DEVELOPING EFFECTIVE VIRTUAL TEAMS

A cross-team analysis based on the IPO model

Authors

Ing. Michael Bräuer, BSc.

Hannah Schneller, BSc.
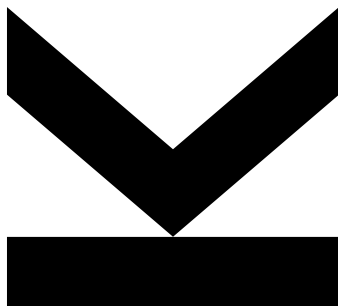
Submission

Institute for Organization Science

Supervisor

Prof.in Dr.in Elke Schüßler

December 2022

Master's Thesis

to confer the academic degree of

Master of Science

in the Master's Program

Leading Innovative Organizations

Abstract

Virtual teams are no longer just a fad in the workplace. Advanced technology, coupled with the COVID-19 pandemic, resulted in an explosive interest in research of virtual teams, as well as in utilization of them. Organizations have been increasingly pushed to increase the level of virtuality in teams to ensure competitiveness. The presented IPO model for virtual teams provides a framework illustrating not only relevant factors of different levels but the intercorrelation of input factors and team processes to targeted outcomes. However, this scientific area lacks empirical research. To address this literary gap, we conducted an empirical study consisting of interviews and a survey. We gathered empirical data from three different teams of an organization and conducted a cross-team comparison to better understand to what extent the different factors vary across different team contexts. The results of the study indicate that trust and transparency are valid additional moderators that contribute to virtual team effectiveness as well as virtual maturity.

Kurzzusammenfassung

Virtuelle Teams sind nicht mehr nur eine Modeerscheinung am Arbeitsplatz. Die fortgeschrittene Technologie in Verbindung mit der COVID-19-Pandemie hat zu einem explosionsartigen Interesse an der Erforschung und Nutzung virtueller Teams geführt. Unternehmen wurden zunehmend dazu gedrängt, den Grad der Virtualität in Teams zu erhöhen, um ihre Wettbewerbsfähigkeit zu sichern. Das vorgestellte IPO-Modell für virtuelle Teams bietet einen Rahmen, der nicht nur die relevanten Faktoren auf verschiedenen Ebenen, sondern auch die Wechselbeziehung zwischen Inputfaktoren und Teamprozessen und den angestrebten Ergebnissen veranschaulicht. Allerdings mangelt es in diesem wissenschaftlichen Bereich an empirischer Forschung. Um diese Literaturlücke zu schließen, haben wir eine empirische Studie durchgeführt, die aus Interviews und einer Umfrage bestand. Wir sammelten empirische Daten von drei verschiedenen Teams einer Organisation und führten einen teamübergreifenden Vergleich durch, um besser zu verstehen, inwieweit die verschiedenen Faktoren in unterschiedlichen Teamkontexten variieren. Die Ergebnisse der Studie deuten darauf hin, dass Vertrauen und Transparenz gültige zusätzliche Moderatoren sind, die zur Effektivität virtueller Teams und zur virtuellen Reife beitragen.

Keywords: virtual teams, IPO model, maturity, performance, communication

Table of Contents

Table of Figures

1. Introduction

The nature of work is constantly changing. Currently, digitalization and computer-mediated communication have significantly transformed work design into dynamic and location-independent communication mechanisms. As a result, technological advances emphasize virtual teams as units of work. Townsend and colleagues (1998) define virtual teams as *"groups of geographically and/or organizationally dispersed co-workers that are assembled using a combination of telecommunications and information technologies to accomplish an organizational task".* (p.18)

Spatial separation as a characteristic of virtual teams refers less to the distance itself than to its effect on communication. Dispersion across cities, countries, or continents hinders face-to-face interaction between team members. Thus, team conversations of virtual teams are mediated via various technological tools. These unique characteristics of spatial separation and the usage of communication technologies differentiate virtual teams from conventional work teams. Compared to a co-located team, team members in a distributed setting provide organizations with novel opportunities. Spatial separation allows organizations to design teams flexibly and independently of individual locations. Operating with geographically distributed experts allows organizations to hire from a broader pool of potential talents. Thus, specific knowledge can be acquired for a particular project. Even entire teams of experts from different areas of expertise can be formed. In short, *"Virtual teams provide organizations with the means of accessing unique, highly specialized expertise that is distributed in space."* (Bell & Kozlowski, 2002, p. 15) Combining multiple areas of knowledge further allows organizations to deliver more complex projects. Virtual teams also enable organizations to increase efficiency and effectiveness by tapping the knowledge, skills, and expertise of employees around the globe, consequently increasing opportunities for information and knowledge exchange through expanded social networks. (Wellman et al., 1996) Subsequently, a company's competitive advantage and long-term success can be supported by the strategic implementation of virtual teams as their characteristics harness knowledge and flexibility while saving costs.

In light of the start of the COVID-19 pandemic in 2020, it has become increasingly clear that remote working and virtual teams will play a key role in the modern workplace. As Bell and Kozlowski already said in 2002: "*Virtual teams are here, and they are here to stay.*" (p.45)

1.1. Problem Statement

Digitalization generates value for remote work settings by utilizing novel ways of communication. Though the opportunities of digitalization, such as facilitating organizational effectiveness, are vast and versatile, reaching digitalization's full potential is not guaranteed for virtual teams. According to experts, leaders as well as members of virtual teams do not recognize if their team is successful or not. In practice the number of teams succeeding equals the number of teams failing. The change in the work design requires adaptation at the organizational, leadership, and team levels. (Blackburn et al., 2003) That is because virtual teams, their leaders, and the organization do not only face common challenges of co-located teams but also new, unfamiliar ones. The obstacles of a co-located team setting require alternative practices in a digital setting. To not only counter the challenges of virtuality but to achieve the desired outcome (such as team effectiveness or individual satisfaction), different input factors, and team processes – compared to co-located teams – must be implemented. (Kirkman et al., 2002)

Despite that, organizations implement a virtual team setting notwithstanding necessary input factors and processes (Lepsinger & DeRosa, 2010). This lack of guidance for developing a virtual setting within an organization in the literature is exposed by Chinowsky and Rojas (2003). The current state of the art mostly researches relations between isolated input factors or isolated processes and their outcomes. However, it does not combine input factors, team processes, moderators, and outcomes.

1.2. Research Objective and Question

The objective of this thesis is to develop an IPO model as a theoretical framework for virtual team effectiveness. Hoch and Kozlowski (2014) already considered the IPO model as the main theoretical model for the research of virtual teams. As a basis for the model, the authors of this thesis adapted the "input-process-output model of virtual teams" by Dulebohn and Hoch (2017) by replacing the team processes and emergent states with the team processes of the Krämer and Deeg (2008) model. The input factors from the research of Dulebohn and Hoch (2017) are divided into three levels: the organizational, leadership, and team levels. This helps to determine the needs and areas of responsibility at each level. The interactive dynamic of team processes converting input factors into outcomes found by Dulebohn and Hoch (2017) does not provide sufficiently specific information regarding required team processes in the virtual setting. To develop a model that can determine the team's maturity and serve as a guide for the development of efficient virtual teams, it is necessary to implement traceable team processes in the IPO model. Thus, the team processes by Krämer and Deeg (2008) are presented as critical mediators between inputs and outcomes. Additionally, moderators'

impacts on the effects of the input factors and team processes are key elements of the model and refer to those discovered by Dulebohn and Hoch (2017).

Among other things, the IPO presented in this thesis opens narrow perspectives from researching relevant input factors or processes as isolated variables and demonstrates their intercorrelation and reinforcing mechanism. To illustrate this function of the model, the interrelation of input factors, team processes, moderators, and their outcomes, the research of Dulebohn and Hoch (2017) and Krämer and Deeg (2008) is complemented by state-of-the-art literature analysis and empirical findings of the conducted embedded case study.

With this thesis, we equip organizations and especially leaders of virtual teams with a tool to not only face the challenges of virtuality but to benefit from the opportunity of a virtual team setting. The developed IPO model can be used by organizations to detect their status quo by comparing their input factors at every level with those in the IPO model. By doing that, the company can identify what is absent at the respective level or even what hinders productivity in the virtual setting. The comparison and analysis of the degree of provided input factors help determine the appropriate next step according to the moderators. In short, the IPO model can be used as a tool first to determine the virtual maturity of virtual teams and secondly, to develop and optimize the key elements of effective virtual teams.

This led to the following research question:

What are the relevant input factors and team processes to ensure virtual team effectiveness?

1.3. Thesis Structure

In the following chapter of this thesis, "2. IPO Model Virtual Teams", the theoretical framework of the IPO model will be explained. The moderators, the different levels of the input factors, team processes, and outcomes are each illustrated by a subchapter. This chapter builds the theoretical groundwork and is especially crucial as a foundation for our research question.

The next chapter "3. Methodology", presents the methodological elaboration to answer the research question. The single embedded case study, a qualitative research method, the interviews and the survey, both of qualitative nature, are then justified. Thereafter, the data collection and analysis are presented.

Chapter 4, "4. Empirical Results" presents the results of both the qualitative interviews and the qualitative survey. This chapter is divided into the different levels of the IPO model. Quotes from the interviews as well as answers to the survey are summarized and presented.

Chapter 5, "5. Discussion" compares the empirical findings with the theoretical approaches to answer the research question. Additionally, theoretical and practical implications, as well as limitations and recommendations for further research are derived in the subsequent subchapters.

The conclusion summarizes the key findings and is presented in chapter 6, "6. Conclusion".

2. The IPO Model for Virtual Teams

The IPO model was used as the leading theoretical framework by researchers to study co-located or face-to-face teams. In recent years the IPO model has been further developed and applied to research on virtual teams. (Hoch & Kozlowski, 2014) We chose to work on an IPO model to analyze not only the input factors and their impact on the team processes but also the influence of team processes and moderators on the output factors. Ilgen and colleagues (2005) considered in their Input-Mediator-Output-Input model (IMOI) that the outcomes influence the inputs, creating a learning cycle, or feedback loop. The IPO framework can be used as a diagnostic tool for virtual teams in organizations. It can be used to identify and further foster factors that make virtual teams more effective and consequently more successful.

The model of Dulebohn and Hoch (2017) already takes virtuality into consideration, therefore, serving as the basis for our model. With their IPO model, virtual teams can be dissembled into deterministic categories or factors. Key inputs, team processes, emergent states, moderators, as well as outputs relevant to virtual team performance can be identified and enhanced. Their model can be used by both practitioners and researchers. Although their model is already well established in the literature, the team processes, and emergent states (cognitive, affective, motivational, and behavioral) do not align with the state-of-the-art literature. Implementing communication, coordination, and cooperation as the new team processes, the IPO model would ease the practical application of the model. Throughout the literature research, these team processes emerged as the most imperative to develop an effective virtual team within an organization. Moreover, these three team processes refer to the challenges of a virtual setting and how the corresponding challenges can be mastered successfully. Hence, the thesis authors combined the three team processes from the model of Krämer and Deeg (2008) with the model of Dulebohn and Hoch (2017). In particular, the authors of this thesis suggest a replacement of the team processes and emergent states of the model by Dulebohn and Hoch (2017) with the team processes of the Krämer and Deeg (2008) model. The thesis authors highlight that team cognition and cohesion, engagement as well as shared leadership are important to virtual teams. These can be assigned or subordinated to certain input factors or to the adapted team processes. The adapted processes are even more important to the performance of virtual teams, as well as of teams in general.

In the following, general categories relevant to virtual teams are presented. Input factors on the organizational, leadership and team levels that enhance the virtual maturity of teams will be elaborated on. Team processes refer to cooperation, communication, and coordination which are key mediators for team outcomes. The outcome should provide organizations and especially leaders of virtual teams with a tool to enhance team readiness, team cohesion, team identity, and thus the basis for a high-performance team. Depending on the type of team, the

organization, the situation, and the level of virtuality, the categories may influence the effectiveness differently. Figure 1 presents the adaptation of the IPO model to virtual teams. As described above, the input factors, moderators, and outcomes are derived from the findings of Dulebohn and Hoch (2017), while the illustrated team processes are based on the research of Kämer and Deeg (2008).

Inputs

Organizational Factors
- Team Design
- Reward Systems
- Information & Communication Technology
- Training

Team Leadership
- Virtual Team Management Skills
- Transformational Leadership
- Leader-Member Exchange
- Empowerment

Team Composition
- Surface Level Diversity
- Deep Level Diversity
- Knowledge, Skills & Abilities

Team Processes

Coordination

Communication

Cooperation

Moderators

Virtuality

Task Interdependence

Task Complexity

Team Context

Outcomes

Team Level
- Performance
- Effectiveness

Individual Level
- Performance
- Effectiveness
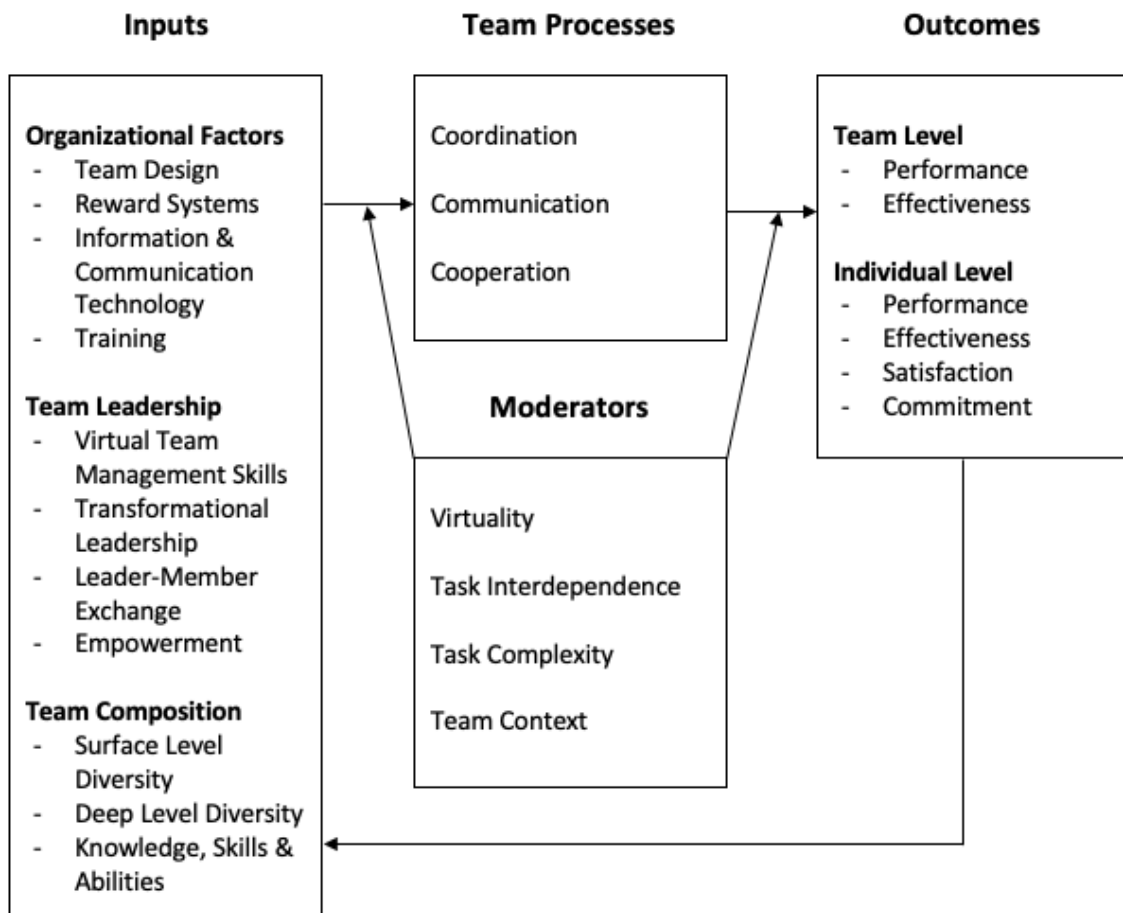- Satisfaction
- Commitment

Figure 1: Adapted IPO Model for Virtual Teams by the Thesis Authors

2.1. Moderators

The incorporated moderators, namely virtuality, task interdependence, task complexity, and team context affect the pathways of input and team processes as well as team processes and output. This chapter provides a description of the moderators. A closer examination of how the moderators influence the respective input factors and team processes concerning team and individual outcomes is provided in the respective chapters.

2.1.1. Virtuality

Virtuality is an overarching moderator, determining the entire IPO model, and is the reason why the virtual workplace has been of increasing interest to researchers in recent years. The level of virtuality in the workplace and the work environment can vary widely. Some teams operate in a co-located work setting but communicate to some degree via digital communication tools such as emails, team chats, audio calls, or video calls. Some teams have the opportunity to work from home for a certain percentage of their weekly working hours. As stated, the level of virtuality may vary from team to team. The more virtual a team operates the more complex its management and processes become. To label a team as a 'virtual team', members do not have a choice but to communicate in an electronically mediated environment. (Gibson & Cohen, 2003)

In the theoretical part of this thesis, it is assumed that the team and the leader are spatially dispersed. This means that all processes have to be coordinated and completed in a fully virtual setting. (Bell & Kozlowski, 2002) Hybrid teams face different more complex settings as they have to counter both the challenges of a virtual and a face-to-face team. The practical results and discussion are based on the comparison of teams with diverse levels of virtuality.

It will be outlined why certain input factors are chosen for the IPO model for virtual teams and how the moderator affects the input factors, team processes, and outcomes.

2.1.2. Task Interdependence

Within-group task interdependence identifies the level of exchange, communication, and cooperation a team requires between the members. Workgroups with high task interdependencies require high levels of interaction and exchange processes. Contrary, low within-group task interdependencies identify groups in which group members can work simultaneously on tasks or teams with complementary workflow arrangements. The four different types of interdependence arrangements – pooled/additive, sequential, reciprocal, and intensive – determine the workflow processes as well as the structure of the team. The least interdependent arrangement can be referred to as pooled/additive, as separately performed

tasks of the members get combined. This is followed by sequential work arrangements. As a result, the tasks of each employee build on one another. Reciprocal is similar to sequential since the product passes through different stages. Despite this, work activities are moving back and forth between the two stages and employees. Intensive, as the last and most interdependent work setting, inhibits employees have to operating simultaneously and in strong cooperation. (Bell & Kozlowski, 2002) Hence, task interdependence moderates input factors as well as the processes within the team.
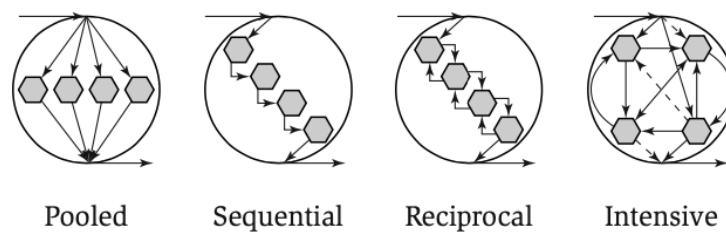
Figure 2: Task Interdependence (Bell & Kozlowski, 2002, p.20)

2.1.3. Task Complexity

The illustration below describes the characteristics that determine the complexity of team tasks. Besides task interdependence, the dynamic of the environment as well as external and internal coupling as a combination conceptualizes task complexity. Highly dynamic work environments in combination with strong external dependency, synchronous task arrangements, and interdependency reflect high team task complexity. The more each characteristic declines, the less complex the team task is. The nature of the task, meaning its interdependence and complexity, determines the workflow in need and subsequently the appropriate team processes (coordination, communication, cooperation). (Bell & Kozlowski, 2002)
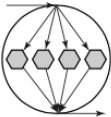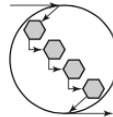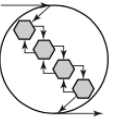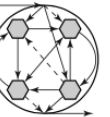
Task Complexity Characteristics				
Work flow interdependence	Pooled	Sequential	Reciprocal	Intensive
Task environment	Static	————————		Dynamic
External coupling	Loose	————————		Tight
Internal coupling	Weak	————————		Strong
Task complexity	**Low**	←————————→		**High**

Figure 3: Task Complexity (Bell & Kozlowski, 2002, p.20)

2.1.4. Team Context

Last but not least we added the moderator team context. This describes the legal environment that comes along with a virtual team consisting of team members from different organizations and/or different countries. Rights and obligations as well as law-related risks are relevant aspects that impact the design, implementation, functioning, and effectiveness of virtual teams. Existing legal regulation of such teams is often uncertain. However, these teams bring a lot of benefits as well as complex challenges to the table that vary significantly and depend on the virtual team members' diversity, the countries involved, and whether multiple organizations are involved (Roehling, 2017). Challenges include intellectual property rights (e.g., patents, copyrights, and trademarks) that need to be shared across virtual team members but also need to be protected (Cao, et al., 2012) as well as privacy issues that arise with enhanced capabilities due to technology to monitor employees (Bell & Kozlowski, 2002).

2.2. Input Factors

As can be seen in the illustration of the IPO model, the input factors are divided into three different levels. The authors distinguish between these levels to provide the reader with structure. Managers can use this model to determine the readiness level of their company, their leader, or their team by addressing details of specific levels. They can do so by evaluating already successfully implemented input factors along the three levels as well as by detecting potentially missing input factors. A detailed description of these levels and their subordinate input factors is provided in subsequent chapters: organizational factors, team leadership, and team composition.

2.2.1. Organizational Factors

In the course of the discussion of the three input levels of the IPO model, the input factors related to the organization are explained first. The reason for this is that the organization forms the foundation on which the other two levels – leaders and teams – operate. The organizational input factors thus provide structure and enable leaders, teams, and individuals to perform efficiently. More insight is provided in the following subchapters: team design, reward system, information and communication technology, as well as training.

2.2.1.1. Team Design

How teams are designed can have a huge impact on whether they succeed or not. As virtual teams rely on technology-based communication, novel designs may be required that are even more relevant than in face-to-face settings due to the complexity that must be managed. There are several strategies for the selection of virtual team leaders and members including

examining past behavior under similar circumstances, personality testing, or simply interviews. The purpose of these strategies is to identify and select potential leaders and members based on the information gained. Those who possess the necessary combination of critical KSAs are able to accomplish the organization's mission. The selection criteria may include technical expertise and experience relative to the task demands. Additionally, members and leaders are selected based on another set of attributes referred to as teamwork (interpersonal, communication, and group process skills). Especially in virtual teams, it is imperative to consider an additional set of attributes focusing on the unique abilities necessary to perform in a virtual team environment. Figure 4 shows the relationship among these three sets of KSAs that are vital when selecting virtual team leaders and members. (Blackburn et al., 2003) A detailed description regarding specific KSAs is provided in the chapter Team Composition.

According to Hollenbeck and colleagues (2012), different types of teams are distinguished based on the characteristics of skill differentiation, temporal stability, and authority differentiation. Team design represents organizational actions like creating, sizing, and structuring a virtual team as well as the assignment of purpose or tasks and objectives (Bell & Kozlowski, 2002; Hoch & Kozlowski, 2014).
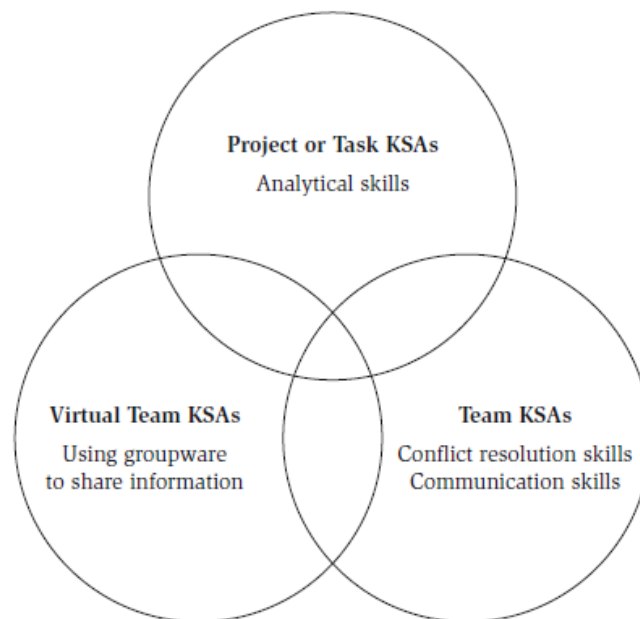

Figure 4: KSAs for Projects and Tasks, Teams, and Virtual Teams (Blackburn et al., 2003, p.104)

Skill Differentiation

According to Hollenbeck and colleagues (2012), skill differentiation means *"the degree to which members have specialized knowledge or functional capacities that make it more or less difficult to substitute members"* (p.84). Thus, when forming a team, it is important to look for a qualitative difference in member skills. However, differences in knowledge and perspective due to educational background, training, or work experience present challenges to effective coordination which may increase task conflict within a team (Jehn et al., 1999). In virtual teams, those challenges may be even more problematic due to the barriers that come with technology-based communication. Although it is less of a concern, even in homogenous teams (low skill differentiation) where the semantic information distance is smaller, an asynchronous exchange may lead to communication pitfalls. These derived problems in teams with a high degree of both, virtuality and skill differentiation, may negatively affect a broad range of team outcomes (Schaubroeck & Yu, 2017).

Temporal Stability

Hollenbeck and colleagues (2012) defined temporal stability as *"the degree to which team members have a history of working together in the past and an expectation of working together in the future"* (p. 84). Teams that have worked together for a certain amount of time in the past have developed norms and familiarities among the members. The benefit of these shared norms is that the group knows how tasks are completed (Hackman & Katz, 2010). Members of highly virtual teams often have very limited personal knowledge of other team members because they did not operate collaboratively in the past. Therefore, such teams must spend time building trust, establishing group norms and structures, and developing mental models for effective team functioning (Maruping & Agarwal, 2004).

Teams that expect to remain intact in the future are more motivated to invest their time into developing high collective efficacy and other rich team states important for team adaptation and performance (Kozlowski & Bell, 2013). Furthermore, stability in team membership fosters identification with the team and psychological linkages among team members (Fiol & O'Conner, 2005) as well as member satisfaction and willingness to invest time and effort in order to achieve collective goals and satisfy needs (Wiesenfeld et al., 2001).

Teams low in temporal stability could benefit from virtual mediums (e.g., emails) that allow simultaneous communication with more than one party. Without spending more effort or time, team members could communicate all information useful to the group. However, members tend to hide unique information within the group and only share information that is already shared among members (Lam & Schaubroeck, 2000; Lu et al., 2012). In sum, a higher degree

of virtuality within a team is more beneficial for teams that are also high in temporal stability in terms of performance, adaptation, innovation, and learning as well as member satisfaction and identification (Schaubroeck & Yu, 2017).

Authority Differentiation

Authority differentiation is defined as *"the degree to which decision-making responsibility is vested in individual members, subgroups of the team, or the collective as a whole"* (Hollenbeck et al., 2012, p.84). The decision-making process in teams with high authority differentiation is more centralized, whereas teams that measure low authority differentiation have a more decentralized decision-making process.

High task interdependence and role differentiation denote the task allocation structure according to Hollenbeck and colleagues (2011). Functional task allocation structures have highly specialized roles, whereas divisional task allocation structures have broad roles for all team members. Teams with a centralized decision-making process and a functional structure are considered tightly coupled. Such teams promote efficiency, depth of knowledge, performance quantity, and implicit coordination. A team that is low in authority differentiation is considered to be loosely coupled and promotes adaptability, breadth of knowledge, performance quality, flexibility, and personal responsibility. (Hollenbeck et al., 2011)

If huge amounts of information need to be processed, divisional teams with low authority differentiation (low-structured teams) can be very successful (Orton & Weick, 1990) whereas highly structured teams are needed when team information processing requirements are low (Steiner, 1972).

In sum, high authority differentiation is more favorable in teams with members that are not highly skilled. Team efficiency and performance will be facilitated by technology-mediated communication because huge amounts of information can be communicated fast and easily to the whole team. Thus, authority differentiation will assist teams with a high degree of virtuality in terms of productivity and efficiency. (Schaubroeck & Yu, 2017)

2.2.1.2. Reward System

Reward systems are a powerful determinant of reaching a strategic goal by influencing the effectiveness of the organization. Organizations can utilize values and norms by choosing a reward system: (1) Above-average compensation attracts potential applicants, while strategic payments such as collective (shared responsibility) or individual rewards (individual responsibilities) retain employees depending on their preferences in their work setting. (2) If certain skills are required to reach a strategic goal, the skill-related payment strategy might be

implemented. In this regard, organizations can regulate the skills employees will acquire. Job-based compensation, on the other hand, is based on external motivation as the motivation to improve skills is paired with acquiring a position of higher payment. (3) *"Reward systems can influence the degree to which employees view a company as a human resource-oriented culture, an entrepreneurial culture, an innovative culture, a competence-based culture, a team-based culture, an entitlement-based culture, a participative culture. Reward systems shape culture precisely because they have such an important effect on employees' skills, motivation, satisfaction, and sense of what is important to the organization. The behaviors they promote become the dominant patterns of behavior in the organization and influence employees' perception and beliefs about what the company stands for, believes in, and values."* (Lawler, 2003, p.124) (4) Thereby, payment will reinforce the organizational structure as it determines not only the status of individuals but whether employees cooperate or compete with one another. (Lawler, 2003)

The reward system in organizations needs to be adapted to the operating system and characteristics of virtual teams. Promoting individual performance does not suit team-based work settings, as in the case of virtual teams. Even the suggestions of paying team members according to individual performance might result in incorrect reports, competition, and conflicts. Therefore, virtual teams require payment strategies that estimate team behavior. To design appropriate reward systems for each team or organization, Lawler (2003) developed two decision steps: first organizations need to establish base pay followed by regulating performance pay.

