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Perceptions and Challenges of Participative Decision-Making in Hybrid Teams

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Abstract

This thesis fulfills its aim by creating a theoretical framework in order to identify and analyze the perceived challenges of participative decision-making in hybrid teams, which are two concepts of growing importance. Previous research has neglected the intersection between the two, which is a shortcoming this thesis addresses by considering their challenges in conjunction. To address the purpose, the thesis asks what the perceptions of team members and managers are of how the participative decision-making process varies when members of hybrid teams work in person or virtually, and what the most commonly perceived obstacles are. A literature review first helps to build the preliminary framework, considering the main challenges within each concept and their connections by looking at participative decision-making in the hybrid context. A mixed-methods approach is utilized to test the challenges of the framework with a survey, followed by a focus group to gather a wider set of qualitative data to better understand the challenges. The results show that obstacles to PDM are often perceived to interconnect with those of hybrid teams and vice versa, as well as impact challenges within each concept. Furthermore, working in person or remotely also impacted the perceptions of these challenges, with PDM during remote work typically perceived as more greatly influenced. The significance of this research lies in the creation of a theoretical framework based on the literature review and adapted and validated by empirical data. Future studies can now further test the framework with new methods or in new contexts, as well as apply the challenges of participative decision-making to other relevant concepts.

Keywords: Participative decision-making, hybrid teams, challenges, trust, communication, team identification, participation, implementation, undiscussables

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1 Introduction

In this first chapter, a background of the current environment of participative decision-making and hybrid teams is provided, followed by a resulting problem statement and subsequent research questions. Finally, an outline describes the overall structure of this thesis.

1.1 Background

Today, companies across the world increasingly support employee-centered approaches, where employee involvement in workplaces is promoted (Zhou, Fan & Son, 2019). Generally, corporate dynamics are changing towards less hierarchical organizations in favor of more democratic work cultures (Frega, Herzog & Neuhäuser, 2019). In fact, the last century saw schools of thought regarding management and organizational theories transition away from a focus on strict managerial control. Particularly with the growth of the Human Relations School and subsequent approaches, there has rather been a great concern for the participation and well-being of employees (Rothschild, 2000). These two concepts of participation and well-being go hand in hand, as studies have shown that democratic and participative organizational models lead to healthier and more humane working environments (Guinot, Monfort & Chiva, 2021). Therefore, in organizations embracing these new views, employees are no longer being tightly controlled and seen as just stakeholders, but rather as important parts that work to make up a whole (Guinot, Monfort & Chiva, 2021).

While this in many situations benefits employees, it also improves the functioning of the overall organization through increases in engagement and even creativity, thus fueling innovation (Walsh, 2017; Wong, Chow, Lau, & Gong, 2018). Therefore, as participation increases in the decision-making process, power disperses among the workforce, leading to flatter hierarchies. As a result, the idea of empowering participation in decision-making has spread to both increase innovation and foster greater job satisfaction (Donovan, 2011; Van Der Westhuizen, Pacheco & Webber, 2012).

Along with an increasing emphasis on participation, technological developments have triggered significant changes in the modern workplace, the most prominent being increased digitalization. One of the biggest accelerators of digitalization of the workplace was the 2020 Covid-19 pandemic. The pandemic forced organizations to adapt in a plethora of ways, in particular regarding how to organize when all employees cannot be in the office. These rapid adaptations led to the digitalization of some workplaces being sped up by up to four years (LaBerge, O'Toole, Schneider & Smaje, 2020). As a result, the status quo of how workforces were organized changed, and certain concepts, including that of hybrid work, persevered past the pandemic (Pataki-Bittó & Kapusy, 2021).

The pandemic therefore presented an opportunity for the potential benefits of hybrid work, working from home, and overall workplace flexibility, to be further explored and recognized.

While some benefits of hybrid work had already been studied, resistance to the practice was still commonplace (Bloom, Liang, Roberts & Ying, 2015). The sudden need for alternatives to in-office work due to the pandemic has however largely changed this (Dettmers & Plückhahn, 2022). In many ways, the strategic advantages of utilizing technology in this way are now being increasingly appreciated; for example, the cost-saving potential of hybrid work). Similarly to the impact of increasing participation, not only do organizations increasingly recognize the benefits, but since the pandemic, hybrid working arrangements have also been widely demanded by employees to maintain a degree of flexibility (Wiatr & Skowron-Mielnik, 2023). However, there are still examples of resistance to the practice, with for example Citigroup CEO Jane Fraser, previously a work-from-home advocate, limiting the practice on a productivity basis (Morrow, 2023). Similarly, Twitter CEO Elon Musk reverted the company's work-from-home policies, albeit only to soon re-implement them (Tsipursky, 2023). Overall, there are unforeseen challenges and consequences that come with this new way of working that need to be mitigated (Lund, Madgavkar, Manyika & Smit, 2020). The prevalence and popularity of hybrid working implies a need for these challenges to be researched further.

1.2 Problem statement

As organizations are increasingly supporting the involvement of their employees within decisions, so too has the idea of participative decision-making (PDM) within teams gained popularity (Zhou, Fan & Son, 2019). Although definitions of PDM vary, it can broadly be seen as any decision-making process within a group short of authoritative management, which is where decisions are made alone or with only hierarchical equals (Locke, Schweiger & Latham, 1986). Therefore it can be said that increasingly, many major companies put a larger emphasis on more participative processes when it comes to decision-making (Zhou, Fan & Son, 2019), especially considering the aforementioned trend towards more democratic workplaces.

This trend can be partially attributed to its many reported benefits, especially related to increased job satisfaction, increased participation producing greater quality decisions overall, and increased information sharing (Donovan, 2011; Van Der Westhuizen, Pacheco & Webber, 2012). PDM has also been linked to encouraging creativity as it increases the sharing of ideas and varying viewpoints, simultaneously improving ties between team members (Wong et al, 2018). However, studies have also found limitations on the effectiveness of PDM depending on case and context, including in relation to time available, expertise, and preferences of participants (Locke, Schweiger & Latham, 1986). Similarly, the degree of voluntary PDM within teams has also been related to perceptions of team dynamics, especially concerning levels of trust and respect, wherein PDM increased with trust and respect (Wong et al., 2018). This highlights the volatility of PDM, and its close dependency to individual perceptions and preferences. As a result, it could be inferred that these new ways of working could further impact the effectiveness and perceived effectiveness of PDM.

A clear gap in research connected to PDM is how it relates to the increasing emphasis on hybrid work and the growing number of hybrid work teams. Although hybrid work has been a concept in development largely since the internet began to become widespread, it was predominantly limited to organizations that utilized it based on necessity for geographically separated employees (Wiatr & Skowron-Mielnik, 2023). Today however, its increase in popularity is stemming not only from necessity but also from employees who demand flexibility in where they can work (Wiatr & Skowron-Mielnik, 2023). This also relates to the mentioned trend of increasing concern for the well-being and demands of employees, where they have greater say.

