do better at his daily job, therefore increasing his performance at his work. Being innovative at the workplace can allow a person to easily manage their resources and share them with its coworkers. The team in which individuals are motivated to share their knowledge will overall increase its knowledge which allows everyone to perform better at their tasks. With the increased knowledge individuals can come up with creative ideas on how to perform their tasks. This leads to a positive effect on knowledge sharing and individual performance at work (Fauziyah, Fauziyah, Rahayunus, Zenida. (2021)).

Furthermore, knowledge sharing inside the team has some positive effects on individuals' psychology. Knowledge sharing shows an increasing amount of individuals' autonomy, fulfillment of the jobs done, and utilization of information gathered. Moreover, the correct knowledge-sharing strategy applied can also increase the satisfaction of the job among employees. It was mentioned previously that knowledge sharing has a positive effect on teams' adaptability to stress and challenges during projects. On an individual level knowledge, sharing increases the number of positive relationships in the workplace reduces the amount of stress an individual feels, and reduces the number of work-life balance problems. All these improvements added up to make the individual more satisfied with his life. (Farhan A, Muhaimin K, (2019))

In recent years, knowledge management strategies have become an important part of international businesses. These strategies became a tool while ensuring the organization's development which includes its culture and structural proposition. As mentioned previously, knowledge management emphasizes the collection, storage, and transfer of knowledge sharing. This has become particularly important in the context of the Fourth Industrial Revolution. The 4.0 industrial revolution provides the company the maximum productivity and efficiency while using automatization, artificial intelligence, and systems created by experts (Anshari, M., Syafrudin, M., Fitriyani, N. L. (2022)). In the context of the fourth industrial revolution, knowledge sharing, and its strategies become one of the fundamental activities in businesses.

International organizations are made up of small clusters or teams. As mentioned before, knowledge sharing can be increased by different factors. These factors are such as trust, cooperation, and culture. In the context of industry 4.0, the teams or clusters go beyond the geographical borders through structures that promote collaboration. These clusters are believed to be a revolutionary thing and allow the members to achieve greater things together. Moreover, the social aspect of clusters is important, since they promote social networking and in the virtual teams this can be achieved by creating a digital system that allows easy communication between the members (Fioravanti, V.L.S., Stocker, F., Macau, F. (2021)).

Moreover, the fourth industrial revolution is not the only aspect changing the ways how international businesses view knowledge sharing. In 2020 world was shocked by the sudden wave of bringing businesses online due to the Covid-19 virus. A sudden wave of onlinezation hit the world and everyone needed to quickly adapt to the new challenges. This sudden stress increased the employee's motivation to share knowledge. At the same time, a sudden wave of online work increased the usage of technologies that allowed people to share their knowledge more conveniently (Blagov, E. Y., Anand, A. (2022)).

The covid-19 pandemic allowed companies to implement new ways of how to share knowledge between employees. The pandemic resulted in greater effectiveness of knowledge sharing using online platforms. However, these platforms need to be orientated to knowledge-sharing quality. Even though in virtual teams the speed of knowledge sharing is important, the quality needs to be a priority since that could influence the overall teams' performance. The knowledge-sharing speed can be increased by optimization of the system (this is done in industry 4.0) (Blagov, E. Y., Anand, A. (2022)).

The covid-19 pandemic induced new ways of how knowledge sharing is managed in the company. The sudden change in the working environment allowed the people to influence the various factors

of knowledge sharing. Increased knowledge sharing can be done by acquiring new technological systems. These new technological changes accelerate knowledge sharing in the context of Covid-19 (Blagov, E. Y., Anand, A. (2022)). The wave of onlinezation and adaptivity of the right tools decreased the consequences of the pandemic while at the same time suggesting that knowledge-sharing tools need to be adapted in accordance with the Fourth Industrial Revolution (Anshari, M., Syafrudin, M., Fitriyani, N. L. (2022)).

1.2 Knowledge-sharing tools

Knowledge sharing is one of the essential parts of a daily employee's routine. Employees can share their knowledge within their own organization or outside of it. With the changing world around, knowledge-sharing tools are evolving. The first generation of knowledge-sharing tools were designed to resolve issues that are related to geographical distance of workers or temporary challenges in daily life. The second generation of knowledge sharing tools are designed to reduce social distance in work since the majority of the teams can work from home and meet only online. (Lee, Wang, Yeoh, Ikasari, (2020)).

In international businesses, second generation knowledge sharing tools are not used as wisely as they could. Second generation tools like social media, video conferencing or sharing and storing documents online are used way less than tools such as email or companies' intranet. However, second generation knowledge sharing tools have advantages that overpower traditional tools. The second-generation tools are a key to successful employee development. When employees are looking for a new place to work, the main reason behind this is the feeling of not being valued. Second generation knowledge sharing tools can change that since second generation tools seek to minimize the distance between employees and this could lead to quicker communication between managers and employees. For the employees, standard emails feel like broadcast communication that does not impose interest in a person. Video meetings or other social networks used in companies are more natural, where employees can express their feelings but at the same time are protected from social anxiety that could happen during "town hall" meetings (Deloitte. (2013)).

For the employees working online knowledge sharing happens using blogs, shared drives, social media, or online discussions. The main intention of knowledge sharing is to promote social interaction between employees and international organizations. The need to carefully choose knowledge sharing tools for them not to be bypassed by the workers.

Within virtual teams, knowledge sharing can simultaneously happen in a few different online platforms. This may happen since some platforms are more user friendly or have specific functionalities or features that are necessary for the employees. (Lee, Wang, Yeoh, Ikasari, (2020)) The faster development of IT for the businesses allowed the creation of many systems that works well in management of systems. Knowledge management tools are focused on absorption of information by individuals that later will turn this information into knowledge. Knowledge management tools need to meet specific characteristics to be able to collect, organize, share, and transfer information. One of the requirements for tools is facilitation of information in a meaningful and understandable context. For the information seeker, this allows better information retrieval and management of stored information. (Raiyan Ghani, S. (2008)) Secondly, transfer of information must happen by considering user, content and the time information was transferred. Knowledge sharing tools that are able to take into consideration all three aspects can truly provide information based on the needs of the user.

(Raiyan Ghani, S. (2008)) Thirdly, tools used for knowledge management need to have a user-friendly interface for it to be used on the daily basis. (Raiyan Ghani, S. (2008)) Moreover, knowledge sharing tools need to have a feature where communication and networking is facilitated. Social networking and direct communication are a part of individuals daily life and knowledge management tool needs to facilitate it to be used. (Raiyan Ghani, S. (2008))

During the Covid-19 pandemic back in 2020, the traditional setting of working was drastically changed to fully remote work. This was the year that started virtual collaboration within the teams. This boost of virtual collaboration is represented in the graph below.

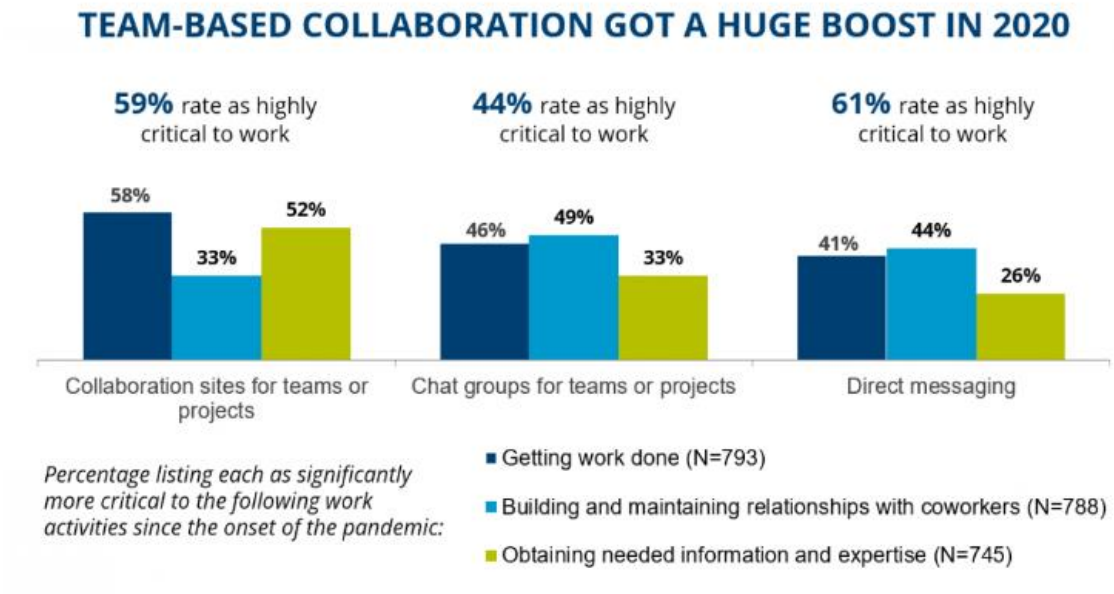

Figure 1. *Team based collaboration in 2020. (Trees (2021)).*

As represented in the graph, the most valuable tool for sharing knowledge within virtual teams is collaboration sites while simultaneously this being the most important tool while performing at work. Chat groups and direct messaging also is viewed as a useful tool to maintain relationships between team members, while at the same time helping the members to obtain new knowledge (Trees (2021).

Even though companies adopted new virtual collaboration tools, there is still a visible gap in usage of open and joined collaboration tools. Communities of practice are not visible as a useful tool to perform daily job functions. However, communities allow the employees to connect with like-minded colleagues and all of this is critical to ensure innovation, creative problem solving and knowledge sharing inside the organization. For this reason, it is important to understand communities of practice so that international organizations can adapt this tool into their knowledge management strategies. In conclusion, during Covid-19 pandemic the business community was forced to go into remote working. This led to the increased numbers of knowledge sharing tools becoming based online. However, businesses still lack the usage of collaborative tools like communities of practice that could provide new innovative ideas and would increase knowledge sharing between employees that are sharing the same passion for a specific topic.

To conclude the findings of problem analysis, knowledge sharing is an important aspect of daily life in business. There is a visible growth of research done on knowledge sharing in international business settings. However, the fourth wave of industrialization led to companies and employees experiencing

what is called onlinezation. Additionally, the Covid-19 pandemic back in 2020 brought an understanding to the companies that there is a need to quickly adapt to the changing world. This adaptation includes the knowledge sharing strategies and the tools used for it. Based on the researches done previously, it is witnessed that remotely working employees are mainly sharing their knowledge using blogs, online discussions. As a way to incorporate discussion in daily life of the business, more companies are creating innovative tools for knowledge sharing in their daily life. However, it is still witnessed that there is a lack of collaborative knowledge sharing tools such as virtual communities of practice. Therefore, there is a need to understand the activities of virtual communities of practice to understand how knowledge is shared in them. This master thesis seeks to understand how knowledge is shared in them and *what types of knowledge are shared in virtual communities of practice*.

2. Theoretical solutions for usage of knowledge sharing tools in international business

2.1 Drivers for knowledge management

Knowledge is an asset that each individual has. This asset is needed in all faces of life - from personal to professional life. The development and progression of the world strictly depends on the acquired knowledge of its inhabitants. Acquiring information without managing it leaves a huge gap in an organization and stops future generations from learning about what was previously known. Therefore, the management of knowledge creates a foundation for others to learn from, maybe grow and add new ideas to it, or build upon the knowledge already available. Looking back, the older generations from the stone age tried to manage the knowledge using primitive methods like paintings on the walls. The need to save and store information gathered shows the importance of knowledge management (N. Koranteng Asiedu, M. Abah, De-Graft Johnson Dei, (2022)).

Knowledge management has recently gained significant attention in the business literature. Both the commercial and academic worlds hold the view that a company can maintain its long-term competitive advantages by exploiting knowledge. One must first comprehend some of the basic competencies associated with knowledge management in order to understand how to best integrate it into a business organization.

In the scientific literature, it is possible to find many definitions of knowledge management. Back in 2014 Meihami and Meihami stated that knowledge management is the process in business during which organizational managers improve overall performance by setting the way of how to manage organizational knowledge better (Meihami, B., Meihami, H. (2014)). In 2016 Nanda explained that knowledge management is an efficient way of handling information and resources found within an organization (Nanda, S. (2016)). On the same year, Nowacki and Bachnik described process of knowledge management as a willingness of a company to introduce an innovative way to process information in order to execute business strategy (Nowacki, R., & Bachnik, K. (2016)) Overall, the majority of scientists describe knowledge management as a process through which companies can manage their interorganizational knowledge in order to reach the designated goals.

As with the many scientific topics, researchers tried to identify the generations of knowledge management in businesses. Even though many researchers tried to describe the generations, the unified definition of knowledge management generations is still not accepted. The main visible split between two generations would be a change of knowledge management strategies in the business world. In the late 1990s companies put the most emphasis on technology-centered approach when it came to knowledge management. This was a generation where people relied on for the answers. However, with the changing world, companies changed their focus from technology to the individual employees. Even though companies are still using technology to manage their knowledge, people become the center of it all, since they have acquired the knowledge and have a capacity to share it with others (Edwards, J. S. (2019)).

As the field of knowledge management has gained interests from the researchers, the companies started to recognize the importance of correctly managing their knowledge to gain a competitive advantage. In the international business the drivers for knowledge management can be multifaced, however, there is a need to understand them for developing an effective way to manage the knowledge in the business.

Back in 2022, Kamara, Augenbroe, Anumba and Carrillo identified the four reasons why knowledge management is needed in the projects that are being implemented in the business.

1. Businesses have a need to quickly react to organizational changes such as high employee turnover and the changing environment in which the business operates.
2. Businesses need to optimize their projects in order to minimize the waste, duplication and repetition of the same mistakes in different projects.
3. Businesses need to adapt to their growth and if needed to diversify their business.
4. Businesses need to take care of their suppliers and the whole supply chain in their projects.

Within the organization there are some limitations that could affect how effective knowledge management is. Teams that are not located in headquarters but rather are separated by distance, have a potential to not have the same value from the knowledge sharing as the ones that sit together in the cabinet. Moreover, the virtual teams may not have the same ability to share the tacit knowledge since they share the knowledge via technological sources (Kamara, Augenbroe, Anumba, Carrillo (2002)).

All in all, knowledge management is an important part of a daily business life. It brings the possibility to manage the organizational knowledge in addition brings the innovative ways to process the informational flow. If the knowledge management in the company is driven by certain expectations, the employees will be able to share their acquired knowledge using innovative ways.

2.2 Types of knowledge

For the business to choose the correct knowledge management strategy, the main issue that arises is understanding the definition of "knowledge". When this concept is understood, the company will be able to choose a knowledge management strategy that will help it to reach the set goals.

Knowledge that can be shared is divided into two main dimensions: *tacit and explicit* knowledge. Tacit knowledge was first described back in the 20th century and is considered to be a knowledge that is hard to articulate to others (Mohajan (2017)). Tacit knowledge is the knowledge we draw in actions like driving, operating a machine. It is hard for a person to describe how to ride a bicycle but is easier to show. Tacit knowledge is personal, mostly gained from other people.

Tacit knowledge itself can be separated into two parts: technical and cognitive. Technical tacit knowledge is demonstrated when a person has mastered a specific set of skills or has a specific body of knowledge that before was crafted by his masters. Cognitive tacit knowledge is a perception and model that can be taken for granted. As a cognitive model people consider the metaphors used, the perception of the world or stories being shared with others (Smith (2001)). The value of tacit knowledge is usually underrated in the workplace. Since tacit knowledge comes from face-to-face interactions and mentoring, companies do not understand how to facilitate this knowledge. However, the companies that are able to facilitate this knowledge via different methods like rewards systems are able to create the knowledge that fits companies' culture, needs. Companies are creating more methods on how tacit knowledge could be shared face-to-face on a daily basis (Smith (2001)).

Due to the difficulty writing down the tacit knowledge individuals have; managers are more likely to turn to explicit knowledge. Explicit knowledge is considered to be data or information that is coded, stored, and spread within people. This kind of knowledge is easily transferred and shared within individuals. Explicit knowledge is considered to be logical and objective. Explicit knowledge is easily transferred since it is related to the theories (Maravilhas, Martins (2018)). This type of knowledge is

considered to be technical knowledge that can be described in formal meetings, manuals. Explicit knowledge is mostly shared via electronic methods, prints or other methods that are considered to be formal ones. For a person to gain explicit knowledge he needs to have a formal education or needs to finish some structural studies (Smith (2001)). Since this type of knowledge is easily coded and stored it is also way faster to be shared. As the knowledge is being coded it can be easily reused or repurposed to serve for different projects happening in the business. Usually, the system to store and share information is a costly investment for the business but is needed to ensure that the collected information is saved inside the company (Smith (2001)).

During more recent years, the knowledge type division has grown. Based on the recent researches, it is possible to find around 10 more knowledge types than only tacit and explicit. The additional knowledge types are presented in the table below.

Table 1. *Knowledge types. Created by an author, reference Drew, C. (2023)*

Knowledge type	Description
Implicit knowledge	A learned skill. Can be acquired by a person taking explicit knowledge and applying it to specific situation. This knowledge type allows a person to find the best solution for a problem.
Procedural knowledge	Knowledge that focuses on how the things operate, and a person can demonstrate it by being able to do something. Procedural knowledge is less articular or documented.
Declarative knowledge	Information or the facts given to specific topic. This information is easy to access and to retrieve. When a person has this kind of knowledge they are aware of their understanding on the topic.
A posteriori knowledge	Knowledge is gained by a person from experience. It is a subjective knowledge that plays a huge role in the team work as it helps to diversify the skills of the members.
A priori knowledge	A logical type of knowledge that a person can gain independent of experience. It is a person's ability to understand the situation.

The additional knowledge types allow to understand, that each individual has their own personal knowledge that is gained via different experiences. Within teams, this knowledge can be shared via social interactions. Companies need to ensure that social interactions are constant in the organization in order to keep the knowledge sharing. For the employees, having team buildings, social activities or clubs within an organization is important and is useful for organizations since it reduces the social barriers between employees and initiates social contact. With organization of the activities with social interactions, companies will benefit from the increased numbers of knowledge transfer and the creation of new knowledge that will be held inside of the company (Gasik, S. (2011)).

Overall, in the majority of scientific literature the knowledge types are divided into two main categories: tacit and explicit. Tacit knowledge is personal knowledge that can be hard to articulate to others. Explicit knowledge is considered technical knowledge, that can be easily written down and explained to others. In more recent years, the spilt of knowledge types has grown and the idea that a

person can store more personal knowledge has grown. Additionally, personal knowledge can be shared between the employees using social interactions that allows international businesses to create more knowledge within the organization.

2.3 Knowledge creation in international business

Different types of knowledge ensure that the learning processes in international business happen regardless of whether businesses apply any systematic learning processes. However, this does not mean that by not applying any strategies, companies will succeed in organizational learning. Not applying the correct strategy may lead the company to suffer from knowledge loss or could mislead to implications that are not necessary in the company. Therefore, to gain the ability to learn systematically, companies are applying organizational learning strategies.

Organizational learning is a process through which organizations modify their collective knowledge in order to improve or maintain their company's performance. For firms functioning in unpredictable contexts to react to unforeseen occurrences faster than their rivals, organizational learning is essential. OL is a source for the creation of new organizational knowledge because of its inherent capacity to foster the development of fresh viewpoints. Due to the complexity and rapid changes of corporate environments, this skill is continuously rising in relevance (Basten, Haaman (2018)).

In order to understand the organizational learning process, first there is a need to understand the individual learning process. However, organizational learning is more complex due to the environment. If the individual learning process is a collection of individual work, organizational learning requires collaboration of individuals working together, while at the same time organizations need to maintain interactions with other organizations in order to understand the environment they are working in (Basten, Haaman (2018)).

In previous studies, researchers exposed the importance of knowledge creation as a part of the organizational learning system. In the eyes of knowledge creation, organizational learning is considered to be a process that regards tacit and explicit knowledge. As mentioned previously, explicit knowledge can be easily articulated, coded, and transferred using language while tacit knowledge is highly personal, based on personal experience and beliefs. Tacit knowledge helps a person to understand the world around them and contains technical and mental skills (Basten, Haaman (2018)).