Regarding base pay, the skill-based payment strategy is most suitable. In practical terms, this would entail rewarding experts with relevant skills with means to encourage additional team members to acquire such skills. In a virtual setting, such expertise might be cross-cultural skills, technological knowledge, teamwork, business knowledge, or management skills. The pay-per-skill-learned system or pay-per-skill often leads to higher pay levels by increasing the pay rate after each time training or a knowledge package is accomplished. It is also possible to divide the increase in pay rate into three stages. Thereby individuals can progress from entry-level to fully skilled employees, to experts. A proactive response to a dynamic environment is suggested for organizations that aim for high-performance virtual teams and constant improvement of skills. Despite the higher pay rate for individuals, organizations would benefit from the advantages that come with it. Skill-based pay attracts highly skilled applicants and people with a focus on self-development. Compared to job-based payment strategies, skill- and knowledge-based payment motivates individuals and teams to develop their knowledge,

which impacts their performance. This in turn creates not only a highly qualified workforce but a culture of continuous self-development at the company.

Performance-based pay ties directly to performance, as its name implies. To this effect decisions regarding measuring performance, the form of reward, and frequency must be taken. Most importantly organizations must determine key performance indicators and the behavior they aim to reward. It is recommended that organizations reward collective instead of individual performance to promote effectiveness as a team instead of individual effectiveness. (Lawler, 2003) Shared performance and financial rewards promote mutual support and performance (Wageman, 1995). Collective performance bonuses are of particular relevance if tasks are highly interdependent as the tasks are so strongly entangled that the individual performances merge with each other. (Lawler, 2003)

2.2.1.3.   Information & Communication Technology

This chapter helps the reader to understand the role of information and communication technology. In the course of that, the moderator for selecting the appropriate technology is explained and relevant information and technology systems are introduced.

Information and communication technology is the key enabler for a spatially dispersed team. They facilitate team processes, cooperation, and management of virtual teams. Thus, tech tools are a crucial input factor for virtual team effectiveness. Messaging platforms, video or audio call software, groupware, knowledge management systems, group support systems, supply-chain management systems, and customer relationship systems are among others, potential tools for virtual team processes. Before implementing a novel tech tool, one must refer to the goal and value the technology should support. (Avolio et al., 2001) Given the wide range of commercial products available to support collaboration in virtual teams, it is challenging for practitioners to determine which technologies are most appropriate for their teams (Gibson & Cohen, 2003). Implementing effective tools in a team setting not only impacts structures and processes among the members but also their outcomes. *"The repeated appropriation of information technology generates or transforms social structures, which over time become institutionalized. For example, the use of electronic brainstorming can create a structure for interaction that becomes a culture for promoting innovative ideas."* (Avolio et al., 2001, p.621)

At this point of the thesis, it needs to be emphasized, *"that there is no simple solution, no prescriptive 'If A, then do X.' A prescriptive approach will not work in most cases because the interaction among context, task, and technology issues are complex, and oversimplification can lead teams to make inappropriate choices."* (Riopelle et al., 2002, p.239) Nevertheless,

adjustable best practices depending on the context and tasks of the respective virtual team have been found.

Each team member relies on the context in which he or she is embedded. *"Context defines and determines the local physical infrastructure, that is, the basic utilities like power, telephone, and cable that make possible the communication technologies on which global virtual teams rely. Government policies and regulations, oversight, and economic development priorities determine the capacity, pricing, access, and standards of operation for information technology. Because each country establishes its own set of rules and standards, the variation in standards inevitably means incompatibility from country to country and a hurdle for global virtual teams to overcome."* (Riopelle et al., 2002, p.244) The communication between team members relies heavily on information and communication technology, causing a high level of dependency on technological infrastructure. That varies depending on the context of the individual which can adversely affect the productivity and performance of employees. People might miss significant discussions or decisions at meetings or are unable to articulate an idea or solution to a problem due to the power source. Further, team members might feel increased stress or pressure to accomplish a task when systems work much slower in their region compared to other team members. There may also be instances where software systems only adapt in certain areas and team members, therefore, collaborate with diverse updated versions of the software. Despite the fact that updates of information and communication tools aim for improvement, such releases might reduce effectiveness and performance as routine operations get changed. The same applies to the introduction of new tools with which the team is not yet familiar and mature enough.

Technological preferences are affected by cultural differences concerning technology's role in business and society. Thus, it might be possible that team members do not use communication technologies since local work habits cause a difference in levels of comfort with technology. (For example, the etiquette in discussing disagreements might differ between citizens in different countries.) Besides the challenge of diverse technological preferences, varying holidays in diverse cultures and multiple time zones require convenient technological tools. Due to multiple time zones, organizations must be aware of the *"labor laws and union contracts governing working hours in local contexts and working conditions for overtime pay also need to be reviewed carefully to avoid grievances and noncompliance with bargained agreements."* (Riopelle et al., 2002, p.249) Consequently, globally distributed teams mostly use asynchronous information and communication tools. But even if time zones allow synchronous communication tools, communication systems often only allow a certain capacity of users which makes It problematic for larger teams. In larger virtual teams there is also the challenge

of keeping members engaged and of checking of everyone is on the same page. (Riopelle et al., 2002)

While the technology in use provides means to facilitate seamless group processes, the nature of the task - meaning the moderator complexity and interdependence - should determine the choice of technology. As discussed in the chapter 'Moderators' workflow interdependence, task environment, external coupling, and internal coupling, are the four dimensions of task complexity. While the workflow can vary between pooled/additive, sequential, reciprocal, or intensive structures, the task environment can vary from dynamic to static. As it pertains to the task environment, the more dynamic the environment, the more meticulously the changes need to be monitored and communicated among team members. That, in turn, relates to the attribute of external coupling. External coupling describes the relationship between the task environment and the team, while the internal coupling is characterized by the strength of task interdependence within the team. The degree to which the four dimensions are represented determines the task complexity. (Bell & Kozlowski, 2002)

Low task complexity and few interdependencies in tasks allow team members to operate individually. Asynchronous communications are more prevalent for less complex additive tasks with pooled or even sequential work arrangements that require a minimal exchange. A dynamic environment with highly interdependent tasks calls for the coordinated efforts of team members. Such complex tasks are embedded in either reciprocal or intensive workflows and require ad-hoc communication and collaboration. Hence, the higher the complexity and interdependence of tasks, the greater the need to shift from asynchronous to synchronous communication tools. Synchronous communication tools facilitate fast-paced communication for group decision-making, in-time collaboration, and information richness across team members. When information and communication technologies are tailored to the nature of the task, virtual teams can perform more effectively. (Bell & Kozlowski, 2002) *"It is not enough simply to match the complexity of a task with a particular type of technology. Although this matching is an important first step, the constraints imposed by context need to be considered to choose a suite of virtual technologies that will create conditions for effective virtual teams."* (Riopelle et al., 2002, p.262)

A virtual team's information and communication technology in use must be aligned with its collaborative structure. Therefore, virtual teams require tools with a collaboration system and a knowledge-management system. Collaboration systems – also referred to as groupware - are technological tools that facilitate exchange between team members (e. g. email, chatrooms, video, and audio conferences, etc.). Knowledge-management systems also called knowledge repositories aim to preserve information and knowledge within the organization. Team members need an information system that stores knowledge and information. That can

also be provided to future team members. The system supports organizational memory and is therefore a key enabler of knowledge retention and access. Organizations often use their intranet to offer both the capability to collaborate and communicate with colleagues, as well as to share knowledge. (Raven, 2003)

Group Support Systems are interactive information systems that structure and track the operations of a team and offer a space for information exchange and joint decisions. Additionally, tools that provide an anonymous evaluation eliminate social pressure to voice concerns. This example illustrates a particular consideration in the selection of software systems. Information and communication technology must match both the structural and spiritual features of the team. Thus, the structural feature of anonymous communication promotes the spiritual feature of subtracting social pressure in communicating concerns. In other words, managers need to ask themselves what the intention is in implementing the tool and whether the features will achieve it. (Avolio et al., 2001)

2.2.1.4. Training

Leaders of virtual teams not only require the skills of team leaders of collocated teams but they need to manage task coordination of globally distributed team members. Team members of virtual teams often live across time zones, speak different languages, and are raised in diverse cultures. Thus, leaders must attract the commitment of each team member by achieving a common goal under established team norms and values. Team leaders must consciously establish norms that promote a collaborative work environment and knowledge sharing. (Malhotra et al., 2007) Communication via electronic means significantly changes key attributes and skills the team lead must apply. While the virtual setting requires leaders with increased team awareness, the moderator itself challenges that. Besides stimulating emotional intelligence, Zaccaro and Bader (2003) consider *"team management, particularly communication, conflict management, and administrative skills"* of particular importance and *"argue that future leader training and development efforts need to focus more specifically on addressing the unique challenges of e-leadership, and use training design tools that actively reflect these challenges."* (p.387) The shift in focus is key in enabling team leaders to face the complexity and the specific challenges in the virtual management of dispersed and cross-cultural team members. (Zaccaro & Bader, 2003)

Training modules for leaders should start with management basics such as logistics for virtual meetings (especially if members are located in different time zones) and fitting digital communication tools and the digital workspace to the team's needs. Further modules should provide insights into how to manage relations and contributing roles, along with how to

communicate expectations. In addition, they should provide insights into how to measure and reward expectations to achieve the required team behavior. (Rosen et al., 2006)

To develop the employees' full potential, team members need to be provided with suitable training that enables them to operate in a virtual team setting. This comes along with advances in technology and foreign cultures. Team processes mediated by technology expect team members to operate with a variety of media tools. The more familiar individuals are with the tool, the higher the usage. Hence, to reduce task or relationship conflicts, triggered by communication issues, members should be trained in how to use the features of technical tools to the fullest. Coaching is especially necessary if software packages for remote team settings are implemented in the workflow. (Holtbrügge et al., 2011) Additionally, for technological training, a team process or workflow training session ensures to secure the dynamics despite virtuality (Rosen et al., 2006). Despite technological advances and team processes, web-based training modules should raise awareness of challenges and build trust and relationships within a team. Collective group training is an opportunity to share experiences, challenges, and solutions in a discussion. Specifically, team-building modules can identify or reduce conflicts within the team and are reflected in the team's performance (Dinh et al., 2021). Learning from these experiences is transferrable to the everyday work environment and forms the basis for close cooperation and team efficiency. With regard to collectivity and collaboration, it is a necessity to emphasize multicultural teams. In the case of cross-cultural teams, it is indispensable to create consciousness and sensitivity regarding different cultural norms, values, and religions. To ensure communication, linguistic barriers must be mitigated and distinctions in communication habits emphasized. (Blackburn et al., 2003) To prevent intercultural misunderstandings and to reduce intercultural distance within the team didactic intercultural training in a virtual interactive setting would be the most efficient (Holtbrügge et al., 2011). In short, team members should be trained to the same level in terms of technology, team processes, and cultural skills to act competently in the virtual workflow. To retain employees in the company for the long term, personal, and professional development opportunities must be offered through training. The company should also support the physical and mental health of its employees. Engaging and encouraging employees to develop their skills in their profession in the course of a career as well as for personal growth makes the organization appear trustworthy. (Newman & Ford, 2021) After listing the relevant training opportunities for employees, it is necessary to mention that companies must balance the workload of their staff. In the dynamic virtual environment, high performance is expected in addition to training, establishing strong ties within the team, and increasing responsibility.

2.2.2. Team Leadership

Since leadership is a key factor in the virtual setting, this chapter aims to discuss relevant input factors of the leadership level. The leadership skills of virtual teams go beyond the expertise of co-located teams as they have to facilitate team processes, build relationships, and coordinate a team virtually. Additionally, there are new challenges that arise from the virtual setting. (Bell & Kozlowski, 2002) The four subchapters - virtual team management skills, transformational leadership, leader-member exchange, and empowerment - offer the reader insights into their significance in a virtual team setting. Connections between the input factors of the leadership level, the team processes, the specific outcomes of the framework, and the impact of specific moderators are explained.

2.2.2.1. Virtual Team Management Skills

The moderator virtuality requires leaders to develop and adapt leadership skills. *"These include leaders having additional communication skills, depth of understanding in collaborative technology, ability to influence and facilitate team member engagement, an appreciation for cultural diversity, and an ability to influence and build trust and relationships with their geographical dispersed team members."* (Dulebohn & Hoch, 2017, p. 570) Teams with a high degree of virtuality not only have to overcome the challenge of communicating electronically with locally dispersed team members but these teams also face barriers due to the different backgrounds of the team members as well as barriers due to time-delayed or project-based collaboration (Krämer & Deeg, 2008). In teams with a low degree of virtuality intense communication, coordination and cooperation can form useful procedures and rules, especially at the beginning of the collaboration, whereas teams with higher virtuality have only limited access to these opportunities. Developing management mechanisms is particularly relevant in high-virtual teams. A low virtual team can compensate for the management mechanisms with easier and more direct interaction as well as with lower heterogeneous team members. (Hertel & Scholl, 2006) In high virtual teams, successful team processes without a high degree of management practices are not expected, at least at the beginning of the collaboration (Espinosa et al., 2004). Therefore, virtuality takes on the role of a moderator for the relationship between management and team processes. Here, there should be a strong relationship with higher virtuality (Krämer & Deeg, 2008).

Virtual teams can be managed using explicit as well as implicit management mechanisms that support group processes. Explicit management mechanisms include verbalized agreements, written regulations, standardized procedures, and fixed processes as objective, visible means of management. Implicit mechanisms are unwritten rules, unofficial values, and norms as well as common perceptions (Krämer & Deeg, 2008).

Structured management is one part of the explicit mechanism. In order to improve coordination, process management is designed based on a jointly agreed reference process. Through systematic management of information and communication along a reference process, communication needs to be enhanced. To support cooperation in addition to process management, a set of rules and agreements for collaboration should contribute to the development of team norms. (Graham, 2003) These structural management mechanisms should improve all team processes as they show certain conceptual as well as empirical overlaps (Kozlowski & Bell, 2003).

The other part is interactive management. Virtual leadership, or e-leadership, is a situationally adapted leadership concept that promises to improve communication, cooperation, and coordination in team processes (Avolio et al., 2001). For implicit management, team cognition and team affect play an imperative role (Ilgen, et al., 2005; Marks et al., 2001). Collaboration leads to the development of team cognition. Team members establish a common understanding of (1) the technique and the tools they use, (2) the tasks, (3) the strengths and weaknesses of the team members, and (4) the appropriate behavior in the group (Cannon-Bowers et al., 1993). Mutual understanding is often referred to as the four shared mental models' leaders should be capable of creating and influencing. Developing shared mental models across the team facilitates the exchange of knowledge and enhances interactivity to improve the team's effectiveness. (Mathieu et al., 2000) The interaction and processes within the teams improve when such common expectations or mental models are built because many things are coordinated in an unspoken way. In addition, information is communicated before requested and tasks are done in a way that substantially supports other team members (Klimoski & Mohammed, 1994; Mathieu et al., 2000).

If there is a change in norms or expectations these must be implemented explicitly. Sharing and communicating formal as well as informal norms is especially critical for newcomers as they are not able to observe them as easily (like in a co-working space). One way to outline a possible solution is for leaders to implement a buddy program for casual meetings between coworkers during the onboarding process. Sharing insights (regarding informal and formal norms) in those meetings create a basis of trust. (Dinh et al., 2021)

Team affect on the other hand describes feelings that team members have for each other as well as for the team as a whole. Trust plays an instrumental role in virtual teams because due to the local separation it is difficult for a single team member to control if others also adhere to the agreements reached (Jarvenpaa & Leidner, 1999). Without physical proximity, minor informal conversations and other verbal, and nonverbal interactions change. Employees in virtual settings communicate via texts, video, or audio calls. The written form of communication often leads to misunderstandings due to the absence of emotions. The decrease in

communication quality directly affects the team member's sense of inclusion, connectedness, and trust. The feeling of connectedness and trust between colleagues contributes to an individual's overall well-being, resulting in open communication and improving members' reliability, engagement, and cooperation. In turn, engagement and performance increase not only on the individual level but also on the team level. (Dinh et al., 2021) Team processes are supported if such trust is given within the team because the information is communicated more openly, the tasks of other team members have to be controlled less, and support is granted more willingly (Kasper-Fuehrer & Ashkanasy, 2001). Hence trust in team performance and team effectiveness is promoted (Dinh et al., 2021).

It is the team leader's responsibility to initiate leadership practices and team processes that strengthen the trust within the team. Since these practices result in synergy, they reinforce themselves. Leaders need to be aware that the trust-promoting practices of virtual teams are distinct from face-to-face teams. The virtual setting requires the establishment of explicit communication norms. These communication norms refer to implicit and explicit management and shared mental models. Explicit communication norms aim to generate a shared understanding of how and with which technical tool a certain type of information is shared. Constant availability could cause a missing workflow and information overload for the individual. As a solution, a schedule regarding when to share this information creates time slots for high concentration and helps to coordinate work. This further includes a norm that respects the availability time of team members as they might be located in different time zones. (Dinh et al., 2021) Thus, leaders must establish norms that outline a collective set of procedures regarding the usage of communication tools and the timing of the knowledge repository. Regarding the process of projects and tasks, it is suggested that leaders *"make progress explicit through balanced scorecard measurements posted in the team's virtual workspace"* (Malhotra et al., 2007, p.62) to ensure transparency. Effective communication such as clear role and task responsibilities, coordination, and updated status of improvements, can proactively counter task conflicts or relationship conflicts. The prevention of task or relationship conflicts is essential for leaders to be empowered to influence team effectiveness. (Chen et al., 2007)

Even the meeting setup varies according to the mediator's 'virtuality'. Fully virtual teams' video or audio meetings are not only used for coordination but also a critical tool for creative discussions and motivation boosts. Thus, virtual team leaders can reinforce team commitment, cohesion, and engagement during such meetings. Virtual team leaders are aware that maintaining the attention of employees during such meetings is a challenging task. To fully utilize the potential of online meetings, the event lifecycle was developed. It is a tool for remote

leaders to plan meetings. The illustrated lifecycle is structured in five phases, each containing practices for the team leader to apply. (Malhotra et al., 2007)
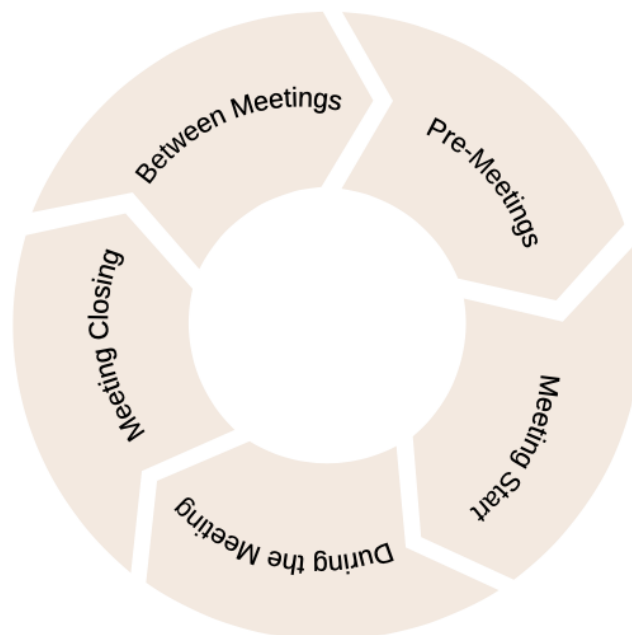
Figure 5: Virtual Team Meeting Lifecycle
Source: Authors adapted from Malhotra and colleagues (2007)

(1) Planning virtual meetings and sending out an outlined agenda is even more imperative than in a face-to-face setting. Individual statements about the progress in project timelines and electronic discussion threads before larger meetings are critical in estimating the status quo. Summarizing those discussions and specifically focusing on the controversial points during the actual meeting can further enhance the value of each meeting. (2) Since the communication topics of virtual team members often exclusively relate to work, it is suggested to start meetings on a personal level. The start of audio or video meetings should provide the opportunity to connect team members by sharing insights about their week, hobbies, etc. An excellent way to increase one's visibility is to recognize outstanding contributions from the team or members with a specific gesture. This could be a virtual ceremony or recognizing their latest achievements at the beginning of meetings. (Zaccaro & Bader, 2003) (3) Maintaining the attention of participants is as critical as challenging in a remote setting. Employees' engagement can be enhanced through messages or voting tools during a meeting. (4) To strengthen the commitment of the employees, it is necessary to end team meetings with tasks and responsibility allocation. The respective assignment and area of responsibility should be noted in the team repository. It is also suggested to post the so-called minutes of each meeting. It should contain only the results and can be taken by the whole team at the end of a meeting or in a shared workspace by an individual. (5) Between team meetings individuals might feel

isolated in the work setting. To counteract a decrease in team cohesion implementing techniques such as discussion threads, sharing positive news, or requests to discuss problems can be implemented to maintain team engagement.

Any stage of the event life cycle allows team leaders to reinforce the common mission, to strengthen team cohesion and commitment. Implementing suitable tools at each stage allows the team to leverage the knowledge and expertise of each member. The team lead can detect synchronous communication during virtual meetings and instant messages, while asynchronous communication can be observed through electronic discussion threads. Underutilization of communication tools or 'virtual silence' by team members can arise from different origins. It can be a sign of acquiescence, concentration, inattention, or refusal. Leaders monitor the use of communication tools and the team repository to locate the source of underperformance and investigate it immediately. However, evolving technology and new innovative tools might also be the reason for a change in usage. As the team develops it also needs to implement updated communication tools. It is helpful for leaders to adapt the usage of technology to the team's needs, discard unsuitable technology, and be open to implementing new tools as the team develops. (Malhotra et al., 2007)

Concluding, leaders of virtual teams can achieve team effectiveness by developing skills to enhance team cohesion. They can also nurture mutual trust, utilize a shared mental model, and implement norms that facilitate information sharing. Additionally, leaders must moderate internal conflicts to ensure team integration and coordination. (Zaccaro & Bader, 2003)

2.2.2.2. Transformational Leadership

Transformational leadership behavior aims to inspire and motivate team members to channel their performance beyond expectations. In its ideal form, leaders create positive change in each team member by creating a collective identity, aligning the individual goals with the organizational objectives, and creating awareness of the team's importance. Transformational leadership consists of four dimensions, also called the four "I"s of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration behaviors.

1. Idealized influence refers to charisma and advances leaders to inspire team members by communicating beliefs and clarifying the purpose of the team.
2. Inspirational motivation creates a sense of purpose that drives the engagement of the team. Acting as a role model, and optimistic communication of a shared vision and the future will inspire and motivate employees to work towards them.

3. Intellectual stimulation is triggered by encouraging team members to rethink assumptions and traditional beliefs. Team members should challenge ideas and look at them from different perspectives to find novel solutions.

4. Individually considerate leaders recognize the needs of each team member and respond to them individually. Support, open communication, and recognition will guide team members to self-development and contribution.

It is shown that successful implementation of the listed dimensions is an indicator of leadership effectiveness which is reflected in high motivation, satisfaction, and performance of team members. (Bass, 1985)

Yukl (1999) distinguishes between transformational behaviors at the group and the dyadic level. Transformational behavior at the dyadic level is characterized by empowering, inspiring, and coaching individuals to develop and actively contribute to the team's goal. At the group level, the goal of leadership behavior is to develop a group identity with a common goal. In addition, it facilitates structures that enable the establishment of trust within the team.

On the individual level, transformative leadership's motivational effects positively influence the follower's self-concordance and self-concept. In this context, self-concordance refers to the consistency of one's values or interests with work-related tasks or aims while self-concept signifies whom someone identifies as. Transformational leaders can initiate that by facilitating social identification within a team and valuing internalization. In turn, a higher self-concordance in work goals further leads to an increase in job satisfaction and organizational commitment on the individual level. These perceptions and the increased satisfaction and commitment level induce employees to perform better and provide mutual assistance. (Bono & Judge, 2003) Avolio and colleagues (2001) argue that transformative leaders providing structures of inspirational motivation, intellectual stimulation, and individual consideration generate a higher level of trust within the team. To develop trust, the skills that colleagues bring to the team must be respected. Through individual consideration, for example by highlighting the value of specific skills from each team member, leaders can mitigate the barrier and build the foundation for benevolence and trust. This can be fostered by intellectual stimulation practices such as information exchange or discussions where individuals can contribute while demonstrating their expertise. Inspirational motivation creates positive emotions which *"lead to positive perceptions that team members develop about others' ability, benevolence, and integrity, resulting in a heightened experience of trust in one's team members."* (Avolio et al., 2001, p.654)

Further mechanisms of transformative leadership impact the 'performance' and 'effectiveness' of a team. Inspirational motivation, intellectual stimulation, and individualized consideration are associated with a boost in the team's self-confidence and subsequently in its

performance. (Avolio et al., 2001) These behaviors further positively correlate to the second listed team-level outcome in the IPO model: perceived group effectiveness. The specific mechanism for efficacy can be traced back to the sense of being empowered. Empowerment as a leadership input factor is described in detail in a separate chapter below. (Jung & Sosik, 2002)

It is discussed that moderators such as a dynamic and uncertain environment might moderate the effect of transformational leadership behavior. As the virtual setting is characterized as a highly uncertain environment, the moderating impact of virtuality on the relationship between transformational leadership behavior and team performance was tested. The graphic below illustrates the correlation between the variables for both virtual and face-to-face teams.
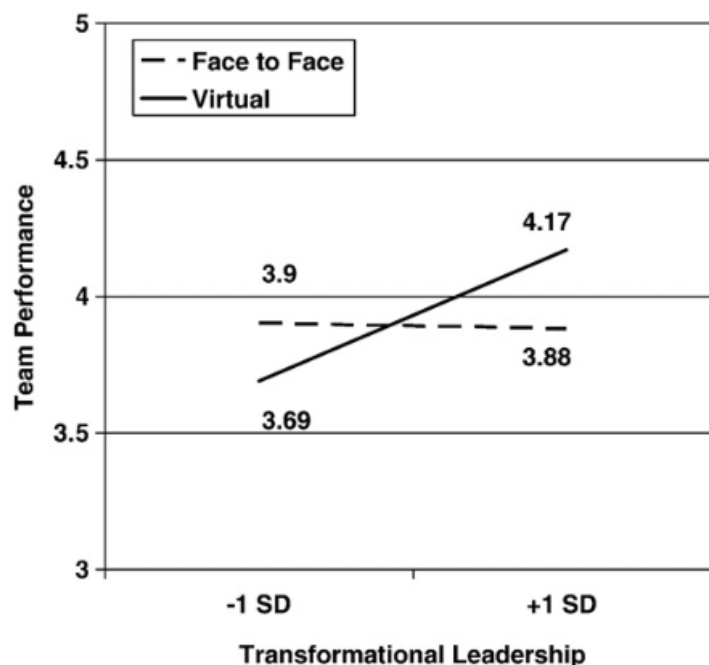
Figure 6: Moderating effect of virtuality between transformational leadership and team performance (Purvanova & Bono, 2009, p.350)

It can be inferred that transformative leadership behavior positively influences team performance in a virtual team setting. Based on the results of this study, adaptive leadership practices are suggested, as transformational leadership behavior has a positive correlation with the performance of virtual teams based on the changes in the moderator 'virtuality'. In other words, as uncertainty increases due to virtuality, transformative leadership behavior achieves higher team performance compared to face-to-face teams. Subsequently, the results suggest adaptive leadership practices based on the environmental team setting. (Purvanova & Bono, 2009) The research of Avolio and colleagues (2001) support this and argue that leaders can counter the challenge of virtual communication by adapting the technology in use

to create structure, a social context, and predictability. Purvanova and Bono (2009) emphasize the importance of transformational leadership behavior in virtually communicating teams and refer to the following three key mechanisms of how transformative leadership behavior counters challenges of the moderator virtuality: Firstly, the impersonal environment in a virtual communication setting can be actively avoided through individualized consideration which makes individuals feel appreciated. Secondly, the impacts of virtual communication constraints on team cohesion can be secured by collective ideals and goals which create a team identity. Thirdly, virtuality makes it difficult for members to conceive the purpose of their job. Hence, motivation mechanisms need to be implemented to counter social loafing.

Besides the transformational leadership's impact on team performance, the individual project satisfaction for face-to-face and virtual teams was estimated. Even though perceived transformational leadership behavior does not influence face-to-face teams' performance, project satisfaction on the individual level increases for both virtual as well as for traditional teams. Regardless of the characteristics of the virtuality moderator team members with transformational leaders develop higher project satisfaction on the individual level. (Purvanova & Bono, 2009)

2.2.2.3. Leader-Member Exchange

Leader-member exchange, or LMX for short, signifies the quality of the relationship between the team leader and team members and consists of the dimensions: mutual affection, loyalty contribution, and professional respect. (Liden & Maslyn, 1998) The LMX relationship is a differential relationship between leaders and each team member. To measure the quality of the dyadic leader-member relationship, the interaction between the leader and each team member is in focus. (Graen & Uhl-Bien, 1995) Before getting into detail regarding the outcomes of LMX relationships, potential antecedents on the leadership level will be discussed.