With the increased popularity of hybrid work comes a natural increase in the frequency of hybrid teams, which fall somewhere on the scale between being purely virtual and purely face-to-face (Cousins, Robey & Zigers, 2007). However, despite the increased popularity of hybrid teams, the majority of research on teams has largely been focused on one of those two ends of the scale, i.e. either remote or on-site (Alves, Dimas, Lourenço, Rebelo, Peñarroja, & Gamero, 2022). Due to hybrid teams being an under-researched phenomenon in comparison (Alves et al., 2022), there remain great opportunities for further developments in how to increase their effectiveness, particularly through understanding the strengths and challenges of spatial and temporal limitations (Mitchell & Brewer, 2022). In the last few years, however, some particular challenges have begun to be identified, particularly following the widespread adoption of hybrid work during the Covid-19 pandemic. Examples of common challenges specific to hybrid teams are divisions by subgroups and weak team development as well as trust, largely from poor communication (Mitchell & Brewer, 2022; Mugayar-Baldocchi, Schaninger & Sharma, 2021).

Overall, as the concepts of hybrid teams and PDM converge, it is possible that their unique characteristics and challenges create new dynamics that need consideration. However, research related to this cross-section has thus far been limited, looking only at adjacent topics such as trust and communication in hybrid and virtual teams (Hinds & Mortensen, 2005; Zolin, Hinds, Fruchter & Levitt, 2004) employee PDM during Covid-19 (Arregi, Gago & Legarra, 2022), and group decision making in different forms of communication (Benbunan-Fich, Hiltz & Turoff, 2003; Kiesler & Sproull, 1992), etc. Due to the limited attention given to the intersection of PDM and hybrid teams, the implications of these concepts being applied in conjunction are not yet explored in detail.

1.3 Purpose and Research Question

The purpose of this thesis is to create a theoretical framework in order to identify and analyze the perceived challenges of participative decision-making in hybrid teams. With this in mind, the following research questions are proposed:

1. What are the most commonly perceived obstacles for PDM in hybrid teams?
2. What are the perceptions for team members and managers of how the participative decision-making process varies when hybrid teams work in person or virtually?

1.5 Outline

This thesis begins with a review of existing literature on participative decision-making and hybrid teams, tracing their evolution and strengths. Based on the literature review, theories on recurrent barriers to participative decision-making, as well as for hybrid teams are used to build an initial theoretical framework by connecting the challenges of each concept. The methodology chapter discusses the research design, including the collection and analysis of data, and the limitations of the study. Following this, the findings of the empirical study are presented and then analyzed to find patterns. Finally, the results will be discussed in the context of literature, and the framework will be modified. A final chapter will present key findings as well as provide suggestions for further research.

2. Literature Review and Theoretical Framework

This chapter begins with a literature review with definitions of PDM as well as its strengths and challenges. Special consideration is given to recurring challenges of PDM found in literature, and these challenges form the partial groundwork for the theoretical framework. Following the analysis of PDM, a similar process is undertaken regarding hybrid teams. Finally, a section bridges the concepts and highlights how their challenges are interrelated, forming the theoretical framework. This framework focuses on the clear intersections between the individual challenges of PDM and hybrid teams.

2.1 Participative Decision-Making

PDM is a term with a variety of definitions without one that is generally agreed-upon, making it a fragmented area of research. This results in a range of ideas that all fall under the term PDM but represent vastly different concepts (Cotton, Vollrath, Froggatt, Lengnick-Hall & Jennings, 1988). For the purpose of this research, the wide-encompassing and comprehensive definition of PDM by Heller, Pusic, Strauss, and Wilpert (1998, p. 42) will be utilized, which defines it as:

... the totality of forms, i.e. direct (personal) or indirect (through representatives or institutions) and of intensities, i.e. ranging from minimal to comprehensive, by which individuals, groups, collectives secure their interests or contribute to the choice process through self-determined choices among possible actions during the decision process.

This definition highlights varying degrees of participation in PDM and the importance of self-determination as a driving force of the process. In this sense, PDM does not mean that everybody involved is required to have a significant role in the decision-making process; however, they must have the opportunity to contribute. This broad definition was chosen in order to cover all possible aspects of the dynamics of groups engaging in PDM.

Furthermore, PDM can be implemented through different means. As Dachler and Wilpert (1978) outlined, there can be formal efforts to implement participation as well as informal structures that support its execution. They state there may be an imposed formal system to achieve PDM, which could, for example, take the form of management policies that regulate how work is to be carried out in a team or organization. On the other hand, PDM is also said to potentially emerge in informal fashions. Its development can be a result of group interactions that organically legitimize the process and make it a norm (Dachler & Wilpert, 1978). Therefore, PDM does not necessarily need to officially be an intention for it to be a core aspect of how a group functions.

Locke, Schweiger, and Latham (1986) contrast PDM with authoritative forms of decision-making, highlighting the two ends of the spectrum. While authoritative decisions are described as those made by managers or an employee individually, participative decisions can

therefore be recognized as any made collectively between managers and their subordinates. This further highlights the broad aspects of PDM. Therefore, put simply, PDM represents decisions made jointly in a pair or group across hierarchical levels (Locke, Schweiger & Latham, 1986).

2.1.1 Strengths

The advantages of using PDM are highly debated in literature. Many studies report benefits, mostly focused on job satisfaction, productivity, and performance (Cotton et al., 1988; Locke, Schweiger & Latham, 1986; Van Der Westhuizen, Pacheco & Webber, 2012). However, a debate was started by Leana, Locke, and Schweiger (1990), who argued against previous studies (Cotton et al., 1988) that PDM can actually decrease performance as well as job satisfaction due to decision paralysis and decreased motivation from an overload of autonomy. In a rebuttal, Cotton, Vollrath, Lengnick-Hall and Froggatt (1990) disagree with this conclusion, and methods utilized to arrive there. Overall, they argue, along with future studies, that it seems clear that PDM is beneficial in regard to job satisfaction, commitment, and aligning goals and efforts if it fits the situation and is implemented correctly (Lengnick-Hall & Lengnick-Hall, 1992).

Participation has also been shown to improve employee mental health in general (Kukenberger, Mathieu & Ruddy, 2015). This relates to the argument by Yates (2014) that PDM is actually a necessary aspect of ethical leadership that results in heightened employee commitment. The idea of PDM is therefore defended from a value-based argument. Sashkin (1984) for example, not only claimed that participative decisions benefit performance, employee satisfaction, and the quality of the decisions themselves, but also that there is an ethical imperative to allow employees to take part in shaping their work. This relates to the crucial aspect of self-determination in Heller et al., (1998) definition of PDM.

Beyond employee satisfaction, PDM has generally been argued to improve the quality of discussions and decisions (Donovan, 2011), as well as the use of information through discussion (Van Der Westhuizen, Pacheco & Webber, 2012). Furthermore, within a game theory framework, groups have been found to make more selfish decisions, which from a game theory perspective means better decisions, than individuals (Charness & Sutter, 2012; Kugler, Kausel & Kocher, 2012). This shows PDM to be an effective tool to improve the quality of decisions. Therefore, PDM appears to be beneficial both on an operational and psychological level.

2.1.2 Challenges

Concerning the challenges of PDM, they mostly relate to optimal application. The inhibitors to success are not necessarily inherent to the concept of PDM, but rather to how it is approached in practice. In this regard, the main challenges surrounding PDM have been found to be related to participation, implementation, and undiscussables (Table 1).