Back in 1996, Nonaka, Takeuchi and Umemoto proposed a model that helps to explain the movement of tacit and explicit knowledge through different phases and how it helps for an individual and organization to gain new knowledge and broaden the already existing knowledge. This model is called SECI, since it consists of 4 processes - Socialization, Externalization, Combination, and Internalization. Nonaka, Takeuchi and Umemoto proposed this model after analyzing industrial organizations in Japan (Nonaka, Takeuchi, Umemoto (1996)). The model of this process is presented in the picture below.

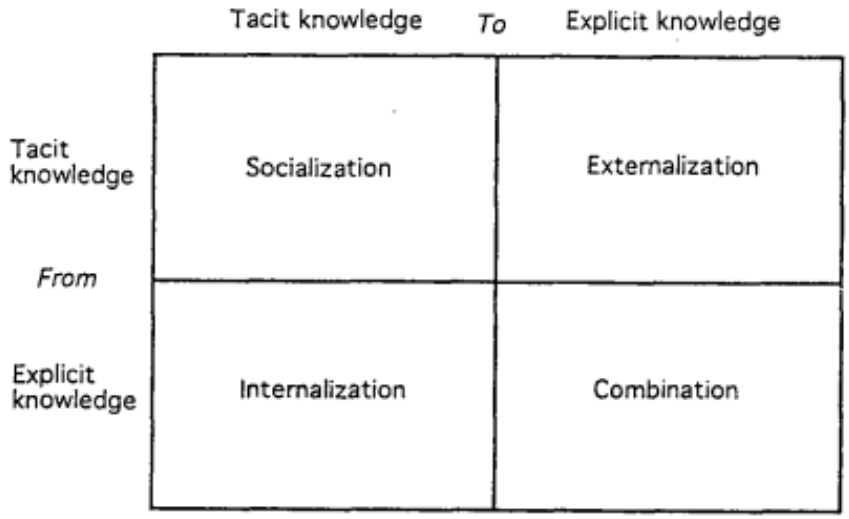

***Figure 2**. SECI model (Nonaka, Takeuchi, Umemoto (1996)).*

Socialization process happens when an individual shares their tacit knowledge with other individuals. The sharing of tacit knowledge happens on a daily basis, where more junior people can learn the mastership from observation and practice (Nonaka, Takeuchi, Umemoto (1996)). Overall, this process entails the sharing of tacit knowledge between individuals and helps to define the process of "how to do things" in the professional settings (Farnese, Barbieri Chirumbolo, Patriotta (2019)).

Externalization process is a knowledge sharing from tacit to explicit. During the externalization process tacit knowledge is changed to the explicit knowledge and takes on forms of metaphors, models or concepts. In organizational settings, this happens when companies are documenting the processes (Nonaka, Takeuchi, Umemoto (1996)). The main aim of this process is to generalize the collective knowledge, which later on could be transferred to the newcomers in the company. Additionally, this process leads to the creation of a new knowledge that previously was hidden in the memories of individuals and with the documentation became available to their co-workers (Farnese, Barbieri Chirumbolo, Patriotta (2019)).

The Combination process is when explicit knowledge is transferred into more complex models or concepts of explicit knowledge. Usually this happens through the combination of already existing bodies of knowledge like documents. Connectivity of already existing knowledge can lead to new understandings. In the business world, these understandings lead to new methods, best practices that can be shared even in the absence of a human connection (Nonaka, Takeuchi, Umemoto (1996)).

The last part of the SECI model is the *internalization process* during which explicit knowledge is created into tacit knowledge. Internalization process allows individuals to gain knowledge from documents or other written practices and interpret the information based on his personal preferences, experiences. As the explicit knowledge is documented effectively, for the individuals it is easier to read the previous knowledge and then base it on their individual level. Using this process, the person can expand their tacit and explicit knowledge since the information is gained from the documents but is personally applied in the real world (Nonaka, Takeuchi, Umemoto (1996)). The newly acquired knowledge later on will be shared via different processes mentioned in the SECI model and this is how the knowledge can re-circulate in the businesses (Farnese, Barbieri Chirumbolo, Patriotta (2019)).

When the knowledge is moving through mentioned processes, the new knowledge is able to occur. During these processes, the individual knowledge that employees have is collected and written down so it would be accessible to other employees. By using the SECI model, companies are able to write down individual knowledge and transfer it to collective knowledge (Nonaka, Takeuchi, Umemoto (1996)).

The SECI model introduced by Nonaka, Takeuchi and Umemoto brings a further understanding how knowledge can be created within the organizations. The transitions of the knowledge types allows the organizations to write down knowledge such as tacit, that is personal, and with this type of knowledge being coded, the organization ensures that this knowledge is known and will stay in the organization.

2.4 Barriers to knowledge creation

The SECI model introduced in previous chapter brings an understanding of how the knowledge can be shared between the employees and how the new knowledge can be created. However, creating and sustaining the knowledge in an organization can be harder than it may look from the beginning. As the employees come from different backgrounds, what one may view as motivators to share the knowledge, others may view as a barrier. Researchers have taken time to understand the unified barriers to knowledge sharing. So, in order for the business to implement the right tools for knowledge sharing it is important to understand what barriers need to be overcome.

Each individual employee has a unique set of knowledge that is considered to be tacit. When a project in organization is given to a certain team, the company deals with the challenge utilizing the group's potential for sharing this tacit knowledge. When project team members share their previously acquired knowledge, they need to justify the trust of this information and the benefits it will bring to the project. Based on this, previous researchers have identified the organization barriers in knowledge sharing (Fullwood, Rowley, McLean (2019)).

The company and its culture can be a big motivator for the employee to share the already acquired knowledge. However, at the same time, culture is one of the main barriers to knowledge sharing (Fullwood, Rowley, McLean (2019)). Internal culture is considered to be the way managers work, the style of the company that can be very bureaucratic or open. At the same time, as a cultural value of the company, employees consider such things as trust, effective internal communication or technological decisions that support knowledge sharing. Despite all the positive aspects companies may have, things such as inside processes, lack of leadership or the structure of the company are the barriers that draw employees away from knowledge sharing. This barrier, for example, occurs when a company is changing inside the process that is working and does not need to be changed. Employees may have a better opinion on how to change something but is met with lack of interest from the manager. For the individual, this creates a barrier and understanding that the knowledge they have is not accepted and valued and, in the future, it may lead to the lack of sharing of personal knowledge (Khakpour, Ghahremani, Pardakhtchi, (2009)).

Every individual employee comes from a different background. For this reason, employees have different opinions about themselves. At the same time in the company everyone has a specific title given to them according to their position in work. What brings the tendency to slow down the knowledge sharing inside the organization is the individual fear of the title they have in the company, or in which place they rank. Some employees tend to be more sensitive towards new information, for this reason they may look down on themselves as they feel they are not good enough to do their job.

This slows the knowledge sharing in the company and leads to the employee closing from wanting to share the knowledge with its coworkers (Lartey, Shi, Santosh, Afriyie, Gumah, Husein, Bah (2022)).

People in everyday life are surrounded by technology. Social media platforms have become a way to share personal knowledge with people on the other side of the world. Technological decisions are an important tool while trying to increase the knowledge sharing between workers. However, the lack of technology or employees not knowing how to use them may become a barrier in organizational knowledge sharing. The technological platforms that are used daily need to be user-friendly. If the main used platform will not be easy to use, individuals will not turn to it. Additionally, individuals need to understand how to use the platform. The platform used for knowledge sharing needs to be easy to understand, otherwise it will become an obstacle while trying to implement knowledge sharing. For the company it is important to build a tool for knowledge sharing that is user friendly, easy to understand but at the same time, to avoid technological obstacles, companies need to provide an initial trainings to all employees and the support system in regards to the platform usage (Hirlak, Yeşil (2019)).

Overall, the knowledge creation in the company can happen easily, using social interactions, however, for the company to ensure the sustainability of knowledge creation it needs to overcome some barriers. The barriers ranges from organization culture, to the personal opinion of an employee or the lack of understanding the technological decisions. The company needs to understand what main barriers it needs to overcome and based on this the most successful knowledge sharing strategy will be applied and by doing this the knowledge creation in the company will be sustainable.

2.5 Knowledge sharing in organizations

For the company to succeed in knowledge sharing, first of all it needs to overcome the barriers that may be organizational of personal and accosting to the gained information, the company then can apply the knowledge management strategy best suitable for the environment of the business. Researchers have tried to identify the knowledge management discipline and with the gained understanding of the discipline, they have been able to identify two knowledge management strategies for the company.

The first strategy that can be used in knowledge management is called *codification*. This strategy is similar to the externalization method described in the SECI model. The main idea of codification is the people-to-document approach. If the company is using this method the main goal is to capture, codify, store and reuse the information gained from individuals. The collected knowledge later can be used to reach the set goals by the company. Even though codification strategy requires big financial resources from the company since there is a need to create a platform where all information could be stored, this is a one-time investment while the stored information could be reused as many times as needed (Bolisani, Padova, Scarso (2020)).

The second strategy is *personalization*. Similar to the previous strategy, it is close to the socialization process described in the SECI model. In personalization strategy, knowledge management is focused on person-to-person interaction. While using this method, the main focus is on the sharing of tacit knowledge using tools such as human interaction or social networking. As the main focus using personalization strategy is the interaction between individuals, IT plays a smaller role, however, it is necessary to increase the connections between employees and to facilitate the conversation (Bolisani, Padova, Scarso (2020)).

The strategies identified previously can help a company to choose the correct knowledge sharing tool. The knowledge sharing tools can be based on the categorization of what kind of knowledge can be shared while using them. Knowledge sharing tools categorization can be based on four different types of knowledge: explicit, tacit, know-how and know-who. Types of knowledge management tools based on several types of knowledge are represented in the table below.

Table 2. *Knowledge management tools that are based on types of knowledge. Prepared by author, reference Raiyan Ghani, S. (2008)*

Explicit knowledge	**Tacit knowledge**	**Know who**	**Know how**
System tools	Video conferences	CRM tools	Collaboration tools
Data management system	Face-to-face	Social network	E-mails
Warehousing of data	Other technologies	Knowledge portals	Groupware

As represented in the table, knowledge sharing tools can be based online or on face-to-face interaction. Since the pandemic hit the world, companies transferred their knowledge sharing to online tools. However, it is still important to maintain social networking as it is one of the key components of knowledge sharing between individuals. Due to this reason, companies started to include virtual communities of practice into their knowledge management strategies. Communities of practice became a popular tool for translation of new knowledge at the same time linking researchers, policy makers or consumers. Moreover, communities of practice facilitate information exchange in timely and relevant matters. (Shahmoradi, L., Safadari, R., Jimma, W. (2017))

As it was mentioned previously, in the knowledge-based economy, improving knowledge sharing within businesses is becoming even more important and is now one of the strategic goals of every company. Communities of practice became an attractive tool for businesses to use to share knowledge in organization as well as promote innovations. One of the best practices within organizations is the creation of communities of practice and this is viewed as one of the essential parts of improving employee learning, development and overall improving the learning in the organization. (Bratianu))

On the organizational level cognitive knowledge is a dominant one, however, if the company is trying to create a community it is important to include emotional knowledge. For this reason, communities of practice are the main tool how companies can level cognitive and emotional levels. For the employees participating, communities of practice offer an environment that is less structural. These communities' bonds people with similar interests where employees participating can share their passion, their knowledge on the topic and become more open to creating ideas that may look out of the box. Later on, these ideas can become projects since a group of people introduced it to the company and from these projects' businesses can gain revenue. (Bratianu, C. (2015))

Since communities of practice provide an unstructured format that is solely based on individuals interest, employees have more unpredictability that may have an impact on innovations happening around the company. When employees are participating in communities they have a sense of belonging, they feel that the ideas they will generate will have an impact. The aspect of community and social networking aligns with the main ideas of knowledge sharing therefore making communities of practice an attractive tool for businesses. (Bratianu, C. (2015))

All in all, knowledge management in international business can be based on different strategies. The correctly identified strategy can allow the business to choose the knowledge sharing tools that will be

based on what types of knowledge the company wants employees to share. The communities of practice in the resent years gained popularity as it brings the possibility to merge knowledge sharing and societal activities in the company. While participating in the community employees feels the sense of belonging and for this reason, they share more which brings the knowledge into the company.

2.6 Virtual communities of practice as a knowledge sharing tool

Maintaining and continuously exploiting an organization's intellectual capital has grown to be a challenging task. The ways that collective knowledge is developed, retained, and utilized inside an organization are impacted by globalization and constantly evolving organizational structures. Changes in organizational structures and employee distances from one another are putting traditional organizational boundaries to the test. In the past years, communities of practice (CoP) have become an important tool for companies in their knowledge management policies. The term *communities of practice* (CoP) are defined as an activity in which participants are sharing understanding and concerns about what they are doing and how it affects them and the community itself. (Ardichvili, 2008) In this community, people that have less knowledge can rely on others to learn. The main challenge that CoP allows people to overcome is the ability to share the tacit knowledge they have through practice. Inside CoP tacit knowledge becomes a key factor that promotes organizational learning. (Ardichvili, 2008)

To support the effective work practices in the environment that is being challenged companies are implementing the changes to communities and bringing virtual communities of practice into their knowledge management. Virtual communities of practice are similar to CoP, however, to share their knowledge these communities use an internet connection. (Wenger-Trayner, E. and Wenger-Trayner, B., 2015) Virtual communities of practice not only uses online learning platforms or websites but also encourages real-time learning methods such as online conferences to remove geographical barriers and bring the possibility to attract an interactive and diverse crowd. (Bermejo-Caja, Koatz, Orrego, 2019) Virtual communities of practice plays the main role in the knowledge management strategies inside the company and within different ones. Moreover, it is being argued that these virtual communities should be considered an important tool for collective learning in the organization. Due to this fact, companies are trying to understand how Virtual communities of practice functions and what strategies lead to their success. (Ardichvili, 2008)

Despite the widespread use of Virtual communities of practice s in corporate settings all over the world, little is understood about the factors that affect whether they succeed or fail. For the companies it is important to build a strong Virtual community of practice, that would help with knowledge management. At the same time, these Virtual communities of practice would not succeed without the personal motivation of their participants. These factors combined ensure that Virtual communities of practice will be a great tool for the company while at the same time will motivate employees to be a part of the community that strives to learn.

2.6.1 Motivational factors for individual participation in virtual communities of practice

Without effective knowledge and collaboration of highly motivated individuals who are eager to provide their time and efforts to the community, virtual communities of practice cannot survive or prosper. Organizational psychologists have been interested in motivation for a very long time. The incentives for knowledge collaboration in virtual communities of practice have been justified and categorized using a wide range of frameworks. Mostly used frameworks rely on Deci and Ryan’s

theory on self-determination (SDT). (Deci, Ryan, 1985) This theory claims, that all persons have three basic needs – autonomy, competence, and relatedness. If all these needs are met, then a person feels personal development and growth. (Deci, Ryan, 1985) The theory proposed by Deci and Ryan differs from others since this theory focuses on the type of motivation rather than the amount of motivation a person could have. SDT proposes types of motivation such as *intrinsic, extrinsic, and amotivation*. Intrinsic motivation is better known as *autonomous motivation* and it refers to a person's tendency to seek novelty, extend capacity, grow, and learn. Extrinsic motivation or *controlled motivation* is referring to motivation based on the external goal of a person like winning a competition or receiving an award. (Deci, Ryan, 1985)

On the principles of SDT, the *hierarchical model of intrinsic and extrinsic motivations* (HMIEM) was created by Robert J. Vallerand was created. (Vallerand, 1997) The model considers multiple motivational representations in diverse settings, how these various motivations are related, and the factors that influence and have an impact on these representations of motivation. The HMIEM assumes that a person's motivation is related to hierarchical levels of generality and builds on the distinction between intrinsic and extrinsic drive. The situational-level motivation is a lower-level motivation that is typically felt in the moment when one completes activities. The contextual-level motivation, on the other hand, is a higher degree of motivation and relates to motivation for a particular life context, like Virtual communities of practice s. (Ferreira Chame, Pinto Mota, Costa Botelho, 2018).

According to the HMIEM model, the motivational factors for an individual to participate in virtual communities of practice can be categorized as *intrinsic, extrinsic, and community.* If the person is motivated by intrinsic factors, he is self-efficient, he does not seek rewards, but rather works due to the need for achievement and affiliation. While a person is motivated by extrinsic factors, he seeks rewards at same time valuing information and instruments. Finally, community motivations are for the person is a sense of belonging, satisfaction in the community, and the identity the community has. All these motivation factors are important while trying to understand what motivates the person to participate in activities by virtual communities of practice. (Wang, Zhang, Jin-Xing Hao, Chen, 2019)

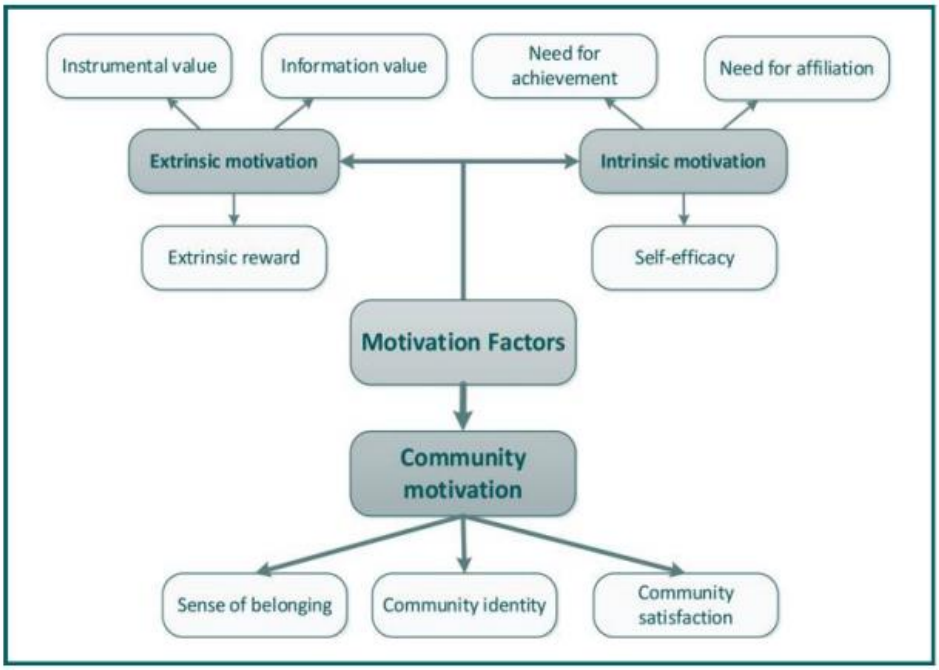

***Figure 3**. Summary of the motivation factors of knowledge collaboration in Virtual communities of practice s. Retrieved from: Wang, Zhang, Jin-Xing Hao, Chen, 2019*

The HMIEM model, proposed by Vallerand distinguishes the motivational factors for individuals. The first part model separates are *intrinsic* motivation. According to Deci and Ryan when an action is carried out for its own sake or because it makes you feel good without any outside pressure, that behavior is said to be intrinsically motivated. (Deci, Ryan, 1985) The SDT basic need approach proposed by Deci and Ryan and McClelland's need theory's motive dispositions approach are the two most widely used methods for studying intrinsic motives. Although the psychological needs defined by the two study paradigms are different, they yet have many common understandings of intrinsic drives, such as the need for connection and achievement. (Wang, Zhang, Jin-Xing Hao, Chen, 2019)

The need for achievement revolves around the person's desire to become better. This need is fulfilled while a person is interacting with the environment that surrounds person. The second need – the need for affiliation – refers to a person's wanting to establish intimate relationships with other people and the desire to feel loved. (Zhang, Jin-Xing Hao, Chen, 2019) The relationship between these two needs has been studied in scientific research. In the research done by Arazy, Gellatly, Brainin, and Nov the motivational factors for an individual to share knowledge using wiki technology were analyzed. (Arazy, Gellatly, Brainin, and Nov, 2015) This research was the first one to analyze the connection between knowledge sharing, motivation, and the perception of roles. The knowledge management field has been broadened by this research since it proposed the idea of motivational factors to share knowledge in virtual settings. One of the study's most intriguing findings was that regulated or controlled motivation only had an impact on information sharing when it was thought of as in-role conduct. According to the authors, this happens because people with controlled motivation tend to focus their attention and effort only on tasks that have external reward contingencies. The idea is that duties deemed to be outside the scope of the formal job description are disregarded. (Arazy, Gellatly, Brainin, and Nov, 2015) This research agrees with the idea that a person needs to feel self-efficacy in order to share information with others.