Based on the power difference within the dyadic relationship, the team lead is dominant in its development. To foster the relationship, one-on-one conversations, and active listening regarding issues and how sentences are formulated are crucial starting points. Discussions regarding expectations and concerns from the different perspectives of both parties can create an understanding of both parties and a reciprocal relationship. (Graen et al., 1982) Nevertheless, to achieve high-quality LMX, leaders need to build relationships that transcend contractual agreements by coaching or mentoring members and developing communication rituals or patterns that differ between team members. Especially, transformational leadership behaviors are ideal to develop a strong LMX relationship. It is found that these behaviors positively correlate with the quality of the LMX. Hence, highly

transformational leaders form stronger LMX connections. An additional antecedent of LMX on the leadership level shows that leaders with great access to resources such as information, a diverse network, or tools can form high LMX relationships. (Henderson et al., 2009)

Subsequently, the leader's success in the quality of LMX determines outcomes on the individual and team levels: job satisfaction and commitment. (Dulebohn et al., 2012) However, leaders must be sensitive to the extent of the diverse qualities in each dyadic relationship. LMX differentiation among team members gets evaluated by subordinates based on fairness. The outcomes of job satisfaction and commitment vary accordingly. High LMX differentiation might lead to team internal conflicts, along with decreased job satisfaction and commitment if considered unfair. (Henderson et al., 2009)

2.2.2.4. Empowerment

Empowerment is a predictor of strong individual and team performance. Given that high levels of social interaction between leaders and members contribute to an ensured feeling of empowerment at the personal level, high-quality LMX predicts individual effectiveness and performance. Accordingly, positive individual performance improves overall performance at the group level. By completing meaningful tasks, subordinates will develop a drive to succeed because they feel capable and autonomous. (Chen et al., 2007) That drive and its predictor for performance is significant when a team of experts accomplishes tasks under uncertainty (as in virtual settings). (Faraj & Sambamurthy, 2006)

Increased access to information, responsibility, and autonomy will empower subordinates. The empowerment process also involves intrinsic motivation and enhanced self-efficacy beliefs. These behaviors and characteristics refer back to transformational leadership. Shared team identity, commitment to collective goals, and clear communication regarding the task outcome empower team members. By committing to a shared set of values and goals, leaders can trust that their team members want to accomplish these goals if they are empowered to do so. This results in collective confidence that positively impacts group performance. To enable leaders in developing high-performance and effective teams, they need to be trained in how to motivate individuals for a collective goal, how to create collective confidence within a group, and how to design a team-oriented work environment. (Jung & Sosik, 2002)

2.2.3. Team Composition

Ferrazzi (2014) argued that hiring (but also developing) people that fit into virtual teams should be the very first step when building an effective virtual team. Thus, the selection of virtual team leaders and members should be a key part of an organization's strategy. When assembling a virtual team, it is important to prioritize factors like surface-level diversity and deep-level

diversity as well as knowledge, skills, and abilities. Knowledge deals with the theoretical and practical background while skills refer to proficiencies learned through experience and training like communication skills. Being able to perform observable tasks is what is meant by abilities (Marlow et al., 2017).

The moderator task complexity and task interdependence affect the team design and composition regarding the boundaries of space and time. As tasks reach a higher level of complexity, teams need to operate dynamically and thus communicate in present. Complex and interdependent workflow arrangements dictate the need for virtual teams that are not distributed in time. In contrast, additive workflow arrangements require minimal interactive collaboration, enabling effective workflow for team members who are distributed in time. (Bell & Kozlowski, 2002)

On the one hand, workgroups with a higher degree of diversity offer different opinions and perspectives as well as a broader range of KSAs. The larger pool of resources may help complete nonroutine tasks and lead to more creative and innovative team performance. On the other hand, diverse work groups face challenges like ineffective communication and a lack of shared understanding. To deal with such challenges team openness is required in order to create a more inclusive team climate in which diversity is desired. (Hoch & Dulebohn, 2013) These unique compositions of individual differences influence both the team processes as well as the outcomes (Kozlowski & Bell, 2003).

Only when having the right degree of diversity within a team while also having a team and its members with the right KSAs is it possible to perform at the highest level. (Van Knippenberg & Schippers, 2007).

2.2.3.1. Surface Level Diversity

Surface level diversity describes demographic differences among team members. The characteristics that are visible, observable, and measurable include sex, age, and race/ethnicity (Harrison et al., 1998). They may evoke individual biases and stereotypes based on which people tend to define and differentiate themselves from others (Fiske & Neuberg, 1990). This is important because people want to be with others that seem to have the same or at least similar characteristics they have because they anticipate maintaining their own values, attitudes, and beliefs (on a deep level). If other team members are perceived to be much different fewer social attachments will be formed, possibly resulting in a less positive attitude toward them. (Harrison et al., 2002) Therefore, differences in age as well as sex influence the functioning of an individual within a team negatively in the forms of social isolation (Kirchmeyer, 1995) and reduced cohesion (O'Reilly et al., 1989).

2.2.3.2.   Deep Level Diversity

Deep-level diversity is defined as differences among team members in psychological characteristics that include personality traits (Barsade et al., 2000) and values (Jehn et al., 1997), as well as attitudes, preferences, and beliefs (Harrison et al., 1998). Patterns of thoughts, feelings, and behavior are included in personality traits while values reflect the appreciation of diversity and others that the organization deems are relevant.

Interactions within a team reveal individual differences over time. During the exchange of personal information, verbal, and nonverbal signals as well as behavior patterns form a shared identity (Harrison et al., 2002). As mentioned above, people are attracted to those who have similar psychological traits, even if those traits are negative, like hating something (Locke & Horowitz, 1990). As time passes, the effects of surface-level diversity on team outcomes get weaker while the effects of deep-level diversity get stronger with increasing collaboration (Harrison et al., 2002).

However, team diversity can lead to high levels of performance only if communication quality is high because integrating and understanding each other provides value. If low-quality communication occurs, the team may struggle to coordinate and communicate (Marlow et al., 2017). That is why we need certain KSAs to work effectively in a virtual team setting.

2.2.3.3.   Knowledge, Skills & Abilities

When virtual team members around the globe have the right knowledge skills and expertise to exchange information through expanded social networks, they can increase an organization's efficiency and effectiveness (Wellman et al., 1996). Some of the KSAs are similar to those needed to perform well in face-to-face teams. The following sections elaborate on the KSAs required to perform effectively in virtual teams from an individual and team perspective. Kozlowski and Klein (2000) argued that team processes depend on individual characteristics and dynamic social interactions. Of course, leaders of virtual teams need a specific skillset too but leadership is so important that it is treated as a separate input factor on its own.

Individual

Members of virtual teams need to develop and master a certain repertoire of KSAs in order to cope with the unique challenges of operating virtually. Ferrazi (2014) found some similarities between successful virtual team players. These similarities include KSAs like effective communication skills, high emotional intelligence, ability to work independently, resilience, as well as being aware, and sensitive to other cultures. Contrary to face-to-face teams, a virtual

team, due to colleagues possibly located in different time zones, works. Therefore, much work can be done simultaneously as well as sequentially with the leader not always available.

In order to be successful without managerial intervention, proactivity, self-regulation, as well as time management, are required by each individual. This includes setting personal agendas, motivating and managing themselves, and interacting proactively or becoming their own leader. According to Bateman and Crant (1993), key proactivity skills are seeking out relevant information, initiatively contacting other team members, and overcoming time and distance difficulties all without the help of a manager or leader. Other critical KSAs are communication, cultural awareness, sensitivity, and trust. For these KSAs, the degree of diversity plays a huge role in shared understanding. A lot about communication has already been said in the team processes section of this thesis. However, this section refers to the skill of selecting the appropriate communications media. Responsiveness and dependability build the basis for virtual teams in order to create trust. Maintaining trust requires active, frequent participation, as well as a commitment to the team's mission. (Blackburn, et al., 2003)

To sum it up, the successful virtual team member is a master in self-management, able to select the appropriate medium for virtual communication, communicates sensitively across cultures, builds trust, and is competent in using updated information technologies that foster team collaboration.

Team

Gibson and Gibbs (2006) argued that there is no guaranteed formula to success when people with the required KSAs are being brought together. At the team level, KSAs that allow capitalizing fully on the KSAs of the individual team members must be developed. This can be achieved through team-building exercises. A virtual team can perform better than the sum of its individual members' performances when mastering KSAs around group processes and decision-making that develop synergy. (Blackburn, et al., 2003)

The essential team-level KSAs include setting and agreeing on goals and roles. Establishing timetables, assigning responsibilities and accountabilities to individuals, and agreeing on a mission, milestones, and deliverables will minimize potential misunderstandings and conflicts. In addition, KSAs are necessary to eliminate those conflicts. In virtual teams, one reason for conflicts is that there is a high potential for members to free ride. Conflict resolution competencies can be built with training programs to prevent team members from cutting communication, disappearing, or not keeping their commitments in advance. Another key KSA is the establishment of a set of norms and a code of conduct. This should serve as a guideline for team interaction. Response times document archiving, and task priorities are set to help

team members collaborate and communicate effectively. Moreover, virtual teams need to not only focus on tasks but also on relationship building. Social bonds are necessary for the creativity and satisfaction of the team as well as for team learning. Positive relationships within the team foster a collaborative work climate in which members are willing to support each other and are more responsive (Al-Ani et al., 2011; Hill & Bartol, 2016). The right balancing between task and relationship KSAs leads to the next KSA of team learning. The vast pool of knowledge and expertise must be shared within the team and organization. This is to learn from each other, provide feedback and build on the work of others. (Blackburn, et al., 2003)

Leader

Leaders of virtual teams must frequently come up with novel ways to enact meaningful KSAs. This includes defining the group's mission, setting high expectations, shaping the culture, coaching, counseling, evaluating performance, and reorganizing achievements. It is very critical that a virtual team leader models the skills and strategies necessary for online collaboration. Serving as a role model, the virtual team leader chooses the right communication media, uses the collaboration software consistently, shares information openly, and adheres to norms. Another challenge for virtual team leaders is to continuously remind team members of their responsibilities. Additionally, they must coach members on how to use the chosen technology and even train them offline on the importance of following their norms. Rewarding outstanding contributors as well as valuing physically isolated team members' contributions on an individual and team level belong to the most significant skills of a successful virtual team leader. (Blackburn, et al., 2003)

2.3. Team Processes

During collaboration on joint tasks, the processes and interactions within the teams are often referred to as levels and interventions. These are supported or inhibited through a variety of different input factors like the team's task, the team composition, and the organization as well as the cultural context (Ilgen et al., 2005; Martins et al., 2004; Stock, 2004). It is only through functioning team processes that human and performance goals are achieved as a result of teamwork. Therefore, behavioral variables should be included in the team processes (Marks et al., 2001). Those behavioral variables are observable activities that change inputs into short- and long-term outputs of teamwork. The three variables of behavioral team interaction that play a role in many models of team effectiveness and are very influential in the literature are

coordination, communication, and cooperation (Högl & Gemünden, 2001; Kozlowski & Bell, 2003; Hertel & Scholl, 2006).

2.3.1. Coordination

Coordination can be understood as an effective way of managing dependencies and working procedures within teams. According to Zalesny and colleagues (1995), there are four essential aspects of coordination:

1. Goals: negotiation of goals through conflicts and their solutions
2. Activities and tasks: assigning tasks to goals
3. Team members: distribution of tasks
4. Dependencies: distribution of resources and timing

Coordination is key for the team's success, especially when there are strong dependencies in processing the team's tasks.

According to Kirkman and Stoverink (2021), a virtual team is resilient if it has the capacity to bounce back from a setback that led to a loss of virtual team processes. Such a setback happens when a virtual team gets disrupted while in action. These action processes include coordinating, monitoring, and backing up behavior. Furthermore, it is imperative to know that collaboration (coordination, communication, and cooperation) between team members makes virtual teams more resilient. Moreover, depending on the type of tasks, team coordination is challenged. Non-routine tasks in which the team has to deal with unprecedented and unpredicted situations demand sufficient time for coordination and communication. Furthermore, role clarity allows the team to coordinate their tasks smoothly and prevent communication problems. Another aspect that enhances team performance is autonomy. Highly autonomous or self-managing teams coordinate responsibilities, make decisions, allocate activities, and prioritize tasks (Klonek & Parker, 2021).

2.3.2. Communication

Communication is typically a variable that supports coordination and cooperation but nevertheless is distinguishable from both. Cannon-Bowers and colleagues (1995) see communication as a process that leads to a clear and precise exchange of information between two or more team members in a predetermined manner with appropriate use of terms. Further, Gibson and Cohen (2003) argued that communication is the main differentiating factor between highly virtual teams and collocated teams in terms of teamwork. Collocated teams can use a combination of communication methods like face-to-face and computer-mediated communication whereas highly virtual teams have to use the latter. However, different but

intertwined aspects of communication need to be discussed separately as this is such a broad construct. The most relevant aspects for achieving targeted outcomes according to the literature are quality, frequency, and content of communication (Marlow et al., 2017).

Frequency

High frequency or volume of team communication refers to how much communication occurs among a team and does not always improve team performance. Especially at the beginning of a team's lifecycle communication frequency plays an important role in team development and functioning. With an increase in interactions between team members, there is an increase in opportunities for team members to enhance collective understanding with contributions (Monge & Contractor, 2003). Moreover, familiar teams are able to perform effectively despite exchanging less information (Espevik et al., 2006). This is because team members understand how to behave and contribute to certain tasks in a way that is compatible with their team and they understand how the team responds to a certain scenario (Cannon-Bowers et al., 1993). However, efficiency decreases when there is high communication frequency within a team that communicates solely via electronic means. It is therefore critical for virtual teams to determine irrelevant communication and decrease it (Desanctis & Monge, 1998). Thus, despite the importance of frequent communication, especially in the beginning, too frequent team communication may hinder team performance in highly virtual teams to a greater extent than in a less virtual team (Marlow et al., 2017).

Quality

Frequency as an inherent aspect of communication cannot be disregarded but communication quality, on the whole, plays a more significant role. It is difficult but crucial to distinguish from communication frequency. González-Romá and Hernández (2014) define communication quality as *"the extent to which communication among team members is clear, effective, complete, fluent and on time"* (p.1046). As mentioned before, the quality of communication, regardless of the quantity, develops shared understanding leading to shared beliefs, team roles, and responsibilities as well as smoother functioning and overall better performance (MacMillan et al., 2004). In order to define high-quality communication, two aspects are used. The first one is communication timeliness, and it includes team members being in different time zones, (Holton, 2001) which can lead to e-mails being received much later than they were sent and can further decrease team functioning. Furthermore, delays in communication or asynchronous communication may cause team members to work on multiple tasks simultaneously while still interacting with the entire team. Attention and focus are split between

activities that have a negative impact on team performance, especially in highly virtual teams (Malhotra et al., 2001).

The second facet is closed-loop communication consisting of three parts according to McIntyre and Salas (1995): (a) a message is sent by a team member, (b) the message is received by another team member, and (c) the one who sent the message makes sure that it was received and understood. Communication steps are crucial in light of the additional challenges virtual teams face. There are technical problems such as delayed audio or incorrectly interpreted messages due to a lack of verbal tone and nonverbal cues (Cramton, 2001). Ensuring that communication is clear, accurate, fluent, and understood will increase the performance of teams (Marlow et al., 2017).

Content

In terms of content, communication generally takes two forms: task-oriented interaction where the completion of a task is the focus of the communication, and relational interaction with a focus on interpersonal nature (Keyton, 1997). Communication with a focus on tasks is necessary to exchange relevant details whereas interpersonal communication can foster cohesion and trust (Gupta & Govindarajan, 2000; Jarvenpaa & Leidner, 1998). However, as with communication frequency, the content of the communication is an inherent feature of communication that needs more consideration in the future.

Another factor for successful teamwork is the handling of information, which is a key challenge, especially for virtual teams (Thompson & Coovert, 2006). Information is produced in inferior quality if produced at all, delayed or incompletely exchanged, and the finding and the use of relevant information for decisions fails due to a lack of organizational coordination or ineffective information technologies (Cramton, 2002). To support communication in a group through information and communication management it is necessary to know what needs to be done with the information in order to influence the processes and outcomes of teamwork in a positive way (Krämer & Deeg, 2008). Hertel & Scholl (2006) describe as relevant elements in information processing six steps that over and over lead to problems in teams: (1) information production, (2) information gathering, (3) communicating relevant information, (4) saving information, (5) evaluation and combination of information, and (6) applying available information.

2.3.3. Cooperation

Cooperation describes personal efforts while accomplishing common team tasks (Wagner, 1995). It is also understood often as mutual support within teams and a contrary term to conflict (Kozlowski & Bell, 2003).

Many studies show that the development of common rules and norms in a group have a strong significance on the level of cooperation. Established norms or social rules describe how to collaborate, and which behavior should be shown in certain social situations. Moreover, they signal expectations and provide standards for team members to adapt their behavior. Within teams with distinct cooperative processes, team members support each other, work together on shared goals and work on maximizing the whole group's success. (Krämer & Deeg, 2008)

Those norms and rules, on the one hand, develop through social interaction, discussions, and observations (Feldman, 1984) while on the other hand they are written down in order to have explicit rules for the group to lean on and follow (Forsyth, 1999). Especially in virtual teams, technical support makes it easier to access these rules and norms (Griffith et al., 2003) but limited group processes may make it more difficult (Kasper-Fuehrer & Ashkanasy, 2001).

2.4. Output Factors

No matter if the performance measures are used in a face-to-face or virtual setting, it is vital that they are linked to the company's overall strategy. In general, the performance measurements in both settings are pretty similar. However, there may be a few differences that should be taken into consideration. Typically, in face-to-face teams, the performance of an individual can be partially observed, and the teams are from similar organizations or national cultures. This is not true for most virtual teams.

Further, organizations need to focus not only on outcomes but also on processes. Sparrow and Daniels (1999) argue that also contributions to team performance, adaptability to new and changing arrangements as well as the ability to gain and share knowledge should be included in multidimensional performance measures in addition to individual performance. Thus, when evaluating the performance of a virtual team it is necessary to assess both outcomes and processes on both the team and the individual level.

Performance measures from the performance criteria domains team and individual outcome encompass quality, quantity, creativity, cost, and time. The individual outcome domain must also include a team member's contribution to organizational learning. In addition, it must include the extent to which each member meets deadlines, goals, benchmarks, or milestones. Performance measures in outcome domains are similar in a face-to-face and virtual setting.

Virtual teams differ most from other settings in terms of both the process domains and the processes themselves.

Virtual team processes are defined by the value the team as a whole provides to the organization. The level of team cohesiveness and the way the team utilizes the expertise of each member belong to this performance measurement domain. Conflict resolution, willingness to share information and support are measures assessed in the individual process domain. Since observation is limited in a virtual setting it is much more difficult to identify and correct social loafing. Therefore, it would be useful to add attitudinal variables for individuals like members' satisfaction in terms of collaboration and information sharing.

The traditional way of performance evaluation is by the leader. Because of the inability to observe many processes of an individual and a team in a virtual setting, leaders have to add more sources of performance measurement such as self-evaluations, evaluations by other team members, and evaluations by customers. However, leaders need to be aware that self-ratings are less precise, and people tend to overestimate their own contribution to the team in a virtual setting (Weisband & Atwater, 1999). When evaluating others, rating biases originating from relationships or liking other team members are less evident in a virtual team. Such biases can be reduced by the leader by using the additional performance evaluation methods mentioned above. This is in addition to monitoring communications and actively participating in communications within the team.

To enable leaders to gain a more complete picture of the performance of their teams, Meyer (1994) developed an evaluation template that provides outcome and process information tailored to virtual teams and their members. In this dashboard, he included the development status of projects, member satisfaction, financial indicators like margins and revenues, project and product costs, and indicators about deadlines just to name a few. According to Meyer, teams and organizations are guided by four principles. As a first step, the measurement system must be a tool for the team, not for the leader, to remain aware of its progress. Second, the measurement system should be consistent with the organization's strategy, and leaders, as well as members, should agree on it. In a team separated by time and place, this creates a collective language between functions, cultures, and organizations. This is necessary to reach common goals or progress and is very beneficial for the team to be successful. Third, measures that track processes must be used because several units are crossed in the value delivery process. Finally, teams should not adopt too many measures so that their focus and time can be focused on the task at hand.

The technology used in virtual teams allows for the collection and evaluation of this information in real time. Instead of a regular schedule like monthly or quarterly, whenever someone wants to do any of the many evaluation methods the results are aggregated and updated

immediately. Therefore, the leader always has an overview of the well-being of the virtual group and could quickly intervene to keep the team on the right track.

Finally, such performance templates should not be assumed to fit every team or organization. Individuals, teams, and organizations can learn, adapt, and respond to environmental changes. Following Ilgen and colleagues (2005) the outcomes influence the inputs and processes creating a cycle or loop. Furthermore, the needs of virtual teams from different industry sectors or different projects can vary. Additionally, virtual teams move through different stages within a project and grow over time. Therefore, performance measures should be adjusted in accordance with the type of team, the stage of the project, and the maturity of the virtual team.

To conclude, existing literature identifies specific factors that need to be considered at different organizational levels to develop an effective virtual team. The levels included in the IPO model are the organizational level, which provides the framework for collaboration; the management level, which leads the team; and the team level, which shows how a team is put together. Literature research also demonstrates the team processes required in a remote work setting. The reason for the significance of the IPO is that it extends one step further. It provides insights into how the intercorrelation between input factors and team processes can create an effective virtual team. While intercorrelations have been examined previously, the studies only take the factors of isolated levels into account, such as specific leadership practices. So far, only a few empirical case studies have captured the synergistic mechanism of multiple levels and processes influenced by specific moderators. Therefore, an empirical case study was conducted as part of this thesis to provide additional theoretical and practical value. A case study in particular allows cross-unit analysis and highlights insights the theory has not yet covered. Applying the IPO model as adapted by the thesis authors based on the literature of Dulebohn and Hoch (2017) as well as Kämer and Deeg (2008) to practical cases further allows the authors of this thesis to test its practical applicability.

3. Methodology

Literature on the practical application and relevance of the IPO framework for virtual teams exists only to a limited extent. While the pandemic drove companies to switch their teams to a virtual setting, many challenges arose in this process. Organizations need to know what fundamental factors and processes are essential and which existing ones need to be changed in order to benefit from new opportunities or at least keep the performance level sustainably stable. However, a review of the literature indicates that fundamental factors and processes that impact the performance of virtual teams are still ambiguous. To address this problem, the authors conducted an empirical case study including interviews and a survey. The authors collaborated with a large Austrian company to gather empirical data from three different teams and their leaders and conducted a cross-team comparison to better understand to what extent the different factors vary across different team contexts. This chapter intends to elaborate on the research design of this thesis, which involves the method of semi-structured interviews, online surveys and data collection. Furthermore, data analysis of the survey and interviews are outlined. The reader is provided with transparency and should be able to replicate the research process.

3.1. Research Design

At first, a comprehensive secondary research study was conducted in the form of a literature review. This analysis of existing literature provides a fundamental understanding of the IPO model for virtual teams in organizations. However, secondary research provided insufficient information to answer the research question. Thus, a primary research method was used to collect appropriate data and make the just assertions to better understand which input factors and team processes have the most influence on the outcomes of virtual teams. *„Colloquially, a research design is a logical plan for getting from here to there, where the here may be defined as the initial set of questions to be answered, and there is some set of conclusions (answers) about these questions."* (Yin, 2009, p. 26) Thus, the following research question was modeled:

What are the relevant input factors and team processes to ensure virtual team effectiveness?

To answer this question in this thesis, the authors cooperated with an Austrian company operating in the connectivity and internet sector. The company approached Johannes Kepler University Linz to measure their teams' virtual maturity level. Empirical research was evaluated by interviewing leaders of different divisions within the company and sending out an online survey to the team members of these divisions. Additionally, the authors conducted an expert

interview with the contact person of the company to obtain information regarding the organizational level.

The survey as well as the interviews were done in German. This was a requirement from the company in order to eliminate language barriers. Hence, the quotes in chapters "4. Empirical Results" and "5. Discussion" are translated. Evaluating additional teams or different organizations would provide broader insights to answer this thesis´ research question, however, that would go beyond the scope of a master's thesis.

Working with the company allows the authors to address the research question using a qualitative method. The qualitative method chosen is a single case study approach with embedded units. "*The case study method explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information … and reports a case description and case themes." (Creswell, 2013, p. 97)* This allows the authors to analyze the case and its subunits, resulting in the opportunity to do a cross-case analysis (Yin, 2003). In this thesis, the case is the observed partner company at a single point in time. The subunits in the case study are the three partner companies' divisions: application management, products and services, and marketing and product management. After briefings with contact people from the partner company, the authors decided that participants in this case study work in teams with at least a minimal level of virtuality. Furthermore, in order to find out how the input factors as well as team processes impact the teams effectiveness differently, the authors opted for three team unequal in their level of virtuality. Another focal point of the case study was for the authors to interview different leaders with regard to their attitudes and practices towards virtuality. This is important to gain insights to the leadership level. Based on the set criteria, the company selected three work teams as representative samples for virtual teams. These three subcases are comparable, yet diverse, with each representing a different division within the company. The diversity of the teams is critical to determine how input factors and team processes create deviating outputs.

Interviews with the leaders were chosen to gain insights into leadership practices, team design, team composition, and team processes. A semi-structured interview guideline with open-ended questions was created to give the interview a structure and allow for different directions that could be guided by the ongoing answers. The guide provides the interviewee with structure and order and yet simultaneously with flexibility, questions can be skipped, moved, or given a focal position, depending on the interview flow. Following a catalog of open-ended questions, the interviewees have the opportunity to express themselves in their own words. (Döring & Bortz, 2016)

To not limit their insights with observations from the leader's perspective, the authors further also interviewed the leaders´ team members. However, due to time constraints and availability, all parties involved agreed on conducting an online survey to obtain information from the team members. The knowledge gained from the interviews was used to build the online survey for the team members. The survey participants selected themselves after being asked by their leaders to take part in the survey. All in all, three leaders were interviewed for this thesis, along with twenty-one team members who participated in the online survey.

3.2. Data Collection & Analysis

Quantitative research, qualitative research, or a mix of both are possible primary research methods. Both the interviews and the online survey are mainly qualitative. However, Creswell and Plano Clark (2007) maintain that a study is always a mixture of both methods and never neither nor. The interviews offer qualitative data, whereas the survey offer both questions of qualitative and quantitative nature.

According to Froschauer and Lueger (2020), research interviews begin with the planning and initial contact with the interviewees and end when the interviews are documented. Therefore, the selection of the interview participants is just as important as the appropriate way to establish contact. The partner company, specifically one person (the leader of team 1), connected the authors with three different divisions. Moreover, this person made initial contact with the other two interviewees partners. The first exchange between the authors and the interviewees was when the interviews occurred.

All three interviews were held on a video conference program called Webex. The diversity in the interviewees´ backgrounds and leadership styles allowed the researchers to gain more insights into how this information can affect the outcomes of the interviews. The interviews were held over eleven days in the autumn of 2022, and the language spoken throughout the interviews was German, as it is the interviewees' mother tongue. This was a necessary requirement decided by the authors and the company in order to avoid language barriers, confusion, and bias in the results. The authors were able to observe certain emotions as well as body language due to the video conversations. The duration of each of the three interviews was approximately 55 minutes and all the interviewees were highly interested in the results this thesis yields.

Furthermore, the interviewees were told about anonymity and usage of the data. A comfortable atmosphere and respectful behavior of both parties could be noted by the authors in all three interviews. After securing approval to record the interviews with a smartphone, the interviews were transcribed manually by the researchers and then coded. For the coding process, Microsoft Word was used. The analysis was done in a deductive way, referring to the already

existing IPO model. The semi-structured interview guideline consisted of four main parts: introductory, input, processes, and output questions. Text passages of the transcribed interviews were then assigned to one or more relevant factors and processes of the IPO model.

The leader of team 1 for example explained us that some of their tasks can be done in parallel while other tasks can be done successively. This statement was assigned to the moderator task interdependence as well as to the team processes coordination and cooperation as some moderators, factors and processes are interrelated.

The online survey was first created in Microsoft Word and then converted to LimeSurvey. A link to the online survey was sent to the contact person of the cooperation company, who sent the link out to the three division members approximately one week after the last interview took place. The survey was then active for eight days. Due to the moderate participation in the survey, the authors asked their contact person to stimulate the other divisions. A collection of data from twenty-one participants was obtained while seven participants started the survey but did not finish it. The survey was anonymous, and the language used was German. As the content of the survey closely related to the IPO model, just as with the interviews, the survey included thirty questions structured into four parts: inputs, team processes, leadership, and outcomes. Leadership was added, as the authors decided to collect data on the participants' perception of their leader. The questions were open, single choice, multiple choice, 3- and 5-point Likert scale, as well as combinations of these, e.g. a single choice question with a text box at the end to add additional thoughts.