Challenge	Sources
Participation	Black & Gregersen, 1997; Hollingshead, 1996; Pasmore & Fagans, 1992
Implementation	Kanter, 1982; Lengnick-Hall & Lengnick-Hall, 1992, 1990
Undiscussables	Argyris, 1990; Argyris & Schön, 1978; Donovan, 2011; Flanagan & Runde, 2008

Table 1: Main challenges for PDM with sources

Participation

An obviously important factor to PDM is the aspect of participation; what is less obvious is how to achieve it. During the PDM process, there is the risk that certain members do not actually share their thoughts, due to a variety of reasons that may cause apprehensions, and therefore decisions end up being made by only the loudest voices (Donovan, 2011). In this regard, group members with less influence are often more likely to suppress critical information they might possess, prioritizing conformity instead (Hollingshead, 1996). Therefore, what may appear to be PDM could actually lack its most crucial element. This can be described as the application of pseudo-participation, wherein there is only an image of participation, which is harmful to the fostering of trust in an organization (Lengnick-Hall & Lengnick-Hall, 1992).

One aspect of participation is power. A seminal definition of power states that it is the ability to influence others, including to effect a certain decision (Dahl, 1957). Building on this, Lukes (1974) proposes a three-dimensional view of power, extending the original definition of decision-making power by the two dimensions of non-decision-making power, or agenda-setting power, i.e. the power of preventing certain decisions from being taken as first defined by Bachrach and Baratz (1962), and ideological power, i.e. the power to influence other people's opinions. In practice, certain employees might have over- or under-proportional influences on decisions being made, which dictates the degree of influence any participation has.

Black and Gregersen (1997) summarized another important dimension of PDM as involvement, analogous to the idea of participation. Dachler and Wilpert (1978) define the degree of involvement on a spectrum influenced by factors such as the amount of information received in advance when making a decision, the freedom to share opinions, the degree to which they are taken seriously, the ability to veto, and if the decision is completely left to employees or not. Black and Gregersen (1997) associate high levels of involvement with greater performance, emphasizing the importance of participation.

Assuming the freedom to participate, the next important factor to consider is the willingness to participate (Glew, O'Leary, Griffin & Van Fleet, 1995). Pasmore and Fagans (1992) identified a gap in the research on PDM and participation in organizations in general: the readiness of employees to participate. They argue that this readiness, affected by training and preparation, has a significant impact on the potential positive outcomes of participation. Therefore, even if individuals have the chance to participate in a decision-making process, they must want to seek

the opportunity to do so. However, this can still often be related to contextual factors, including aspects of hierarchy, management, and individual attitudes (Falcone, 2017).

Implementation

As previously mentioned, there is a level of debate on the efficacy of PDM, however, scholars have argued that it seems evident that certain forms of PDM do have a positive impact on an organization (Cotton et al., 1990). Nonetheless, this appears to be at least partially contingent on the way PDM is implemented (Lengnick-Hall & Lengnick-Hall, 1992). In this regard, Wagner (1994) argues that the costs of ensuring careful implementation of participation in a workplace could at times be worth more than its benefits. According to Wagner, these costs may include teaching proper participation techniques, as well as adapting the organization to this purpose. Still, in the case of properly implemented long-term PDM, which is formal and ensures direct participation, results have consistently shown positive results on both performance and productivity (Cotton et al., 1990).

Furthermore, Lengnick-Hall & Lengnick-Hall (1992) offer a “set of rules” to facilitate proper implementation, which emphasizes the idea of shared responsibility between the organization and the employee. Under these rules, employees should stay informed, be accountable, respect opinions and policies, etc. Moreover, the organization should clearly express the level of participation expected, specify the level of influence, and provide required information, training, and rewards proportional to increased responsibilities. These rules highlight that both parties should be aware of the responsibilities required of them for successful PDM.

Finally, not only is the degree of implementation important, but the context and appropriateness of the application also have an impact. Kanter (1982) for example, argues that trying to implement PDM in an inappropriate situation could have numerous negative consequences. In the context of group decision-making, the specific circumstances of emergency situations or routine and simple tasks were identified as inappropriate times to ask for the participation of employees (Ralston, 1985). If employees are asked to participate at times that may be deemed unnecessary or inappropriate, this could also lead to a sensation of decision fatigue (Pignatiello, Martin & Hickman, 2020). Decision fatigue is a phenomenon to describe how repeated decision-making negatively affects the quality of those decisions, as fatigue can lead to a passive role in PDM and more irrational decisions with less willingness to make trade-offs (Pignatiello, Martin & Hickman, 2020). Therefore, improper implementation of PDM, which leads to decision fatigue, can have adverse effects on the decisions themselves as well as on employees' well-being.

Undiscussables

The term undiscussables was first coined by Argyris and Schön in their 1978 book “Organizational Learning: a theory of action perspective”. Undiscussables are used to represent issues that are not freely discussed in organizations because they are perceived as uncomfortable

or threatening, therefore they are avoided. In relation to PDM, in a study conducted by Donovan (2011) this issue of undiscussables has been found to be a barrier to effective group decision-making. This study found that certain topics were not raised, not because they were not important, but due to their perceived potential to lead to unwanted tensions. The choice to leave the topics undiscussed was also not addressed, but certain conversational patterns were repeatedly used to avoid them.

The study by Donovan (2011) corroborates extensive previous research by Argyris (1990), on the presence and impact of undiscussables, and the way it leads to a sustained cycle of avoidance. Flanagan and Runde (2008) explain how the ability of teams to address these undiscussable or difficult topics is actually essential for developing trust, effective teams, and crucial for avoiding frustration among members. Furthermore, this can be related to the challenge of conformity in groups partaking in PDM. Research by von Nitzsch (2002) (as cited in Grünig and Kühn, 2013) looked at how individual values and goals may be changed to conform to a group or team during PDM, sometimes going as far as to ignore or distort facts. This can similarly lead to an avoidance surrounding difficult facts, resulting in decisions made without proper consideration of all factors.

2.2 Hybrid Teams

As they encompass a variety of work arrangements, hybrid teams have no single agreed-upon definition; however, the general concept is agreed to be a team that utilizes both virtual forms of communication channels as well as face-to-face (Cousins, Robey & Zigurs, 2007). Hybrid teams can also be viewed as falling somewhere on a scale between being fully virtual and fully present; exactly where they land on this scale does not change their definition as a hybrid team (Alves et al., 2022). What may vary, however, are the particular tendencies of certain teams, whether they work more or less virtually or face-to-face (Cousins, Robey & Zigurs, 2007). This often depends on the motivations for implementing hybrid teams, whether it is geographical dispersion, a demand for flexibility, or both. Increasingly since the Covid-19 pandemic, the demand for flexibility has been the greatest driving force behind the spread of hybrid teams (LaBerge, et al, 2020). As argued by Wiatr and Skowron-Mielnik (2023), this then adds a new dimension to the definition of hybrid teams, which puts the choices of employees at the center of that definition, and makes the virtual tools of hybrid teams simply a medium for collaboration between members.

2.2.1 Strengths

Although the prevalence of hybrid teams was propelled by the circumstances of the Covid-19 pandemic, their benefits have led to a trend that is likely to stay. Hybrid working arrangements have been found, together with their drawbacks, to increase productivity in studies across multiple industries (Allen, Golden & Shockley, 2015; Bloom et al., 2015) showing that they can

be applied in a variety of organizations. Overall, hybrid team arrangements allow both companies and employees a level of flexibility that is otherwise unachievable, and has therefore become an increasingly appealing work configuration.