Self-efficacy is typically viewed as an additional incentive component in the context of knowledge sharing. People have been seen to abstain from contributing to knowledge collaboration because of

concern that their posts may be ignored, erroneous, or unrelated to a particular debate. On the other hand, individuals are driven to provide knowledge if they are certain that it will benefit knowledge recipients. Self-efficacy is a critical intrinsic motivation component for knowledge cooperation in Virtual communities of practice s, it can be inferred. (Zhang, Jin-Xing Hao, Chen, 2019)

When a person is motivated by *intrinsic* factors, it is visible that self-efficacy plays a big role in it. This allows the person to feel as if they are in control of their life. The decision to share information lies in their hands. When a person is sharing knowledge with others, he feels that he uses his powers effectively, therefore using self-efficacy correctly. The other two motivational factors for intrinsic motivation are the need for achievement and the need for affiliation. Both of these factors speak about needing to be better and to form intimate relationships. In the context of Virtual communities of practice , these needs are the driving force to participate, to feel important, and to feel socially connected with other people.

In a contrast to intrinsic motivation, extrinsic motivation drives the person because he wishes to achieve the goal. Extrinsic motivation, which is acquired through the information, is also visible and tangible. Extrinsic motives are likely to change how participants view the costs and advantages of knowledge collaboration. The HMIEM model considers two types of extrinsic motivation: pure extrinsic motivations and internalized extrinsic motivations. The most common type of extrinsic reward is a monetary reward such as wages or other benefits. (Zhang, Jin-Xing Hao, Chen, 2019)

In the research done back in 2016 by Setiawan, Kurniabudi, and Fernando impact of extrinsic motivation was measured. (Setiawan, Kurniabudi and Fernando, 2016) During this research, the employees working in the banking sector were questioned. Even though the researchers created two hypotheses regarding intrinsic and extrinsic motivation, the focus lies on extrinsic motivation. The hypothesis regarding extrinsic motivation stated, that extrinsic motivation factors influence people to participate in virtual communities of practice . While performing data analysis it became clear that extrinsic factors are influencing people to participate in virtual communities of practice . According to research, those who think of extrinsic benefits will join in virtual communities of practice s and provide their knowledge. This lends weight to the notion that people will participate in virtual communities of practice s and share their knowledge if they believe their institution will compensate them in some way. Moreover, according to this research, extrinsic motivation is a key factor that influences people to share their knowledge in virtual communities of practice s within their organization. (Setiawan, Kurniabudi and Fernando, 2016)

The person can be motivated to participate in virtual communities of practice , due to the feeling of belonging. This kind of motivation is called community motivation. Since virtual communities of practice is a social group formed by individuals that share the same passion for the topic, the sense of belonging is found as a crucial part of the person who wants to participate in Virtual communities of practice . (Zhang, Jin-Xing Hao, Chen, 2019)

However, the separation between virtual communities of practice and physical communities of practice is visible. For the people who participate in virtual communities, the feeling of anonymity plays a big role. Since the person appears anonymous, the identity of the community becomes a key factor in order for the person to participate in virtual communities of practice . On the other hand, anonymity allows the person to feel as if they are not being influenced by other participants in the community. Lastly, the satisfaction of the community also plays a role in the person’s motivation to

participate in virtual communities of practice . If virtual communities of practice has a strong identity and can satisfy the needs of participants, people are more likely to share the knowledge they have therefore contributing more to the community. (Zhang, Jin-Xing Hao, Chen, 2019)

To conclude all, the individual motivation to participate in virtual communities of practice , can be separated into three categories: intrinsic, extrinsic, and community motivation. If the person is motivated by intrinsic motivational factors, he is motivated by performance and the ability to share knowledge. These people do not seek rewards, but rather enjoy helping others. If the person is motivated by intrinsic factors, he feels that by sharing the knowledge with others, he takes his personal life into his own hands and uses his powers to improve it. Furthermore, a person can be motivated by extrinsic factors. These factors are rewards granted to employees, mostly these rewards are monetary. If the person feels that organization will grant rewards for participation in virtual communities of practice , the contribution to the community will become higher. Extrinsic motivation is the key factor for the employees to participate in virtual communities of practice . Lastly, the community is a motivational factor for the person to participate in virtual communities of practice . The people who seek a sense of belonging are motivated to share their knowledge in virtual communities of practice and the identity of the community can satisfy the person's needs, therefore, increasing the levels of participation.

2.6.2 Barriers to contributing to virtual communities of practice

Even though each individual participating in Virtual communities of practice is motivated by different reasons, the participation of members can encounter a few obstacles. This is especially visible in communities that are based online. The main barrier that is witnessed in virtual communities is the lack of time. (Haas, Abonneau, Borzillo, Guillaume, 2020) In the research done by Correia, Paulos, and Mesquita lack of time, was mentioned as the main barrier for people to participate, especially in the cases where it required them to share their knowledge and participate in the creation of some new methods within an organization. (Correia, Paulos, and Mesquita, 2009) Employees being interviewed mentioned, that they cannot allow themselves to dive into knowledge sharing, since they lack time.

Moreover, while employees are participating in virtual communities of practice , some of them tend not to overshare their knowledge. This happens due to two reasons. First, employees tend to not share their knowledge, since they fear losing face in the community. While participating in Virtual communities of practice , some employees are not keen to share their knowledge, since they feel that the information, they have obtained may not be valuable to their colleagues. (Haas, Abonneau, Borzillo, Guillaume, 2020) Secondly, virtual communities of practice can be formed in organizations with a long history, therefore it means that the company has a strong hierarchy. This leads to people being afraid to lose their position. Due to this reason, people are not willing to share knowledge that may help other employees to understand the secrets of the position. Nonetheless, people are starting to realize that this is more relevant to the past than the present. This indicates that something within the organization is changing; this could be due to the virtual communities of practice or even to how employees now value information sharing for the company's existence. (Correia, Paulos, and Mesquita, 2009)

Virtual communities bring the possibility for every employee to participate in it. As in the majority of communities, there are people who tend to participate more than others. Members can also learn

from this shared knowledge base even if they only actively interact in the community in a passive manner, for as by reading the comments and postings of other members rather than contributing anything themselves. On one hand, this is a benefit for new members, as they get to learn about the community and the way it works. (Haas, Abonneau, Borzillo, Guillaume, 2020) On the other hand, one of the key aspects for the virtual communities of practice to survive in the organization is the value of engagement. Although the impact of communities of practice on strategy development, and innovation within the organization is visible and easy to measure, the real value on the employees is hard to understand. Communities of practice clearly have an impact on performance, including the capacity to carry out the corporate strategy, collaboration, sales per customer, productivity, and professional reputation. Additionally, organizations that successfully support communities of practice don't measure their performance using traditional KPIs; instead, they evaluate the value of virtual communities of practice by gathering practical examples and anecdotes about how communities have benefited staff members in terms of business growth, cost savings, and time gains. For virtual communities of practice members, everyday activities and discussions can definitely add value, but the effects of knowledge sharing may not be immediately apparent, and this could lead to the discontinuation of the community. (Haas, Abonneau, Borzillo, Guillaume, 2020)

Additionally, assumptions regarding people's openness to virtual communities of practice -based information sharing will differ from nation to nation. According to research, collaborative learning in multinational and global enterprises has additional difficulties due to the transfer of knowledge across cultural barriers. It became visible, that cultural differences influenced how employees shared their knowledge. When it comes to cross-cultural communities' people are starting to think about how other cultures behave in in-group or out-group settings, and how they may understand the wordings. The in-group versus out-group distinction implies that in-group-oriented members of the virtual communities of practice may avoid sharing knowledge with someone who is not a member of a tightly defined ingroup. Furthermore, there are cultures, where people value modesty and do not want to look as if they are bragging while sharing the knowledge they have obtained. Finally, information flows are typically restricted by the hierarchy in high-power distance societies (where it is generally acknowledged that the existence of a high-power dynamic between individuals is natural). Therefore, in hierarchical cultures, senior managers' desire to limit lower-level employees' access to sensitive information and their demand for control over the information flow could result in substantial organizational hurdles to knowledge sharing. Overall, an employee that is overwhelmed with cultural differences may not be so open to sharing their knowledge, therefore creating a barrier to the success of the community. (Ardichvili, 2008)

When a company creates a virtual communities of practice , it already starts to lack the main element of other communities. Virtual communities do not have the physical aspect in them, the meetings that are happening face-to-face. Because of this lack of physicality in the community, the moderators of Virtual communities of practice need to take on the task on how to ensure that people will participate in the activities. During the research, employees mentioned that they feel like there is a lack of opportunities to participate. Employees feel that sometimes no one from the community is asking questions regarding the area they have experience in. (Correia, Paulos, and Mesquita, 2009) The conviviality of face-to-face interaction facilitates the sharing of tacit information in physical communities. Even if members of virtual communities' access written words on public platforms, tacit knowledge transfer may take place less frequently in a virtual community than it does in a physical one. Knowledge development and sharing are mostly reliant on requests for assistance or

explanation from outside sources. Consequently, one of the main obstacles to running a virtual communities of practice is engaging the group members. in the community. (Haas, Abonneau, Borzillo, Guillaume, 2020)

To conclude, Virtual communities of practice s deal with barriers that may influence their performance. The main barrier felt is the lack of time to participate in the activities. Even though employees have the knowledge and are willing to share it with others, lack of time leads to a lower percentage of participation. Furthermore, employees sometimes tend not to share the knowledge they have, due to the fear of not having relevant information or losing their hierarchical position in the company. In international companies, the cultural aspect is a big key to understanding the success of virtual communities of practice . An employee who is overwhelmed regarding the cultural changes, may not be so open to sharing their knowledge with participants that are not part of a group or if they do not want to look like bragging. Moreover, since all activities happen online, without physical aspects it becomes hard to motivate people to participate in the activities. Lastly, it is hard to measure the effect of virtual communities of practice , since it may take longer to notice the difference and for this reason, the working Virtual communities of practice may be discontinued if the managers feel that it does not bring improvements to the company.

2.7 Development of an online community in business

Virtual communities have barriers that lead to less usage of this knowledge-sharing tool. To ensure that a virtual community will strive, it is important to build a strong community and to understand the life cycle stage of the already existing communities.

Companies are creating online communities to ensure collaboration between employees as well as to manage the already existing knowledge. To ensure a strong path forward companies need to understand their standing point. Online communities go through various stages based on their growth and development. The main stages of the life cycle are inception, establishment, maturity, and mitosis. The stages of the life cycle are presented in the table below.

Table 3. Life cycle stages of online communities. *Prepared by author, reference Millington, R. (2018)*

	Inception	**Establishment**	**Maturity**	**Mitosis**
Measures	50+ contributors (>1 contribution per month). 10+ top contributors (>5 contributions per month). 20 single posters. 1000 visitors per month	100+ contributors 25+ top contributors 50 single posters 10,000+ visitors per month 10% of joiners makes a contribution to community (posts)	250+ active contributors. 50+ top contributors. 150 single posters. 50,000 visitors per month 20% of registrations make a contribution.	500+ active contributors. 75+ top contributors. 150+ single posters. 30%+ registrations contribute.
Strategy and integration	Pilot program to assess assumptions of the group Showing the possible value to the company	Validated concept of community Strategy plan agreed by stakeholders	Data driven decision making Additional funding to the community	Community first philosophy Custom metrics to track results Wide support from the organization
Growth	Connections to the	Existing audience	Word to mouth	Word to mouth

channels	company Experiences from the managers	(social media, mailing lists) Traffic from official website	Promotional activities Access from website	Traffic from website Search traffic
Members motivation	Sense of belonging, exclusivity Ability to create something new	Being part of something new Ability to solve problems Curiosity to see the improvement	New opportunities Solving problems Building relationships with members	Learning of best tips Ability to ask newcomers level questions Avoiding mistakes
New members	Mentioning new joiners using posts	Onboarding emails explaining next steps Engagement tasks Welcome guide developed by community	Unique spaces for newcomers to asks questions Good orientation material Badgers to track the process of the member	Homepage orientated towards newcomers Given roles and responsibilities
Visitors	Viewing data by the latest date posted	Picked highlights Search possibility	Information is tagged Most popular topics is most visible	Best content comes from ratings of members Most popular former discussions updated with new information SEO-driven search guides
Top contributors	Encouraging to participate using direct messages	Separate place for top contributors to connect Badgers to acknowledge top contributors	Developing MVP (most valuable player) program Top contributors have a chance to moderate spaces of community	Developed and funded MVP program Top members run their own spaces in the community
Timeline	0 to 3 months	3 to 9 months	9 to 18 months	36+ months

As represented by the table, each stage of the life cycle has its representing characteristics. The first stage is called *inception*. This is the initial stage that begins with the creation of a community. This stage is like a seed that is planted in an organization based on the common interests of the community. Based on the organization, some create brand new platforms for the community or others use already existing IT solutions that are not being used as much in the company. During this stage the company needs to work hard to nourish the community, it is important to understand what the community is capable of and to ensure that the existing members are the core group of the community. The main tasks of the community are building relationships between members, encouraging participation and discussions, and planning the next steps. The first members of the community are the core group that is an essential part of community development. It will be impossible to move to the next stage of the community unless a small and active group of members is formed (Palmer (2021)).

The inception stage is ending once discussions are happening without broad interaction and the core group of members are inviting new people to join the community. When the community is growing without big initiatives from the company, it means that the second stage called *establishment* is reached. The establishment stage can last a long time, depending on the community. During this stage

the community can empower top contributors to the group, they can organize new events or create new content about the community. The community will continue to grow without big initiatives from the company and the sense of the community will begin to form within the members (Palmer (2021)).

The third stage is called *maturity*. This is a stage where community members are generating activity and are seeking new joiners. When the community is mature enough it is important to take new steps to ensure that the community will grow further and is in line with created goals. During this stage it is important to adapt the platform that community members use, create moderators from the members, re-visit and adapt the goals, ensure the influence of the community. Moreover, it is important to understand the needs of the members and if the needs are expressed, a smaller community needs to be created (Palmer (2021)).

The last life cycle of the community is called *mitosis*. This is the stage that may not be reached by all communities, however, during this stage the community is striving without any external interference. As the community is striving on its own, there might be a need to create sub-communities to meet the needs of all members. This is why it is important at this stage to identify these sub-communities and create them, provide essential training for the community moderators and provide promotion for the newly created communities. As the new communities will be created, they will go back to the inception stage and this cycle could be endless depending on the needs of the organization and the employees' interests (Palmer (2021)).

Based on the stage of life cycle, online communities can use different channels for their communication and knowledge sharing. Examples of these platforms are provided in the table below.

Table 4. Life cycle stages of online communities. *Prepared by author, reference Millington, R. (2018)*

	Inception	**Establishment**	**Maturity**	**Mitosis**
Platforms	Facebook groups MS Teams or Slack Mailing lists	Facebook groups MS Teams or Slack Mailing lists	Community platform Forum	Community platform Social media Participation on other sites

As it is represented in the table, during the first stages of an online community, the platform used provides the possibility to directly interact with other members of the community. Using Microsoft Teams or Slack platforms there is a possibility to have a quick video chat if there is a need. Since the main purpose of an online community during the first stages is to build a community, it is important to use platforms allowing quick communication so that members would not need to search far for other employees and could quickly ask questions or share important information.

During the maturity stage, online communities can start building a platform that they would use for interaction with members. As the community grows, more members join, and this means that the topics of interest are increasing. For this reason, online communities can start building an open forum, where these topics could be discussed. Forum would help to share broader knowledge between the members, also the information shared could be systemized that could lead to reusage of the existing knowledge.

At the final stage, mitosis, a community is formed and is working without big interactions from others. For this reason, the main interaction of community members is based on community platforms, where they can find open forums or in social media where they can quickly communicate with each other. As this is the most developed stage of the online community, participants are sharing their knowledge with outside people using other sites available online.

In conclusion, online communities during their life cycle go through different stages. The stages are defined by characteristics based on the members' interactions with each other. As the main idea of an online community in international business is to share knowledge it is important to understand what platforms are best to use in various stages of community. As the community is building, it is important to ensure the quick communication of members so that they can build a feeling of community. As the online community matures, the topics of interest are growing, and it is important to ensure that the knowledge shared could be easily available for everyone and could be reused. This would help to save the knowledge already shared inside the business and would help businesses with their knowledge management strategy.

2.8 Model for knowledge sharing in virtual communities of practice in international organizations

Based on the theoretical findings, it was understood that knowledge sharing in international business is an important task in daily life. Each individual employee has their own personal knowledge that at times may be hard to explain to others, so businesses need to find an innovative way to ensure the sustainability of knowledge sharing. For knowledge sharing companies, one needs to choose a strategy that will take into account the barriers that each employee or organization may have. Additionally, as the world becomes more remote, it is important to ensure the socialization of the employees. Researchers found out that a virtual community of practice is a great tool for knowledge sharing that combines people with the same interests, allowing them to freely connect and share their personal knowledge. For this reason, it is important to understand what types of knowledge are shared within virtual communities of practice to see how reality works in comparison to theory.

The theoretical model was created based on the findings from scientific literature analysis.

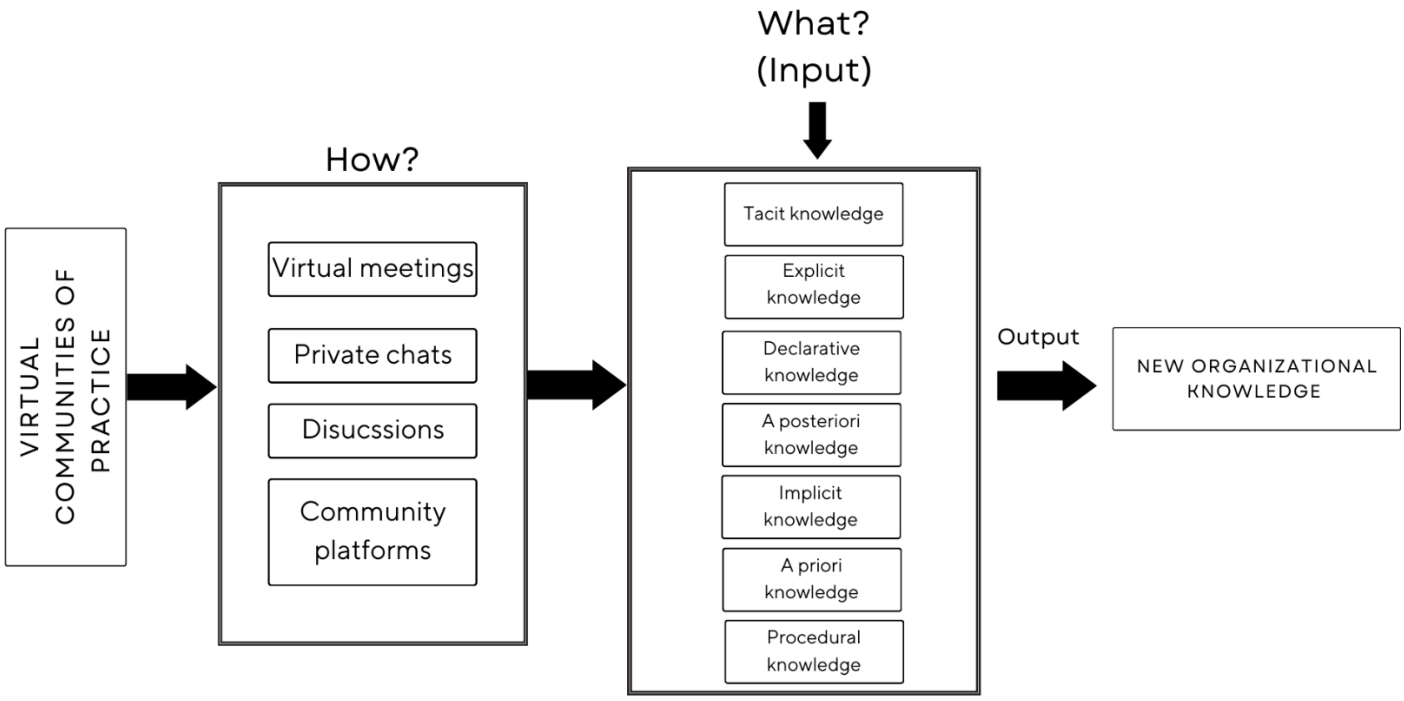

Figure 4. *Theoretical model for knowledge sharing in virtual communities of practice in international organizations. Prepared by the author.*

This theoretical model's object is virtual communities of practice, which are becoming more common in international business to help with knowledge transfer. A variety of communication methods are used to accomplish this purpose, including Google Meets, conversations, community platforms, and private chats.