After stopping participation in the survey, it was exported as an Adobe pdf and a Microsoft Excel file. In the coding process the teams were first considered separately. The authors were able to draw conclusions from the responses about factors, processes and outcomes. For example, in team 3 the single choice question 3.5 about task coordination in the question group team processes was: "To what extent are the tasks in the team linked with each other? To what extent do you have to coordinate with each other?" The question was answered by most of the team members by selecting the following option: The tasks build on each other (sequentially) but are often discussed and adapted between the (sub-) tasks. This shows us that in this team, the tasks are reciprocal.

In a second step we looked at the answers of the other teams to the same question. To simplify the cross-team comparison in the Microsoft Excel file, a color was assigned to each team. For the same question as above most of team 1 chose the option: "There are always several colleagues working on one or on overlapping tasks. This requires constant coordination and communication." This answer calls for an intense workflow arrangement. How this difference impacts the outcomes of the teams will be elaborated later on in the discussion.

Furthermore, the authors decided to use a code to simplify citation in the results section. Therefore, the three leaders and teams were assigned a number from 1 to 3. The interview citation is marked with an I plus LN referring to the line in the transcript. The expert interview is coded with an E for expert. The line number refers to the separate transcript of the interview with the expert. The citation (e.g. I2, LN 65-69) after a statement in this example means that this statement was taken from lines 65 to 69 of interview transcript 2.

Moreover, to align the results of the survey to the questions asked, a T and a Q show which team gave the answer to which question. Which number is assigned to which question is defined in the survey guideline. For example, "some tasks challenge me and allow me to grow" (T2, Q2.1), was a predefined answer and most selected by team 2 to the question: "Do you feel that you are up to the challenges of your work?" The answers to the questions can be found in the following chapter.

4. Empirical Results

This chapter provides the reader with results from the interviews and the survey. This allows a holistic perspective on the specific factors of the IPO model and enables the thesis authors to compare and contrast the views of the leaders and team members.

Before outlining the results of the company's input factors, team processes, moderators, and respective outcomes in detail, readers will be provided with a description of the teams and a comprehensive examination of the results.

Overview of Core Team Differences

To draw results from the input factors and team processes, it is necessary to have basic information about the teams: team 1 is the application management team, team 2 operates with products and services, and team 3 is responsible for marketing and product management. Before presenting the results in detail, a short overview is provided in advance: The first team seems to be the frontrunner in terms of mobile working. Other teams copy the successful mechanisms developed by this team. According to their feedback tool, this division is the most established team in the virtual setting. They are flexible, have regular communication, are productive, and are well organized but still have social contact which leads to a good work-life balance. (T1, Q2.5) However, participants provided insights regarding the following outcomes: individual performance, team performance, loyalty, motivation, trust, inclusion, and satisfaction with the virtual setting as well as with the leader. The presented outcomes are based on the participants rating according to the 5-point Likert scale. The numbers of the scale represent the following: 1 "very good", 2 "good", 3 "satisfying", 4 "sufficient", and 5 "insufficient". The findings show that team 3 leads the scoring of five categories while team 1 leads the other three. Team 1 exceeds in the outcomes of leadership satisfaction, trust, and inclusion. The participants of team 3 perceive the highest level of motivation, loyalty, performance, and satisfaction with virtuality. However, the level of virtuality is the lowest in team 3. Comparisons illustrate that team 2 scored the worst rating in each category, except for inclusion, in which team 3 has the worst rating. (T1, T2, T3, Q4.4)

In the following sections, the outcomes of each of the three teams are presented. In the opinion of the leader of team 1, an effective team is not just about performance and reaching goals, but also about job satisfaction and team harmony. It is critical that team members enjoy working together. They are convinced that this has a positive impact on outcomes. (I1, LN356-360)

It is difficult to say if the performance of team 1 increased due to virtuality because a new leader was reinstated just shortly before the first lockdown. What can be said is that when the

new leader took over leadership of the team, its performance was low. Therefore, it is difficult to determine if performance changed due to virtuality or leadership. What virtualization contributed to was an increase in flexibility. (I1, LN364-371)

The pandemic and many employees working from home opened up new possibilities. Although the company had an agreement on home office for their employees before the first lockdown, the pandemic brought in additional needs that overwhelmed the company. The existing agreement on home office did not suffice. The call center, for example, was meant to work in-house because of limited licenses. After approximately two weeks, these technical issues regarding licenses were solved because of the growing demand for working from home. At the point of the interview, leader 1 expressed that his team works similarly to other hybrid teams in their division. For the leader, this is a comfortable way of working, as they expressed that it makes no difference to them, if they work in-house four days a week due to leadership responsibilities and appointments. However, in leader 1´s opinion, working in a hybrid setting plays a larger difference to the team members and has become a necessary company offer when recruiting. (I1, LN376-387)

When asked about sufficient factors in their team, team 1 performed excellently. In this team, communication, self-responsibility, independent work, and cooperation are all perceived as excellent, while the answers to the factors of coordination, technology, and leadership vary more, yet still overwhelmingly affirmative. However, half of the team thinks there needs to be increased monitoring. (T1, Q4.0)

Due to virtuality, the individual performance of a quarter of the survey participants belonging to team 1 had improved up to the point of the survey. Except for one, the same survey participants claim that the team performance also increased. Additionally, the satisfaction of the three team members increased. With eight people perceive having greater flexibility, only one feels more controlled now. Two of the team members point out that their trust in their leader grew. None of the mentioned factors decreased due to virtuality. (T1, 4.2) Meetings can be attended and left quickly, little distractions are omitted in virtual setting, compared to in person settings. However, the survey results show that social interactions suffer from virtuality. (T1, Q4.3)

Almost all ratings of the factors were ticked in the survey as "very good" or "good". Only four people rated a factor once as "satisfying" (three out of five). On average, the level of satisfaction with team 1's leader is 1.5, the level of individual performance and inclusion is 1.7, the level of loyalty is 1.75, the level of team performance, the level of satisfaction with the virtual setting, and the level of trust is 1.8, and the level of motivation is 1.9. (T1, Q4.4) One participant is glad that the team's leader was and is still into working virtually. (T1, Q4.5)

For the leader of team 2, virtualization improved many aspects, including performance. (I2, LN360) Furthermore, they mention that transparency improved because e.g. meeting progress is automatically documented with tools. What used to be queried in team jour fixes is now always available and up to date. In their opinion, team cohesion cannot be measured but their feeling is that they are a very familiar team where self-responsibility is very significant. The organization as a whole is very social with clear communication. (I2, LN338-355) Their leadership style has stayed the same and there are topics that still demand to being discussed face-to-face. (I2, LN365-367)

Furthermore, the leader 2 brings up that the organization is prepared and equipped for a situation that requires fully virtual teams. However, this harms efficiency and cohesion. Their preferred mix, therefore, is hybrid teams which means it is up to the team members whether they work from home or not. In addition to maintaining social relationships, leader 2 thinks team members enjoy working for the company. (I2, LN372-382)

In this team, communication, technology, and self-responsibility are perceived as sufficient. Furthermore, survey results show that working independently and cooperating is in the 75% percentile. Regarding coordination, the opinions of the team members are split, while only one person thinks that the team has sufficient monitoring and leadership. (T2, Q4.0) However, none of the participants wish for additional factors or practices. (T2, Q4.1)

The results show that virtuality changed the satisfaction and flexibility of everyone on this team. Individual performance seemed to have increased for three participants and team performance increased for two out of four members, whereas for the others, it stayed the same. Leadership control and trust in individuals are observed as remaining the same. (T2, Q4.2) Again, the number one factor seems to be flexibility and shorter meeting times. A member of this team described mobile working and flexible working times as the minimum standard when employed. They mention that while technology is the basis for working virtually, the pandemic is the accelerator. (T2, Q4.3)

Team 2's metric outcomes lower than in team 1. Loyalty and inclusion are the best-rated factors at 1.75. Trust and satisfaction with the virtual setting and the leader are 2. Motivation and performance at the individual and team level are 2.25 with no one rating these three factors as "very good". Additionally, each factor has exactly one rating of three or four. One person is not satisfied with the situation as the person's rating on average is 2.9. (T2, Q4.4) Despite these outcomes, one member is pleased to continue working virtually and not returning to the in-person working state from before the pandemic. (T2, Q4.5) Many factors have changed positively for this team since increasing virtuality. Therefore, it is assumed that the outcomes of such a survey before the pandemic may have brought in lower results.

The feel-good factor or satisfaction at work is an essential requirement for a well-functioning team, according to the leader of team 3. Without it, communication and many other things would be difficult. The company's culture, therefore, plays a huge role as well. It does not matter how or with which tool it is measured. Team 3 uses TeamEcho, an anonymous feedback tool. On a weekly basis, the tool asks questions that refer to the well-being of a member and the team. (I3, LN448-462)

Moreover, leader three mentions that the change in performance depends on the individual. A person with a high maturity level, not age, could be more efficient because of fewer distractions when working from home. Members that seem to "disappear" during meetings can be easily identified and need a situational leader who cares for them without controlling them. (I3, LN467-484)

The leader's commitment to the company has remained the same. Even during the pandemic, they went to the office daily to separate their private life and business. In the beginning, the emergency situation had a positive effect on cohesion. People helped each other to best get through the unique situation but the longer it lasted the more motivation decreased. (I3, LN490-515)

Sufficient communication, coordination, cooperation, self-responsibility, and independent working are perceived by at least 80% of the team members. Technology is perceived as less sufficient; leadership is only sufficient for two out of five people and monitoring is rated even lower. (T3, Q4.0) Loyalty, monitoring, and more personnel are factors that team members wish to be improved. (T3, Q4.1)

What the three teams have in common is increased flexibility. Besides that, all the other factors increased or stayed the same except control which decreased for two people. (T3, Q4.2) Although colleagues cannot be immediately contacted, survey results show that virtuality saves time which is why one person suggested having virtual meetings even with external partners. (T3, Q4.3)

The individual performance level of 1.4 has the most favorable rating of all three teams. Team performance, satisfaction with the virtual setting, and loyalty are 1.6. An average rating of 1.8 results from motivation, inclusion, and satisfaction with the leader. Trust has the most negative rating in this group with 2. (T3, Q4.4) The possibility of working from home saves time spent traveling to work and makes people more flexible and more efficient because they can work in quiet settings without being disturbed. Furthermore, trust and the technology provided by the company are mentioned as essential for virtual work. (T3, Q4.5)

It is crucial to determine the level of virtuality in order to interpret the outcomes. The overarching moderator 'virtuality' impacts each input factor, the team processes, and its effect

on the final outcome. The degree of virtuality is governed by the company agreement written in 2019 and became effective three months before the pandemic (I1, LN44-51, LN377-383). Originally, divisions such as the call center were not permitted to work remotely as the organization only had limited licenses for the connection. As remote work was imperative at the start of the pandemic, technological issues (such as licenses) had to be solved within a short period of time. In the team leader's opinion, the necessity to practice virtuality has caught up on them. (I1, LN377-383)

Virtualization of the company agreement means that employees - based on an ongoing full-time employment contract - can work remotely up to four days a week. (I1, LN44-51) Initially, the organization considered mandatory company-wide attendance days. From the experts' point of view, compulsory attendance days would have been a step in the wrong direction. (E, LN13-17) A solution may be to implement the following regulation: If employees spend more than 50% of their working time in the home office, they will lose their allocated workstation in the office. In return, the company will provide them with the equipment needed for their home office. (I1, LN44-51)

The approaches regarding virtuality and remote work within the corporation are diverse. Following the pandemic, the parent company repealed remote work. However, the subsidiary company aims to adapt to the changes regarding the work environment by continuing to operate in a hybrid work setting. (E, LN9-12) The department heads and team leads determine the guidelines for remote work. Team 1 is very dynamic in their virtual work setting. Team members can independently decide whether and to what extent they want to work from home. Flexible work practices are further manifested by employees changing their work location during the day (office/home office). Even the office concept of team 1 differs from the other teams: The team has a shared-desk area with fewer workstations than employees. This implies that not all employees can be in the office simultaneously. Thus, spatial distribution and a high degree of virtuality are inherent in daily collaboration. (I1, LN44-58) Although employees have the option of working from home, they appear to enjoy working in the office. This can be traced to the number of team members present at the office having increased since the end of the pandemic. The team uses a booking system to track office days and resolve the issue of having fewer workstations than employees. (I1, LN251-255) Compared to the other two teams interviewed, team 1 demonstrated the highest level of virtuality. The only meeting of theirs that involves a face-to-face setting is the so-called Fit-4-Future workshop. Concluding, the team only meets in person once or twice a month. (I1, LN60-63)

The second team leader has a more restrictive approach to remote work. In team 2, the degree of remote work is limited to twenty percent of the working time, or in other words, up to two days per week. The exception is an employee with a unique role and tasks that permit 80%

remote working time. The other team members' operational areas include tasks requiring employees to work on-site. (I2, LN45-52) Thus, remote work regulation is a consequence of the inevitability of physical contact with technology. Team members are entitled to a flexible allocation of home office time. Even though home office hours are limited, virtuality is necessary for daily collaboration among team members. (I2, LN56-69)

In team 3, the home office and office days are explicitly defined for the entire team. To go into more detail, from Tuesday to Thursday, attendance is compulsory for the whole department, while Monday and Friday can be chosen by team members as home office days. There are exceptions for more flexibility. To name an example, if a face-to-face meeting is scheduled on a Monday (the possible home office day), employees can shift their remote work time to another day (on the condition that there is no meeting scheduled for the timeframe). (I3, LN60-69)

Differences in Virtual Leadership Practices

The high level of virtuality in team 1 requires advanced virtual team leadership skills of the manager, compared to the required virtual team leadership skills needed from the leader of team 2. Comparing the results regarding the level of virtuality and the leadership skills indicates a relation: The more advanced the virtual leadership skills, the higher the level of virtuality. In addition, as the leader sets the framework for team processes, leadership skills and practices also directly impact team processes. These results prove virtuality is a key moderator for the impact of team leadership on team processes.

The leader of team 1 is aware of the key values of a virtual team and communicates them as shared values within their team. The leader states that trust is the most critical value in a collaborative work setting. They say they cannot and do not want to control team members; they need to trust them. Aside from that, it is irrelevant to them where the work is done - what counts for them are the results. Self-responsibility, therefore, represents another core value of the team. As they provided insights into their leadership style, they emphasized that employees are the experts. Their job is to create the conditions so experts can perform to their full potential. If any difficulties arise, they are there to mentor. They only interfere if they have the impression that things are heading in the wrong direction. Otherwise, it is the individual's responsibility. (I1, LN125-128) The team members are consciously aware of the leader's trust and confidence in the team members' skills and share that their leader actively seeks exchange. With the change in the virtuality level, members perceive the leader's trust as either remaining unchanged or even increasing. (T1, Q4.2) From the survey, it is possible to conclude that this value is already an established value at the team level, as shown by the statements

of the team member survey. A colleague even outlined trust as the most significant aspect of virtual collaboration. (T1, Q4.5)

The second value leader 1 emphasizes during the interview is transparency. They perceive the value as one that improves teamwork and, as a result, helps achieve common goals. For this purpose, the annual plan, its monthly breakdown structure, the meeting minutes, and the project plans are available to all team members. Transparency is further promoted through their meeting agenda and rituals, including those in which the team lead is not involved, as some take place at the operational level. (I1, LN211-214, LN224-227)

The leadership practices indicate awareness of the increasing challenges of the virtual setting and the need to adapt and develop leadership skills. Leader 1 demonstrates virtual team management skills as they developed more intense management mechanisms since the level of virtuality increased. Quick adaptations to the new circumstances of the pandemic – without changes regarding the leadership style – were recognized by the team: revised structures were introduced, and rituals were adapted. It is reported that cultural changes were proactively designed and managed by their leader. The virtual collaboration practices of team 1 were already supported by organizational guidelines as they came into force a few months before the pandemic. Thus, prior to the pandemic, their team was already well-positioned for the digital era and quickly adapted to the increased level of virtuality. Team members even state that they are the pioneers in the company when it comes to virtual practices. (T1, Q2.4, Q2.5) The survey participants had the opportunity to formulate closing remarks that were meaningful to them. Despite the wide-ranging nature of the topic, an employee in team 1 again highlighted the team leader's role as the driving force behind the remote workspace. (T1, Q4.2)

Further findings from the leader's management practices, particularly their explanation of how face-to-face exchange can be compensated through improved communication, collaboration, and explicit management mechanisms state that in the face of the pandemic, their mindset and approach had not changed. What had changed are some daily work rituals that emerged step by step during the first lockdown. (I1, LN196-206) In that regard, the leader emphasized the importance of daily exchange and routine while minimizing the risk of team members falling into social loafing. (I1, LN168-169) Regarding everyday rituals and meeting forms, they have "Dailies", "Weeklies", Fit-4-Future Workshops, and reflection meetings.

During daily meetings, every team member is assessed for attendance and health, followed by discussing general issues relevant to the team. If further bilateral coordination is required, team members can use breakout rooms for clarification. The team leader says they benefit from the Dailies as they know about team members' health and how they are doing. They further have the opportunity to communicate current organizational developments, and if employees face problems, they can directly communicate with their leader daily. (I1, LN196-

206) Team members state that the meeting time allows them to interact personally and celebrate team successes and that problems are openly discussed and solved in a collaborative exchange. It is further reported that there is no differentiation between the office and virtual meetings and that most participants feel included in the meetings. However, not everyone has the chance to update their colleagues on the status quo. (T1, Q3.2, Q3.3)

Their Weeklies take place on Monday mornings. This is a meeting with a broader scope and is also held in a hybrid setting. Topics are discussed, and retrospective feedback about the last week is communicated. The following questions guide the team through the Weekly: What happened last week? Were there any problems? Are there still unsolved issues?

Every month or twice a month, the Fit-4-Future Workshop is held in a seminar hotel in an in-person setting. During these workshops, the team works on their internal development.

Once a year, they take a critical look at all rituals and meeting approaches within the team. The team assesses whether their rituals and meeting approaches are still up to date, whether they still need them, whether the group of participants is suitable, and whether they need to adapt them. As a result, the rituals can be adjusted to meet the team's evolving needs. (I1, LN196-206)

Despite virtual team management initiatives, team members experience pain points. The paint points that can be traced back to the virtual setting can be solved with virtual team management practices. Team members report diminished social interaction, cohesiveness and group building, as well as isolation. In meetings they mentioned that they experience collaboration and cooperation problems, social loafing, inattention, and loss of concentration. Others reported that issues were more difficult to discuss, and conflicts were less likely to be addressed and resolved. (T1, Q2.8) The team recommends fully using remote work settings by providing the possibility to work from abroad to enhance the virtual work setting. Additionally, benefits such as electricity cost subsidies are requested. (T1, Q2.6)

The authors highlight the finding that virtuality helped the leader of team 2 to be more intentional and organized. The following results show the awareness of the team leader that the challenges of a remote workspace cannot be faced in the same way as challenges that are usually solved with practices of co-located management behavior. Firstly, they started listing tasks precisely in their project management tool due to the remote work setting. Secondly, the results show that as soon as a project or issue is discussed – virtually or in person – they use the tool and navigate to the task specifics. Finally, virtualization has helped to keep documentation up to date. (I2, LN330-332) In contrast to the first team, the survey shows that the second team had to adjust more strongly to the virtual setting and overcome more challenges since the pandemic started. For example, it is mentioned that difficulties were

overcome when introducing hybrid meetings. Solving these issues reflected positively in their performance. (T2, Q2.5)

As the leader describes the team's values, honesty, self-responsibility, and cordiality are mentioned. The shared values were developed during a team workshop and remain the same whether the team works in a co-located or remote setting. The leader explained that hybrid work settings have become well-established, and there is no differentiation between employees who work remotely or in the office. (I2, LN157-163)

Even though the team members have not expressed any suggestions for improvements to the design of the virtual working conditions (T2, Q2.6), their virtual team management skills are ranked lower compared to the other teams. Team members report that they do not perceive changes in leadership behavior (except for virtual meetings). In team 1, this was not considered a negative conclusion, due to the early adaptations made by the leader of team 1, namely before the pandemic started. More results regarding virtual team management skills can be found in the interview with the leader of team 2. It appears that this leader is more comfortable in a co-located setting, which may result from a lack of skills in the virtuality area. They illustrate the advantages they perceive from a co-located work setting. If there are conflicts, it is easier for them to manage and solve them in the presence of the parties involved. (I2, LN157-163) In addition, they prefer to establish agreements and commitments in a face-to-face meeting and describe that the presence positively influences their perceived value of the agreement. (I2, LN114-116) In this regard, they illustrate that, for example, a hybrid work setting is disadvantageous for the kick-off meeting of a project. In practice, when assigning employees to responsibilities and projects, attention is not paid to where they usually work and instead to their skills and competencies. (I2, LN74-81)

An explicit management mechanism is shown as they also switched from Dailies to two Weeklies per week, one on Monday and one on Thursday. During the Monday meeting, employees hand in their weekly plans and discuss the most relevant topics, as well such topics as team cohesiveness. On Thursdays, the team reviews. Each of these meetings is held online. (I2, LN216-221) Switching from five to two meetings a week might be interpreted as the result of not adapting or developing leadership skills to facilitate member engagement, communication, etc., in the virtual setting. From the perspective of survey participants, only some people share their status quo during meetings. They further disagree with the statement that problems are discussed and solved in their weekly meetings. Additionally, meeting time is not used for personal interaction or celebrating the team's achievements. Nevertheless, members state that they feel included in virtual meetings and that efficiency remains the same whether the meeting is held online or in the office. (T2, Q3.2, Q3.3)

The results of the survey show changes and the development of virtual team management skills in some collaborative areas due to the remote setting. The survey participants of team 3 mentioned several improvements during the change to the virtual workspace due to the pandemic. The team meeting culture and meeting management have benefited from adapting to the virtual workspace. To elaborate, the team improved its active listening skills as the team members learned that only one person at a time can speak during a video conference. The meetings improved productivity as they were scheduled for shorter timeframes, and the agenda was limited to key points. (T3, Q2.4) According to the leader, team meetings promote team cohesion. (I3, LN159-162) The leader also referred to the shared values and norms – their so-called manifesto – of the team and that they were developed in a collaborative workshop setting by the team. (I3, LN145-151) The manifesto is frequently reviewed to verify its validity. During that workshop – which is organized once or twice a year – they reflect on their values, level of cooperation, and potential conflicts. This includes any internal or external communication problems with other departments. (I3, LN181-202) To counter burnout, the leader introduced a traffic light system: green means the member can handle the current workload. Orange means the workload is slightly challenging but manageable, and red means the workload exceeds capacity. The traffic light system and the current categorization of team members are discussed in daily meetings. Depending on their capacity, they decide whether it is essential to organize external help, how to prioritize tasks, and how other colleagues can support each other. (I3, LN208-218)

This leads to one of the most cherished values of team 3, which is open communication. Open communication allows the team to resolve coordination problems or conflicts. (I3, LN223-238) The leader further describes that team cohesion improved during the pandemic as team members' awareness of the exceptional situation led to careful communication. (I3, LN243-255) The leader points out that they have very short meetings in which colleagues quickly present their work goal of the day, if they need any support, and if they are facing any hurdles with their projects. (I1, LN181-190) Each week current project details are presented, where team members also briefly discuss ideas. The word briefly is imperative as employees work on non-project tasks if they are not specifically involved in a project. (I3, LN181-202) Virtual management skills are reported by the survey participants, who stated that colleagues have the time to exchange personal and professional updates during meetings. It is also stated that they feel included in meetings and that accomplishments are honored and celebrated in the course of meetings. However, participants disagreed with the statement that problems are discussed, and solutions are sought collaboratively during meetings. (T3, Q3.2, Q3.3)

Difficulties in the virtual setting are described by both the leader and the team members and are classified as findings of insufficient virtual team management skills. The team lead

expressed concerns about remote team management in a creative environment. They prefer a co-located workspace and refer to virtual meetings as a crutch or a prosthesis. It is a solution for them but does not replace personal contact. More specifically, they believe virtual meetings are suitable for routine project meetings. However, creative processes require interactions during which creative processes are initiated playfully. In that regard, virtual meetings are an absolute emergency solution to them, and personal contact offers other possibilities as one perceives colleagues differently. (I3, LN271-315) Employee complaints are traced back to the remote work environment and virtual team management. While conflicts evolve more easily, they are resolved much harder. Others struggle with the reduced speed of interaction and the decrease in social exchange. As virtuality requires more discipline during a conversation, even the professional exchange between colleagues loses quality. Furthermore, virtual settings, particularly virtual meetings, enable people to accomplish professional tasks simultaneously. (T3, Q2.8) Team members perceive the leadership style and function as less apparent than before the pandemic. In turn, employees work more independently and have developed a sense of self-management. (T3, Q2.4) While the increase in self-management in the daily work routine is appreciated (T3, Q2.6), team members indicated that leadership is insufficient. (T3, Q4.0) Colleagues increasingly seek recognition and appreciation from their leader. (T3, Q2.6)

Besides the leader's virtual team management skills, the transformational leadership behaviors of the team leaders are researched first by interviewing the leaders to record self-awareness and consciously executed behavior and second through purposely formulated questions in the survey conducted by team members. The survey is designed to assess individual perceptions of transformative leadership behavior.

Idealized influence or charisma must be researched from the receiver's point of view. However, neither of the team leaders has an idealized influence on their team members as they do not perceive them as charismatic. Apart from idealized influence, the perceived transformative leadership behavior and practices are described in the following section.

The survey conducted by the team members of team 1 provides the following findings about transformational leadership: With a few exceptions, team members sense inspirational motivation from the leader's behavior as the leader acts as a role model and communicates a shared vision and common goals. (T1, Q2.2) During the interview with the leader, several insights regarding their inspirational motivation practices were identified: First, the leader tries to involve team members in developing the organizational strategy and goals. They prefer to work on strategic topics with their team members rather than creating strategies on their own. As a result, the goals are formulated based on a shared vision that creates engagement and a sense of purpose. Including team members in this process even relates to the fourth I: individual consideration. (I1, LN187-190) The Fit-4-Future event is the second inspirational

motivation activity. Once or twice a month, the team skips their daily operations and spends the whole day together. While working on internal development, the team is provided with a change of location as the workshop usually takes place outside the company, for example, at a seminar hotel. During the event, they cover diverse topics regarding team processes, current developments, shared goals, the purpose, team problems, etc. As participants take the time to reflect and discuss, major topics such as updating the IT strategy are within the workshop's scope (I1, LN185-187). The leader perceives their team members to especially favor the fact that the workshop takes place in a co-located setting. (I1, LN139-160)

Their agenda includes topics that are both inspirational and intellectually stimulating. Projects are presented during the event to provide colleagues with insights into current topics. These insights broaden the sense of purpose while intellectually stimulating colleagues by presenting novel ideas and topics. (I1, LN211-227) The leader aims to provide a basis for intellectual stimulation through their commitment to generating enabling conditions for team members to perform. (I1, LN196-198) However, the survey findings show different levels of intellectual stimulation among team members. Only half of the participants feel encouraged to rethink assumptions or to challenge ideas. Furthermore, the majority of the participants from team 1 reflect that their tasks challenge them in a way that allows them to grow. Some feel capable of facing their daily challenges. (T1, Q2.2)

The survey responses show unanimous agreement that leader 1 values the skills of each member and addresses them individually. With certain exceptions, the responses are similar when the questions concern the leader's attention to the member's well-being and personal interests. (T1, Q2.2) Transformational leadership behavior regarding individual consideration is present at times of goal setting. The leader breaks down the strategic goals of the organization into divisions, then the team level, and finally the level of individual team members by allocating the goals to the personal goals and skills of the individual. The leaders also establish personal goals with each member and examine the status quo of each colleague to determine if support is needed. The whole team recognizes and celebrates individual successes on the so-called success celebration day. Success celebration days are scheduled monthly and employees are encouraged to announce personal achievements or things they recognize from their colleagues. These achievements are moderated and presented by team members. (I1, LN270-283)

In their survey responses, participants in team 2 revealed more limitations compared to team 1 in the perceived transformational leadership behavior of their leader. The participants of team 2 do not perceive idealized influence and inspirational motivation from their leader. More specifically, they do not feel inspired and feel that their leader lacks charismatic attributes. Further, they mention that their leader does not act as a role model and refrains from

communicating common team goals and the shared vision. One person even reported feeling neither motivated nor inspired. Moreover, participants do not perceive intellectual stimulation by the encouragement to challenge ideas and traditional beliefs. Instead, they perceive stimulation through the tasks and challenges which allow them to develop and grow in their profession. Transformational leadership behavior is also found, as almost every member feels individually recognized and valued by their leader for their skills. The person who denied being valued as an individual is the same person who does not feel motivated or inspired. Furthermore, only half of the participants said that the leader's attention was drawn to their well-being and personal interests. (T2, Q2.2)

Among the team 2 members, there is no evidence of transformational leadership behavior concerning idealized influence through charisma. Leadership questions aimed at uncovering leadership practices for creating inspirational motivation within the team were answered in a contradictive way by the interviewee. According to the leader, intrinsic motivation arises because employees can work in their field of choice. During a further discussion on motivating employees to reach common goals, the manager mentioned that the annual bonus is calculated according to the achievement of personal goals. (I2, LN206-212) Motivators cannot be identified as inspirational, and these characteristics confirm the absence of team member role models and communication of a shared vision. However, this does not imply that employees are not motivated by other methods or leadership practices, as the survey results point to passive intellectual stimulation through leadership behaviors. Self-responsibility is one of the main values within the team and allows colleagues to operate autonomously (T2, Q2.2; I2, LN150, LN157-163). Being actively encouraged to question and challenge approaches or ideas is not perceived from the employees' perspective.