For organizations, one of the greatest quantifiable benefits is the cost efficiency of hybrid configurations (Bloom, Han & Liang, 2022; Trivedi & Nikhil, 2022). Fewer employees in the office mean less office space is required, as well as reduced costs for energy and utilities (Alves et al., 2022). Furthermore, offering the ability for employees to work from home can reduce the number of absent employees, which can improve efficiency in the long term (Trivedi & Nikhil 2022). Finally, from a human resource perspective, the flexibility offered by hybrid work has become an attractive asset. Therefore, offering hybrid work can be a strength when attempting to recruit as well as maintain employees (Trivedi & Nikhil, 2022).

For employees, the flexibility offered with hybrid work is one of its greatest strengths, especially due to the improved work-life balance it can lead to (Yang, Kim & Hong, 2021), which is helpful for employee well-being overall. There are a plethora of other factors that also improve well-being, including the reduced time spent commuting and associated costs and the potential for a quieter working environment than the office may offer (Bloom, Han & Liang, 2022; Trivedi & Nikhil, 2022). According to employee surveys (Figure 1), some of the most reported highlights of this arrangement are that it improves work-life balance, allows for more efficient use of time, mitigates burnout, and provides autonomy (Wigert & White, 2022).

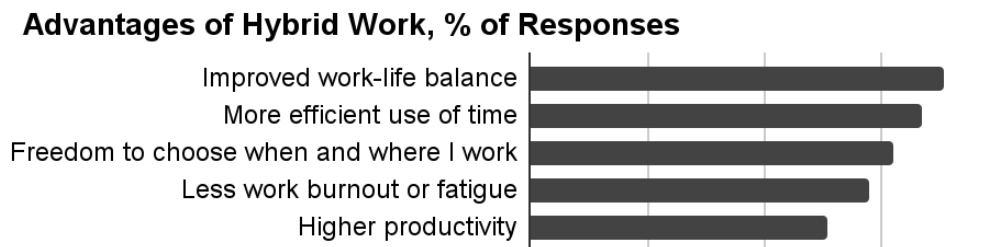


Figure 1: Graph of responses on the advantages of hybrid work (Wigert & White, 2022)

Overall, hybrid work, despite the potential challenges it may present, has also been widely recognized for the benefits it presents. Not only may organizations benefit from more logistical considerations, but they can also benefit from the variety of ways employees' well-being can improve due to certain aspects of hybrid work. Therefore, it may be an attractive alternative to purely in-person workspaces, but the challenges they present should also be mitigated for a chance at optimal application and benefits.

2.2.2 Challenges

Considering the challenges that face hybrid teams, some have been identified as being the same as those faced by either virtual or in-person teams, however, certain challenges are unique to the

circumstances of hybrid teams (Mitchell & Brewer, 2022). To achieve a comprehensive overview, potential challenges that hybrid teams, including when in-person and virtual, may face are considered. Overall, the main challenges reported can be generally grouped under three main categories: trust, communication, and team identification (Table 2). Despite this categorization, it is also important to consider that these challenges overlap and are interconnected, as one likely affects the other.

Challenges	Sources
Trust	Jarvenpaa & Leidner, 1999, 2004; Wilson, Straus & McEvily, 2006
Communication	Cramton, 2001; Jarvenpaa & Leidner, 1999
Team Identification	Cousins, Robey & Zigurs, 2007; Lau & Murnighan, 1998

Table 2: Main challenges for hybrid Teams with sources

Trust

Trust has been an identified challenge in the development of hybrid teams, and it has largely been attributed to a lack of proximity resulting in limited time working face-to-face (Zolin et al., 2004). Much of this lack of trust has been related to the inability of members to monitor each other; as a result, they are unable to see how much effort is being put into the work being done or even the nature of interactions with other members (Wilson, Straus & McEvily, 2006). Certain scholars, such as Horwitz, Bravington, and Silvis (2006) even make the claim that a requirement of trust building is face-to-face interactions on a regular basis, which hybrid teams do not intrinsically provide. This physical proximity has been argued to provide a starting point for the creation of shared values and social norms, aspects found to accelerate the development of trust (Jarvenpaa & Leidner, 1999). Without the foundation of shared norms and values, another inhibitor of trust, the cultural diversity often found in hybrid teams (Zolin et al., 2004) could be even more painstakingly overcome.

Trust is also important to consider in the context of conflict. De Dreu and Weingart (2003) differentiate between two kinds of conflict in the context of teams and teamwork, namely task and relationship conflict, both of which they say negatively correlate with team performance. These two types of conflict, particularly task conflicts, were found to be more prevalent in distributed teams (Hinds & Mortensen, 2005). Conflict can negatively impact trust; therefore, this increased conflict could be a barrier. However, it was also found that task conflicts have a lower impact on trust levels in teams that are more virtual, implying that virtuality can provide a level of moderation (Alves et al., 2022).

Overall, lack of trust is a problem for hybrid teams as it can reduce effectiveness, in particular because unnecessary time and effort is spent by team members trying to monitor and re-do others' work, fearing a lack of quality (Wilson, Straus & McEvily, 2006). For managers in

particular, if they do not trust their employees, it may be difficult to provide them with the level of autonomy they need to function effectively in a hybrid environment (Wiatr & Skowron-Mielnik, 2023). As a result of this, motivation can be damaged, and a general culture of team distrust is cultivated and perpetuated (Wiatr & Skowron-Mielnik, 2023).

Communication

Communication and trust in hybrid teams are often considered to be highly interdependent, as it is difficult to build trust without solid communication (Jarvenpaa & Leidner, 1999). One barrier to effective communication for hybrid teams established by Cramton (2001) is the maintenance of "mutual knowledge". Lack of mutual knowledge includes factors relating to information distribution, contextualization, access, recognition of relevance, and finally to the meaning of silence. Cramton (2001) found that many of these challenges were related to the utilization of technological mediums for communication.

Yang et al., (2022) expand on the use of certain mediums that may be better for differing purposes of communication. It is important to differentiate between synchronous and asynchronous communication. Synchronous communication denotes real-time modes such as talking in person or over the phone, while asynchronous communication refers to temporally delayed forms of communication such as mail or voice notes (Dennis, Fuller & Valacich, 2008). These formats may be better for certain purposes; for example, while emails may be helpful for sharing information, video calls are better for the convergence of information (Yang et al, 2022). However, often hybrid team members may use email when attempting to converge information, resulting in sub-optimal communication and highlighting how this could be another barrier to effectiveness for hybrid teams.

Advances in technology have still in some ways improved hybrid communication, for example through video calls, which feel more natural than phone calls due to the help of visual cues such as facial expressions and hand gestures (Isaacs & Tang, 1993). Still, these advances bring new challenges, such as the recent concept of "zoom fatigue" studied by Bailenson (2021). Zoom, being the popular video conferencing platform popularized during the Covid-19 pandemic, is used in this sense synonymously with video calling. Bailenson (2021) argues that it may be more exhausting than working face-to-face due to features including increased eye contact, reduced mobility, and visual cues. The fatigue resulting from this medium may make conversations more difficult to follow and participate in, therefore reducing the richness of communication (Fosslien & Duffy, 2020).