Knowledge takes on many forms and properties as it is transmitted and distributed through these numerous communication channels. Some types of information, such as explicit knowledge, are more easily codified and communicated since they can be written down and transmitted in a variety of formats. Other types of information, such as tacit knowledge, which is typically ingrained in personal experiences and difficult to explain in words, are more difficult to articulate and communicate. Virtual communities of practice give an employee a platform where it is possible to share the knowledge a person has obtained in their personal life and this constant exchange of knowledge leads to an output of new organizational knowledge.

Organizations can benefit substantially from knowledge sharing through virtual communities of practice. As people share their expertise and experiences, new knowledge can be created, which can improve organizational processes and procedures, clarify goals and objectives, and lead to more informed decision-making. The new organizational knowledge that results can then be leveraged to drive innovation, improve performance, and boost competitiveness.

Overall, the theoretical model illustrates that virtual communities of practice are an effective means of assisting knowledge sharing in international business, and that various communication channels can be employed to support the sharing of various types of knowledge. As this knowledge is collected and synthesized, it can result in the creation of new organizational knowledge that can aid in driving innovation, improving efficiency, and achieving other organizational goals.

3. Research methodology for understanding the knowledge sharing in virtual communities of practice in international IT enterprise

Scientific literature analysis allowed to understand the importance of knowledge sharing within international business. Remote employees see the need for social interactions, and it is important for the company to provide the possibility to connect with people of similar interests. Currently companies are facing the challenge of implementing more open and collaborative tools into the daily life of the employees. As one of these tools' companies could use virtual communities of practice. Literature analysis provided an understanding that virtual communities of practice not only allow the employees to have social activities but are also a great tool to ensure constant knowledge sharing between the employees. Virtual communities of practice allow the exchange of tacit knowledge and allows it to become explicit knowledge which according to Nonaka, Takeuchi, and Umemoto (1996) creates an externalization process, and the knowledge can stay within the organization. However, there is a lack of research done in this field to understand exactly what knowledge types are shared between the members of virtual communities. The questions that have been raised after theoretical analysis will be further analyzed in empirical research.

Empirical research serves to analyze the current situation of knowledge sharing within virtual communities of practice. The situation is analyzed in the Lithuanian branch of international business that used virtual communities of practice as a key to ensuring the knowledge flow and collaboration of the employees. The research on knowledge sharing will provide an overview of the situation and will provide future recommendations for businesses that want to incorporate virtual communities of practice as a key to their knowledge management strategies.

The scientific literature analysis raised questions that seeks to understand knowledge sharing in the virtual communities of practice. Empirical research serves as a way to raise questions and start discussion on the topics that are important in knowledge management.

Research aim: to disclose the knowledge sharing in virtual communities of practice in an IT enterprise that works internationally.

Research questions

1. How is knowledge shared within virtual communities of practice? It is important to understand how knowledge is shared within virtual communities of practice in the chosen international business. Literature analysis provides a theoretical solution to the defined problems in the chosen sector; however, there is a need to understand how knowledge is shared in the specific company.
2. What knowledge types are shared within the virtual communities of practice? Based on theoretical solutions, there is a need to identify what types of knowledge are shared within the members of virtual communities of practice. Even though there are universally adapted knowledge types it is important to understand how shared knowledge could depend on the interest of the virtual community of practice. Due to the differences in interests, shared knowledge could be drastically different from another community in the same company. It is important to perform empirical research on the chosen company to be able to achieve results that would be more specific than general.

Research method and strategy

Research methods are split into two categories: *quantitative* and *qualitative*. Quantitative research focuses on collecting numerical data and analysis of this data using mathematical solutions. Qualitative method focuses on people and provides answers about their behavior and the reasonings for it. Based on already formulated research questions, the chosen method for the empirical research is *qualitative*. This research method brings the possibility to present the points of view of the members in the virtual communities of practice and helps to understand their personal experiences.

As the main idea is to analyze the online communities within specific business the chosen strategy needs to explain the analyses of communities. Therefore, it is important to approach this research using *Netnography*. As the method netnography adapts the traditional approaches of ethnography and uses them to study online communities. Using netnography method researcher is able to bring an authentic case instead going of the created hyphotheses. (Addeo, Delli Paoli, Esposito, Bolcato. (2019)). According to Addeo, Delli Paoli, Esposito, Bolcato main features of the research are:

1. Researchers immerse themselves into everyday life of the social group for an extended period of time to directly observe group members.
2. Social groups are observed by researcher on their daily life away from conditions created by a researcher.
3. Information is collected from observation and additional documents from the group.
4. The focus is on a few cases, to have more in-depth understanding of the case and it helps to minimize the generalization of the data.
5. Data analysis is based on verbal documents, and it involves interpretation of the meanings.
6. The whole research is based on unpredictability which allows the case to be unique and specific to the case or time.

Netnography uses not intrusive research methods such as observation that allows a researcher to immerse himself in an online community, participate in its activities real-time. (Addeo, Delli Paoli, Esposito, Bolcato. (2019)). Based on this information, the data will be collected using observation method. This helps to analyze the online community in their comfort zone, therefore will provide a splendid view on how knowledge is being shared within these communities.

The sample

As the chosen strategy for data collection is netnography, it is important to understand the sampling based on this method. For sampling, netnography uses a method known as theoretical sampling. The main idea of this sampling method is to choose people, events or places that will maximize the opportunities for data collection. The cases using this method are chosen according to their possibility to provide useful insights for the chosen case rather than provide findings that would represent the whole population (Addeo, Delli Paoli, Esposito, Bolcato,. (2019)).

Based on this theory, the main idea for sampling is not to observe all online communities in the business but to choose the ones that could provide the most information. As the research is done in the Lithuanian branch of an international company, first of all communities were contacted. This was done to understand the method of communication, are they consistent with their meetings and what topics are in their interest field. As some communities decided not to participate, the sample size of the research was 3 virtual communities of practice. As it was convenient for the research, all communities were contacted personally, later on communications were held using work emails.

Characteristics of research participants

The research was conducted in the international business working around Northern Europe. The main sector where business is focusing is computer software development, however they also provide consultation, accounting, and investment services. The company is promoting open communication, internal learnings, and self-management therefore they have created virtual communities, where people can meet up and discuss the topics, they find passion for. For the research, 8 communities that are found in Lithuanian branch were contacted and asked if they want to participate in the research. The main reasons for deciding not to participate were:

1. Not having a lot of activities at the moment.
2. For a moment stopped community due to the lack of members.
3. Discussions that are confidential and cannot be talked around people not in the community.
4. Fear for the lack of anonymity.

In the table below, the characteristics of the communities that decided to participate are presented.

Table 5. *Characteristics of communities. Prepared by author.*

Name of community	Number of members	Topics of interest	Communication channels
Community 1	18	Celebrations (personal and national holidays, specific days) Communication	Google meets; Google chat; Slack channel.
Community 2	13	Benefits; HR topics	Google meets; Slack channel.
Community 3	10	Motivation; Internal learnings.	Google meets; Slack channel.

As presented in the table, there were 3 communities observed. These communities agreed to participate in the research under the condition of total anonymity, therefore numbers were given to the communities instead of their name. By the topics of interests, it is visible that communities differ, however for communication, they all use similar platforms that the whole company uses. Communities gave access to all channels used, excluding Slack channel as it was used by all communities in the company.

Research process

In qualitative research, the research process is not rigid and can be significantly adjusted or recreated to suit particular projects. However, the ability to adjust does not mean that some pre-research work is ignored. Some preparation is needed and according to the netnography theory, the stages of the research are identified in the 6 stages (Addeo, Delli Paoli, Esposito, Bolcato. (2019)):

1. Definition of research questions;
2. Selecting the field of research;
3. Gaining access to the field;
4. Collecting information;

5. Analyzing the collected data;
6. Writing a research report.

The first two steps were performed back in the Autumn. These steps allowed to understand what path the research needs to take and what problems currently are faced in the researched area. The calendar for further steps is presented in the table below.

***Table 6**. Calendar of the research steps. Prepared by author.*

Phase	Activity	Duration
Gaining access to the field	Contact HR representative from the selected company to gain consent and contacts of communities. Contacting communities to present the research and to agin consent. Entering the community and informing about the future research.	16 th of January – 31 st of January, 2023
Collecting data	Shadowing the virtual community (participating in meetings, having access to their chats, documents). Preparing notes about how the information is shared. Transcribing the conversations held by the community members.	1 st of February – 31 st of March, 2023
Analyzing the data/Writing the research report	Coding information. Performing data analysis using a computer program (MaxQDA). Finalizing the research report.	1 st of April – 30 th of April, 2023

As seen in the table, the research took place from January until late April of 2023. During stage "gaining access to the field" the first contacted person was human resources representative from the chosen international business. The idea of research and aim of it was presented and the consent to perform such research was gained. Later on, virtual communities of practice within Lithuanian branch were contacted and informed about the future research. All community members were given a possibility to raise questions about the research and also communities have a chance to discuss privately about the research. When all communities came back with their answer regarding the participation in the research the data collection started from the 1st of February.

During data collection stage observations were performed. Virtual communities of practice gave access to their communication platforms such as private chats, virtual meetings. The discussions held between the community members were transcribed for later analysis and additional notes were taken about the topics discussed. The observation took place for 2 months to gather the most possible amount of data.

The last stage of the research was analyzing the data collected. Together with this step, a research report was written.

Research ethics

At the first stage of research, all virtual communities of practice were contacted. They were informed about the future research, and they had a chance to plan a meeting or write down the questions they had about the research. Once the consent from the virtual community was gained and the access to communication platforms were granted, all members of the community were information about the ongoing research and also, they were informed about the possibility of withdrawing from the research as any time. All gathered information were coded to protect the anonymity of the community members and the company itself. The transcribed conversations were used strictly for the research; therefore, it was not stored or shared.

Research data analysis

The data collected (conversations) during the second stage of research was written down to text form. After the data was written down, a second look was taken to ensure there were no mistakes left. After all mistakes were fixed, to get more familiar with the data, the data was read a few times. Once the data was understood, qualitative analysis took place.

The research data was analyzed using MaxQDA platform. As each observed virtual community of practice had their own document of transcribed conversations, the data was structured accordingly from the most information found to the least. The data then was coded accordingly to the knowledge types found in the conversations. In order to answer raised research questions, the different coding methods were chosen.

To answer the first research question, the inductive coding system was chosen. The inductive technique is a popular strategy in the field of research for developing a grounded theory or model based on data analysis (Skjott, Linneberg, Korsgaard (2019)). While gathering the research data it was witnessed that members of the virtual communities of practice tended to use the sharing tools already available to them and based on this data, the inductive coding was used, and it allowed to stay correct to the collected data therefore the finding of the research presented the current situation in the observed communities.

To answer the second research question, the deductive coding system was chosen. Based on the theoretical solutions, some knowledge types were recognized and presented. Based on the types of knowledge and the nature of virtual communities of practice, the deductive coding system allowed to create a few codes beforehand and this technique assisted in focusing the coding on topics that were recognized to be essential. Additionally, the deductive coding system narrows down the numbers of codes which could lead to more generalized cases (Skjott Linneberg, Korsgaard (2019)). The most frequent codes from all documents were then reviewed to ensure that they all have the same meaning. If some codes had similar meanings or not enough coded segments, they were merged together and sometimes renamed to understand the final meaning of the code.

Overall, 3 documents were analyzed using MaxQDA program. While performing the coding, 18 codes connected with the research topic were created. In total 191 segments were coded. The statistical information is provided in figure 5.

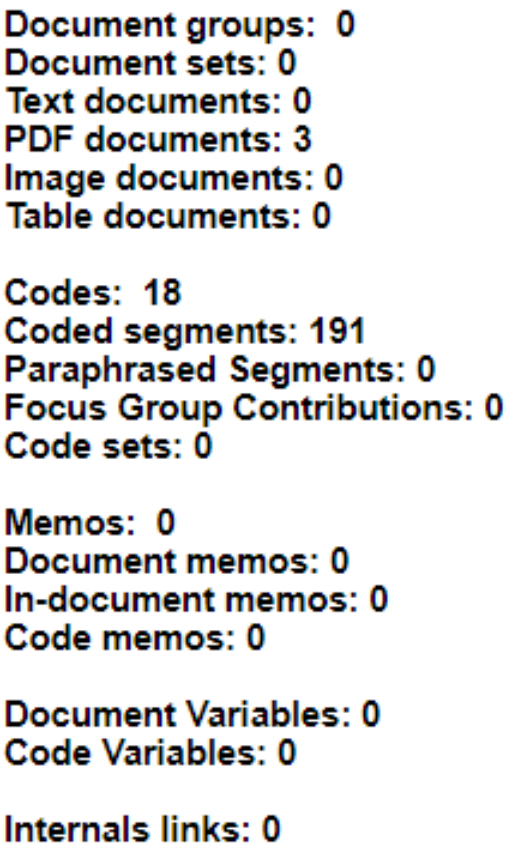

Figure 5. *Research project report.*

Once the coding was finished, the data analysis took place. At the beginning it was important to see the code system created and the most frequently used codes to understand the knowledge types shared. Later on, document portraits were used to understand what knowledge types are shared within different virtual communities, to see the similarities and differences. As the last part of analysis code relationship matrix and MaxMaps tools were used to see what codes were mostly co-occurring together. Additionally, it allowed to understand the connections of the knowledge types and brought the conclusion of what knowledge types were shared within virtual communities of practice.

The research finding's part is structured in such way: indications of knowledge types shared and their frequencies, analysis of different knowledge types shared within different communities (presenting similarities and differences), presentation of connections of shared knowledge types and summarizing the knowledge sharing activities in the virtual communities of practice. This information is followed by discussion and interpretation of the research findings.

Limitations

The empirical research allowed to understand the knowledge sharing within virtual communities of practice and connect it with theoretical solutions. However, empirical research has its own limitations. Firstly, the research was conducted in one chosen international business operating in Northern Europe. The organization itself has its own unique culture and technological decisions that may impact the virtual communities of practice. For this reason, it may be hard to transfer the findings of this empirical research to other companies. Secondly, the sample size of the empirical research was three virtual communities of practice. The bigger sample size would have allowed gaining a broader

understanding of how virtual communities of practice share knowledge and therefore the findings of this empirical research may be not applicable generally.

4. Research findings and discussions

The conducted empirical research aimed to analyze what types of knowledge was shared within the chosen virtual communities of practice. In this chapter the results of the research are presented. The chapter starts with summarizing characteristics of the communities, followed by the results of the research. Finally, the chapter is concluded with the discussion on the main findings that are enriched with the main insights from the theory.

4.1. Knowledge sharing activity in virtual communities of practice

As presented by the characteristics, each community is different from one another. However, they are all connected by similar activities and the calendar of the meetings. As the first research question was to understand how knowledge is shared within the chosen virtual communities, it is important to understand the activities communities held.

Community 1 was the most active community that was observed. For daily communication, virtual communities used google chat platforms, where they exchanged information about upcoming events, agreed on work, or shared additional information from other employees. Each week the community held a virtual meeting. Depending on the topics needed to be discussed, the meeting took place from 30 minutes up to an hour. Usually, all members of the virtual community joined the meeting, however, there were exceptions where some members would not participate. The community itself does not have a moderator, however, while observing the community it was noticed that most information came from the same people while some members stayed quiet.

As the main topics of interest in community 1 are celebrations and communication, the community has a calendar with different celebrations that could be held in the offices. This piece of the document is presented at each meeting and members of the community are able to present their ideas of how to celebrate it. Additionally, if the community already has some plans for the celebration, community members are distributing work to each other (buying snacks, writing a post on the intranet). If some members have questions regarding the work they have done, it is always discussed, and other members share their opinions or feedback. Overall, the community does not share a lot of documented information, all members are welcomed and encouraged to participate in the meetings.

Community 2 was also active in its activities. Similarly, to community 1, this virtual community of practice has been using google meets for their virtual meetings. The meetings in the working calendars were set for every week, however, most of the time meetings took place every second week. The main reason for it was the claim that the community does not have a lot of topics to discuss at the moment and would meet up only once something important came up. Moreover, the community does not have google chat platforms where they could discuss, therefore the main connection point was Google meets which was inconsistent.

However, even though the meetings held by community 2 were inconsistent with the schedule, the community itself was active while on the virtual call. The meeting would usually last around an hour, sometimes a little longer if there was a lot to discuss. As community 2 is smaller in the number of members, from the first look it seems that more members are participating in the meetings. However, similarly to community 1, even though there are no moderators in community 2, most of the information usually came from the same people and work was distributed to them. Compared to community 1, this community was sharing more of the documents knowledge as they usually sent

out information to the employees about current benefits, community itself created a lot of surveys that was needed to collect the data from the employees and the results of the surveys was shared during virtual meetings. Moreover, depending on the topics discussed during the virtual meeting, the community would share their personal experience or knowledge. Community 2 is lacking consistency in their meetings, however information shared is useful to all employees and community 2 is an open space where members are able to share their knowledge.

The last observed community was the smallest one. Community 3 haves interest topics such as employee motivation and internal learnings. Same as community 2, the third community does not have a google chat and relies on virtual meetings using google meet platform. Additionally, this community uses the slack channel where all different communities based in the company can communicate. In the calendar the virtual meetings of the community took place each week, however, sometimes none of the members in the community would show up. This leads to an idea that maybe the community does have a private chat platform but has not granted access to it during the research period. When the virtual meeting took place, it lasted around an hour.

During virtual meetings, community members would mostly discuss ways on how to motivate employees. Additionally, they would raise questions about the internal learnings and how to boost the learning system in the company. As per the previous two communities, the third community does not have a moderator, however, in the majority of the meetings, the discussion was moderated by one person who decided where the topic should go. Community 3 does not share a lot of documented information, the knowledge sharing process is based on communication and experiences sharing.

It was witnessed that all communities had virtual meetings, where they discussed topics of interest. Additionally, virtual communities of practice had shared intranet post. The statistical data of these posts are presented in the table below.

Table 7. *Number of intranet posts of virtual communities of practice. Prepared by author*.

	Number of intranet posts
Community 1	8
Community 2	2
Community 3	4

As presented in the picture, the most intranet posts were made by community 1. Communication is one of their interests' topics, so they do communicate with other employees using internal sources like intranet. Additionally, community 1 informed employees about national celebrations and invited them to celebrate it together. Community 2 has posted the least number of posts on the intranet. They promoted the benefits and the surveys they had created, however there is a visible gap between the communication with employees and the explanation of the job community has done. Community 3 has posted 4 intranet posts. These posts were not informative about the work the community has done, but they were about the events for the employees the community has created. Overall, all observed virtual communities of practice are sharing the information with the employees in the company, however, this information that reaches employees are regarding the celebrations or the activities planned for the employees and not informative about the work done by the communities.

To shortly sum up the subchapter, all three observed virtual communities had similar platforms where the members are able to share their knowledge. Mostly communication is based on a weekly virtual meeting of the community, however, community 1 is using the google chat platform where the members of the community are able to keep in contact each day. As the first research question aimed to understand how knowledge is shared within the virtual communities of practice, it is visible that communities rely on technological solutions provided not by the company, but the platform used in work. The knowledge sharing process is based on discussions of the members, where the discussion in most cases is moderated by a few people. Despite that, all members of the virtual community are invited to share their opinions and expertise in certain topics.

4.2 Research findings of what types of knowledge is shared in virtual communities of practice

4.2.1 Recognized knowledge types

The second aim of the research is to understand what knowledge types are shared within virtual communities of practice. By performing a literature analysis, it was understood that mainly knowledge types are shared tacit and explicit, however, in the past years, this understanding has grown, and right now researchers are able to find around 14 types of knowledge.