The leader exhibits transformational leadership in terms of individual consideration: Individual goals are not broken down hierarchically but are defined in an exchange with the employee. In this process, they discuss where employees see their responsibility, where they can contribute with their expertise, and how individual goals reflect that. An additional position – the so-called service manager – was introduced to the team. This position entails the management of task groups. The increase in responsibility symbolizes personal recognition. (I2, LN302-307)

The leader of team 3 is not portrayed as a role model who communicates the shared vision and goals optimistically. Still, all team members deny to their leader that they are not inspired or motivated. (T3, Q2.2) Even though employees do not perceive inspirational motivation, the leader emphasizes transformational leadership behavior in that respect. They say that the common beliefs and values were developed in a team workshop, and their validity is re-examined every month or two. (I3, LN159-162, LN197-199)

Team 3 receives intellectual stimulation due to the challenging tasks that allow personal or professional growth but only two participants feel encouraged to challenge ideas or the status quo. In contrast, the leader mentioned several times that discussions are permitted and encouraged, as this allows the team to discuss and develop ideas. Its purpose is not to dwell on details but to stimulate something through dialogue. More specific insights into colleagues' projects are presented during weekly internal meetings. (I3, LN187-193)

Individual considerate leader behavior was uncovered as the leader explained the importance of a heterogeneous team. The leader values the advantages of a diverse team with age and gender differences and a mixture of professional backgrounds. (I3, LN77-81) The team members align with this and report that their leader values and recognizes their skills. However, they state that the leader does not pay attention to personal interests or the well-being of employees, yet values and recognizes their individual skills. (T3, Q2.2)

A vital aspect of the leader-member exchange is selecting the proper perspective because the superior dominates the power differential between leader and follower. To address the topic, the authors focused on the perspective of team members and how they perceive the dyadic relationship. Differences are found concerning how the relationship between the team leader and the team members is cultivated. With a few exceptions, the employees in team 1 state that their leader is concerned with their interests and well-being. The indications in team 2 differ in this regard. Only half of the survey participants of team 2 believe that their leader initiates a dyadic relationship. In contrast, only one person in team 3 reports communication on a more personal level. Feedback talks provide an opportunity for one-to-one conversations, active listening, and the development of rituals. When asked how often they were given constructive feedback from their leader, team members of teams 2 and 3 used the word infrequent. Others receive it monthly, while in team 1, each member says once a week. Even in team 1, employees obtain feedback at varying frequencies. A large number receive weekly or monthly feedback. One person receives feedback three to four times a year.

The first team leader states that workflow and responsibilities are based on trust instead of control. Therefore, this leader would not observe how each team member operates and instead enables them by establishing supportive work conditions. In this way, they demand personal accountability from the specialists. (I1, LN125-128) Members of each of the three teams are explicitly assigned to one or multiple role descriptions. These descriptions define the areas of responsibility and are documented in an organizational chart that is transparent throughout the organization. (I1, LN107-112) The power of decision-making depends on the role, situation, and responsibilities that come with it. In light of the budgeting insights, employees of teams 1 and 3 have independent budget responsibility within their assigned budget limits. Additionally, technical decisions are the responsibility of the individual. A team leader's policy is not to

interfere with the work of team members. Any ambiguity can be clarified, and a resolution found through an exchange. (I1, LN114-118; I2, LN97-100; I3, LN117-130) The team size of team 2 reinforces the high level of authorization in decision-making because a team of that size can only function with a high level of individual responsibility. (I2, LN105-108, LN150-163) Further insights during the interview reveal that team 2 has so-called service managers who coordinate task groups. Their team leader also highlighted that micromanagement is not applied to role responsibility since the scope is already transparent to the whole team. (I2, LN303-307) This is consistent with the perspective of team members across all three virtual teams. They state that they are empowered to make decisions within their areas of responsibility. Some claimed they had the authority to decide on something after a short consultation with the leader. (T1, T2, T3, Q3.0)

To conclude, the results show that the team leader of team 1 applies the most suitable practices for a virtual setting. Thus, the leader of team 1 has the most advanced team leadership skills in this regard. Based on these leadership insights and, in large part, due to the perspective of the team members, it is possible to present findings regarding how distinct leadership practices define team processes. Further, the authors found how these skills must be practiced together to develop effective virtual teams. Thus, a key finding of the thesis is the synergistic effect of input factors on a level, especially the leadership level. Member empowerment without transformational and virtual team leadership behavior conveys the feeling of neglecting leadership practices for team members in a virtual setting.

Overview of Organizational Factors

Virtual team management skills can be improved through specific training. To investigate the responsibilities at the organizational level in this regard, the training provided for leaders and team members was researched and it was found that the organization offers diverse management training. Respective managers recently attended training in media, data protection, process management, project management, and moderation techniques. The provided workshops for leaders often relate to an occasion, a current issue, or a specific profession. Concerning virtuality, the interview partner described a training about alcohol in the workplace. During this training, participants discussed the differences between the office workplace and a home office and the difficulty of detecting early signs of alcoholic behavior. At a corporate level, leaders of virtual teams do not receive trainings or workshops tailored to managing a virtual team. In this respect, it is up to managers and team leads to educate themselves individually and book trainings. While the management board discusses how virtuality should be managed, leadership approaches differ. (E, LN8-31)

Conflicting perceptions regarding virtuality trainings emerged from the interviews with leaders of virtual teams and department heads: While it was reported that during the transition to virtuality, managers had the opportunity to register for online training courses such as 'leading remotely' (I2, LN139-140), others could not recall being offered trainings in virtual leadership. (I3, LN430-436)

Trainings for virtual workspaces at the employee level depends on the departments and areas of responsibility. Employees are trained to navigate and utilize the tool when the latest technology is introduced. The management board member stated that providing tools for employees and training employees appropriately for the latest software updates is not just relevant to virtual settings. Specifically, the board member is aware that – similar to the leadership level – they do not offer specific trainings for the remote work environment. Following recent pandemic developments, the organization is focusing on health management. The management board will soon reintroduce a comprehensive program concerning resilience. The program includes face-to-face and online courses that aim to increase awareness and teach employees how to cope with resilience. It is intended that the organization will reintroduce a similar program it had previously launched. The expert elaborated that the updated program needs to take on a significant dimension, as virtuality and the current hybrid environment prevail in the company. In some cases, employees were socially isolated for months during the pandemic. Thus, resilience has a new significance – even in the professional context. (E, LN35-53)

Regardless of the virtual setting, a wide variety of training programs, as well as technical trainings, are offered. Since employees must have particular skills to operate effectively, standardized training programs are in place for specific task areas. (E, LN73-77)

Results of the survey and interviews indicate that besides leadership skills and specific training, information and communication technology contribute to frictionless team processes. The technology enables and defines workflows; however, the task's nature influences the selection of tools and the structure of team processes.

There are only a few differences in information and communication technology across the teams. Video calls, emails, and chat rooms are used for collaboration in all three teams. Insights further reveal that teams partly use private channels. (T1, T2, T3, Q3.0) Regarding the collaborative system, the team leader of team 2 mentioned that the form of communication required modification due to the pandemic. The issue was technically solved by introducing a new chat tool (I2, LN139-141) and equipping meeting rooms with remote conference tools to allow inclusive work settings regardless of spatial separation. (I2, LN65-69) An established communication practice for spatial separation is that video calls are used over voice calls (I1,

LN238-240; I2, LN239-245). Team 1 additionally uses a knowledge management tool to save every meeting protocol (I1, LN236-246).

Further, group support systems are implemented in each team (T1, T2, T3, Q3.0). Project management tools are applied to plan resources and the workload capacity of team members for each project. It is an additional feature that not only provides the ability to plan resources but also to view the burndown of the project in retrospect, enabling a more accurate planning approach by the team leader. (I1, LN314-319). These tools enhance transparency and traceability. (I3, LN440) The tools and extent to which they are used differ between teams, depending on their needs and operating structure. Team 1, for instance, utilizes a ticket system to distribute tasks while still using the project management system to keep an overview of the projects.

Anonymous feedback tools aim to reduce social pressure while expressing concerns or suggestions. It is used on a weekly basis across the organization. In this regard, team members are asked questions regarding problems, team collaboration, working culture, working environment, etc. every week. While team members can express their concerns, it is also used as a measuring instrument to evaluate current team satisfaction. (I3, LN448-462)

Progress documentation, project progress, and monitoring happen in the tools Wrike and Jira as well as in meetings. (T1, T2, T3, Q3.7) In Wrike, all the tasks within the division are transparent. (I2, LN302-307) The members then know their responsibilities and which tasks need to be done. (I1, LN295-299) Planning the resources happens once a month and was previously done in Excel. In order to view the accuracy of the burndown, both the planned and compared burndowns are shown. (I1, LN314-330) On the one hand, the team further develops into a specific direction because of a certain tool. On the other hand, tools are chosen based on the team's needs. (I1, LN334-339)

Different Team Processes and Team Composition

The team's needs and, thus, the choice of communication tools also refer to the nature of the tasks. In other words, the nature of the task impacts the effect technological tools have on the team processes of coordination, communication, and cooperation. Before getting into detail about the team processes of the three units of analysis, their task interdependence is researched and outlined. The leader of team 1 states that while some tasks are built upon another and require internal consultation, other tasks can be accomplished in parallel. Thus, workflow interdependence can exhibit pooled, sequential, or reciprocal characteristics. Task complexity varies with task interdependence. Team 1 regulates the nature of tasks: Topics and projects are defined monthly. The operational details are then discussed without authority in

the absence of the team leader. During these meetings, the responsible colleagues organize tasks and their dependencies. (I1, LN314-319) In team 1, task interdependence is intensive, requiring permanent coordination. However, one person operates independently. Although the work progress is transparent and well-structured, members of team 1 do not know the current state of their colleagues. The team is self-managed, with people allocating tasks and processes according to projects, clients, and locations. (T1, Q3.5, Q3.6)

The interviews with the leaders of teams 2 and 3 show that team members can mainly execute tasks independently (I2, LN294; I3, LN400). The pooled workflow determines low task complexity. The coordination is partly done by the leader and partly by the team members themselves. (T2, Q3.5, Q3.6) While the functions are not strongly linked in team 2, incidents are possible. In respective situations, it is up to the person in charge to seek support or initiate a problem-management project. (I2, LN294-298) A concrete indication of how problem management is structured in the department and how strongly the tasks depend on one another is necessary. Such a situation is expected to occur in a dynamic environment and requires intensive workflow interdependence. Eventually, even external team members provide support due to incidents, which indicates an increase in internal and external coupling. These attributes result in high task complexity. There seems to be no clear structure or transparency of the work processes in team 2. Team 2 has a weekly overview to see who works from home and on which days as the team members manage this among themselves. (I2, LN178-180) Topics that require commitment or someone taking responsibility are preferred to be done face-to-face. (I2, LN114-116)

Reports of team members show that task interdependence is the highest in team 1 as they require intense workflow arrangements. Teams 2 and 3, with a few exceptions, have a reciprocal workflow arrangement that requires less collaboration. (T1, T2, T3, Q3.5) This indicates that team 1 is in particular need of tools that allow synchronous communication.

The task interdependence in team 3 is different for the two marketing specialists. The rest of the team must constantly discuss and adapt in order to reach a common goal. Most of them know the current state of the others. It is interesting that the two marketing specialists again selected different answers. Allocation happens by both the leader and the members and is not flexible. The structure as well as the transparency are given for some. (T3, Q3.5, Q3.6) With the help of Wrike, which supports collaboration, people are aligned to certain tasks. (I3, LN379-395) The obvious benefit of this tool is that it increases transparency and comprehensibility so that everyone is on the same page. (I3, LN430-440)

Especially high task interdependence in virtual teams requires an established norm in team process coordination. To foster coordination, the leader of team 1 negotiates objectives with their team members while constantly adapting the goals and helping the members achieve

them. Throughout the pandemic, many things changed or were new. (I1, LN179-206) Team 2 requires the team to manage itself and be self-responsible in every role because of its size. (I2, LN150-163) Goalsetting for the division is done by the leader and then broken down to the team members. These objectives are determined by tasks and communicated once a year in a monthly team meeting. All team member's individual goals are defined and documented separately. At the half-year point, the target and necessary adjustments are checked and later reviewed at the end of the fiscal year. (I2, LN194-202)

In order to reach common goals and have mutual support, transparency and rituals are key. (I1, LN211-227) In the company's organigram, which is available for every employee, everyone has one or more assigned and defined roles. The team members of team 1 have the trust of their leader and bear responsibility. They are not monitored, and the results are what matter. (I1, LN107-128) New employees have at least one role; with time and experience, they will get more. Every role is connected with responsibility. (I2, LN97-108)

Team 2's leader established the values of honesty, self-responsibility, and cordiality within their team. They are valid no matter the setting. (I2, LN157-163) Also, in team 3, the key values and norms are considered true in both a virtual and face-to-face setting. Team 3 built a mission together that is recorded in a manifesto. Rules and manners relating to respectful communication and hearing each other out are defined there. (I3, LN145-151) Every one or two months in a team meeting, this manifesto is brought up and adapted if applicable. (I3, LN159-162)

Different levels of task interdependency and virtuality require a diverse mechanism of team process communication. Communication tools provide the foundation for virtual team processes. Thus, the researchers investigated how teams communicate formally and informally. What is notable is that only team 1 uses informal tools like Teams. However, within this team, only 50% use informal tools. Furthermore, only one person from each team 1 and 2 does not participate in private channels. (T1, T2, T3, Q3.0) For informal communication, the teams hold coffee breaks in-house and also informally communicate over videocalls and email. Social media and private communication are not used at all, and in team 1, one person states that there is no informal communication. (T1, T2, T3, Q3.1)

For hybrid communication, team 1 uses Webex. Just phone calls without videos are not used anymore in the company. Instead, Java is used for chats and calls. Furthermore, private WhatsApp groups are not used for business because of data security. Furthermore, regarding WhatsApp, a volleyball group and a group for participants in the business run were established. In such groups members also share information about the food they brought to the office. What team 1 additionally introduced are success celebrations to appreciate good work. (I1, LN236-283)

Team 2 launched a divisional chat in which they share information about whether they are in-house or at home. (I2, LN147-177) Topics relevant to many members are discussed in the Webex team chat. Otherwise, a video call between two members is made. In general, chats and video calls have displaced email and phone calls. In this division, the leader demands to utilize available tools. Therefore, everyone in their team must turn on the camera during meetings. Informal communication in times of high virtuality is done on Friday in a meeting without any agenda. These meetings do not need a moderator, as topics are addressed by everyone. However, during a coffee break at the office, leader 2 mentions that more topics can be discussed, and it seems to them that this is still the preferred option. (I2, LN239-278)

Moreover, team 3 launched a group chat on Signal at the beginning of the pandemic for the same reason. Signal is used because, again, WhatsApp was disbanded for data protection reasons. This chat is also used for informal topics that staff members want to share with others. Other available communication channels are used as well. (I3, LN324-333) After meetings, some people may stay a few minutes longer to exchange informal information. In addition, on Wednesdays, there is a virtual and in-person volunteer lunch called McDonald's Wednesday. (I3, LN341-351)

Team 1 communicates in meetings daily as well as weekly, on- and offline. Additionally, division 1 has a Fit4Future workshop offline once or twice a month to work on their development. (I1, LN139-160) The team also gets feedback from the leader at least monthly. (T1, Q2.3) Team 2 has two fully virtual weeklies on Monday and Thursday. Even the people that are in the office that day attend the meetings online. The first one is for planning the week and the latter is for reviewing what has been done and what needs to be done. (I2, LN216-221) In this team, feedback is given monthly or sporadically. (T2, Q2.3) In addition to the daily and weekly meetings, team 3 has team workshops once or twice a year for one and a half to two days. (I3, LN181-202) Furthermore, a traffic lights system keeps the team up to date. (I3, LN208-218) This team gets feedback monthly and whenever urgently needed which is perceived by the team members as enough feedback. (T3, Q2.3)

The three teams have in common that there are different points of view in terms of meeting structure but there is always one clear moderator. While the meetings of teams 1 and 3 are used for solving problems, celebrating successes, and exchanging informal personal things where most people feel included, it remains unclear what team 2 does during their meetings. One person on this team feels excluded and states that meetings occur too often and are too long. In terms of content, communication focuses on both task-oriented and relational interaction. The first is given by topics like the current state and problem solving, whereas celebrations and the exchange of informal personal things are part of the second. (T1, T2, T3, Q3.4)

Team members of team 1 feel included no matter if they participate in person or online, and the meetings are perceived as efficient in both ways. For team 2, virtual meetings are stated as more efficient compared to in-person meetings. Only in team 3 there is no clear opinion about the efficiency and inclusion of meetings. In general, common sense is that efficiency is not given in either setting and inclusion is differing. (T1, T2, T3, Q3.2)

Comparing the results of the classic team processes communication, coordination, and cooperation show that all three teams have a sufficient level. However, as the teams' task interdependence and complexity vary, different forms or levels of the processes are needed. Team 1 has the most intense workflow arrangement; therefore, higher levels of team processes are required to function well as a team. Therefore, when regarding factors that are related to team processes, team 1 presents the most positive results. Team processes influence not only outcomes like performance and satisfaction but also factors within a team like trust, inclusion, transparency, flexibility, motivation, and loyalty, that all indirectly impact the outcomes. Moreover, these factors and the classic team processes have a mutual impact. Whereas flexibility and transparency are perceived in every team, trust and inclusion are the highest in team 1. Motivation and loyalty are very high in team 3.

The results reveal how different input factors from various levels form team processes. In particular, technology and applied leadership practices demonstrate this. In addition, virtuality and the task's nature clearly moderate the process design. Theoretically, team composition further impacts team processes. The heterogeneity across the teams could not reveal any changing effects of the input factors on the team processes. Details of the composition results are listed below.

During the interviews, all three leaders stated that diversity is important when building a team. The leader of team 1 brought diversity into their team by having hired two women since taking over the division. However, the 16-member team still has fewer women than men. The leader mentions that this is due to the division being in a male-dominated field. It is seen as a higher priority to the leader to hire according to applicants' fit to the team than to hire to become more diverse. (I1, LN71-82) The twelve participants of team 1 show little diversity as there are almost only Austrian men between the ages of thirty and fifty. In addition, the participants' education is similar, with most people having at least graduated with the "Matura". Additionally, nearly every one of them is in an area that refers to information technology. (T1, Q1)

The same is true for team 2, where for new projects, they look for specific requirements, competencies, and roles. (I2, LN88-90) Again, their team consists mostly of men from Austria aged thirty and above, however, their educational background is more diverse than in team 1. The participants have various levels of education from different fields, like civil engineering, project management, and information technology. (T2, Q1)

Both teams look for appropriate people in the labor market and within the company to complete tasks and projects. Most of the time, the right fit can be found within the team but if not, certain KSAs are available to find a better fit. (I1, LN71-82; I2, LN312-317)

Especially for the marketing team, it is important to have a heterogenous team. In order to generate creative and innovative ideas and campaigns, it is advantageous to have different types of characters working together. Conscious attention is paid to a mix of age, gender, education, and experience. However, the situation in the labor market is difficult at the moment. Therefore, sometimes the best available person is hired even though the person's KSAs are similar to the rest of the teams. (I3, LN77-88) The survey results back up the diversity in this team as it is the most diverse team. On the one hand, it is the oldest team, with only one person being younger than thirty and the others being older than forty but on the other hand three out of the five participants in this team identify as women. Furthermore, one person is from Croatia, and their educational background is diverse, ranging from an apprenticeship as a food retailer and a Matura in fashion and clothing technology to a master's degree in economics or telecommunication and media. (T3, Q1)

It was mentioned that because the number of people in division 1 is not manageable, it will be separated at a later point in time (I1, LN87-100). In addition, the leader of team 2 states that their team size is not ideal (I2, LN105-108). The team has about twenty members, practices flat hierarchies, and has experience working virtually. (I2, LN28-33) The leader of team 3 expressed that they at one point were leading too many teams at once. After ten years of managing multiple teams within the company, they reduced their workload and took a step back about three years ago. (I3, LN43-52)

For every team, the decision-making process seems to be decentralized. Nearly every member is empowered to make decisions independently, at least within their area of responsibility or after a brief agreement with the leader. (T1, T2, T3, Q2.0) The leaders state that this is necessary and requires trust as well as self-responsibility. Of course, the freedom to make decisions is situational but they favor a low authority differentiation. (I1, LN114-118; I2, LN105-108; I3, LN117-130)

All three teams have a fixed team or rank high on temporal stability. Additionally, they form temporary sub-teams that may include members of other divisions. (I1, LN87-100; I2, LN86-90; I3, LN93-97)

The Organization's Reward System

The impact of the reward system is not revealed in the results. However, the findings of the reward strategy across the organization are critical for the discussion of this thesis, as they are a powerful mechanism for managing the team's processes and their effectiveness. The expert stated that salary is linked to the position and the areas of responsibility. A change in the role that involves a broader scope or increased responsibility comes with a commensurate salary adjustment. As a low hierarchical structure characterizes the company, only a few career development opportunities are provided. A traditional management career is not possible. However, the company offers so-called specialist careers where employees have the opportunity to specialize in certain areas. A change in roles or a change of specialization is considered in the remuneration system. (E, LN58-68) Concerning the connection between skill development training and the organizational remuneration system, the expert argued that employees of certain divisions or fields of activity - such as service engineers - participate in standardized training programs to ensure a shared level of skills for the role. In fields without formal training, compensation is determined primarily by the job. In this regard, the human resources department determines whether the candidate has the required competencies and skills. (E, LN73-77)

The performance-based payment strategy, in addition to the base payment strategy, includes both project bonuses and annual bonuses. The latter is calculated according to the achievement of individual objectives (I2, LN206-212). However, annual bonuses are only achievable for some. (E, LN82-85)

The results reflect the findings of the practiced input factors, team processes, moderators, and consequential outcomes and provide findings regarding intercorrelations within and across the levels. To sum up, team 1 performs in the most competent way in terms of virtuality. Given their high level of virtuality, it can be assumed that they also have a certain level of maturity. Although our results show that team 3 is the most effective, this applies to their low level of virtuality. A low level of virtuality causes different problems and approaches than a high level of virtuality such as in team 1. Team 2 is clearly "behind" the other two teams in almost every category. These results provide the basis for the discussion in the upcoming chapter.

5. Discussion

This section will discuss essential practical insights from empirical research. Insights allow us to establish the actual connection between input factors, team processes, and outcomes. With the help of the model and the theory, the virtual handling of the three teams will be analyzed. In this context, the authors will elaborate on why specific results may occur and outline team suggestions. Thereafter, the authors will present and argue both theoretical and practical implications. In the theoretical implications, they refer to the adaptation of the IPO model and compare what they found with what they intended. Subsequently, the corresponding limitations of the thesis will be elaborated and corresponding recommendations for further enrichment will be offered.

One of the first things the authors noticed was the inconsistent number of participants for each team. Twelve members of team 1 completed the online survey, whereas only four participants from team 2 and five from team 3 completed the survey. It can be assumed that the main reason for this unbalanced distribution is that the leader of team 1 reached out to the researchers to do this thesis. Therefore, the leader's interest in this topic was evident before this research and it can be assumed that they carried their interest to their team. Team 1 has by far the most established and developed hybrid team. As a result, this team has already raised awareness for the virtual setting, while the other teams are more unsuspecting about its potential. Another explanation for this team's strong participation might be its level of virtuality. That said, team 1 could be more motivated than the other teams to share their opinion to gain new insights and improve their virtual setting based on the thesis results. Another reason could be that the leader of team 1 used rewards or sanctions on members who did or did not participate. However, due to the communication with leader 1, the authors do not believe that this leader used this method for engagement. On the contrary, due to the survey responses, the researchers assume that team members' participation origins from their sympathy and respect for their leader. The insufficient participation of teams 2 and 3 could also indicate a high workload. One might assume that due to the higher level of virtuality in team 1, it is more efficient. However, time pressure is not expected to be the reason for the number of participants, as the members stated that they feel challenged but not overwhelmed. Four out of the nine members who attempted to start the survey but did not finish it belong to team 3. This may be because this team works the most hours in the office, which, according to the teams' answers, are the hours with the most chances of distractions. It is still unclear whether these unfinished surveys were later finished by the same person in a new attempt or if these people just stopped the survey. Those who quit the survey in advance without retaking it would have increased the amount of material that could be analyzed when the survey was completed.

Moreover, correlation could be observed between the number of survey participants, the virtual maturity level of the team, and the virtual team management skills of the respective leaders. The authors conclude that leaders who feel confident and capable of leading remotely also manage their teams in a way that enables them to increase their level of virtual maturity. For example, the leader of team 1 stated that leading is not about control but about trust. The responsibility of the leader is to create conditions for experts to perform. One could argue that the leader of team 1 had time to adjust to the level of virtuality at their own pace. This was because they implemented remote work in their team before the pandemic. On contrary, the other two teams had to switch to a different work environment within days. The pandemic, and thus the fast transition, occurred almost three years ago. Therefore, the skill sets of the leaders from teams 2 and 3 do not have to relate to their virtual team management skills today. Within that timeframe, the input factors and team processes outlined in this thesis could have already been implemented. What is interesting in team 2 is that virtuality helped the leader determine explicit and clear communication and transparency in defining areas of responsibilities and tasks for each member. Simultaneously, the leaders' management skills still have development potential in light of virtuality. Findings show that virtuality helped the leaders in determining explicit and clear communication, transparency in defining areas of responsibilities and tasks for each member (team 2), and in implementing a respectful communication culture (team 3). The leaders of teams 2 and 3 decided to increase the time spent in a co-located setting by limiting remote work by up to 20%, which can be seen as a sanction compared to team 1. The limited remote working time is another indicator of a deficiency in virtual team management skills. While leader 1 shows awareness regarding the importance of enhanced communication skills by implementing more virtual meetings for exchange and increasingly reaching out to team members, the team leader of team 2 switched from daily meetings to only scheduling them twice a week. Even the articulation regarding virtual meetings indicates a distant attitude toward remote work. When the leader of team 3 referred to virtual meetings during the interview, they described them as a crutch or prosthesis. Further, a distinction between virtual meetings and face-to-face meetings was made when comparing online and co-located meetings. Preferences and wording are not necessarily an indicator of developed skills. However, the authors argue that the more sophisticated the virtual team management skills, the more reflective and positive leaders are toward remote work.

As the literature (Faraj & Sambamurthy, 2006; Chen et al., 2007) shows a significant positive relationship between empowerment and individual and team performance, this thesis aimed to research the hierarchical structures in the team and by interviewing leaders as well as team members in this regard. The results show that the leaders of each team empower the members in decision-making. By delineating clear roles and responsibilities, they allow employees to overcome challenges in their areas of responsibility while offering guidance when needed. This

was also evident from the employee's perspective. In the results, the regulations governing authorization are highlighted. However, in this chapter, the authors highlight that empowerment is not just about responsibilities, autonomy, and access to information but is derived from transformational leadership behavior. People who feel self-efficacy appear particularly committed to the organization and its shared goals. Aligning organizational and personal goals strengthens intrinsic motivation and commitment. In turn, leaders can trust and empower team members (Jung & Sosik, 2002). Organizational goals are broken down into team goals and matched to individual goals, which reinforces intrinsic motivation to achieve the goal. Across departments, it is evident that employees have decision-making power in their respective areas of responsibility. As a result, empowerment of input factors is practiced in daily business. This resonates with the positive outcomes of empowerment and self-responsibility, which are found in each of the three teams. Team empowerment is a form of trust and, thus, the basis for working in a virtual team.

It appears that leaders tend to misunderstand that trusting and empowering team members does not imply reducing motivational and inspirational leadership practices. From the perspective of team members, leaders tend to neglect transformational leadership behavior. The four Is (idealized influence, inspirational motivation, intellectual stimulation, and individual stimulation) are key dimensions and suitable starting points to adapt leadership behavior. While leaders mention their transformational leadership practices in the interviews, the findings from the survey show that transformative leadership behavior is severely limited. Since behavior is strongly tied to the individual's self-concept, social identification, and the team's identity, it needs to be emphasized how critical the perception of employees is. Collective identity and a shared understanding of the importance of teamwork and the alignment of goals positively influence the satisfaction, motivation, and performance of employees (Bass, 1985).