One other challenge often caused by hybrid or remote work is the restriction of communication to scheduled "sessions". In an office environment, colleagues will have smaller exchanges of information throughout the day, but working remotely means communication is limited only to what has been planned. The existence of such spontaneous interaction has been found to

contribute not only to building trust and stronger relationships but also to a shared identity as a team (Hinds & Mortensen, 2005).

The necessity of quality communication can be related to all forms of teams, including hybrid ones. Effective communication is related to the previously mentioned increased trust as well as transparency, which ensures members have aligned and equal information in order to participate (Wiatr & Skowron-Mielnik, 2023). Overall, strong communication can streamline many aspects of teamwork; however, it requires deliberate effort and consideration of the particular characteristics of working in a hybrid format.

Team Identification

A particular challenge for hybrid teams to consider is team identification, which can be impacted by a mix of co-located and geographically dispersed members. In their 1998 study on demographically diverse teams, Lau and Murnighan identify the development of faultlines as a threat to team dynamics as people divide based on age, sex, race, and job. Later, geographic location was added as a potential cause of faultlines within hybrid teams (Cousins, Robey & Zigers, 2007). Therefore, not only do hybrid teams face the potential of faultlines forming based on the original demographic factors, but subdivisions may also occur between people who work more in the office and those who do not, and those who are based in the same location versus the others. These faultlines can be harmful to cohesive team identification since subgroups often adopt similar positions and attitudes, which increases their influence, sometimes to an extreme degree, which can become isolationist and limit communication (Lau & Murnighan, 1998).

A 2022 study at Microsoft by Yang et al. further cements these ideas, as it was found that changing to remote work from in-person not only reduced collaborations within teams but also lessened connections and identification with the company as a whole. This study found that while a few who had pre-existing ties shared more time together, fewer ties were created after the switch to remote work, which decreased collaboration across groups and the company overall. As a result, the quality of work was found to be decreased, as was the propensity for knowledge transfer.

Overall, it has been argued that fostering team identification and awareness is a particularly challenging and time-consuming process for hybrid teams as a result of limited cues to aid in team categorization, leading to uncertainty (Fiol & O'Connor, 2005). Fiol and O'Connor (2005) found the process to be even more difficult for hybrid teams than for purely virtual or face-to-face teams, making this a point of necessary consideration for teams on the hybrid spectrum. If not considered, teams may fall victim to the previously mentioned consequences of limited team identification, which most often translate to weak communication, including insufficient information sharing, as well as the formation of exclusionary subgroups that develop groupthink.

2.3 PDM in the Hybrid Context

With the primary strengths and challenges of PDM and hybrid work identified, what is now important to consider is how these impact each other, particularly in regard to the identified challenges (Figure 2, see figure with sources in Appendix A.1). As communication channels are becoming more digital, this has been found to have a noticeable impact on group and power dynamics (Kiesler & Sproull, 1992) which would include the dynamics of PDM. In general, hybrid teams introduce another layer of complexity to the workplace, and PDM has been identified as a potential mechanism to face complexities, especially due to its strengths in information processing (Lengnick-Hall & Lengnick-Hall, 1992). However, this does not disregard the challenges the conjunction of these two concepts may introduce.

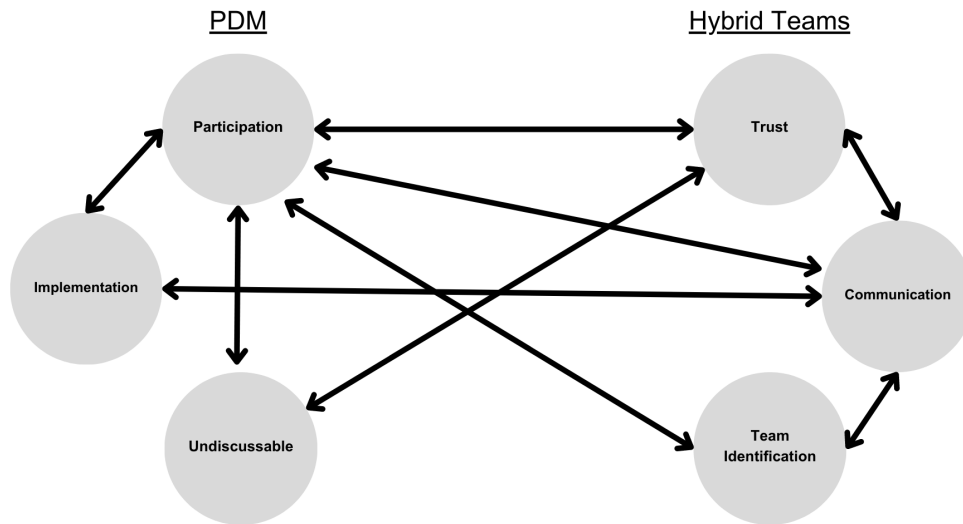


Figure 2: Challenges of PDM and hybrid teams in conjunction

Starting with the challenge of participation. Although it was originally identified as an inhibitor of PDM which can be connected to the other PDM challenges of implementation and undiscussables, it can also be linked to all three issues of trust, communication, and team identification for hybrid teams. Considering first how participation relates to the other main identified issues within PDM, the connection is clear, as participation is the central aspect of this concept. Therefore, participation and implementation are connected in the sense that participation has been argued to be contingent on implementation efforts (Lengnick-Hall & Lengnick-Hall, 1992), which can sometimes be costly and time-consuming (Wagner, 1994). Furthermore, the challenge of undiscussables means avoiding difficult topics or disagreements to avoid tensions. Therefore, an inhibitor to participation is if individuals limit their participation due to a barrier of discomfort (Donovan, 2011).

For trust and participation, if the freedom of participation is only implemented in theory rather than in practice, this could lead to damaged trust towards an organization an employee may be working in (Lengnick-Hall & Lengnick-Hall, 1992) which could negatively impact the trust in the teams they work in. This makes hybrid teams especially vulnerable, as trust is already an identified challenge.

For the issue of communication, Dachler and Wilpert (1978) state that for proper participation, or involvement as they titled it, information received in advance is an influential factor to the possible degree of involvement. This is linked to communication as Wiatr and Skowron-Mielnik (2023) explain that effective communication supports transparency and equally held information, required for meaningful participation. Therefore, the barriers to effective communication in hybrid teams, often resulting from technological mediums, could impede on the participation necessary for PDM.

Finally, Lau and Murnighan (1998) found that the formation of faultlines, a potential issue for team identification in hybrid teams (Cousins, Robey & Zigurs, 2007), can lead to subgroups that can have more influence over others, which also means they hold greater power in decision making (Dahl, 1957; Lukes, 1974). This power can present itself through greater influence in agenda setting, as well as generally influencing others opinions (Bachrach & Baratz, 1962). This could be an inhibitor to participation, as team members with less influence have been found more likely to withhold important information in efforts to conform (Hollingshead, 1996). Conformity mitigates one of the major benefits of PDM; increased creativity (Wong et al, 2018).