In the conversations of virtual communities of practice, these types of knowledge were recognized:

1. Tacit
2. Explicit
3. Implicit
4. Declarative
5. A posteriori

After the shared knowledge types were identified, a coding system was created. Under types of knowledge, characteristic features were coded. Figure 5 presents the coding system created.

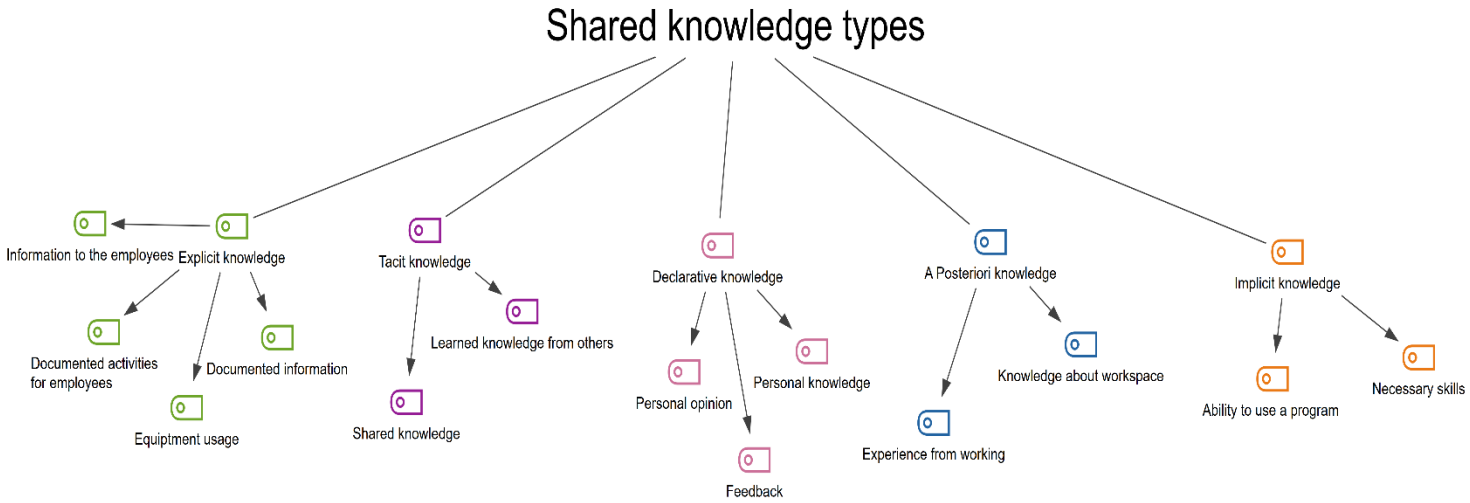

Figure 6. *Map of shared knowledge types*

Most characteristics are found under explicit knowledge type, other types have similar number of characteristics. According to these characteristics, the transcribed conversations of the communities were coded.

The frequencies of the codes are presented in figure 5.

	Frequency	Percentage
Learned knowledge from others	20	10.5
Shared knowledge	7	3.7
Feedback	22	11.5
Personal opinion	42	22.0
Personal knowledge	14	7.3
Ability to use a program	6	3.1
Necessary skills	7	3.7
Equiptment usage	9	4.7
Information to the employees	25	13.1
Documented activities for ...	10	5.2
Documented information	6	3.1
Knowledge about workspace	10	5.2
Experience from working	13	6.8
TOTAL	191	100.0

***Figure 7**. Frequencies of the codes*

As seen in the figure, the most used code was "*personal opinion*", this code was found 42 times throughout all documents. Other frequently used codes were "*information to the employees*", "*feedback*", "*learned knowledge from others*".

The given frequencies of the knowledge shared could provide the first important insight information. As personal opinion was found most of the time, it could suggest that virtual communities value the opinion of their members and are motivated to share it with others. Secondly, information to the employees seems to be also highly valued and suggests that open and clear communication is critical and employees not participating in the activities of communities are able to access information shared within the members. Feedback seems to be valued and indicates that feedback is important for learning and growing as an individual and as a professional in the workspace. As the code "learned knowledge from others" is also frequent in the documents it suggests that knowledge-sharing processes in the company are successful and are also highly valued. Other less frequently used codes show that expertise in the workspace is valued, and employees are motivated to share their personal knowledge with others. With unique expertise, employees are able to contribute to a better work environment and are also able to grant new knowledge to newcomers.

To sum up the subchapter, different types of knowledge were noticed. In total, 5 different knowledge types were recognized that later on were categorized into colors, and different characteristics were coded. Based on the frequencies of the characteristics it is visible that the company promotes the expression of personal opinion, and employees are able to share their knowledge or unique expertise that helps the community to move forwards. Employees not participating in community activities are also able to see what is going on as communication and the spreading of information to others is also frequently found in the conversations of the communities.

4.2.2 Knowledge types shared in each virtual community of practice

As mentioned previously, 5 types of knowledge were recognized while reading the discussions held by the communities. The discussions observed provided the data that consisted of the main themes, that were identified in the process of extracting information relevant to the research. At first look, communities look similar as frequently found codes talk about personal opinion, expertise, and information to the employees. However, it is important to understand what knowledge types were found in each individual virtual community of practice to understand exactly what is important to each community.

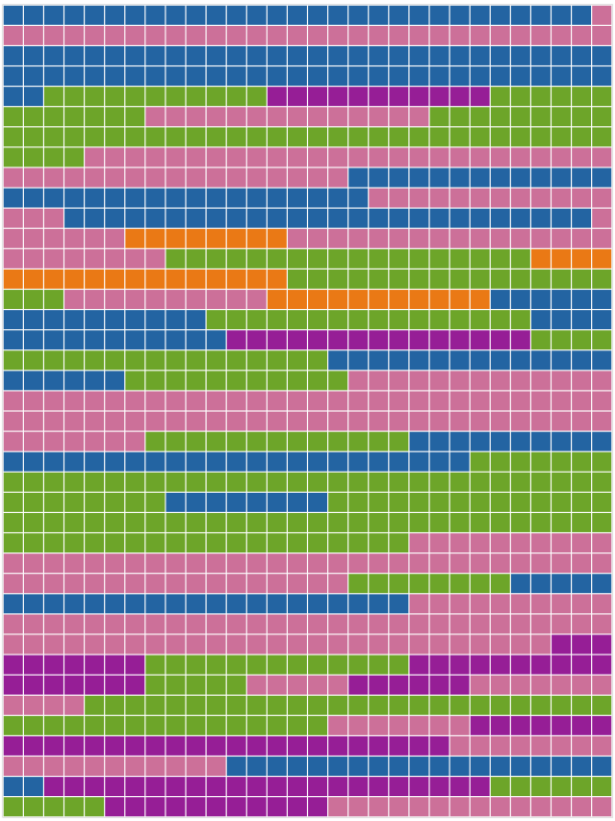

Figure 8. *Document portrait of community 1*

As presented in the data portrait, community 1 starts of their discussion with the posteriori knowledge "*I think something like this could happen in the spring, when more people are coming to the offices "*(Community 1, p. 1)*, "all of us comes to the office on different times, it will be hard to invite everyone on the same time"* (Community 1, p. 1). A posteriori knowledge is visible throughout the whole document and mostly includes the members' knowledge about employees' office visits or working habits that became noticeable after working within the company for some time.

The second knowledge type that follows is declarative knowledge. As with the previous type of knowledge, declarative knowledge can be found in the whole document *"I was thinking something simpler, like a chocolate Milka in a heart shape?"* (Community 1, p. 2), *"I think this is a little too much <...> for one person"* (Community 1, p. 2), *"<...> I think a few options will be enough"* (Community 1, p. 6), *"<...> I think we can definitely get a delivery, we will save some time"* (Community 1, p. 7). The cases of declarative knowledge were most apparent in the discussions on the organizing of the events, prizes for the winners, or additional goods in the offices (such as snacks). Most of the declarative knowledge expressed were the members' personal opinions on the topics,

however, members also expressed feedback they heard from the other employees: *"I got some feedback that the quiz questions were a little bit too hard to solve"* (Community 1, p. 4).

As one of the topics of interest of community 1 is communication, explicit knowledge is also found in the document. The majority of the explicit knowledge found in the document is community communication to all employees using the intranet system: *"I created a poster about the quiz so let's put it into our intranet"* (Community 1, p. 3), *"<…> we should make a post regarding this."* (Community 1, p. 2), *"<…> let's create an event where the employees could join."* (Community 1, p. 5). Additionally, members shared with each other the knowledge that was already documented in a written form: *"<…> mix needs to sit for at least 15 minutes before baking it"* (Community 1, p. 6), *"<…> sending you the recipe in the chat."* (Community 1, p. 6).

The explicit knowledge in the community 1 portrait is changed by the tacit knowledge. Similar to declarative knowledge, using tacit knowledge community members expressed how the organized events went: *"<…> in the morning we gathered for some heart-shaped snacks in the kitchen and let everyone know that the quiz will be held at 11 am"* (Community 1, p. 3), *"It was pretty simple, <…> shared the cake and just had some tea together."* (Community 1, p. 6), *"It was all right, <…> they are not as popular though."* (Community 1, p. 1). Although tacit knowledge is generally thought to be the most widely shared within virtual communities of practice, in this particular community it was one of the less noticeable types of knowledge.

However, the least used type of knowledge within community 1 was implicit knowledge. This type of knowledge was visible when the members of the community discussed the ability to use different software in their day-to-day life: *"<…> I know they use this program in different quiz shows."* (Community 1, p. 2), *"<…> I will work on the quiz looks using the platform"* (Community 1, p. 3).

Document portrait of community 1 allows understanding that all types of coded knowledge have appeared during the discussions of the community. As explained previously, the main topics of interest in this community are events and communication therefore the most used type of knowledge was declarative and tacit. This document portrait is similar to the frequency table as the most founded segments are lying under declarative and tacit knowledge. It shows that community 1 goes together with the understanding that each individual is able to freely express their opinion, and the community is open with others as they are sharing information using companies' platform.

The second community is smaller, and the main topics of interest are the benefits for the employees and overall human resources-related topics. The document portrait of community 2 is presented below.

Figure 9. *Document portrait of community 2*

Within the first glance at the document portrait, it became visible that the most used type of knowledge in this community is declarative knowledge. Similar to community 1, the members expressed their opinions of certain topics, shared feedback and personal knowledge: *"<…> maybe not all employees are interested in that?"* (Community 2, p. 1), *"I think this discount still will be interesting to people <…>"* (Community 2, p. 3), *"I think there is no one fits all model."* (Community 2, p. 5), *"I believe the majority of the people will be interested"* (Community 2, p. 1), *"I think this depends on the availability of the employees."* (Community 2, p. 2), *"I personally know a few good conferences <…>"* (Community 2, p. 3), *"I know a few people who I think would be able to be our lecturers <…>"* (Community 2, p. 2).

As the community is interested in benefits to the employees, the members are also expressing explicit knowledge. Between each other they are not sharing documents, however, they are spreading written information to all employees using intranet or other measures such as surveys: *"<…> we do have our site where all information is posted."* (Community 2, p. 1), *"we could post some information into our intranet about that <…> and at the same time we could promote the possibility to use the services of our partners"* (Community 2, p. 1), *"<…> we need to make sure to send out the survey"* (Community 2, p. 2), *"<…> let's send the team leads emails <…>"* (Community 2, p. 3).

The third type of knowledge visible in the document portrait is tacit knowledge. Using tacit knowledge, community members are sharing the knowledge they have learned from others: *"I was informed that at the moment not enough people are registered for this discount <…>"* (Community 2, p. 2), *"I personally myself forgot about this benefit, thanks for the information."* (Community 2, p. 1), *"I talked with employees we thought could be our lectures in internal learning sessions <…>"* (Community 2, p. 3). Most of this knowledge based on the conversations was feedback from other employees on the surveys that were sent out or their availability to participate in the organized events.

The last noticeable knowledge type is implicit knowledge. As the community is interested in human resources-related topics, one of the discussions they had were regarding the skills that are necessary to the employee: *" <...>, first of all, I think he has to be logical <...>"* (Community 2, p. 4), *"<...> from more soft skills person needs to be sharply minded to understand the logic of the code and of course ambitious."* (Community 2, p. 4), *"<...> the person needs to understand the sector, company where he goes and have some practical examples of the work <...>"* (Community 2, p. 4). Moreover, during this discussion, they talked about the employees' possibilities to use software for quicker work: *"<...> we have only a few junior people who know how to automize the process <...>"* (Community 2, p. 2). As this type of discussion appeared only once during observation, the implicit knowledge is mostly found at the end of the document.

Community 2 puts interest in employees' benefits and at the same time is interested in human resources. Within the discussion of this community declarative knowledge was mostly visible, followed by explicit, tacit, and implicit knowledge. Community 2 does not share posteriori knowledge that could broaden the discussions with the personal experience of the members.

Community 3 is the smallest out of all communities observed. The main topic of interest of the community is employee motivation and internal learning in the organization. The document portrait is presented in figure 6.

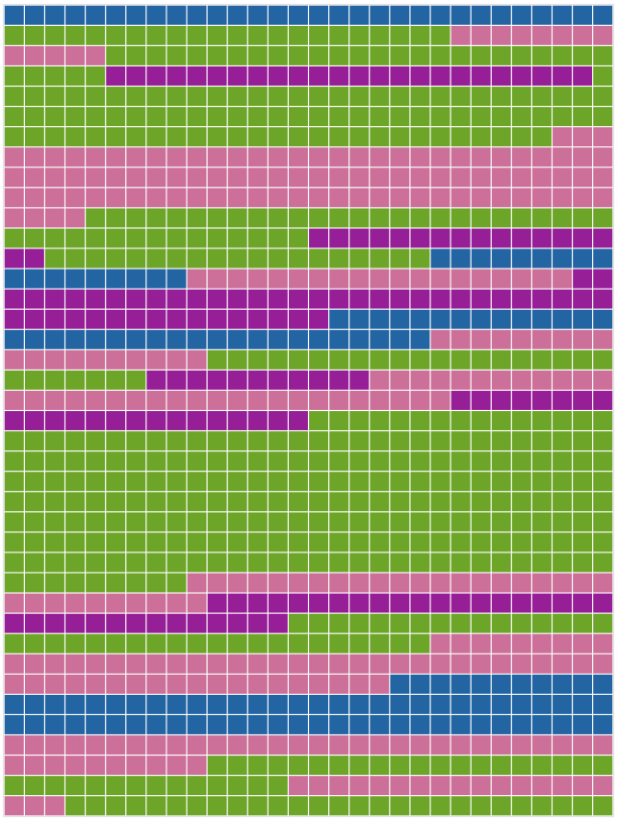

Figure 10. *Document portrait of community 3*

As it is visible from the document portrait, the most commonly used type of knowledge is explicit knowledge. In one of their discussions, community members talked about the documented equipment that could be used for the upcoming auction: *"Currently had around 3 computers and 4 monitors. The computers we have at the moment we can use them <...>"* (Community 3, p. 1), *"<...> few monitors are not available to employees, since these are quite new <...>"* (Community 3, p. 1), *"<...> we have one monitor, pair of earbuds and a book on IT trends <...>"* (Community 3, p. 3). Moreover, using explicit knowledge, community members informed other employees about the upcoming events using the intranet system: *"<...>we create like an event in our intranet or maybe just like a post and tag everyone so they would, see?"* (Community 3, p. 2), *"After this meeting, we can post that the auction will be held <...>"* (Community 3, p. 2).

The second type of knowledge visible from the document portrait is declarative knowledge. Using this type of knowledge community members were able to express their opinion: *"I see your point, however, then it would not make sense <...>"* (Community 3, p. 3), *"I think we still need some approval on the gadgets <...>"* (Community 3, p. 2), *"I think it depends on the cause we want to donate <...>"* (Community 3, p. 2). Additionally, using declarative knowledge members of the community were able to express their already possessed knowledge: *"I know that we have some computers available but definitely not a lot of them."* (Community 3, p. 1), *"In the summer people will be off on holidays, some will take workcations, so let's make it a spring occasion."* (Community 3, p. 3)

This most occurring knowledge type within community 3 was tacit knowledge. Using this type of knowledge, members of the community were able to express the knowledge learned from others: *"So right now we have three ideas on how to spend the points <...>"* (Community 3, p. 2), *"<...> we got a clearance on the auction for the employees."* (Community 3, p. 2), *" I did not know the other items for the auction <...>"* (Community 3, p. 3), *" <...> we got a request to boost the internal learning of the employees."* (Community 3, p. 3).

Lastly, the posteriori knowledge type is visible in the document portrait. Using this type of knowledge, employees were able to express the knowledge possessed from previous years of working in the company: *"I know that last year all the computers and other gadgets that were older than 5 years could be bought <...>"* (Community 3, p. 1), *"<...> something similar happens every new year and people are eager to participate in such events."* (Community 3, p. 2).

Community 3 mostly uses the explicit knowledge that has to deal with documented information about the equipment and also the community is participating in spreading awareness to the employees about upcoming events. Other types of knowledge visible is tacit, declarative, and posteriori knowledge. The one type of knowledge that was not found in this document case was implicit knowledge.

To conclude, the MaxQDA document portrait function gives a summary of the most important categories, codes, and other textual features of a document or set of documents. Looking at the document portraits, it is visible, that the most apparent type of knowledge was declarative knowledge which allows the community members to express their opinions or feedback during the discussion. Additionally, the only community where all 5 types of knowledge were visible was community 1.

4.2.3 Relationships between knowledge types

Document portraits give a good inside into the most popular knowledge types shared within virtual communities of practice. However, depending on the topic of the discussion, one person can share a few types of knowledge within a sentence or few. For this reason, it is important to understand the relationship between different types of knowledge and what types are appearing together most of the time.

In the picture below, the relationship between the knowledge types recognized is presented.

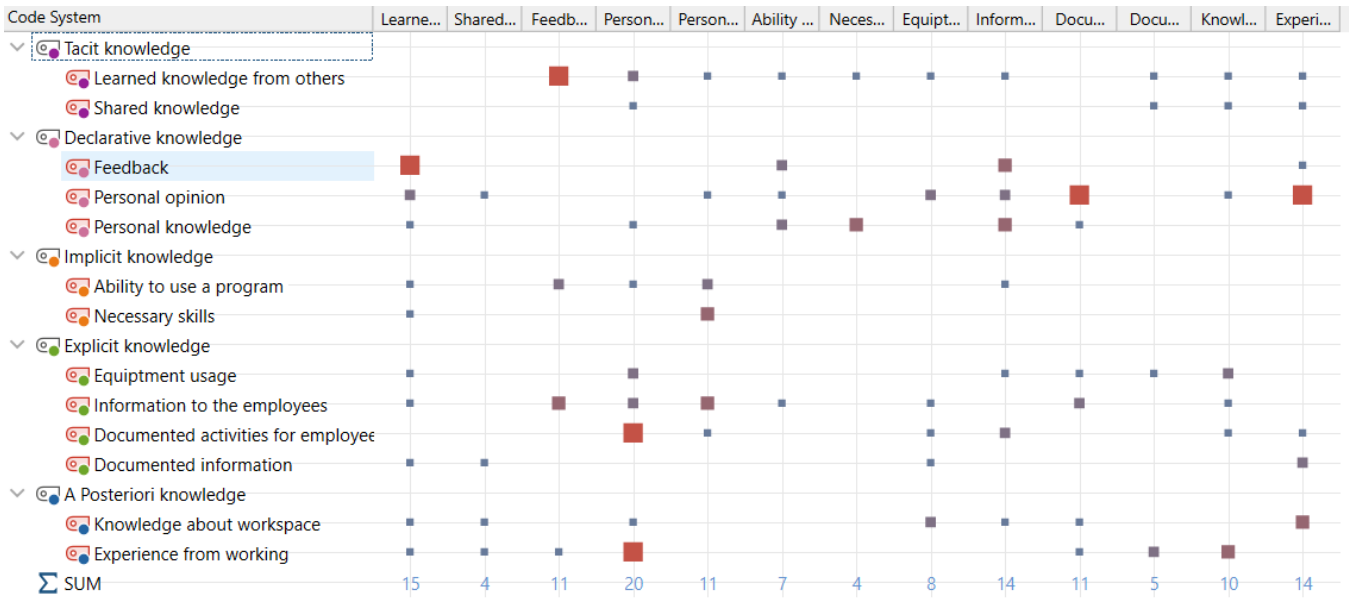

Figure 11. *Relationship between knowledge types.*[1]

As presented in the figure, code *learned knowledge from others* that is coded under tacit knowledge segment, has the strongest relationship with code *feedback*: "*<...> thanks for letting us know <...> but I am thinking about the movie night and I suggest to not create a survey <...>"* (Community 1, p. 8), *"<...> I talked with employees we though could be our lectures in internal learning sessions, so they would be up for it, however, at the moment they do not have time for such activity <...> so I suggest postponing this activity a bit <...>"*(Community 2, p. 3), *"<...> we got a clearance on the auction for the employees <...> I suggest we start planning it."* (Community 3, p. 2). In a collaborative setting it could suggest that giving feedback is an important way to increase learning between community members and it is granted together with the knowledge acquired from others. Additionally, the smaller bubble next to "*personal opinion"* could also suggest that community members are sharing their own opinion, and this is looked at as an opportunity to share personal perspectives: *"<...> currently we do not have enough people participating <...> however I think it stills needs to be a part of our routine."* (Community 2, p. 1), *"thanks for the information we will have it in mind <...> I think tomorrow is a good day to create a post regarding the celebration <...>"* (Community 1, p. 6), *"<...> I did not know the other items for the auction then yes, I totally agree that the monitor should be the last one to sell."* (Community 3, p. 3).