None of the survey participants across the teams perceived their leader as charismatic. A virtual setting might make idealized influence more difficult in terms of charismatic communication of beliefs and the team's purpose. That, however, would not be applicable for teams 2 or 3 as the level of virtuality is limited to 20% of working time. Intellectual stimulation can be achieved with simple practices and questions the leader can ask their team members. Encouraging team members to rethink ideas and traditional approaches is something teams 1 and 2 already apply to some extent. Apart from that, traditional beliefs and current approaches are accepted without criticism. Innovative improvements would be the basis for long-term competitive advantage. In addition to stimulating a team's intellectual development, creating an environment where discussions are held and information is exchanged is also conducive to inspiring motivation. This is because team members will develop positive perceptions of their co-workers. Although leaders communicate the shared goal and align the team's goals with

those of the individual members, inspiring motivation is only sometimes perceived by team members. Additionally, two of the teams developed values in a joint workshop setting. Team members are provided with the fourth dimension of transformational leadership, individual consideration and recognition. Recognizing individual skills and mentoring members conveys the feeling of individual consideration. The findings of this research indicate that team members' perceptions reflect transformational behavior only to a certain extent. Hence, for all three teams improved proactive leadership engagement can be suggested that focuses on developing a team identity and implementing motivational mechanisms that empower team members.

While transformational behavior builds a foundation for LMX, it should be distinct from personal recognition (its fourth dimension). The results show that team 1 has the most developed LMX, which also resonates with their leader's advanced level of transformative leadership behavior. In light of the findings in Dulebohn and colleagues (2012) that success in LMX positively impacts both individual and team job satisfaction and commitment, leaders should develop a dyadic leader-member relationship with their team members. In one-on-one conversations, leaders can start by actively listening to concerns, expectations, and the individual perspective.

To conclude this section, transformational leadership behavior is implemented to a certain degree in team 1 and is rarely observed in other teams. Especially with the graphic of the transformational leadership chapter in mind, the reader of this thesis should be reminded that this form of leadership behavior positively correlates to team performance in a virtual setting (Purvanova & Bono, 2009). As a result of the positive effect of transformational leadership on the performance of virtual teams, the authors recommend that team leaders intentionally incorporate this approach and adapt their current practices to the aspects mentioned above.

Transformational leadership is effective for virtual teams because it addresses the challenges of virtuality. Remote leaders must manage geographically distributed and often cross-cultural team members. These circumstances require virtual team leadership skills that surpass co-located teams' management skills. The issue extends remote communication and implementing updated tools. Daily challenges demand adapted approaches and the development of virtual team management skills. (Zacco & Bader, 2003; Malhotra et al., 2007)

While the company offers diverse trainings for leaders in various areas, such as data protection, process, and project management, a corporate leadership training program specifically designed for the virtual or hybrid setting has yet to be developed. Department heads and team leads are individually responsible for booking and completing training courses in that regard. The authors recommend implementing training modules with a distinct emphasis on the challenges of digital leadership. This recommendation also applies to hybrid teams with minimal cultural diversity and being spatially distributed within one time zone. Leaders at the

company are aiming at implementing virtual management approaches at their discretion. Introducing a training program would assist leaders in establishing their remote teams. The first out of three modules should incorporate basic topics, such as using the right technology for the team's communicative and collaborative needs. The second module should include learning offers that address relationship and role management within the team by practicing emotional intelligence and conflict and communication management in a virtual setting. Such a module could further increase awareness of the importance of transformational leadership behavior while providing instructions for practical implementation. Moreover, this module could address questions on how to motivate individuals for a shared goal, how to establish collective confidence within the team, and how to create a team-oriented spirit within a virtual setting. The third module is suggested to encompass topics regarding achieving the required outcomes. Of course, the learning offer must be slightly adapted to the various needs and development stages of the leaders and their teams. (Rosen et. al, 2006; Jung & Sosik, 2002)

Providing employees with suitable learning offers or trainings to achieve the aimed outcome of effective and high performance also applies to the team level of virtual teams. In literature, trainings regarding technology, team processes, and cultural skills are outlined as the required primary training areas (Rosen et al., 2006; Holtbrügge et al., 2011). The organization already provides (regardless of the level of virtuality) trainings on the information and communication technology in use. This allows team members to operate with these tools and reduces communication or collaboration issues. Accordingly, the authors anticipate that newly hired colleagues will be onboarded in team processes and regular practices for maintaining a dynamic workflow. Standardized training in specific areas is implemented to ensure a highly effective team. Moreover, the organization offers a variety of trainings for professional development. Especially in the virtual work setting, the authors recommend additional workshops that create a space to (1) raise awareness of virtual challenges, (2) share experiences, (3) find solutions, and (4) build relationships. These workshops might detect and resolve conflicts, and allow team members to make interpersonal connections. That, in turn, would be reflected in the effectiveness and performance of the team (Dinh et al., 2021).

The interview partner, like Newman and Ford (2021), stressed the importance of mental health, especially in the context of virtuality. During the pandemic, some team members lived and worked in social isolation. Due to this, the management board put a strong focus on the topic of resilience. Detailed insights show that a learning offer on resilience was offered in the past, however, a more up-to-date version requires a distinct virtuality dimension. The management board reintroduced the program which includes face-to-face and online courses aiming to support employees with resilience. The adaptation and reintroduction of this training program are well received by employees, as the program addresses and supports employees' mental

health. When executives and managers take mental health seriously it shows appreciation towards employees. Hence, on this topic the authors conclude that valuing mental health positively affects employees' satisfaction and commitment to the company. Of course, it can be further stated that physical and mental health are related to an individual's performance and effectiveness.

Training should also be tailored to specific circumstances and needs of the teams to enable them to operate successfully in their virtual environment. Marketing is a field that requires creativity, which according to the leader, cannot be achieved in a virtual setting, and therefore their level of virtuality is minimal. It can be argued that virtuality does not decrease creativity and instead requires different techniques, methods and tools to express it in a virtual setting. To enable the cooperation company in this regard, the authors suggest providing the team with workshops to try out different approaches that can help foster creativity and to get familiar with creativity in a virtual environment. Moreover, specific training should be provided to the leader as they need the skills to moderate and coach creativity sessions in the future. This may lead to a changed and more supportive mindset of the leader regarding virtual work. Based on adapted team processes, an increased level of virtual maturity might lead to a higher level of virtuality for the team and more remote workdays per week.

Even though the teams of the collaboration company are not particularly multicultural, the significance of raising awareness and sensibility to diverse cultural values and norms should be emphasized. If cultural diversity increases in the team in the future, it is essential to minimize intercultural distance and misunderstandings through joint workshops (Holtbrügge et al., 2011).

For teams to operate successfully, it is necessary for them to have the right balance of skill differentiation. Teams 1 and 2 are moderately homogenous. This low level of skill differentiation may benefit team processes (Jehn et al., 1999) that are more difficult by nature in a virtual setting and may also be beneficial when substituting team members. However, having a certain degree of diversity within a team is advantageous towards performance.

When hiring new members, gaining information about them on a deeper level takes time and effort. This information is difficult to retrieve through a survey, however, on the surface, it is possible to diversify a team based on demographics. These visible characteristics are observable and measurable (Harrison et al., 1998) and can improve the team with suitable approaches.

The first two teams have low diversity, with no women in either team. A reason for this could be that the first two teams operate in male-dominated divisions, which make it more difficult for women to join. This would explain why team 3 is more diversified as it operates as the

marketing division, which is a less male-dominated division. This team requires creativity, innovativeness, and idea-generating skills. Therefore, diversity is especially critical in such a sector as high diversity offers a broader spectrum of ideas, KSAs, perspectives, and opinions, which can lead to better performance.

Overall, team 3 performs very well in most of the outcome categories. Nevertheless, team cohesion could be neglected since people tend to feel attracted to people with similarities (O'Reilly et al., 1989). Interestingly, inclusion is the only factor that team 3 has the lowest rating in of all three teams, which may be due to diversity. Handling a more diverse team forces the leader to handle different personalities, which can be challenging. Building trust with many different people is complex and needs a well-trained leader with many KSAs to approach all of them. All the teams have team-building events and other practices to foster collaboration and develop synergy (Blackburn, et al., 2003), which are essential team-level KSAs.

Furthermore, synergy is especially critical, but difficult to achieve in larger teams. The team leaders mentioned that the size of their teams is or was, at some point, too big. As a result, the organization should consider restructuring its divisions or compressing its teams to a manageable size for leaders. There may be a lack of monitoring because the leaders' workload is so overwhelming. Particularly in team 3, but also in teams 1 and 2, monitoring did not occur but was instead requested by the members. Additionally, team 3's level of virtuality further decreased control. Team members seem to perceive leaders who merely look at Wrike as insufficient. However, they are highly autonomous in managing themselves and making decisions on their own. (Klonek & Parker, 2021)

Team design not only represents organizational actions like sizing and creating but also structuring. According to Hollenbeck and colleagues (2012), companies, when structuring teams, need to look closely at the characteristics of authority differentiation, temporal stability, and skill differentiation.

The first characteristic picks up right where the previous section ended. Self-managing teams with decentralized decision-making are low on authority differentiation and therefore considered loosely coupled, promoting flexibility and personal responsibility. (Hollenbeck et al., 2011) This is aligned with this thesis' findings which show that all teams show enough self-responsibility and independence. As a result of virtualization, flexibility increased. Depending on the complexity of a task, authority differentiation may help or hinder virtual teams. The authors assume that most parts of the company and sector fall into complex categories that require highly specialized roles and skills. Such an environment is favored by low authority differentiation because members are presumed to have the expertise to make the right decisions. Additionally, the first team must constantly communicate and coordinate to perform their tasks. Processing vast amounts of information benefits from low authority. (Orton &

Weick, 1990) This team also has the highest degree of virtuality, which on the contrary, would be assisted by authority differentiation, which corresponds with much faster information channels. (Schaubroeck & Yu, 2017)

The second characteristic requires a distinction between the division and the groups within it. The level of temporal stability for the divisions is high or given, meaning that the divisions mostly remain the same (Hollenbeck et al., 2012). It is common for members of a division to continue working together in the same team setting. The majority of people within a division are expected to remain the same in the long run, even if some members join or leave. Nonetheless, project groups or teams are formed within the division (formally and informally) depending on KSAs and roles. These groups are not visible on an organizational chart and can change from time to time. However, the people within such a project group know each other because they work at the same divisional level.

As all teams are hybrid and have at least a medium level of virtuality, the authors suggest keeping temporal stability high. This will lead to better performance, adaptation, innovation, learning, member satisfaction, and member identification (Schaubroeck & Yu, 2017). The time it normally takes in a new team to build trust and establish norms and mental models can be used elsewhere, for example, in establishing team processes. In addition to the input factor of temporal stability, the moderator's 'nature of tasks' is also key to effective team processes.

Leaders of a virtual team must learn that different intensities of task interdependence require adjusted team processes. The nature of the task, meaning the degree of task interdependence and task complexity, affects the intensity of cooperation and communication within the team to accomplish a project. The higher the interdependence of tasks, the more exchange between team members is needed. In turn, this impacts input factors at multiple levels and the team's processes. Since the teams' task interdependence and complexity vary, the moderators affect input factors and team processes differently. As the workflow arrangement in team 1 is very intense, the team requires different input factors and team processes than teams 2 and 3. These teams are embedded in practice in a more reciprocal workflow arrangement requiring less collaboration. Particularly, the input factors of team design (Hollenbeck et al., 2011), reward systems (Lawler, 2003), as well as information and communication technology (Bell & Kozlowski, 2002) on the organizational level and the level of team composition (Bell & Kozlowski, 2002), are affected by the nature of the task.

In the case of team 1, some tasks can be completed independently of one another, and some tasks require frequent coordination. The interviewee states that while some tasks are built on others and require internal consultation, other tasks can be accomplished in parallel. Thus, workflow interdependence can exhibit varying characteristics, namely pooled, sequential, or reciprocal. Task interdependence, in turn, affects the level of task complexity. Team 1 defines

topics and projects every month. Relevant operational details are discussed informally without the team lead's authority. During the meetings, the responsible colleagues organize tasks and their dependencies.

Based on the interviews with the leader of team 2, it appears that tasks can mostly be carried out independently. Low task complexity is determined by pooled workflow interdependence. While tasks are not strongly linked in team 2, it is up to the person in charge to seek support or initiate a problem-management project in case of an incident. There is no concrete indication of how problem management is structured in the department and how strongly the tasks depend on one another. It is presumed that such a situation requires intensive workflow interdependence and occurs in a dynamic environment. The respondent also mentioned that team members or employees from outside the team support this situation. This also increases internal and external coupling. These attributes result in high task complexity.

Additionally, team 3 consists of two marketing specialists who state a different level of task interdependence compared to their colleagues. It is possible that the younger person of the two is the apprentice and sometimes has to wait until her mentor or more senior colleague has time for her. Alternatively, the younger person may be more focused on themselves, and the older person feels leadership responsibilities and therefore wants to know about current occurrences in the team. The younger person is from Croatia, which could lead to language and communication barriers. However, these are just assumptions.

Coordination needs to be clear, especially for non-routine tasks in which teams face unprecedented and unpredicted situations (Kirkman & Stoverink, 2021). The work progress was rated as transparent and well-structured, but still, members of the team do not know the current state of their colleagues. Given that some tasks are sequential or reciprocal, with multiple members working on the same task or collaborating to accomplish the project, it is useful or even necessary to be transparent about how and what colleagues are doing. Interestingly, in team 1, only one out of twelve participants operates independently, which may be due to their role, as they are a machinist and therefore work on-site, separated from the rest of the team who are in the office or at home. All in all, the teams, supported by the tools they use, are outstanding at managing dependencies and working procedures and fulfill the four essential aspects of coordination for the most part. (Zalesny et al., 1995).

In addition, a person in team 2 who feels excluded in meetings is the same person who does not know the current state of colleagues. In team 1 one person does not use a private channel. This could either be a hint at exclusion within the team or a sign of social loafing. In the same team, approximately half the team members use informal communication tools, which could indicate the formation of subgroups. However, the reason behind the usage of these channels is not known. Building subgroups that are formed by similar interests is normal and confirmed

by literature (O'Reilly et al., 1989). It is imperative in a virtual setting to keep team members motivated and participative to prevent problems that will harm the team (Purvanova & Bono, 2009). Neither team 2 nor team 3 engage in informal exchanges in private chats or via social media. However, spatially dispersed colleagues in team 1 use social media to send memes. It can be assumed that a company in the connectivity and internet sector and especially team 3 as a marketing division are familiar with social media's power and usage. It is essential to highlight that the authors do not recommend the use of social media explicitly for fun at work.

Finally, it is conspicuous that the statements of the leaders in teams 2 and 3 often do not match those of their team members. The authors address this problem by examining the three aspects of communication, which may be the most critical in the team process. Given that the company works in the field of telecommunications, they provide reliable and stable network connection and technology for their employees, which is necessary for high-quality communication. To achieve clear, effective, complete, fluent, and on-time communication, many more things play a role. Communication timeliness does not pose a challenge in this company as they only operate in Austria (Holton, 2001). Closed-loop communication could limit the team's communication and performance (Marlow et al., 2017). This aspect of team 3 could be negatively affected by diversity.

Teams could increase their communication frequency. Nevertheless, teams high in virtuality need to exercise caution in order to maintain efficiency, which is a risk to which only team 1 is exposed to. Also, the teams are high in temporal stability and familiarity; therefore, they can work effectively with less communication (Espevik et al., 2006). Teams 2 and 3 should try to eliminate irrelevant communication (Desanctis & Monge, 1998).

In terms of content, a solution could be provided by shifting the focus from a task-oriented interaction to a more interpersonal or relational interaction. Doing so can foster trust and cohesion (Gupta & Govindarajan, 2000; Jarvenpaa & Leidner, 1998).

Moreover, it can be assumed that leaders are prone to putting themselves in a favorable light during interviews. On the flip side, members may have clicked through the survey quickly, distorting the results by not taking enough time to think and reflect about their answers. This might happen when team members are not interested in the topic and see participation in such a survey as a burden. This would confirm the assumption that team 1 generally seems more motivated for this topic.

To increase mutual support within the three teams and thus effective team processes, reward systems can be used as an input factor. This, in turn, would further be the basis for high-performance teams. To go more into detail, at the organizational level, reward systems are powerful mechanisms for establishing norms, values, and individual or team effectiveness.

Therefore, its adaption to the characteristics of the team (such as virtuality) and the operating system is critical. As stated, the remuneration system should be developed in two steps: the base pay and the performance pay. According to Lawler (2003), a skill-based pay strategy is best suited to companies requiring employees to continuously improve their skills in a dynamic environment. During the interview with the expert, it was indicated that the organization uses a job-based payment strategy. According to the expert, remuneration is determined by the position and the area of responsibility. Specialization training is offered but this comes with specific roles and adjusted rewards depending on the role. In order to maximize the effectiveness and performance of the organization's virtual or hybrid teams, the authors suggest modifying its remuneration system to a skill-based payment policy. In particular, since the organization has low hierarchical structures, the suggested strategy would allow and motivate employees to develop their professional and personal skills without attempting to fulfill those needs elsewhere. Another significant aspect is that the organization is operating in a highly dynamic industry. Increased performance and a proactive approach to environmental changes that rely on the continuously developing competencies of employees create a competitive advantage for the organization.

In addition to the base-payment strategy, it is imperative to devote attention to the performance-based remuneration strategy. Wageman (1995) and Lawler (2003) suggest collective rewards for performance-based pay to promote team effectiveness and a sense of cohesiveness. If tasks are highly interdependent, collective reward is superior to individual performance bonuses. The insights regarding performance pay within the cooperation company show that both individualized and team performance reward strategies are applied. Even though the performance-based payment strategy was not discussed in detail during the interview, the provided insights showcase that there are project rewards (which are assumed to be split among the project team members) and annual bonuses which are remunerated according to performance. The latter is a bonus based on individual performance in goal achievement but is only achievable in some roles. A conflicted payment strategy also triggers diverging attitudes among team members. To reduce confusion, establishing a clear policy regarding rewards can be beneficial. Performance-based payment strategies need to align with the values and norms managers aim to establish. The interviews with the expert and team leaders indicate that team cohesion is highly valued, and a flat hierarchy is practiced. Through collective performance bonuses, mutual support and team effectiveness can be fostered.

While the input factor reward systems impact team processes through team cohesiveness and mutual support, information and communication technology - another input factor from the organizational level - enable virtual team processes. As the use of information and communication technology affects the performance and efficiency of virtual teams, it should

not be underestimated. As an additional way of making readers aware of these tools, the authors refer to the findings of Avolio and colleagues (2001), who stated that these tools have the power to influence and institutionalize team processes and social structures within a corporation or team. The nature of the task is another decisive moderator for choosing the information and communication technology in use. The lower the task complexity and interdependence, the better the asynchronous communication. If projects consist of high task interdependence and complexity, teams work more efficiently using synchronous communication and collaboration tools. The findings show that leaders perceive workflow arrangements as less interdependent than the actual team processes outlined by team members. Team 1 benefits from fast-paced communication and in-time collaboration for fast decision-making, while both teams 2 and 3 indicate a need for collaboration for their reciprocal workflow arrangement. However, they do not require quite as much synchronous exchange. Based on the literature (Avolio et al., 2001; Raven, 2003), we argue that every virtual operating company must provide its teams with technological systems to achieve the following functions:

- collaboration system
- knowledge support system
- group support system
- anonymous evaluation/feedback system

The results section explains how the above-listed systems are already implemented in various teams. To evaluate this briefly, the organization provides the right tools and teaches team members how to use them. The organization decides on the to-be-implemented technology based on individual team needs. Teaching employees its functions is crucial in establishing highly effective virtual teams. The tools and the extent of their use differ between teams as they operate in diverse work processes. Group support systems and collaboration systems are used. The following improvement suggestions can be outlined by comparing the teams' team processes and their information and communication tools. First, the authors suggest that team 1 instructs the other teams on how to use their knowledge management system in the most efficient and effective way possible. As a result, internal knowledge and learnings of past mistakes can be stored and shared individually or collectively by each team. The second recommendation is to expand the usage of the anonymous feedback tool. As each team uses this tool, its results should demonstrate progress. Team feedback can be used for improvement and discussed in board meetings. Furthermore, the results of the feedback tool should become a central topic in team meetings as a basis for discussion and improvement of the work environment. Team-internal conflicts, suggestions for improvement, etc., could then be addressed and solved immediately without social pressure. Third, even though collaboration systems within the team are crucial, the authors take a critical look at the extent to which they

are used. Team members stated that private channels are used for communication. Therefore, awareness should be raised about setting boundaries between work and employees' private environments. This is especially relevant in the virtual setting as the physical distance to the workspace is absent. The last recommendation refers solely to team 3, which has the lowest level of virtuality. According to the leader, co-location improves creativity. However, as co-location is not 100% feasible, the authors suggest trying and implementing tools that allow and support creative exchange within the team while engaging the creative flow with spatial distance.

In conclusion, this section provides an overview of how the discussed results are reflected in the teams' outcomes. When comparing the outcomes, it must be kept in mind that the level of virtuality is different for every team. Team 3 dominates most of the outcomes regarding performance. However, this team also has the least amount of virtuality. At this point, the authors appeal that lower levels of virtuality do not necessarily imply higher performance. As the virtual setting has proven to work well in general, especially when it comes to loyalty, motivation, and satisfaction, it is recommended to keep the level of virtuality at the current level in the teams. It would be interesting to see how they perform in a setting with a higher level of virtuality.

One could expect that the results would be even better since virtuality increased most of the outcomes, and the effectiveness of meetings improved. However, from the researchers' observations during the interview it can be inferred that this may not happen since the leader is less supportive of virtual settings in general, even though they claim virtuality makes things easier and better for some. Moreover, the leader also did not use the tool during the pandemic, further hinting at a lack of virtuality increase in the future.

Additionally, the results show that virtuality and control in team 3 are indirectly proportional. The leader is aware that virtual meetings need more discipline because people talk at the same time or over each other and do other things in parallel. According to the literature, this is especially challenging for virtual teams. Attention and focus are split between activities that have a negative impact on team performance, especially in highly virtual teams (Malhotra et al., 2001). If this trend continues, combined with the lack of monitoring and the potential for improvement in inclusion, recognition, and trust in this team, the leader may be overwhelmed with managing team processes in the future.

Team 1 also did very well in this thesis' outcome measurements and is perceived to be the frontrunner in terms of remote working within the organization. It is assumed that this team's success is due to its leader. Not only are they ranked highest in the category of satisfaction with the leader but they also ranked highest in trust and inclusion. However, while team 3's leader appears to bring higher results regarding performance or outcomes, leader 1 appears

to excel at leading team processes, even though they lead their team online most of the time. In conclusion, this leader and their team members are most interested in mobile working and receiving the most benefits.

Surprisingly, team 1 came up short of team 3 in the categories of satisfaction with the virtual setting, motivation, and loyalty. This could be due to the difficulty of reaching out to people virtually. It is assumed that disloyalty is also easier to carry out and perceive online since people can justify and avoid conflict when not present. What the two teams have in common is a need for more monitoring. Again, giving the team too much freedom and flexibility could easily backfire, especially in a workspace high on virtuality.

However, this thesis' results point at a high possibility that this team can work and succeed in an entirely virtual setting. Therefore, this team is considered the most mature virtual team examined in this thesis. It is challenging to compare these two teams, as both are hybrid, but their degrees of virtuality are at opposite ends of the spectrum. Team 2 lies somewhere in between. Team 2's outcomes are behind both teams, however, they have potential to bring in higher results in the future. The authors point to this team having the fewest input factors and a lack of distinct team processes in the wake of the IPO model. Therefore, their maturity level is low compared to the other teams, especially compared to team 1, even though they have a higher degree of virtuality.

Despite a factor being rated as undesirable, missing, or improvable, no team offered any reason or suggestion for improvement. In general, the willingness to provide answers to open questions was very restrained. However, the authors emphasize that leaving these questions open does not mean that there is no room for improvement. Instead, it can be assumed that the maturity level is low, and they simply do not know what to improve.

5.1. Implications

The goal of the research study was to test the applicability and functionality of the IPO model. The discussion of the theory allows the researchers to determine whether assumptions have been met, exceeded, or to what extent they cannot be confirmed. In more detail, this means investigating the intercorrelation of input factors, team processes, and outcomes. Besides that, the IPO model is developed for organizations to use as a guide to determine the virtual maturity level of teams. It is also developed with the intention of helping to implement the necessary factors and processes.

Based on the research, the authors can confirm the validity of the model's specific input factors and team processes and the intercorrelation of input factors, team processes, and outcomes. The research also comes with limitations. The authors emphasize that they are not in a position

to confirm the degree to which outcomes improve with the implementation of the input factors and team processes and instead confirm the influence on the outcomes through the survey. The open answers either did not provide proper insights or were skipped by the participants. Thus, the extent of specific interrelations could not be verified. This provides a significant learning opportunity concerning the research approach. At first, the approach to predefined answers and discussed possible limitations was questioned. However, the mixed approach of predefined answers and open questions showed that predefined answers yielded higher response rates.

The impact of moderators on the effect of input factors and team processes can be further confirmed to a certain extent. It was found how a change in moderator virtuality or the nature of the task affects the impact of, for example, remote leadership on team processes and the resulting outcomes. While virtuality can be determined as a critical moderator for remote or hybrid teams, specific research regarding possible adaptations according to different levels of virtuality could not be researched in detail. The diverse nature of this moderator (across the three teams) made it difficult to evaluate the results when directly comparing the teams' implemented factors and outcomes. The developed IPO model is most effective when applied to entirely virtual teams or teams with a high level of virtuality. A moderating attribute of the team context, such as different legal constraints, could not be observed. The impacts of team context could not be observed as the units of analysis operate under the same legal basis. Beyond the initial theoretical assumptions, an additional moderator for virtual teams could be identified, namely trust. Trust is the foundation for effectively working in a virtual setting and is mainly the leader's responsibility. This is not only stated in scientific literature but also confirmed by this thesis' research. Based on the findings, it is possible to determine trust as a moderator of the IPO model, as it moderates both the effects of leadership practices and team composition on team processes and the outcomes based on team processes. This enhances communication, team cohesion, and the confidence that the whole team is working together towards a common goal. The implemented practices of the teams (outlined in the results) further reflect its synergistic mechanism. A similar moderating effect across input factors, team processes, and their outcomes is found with transparency. The authors characterize transparency as a moderator as it impacts the effects of input factors and team processes on outcomes. The two newly added moderators are illustrated in the adapted IPO model.

Inputs

Organizational Factors
- Team Design
- Reward Systems
- Information & Communication Technology
- Training

Team Leadership
- Virtual Team Management Skills
- Transformational Leadership
- Leader-Member Exchange
- Empowerment

Team Composition
- Surface Level Diversity
- Deep Level Diversity
- Knowledge, Skills & Abilities

Team Processes

Coordination

Communication

Cooperation

Moderators

Virtuality

Task Interdependence

Task Complexity

Team Context

Trust

Transparency

Outcomes

Team Level
- Performance
- Effectiveness

Individual Level
- Performance
- Effectiveness
- Satisfaction
- Commitment

Figure 7: New IPO Model for Virtual Teams

Executing the case study with three embedded units of analysis allowed for application and testing of the IPO model in a practical environment. It can be confirmed that managers can use the IPO model as a guide for determining the virtual maturity level of the team. This is done by looking at the factors already supported by the team. In the second step, the model or guide can help identify the critical input factors and team processes that are needed to be adapted or implemented. This will enable the team to achieve the desired outcomes.

5.2. Limitations & Future Research

The findings of the thesis are limited to the methodology and the unit of analysis. In the following section, three main limitations are outlined:

First, the authors point out the limitations resulting from the homogeneity of the interviewed teams. While the organization ensured that teams with different attributes, levels of virtual maturity, areas of responsibility, and management approaches were involved, the findings are limited to teams with equivalent attributes. Thus, the potential heterogeneity of virtual teams is not represented in the study. As the virtual teams are located in the same time zone, it was not possible to determine adjustments to specific input factors and processes when collaborating with team members in multiple time zones. Furthermore, the practices required to create an inclusive environment for culturally rich teams could not be addressed as the teams are rather homogenous. The findings are further limited to these three levels of virtuality. Heterogeneous teams would have facilitated scientific significance and generalization for virtual teams with a variety of characteristics.

The embedded case study's second limitation is the number of teams interviewed, the participants who conducted the survey, and the leaders of the teams interviewed. Scaling the research with an increased number of cases would have allowed drawing more precise conclusions regarding the interplay of moderators, input factors on several levels, the practices of team processes, and the targeted outcomes. Insights from a broader range of perspectives would have led to different findings or suggestions for input factors and teams. However, in the course of this research, only the available results could be considered. That said, even a few more team members of teams 2 and 3 participating in the survey would have provided the researchers with more relevant information. A higher number of survey participants would also have allowed a more detailed cross-team analysis. Finally, the researchers would have been able to provide more conclusive guidance for practical adjustments to reach a new level of virtual maturity by creating an effective virtual team.