Moving on to the challenge of implementation for PDM, this can be linked to the communication of hybrid teams, in particular the mediums of communication they typically employ. Lengnick-Hall and Lengnick-Hall (1992) emphasize that PDM should have positive impacts depending on its implementation, which also depends on the context. As studies have looked into the limitations for certain forms of technological communication (Dennis, Fuller & Valacich, 2008) it is possible that PDM is being done under unadapted formats. For example, Yang et al., (2022) argue that emails are better for information sharing, and video calls for converging, therefore email for example may not be as suitable for PDM. This highlights how proper implementation of PDM for hybrid teams must consider the format more heavily.

Furthermore, looking at the inhibitor of undiscussables for PDM, this can be clearly related to trust in the context of hybrid teams. Flanagan and Runde (2008) when looking at the impacts of conflict on teams argue for the importance of addressing difficult topics, or undiscussables, for the development of team trust. Since the physical distance present in hybrid teams can lead to limitations to trust building (Horwitz, Bravington & Silvis, 2006; Zolin et al., 2004) discussing these topics would be even more essential. However, undiscussables are nevertheless a barrier to effective PDM, and leave a plethora of consequences to both PDM and hybrid teams.

Finally, it should be noted that the challenges identified within hybrid teams, i.e. trust, communication, and team identification can also be related to each other. Trust and communication have been clearly linked in research, finding that trust and communication are built in conjunction (Jarvenpaa & Leidner, 1999). It is difficult to foster trust without communication, therefore without communication, there is less likely to be trust. Similarly, with the challenge of team identification, Lau and Murnighan (1998) explain that as teams may divide by certain demographics, this also divides their communication. It is clear how this could create a cycle of reduced communication and further divides.

Overall, the majority of these challenges can be linked to one another, whether directly or indirectly. This web (Figure 2) shows the high impact these concepts have the potential of implicating on each other, alongside the implications the challenges have within the same concept. Therefore, this highlights the importance of identifying challenges in order to prevent compounding their negative impact.

3. Methodology

This chapter will discuss in detail the methodology used for this research. First, the research design will be outlined, along with motivation for the selected methods and literature. Next, the process of collection of the empirical data, for the surveys and focus group respectively will be explained. Following data collection, there will be an outline of how the data was analyzed for each method. Finally, the limitations of the research design study will be considered.

3.1 Research Design

With the purpose of this thesis being to study the differences in perceptions of factors relating to PDM in hybrid teams, a research approach was designed to capture such differences as accurately as possible. Aiming to analyze the intersection of PDM and hybrid teams required different types of information to be collected, leading first to a literature review to build a theoretical framework, followed by a mixed-method approach combining qualitative and quantitative data. First building a preliminary theoretical framework led to deductive research, which laid the foundation for a focused approach to collect data relevant to the framework. Utilizing mixed methods to gather empirical data and adapt the framework accordingly was useful in developing a more detailed holistic view, as mixed-methods generally increases the breadth and insight on certain phenomena (Dawadi, Shrestha & Giri, 2021). This mix of methods can help to offset the weaknesses of each, and give greater insight to this research which looks at two concepts that have generally not been previously analyzed in conjunction, helping to create a relevant framework.

The two methods that encompass this mixed method design are: a survey and a focus group discussion. These methods have been triangulated with a comprehensive literature review to ensure a holistic understanding of the research topic, and a literature-based framework was formed based on an identified gap in research. The findings from the survey were verified with the focus group, and the amalgamation of these findings helped enhance the validity of the research.

3.1.1 Literature Review

This study applied a theoretical framework derived from an extensive literature review, which guided the interpretation of the empirical findings and offered a structure for integrating the insights gained from the survey and focus group. Existing theories and studies relevant to PDM and hybrid teams formed the core of this review. The literature review followed a systematic approach, involving keyword searches in relevant databases, screening for relevancy, and subsequent analysis and synthesis of the selected studies. Once the main challenges were identified from a wide sweep of research, the literature review and framework focused on

particular challenges faced by hybrid teams engaging in PDM. This permitted a data collection process focused on relevance.

3.1.2 Survey

The first stage of the empirical research involved a quantitative survey targeting multiple hybrid teams within the global Swedish-Swiss food processing and packaging company, Tetra Pak. A purposive sampling method was used (Palinkas, Horwitz, Green, Wisdom, Duan & Hoagwood, 2015), selecting participants who were working within teams that employed PDM and hybrid work, which this company has. The teams surveyed were within supply management and engineering related teams. The variation within the sampling aimed to be limited by researching teams within the same company, which therefore share a similar work culture. As the survey was closed-ended it was important to limit variables in the work culture, since context to varied answers could not be provided. The survey was specifically aimed at entire teams rather than random individual employees across the organization, in order to capture a few collective dynamics of PDM. As specific teams were targeted, it was also possible to validate that the respondents were parts of teams which actually partake in PDM, and to allow for the focus group and survey data to align.

The survey, distributed online, comprised 24 questions on a 5-point Likert scale designed to gauge the perception of participative decision-making in the teams. Data gathered from the survey was analyzed using statistical methods to identify patterns and trends. This data was utilized towards creating the questions for the focus group, to fill in potential knowledge gaps.

3.1.3 Focus Group

The second stage entailed a qualitative focus group discussion. This was conducted with a subset of respondents from the initial survey who indicated willingness to participate further. The aim was to delve deeper into the dynamics of PDM in hybrid teams, based on what was found from the survey. The focus group consisted of four participants from a single team in supply management for Europe, the Middle East, and Asia (EMEA) at Tetra Pak. The discussion was guided by a semi-structured interview protocol. The focus group data was audio-recorded, transcribed, and then analyzed and coded through thematic analysis to identify key themes and patterns across and between challenges.

3.1.4 Summary

As the purpose of this research is focused on perceptions, it was important that the data gathered consider context and human experience, which required qualitative data. However, to develop more generalizable data (Junjie & Yingxin, 2022) necessary to fulfill the purpose of finding inhibitors and success factors of PDM in hybrid teams, quantitative data has also been first gathered to be further verified and interpreted. Therefore, this study adopted a mixed-methods research design combining both quantitative and qualitative approaches to obtain a

comprehensive understanding of the topic. Since the aim of this study includes developing a framework in order to analyze challenges, the survey was conducted before the focus group, in order to first verify the challenges from the framework, and then gather more perspectives on the results from the focus group. While this brought the limitation that topics and challenges first mentioned in the focus group were not integrated into the survey, in light of the aims of the study, this approach was preferred. In this regard, the survey helped to test the framework of potential inhibitors built from the literature review, and the focus group helped to verify and contextualize these results as well as ensure no factors were overlooked.

3.2 Collection of literature

Literature on PDM as well as hybrid teams was required in order to understand their impacts in a workplace as well as their evolutions both academically and prevalence-wise. First, an overview was required in order to identify the definitions that would be utilized for this research and to understand the specifics of the phenomenon being studied. Furthermore, literature on these two concepts was analyzed to identify the main recurring challenges, which is the basis for the preliminary framework. Literature also included concepts of virtual teams, geographically dispersed teams, participation in the workplace, and other forms of PDM, including collective decision-making and group decision making. These keywords were utilized when searching for research articles in order to gather a deeper and wider understanding of the main concepts when building a theoretical framework. Google Scholar and LUBsearch were the main search engines utilized to gather reliable academic articles.