However, next to the code "*personal opinion*" it is visible that the main co-occurrences happened with two codes: "*documented activities to the employees*" and "*experience from working*": *"<...> I was thinking that we do not have a lot of left of celebrations in the February month, so maybe let's put our focus on the March month <...> we have created a post about the upcoming nature day where employees can participate <...>"* (Community 1, p. 5), *"<...> we got a request to boost the internal learning of the employees and I was thinking we could do is a raise in the compensation on the internal learning that are held by the employees or some other hub where people could share their passions and what they do on their free time. <...> something like this happens almost each year <...>"* (Community 3, p. 3). Based on these findings it could suggest that employees form their own opinion from their personal experience in the workspace and are not afraid to share them with other

[1] The relationship between knowledge types is represented in squares – the bigger the square, the stronger the relationship.

community members. Additionally, the shared information between community members is documented and later on provided to all employees in the Lithuania branch.

Based on these co-occurrences of the codes it is possible to draw connections between the characteristics of knowledge types. The first part of the knowledge types shared within virtual communities comes from the most co-occurring codes. In figure 8, the relationships are represented by the lines. The bigger the line, the stronger connection each code has. These first connections show that communities are sharing more personal knowledge, are able to express their opinions, and also wants to be transparent and share the information with all employees.

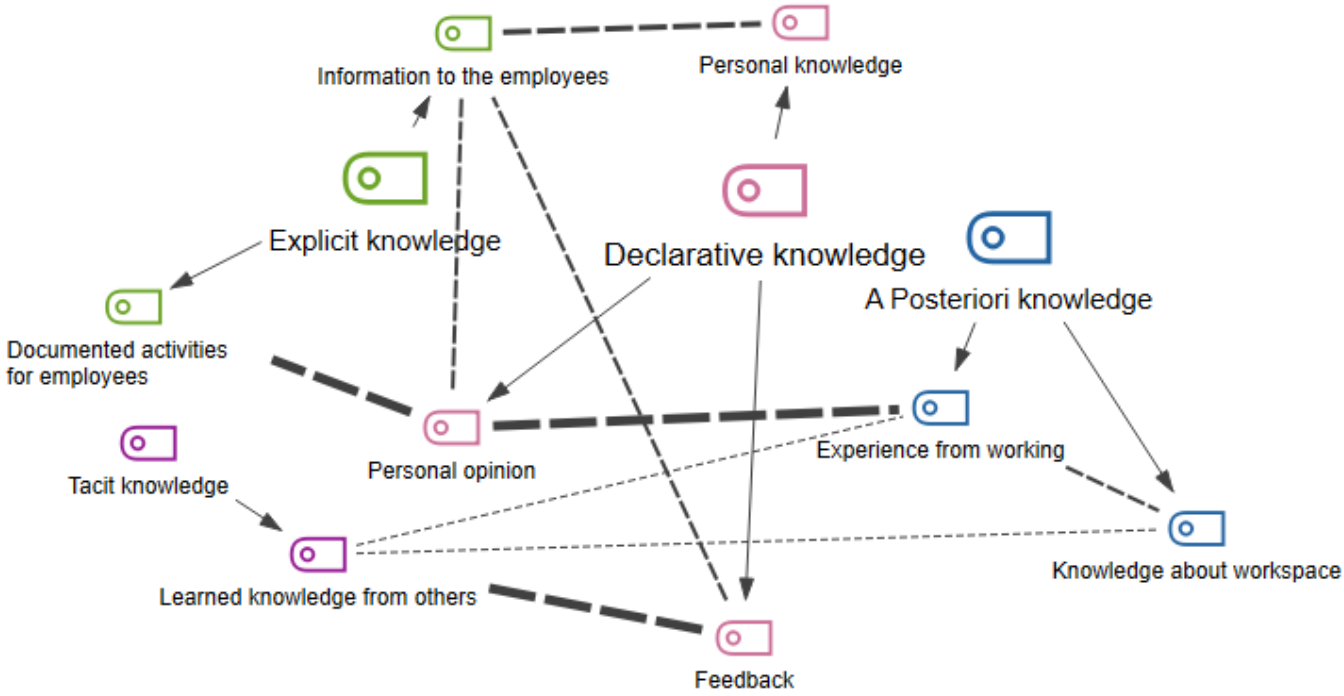

***Figure 12**. Types of knowledge connections. Prepared by the author.*

As seen in the map, declarative knowledge is the knowledge type that is mostly connected with all different knowledge. This could happen since declarative knowledge is knowledge that each individual has and is able to use it on a specific topic. Community members are expressing their opinions or feedback on certain topics and combine it with additional experiences they have. Moreover, the personal opinion code was also most frequent throughout the documents from community conversations.

To make this map more representative of the knowledge types shared within the virtual communities of practice, smaller connections can be represented. In figure 7 it is possible to see, that codes under the declarative knowledge segment is also overlapping with the explicit knowledge code "*information to the employees*". Moreover, the a posteriori knowledge code "*experience from working*" is also overlapping with the code "*knowledge about workspace".* Both of these codes also have a small connection with the code "*learned knowledge from others*". Under the declarative knowledge segment, "personal knowledge" code was one of the most frequently used codes throughout the three documents. The biggest connection of this code is with the explicit knowledge codes.

Looking at the figure 8 we can see that the declarative knowledge is the most used knowledge type in the chosen virtual communities of practice it shows that the members of the communities are able to share their personal opinion, feedback, or personal knowledge that they have gained in their previous experiences or in their personal life. Similarly, using tacit knowledge members of the community are able to express the knowledge that they have learned from others, and this allows the opportunity for the members to learn from one another. While using the explicit knowledge members of the communities are able to express documented knowledge and they are able to provide this knowledge to the other employees that are not a part of that are not participating in the virtual communities of practice. Lastly, using posteriori knowledge employees are able to share their experience of working, which means that the employees have been with the company for a longer time and also, they are able to share knowledge about the workspace.

The knowledge sharing map reveals how individuals in virtual communities of practice share knowledge with one another. These communities are often made up of people who share a common interest or profession and participate in ongoing debates and collaborations to share knowledge. Members of these communities frequently provide their personal expertise, which includes their personal experiences, opinions, and observations. This personal knowledge can be declarative information (knowledge that can be openly expressed), tacit knowledge (knowledge that is difficult to articulate), or a posteriori knowledge (knowledge learned through experience).

While personal knowledge is an important part of knowledge sharing, it is equally vital to analyze how it relates to explicit knowledge. Explicit knowledge is knowledge that is easily documented, discussed, and transmitted between people. However, there is a noticeable paucity of document knowledge sharing in virtual communities of practice, according to the knowledge sharing map. While personal knowledge is routinely shared, there is a need to promote explicit knowledge sharing to support continual learning and development within these communities.

The nature of virtual communities of practice, which frequently rely on informal and unstructured interactions between members, could be one cause for this lack of document knowledge exchange. This can make developing and maintaining formalized knowledge management systems that facilitate the sharing of explicit information difficult.

To summarize, the empirical research was divided into two questions. The first research question was to understand how virtual communities of practice is sharing knowledge. The findings are presented in the table below.

Table 8. *How knowledge is shared in virtual communities of practice. Prepared by author.*

Community name	**Platforms used for communication**	**How is knowledge shared?**	**Do community have a moderator?**
Community 1	Google Chat; Google Meet; Slack channel.	One document each meeting; Discussion based on the topic.	No, but discussion is held mostly by the same people each time.
Community 2	Google Meet; Slack channel.	Documents such as survey results; Discussion based on the topic of meeting.	No, but discussion is held by the same people.

Community 3	Google Meet; Slack channel.	Discussion about the topics of the meeting.	No, but discussion is mostly moderated by one person.

As presented in the table, chosen virtual communities of practice had similar ways to share the knowledge between the members. All of the communities are using the solutions provided by Google. Different from two communities, virtual community 1 uses google chat platform for daily communication. While observing these virtual communities of practice during the empirical research it was understood that the company allows communities to take time from their workday once a week and brings them a chance to use this time wisely and discuss with other members of the community about the topics of their interest. Additionally, the company allows the virtual communities of practice to have their own platforms for private chats and also brings all communities together with one Slack channel. This shows that the company cares about the activities of the communities and sees them as a good tool for improving collaboration between employees and also a platform where the members are able to discuss and share their personal knowledge. However, while observing the virtual communities of practice it was noticed that not all communities are consistent with their activities. From the observed communities, only one of them was consistent with the weekly virtual meetings and additionally had a Google chat where members of the community updated each other daily. The other two communities did not have a chat platform that was known during the research and was not present in all of the virtual meetings. This could lead to a suggestion that not all members of the virtual community are looking at this tool as a platform for collaboration between different employees and also do not view it as a platform where employees are able to share the knowledge they have obtained. The community that stayed consistent in their activities was able to share more knowledge between the members and the types of knowledge shared were more interconnected with each other it leads to the thought that the members from a such community are able to get a more positive experience and also broadens their knowledge during each virtual meeting of the community.

While observing the activities of the virtual community of practice, it was witnessed that the knowledge sharing is mostly based on the discussions of the community members. The documents' information was shared mostly within community 2 as they held discussions where the survey answers was used. Additionally, community 1 had the main document of the event shared in each meeting, however, it did not hold knowledge that could not be found on the internet.

The observed virtual communities of practice, in fact, did exchange a lot of personal knowledge, which most of the time was expressed during the discussions and may not be found in the daily talks between the employees. However, the expressed personal knowledge usually stayed between the discussion and was not documented in written form. Additionally, not a lot of explicit knowledge was shared in the virtual communities of practice. Even though virtual communities of practice are doing what they are supposed to and bring the possibility for the employees to collaborate and share their personal knowledge, for international business it does not bring a lot of advantage if the knowledge stays within the members of the employees. Some documented information reaches employees not participating in the activities of the community via the companies' intranet, however, it is a small amount compared to the knowledge shared during the discussions. These findings lead to a suggestion that the company does a good job while trying to implement the virtual communities of practice into their knowledge management strategy, however, the communities themselves may lack the understanding of what their purpose is. All the members in the communities understand that they share the passion for the same interests, however, the practices applied by the members or personal

knowledge that allows the community to reach the decision stays within the virtual community of practice and the company will not be able to use it in the future and the new members will have to start from scratch. Overall, it is congratulated that international business applies more unique resolutions to their knowledge management strategy, however, the members of the virtual community of practice may lack some understanding of the purpose of their community and this leads to tacit knowledge staying within the members of the community and the company is will not be able to use this knowledge in the future.

As it became understood that knowledge sharing in the chosen virtual communities of practice was based on discussions and not shared documents, it was important to understand what types of knowledge are shared within the communities. This is the second part of the empirical research that aimed to understand what knowledge types can be found in the conversations held by the members of virtual community of practice.

While analyzing the transcribed conversations of the communities, it was witnessed that they have shared 5 different types of knowledge:

1. Tacit knowledge.
2. Explicit knowledge.
3. Implicit knowledge.
4. Declarative knowledge.
5. A posteriori knowledge.

From the first look at the frequencies of the codes, the communities mostly shared declarative knowledge with the code "*personal opinion*" being the most frequently used code. After taking a deeper look using document portraits, it was visible that declarative knowledge was found in all communities, however it was mostly used in community 2. The only community where all 5 types of knowledge were witnessed was community 1. In community 2 no traces of a posteriori knowledge were found that could help the community to strengthen the discussions with the personal knowledge from the working experience. Community 3 did not share implicit knowledge that could show the community members' abilities to apply the explicit knowledge into daily work life.

Once all knowledge that occurred in the discussion held by the communities was understood and the most frequently used knowledge type were found it was important to understand the co-occurrence of the codes. With this understanding it is possible to come up with a way of knowledge sharing in the virtual communities of practice. As witnessed from the analyzed case, the majority of the community members are sharing their personal knowledge that is expressed using declarative, tacit and a posteriori knowledge. All these types of knowledge are interconnected with explicit knowledge and the documents shared with other employees that are not participating in the activities of the community.

Based on the findings of scientific literature, a theoretical model was created to represent the research. According to the findings of qualitative research of this master thesis, the specific theoretical model for analyzed case is presented in figure 11.

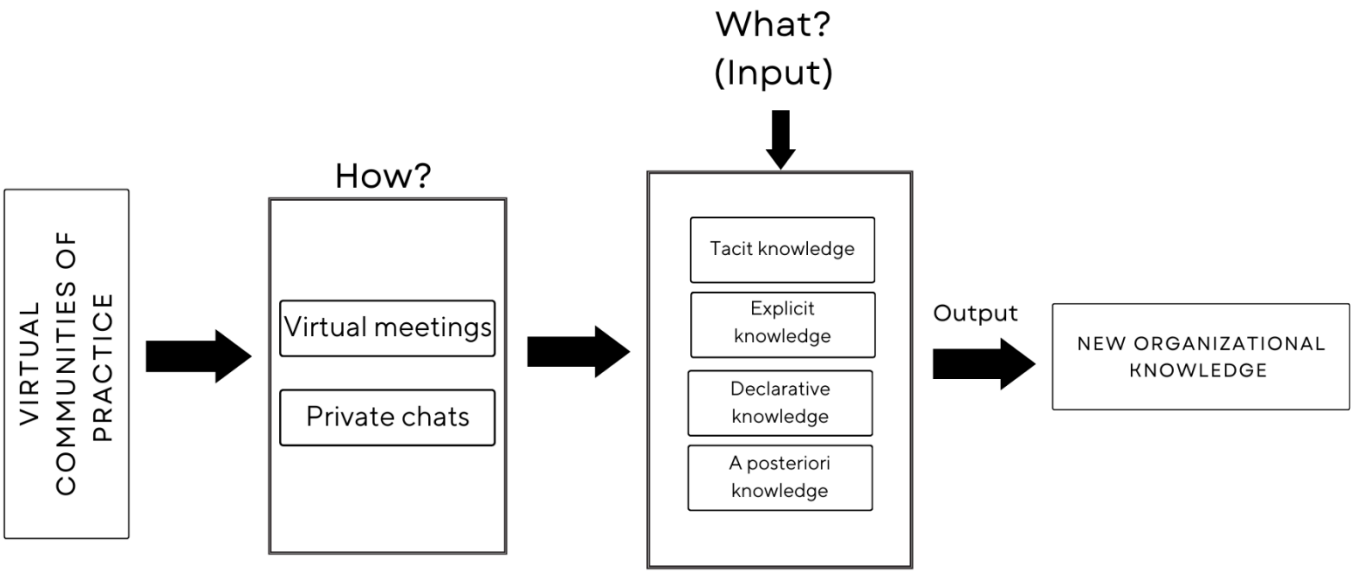

Figure 13. *Knowledge sharing model in virtual communities of practice in an international IT enterprise. Prepared by author.*

As represented in a theoretical model, in an IT enterprise, virtual communities of practice are used as a way to empower the knowledge sharing in the company. It was witnessed that in these communities, knowledge is shared in a few ways. The most popular way is to organize virtual meetings using platforms such as Google Meets and during these meetings members of the community were able to discuss the topics of their interest. Additionally, one virtual community of practice had their private chat where members of the community were able to turn to discuss the questions that were raised and needed to be solved quickly.

By using virtual meetings and private chats, members of the communities were able to provide their input and share different knowledge types. In this analyzed case, the virtual communities of practice shared 4 types of knowledge: tacit, explicit, declarative, and a posteriori. As these knowledge types mostly talks about the personal knowledge that may be harder to write down, it shows that members of the communities are not afraid to share the knowledge they have obtained in their personal life, however, it was also witnessed that the knowledge shared is not being written down, therefore there is not a strong creation of a new organizational knowledge. Virtual communities of practice are considered to be a great tool, however, in the analyzed case the members of the community need to work on transitioning personal knowledge to new organizational knowledge.

4.3 Recommendations for the development of virtual communities of practice in international business

This master thesis aimed to understand what knowledge is shared within the virtual communities of practice. Based on theoretical solutions and empirical research it was witnessed that the success of the virtual community of practice relies on the company and the participants in the community. This

chapter provides what goals for the company to ensure the successful activities of the virtual communities of practice and recommendations on how to reach them.

1. *The company should increase awareness of virtual communities of practice.* The company needs to ensure that all employees are aware of the existing virtual communities of practice and what advantages such activities bring to the company. This could be done by sharing stories of success of how the virtual communities of practice have helped the company and employees in the past to share and save knowledge and how participation in such activities could lead the employee to personal and professional growth. Additionally, the company should inform its employees on how to join a virtual community of practice and what to expect once a person becomes a member of a community. The sharing such information would allow to attract employees that are interested in participating and would create a possibility to grow already existing virtual communities of practice (moving from inception to establishment life stage) or create a new community in the company.
2. *The company should enhance participation in the virtual communities of practice.* The company needs to encourage employees to participate in the activities of the virtual communities of practice found within the organization. This can be done in a few ways. First, the company could apply a reward system for participating in the community. The rewards could range from a badge to a certificate of participation and would be granted to the members based on their contributions to the community. Additionally, once the community has a bigger number of members, it is possible to implement the mentoring system where the new joiners get a mentor who guides them through the community and smoothens the onboarding period. This promotes the development of virtual communities of practice and helps the community to grow.
3. *The company should improve the consistency of the virtual communities of practice.* For the virtual community of practice to work, members need to be consistent in knowledge sharing and need to be participating in the activities of the community. To improve consistency, the company could set specific goals or objectives for each community that could range from knowledge sharing about a specific topic or addressing certain challenges in the company. The adaptation of the communities' goals would allow the community to grow into more mature life stages such as maturity or mitosis. The company itself could set specific members of the community as the moderators of the discussion which would ensure that the members stay proactive. Additionally, the company could provide learnings for the virtual communities of practice to ensure that members are participating effectively.
4. *The company should encourage virtual communities of practice to document shared knowledge.* For the company to ensure that knowledge is shared and will stay within the company, there is a need to encourage members of the communities to document the shared knowledge. This could be done by encouraging members to document the shared best practices, and what lessons were learned during their activities. Additionally, the company could provide guidelines or templates that would show the members of the community how to document this information. The company also could provide a platform where this shared and documented knowledge is stored, and it would be available to all employees in the company even ones who are not participating in the virtual communities of practice.
5. *The company should ensure the constant improvement of the virtual communities of practice.* For the virtual communities of practice to bring advantages into the company, there is a need for constant improvement. The company could seek feedback from the members of the

communities using tools such as surveys or focus groups. Once the feedback is gained and understood, the company could improve the structure or functioning of the communities. For example, if members are having difficulty participating, the company might ease the joining procedure or provide more resources to assist members in contributing. Furthermore, the company could keep an eye on how the communities are affecting its performance and modify its strategies as necessary. The constant improvement of the communities would bring the possibility to grown them into different life stages where more employees would participate, and this would ensure the constant exchange of the knowledge and creation of the new organization knowledge.