While outlining the third limitation, the researchers want to draw attention to specific work environments. Certain fields require employees to work creatively or to develop innovation. Although the teams interviewed operate in different fields, the findings are insufficient to determine how the IPO model applies to different fields. It was noticed that creative teams face unique challenges in the virtual setting, but it was not tested whether the model needed to be adapted. Testing and adapting the IPO model to suit various work environments would have increased its applicability. This would have been beyond the scope of this research thesis.

The authors were aware of the study's limitations and generalized their findings only within those limitations.

The study of virtual teams offers a vast number of topics that can still be researched. In addition, the relevance of applying this research area to practical settings is increasing. In light of this study, which focuses on the IPO model, the following research areas are suggested as possible future research areas. As it was not possible within the scope of this work, it would be interesting for further research to be done that investigates how input factors and team processes differ when comparing teams that differ in the following attributes: (1) levels of virtuality, (2) multiple time zones, (3) culture, as well as (4) fields and industries. The latter also refers to research regarding specific work environments and how such environments could be created with an IPO model and its factors. To be more specific, during the research process, the question "Which input factors and team processes generate a highly creative virtual work environment?" appeared to be particularly intriguing to the researchers. This would be a secondary research question if the study determines in-depth research on the topic. It would be valuable to investigate not only the marketing field but especially the areas of virtual innovation management.

6. Conclusion

The final chapter summarizes the main findings of this thesis and highlights the answers to the research question, namely, which relevant input factors and team processes increase virtual team effectiveness. The developed IPO model of virtual teams based on Dulebohn and Hoch (2017) and Krämer and Deeg (2008) was used as the theoretical groundwork and framework for the empirical research.

The analyses of the empirical results and their comparisons to the literature confirm the validity of the input factors and team processes illustrated in the IPO model. Further, the results prove that intercorrelations between the factors exist. Additionally, trust and transparency emerged as relevant moderators.

The model further allows for determining the maturity level of virtual teams by utilizing it as a guide to elaborate on the implemented input factors and team processes. However, applying the IPO model in this function during the research demonstrates the importance of moderator virtuality. The developed IPO model is most effective when applying it to entirely virtual teams or teams with a high level of virtuality.

ACKNOWLEDGEMENTS

7. Bibliography

Al-Ani, B., Horspool, A., & Bligh, M. C. (2011). Collaborating with 'virtual strangers': Towards developing a framework for leadership in distributed teams. Leadership, 7(3), 219-249.

Avolio, B. J., Kahai, S., & Dodge, G. E. (2001). E-Leadership: Implications for theory, research, and practice. 11(4), 54.

Barsade, S. G., Ward, A. J., Turner, J. D., & Sonnenfeld, J. A. (2000). To your heart's content: A model of affective diversity in top management teams. Administrative science quarterly, 45(4), 802-836.

Bass, B. M. (1985). Leadership and Performance Beyond Expectations. Free Press. https://books.google.at/books?id=NCd-QgAACAAJ

Bateman, T. S., and Crant, J. M. (1993). "The Proactive Component of Organizational Behavior." Journal of Organizational Behavior, 14, 103–118.

Blackburn, R., Furst, S., Rosen, B. (2003). Building a Winning Virtual Team. In: Gibson, C. B., & Cohen, S. G. (Eds.). Virtual teams that work: Creating conditions for virtual team effectiveness (1st ed). Jossey-Bass. 95-120

Bell, B. S., & Kozlowski, S. W. J. (2002). A Typology of Virtual Teams: Implications for Effective Leadership. Group & Organization Management, 27(1), 14–49. https://doi.org/10.1177/1059601102027001003

Bono, J. E., & Judge, T. A. (2003). Self-concordance at work: toward understanding the motivational effects of transformational leaders. Academy of Management Journal, 19.

Cannon-Bowers, J. A., Salas, E., & Converse, S. (1993). Shared mental models in expert team decision making. In N. J. Castellan (Eds.). Individual and group decision making: Current issues (221–246). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Cannon-Bowers, J. A., Tannenbaum, S. I., Salas, E., & Volpe, C. E. (1995). Defining competencies and establishing team training requirements. Team effectiveness and decision making in organizations, 333, 380.

Cao, W., Xu, L., Liang, L., & Chaudhry, S. S. (2012). The impact of team task and engagement on the transfer of tacit knowledge in e-business virtual teams. Information, Technology and Management, 13(4), 333–340.

Chen, G., Kirkman, B. L., Kanfer, R., Allen, D., & Rosen, B. (2007). A multilevel study of leadership, empowerment, and performance in teams. Journal of Applied Psychology, 92(2), 331–346. https://doi.org/10.1037/0021-9010.92.2.331

Chinowsky, P. S., & Rojas, E. M. (2003). Virtual teams: Guide to successful implementation. Journal of Management in Engineering, 19(3), 98–106.

Cramton, C. D. (2001). The mutual problem and its consequence for dispersed collaboration. Organization Science, 12(3), 346–371.

Cramton, C. D. (2002). Finding common ground in dispersed collaboration. Organizational dynamics, 30(4).

Cresswell, J. W., & Clark, V. P. (2007). Designing and Conducting Mixed Methods Research. Thousand Oaks CA: Sage.

Creswell, J. W. (2013). Qualitative inquiry and research design: Choosing among five approaches. Thousand Oaks, CA: Sage.

Desanctis, G., & Monge, P. (1998). Communication processes for virtual organizations. Journal of Computer-Mediated Communication, 3(4) (0–0).

Dinh, J. V., Reyes, D. L., Kayga, L., Lindgren, C., Feitosa, J., & Salas, E. (2021). Developing team trust. Organizational Dynamics, 50(1). https://doi.org/10.1016/j.orgdyn.2021.100846

Döring, N., & Bortz, J. (2016). Forschungsmethoden und Evaluation. Wiesbaden: Springerverlag.

Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012). A Meta-Analysis of Antecedents and Consequences of Leader-Member Exchange: Integrating the Past with an Eye Toward the Future. Journal of Management, 38(6), 1715–1759. https://doi.org/10.1177/0149206311415280

Dulebohn, J. H., & Hoch, J. E. (2017). Virtual teams in organizations. Human Resource Management Review, 27(4), 569–574. https://doi.org/10.1016/j.hrmr.2016.12.004

Espevik, R., Johnsen, B. H., Eid, J., & Thayer, J. F. (2006). Shared mental models and operational effectiveness: Effects on performance and team processes in submarine attack teams. Military Psychology, 18, 23–36.

Espinosa, J. A., Lerch, F. J., Kraut, R.E. (2004). Explicit vs. implicit coordination mechanisms and task dependencies: One size does not fit all. In: Salas, E., Fiore, S. M. (Eds.). Team cognition: Understanding the factors that drive process and performance. Washington, p.107-129.

Faraj, S., & Sambamurthy, V. (2006). Leadership of information systems development projects. IEEE Transactions on Engineering Management, 53(2), 238–249. https://doi.org/10.1109/TEM.2006.872245

Feldman, D. C. (1984). The development and enforcement of group norms. Academy of management review, 9(1), 47-53.

Ferrazzi, K. (2014). Getting virtual teams right. Harvard business review, 92(12), 120-123.

Fiol, M., & O'Conner, E. J. (2005). Identification in face-to-face, hybrid, and pure virtual teams: Untangling the contradictions. Organization Science, 16, 19–32.

Fiske, S. T., & Neuberg, S. L. (1990). A continuum model of impression formation: Influences of information and motivation on attention and interpretation. In M. P. Zanna (Ed.), Advances in experimental social psychology, vol. 23: 1-74. New York: Academic Press.

Forsyth, D.R. (1999): Group dynamics. 3. Aufl. Wadsworth.

Gibson, C. B., & Cohen, S. G. (Eds.). (2003). Virtual teams that work: Creating conditions for virtual team effectiveness (1st ed). Jossey-Bass.

Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation. Administrative science quarterly, 51(3), 451-495.

González-Romá, V., & Hernández, A. (2014). Climate uniformity: Its influence on team communication quality, task conflict, and team performance. Journal of Applied Psychology, 99(6), 1042–1058.

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. The Leadership Quarterly, 6(2), 219–247. https://doi.org/10.1016/1048-9843(95)90036-5

Graen, G., Novak, M. A., & Sommerkamp, P. (1982). The effects of leader—member exchange and job design on productivity and satisfaction: Testing a dual attachment model. Organizational Behavior and Human Performance, 30(1), 109–131. https://doi.org/10.1016/0030-5073(82)90236-7

Graham, C. R. (2003). A model of norm development for computer-mediated teamwork. In: Small Group Research 34, p.322-352.

Griffith, T. L., Sawyer, J. E., & Neale, M. A. (2003). Virtualness and knowledge in teams: Managing the love triangle of organizations, individuals, and information technology. MIS quarterly, 265-287.

Gupta, A. K., & Govindarajan, V. (2000). Knowledge flows within multinational corporations. Strategic Management Journal, 21(4), 473–496.

Hackman, J. R., & Katz, N. (2010). Group behavior and performance. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.). Handbook of social psychology (1208–1251). Hoboken, New Jersey: John Wiley & Sons, Inc.

Harrison, D. A., Price, K. H., & Bell, M. P. (1998). Beyond relational demography: Time and the effects of surface-and deep-level diversity on work group cohesion. Academy of management journal, 41(1), 96-107.

Harrison, D. A., Price, K. H., Gavin, J. H., & Florey, A. T. (2002). Time, teams, and task performance: Changing effects of surface-and deep-level diversity on group functioning. Academy of management journal, 45(5), 1029-1045.

Henderson, D. J., Liden, R. C., Glibkowski, B. C., & Chaudhry, A. (2009). LMX differentiation: A multilevel review and examination of its antecedents and outcomes. The Leadership Quarterly, 20(4), 517–534. https://doi.org/10.1016/j.leaqua.2009.04.003

Hertel, G., & Scholl, W. (2006). Grundlagen der Gruppenarbeit in Organisationen. na.

Hill, N. S., & Bartol, K. M. (2016). Empowering leadership and effective collaboration in geographically dispersed teams. Personnel psychology, 69(1), 159-198.

Hoch, J. E., & Dulebohn, J. H. (2013). Shared leadership in enterprise resource planning and human resource management systems implementation. Human Resource Management Review, 23, 114–125.

Hoch, J. E., & Kozlowski, S.W. J. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. Journal of Applied Psychology, 99, 390–403.

Hoegl, M., & Gemuenden, H. G. (2001). Teamwork quality and the success of innovative projects: A theoretical concept and empirical evidence. Organization science, 12(4), 435-449.

Hollenbeck, J. R., Ellis, A. P., Humphrey, S. E., Garza, A. S., & Ilgen, D. R. (2011). Asymmetry in structural adaptation: The differential impact of centralizing versus decentralizing team decision-making structures. Organizational Behavior and Human Decision Processes, 114, 64–74.

Hollenbeck, J. R., Beersma, B., & Schouten, M. E. (2012). Beyond team types and taxonomies: A dimensional scaling conceptualization for team description. Academy of Management Review, 37, 82–106.

Holtbrügge, D., Schillo, K., Rogers, H., & Friedmann, C. (2011). Managing and training for virtual teams in India. Team Performance Management: An International Journal, 17(3/4), 206–223. https://doi.org/10.1108/13527591111143727

Holton, J. A. (2001). Building trust and collaboration in a virtual team. Team Performance Management: An International Journal, 7(3/4), 36–47.

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations. Annual review of psychology, 56, 517-543.

Jarvenpaa, S. L., & Leidner, D. E. (1998). Communication and trust in global virtual teams. Organization Science, 10(6), 29–64.

Jehn, K. A., Chadwick, C., & Thatcher, S. M. B. (1997). To agree or not to agree: The effects of value congru-ence, individual demographic dissimilarity, and conflict on workgroup outcomes. International Journal of Conflict Management, 8: 287-305.

Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A field study of diversity, conflict, and performance in workgroups. Administrative Science Quarterly, 44, 741–763.

Jung, D. I., & Sosik, J. J. (2002). Transformational Leadership in Work Groups: The Role of Empowerment, Cohesiveness, and Collective-Efficacy on Perceived Group Performance. 25.

Kasper-Fuehrera, E. C., & Ashkanasy, N. M. (2001). Communicating trustworthiness and building trust in interorganizational virtual organizations. Journal of management, 27(3), 235-254.

Keyton, J. (1997). Coding communication in decision making groups. Managing Group Life: Communication in Decision Making Groups, 236–269.

Kirchmeyer, C. (1995). Demographic similarity to the work group: A longitudinal study of managers at the early career stage. Journal of Organizational Behavior, 16(1), 67-83.

Kirkman, B. L., Rosen, B., Gibson, C. B., Tesluk, P. E., & McPherson, S. O. (2002). Five challenges to virtual team success: Lessons from Sabre, Inc. Academy of Management Perspectives, 16(3), 67–79. https://doi.org/10.5465/ame.2002.8540322

Kirkman, B. L., & Stoverink, A. C. (2021). Building resilient virtual teams. Organizational Dynamics, 50(1), 100825.

Klimoski, R., & Mohammed, S. (1994). Team mental model: Construct or metaphor? Journal of management, 20(2), 403-437.

Klonek, F., & Parker, S. K. (2021). Designing SMART teamwork: How work design can boost performance in virtual teams. Organizational Dynamics Vol 50 (1), 2021, ArtID 100841.

Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. InW. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.). Comprehensive handbook of psychology, industrial and organizational psychology (333–375). New York, NY: John Wiley.

Kozlowski, S.W. J., & Klein, K. J. (2000). Amultilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein, & S. W. J. Kozlowski (Eds.). Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions (3–90). San Francisco, CA: Jossey-Bass.

Krämer, B., & Deeg, J. (2008). Die Optimierung der virtuellen Teamarbeit. In Gruppen und Teamorganisation In: Schreyögg, G., Conrad, P. (Eds.). Gruppen und Teamorganisation. Gabler, 165-208.

Lam, S. S. K., & Schaubroeck, J. (2000). Improving group decisions by better pooling information: A comparative advantage of group decision support systems. Journal of Applied Psychology, 85, 565–573.

Lawler, E. E. (2003). Pay Systems for Virtual Teams. In: Gibson, C. B., & Cohen, S. G. (Eds.). Virtual teams that work: Creating conditions for virtual team effectiveness (1st ed). Jossey-Bass. 121-144.

Lepsinger, R., & DeRosa, D. (2010). Virtual team success: A practical guide for working and leading from a distance. John Wiley & Sons.

Liden, R. C., & Maslyn, J. M. (1998). Multidimensionafity of Leader-Member Exchange: An Empirical Assessment through Scale Development. Journal of Management, 24(1), 43–72. https://doi.org/10.1177/014920639802400105

Locke, K. D., & Horowitz, L. M. (1990). Satisfaction in interpersonal interactions as a function of similarity in level of dysphoria. Journal of Personality and Social Psychology, 58: 823-831.

Lu, L., Yuan, Y. C., & McLeod, P. L. (2012). Twenty-five years of hidden profiles in group decision making: A meta-analysis. Personality and Social Psychology Review, 16, 54–75.

MacMillan, J., Entin, E. E., & Serfaty, D. (2004). Communication overhead: The hidden cost of team cognition. In E. Salas, & S. M. Fiore (Eds.). Team cognition: Understanding the factors that drive process and performance (61–82). Washington, DC: American Psychological Association.

Malhotra, A., Majchrzak, A., Carman, R., & Lott, V. (2001). Radical innovation without collocation: A case study at boeing-rocketdyne. MIS Quarterly, 25(2), 229–249.

Malhotra, A., Majchrzak, A., & Rosen, B. (2007). Leading virtual teams. Academy of Management perspectives, 21(1), 60-70.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. Academy of management review, 26(3), 356-376.

Marlow, S. L., Lacerenza, C. N., & Salas, E. (2017). Communication in virtual teams: A conceptual framework and research agenda. Human Resource Management Review, 27(4), 575-589.

Martins, L. L., Gilson, L. L., & Maynard, M. T. (2004). Virtual teams: What do we know and where do we go from here? Journal of management, 30(6), 805-835.

Maruping, L.M., & Agarwal, R. (2004). Managing team interpersonal processes through technology: A task-technology fit perspective. Journal of Applied Psychology, 89, 975–990.

Mathieu, J. E., Goodwin, G. F., & Heffner, T. S. (2000). The Influence of Shared Mental Models on Team Process and Performance. 12.

McIntyre, R. M., & Salas, E. (1995). Measuring and managing for team performance: Emerging principles from complex environments. In R. Guzzo, & E. Salas (Eds.). Team effectiveness and decision making in organizations (149–203). San Francisco: Jossey-Bass.

Meyer, C. (1994). "How the Right Measures Help Teams Excel." Harvard Business Review, 95–103.

Monge, P. R., & Contractor, N. S. (2003). Theories of communication networks. Oxford, NY: Oxford University Press. Morgeson, F. P., & Hofmann, D. A. (1999). The structure and function of collective constructs: Implications for multilevel research and theory development. Academy of Management Review, 24(2), 249–265.

Newman, S. A., & Ford, R. C. (2021). Five Steps to Leading Your Team in the Virtual COVID-19 Workplace. Organizational Dynamics, 50(1), 100802. https://doi.org/10.1016/j.orgdyn.2020.100802

O'Reilly III, C. A., Caldwell, D. F., & Barnett, W. P. (1989). Work group demography, social integration, and turnover. Administrative science quarterly, 21-37.

Orton, J. D., & Weick, K. E. (1990). Loosely coupled systems: A reconceptualization. Academy of Management Review, 15, 203–223.

Purvanova, R. K., & Bono, J. E. (2009). Transformational leadership in context: Face-to-face and virtual teams. The Leadership Quarterly, 20(3), 343–357. https://doi.org/10.1016/j.leaqua.2009.03.004

Raven, A. Team or Community of Practice: Align Tasks, Structures and Technologies. In: Gibson, C. B., & Cohen, S. G. (Eds.). (2003). Virtual teams that work: Creating conditions for virtual team effectiveness (1st ed). Jossey-Bass. 292-306.

Riopelle, K., Gluesing, J. C., Alcordo, T. C.,Baba, M. L., Britt, D., McKether, W., Monplaisir, L., Ratner, H. H., Wagner, K. H. Context, Task, and the Evolution of Technology Use in Global Virtual Teams. In: Gibson, C. B., & Cohen, S. G. (Eds.). (2003). Virtual teams that work: Creating conditions for virtual team effectiveness (1st ed). Jossey-Bass. 239-264.

Roehling, M. (2017). The important but neglected legal context of virtual teams: Research implications and opportunities. Human Resource Management Review, 27(4), 621-634.

Rosen, B., Furst, S., & Blackburn, R. (2006). Training for virtual teams: An investigation of current practices and future needs. Human Resource Management, 45(2), 229–247. https://doi.org/10.1002/hrm.20106

Schaubroeck, J. M., & Yu, A. (2017). When does virtuality help or hinder teams? Core team characteristics as contingency factors. Human resource management review, 27(4), 635-647.

Sparrow, P., and Daniels, K. (1999). "Human Resource Management and the Virtual Organization: Mapping the Future Research Issues." In C. Cooper and D. Rousseau (Eds.). Trends in Organizational Behavior. New York: Wiley.

Steiner, I. (1972). Group process and productivity. New York: Academic Press.

Stock, R. (2004). Drivers of team performance: What do we know and what have we still to learn? Schmalenbach Business Review, 56(3), 274-306.

Thompson, L. F., & Coovert, M. D. (2006). Understanding and Developing Virtual Computer-Supported Cooperative Work Teams.

Townsend, A. M., DeMarie, S. M., & Hendrickson, A. R. (1998). Virtual teams: Technology and the workplace of the future. Academy of Management Executive, 12(3), 17–29. https://doi.org/10.5465/AME.1998.1109047

Van Knippenberg, D., & Schippers, M. C. (2007). Work group diversity. Annu. Rev. Psychol., 58, 515-541.

Wageman, R. (1995). Interdependence and Group Effectiveness. Administrative Science Quarterly, 40(1), 145–180. https://doi.org/10.2307/2393703

Wagner III, J. A. (1995). Studies of individualism-collectivism: Effects on cooperation in groups. Academy of Management journal, 38(1), 152-173.

Wellman, B., Salaff, J., Dimitrova, D., Garton, L., Gulia, M., & Haythornthwaite, C. (1996). Computer networks as social networks: Collaborative work, telework, and virtual community. Annual review of sociology, 22(1), 213-238.

Wiesenfeld, B. M., Raghuram, S., & Garud, R. (2001). Organizational identification among virtual workers: The role of need for affiliation and perceived work-based social support. Journal of Management, 27, 213–229.

Yin, R. K. (2003). Designing case studies. Qualitative research methods, 5(14), 359-386.

Yin, R. K. (2009). Case study research: Design and methods (Vol. 5). sage.

Yukl, G. (1999). An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. The Leadership Quarterly, 10(2), 285–305. https://doi.org/10.1016/S1048-9843(99)00013-2

Zaccaro, S. J., & Bader, P. (2003). E-Leadership and the Challenges of Leading E-Teams: Organizational Dynamics, 31(4), 377–387. https://doi.org/10.1016/S0090-2616(02)00129-8

Zalesny, M. D., Salas, E., & Prince, C. (1995). Conceptual and measurement issues in coordination: Implications for team behavior and performance. Research in personnel and human resources management, 13, 81-115.

8. Appendix A: Interview Guideline

Interviewpartner*in	
Datum	
Zeit & Ort	
Dauer	
Anmerkungen zum Interview & zur Gesprächsatmosphäre	

I. Begrüßung

Hallo, wir sind Hannah und Michael.

Recht herzlichen Dank, dass Sie sich für dieses Gespräch Zeit genommen haben.

II. Vorstellung und Ziel des Projektes

Im Rahmen unserer Masterarbeit an der Johannes-Kepler-Universität Linz möchten ich und meine Kollegin die Prozesse, die während der Arbeit in und mit virtuellen Teams ablaufen, evaluieren. Dabei möchten wir herausfinden, wo Ihr Team aktuell steht, welche Führungsmethoden Sie verwenden und wie effektiv Ihr Team zusammenarbeitet.

III. Beschreibung des Ablaufs

Das Interview erfolgt in Form eines Leitfadeninterviews, die Fragen sind offen gestaltet und behandeln den soeben genannten Themenbereich. Wir bitten Sie die Fragen so ausführlich wie möglich zu beantworten, um die bestmöglichen Schlussfolgerungen erzielen zu können.

Das Interview wird circa 30-60 Minuten dauern. Ist es für Sie in Ordnung, wenn wir das Interview mit einem Audiogerät / über die Aufnahmefunktion aufzeichnen? Das würde uns das Transkribieren später erleichtern. Die Daten werden selbstverständlich anonym behandelt und in anonymisierter Form verwendet. Sie haben dazu bereits ein Dokument unterschrieben.

Interviewpartner*in fragen, ob sie/er bereit ist; Aufnahmegerät/Aufnahmefunktion einschalten und mit der ersten Frage starten.

FRAGENOMPLEX A: Einstiegsfragen

Zum Einstieg würde ich Sie bitten, ein bisschen etwas über Sie, Ihrer Person sowie Position zu erzählen.

- Abteilung
- Teamleitung seit
- Anzahl der Teammitglieder
- Aufgabenbereich der Abteilung

FRAGENKOMPLEX B: Inputs

- Wie ist der Grad der Virtualität im Team geregelt?

B1. Team Design & Team Composition: Diversity & KSAs

- Können Sie uns einen Einblick in die Teamzusammensetzung geben?
- Worauf wir insbesondere eingehen möchten, sind die Unterschiede bzgl. Kultur, Fähigkeiten, Ausbildung, Persönlichkeit. Wird auf Diversität im Team bewusst geachtet? Wenn ja, wie?
- Wie lange findet die Zusammenarbeit im jeweiligen Team statt? Kommt es für bestimmte Projekte zu einer Neuzusammenstellung von Workgroups?

B2. Team Leadership & Team Composition

- Werden die Rollen und Verantwortungsbereiche im Team explizit zugeteilt und kommuniziert?
- Bis zu welchem Grad können Mitarbeiter:innen ohne Rücksprache und Freigabe Entscheidungen treffen?

B3. Team Leadership

Wir möchten nun von der Teamzusammensetzung zum Leadership überleiten. Hier interessieren uns vorrangig die Gestaltung der Praktiken im virtuellen Setting.

- Welche Fortbildungen wurden Ihnen als Führungskraft in Bezug auf Virtual-Team-Management angeboten?
- Wird hier im Speziellen auf das virtuelle Setting geachtet?
- Welche Themen sind diesbezüglich vorrangig?
- Welche Normen und Werte möchten Sie im Team etablieren? Welche sind insbesondere im virtuellen Setting von Bedeutung?
- Durch welche Praktiken fördern Sie diese Normen und Werte?
- Wie werden diese kommuniziert bzw. explizit festgelegt?
- Wie fördern Sie den Teamzusammenhalt?

- Durch welche Verhaltensmuster macht sich gegenseitige Unterstützung zur Erreichung der gemeinsamen Ziele bemerkbar?
- Nun kommen wir zum Führungsstil. Welche virtuellen Führungspraktiken sind für Sie von besonderer Bedeutung? Wie haben Sie Ihren Führungsstil dem virtuellen Setting angepasst?
- Wie werden Ziele definiert und kommuniziert?
- Wie motivieren Sie Mitarbeiter:innen gemeinsame Ziele zu erreichen?
- Wie ist ein virtuelles Teammeeting strukturiert?
- Finden diese regelmäßiger statt?
- Worauf wird speziell geachtet?

FRAGENKOMPLEX C: Team Processes

C1: Communication

- Wie wird außerhalb von Meetings kommuniziert?
- Welche Kommunikationstools werden verwendet?
- Wie findet der informelle Austausch mit Mitarbeiter:innen statt? Unterschied/Veränderung?
- In virtuellen Settings, wie z. B. in einem remote Meeting, ist es oft schwer sicherzustellen, dass alle Mitarbeiter:innen „on the same page" sind. Wie wird die Qualität bei virtueller Kommunikation sichergestellt, insbesondere, ob das Gesagte vom Empfänger richtig interpretiert wird?

C2: Cooperation & Coordination

- Inwiefern sind die Tasks der Mitarbeiter:innen miteinander verknüpft bzw. müssen sich die Mitarbeiter:innen untereinander abstimmen?
- Wie wird ein reibungsloser Ablauf sichergestellt, wie werden einzelne Tasks koordiniert?
- Werden Aufgaben hinsichtlich der Fähigkeiten der Mitarbeiter:innen verteilt?
- Welche Tools sind zur Koordination der Tasks in Verwendung?
- Monitoring: Wie werden Fortschritte protokolliert?
- Inwiefern haben sich durch das virtuelle Setting die Normen in Bezug zur Koordination und Kooperation geändert?
- Wurden diese Kommunikationsnormen in der Folge explizit festgelegt?

FRAGENKOMPLEX D: Outcomes

Der folgende Fragenblock bezieht sich auf die Outcomes und die Performance Ihres virtuellen Teams.

- Wodurch zeichnet sich Ihrer Meinung nach ein effektives Team aus?
- Trifft dies auf Ihr Team zu?
- Wie wird dies gemessen?
- Hat sich die Performance durch das virtuelle Setting verändert?
- Könnte dies Ihrer Meinung nach durch Praktiken oder Prozesse verbessert werden? Durch welche?
- Wie und weshalb hat sich Ihr Commitment zur Firma bzw. die Zufriedenheit mit Ihrer Arbeit im virtuellen Setting verändert?
- Wie und weshalb hat sich das Commitment zur Firma bzw. die Zufriedenheit mit der Arbeit Ihrer Mitarbeiter:innen im virtuellen Setting verändert?

FRAGENKOMPLEX E: Organizational Level

E1: Rewards & Trainings

Von den Prozessen kommen wir nun zurück zur Organisationsebene.

- Welche Fortbildungen hat man Ihnen als Führungskraft in Bezug auf Virtual-Team-Management angeboten?

E2: Rewards & Virtuality (optional bei Expertengespräch)

- Wie ist der Grad der Virtualität auf Organisationsebene geregelt?
- Ist vom Unternehmen festgelegt, dass Mitarbeiter:innen nach Abschluss bestimmter Trainings einen Gehaltssprung machen oder ist dies nur aufgrund einer höheren Position möglich?
- Wird bei besonderen Leistungen das gesamte Team belohnt oder die erbrachte Leistung des Einzelnen?

FRAGENKOMPLEX F: Abschlussfragen

- Möchten Sie uns zum geführten Interview zusätzliche Aspekte liefern?
- Herzlichen Dank für Ihre Zeit und die erbrachten Ausführungen, über ein Feedback Ihrerseits würden wir uns freuen.

9. Appendix B: Survey Results

I. Welcome

Liebes LIWEST-Team, Im Rahmen unserer Masterarbeit im Studiengang Leading Innovative Organizations (LIO) an der Johannes-Kepler-Universität Linz möchten wir, Hannah Schneller und Michael Bräuer, die Prozesse virtueller Teams evaluieren. Dabei möchten wir herausfinden, wo Ihr Team zurzeit steht, welche Führungsmethoden verwendet werden und wie effektiv Ihr Team zusammenarbeitet. Die Daten werden selbstverständlich anonym behandelt und in anonymisierter Form verwendet. Wir bitten Sie die Fragen so ausführlich wie möglich zu beantworten, damit sowohl wir als auch LIWEST und somit Ihr Team, das meiste daraus schöpfen können. Vielen Dank, dass Sie sich ca. 10 Minuten Zeit für unsere Survey nehmen.