3.3 Data collection

In order to test the framework developed from the literature review, the challenges identified must be validated. To do this, perceptions on the topic have been collected to infer if the framework aligns with the sample groups' perceived reality. The data collection process for this study consisted of quantitative and qualitative methods. The quantitative data was obtained through an online survey, targeting team members and managers across Tetra Pak, while the qualitative data was collected through a focus group discussion. By employing two complementary data collection techniques, the study aimed to triangulate the findings and put them into a more nuanced perspective.

3.3.1 Survey Design

The quantitative data has been collected using an online survey. The survey was designed to measure the perceptions of team members and managers regarding challenges of decision-making in hybrid teams. It was split into two sections, firstly to gather data on the respondents work team, and if they are managers in their teams. No further personal information was collected to maintain anonymity for the respondents. This was done to encourage honest

answers. The second part was focused on their perceptions of PDM in hybrid teams. It consisted of closed-ended questions using a 5-point Likert scale to simplify the answering process and potentially improve the response rate.

The closed-ended survey questions have each been assigned to markers designated as “Trust”, “Communication”, “Team identification”, “Participation”, “Implementation”, and “Undiscussables”, based on findings from the literature review, with four questions for each marker. These markers have been used to associate the relevant theories with participant responses and test the applicability of the framework. These markers, however, were unidentifiable for respondents. To make the survey questions clear and understandable to respondents, academic language, including PDM was avoided (Taherdoost, 2018). Instead, either adjacent phrases were used, such as group decisions or group decision-making, or questions indirectly asked about PDM, such as about participation or discussions. Similarly, a variety of language was utilized for the same concepts, such as saying both in person and on-site, to remain understandable without feeling repetitive, which could impact respondents' interpretations of the questions.

The survey was distributed to five managers via direct contacts at Tetra Pak, who shared it with their teams and others willing to participate which fit the mentioned criteria. This approach allowed for a controlled distribution of the survey, targeting specific teams within the organization. A survey is an ideal method for this due to its ability to sample a large population, which allowed flexibility and prevented limitations in the number of teams able to be surveyed (Jones, Baxter & Khanduja, 2013). Ultimately, this allowed for the possibility of substantial data to compare results to the initial framework.

3.3.2 Focus group design

With the conclusions from the survey data extracted, focus groups were then conducted. The participants were selected largely based on availability of the participating teams and willingness to participate. The resulting focus group had four participants from a supply management team for EMEA from Tetra Pak, and two moderators. The discussion was designed based on initial findings from the survey results. First, a general question was asked related to each challenge before results were shown, in order not to guide the discussion towards a biased result. This question was designed based on findings from the survey. Next, a presentation of the survey results was done in order to gather further insights on the quantitative findings, and participants were once again asked for their opinion to further interpret the data. As focus groups have traditionally been used to unveil people's perceptions (O. Nyumba, Wilson, Derrick & Mukherjee, 2018), this format was helpful in determining if survey results were representative of general perceptions of PDM in hybrid teams. The starting point for discussing survey results was also used as a catalyst to discuss more personal thoughts and any factors that participants may

have felt had been left out of the survey. Furthermore, the focus group meeting helped clarify the context and work environment participants were working in.

A focus group was identified as the most appropriate qualitative method to triangulate with the survey results, as it allowed for a variety of insights to assess the validity of the surveys, within the limitations of this thesis. As opposed to interviews, for example, which are time-consuming, focus groups allowed for a greater number of perspectives despite time restrictions. A focus group also creates the chance for a thoughtful discussion between participants, which leads to richer results. The goal of these focus groups was to not only have participants interpret the results of the survey, but also add any points that may have been missed. Therefore, conversations between participants had the possibility of reaching new findings and conclusions.

3.4 Data analysis

For the quantitative data obtained from the online survey, responses were first reviewed to ensure validity. Next, the results were analyzed through a combination of frequency distributions, descriptive statistics, and a correlation analysis. The conclusions from this analysis were then applied to the design of the focus groups. The focus groups were coded and analyzed thematically, and considered in conjunction with survey results. Finally, themes across challenges were connected and analyzed.

3.4.1 Survey

Exclusion of responses

In the analysis of the survey data, responses were included or excluded based on a set of predefined criteria to ensure the practicality of the survey and the reliability of the findings. Firstly, only responses that were submitted within a certain deadline were accepted. This was to limit the effects of participants discussing the survey before responding, which could cause a potential response bias. From these, responses were reviewed to find irregularities in the empirical data. The rationale for exclusion and the specific circumstances were documented to maintain transparency in the reporting of the survey's results.

Frequency Distributions

Firstly, frequency distributions were utilized to understand and visualize trends and the general distribution of answers. This was particularly important for summarizing the responses in order to provide an overview of the data. The overview was also applied more specifically to the six challenges identified from the literature. Based on the established framework, responses were studied to find potential explanations for the direct observations. Overall, this frequency distribution was utilized as an important starting point to data exploration.

Descriptive statistics

Descriptive statistics were also used to provide a summary of the collected data and to facilitate a clearer understanding of the characteristics of the sample. Utilizing measures of both central tendency, such as mean, median, and mode, and also a measure of variability, in this case standard deviation, both the dataset's central points, but also the degree of dispersion within the data was highlighted. This was to more easily see the spread and diversity of the responses.

Measures of central tendency were used to better understand the general trends within the empirical data from the survey, such as if questions had common agreed-upon answers. By using a combination of mean, mode, and median, it was possible to not only find the average response but also if there was a trend towards one side, which could have been obscured if only the mean value was looked at. Based on the analysis of standard deviation, it was possible to see questions that seemed to have a larger spread in responses, compared to others that had responses that agreed more often. The difference in agreement on certain questions, i.e. to what extent the responses could be considered controversial was also utilized when creating questions for the focus group. These descriptive statistics therefore laid the foundation for the subsequent correlation analyses and allowed for more meaningful conclusions to be drawn from the data.

Correlation analysis

To further analyze the quantitative data collected in the survey, and find possible patterns and relationships between various phenomena, a correlation analysis was conducted. This was done by using participant responses from 1 to 5 as numerical values. While results on a Likert scale do not automatically translate to a linear scale, this was used as a way of finding covariant items, in order to better design the focus group questions and aims as well as apply the framework more accurately. These findings were also used to further analyze PDM in hybrid teams itself

For the correlation analysis Microsoft Excel's inbuilt Data Analysis ToolPak was used, which uses the Pearson method. Based on the correlation analysis results, p-values were evaluated to create a strength scale for the correlations, based on their statistical significance.

3.4.2 Focus Group Analysis

The focus group was conducted over video call, as the team is hybrid. The video call was recorded, which allowed for future transcription. Once the focus group was transcribed, the data was coded using thematic analysis, associating responses with the six markers of the challenges. The goal of this process was to identify patterns and organize the data. From here, the organized data was further interpreted, to explore the implications of the patterns and themes identified. Specifically, emergent themes across challenges were connected and expanded upon, as indicators of interrelations between challenges of PDM and hybrid teams. Finally, the results of the focus group were placed in the context of the theoretical framework for further analysis and discussion.