Conclusions

1. After performing a problem analysis, it was understood that knowledge sharing is an important part of business life. The fourth wave of industrialization and global crisis such as the Covid-19 pandemic brought an understanding to companies that there is a need to quickly adapt and knowledge sharing in this adaptation is included. Based on this, more companies are trying to adopt innovative tools that would allow remote workers to share their knowledge. However, it is witnessed that there is a gap in using innovative collaboration tools such as virtual communities of practice. These communities allow the company to combine the knowledge sharing and social interactions of the employees, however, companies are not implementing this tool in their knowledge management strategies.
2. The theoretical part revealed that knowledge sharing in international companies can be based on different strategies. These strategies allow the company to adopt the best suitable knowledge-sharing tools that will ensure sustainable knowledge-sharing. As one such tool, companies can create virtual communities of practice. As the activities of these communities are based on the collaboration of the employees, during the discussions, members are able to exchange more personal knowledge than via emails due to being surrounded by like-minded people. Additionally, based on the SECI model (Nonaka, Takeuchi, Umemoto (1996)), members of the community are able to transfer tacit knowledge into explicit knowledge and it allows the company to retrieve this information in the future. Theoretical solutions provided an understanding that virtual communities of practice may be a great knowledge-sharing tool where different types of knowledge can be exchanged in a comfortable zone for the employees.

   Based on theoretical solutions, a theoretical model was created. According to the model, the object of the research is virtual communities of practice that are connected by different platforms for their communications. During the discussions between the communities' members, there is a visible input of personal knowledge. This knowledge can be of different types and for the members allows them to broaden their personal and professional knowledge. The created theoretical model demonstrates that the main object in knowledge sharing is virtual communities of practice. These communities are able to share knowledge using different platforms such as virtual meetings, community platforms or private chats. During these discussions members of the communities are able to bring their input with the personally obtained knowledge and by sharing it, the new organizational knowledge is created. Overall, the model demonstrates that virtual communities of practice is a good tool for the creation of new organizational knowledge and shows that it can be used for the creation of new organizational knowledge.
3. A qualitative research method was chosen to understand what types of knowledge are shared within the virtual communities of practice. Based on the theoretical solutions, this method is the most suitable as qualitative research allows to analyze the discussions that virtual communities of practice are having. Additionally, qualitative research methods allow to observe the communities in their comfort zone, and this leads to more authentic results. During the observation, three virtual communities of practice were observed in international business settings. While observing the communities the conversations had by members were transcribed into text for further analysis.
4. The empirical research was performed in an international IT enterprise. The virtual communities of practice in the company are separated by the topics of interest and each week

they have a dedicated time when all members are meeting to discuss new issues, tasks, or goals of the community. Usually, these meetings last from 30 minutes up to an hour and are based on the discussions held by the members. All communities do not have a designated moderator for the discussions but usually, there are the most active members in the communities who are leading the discussions to a certain point. Community 1 was the only observed community that had a document that was shared during each meeting for the members of the community to know the next tasks which will need to be done. The remaining communities tended to share more personal knowledge and did not rely on written knowledge as much. Overall, the main shared knowledge types were tacit, explicit, declarative, and a posteriori knowledge. This led to the suggestion that the virtual communities of practice in international IT enterprise are sharing the personal knowledge they have obtained in their professional and personal life however, for the community it does not bring a lot of new organizational knowledge as the information shared within the members are not documented. Compared to theoretical model, the knowledge sharing model in international IT enterprise shows that virtual communities of practice are sharing knowledge during virtual meetings and private chats. Members of the communities are sharing their knowledge that is more based on personal knowledge rather than documented one. There is a creation of new organizational knowledge, however some improvement in the development of virtual communities of practice is needed for the new knowledge to be broader and more open to the rest organization. Recommendations for the international IT enterprise were based on the research findings. First of all, the company should increase employee's awareness of existing virtual communities of practice. This would allow for the virtual communities of practice to grow and develop into different life cycles. Secondly company should enhance participation in these communities. This would bring more motivation for the employees to participate and would ensure the constant exchange of the knowledge. Some improvements from the company are needed for the consistency of the communities. During the research it was witnessed that not all communities are consistent with their meetings therefore, the company needs to take actions for this not to occur. Additionally, the IT enterprise should encourage members of the communities to document the shared knowledge to ensure the creation of new organizational knowledge. Lastly, there is a need to ensure the constant improvement of the communities to ensure that they are evolving to different life cycles. These recommendations for the international IT enterprise would bring a chance to empower the virtual communities of practice and will ensure that there is a creation of new organizational knowledge.

List of references

1. Addeo, Felice & Delli Paoli, Angela & Esposito, Maria & Bolcato, Maria. (2019). Doing Social Research on Online Communities: The Benefits of Netnography. 7. 9-38. Doi:10.30958/ajss.7-1-1.
2. Angela Siew-Hoong Lee, Shan Wang, William Yeoh & Novita Ikasari (2020): Understanding the Use of Knowledge Sharing Tools, Journal of Computer Information Systems, DOI: 10.1080/08874417.2020.1752850
3. Anshari, M., Syafrudin, M., & Fitriyani, N. L. (2022). Fourth Industrial Revolution between Knowledge Management and Digital Humanities. Information, 13(6), 292. MDPI AG. Retrieved from http://dx.doi.org/10.3390/info13060292
4. Arazy, O.,Gellatly, I., Brainin, E., & Nov, O. (2015). Motivation to share knowledge using wiki technology and the moderating effect of role perceptions. Journal of the Association for Information Science and Technology, 67(10), 2362–2378. doi:10.1002/asi.23579
5. Ardichvili, A. (2008). Learning and Knowledge Sharing in Virtual Communities of Practice: Motivators, Barriers, and Enablers. Advances in Developing Human Resources, 10(4), 541–554. doi:10.1177/1523422308319536
6. Assegaff, Setiawan & Kurniabudi, Kurniabudi & Fernando, Erick. (2016). Impact of extrinsic and intrinsic motivation on knowledge sharing in virtual communities of practices. Indonesian Journal of Electrical Engineering and Computer Science. 1. 619-626. 10.11591/ijeecs.v1.i3.pp619-629.
7. Basten, D., & Haamann, T. (2018). Approaches for Organizational Learning: A Literature Review. SAGE Open, 8(3). https://doi.org/10.1177/2158244018794224
8. Bermejo-Caja, C., Koatz, D., Orrego, C. et al. Acceptability and feasibility of a virtual community of practice to primary care professionals regarding patient empowerment: a qualitative pilot study. BMC Health Serv Res 19, 403 (2019). https://doi.org/10.1186/s12913-019-4185-z
9. Blagov, E. Y., & Anand, A. (2022). The onlinezation influence on knowledge sharing for corporate innovation during the CoViD crisis. Knowledge and Process Management, 29(1), 92–105. https://doi.org/10.1002/kpm.1705
10. Bolisani, E.,Padova, A., and Scarso, E., (2020). The Continuous Recombination of Codification and Personalisation KM strategies: A Retrospective Study. The Electronic Journal of Knowledge Management, 18(2), pp. 185-195, https://doi.org/10.34190/EJKM.18.02.008
11. Castaneda, D. I., & Cuellar, S. (2020). Knowledge sharing and innovation: A systematic review. Knowledge and Process Management, 27(3), 159–173. doi:10.1002/kpm.1637
12. Correia, Ana Maria; Paulos, Alice; Mesquita, Anabela (2009). Virtual communities of practice: Investigating motivations and constraints in the processes of knowledge creation and transfer Paper presented at the ECKM09 - European Conference on Knowledge Management, 3-4th, Sep., Università Degli Studi Di Padova, Vicenza, Italy.
13. Davidavičienė, V., Al Majzoub, K., & Meidute-Kavaliauskiene, I. (2020). Factors Affecting Knowledge Sharing in Virtual Teams. Sustainability, 12(17), 6917. MDPI AG. Retrieved from http://dx.doi.org/10.3390/su12176917
14. Deci, E. L., & Ryan, R. M. (1985). Intrinsic Motivation and Self-Determination in Human Behavior. doi:10.1007/978-1-4899-2271-7

15. Deloitte. (2013). Digital collaboration - Delivering innovation, productivity and happiness. London
16. Drew, C. (March 2, 2023). The 14 Types of Knowledge. Helpful Professor.https://helpfulprofessor.com/types-of-knowledge/
17. Edwards, J. S. (2019). Knowledge Management: Theories and Practices. Knowledge Management and Organizational Learning, 139–156. doi:10.1007/978-3-030-29872-2_8
18. Farhan Ahmad, Muhaimin Karim, (2019) "Impacts of knowledge sharing: a review and directions for future research", Journal of Workplace Learning, Vol. 31 Issue: 3, pp.207- 230, https://doi.org/10.1108/JWL-07-2018-0096
19. Farnese ML, Barbieri B, Chirumbolo A and Patriotta G (2019) Managing Knowledge in Organizations: A Nonaka's SECI Model Operationalization. Front. Psychol. 10:2730. doi: 10.3389/fpsyg.2019.02730
20. Fauziyah, Fauziyah & Rahayunus, Zenida. (2021). The Role of Knowledge Sharing and Innovation on Employee Performance. 10.2991/aer.k.210121.019.
21. Ferreira Chame, H., Pinto Mota, F., & Costa Botelho, S. S. da. (2018). A dynamic computational model of motivation based on self-determination theory and CANN. Information Sciences. doi:10.1016/j.ins.2018.09.055
22. Fioravanti, V.L.S., Stocker, F. and Macau, F. (2021), "Knowledge transfer in technological innovation clusters", Innovation & Management Review, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/INMR-12-2020-0176
23. Garro-Abarca V, Palos-Sanchez P and Aguayo-Camacho M (2021) Virtual Teams in Times of Pandemic: Factors That Influence Performance. Front. Psychol. 12:624637. doi: 10.3389/fpsyg.2021.624637
24. Gasik, S. (2011). A Model of Project Knowledge Management. Project Management Journal, 42(3), 23–44. doi:10.1002/pmj.20239
25. Haas, A., Abonneau, D., Borzillo, S., & Guillaume, L.-P. (2020). Afraid of engagement? Towards an understanding of engagement in virtual communities of practice. Knowledge Management Research & Practice, 1–12. doi:10.1080/14778238.2020.1745704
26. Hirlak, Bengü & Yeşil, Salih. (2019). Exploring Knowledge-Sharing Barriers and Their Implications. 10.4018/978-1-5225-5427-1.ch006.
27. Jun Wang, Ruilin Zhang, Jin-Xing Hao, Xuanyi Chen, (2019) "Motivation factors of knowledge collaboration in virtual communities of practice: a perspective from system dynamics", Journal of Knowledge Management, https://doi.org/10.1108/ JKM-02-2018-0061
28. Kamara, J. M., Augenbroe, G., Anumba, C. J., & Carrillo, P. M. (2002). Knowledge management in the architecture, engineering and construction industry. Construction Innovation, 2(1), 53–67. doi:10.1108/14714170210814685
29. Khakpour, Abbas & Ghahremani, Mohammad & Pardakhtchi, Mohammad. (2009). The relationship between organizational culture and knowledge management (cultural barriers and challenges of knowledge sharing). The Journal of Knowledge Economy & Knowledge Management. IV.
30. Lartey, P. Y. , Shi, J., Santosh, R. J. , Afriyie, S. O. , Gumah, I. A. , Husein, M., & Bah, F. B. M. (2022). Importance of Organizational Tacit Knowledge: Barriers to Knowledge Sharing. In M. Mohiuddin, M. S. A. Azad, & S. Ahmed (Eds.), Recent Advances in Knowledge Management. IntechOpen. https://doi.org/10.5772/intechopen.101997

31. Maravilhas, S., & Martins, J. (2018). Strategic knowledge management a digital environment: Tacit and explicit knowledge in Fab Labs. Journal of Business Research. doi:10.1016/j.jbusres.2018.01.061
32. Meihami, B., & Meihami, H. (2014). Knowledge management a way to gain a competitive advantage in firms (evidence of manufacturing companies). International Letters of Social and Humanistic Sciences, 14, 80–91. https://doi.org/10.18052/www.scipress.com/ilshs.14.80
33. Millington, R. (2018, April 4). *How to Start an Online Community from Scratch*. FeverBee. Retrieved January 12, 2023, from https://www.feverbee.com/building-an-online-community/
34. Mohajan,Haradhan. (2017). The Roles of Knowledge Management for the Development of Organizations. Journal of Scientific Achievements. 2 (2):1-27
35. Nanda, S. (2016). Human resource management is the key elements in knowledge management. International Journal of Applied Research, 2, 114-116. Retrieved on 29 of December, 2022 from https://www.allresearchjournal.com/archives/2016/vol2issue9/PartB/2-8-124-916.pdf
36. Nasir Koranteng Asiedu, Mercy Abah & De-Graft Johnson Dei, (2022) Understanding knowledge management strategies in institutions of higher learning and the corporate world: A systematic review, Cogent Business & Management, 9:1, DOI: 10.1080/23311975.2022.2108218
37. Nonaka, I., Takeuchi, H. and Umemoto, K. (1996) 'A theory of organizational knowledge creation', Int. J. Technology Management, Special Issue on Unlearning and Learning for Technological Innovation Vol. 11, Nos. 718, pp.833-845. doi:10.1504/ijtm.1996.025472
38. Nowacki, R., & Bachnik, K. (2016). Innovations within knowledge management. Journal of Business Research, 69, 1577-1581. doi:10.1016/j.jbusres.2015.10.020
39. Palmer, P. (2021, November 11). *The Four Stages of the Community Life Cycle*. Leoni Consulting Group. Retrieved January 12, 2023, from https://www.leoniconsultinggroup.com/blog/2021/9/11-community-lifecycle)
40. Roger Fullwood, Jennifer Rowley & Jacqueline McLean (2019) Exploring the factors that influence knowledge sharing between academics, Journal of Further and Higher Education, 43:8, 1051-1063, DOI: 10.1080/0309877X.2018.1448928
41. Skjott Linneberg, M., & Korsgaard, S. (2019). Coding qualitative data: a synthesis guiding the novice. Qualitative Research Journal. doi:10.1108/qrj-12-2018-0012
42. Smith, Elizabeth. (2001). The Role of Tacit and Explicit Knowledge in the Workplace. Journal of Knowledge Management. 5. 311-321. 10.1108/13673270110411733.
43. Trees, L. (2021, February 1). *Why Knowledge Sharing Across Siloes Is More Important in 2021*. The APQC Blog. Retrieved January 12, 2023, from https://www.apqc.org/blog/why-knowledge-sharing-across-siloes-more-important-2021
44. Vallerand, R. J. (1997). Toward A Hierarchical Model of Intrinsic and Extrinsic Motivation. Advances in Experimental Social Psychology Volume 29, 271–360. doi:10.1016/s0065-2601(08)60019-2
45. Wenger-Trayner, E. and Wenger-Trayner, B. (2015) An introduction to communities of practice: a brief overview of the concept and its uses. Available from authors at https://www.wenger-trayner.com/introduction-to-communities-of-practice. Accessed on 24 October 2022.

Appendixes

Appendix 1. Transcribed conversations of Community 1

Hi, the birthday celebrations are postponed since we do have some issues with the new office back in Kaunas and we cannot prepare everything in time.

Hi, yes, I saw that you had some troubles with your renovations, just hope that everything will get sorted out quickly.

Yeah, the workers were warned not to drill a hole in a specific place but still did not listen and now we have this situation, but you know, everything will get sorted in time. (02.01)

Hi all, I am not sure if you have seen it, but we have to specify the needs for our purchases so I think we can simply explain that we have two celebrations upcoming like porridge day and bubble gum day, and in order to celebrate them we bought some snacks for the office.

Hi, I think it sounds good, I don't think we need further information on that.

Also, we got a proposition to create an event for all employees where they could gather together after work and just play video games or solve some puzzles. What do you think, would somebody join this gathering?

Yeah, we talked in our office that it would be fun to organize things like a game evening or maybe sometimes even movie nights.

We can leave this idea as a suggestion for the upcoming events, but I think something like this could happen in the spring when more people are coming to the offices. (02.02)

Hi, the porridge day will be held on Monday, so let's think of a time when to invite everyone to the kitchen so they can prepare some breakfast for themselves.

Hi, as all of us come to the office at different times, it will be hard to invite everyone at the same time, so I suggest letting everyone know that this day is happening and from like 9 am they can go into the kitchen, pick porridge they want and just prepare the breakfast for themselves.

Thanks for the idea, let's just put the porridge in the kitchen then and everyone will pick it up at the time they prefer.

So, let's decide when to inform everyone.

I think 9 am is the best time, as the majority come to the office at this hour.

Okay, I will write to all employees about this day and will inform them that they can pick up the porridge on Monday. (02.03)

How was your porridge day?

It was all right, we have some left, since they are not similar to donuts, they are not as popular.

Do we have any events for the next week and if yes, what should we do for them?

We do have valentine day, but I suggest not putting hearts, but rather have a game something similar to "find your valentine".

For Independence Day we should make a post regarding this day.

For Valentine’s let’s make some snacks in the office but I am not sure how we should handle the game for this.

What I am thinking regarding the game, is we can make a quiz as example we can make a quiz of romantic songs. Also, we can propose an idea to write some facts about employees and then the others could guess who these people are. Lastly, people gather in the kitchen, then they a separated into teams, and after that, they have to guess a word.

I am thinking we can do a quiz since we need some activity.

If you think that the game is not a good idea, we can skip it.

Hmm, I am thinking about that team game, in our office this would not work since we do not have an idea how many people will come to the office.

I think since we will have a national holiday day, a lot of people are working online, and it is impossible to make a game.

But can we put something into these quizzes such as music sounds?

I think we can, as I know they use this program in different quiz shows.

We can think of different questions in a few days and not leave everything for the last minute, we can finalize the quiz by Monday morning.

What do we buy for snacks for Valentine's?

We should buy gum love is...

And what do we give the person who will win the quiz?

Maybe a coupon for two? Like the movies?

I was thinking of something simpler, like a chocolate Milka in a heart shape.

Or maybe we could give a love box to the winner?

I think this is a little too much gum for one person, so let's stick to the chocolate, we can buy something different like a heart from Rafaelo.

Okay, so let's look around the cities to see what kind of chocolate we can find and buy it by the end of the week and then we have to create the quiz. (02.07)

Hi, I filled in the form with a few questions for the quiz.

Hi, thanks for the update, I think we need at least 20 questions.

Also, if you are unable to think of any questions, I suggest using google to find some additional information.

Hi all, from my part all 5 questions needed is uploaded, let me know if you need help while creating a quiz. (02.08)

Hi all, I created the quiz. However, we do have one issue as I cannot open the quiz until the set time, so we need to create an event and explain how the quiz will work.

Hi, I will create an event on the 14th, let everyone know that in order to participate they need to enter the system a few minutes before 11am, when the quiz will be open.

Thanks for your help! I will work on the quiz looks and you can update everyone about this event. (02.10)

Hi all, the snacks for the valentine day are already in the office, let's put them on the 9am tomorrow, so people could enjoy them with their morning coffee.

Hi, I created a poster about the quiz so let's put it into our intranet and let everyone know that they will have a chance to participate in it.

Hi, I agree with all of you, let's hope tomorrow goes smoothly! (02.13)

Hi all, is everything going good in your office?

Hi, yes, in the morning we gathered for some heart shaped snacks in the kitchen and let everyone know that the quiz will be held at 11am.

Thanks to the promotion of the event, I was thinking that we could additionally write everyone a letter letting them know that this event is open to everyone, and the winner will get a prize.

Have we decided on what price we will give?

As we were thinking before, maybe some chocolate?

Actually, I have some gadgets left like power bank in the office and I think we can use it as a prize.

That is a good idea, since we will not need to buy anything additionally and this would be a prize that the winner could use.

Good, let's settle then on the power bank as a prize and if the winner is in Kaunas, we will simply just send it using the post office.

Then it is settled, but what are we doing for the 16th? As it is our Independence Day, we need to think of how to celebrate it.

Since all people will be off that day, maybe of the 15th we can post a note about this day.

Wouldn’t it be a little bit off since the celebration is on 16th, but we are "celebrating" it on 15th?

Yeah, but what else we can do?