II. Question Groups and Answers

1. <u>Einstiegsfragen</u>: Bitte geben Sie uns zum Einstieg Angaben zu Ihrer Person, Ihrem Background und Ihrer Position.

1.0. Abteilung: Welcher Abteilung/welchem Team gehören Sie an? (Single Choice = SC)

Antworten	Team 1	Team 2	Team 3
Application Management	12		
Marketing & Produktmanagement		4	
Produkte & Dienste			5

1.1. Alter: Wie alt sind Sie? (SC)

Antworten	Team 1	Team 2	Team 3
<30	1		1
31-40	5	2	
41-50	5	1	2
>50	1	1	2

1.2. Herkunft: Angaben zur Nationalität. (Offen)

Antworten	Team 1	Team 2	Team 3
Österreich	12	4	4

			1
Kroatisch			1

1.3. Geschlecht: Mit welchem Geschlecht identifizieren Sie sich? (SC)

Antworten	Team 1	Team 2	Team 3
Männlich	10	4	2
Weiblich	2		3
Divers			

1.4. Ausbildung: Was ist Ihre höchste Ausbildung? (SC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Lehre	1	1	1
Matura	4	1	1
Universität/Fachhochschule Bachelor	2	1	
Universität/Fachhochschule Master	3	1	3
Sonstiges	2		

Kommentar Team 1:

Fachhochschule Diplomstudiengang; Fachschule

1.5. Ausbildungsbereich: In welchem Bereich haben Sie Ihre Ausbildung gemacht? (Offen)

Team 1:

2x Software Engineering; Wirtschaftsinformatik; 6x IT; Wirtschaft; Produktdesign, Technische Kommunikation; Kaufmännisch; Usability

Team 2:

Bauingenieur; Projekt & Prozessmanagement; Matura Maschinenbau, Bachelor Informatik; IT-Techniker

Team 3:

Wirtschaftswissenschaften; Telekommunikation und Medien; Lebensmittelhandel; Wirtschaftsinformatik und Digital Business; Mode- und Bekleidungstechnik

1.6. Welche Position/welchen Aufgabenbereich haben Sie im Moment? (Offen)

Team 1:

2x Softwareentwicklung; Teamleitung; System Administrator; IT Projektmanager; Testmanager; Projektleiter; 1st Level IT Support; Datenbankentwickler; Requirement Engineer, Resourcenplanung; DBA; Testing, Support

Team 2:

Technologie Architekt; Abteilungsleiter; IT System Engineer Digital Service; Systemarchitekt IT

Team 3:

2xProduktmanagement; 2xMarketing Spezialist; Beschwerdemanager

2. <u>Inputs:</u> Die folgenden Fragen beziehen sich auf die Teamzusammenarbeit und den Führungsstil im virtuellen Setting.

2.0. Authority: Bis zu welchem Grad können Sie ohne Rücksprache und Freigabe Entscheidungen treffen? (SC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Entscheidungen innerhalb des zuständigen Aufgabenbereichs darf die/der Verantwortliche selbst treffen.	7	1	2
Meine Fähigkeiten ermächtigen mich gewisse Entscheidungen zu treffen.	1	1	1
Nach kurzer Absprache mit der Führungskraft treffe ich die Entscheidung selbst.	4	1	2
Sonstiges		1	

Kommentar Team 2:

Ich bin Führungskraft

2.1. Herausforderung: Haben Sie das Gefühl, dass Sie den Herausforderungen Ihrer Arbeit gewachsen sind? (SC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Manche Aufgaben fordern mich heraus und erlauben mir daran zu wachsen.	7	3	3

Ich fühle mich den Herausforderungen gewachsen.	4	1	2
Ich fühle mich unterfordert.	1		
Sonstiges			

2.2. Motivation: Wie motiviert und inspiriert Sie Ihre Führungskraft? (Multiple Choice=MC; und Kommentar)

Antworten	Team 1	Team 2	Team 3
Durch die charismatische Persönlichkeit der Führungskraft fühle ich mich inspiriert.			
Die Führungskraft schätzt meine Fähigkeiten und geht individuell auf diese ein.	12	3	4
Die Führungskraft hat eine gute Vorbildwirkung, kommuniziert die Teamziele und teilt die Vision.	9		1
Die Führungskraft fordert mich auf, Ideen/Praktiken zu hinterfragen.	6		2
Die Führungskraft erkundigt sich nach meinem Wohlbefinden und meinen persönlichen Interessen.	9	2	1
Ich fühle mich weder motiviert noch inspiriert.		1	
Sonstiges			

2.3. Feedback: Wie oft bekommen Sie konstruktives Feedback von Ihrer Führungskraft? (SC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Täglich			
Wöchentlich	5	1	1
Monatlich	4	2	2
Nie			
Sonstiges	3	1	2

Kommentar Team 1:

Je nach Bedarf und Situation; 3–4-mal jährlich

Kommentar Team 2:

Sporadisch

Kommentar Team 3:

Im Bedarfsfall; ausreichend

2.4. Führungsstil: Wie hat sich der Führungsstil ihrer Führungskraft im virtuellen Setting verändert? (Offen)

Team 1:

Durch Einführung von Dailys wenig verändert. War vorher auch schon gut.; Einführung von Dailys; Ist beim alten geblieben.; Strukturen wurden eingeführt, Rituale angepasst. Durch den aktuell steilen Wachstum der Abteilung wurde ein Teamleiter eingeführt der ihm helfen soll die Leadership Aufgaben besser zu bewältigen (z.B. MA Gespräche).

Der kulturelle Wandel wurde von ihm proaktiv gestaltet und gesteuert. Eine Org Richtlinie für mobiles Arbeiten wurde bereits vor Corona erarbeitet, da 2019 eine Kommunikationsplattform eingeführt wurde die das virtuelle Arbeiten optimal unterstützt.; keine Veränderung, da nicht anders gewohnt; Da gibt es für mich keinen Unterschied.; Kann ich nicht beantworten, da ich erst dem Team beigetreten bin als Home Office bereits Standard war.; Der Stil hat sich nicht geändert. Er ist weniger greifbar, aber hat volles Vertrauen in unsere Fähigkeiten; Mehr Nachfragen, weil sonst automatisch weniger Kontakt; gar nicht; k.A.; Wir waren bereits vor Corona Vorreiter in Sachen Mobile Working. Hat sich schnell auf die neuen Gegebenheiten eingestellt.

Team 2:

Keine wesentliche Veränderung von mir wahrgenommen.; mehr Hybridmeetings; Hyrbide Meetings haben sich verbessert

Technische Hürden / Probleme gibt es quasi nicht mehr (Wahl der korrekten Eingabegeräte, Teilen von Medieninhalten, etc.)

Regelmäßige Meetings sind viel kürzer wie zu Beginn - die Performance hat sich stark verbessert

Team 3:

Ja, durch Webex wurden täglich "Dailys" möglich; Virtuelle Zusammenkünfte haben den Meetingstil verbessert - 1 spricht, die anderen hören zu. Moderation des Meetings, wurde kürzer und auf das wesentliche beschränkt; gar nicht; Der Führungsstil ist etwas in den Hintergrund gerückt. Die Mitarbeiter arbeiten selbständiger und haben ein eigenes Self-

Management entwickelt.; Kaum. Die corona-bedingten Virtuellen-Besprechungen haben jedoch eine produktivere Besprechungskultur gebracht.

2.5. Abteilungswechsel: Sagt Ihnen das Setting und/oder der Führungsstil in anderen Teams/Abteilungen mehr zu? Bitte begründen Sie Ihre Antwort. (Ja/Nein und Kommentar)

Antworten	Team 1	Team 2	Team 3
Ja	1		
Nein	11	4	5

Kommentare Team 1:

Unsere Abteilung probiert etwas aus und vieles wird dann von anderen kopiert; Es wird regelmäßig kommuniziert, Es wurden Rahmenbedingungen für gute Abstimmung geschaffen, Es herrscht große Flexibilität; Laut dem Umfragensystem TeamEcho, läuft es im AM besser als in anderen Abteilungen.; Produktivität durch virtuelles Arbeiten gesteigert, durch Präsenztage geht das Soziale nicht verloren, Homeoffice Tage sind wegen geringerer Rüstzeiten und Fahrtzeiten gut für die Work Life Balance; habe aber auch keine Erfahrungswerte dazu; Kenne den Stil in anderen Abteilungen nicht.; Soweit ich informiert bin ist es bei uns am unkompliziertesten.; Wir sind gut organisiert.; zu viele Einschränkungen

Kommentare Team 2:

Über den virtuellen Führungsstil anderer Abteilungen, hab ich keine Wahrnehmung. Das virtuelle Setting mit anderen Abteilungen ist hauptsächlich in der Meeting Funktion für mich erlebbar. Dabei nehme ich für mich keine wesentlichen Unterschiede war.; Unser virtuelles Setting funktioniert sehr gut.

Kommentare Team 3:

gutes Team; kann ich auch nicht wirklich beurteilen

2.6. Verbesserung: Wie könnte Ihre Führungskraft bessere Rahmenbedingungen für das virtuelle Setting schaffen? (Offen)

Team 1:

Arbeit kann flexibel erledigt werden; Weitere Toolunterstützung anfordern (ist aber bereits geschehen) => personalisierte virtuelle Räume werden gerade implementiert, Whiteboard Tool ist in Evaluierung, hybride Besprechungsräume wurden eingerichtet. Darüber hinaus

fällt mir nichts ein; hoffe auf die persönlichen Webex-Lizenzen; keinen Vorschlag; Remote Work (zeitweise) aus dem Ausland (Workcation). Ansonsten bin ich mit der Umsetzung sehr glücklich.; Teambuilding Frequenz erhöhen; Es könnte auch bei weniger Mobile Working Zeit Equipment gesponsert werden. Essensgutschrift auch bei Home Office. Stromkostenzuschuss...; gar nicht - alles gut; habe keine Verbesserungsvorschläge

Team 2:

Habe kein Bedürfnis nach besseren Rahmenbedingungen virtuelle Settings betreffend.; Meine Führungskraft ist meist Präsent; im Moment fallen mir keine Verbesserungspunkte ein;

Team 3:

Passt; bin damit zufrieden; passt wie es ist; Obwohl beim Arbeitsalltag mehr Selbst-Management vorhanden ist und das dazu führt dass die Führungskraft weniger Einblick in die einzelnen Aufgaben und die daraus resultierenden Ergebnisse hat, sollte mehr Lob und Wertschätzung ausgesprochen werden.; Optimiert mit einer gemeinsamen Kommunikationsoberfläche. Bei uns sind derzeit mehrere in Verwendung.

2.7. Auswirkungen: Auf welche der folgenden Faktoren würden sich zuvor beschriebene Änderungen positiv auswirken? (MC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Performance	5		2
Motivation	5		1
Zufriedenheit	5	1	
Loyalität	3		
Teamzusammenhalt	4	1	2
Vertrauen	2		1
Sonstiges		2	1

Kommentar Team 2:

Keine; alle / keine

Kommentar Team 3:

Bin zufrieden

2.8. Probleme: Welche Probleme bzw. Konflikte sind durch das virtuelle Setting aufgetreten? Beschreibe Sie etwaige Situationen kurz. (Offen)

Team 1:

Durch hybrides Setting gibt es Gruppen. Die im Büro sind und die anderen.; Keine; Spontane Kontaktaufnahme mit den Kollegen ist schwer möglich. Es muss ein Zeitpunkt vereinbart werden.; durch ständiges Homeoffice geht der soziale Zusammenhalt verloren. Das war aber der Pandemie geschuldet und nicht dem virtuellen Arbeiten per se. Die Aufteilung Präsenz und Homeoffice macht das Problem obsolet; Diskussionspunkte sind schwieriger zu kommunizieren, Fehlende Konzentration auf den Termin, Stille Teilnehmer; Abstimmungsprobleme, weil man sich nicht so oft über den Weg läuft.; Ist am Anfang eine Umstellung. Bei schlechtem Audio muss man aufmerksam sein, um nicht jemanden zu überhören/übersehen. Körpersprache etwas schwerer zu lesen. Manche machen es sich in Terminen zur Angewohnheit zu chatten oder nebenbei an anderen Themen zu arbeiten.

Team 2:

Am Anfang verwirrungen, wie die Jabber Funktionen anzuwenden sind. Später Verwirrung durch den parallelen zusätzlichen Einsatz von Webex bei P&D und die technoschen Wechselwirkungen in der Anwendung.; Keine; zu Beginn waren es technische Hürden und die Dauer der Meetings - mittlerweile hat sich das aber stark gebessert

Team 3:

Mitarbeiter nicht mehr ad-hoc verfügbar. keine "Kaffeepausen" mit Kollegen zu einem Fachdiskussion, Virtuell benötigt mehr Disziplin beim Sprechen, Virtuell arbeiten die Kollegen oft paralell an anderen Dingen; Die zwischenzeitliche Abstimmung zwischen Kolleg*innen, Fragen rasch klären ist nicht so schnell und einfach möglich, schafft Distanz; wenn mehrere gleichzeitig etwas sagen möchten; Konflikte auf persönlicher Ebene entstehen leichter und werden schwerer gelöst.; "Probleme": Die sozialen Kontakte sind dadurch nat. weniger geworden. Möglicherweise hatten Mitarbeiter auch Konflikte im privaten Bereich. Nicht jeder hat seinen eigenen Raum um Homeoffice auch optimal nutzen zu können.

3. <u>Processes:</u> Folgender Fragenkomplex bezieht sich auf die Kommunikation, Kooperation und Koordination innerhalb des Teams.

3.1 Kommunikation: Welche Kommunikationstools werden im Team verwendet? (MC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Kalender	10	4	5
Videocalls	12	4	5
Mail	12	4	5
Informelle Tools	7		
Private Kanäle	11	3	5
Projektmanagementtools für transparente Prozesse	11	4	5
Telefon	10	4	4
Sonstiges	1		2

Kommentar Team 1:

Confluence

Kommentar Team 3:

Vor Ort Gespräche; Jabber

3.2 Informeller Austausch: Wie findet der informelle Austausch mit Kolleg:innen und der Teamleitung statt? (MC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Kaffeepause	11	4	5
Mail	4	2	2
Videocall	7	4	2
Social Media	3		
Privat	6		
Es findet kein informeller Austausch statt	1		

Sonstiges	4		1

Kommentar Team 1:

Chat Nachrichten; Teambuildings; Chat; weekly / daily

Kommentar Team 3:

Mci Mittwoch

3.3 Meetingart: Beschreiben Sie ein typisches virtuelles Meeting. (MC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Meetings sind klar strukturiert	7	2	3
Es gibt einen Moderator/Verantwortlichen der das Meeting steuert	12	4	4
Zu Beginn des Meetings schildert jedes Teammitglied seinen Ist-Stand	3	1	3
Die Führungskraft ist an der Meinung aller (egal ob virtuell oder vor Ort) interessiert und fragt aktiv nach	8	2	3
In Meetings werden Probleme besprochen und gemeinsam nach einer Lösung gesucht	11	1	3
In den Meetings werden Erfolge gefeiert	9	1	4
In den Meetings wird auch Persönliches ausgetauscht	10	1	4
Ich fühle mich in virtuellen Meetings miteinbezogen	9	3	4
Ich fühle mich in virtuellen Meetings nicht immer miteingebunden	2	1	1
Sonstiges		1	

Kommentar Team 2:

Dauer und Häufigkeit zu lang/oft

3.4 Meetingunterschiede: Wie unterscheidet sich ein virtuelles Meeting von einem Meeting im Büro? (MC)

Antworten	Team 1	Team 2	Team 3
Alle Personen werden durch eine Hybride Abhaltungsweise gleich in das Meeting eingebunden und können mit diskutieren egal ob im Büro oder virtuell	9	4	1
In Präsenzmeetings fühle ich mich mehr miteinbezogen	5		2
Virtuelle Meetings sind effizienter gestaltet	1	3	2
Präsenzmeetings sind effizienter gestaltet			2
Die Effizienz eines Meetings ist sowohl virtuell als auch in Präsenz gegeben	11	1	1

3.5 Meetinganzahl: Wie oft gibt es virtuelle Teammeetings und welche Themen werden darin behandelt? (Offen)

Team 1:

Täglich, alles was aktuell ist; Täglich, Wöchentlich, Zusätzlich je nach Projekt/Rollen; Tägliche Meetings. Betriebliche Themen, Gesundheitszustand, private Themen.; intern:

täglich (Daily) => An und Abwesenheiten, Allgemeine und Lageinfos zur Firma, Abstimmungsbedarf und dann Breakout Sessions, wöchentlich (Weekly) => zusätzlich werden neue Dokumente vorgestellt, Retrospektiven durchgeführt, monatlich => Ressourcenplanung, ggf. Budgetplanung, extern (mit Partner Firmen): Dailys, Working Togethers => je nach Themenschwerpunkt werden i.d.R. Tickets durchbesprochen und neue Vorhaben abgestimmt; jeden Tag Themen: Anwesenheiten/Gesundheit/Allgemeines/Abstimmungsbedarf; täglich; Täglich, da bei ziemlich allen Meetings immer irgendwer zu Hause ist. Dadurch werden eigentlich auch alle Themen behandelt. Einzig Gespräche wie Mitarbeitergespräche werden immer in Präsenz gehalten.; täglich mehrfach, sowohl organisatorisches als auch fachliches; Täglich. Abteilungsthemen und fachliche Themen. Tlw. sogar Onlineschulungen.; Täglich - Allgemeine Interne Themen und Abstimmungen; sehr oft, alles, was eben zu behandeln ist; daily - Anwesenheiten, Gesundheitsstatus, allgemeine Themen, Firmeninfos, Abstimmungsbedarf über BreakOut-Sessions, weekly - zusätzlich zu daily: Feedback der letzten Woche, Planung von eventuellen abteilungsinternen Workshops der nächsten

Wochen, weiters gruppenspezifische Jour-Fixes (Entwicklerabstimmung, Releaseplanung, Betriebsweekly, ...) – wöchentlich

Team 2:

2 x wöchentlich. Arbeitsplanung und Klärung dringlicher Fragestellungen.; Weekly; 2x wöchentlich, Beginn der Woche wird eine grobe Wochenplanung von allen Mitarbeitern präsentiert - beim 2. Meeting in der Woche nur Änderungen oder wichtige Punkte hervorgehoben. Es werden allgemeine Informationen in das Team getragen, gemeinsame wichtige Punkte/Meilensteine hervorgehoben. Es gibt die Möglichkeit Kommunikationsbedarf in kleiner Runde direkt ans Meeting anzuhängen, falls Bedarf besteht - "kurz und knapp Meeting"; 2x je Woche ALLES

Team 3:

50%; Täglich 10 Minuten im Daily (Themen des Tages besprechen & kurze Abstimmung untereinander) - manchmal sind Meetings virtuell aufgrund von Mobile Working - das ist unterschiedlich / Team JF wurde bewusst wieder auf Präsenz umgestellt; je nach Anwesenheit aller notwendigen Teilnehmer - jegliches Thema, das anfällt; 3-4 /Woche; tgl. Daily - od. wöchentliche Teambesprechung, wobei diese wieder im Präsenzmodus abgehalten werden.

3.6 Task interdependence: Inwiefern sind die Tasks im Team miteinander verknüpft? Inwiefern müssen Sie sich untereinander abstimmen? (SC)

Antworten	Team 1	Team 2	Team 3
Es arbeiten immer mehrere Kolleg:innen an einem bzw. an übergreifenden Aufgaben. Dadurch ist eine ständige Koordination und Kommunikation erforderlich.	9	1	1
Die Aufgaben bauen aufeinander auf (sequentiell) jedoch wird zwischen den (Teil-) Aufgaben oft diskutiert und adaptiert.	1	2	3
Gar nicht, jeder arbeitet an seinen eigenen Aufgaben, unabhängig von Kolleg:innen.	1	1	
Da die Aufgaben im Team nacheinander (sequentiell) erfolgen müssen und aufeinander aufbauen, kann es vorkommen, dass ich warten			1

muss, bis jemand anderes seinen Task erledigt hat.				

3.7 Koordination: Wie werden Aufgaben und Arbeitsabläufe koordiniert? (MC und Kommentar)

Antworten	Team 1	Team 2	Team 3
Die Zuteilung erfolgt durch die Führungskraft	3	2	3
Durch Selbsteinteilung je nach Erfahrung/Kunde/Standort	9	4	2
Durch flexible Zuteilung (Wer Zeit hat, nimmt sich der neuen Aufgabe an)	3	1	1
Der Arbeitsablauf ist klar strukturiert	9	1	3
Der Arbeitsablauf ist transparent gestaltet	8	1	2
Ich kenne den Ist-Stand meiner Kolleg:innen	2	2	3
Sonstiges	2		

Kommentar Team 1:

Je nach Projekt oder Prozessarbeit unterschiedlich; klar definierte Arbeitsbereiche

3.8 Protokollierung: Wie werden Fortschritte eines Projektes protokolliert? (Offen)

Team 1:

Tanks werden abgeschlossen; Projekt/Task-Status, Projektfortschrittsberichte; Es wird dokumentiert in Wrike, Jira und Confluence.; Wrike und Jira als Tools (gesynct), Methodisch PRINCE2, Scrum und mit den darin empfohlenen Kommunikations und Dokumentations / Planungsmittel; In Jira-Tickets bzw. durch setzen definierter Status, Wrike Tasks ebenso, Zahlreiche Listen und Dokumente; Projektdokumentation über Arbeitspakete, PLA Präsentation (Prince2 Methodik); Das ist je nach Projekt unterschiedlich, meist jedoch im entsprechenden Tool (Wrike, Jira etc.); Dokumentiert in unterschiedlicher Software (Wrike, Jira etc); In Wrike über Tasks dokumentiert bzw. Synchronisation mit Jira.; Wrike Tasks; je nach Bereich in den entsprechenden Tools (Wirke, Jira, Confluence), Word, Excel; über Wrike & Jira

Team 2:

Durch Aufgabenverfolgung mittels Wrike; im Wrike; Wrike

Team 3:

Wrike, E-Mail, Persönlich; In Wrike Protokollen; im Abteilungs-JF-Protokoll; Wrike; Im wöchentl. Team-Jour Fix-Protokoll.

4. Outcomes: Der letzte Fragenkomplex beschäftigt sich mit den Ergebnissen von Teamarbeit (z.B. Performance, Motivation, Zufriedenheit, Vertrauen, Zusammenhalt usw.).

4.1 FaktorenTeam: Welche Faktoren sind für Sie im Team ausreichend gegeben? (Ja/Nein und Kommentar)

Antworten	Team 1	Team 2	Team 3
Kommunikation	11	4	5
Koordination	9	2	4
Kooperation	12	3	4
Monitoring	6	1	1
Leadership	9	1	2
Technologie	10	4	3
Eigenverantwortung	11	4	5
Eigenständiges Arbeiten	10	3	4
Sonstiges			

4.2 Wunschfaktoren: Welche Faktoren und/oder Praktiken würden Sie sich zusätzlich wünschen? (offen)

Team 1:

Alles gut; Usability Einheit; Abteilungs- / TeamKanBan, strukturierteres Multi-Projektmanagement; Koordination; k.a.

Team 2:

Keine; keine zusätzlichen; keine

Team 3:

Monitoring; Mehr Personal; Loyalität; bin zufrieden

4.3 Veränderung: Was hat sich durch die Virtualität geändert? (Zunahme, Unverändert, Abnahme) (3-point Scale)

Antworten	Team 1	Team 2	Team 3
Meine Performance	4x Zunahme 8x Unverändert	3x Zunahme 1x Unverändert	3x Zunahme 2x Unverändert
Die Performance meines Teams	3x Zunahme 9x Unverändert	2x Zunahme 2x Unverändert	2x Zunahme 3x Unverändert
Meine Zufriedenheit	3x Zunahme 9x Unverändert	4x Zunahme	3x Zunahme 2x Unverändert
Kontrolle	1x Zunahme 11x Unverändert	4x Unverändert	2x Abnahme 3x Unverändert
Flexibilität	8x Zunahme 4x Unverändert	4x Zunahme	5x Zunahme
Vertrauen der Führungskraft in mich	2x Zunahme 10x Unverändert	4x Unverändert	1x Zunahme 4x Unverändert

4.4 Grund für Veränderung: Beschreiben Sie den Grund für die Veränderungen und nennen Sie Verbesserungsvorschläge. (offen)

Team 1:

Flexibilität hat sich erhöht, man kann Meetings schneller wechseln oder wird bei Bedarf kurz dazu geholt.; Virtuelles Arbeiten erhöht die Flexibilität von jedem.; weniger Rüstzeiten, mehr Abstimmung als früher, strukturierteres Arbeiten; Durch die Flexibilität über virtuelle Teilnahme können private Termine leichter koordiniert werden. Man bekommt trotzdem das Vertrauen, dass die Arbeite was ansteht ordentlich gemacht wird.; Habe nur die ersten 6 Monate ohne Home Office gearbeitet, daher fällt mir der Vergleich schwer. Ich bin aber sehr glücklich auch von Zuhause arbeiten zu können da ich dadurch deutlich flexibler bin, was meine Zufriedenheit erhöht. Ansonsten sehe ich keine Auswirkung von Home Office auf meine Arbeit.; Unsere Führungskraft hat in der Praxis erfahren, dass man sich auf uns auch virtuell verlassen kann; Fokussiertes Arbeiten ist leichter geworden. Die "kleinen" Ablenkungen und das persönliche Gespräch/Austausch hat abgenommen. Private Themen anderer Kollegen werden nicht mehr war genommen - Würden vielleicht manche Stimmungslagen erklären.; k.A.; Performance: ungestörteres Arbeiten möglich. Flexibilität: eigene Flexibilität aufgrund Zeiteinteilung besser, jedoch Team-Flexibilität etwas geringer

- da man im Büro "nebenbei" schneller etwas mitbekommt bzw. man eher wen kurz anspricht als ihn per Telefon/Videokonferenz anzurufen.

Team 2:

Technik hat Voraussetzungen geschaffen, Corona hat die Vertrauensfrage überwinden geholfen.; Da Mobileworking und flexible Arbeitszeit einfach Mindeststandard sind.; Da virtuelle Meetings meist kürzer abgehalten werden, ist die Performance gestiegen - sowohl die des Teams als auch meine eigene, Dadurch erhöht sich auch die Flexibilität, da man nicht immer vor Ort sein muss um dem Meeting beitreten zu können

Team 3:

Manchmal sind Kollegen virutell schwerer ad-hoc greifbar; bin zufrieden; Es hat sich nichts zum schlechteren verändert.; Corona. Zuvor war in meinem Bereich keine virtuelle Zusammenarbeit nötig. Ich würde zukünftig Besprechungen mit externen Partnern virtuell einplanen. Das spart auf jeden Fall Arbeitszeit.

4.5 Ranking: Bewerten Sie folgende Faktoren in Ihrem Team. (1 = sehr gut, 2 = gut, 3 = befriedigend, 4 = genügend, 5 = nicht genügend) (5-point Scale)

Antworten	Team 1	Team 2	Team 3
Persönliche Performance	1,67	2,25	1,4
Team Performance	1,83	2,25	1,6
Loyalität	1,75	1,75	1,6
Motivation	1,92	2,25	1,8
Vertrauen	1,83	2	2
Zugehörigkeit	1,67	1,75	1,8
Zufriedenheit im virtuellen Setting	1,83	2	1,6
Zufriedenheit mit der Führungskraft	1,5	2	1,8

5. <u>Feedback Survey</u>: Das möchte ich zum Thema noch anmerken: (Offen)

Team 1:

Gut wenn gut gelebt und Vertrauen im Vordergrund.; k.a.; Ich bin froh, dass unsere Führungskraft sich so aufs virtuelle Arbeiten eingelassen hat und noch immer einlässt.

Team 2:

Bitte weiter nutzen. Keine Rückkehr zum Status vor Corona.

Team 3:

Die Möglichkeit im HomeOffice / Mobile Work zu arbeiten bietet ein flexibleres & effizienteres Arbeitsumfeld. Ich gewinne 1 h, die ich nicht im Auto sitze und kann in Ruhe komplexere Arbeiten durchzuführen, aufgrund weniger Ablenkungen (durch Kolleg*innen Fragen, Besuche im Büro, sozialen Kontakt etc.); Nicht jeder Arbeitgeber hatte das Vertrauen, das für diese Form der Zusammenarbeit nötig war. Auch die technischen Voraussetzungen sind hier auf jeden Fall zu berücksichtigen. Ohne entspr. Internetanbindung gibt es keine Virtualität. Je schlechter die Verbindung, umso schlechter ist Zusammenarbeit möglich. Und die Menschen lehnen dann schnell solche Innovationen ab.

III. End Message

Herzlichen Dank für Ihre Teilnahme an der Umfrage. Wir wissen Ihre Zeit und Ihren Input sehr zu schätzen.