I will have my computer with me, so I could just login on the 16th and write a post to the intranet on that day?

If that would not be too hard on you then it would be the best way to handle this situation.

No worries, I do not have a lot of plans for the day, so I can simply post in the morning.

Good, then it means we have plans on how to reach more people during the quiz and how to celebrate the 16th of February. Let's end this meeting and meet during the quiz.

Can you post the winner of the quiz?

Yes, I already did that.

Thanks, I got some responses that the quiz questions were a little bit too hard to solve.

Yeah, in Kaunas people were saying the same thing.

As I can see the answer rate was around 40% therefore, I believe it was too hard too.

Well, since it is a learning process, we know that for the next quiz we need to be a little bit easier going.

Thanks everyone for your help preparing the quiz! (02.14)

Hi all, I have posted a post about our Independence Day, have a good day off!

Hi, thank you, you are too! (02.16)

Hi all, we have a pancake day on the 21st, what could we do in order to celebrate it?

Hi, maybe let's invite people to switch their lunches to pancakes on that day?

Hi, that is a good idea, but I was also thinking maybe we could propose an idea of baking pancakes in the office. Some people have electric pans for the pancakes, they could bring them to the office, we would be a mix for pancakes and during lunchtime people would have an opportunity to bake fresh pancakes.

Hi all, both ideas sound good to me. I was just wondering how many pans we have and if it will be enough?

Well, personally I can bring one from home, so in Kaunas we will have one at least.

I was just planning to buy one so I could do that and bring it to the office. Also, we could ask around the office if someone else could bring a pan.

In Kaunas office I am the only one that has such a plan, but I think since we have less people coming in, we will be alright with just one pan.

Sure, and then Vilnius will have one and maybe if someone brings another pan, we will have more.

Good, so let's create an event where the employees could join and create a selection where they would participate and maybe they could bring some pan or jams.

It is settled then, until tomorrow. (02.20)

Hi, how are you all this day?

Hi, I am waiting for the pancakes already. Are you ready for this day?

Yeah, we are already ready, I was just thinking when we should start baking them.

I am just sad that we could not get a waffle mix, probably all people are getting ready for this day.

Probably, we bought a different mix so we just hope it will work.

Additionally, I was thinking that we do not have a lot of left of celebrations in the February month, so maybe let‘s put our focus on the March month. On the 3rd there is a nature day so we prepared like a photo competition and people could share their pictures in nature. For this we have created a post where employees can participate. On the March 8th we do have women day so guys let‘s think of something and on the 9th, we have Oreo day so we could bring some Oreo as a snack in the offices. Also, I think there is a popcorn day so we could also organize it like a movie night in the offices.

In Kaunas our TV was broken but let‘s hope it will get fixed by then.

Sure, so maybe let‘s prepare a questionnaire about which movie people would like to watch.

It works for us, in different offices let‘s organize the questionnaire and see if we have interest in this idea.

As for the birthday celebrations at the end of the month, we will once again organize the celebration on the 28th, let‘s buy some cake for the people that had celebrated the birthdays on this month and just have some breakfast together.

We have one week to organize this, so let‘s stick to this idea.

So good, for next week, we only have one celebration day – nature day, but I was thinking what could be the prize?

We could prepare a few choices like power bank, board game or like a cup and then the winner could choose.

Of course, maybe for such competitions the prize is too big, but it is also a motivation for the employees to participate in such activities.

I think a few options will be enough and for the post of competition we could prepare it next week like on Monday and for the popcorn or Oreo day we will buy everything the week after next.

That sounds good and let‘s see how the birthday celebrations will happen next week. How did you organize it last time?

It was pretty simple, we sang „Happy birthday“, shared the cake and just had some tea together.

Thanks, we will organize something similar this time in our office.

Good, enjoy your pancakes today and just know that the pancakes mix needs to sit for at least 15minutes before baking it.

Thanks for the information, will bear it in mind. Additionally, I think tomorrow would be a good day to create a post regarding this celebration.

Good, have a nice day! (02.21)

Hi Justina, how was your birthday yesterday?

Hi, it was good, I celebrated them in the office with kibin. If you need, I can share the recipe with you.

Oh really, where to find it?

You can find it on YouTube, just enter kibin and you will find a video with a million views.

Wow, then it is definitely proven to be a good recipe.

Hi guys, how are you? I heard you are sick, are you feeling better?

Hi, I am a little bit confused about what is wrong with me, I had a sore throat, but now it is getting better and tomorrow I will come to the office.

Do you plan to go to an office gathering on March 2nd?

Are there any additional plans for this day?

We are still planning, so we have no current plans, but we still have time.

Yeah, similar to all plans, the last-minute plans are the best.

Okay, so today we have a birthday celebration, so we already have cakes and all the gifts to the people. On Friday we have nature day so I think on Thursday I will post about the celebration and invite to post pictures of the nature and the winner with the most votes will get some prizes we will decide on.

Additionally, we need to buy Oreo cakes for Oreo day next week. So maybe let’s get a delivery or do you think we need to go to the market ourselves?

I think we can definitely get a delivery; we will save some time.

Sure, it works for me and then we could find time to gather at the office together to just share some coffee and then eat some cakes.

I think this would be more useful for the Vilnius office as I think Kaunas office organizes it every day, is it true?

Yeah, in Kaunas we tend to share a cup of coffee daily, but we are always supporting these ideas

where we could just gather together, relax and discuss some topics.

What day do you think would be the best? I would not think Friday is the best as the majority of the people tend to work from home.

What about Wednesday? It is in the middle of the week; people need some break after working for a few days.

For me there is no big difference on which days to organize it, so maybe let's discuss it over the week and then let everyone know.

Good, that works for me.

See you guys' next week! (03.01)

Hey guys, as we talked previously, there is an idea to create a coffee time for all of us, once a week. Right now, we got confirmation, that the coffee break will take time each Tuesday from 4pm. What we need at the moment is for someone to create an event so everyone can put that into their calendars. Who can do that?

Hi, I have some free time at the moment, so I will do it.

Thank you for your help! (03.02)

Hey guys, just letting you know that we are ready for next week's events such as Oreo day and popcorn day. Just wanted to ask you, are we for sure doing the movie night in the offices or should we plan something else?

Hi, thanks for letting us know, we will buy everything today, but I am thinking about the movie night, and I suggest not creating a survey. At least in our office, there is no big interest in such a day, so maybe let's wait until next week to finally decide on this.

Sure, this works for us. (03.03)

Appendix 2. Transcribed conversations of Community 2

Hi all, how are you this morning?

Hi, thanks, I am good, what about you?

I am good also, I heard that you guys are planning to switch offices in Kaunas.

Yes, we are moving to the new office in a few days.

That is good to hear, we are all excited to visit you.

You are always welcome. Let's go to our topic of today: benefits. We as employees have quite a few benefits from different partners, however, not all employees are aware of them. What can we do to ensure a better flow of information?

Well, we do have our site where all information is posted, so first of all, all new employees should know about this, and their mentors could show them and present what benefits they do have.

Yes, it would work for the new employees, but what to do with the people that already have worked for some time with us and has just forgotten about them?

I think we should provide some communication about the already acquired benefits.

Right now, we as employees do have some benefits at the dentist and as soon there will be a national dentist day, we could post some information into our intranet about that day and at the same time we could promote the possibility to use the services for cheaper price.

Good let's do that, but also, we could promote more information about the pension fund and the possibility to save some money for it.

Yeah, we do have partners in regards for that, so maybe let's ask if employees would be interested in some lecture about such a possibility and how it is done?

I agree, let's see whether or not employees have an interest in such a topic and if yes, then we could have a short lecture with the person responsible during some lunch.

What else we could promote?

Well, we do have some partners with one gas station and looking at the current gas price I believe the people would be interested in the possibility of saving some money on that. Additionally, we currently do not have enough people participating in this benefit, however I think it still needs to be part of our routine.

But how should we promote this? Also, maybe not all employees are interested in that as some may not have cars or drivers' licenses?

Of course some people may not be interested, however, I believe the majority of the people will be interested in that and I suggest just simply posting some information that there is such possibility and the information is provided to the gas station once a month and the people who wants to have these benefits can provide us their information until specific day and the benefits will be given to them.

That works for me, sure, I personally myself forgot about this benefit so I need to provide my information also.

Good, send me your information, in the end of the month I will be sending this information to the gas station so next month you should have these benefits.

Sure, so now we have to post about benefits in the dentist office, we need to make sure to send out the survey about pension saving and the lecture about it and lastly, we need to inform people about the benefits in the gas station. Thanks for the meeting, let's make sure that we done this as quickly as possible. Please update us once everything is done.

Have a good day all! (02.13)

Hi guys, as we talked about in our last meeting, I created a poll to see if there is an interest in lectures about pension savings. However, more than half of the respondents expressed no big interest in such a topic, therefore I think this lecture will not take time.

Hi, thanks for your efforts. It is sad that people are not interested in this, however, it is fully understandable. Maybe let's think of some different lecture they could have?

I was thinking maybe it is possible to have some internal learnings.

Do you have any specific topics in mind on what these learnings could be?

As we are an IT company, the main effort is to raise the competence of our junior developers. As we have only a few junior people who know how to automate the process, maybe we could put effort into this topic?

I understand the need to raise the competence of our junior people. However, what about our senior employees, maybe their also have places where they could raise their competences?

I think at the moment maybe let‘s put focus on the junior people and then during our next meeting we will be able to discuss the senior employees.

Sure, so if we are planning the lecture on the automatization, do we have internal people who would be up for this challenge?

Yeah, I know a few people who I think would be able to be our lecturers, of course we need to discuss this with them.

Could you do that? Or should somebody else contact them?

It is not a problem for me to write them a message so I will do it.

Thanks, and maybe we have a specific date when these learnings could take place?

I think this depends on the availability of the employees, but this is clear that we will contact all of the employees we think would be a good match for these lectures.

Sure. I have another thing in my mind that we need to discuss. As we talked about previously, I contacted the gas station we are partnered with, however, at the moment not enough people are registered for this discount so we do not have this discount for the employees. Maybe we should raise this question to everyone and see if this is still interesting to the people?

I think this discount still will be interesting to people, however, we need to ask people to sign up for it.

Can you create a post on our intranet and raise this question?

Sure, no problem.

Good, so to sum it up, we need to contact employees in order to organize the internal learnings regarding the automatization process and let’s create a post about the discount at the gas station.

Sounds good, until next time!

Bye! (02.27)

Hi guys, thanks for the post in the intranet, let’s wait and see how many people will register. I talked with employees we thought could be our lectures in internal learning sessions, so they would be up for it, however, at the moment they do not have time for such activity, however, they will be freer at the end of April. So, I suggest postponing this activity a bit.

Hi, happy to hear they would be up for lecturing the junior people. Yeah, April at the moment still sounds far away, so let’s keep the touch with them on how to organize everything and later on we will decide on the date.

Good and what about our senior people? Do we need to create internal learning for them too?

It is pretty hard I think to create lectures internally for the senior people as who are more talented than them?

You have a good point, but do you think it would be possible then to send them to some conference?

The conference sounds good, however, as I personally do not work in IT, I am not sure what kind of conference would be good for the senior people.

I personally know a few good conferences; however, I think first we need to understand what kind of lectures they actually need. For me something could look interesting, but for others it may not be important.

How do you think we could do figure it out?

Maybe let's send the team leads emails to go and ask their senior people what would be interesting to them? As you know they work with them daily, so it will be easier for them to do it than sending another questionnaire that will be forgotten in other emails.

For me it works, so let's send all team leads an email and see what their response will be.

Good, sounds like a plan to me.

Until next time guys! (03.02)

Hi all, we got a quick task from our HR department. It is a little bit more creative than we are used to, however, I think this would be a great way to think outside our routine for a short time. Right now, we need to create a list of a few skills that are necessary for a good specialist in the IT sector. Maybe someone has some ideas?

Hi, first of all I think he has to be logical. Since the main job of the developers is to develop a code that would work, the person needs to be logical and to think how what he writes will turn out. So logical and maybe thinking one step ahead.

Talking about the code, I was also thinking a person needs to understand how to write a clean code. Basically, this code needs to be easy to understand and to maintain. Of course, juniors probably do not have this skill, but for more senior people it is important. Additionally, for more senior people it is important to understand the test-driven code, when firstly it is tested and just later on created.

Good point about the clean code, from softer skills person needs to be sharp minded to understand the logic of the code and of course ambitious. The person needs to have a mindset where he wants to grow and improve since this is the sector where everything is changing and quick, so the person needs to adapt to the sector.

If we are talking more about junior positions, the person needs to understand the sector, company where he goes and have some practical examples of the work, however, it is more important that the person would be able to grow and the hiring people look at where the person will be in half a year rather what he can bring right now.

Thanks all for the contributions. To sum up, basically the person needs to be logical, ambitious, sharp minded, he needs to know how to write a clean code. Additionally, a person needs to understand the sector, his position. For more senior people it is important to write a clean code and to understand the test-driven development. Good, I will bring this list to the HR people. (03.03)

Hi guys, we got another question from the HR department, right now we need to brainstorm about the employee engagement survey and how it can be used. So maybe first of all we need to think about how we look at the employee survey?

Hi, in my opinion employee surveys can help out with business results as they show the people empowerment and how to adapt the business to match the needs of the employees. The answers of the employees do have an impact on the business.

I would like to add that the employee survey can be viewed as diagnostic tool, to see how things are doing and at the same time it is possible to use this tool to empower the different team leaders around the organization to take some issues seriously and solve the issue within their team.

Also, the employee survey is extremely important in day-to-day business life. If we are looking from top to bottom it is important to join the survey and the face-to-face discussions of the managers and employees. The employee should talk with the manager face to face at least a few times in the quarter and it helps to express the issues currently within the company and the team. After these discussions the employees are able to fill out the survey and the survey is able to answer if the issues have been solved or if it is given enough attention to the issues.

So basically, to sum up employee survey should be definitely used as a tool to ensure the smooth collaboration of employees and their manager and at the same time the different teams within organization to reach the goals?

Yes, that is the main idea of the employee survey from my point of view.

But do you think the timeline or the timeline of how regularly the survey is sent out is important?

I think so, since probably if the survey is sent out too regularly, the response rate should drop.

But do you think there is a perfect time frame for such surveys?

I think there is no one that fits all models, but it probably needs to be tested out in the company and later on adapted to the needs of it.

As we are an international company, we got a question is it better to send out the survey in English or in the native tongue what you think?

I think as the English is not set as our business language then probably, we do not need to send it out in English for all countries, I would suggest sending it out in the native tongues.

Yes, but the majority of the employees speak and understand English so isn‘t it better to send the survey in one language to everyone?

I see your point but at the same time it is important to understand that the managers and employees speak in their native tongues and some issues are better to be disclosed within the native language.

Okay, you have proven your point. We have one more question to discuss. Is it important to create a presentation on the results of the survey or should it be taken directly to the managers without any big presentation to all employees?

I think maybe if the survey is done like quarterly, then probably all the results could be taken to the managers only, but if the survey is done like twice a year, then maybe once a year it is important to see the results of the company to feel where you stand?

But what if you were able to measure yourself after each survey? I mean what if there is a matrix where a person could understand their position in regard to others? Would it still be necessary?

I think if the person is able to understand his position, then probably no big introduction to the whole results is needed.

Thank you all for the discussion and the ideas, I will let the hr. people know. (03.08)

Appendix 3. Transcribed conversations of Community 3

Hi all, the employees have been given points that they can spend. Do you have any idea how we could let people use these points?

Hi, I know that last year all the computers and other gadgets that were older than 5 years could be bought using these points, maybe we can plan something similar this year?

Hi, I know that we have some computers available but definitely not a lot of them.

Currently has around 3 computers and 4 monitors. The computers we have at the moment, we can use them currently.

Do all of them become available to all employees?

As far as I know, a few monitors are not available to employees, since these are quite new, and the employees still cannot buy them.

But how the buying process like?

The employees are informed that they can buy this equipment using the points they were granted and whoever is the first gets the product.

This sounds like a plan, but how else we can motivate the employees to spend the points?

I was thinking we could create a lottery, where an employee would buy a ticket and then win something new for the office or for himself. Additionally, we can create an auction for the items with the company's logo or other stuff.

And how long auction will the take place?

I think we can do one thing for one day.

Maybe let's do more time since some people are not checking the intranet of the company.

But what about if we push a little more and then each day, we push the idea of an auction and set the deadline for example in the middle of the day and then the winner will be based on the time stamp that is visible on the comment?

Of course, first of all we need to get approval for this auction.

Right now, these items do not belong to anything, right?

No, these items belong to the company and there is a need to get approval for the auction we think.

Maybe we can create an auction for the donation cause?

We could create a basket where people would send some currency to donate to Ukraine or to the children.

Do you have an idea how much we could expect to gather for the auction or for the donation?

I think it depends on the cause we want to donate; I believe the donations for Ukraine could get more interest.

So right now, we have three ideas on how to spend the points - buying gadgets, buying companies merch, and donations for the cause. Do you think of anything else?

I think these three are the main ideas since something similar happens every new year and people are eager to participate in such events.

Do you have any idea when we could hold these?

I think we still need some approval of the gadgets, but you know, I think in a month or two it will be possible. If we want an auction, it could happen quicker.

Let's sleep on these thoughts and maybe next week we will be able to come up with further ideas on how to motivate employees. (02.15)

Hi guys, so we got a clearance on the auction for the employees. So, I suggest we start planning it, do you think we can plan it for the upcoming week?

Hi, what dates exactly do you have in mind?

Well, I was thinking we can start on the 1st of March, as the beginning of the spring and you know we could call it “spring cleaning”.

That is a good idea, and I think it will bring more attention from the employees. Maybe we have a timetable for when the auction should end?

Well, at the moment we have 3 things we could put up for the auction. I was thinking as the 1st of March lands on a Wednesday, we could follow up with the next items on Thursday and Friday. So, for each item, we would have one day, and well each item would have a full day when the employees could buy them for the biggest price.

Sure, this works for me. Should we create an event in our intranet or maybe just like a post and tag everyone so they would see it?

I was actually thinking we can do both. After this meeting, we can post that the auction will be held, and the items still remain anonymous, however, people could put it up in their calendars and when the day would come they would get a notification and on different days we would post an item in this event and then people would be able to raise the price.

Sounds good, so we first begin with monitor for the auction.

As we have one monitor, pair of earbuds, and a book on IT trends, I think we can leave the monitor till the last, starting with a book and earbuds in the middle. What do you think?

Oh, I did not know the other items for the auction then yes, I totally agree that the monitor should be the last one to sell.

Good, so what we need right now is to create an event where people would be able to mark the date when the auction starts, and then somebody would post each day the new item starting from the 1st of March.

Sounds good, till next time. (02.22)

Hi, we got a request to boost the internal learning of the employees and I was thinking we could do a raise in the compensation on the internal learning that is held by the employees or some other hub where people could share their passions and what they do in their free time. Something like this happens each year so it would be no big surprise to anyone.

Hi, the rise in compensation sounds good, however, how much more are we planning to raise?

I was thinking that 1.5 times is enough. That would give people motivation to participate and at the same time could get others thinking about doing the same.

Or maybe we could do it 2 times more?

Don’t you think this would be too much?

Well for me the 1.5 sounds like not a big raise where people would be up for creating something, so

in my opinion, 2 times sounds better and would intrigue people more.

I see your point, however, then it would not make sense since other for the outside conference gets a similar amount and the preparation for these conferences takes more time than preparation to talk about your personal passion.

Yes, you are right about that, this totally slipped out of my mind. Then I agree with you, 1.5 times is enough. Do we have a timeline for when to do it?

Similar to the auction I was thinking of starting in March and ending it in May. In the summer people will be off on holidays, some will take workcations, so let's make it a spring occasion.

Yeah, the summer is definitely not a good time to organize such things.

So, do we have a decision?

I think yes, let's raise the compensation 1.5 times, and then starting from March 1st people will be able to invite us to their hubs or presentations.

I was thinking what will happen if not many people decide to join this event?

Of course, this could happen, we will see it later, but maybe for a short time we could raise the compensation even more to invite more people to join, but as I said it will be seen later and right now it is hard to predict how many people will join us.

Understand, thanks for the clarification.

Bye. (02.27)