3.5 Strengths and Limitations

Based on the nature of this study, there are a number of associated strengths and limitations. The most prominent ones related to the research design can be related to the theoretical framework, the survey scale utilized, the design of the focus groups, as well as the sampling for both of these methods. Although each choice for the research design may represent a limitation, there are also associated strengths that highlight the reason for that choice.

3.5.1 Theoretical Framework

The theoretical framework, particularly in its preliminary form, is the foundation of this research design and a unique attempt to place PDM in the context of hybrid teams. However, due to this uncommon intersection of concepts, the connections being made are largely unexplored. To create the theoretical framework, a wide array of literature was analyzed, and therefore most academic writings on the topic of challenges for each concept were carefully considered. Still, the challenges have been limited to the most recurring ones and simultaneously cover a wide array of challenges within them. Therefore, despite the theoretical framework being supported by careful research and consideration, it does not include every challenge ever encountered, only those found most relevant throughout literature. However, the mixed methods of this research helped ensure the validity and relevance of the framework by first being tested with a survey and further interpreted by a focus group. Nonetheless, since it is an original framework that is paving the way for a deeper understanding of PDM in hybrid teams, it still requires further testing and refinement as new empirical evidence emerges.

3.5.2 Likert Scale Survey

The use of a Likert scale survey, while beneficial in quantifying perceptions, has inherent limitations. The scale asks participants to translate their opinions into numerical values, which might not always reflect the nuances of actual opinions. Furthermore, it might not be the case that, for example, the difference between "4 – Mostly Agree" and "5 – strongly agree" is seen as same as the difference between "3 – Neutral" and "4 – Mostly Agree" by participants, even though the numerical values suggest this. Therefore, the responses might be influenced by the participants' interpretation of the question and response scale (Schwarz, 1999). This was attempted to be mitigated with a thorough review of the questions to ensure clarity.

Moreover, the Likert scale can be susceptible to certain kinds of response biases. The central tendency bias, where respondents avoid using extreme response categories, and the acquiescence bias, where respondents have a tendency to agree with statements, may skew the results. Furthermore, as the research relies on self-reported data, it is subject to social desirability bias (Nederhof, 1985). Self-reported data also allows, however, to gather the participants' subjective viewpoints firsthand. Nevertheless, the use of a Likert scale survey provides several advantages,

including allowing for the quantification of subjective perceptions, enabling a numerical analysis, and simplifying the survey to possibly increase the response rate.

3.5.3 Focus Group

The focus groups used to supplement the surveys also had some limitations. While they allowed for a validating and deeper qualitative understanding of the teams' perceptions, they reflected a much smaller sample size, and partially because of this, their results are highly dependent on the specific dynamics of the group. The focus groups did however contribute by also being able to highlight details or nuances that might have been missed in the survey's interpretation. Furthermore, combining the survey and focus groups in a mixed-methods approach also had benefits, enabling the triangulation of data, and enhancing the validity of the findings.

3.5.4 Sampling

The sampling used in selecting participants only included participants from certain teams at Tetra Pak. The benefit of this was that all participants were in a similar work culture, therefore they were responding based on more similar contexts. However, the sample may therefore not be representative of all organizations. The sampling method introduced a further limitation: As participants were volunteers, there may be a non-response bias. For example, those who have greater interest in the subject could possibly be more likely to participate. This could limit the generalizability of the findings. Additionally, the study focused on perceptions of hybrid teams, comparing remote and on-site members. This discrete categorization might, as mentioned, not always reflect the realities of hybrid work.

Despite these limitations, the study provides insights into perceptions of hybrid team decision-making and contributes to building a framework on this topic. The sampling may be limited for this study, but it paves the way for future research to apply it to wider samples and other contexts. The more the framework is tested, the more accurately it can be adapted to better reflect the realities of the challenges.

3.6 Ethical Considerations

Throughout the collection process of the empirical data, careful consideration was given to ensuring the participants were protected. For the survey, respondents were assured that their responses would remain anonymous, and no name, email, or other identification was collected to ensure this. Furthermore, the participants of the focus group were assured that their identities would remain confidential, with only the team they are a part of being revealed. They were also asked for allowance to be recorded visually and with audio for transcription purposes. Participants were assured that the recording was only available to the researchers and utilized for the purposes of this thesis.

4. Survey Results and Analysis

This chapter first presents an overview of the survey data gathered, including information on the participants and the answer frequency distributions for each question. Next, an introduction to the correlation analysis, followed by an analysis of each challenge is presented. First, the results for each challenge are summarized, and the correlation analysis follows to supplement the understanding of the results. Finally, how the focus group questions will be designed based on the results for each challenge is explained.

4.1 Survey Participants Data

The responses were collected from multiple teams working in supply management and engineering-related functions at Tetra Pak. The supplier management teams were responsible for regions across EMEA. Therefore, while the respondents remained within the same company and overall work culture, there was still variance in the roles and responsibilities of the participants.

Further considering roles and responsibilities, as part of the research question of this study was to understand the perception of PDM in hybrid teams for managers and team members, both were surveyed (Figure 3). As a result, about a third of the respondents were managers, with a few others considering themselves managers only of certain projects or circumstances. Therefore, both perspectives were represented in the overall survey results, which was important considering that definitions of PDM include decisions made collectively across hierarchies.



Figure 3: Respondents of the survey, showing managers or team members

Response Exclusion

Out of the 47 completed surveys that were submitted within the deadline, one response was more specifically considered for exclusion. The participant consistently selected the same answer, “3 – neutral” for all 24 questions on the Likert scale survey, raising concerns about the reliability of the responses. The uniformity of this participant’s responses suggested a lack of engagement during the data collection process and might have reflected a phenomenon called straight-lining.

This assumption was further corroborated in a comparison with other responses gathered during the study. This was based on a direct comparison of response patterns and an analysis of standard deviations of the answer sets submitted. When excluding the aforementioned response, the average standard deviation of response sets was 1.09, with individual standard deviations of response sets ranging from 0.48 to 1,79, whereas the excluded sample due to the uniformity of responses had a standard deviation of 0. The analysis of standard deviation was done to investigate whether a uniform answer pattern could reasonably be expected. Based on this, the response was excluded.

It is important to note that the decision to exclude the response was made cautiously to avoid introducing new biases or affecting the representativeness of the sample.

4.2 Survey Data

The total number of considered respondents was 46, with only five out of the total of 1,104 data points left unanswered. Frequency distributions were used to present the survey results (Table 3). These distributions illustrate the percentage distribution of responses across the spectrum from strongly agree to strongly disagree for each question. This is utilized further in the analysis to identify overlying trends. The figure below (Table 3) has also been color-coded to represent the division of questions based on the 6 identified challenges of trust, communication, team identification, participation, implementation, and undiscussables respectively.

Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Q1: I feel I can trust the quality of work of on-site colleagues more easily.	2%	17%	41%	26%	13%
Q2: I feel I can trust the quality of work of off-site colleagues more easily.	4%	11%	57%	22%	7%
Q3: I am likely to trust colleagues I have met in-person more easily.	24%	36%	20%	13%	7%
Q4: I am likely to trust colleagues I have never met in-person more easily.	4%	11%	28%	37%	20%
Q5: I feel on-site workers are more up-to-date with current events.	17%	33%	26%	20%	4%
Q6: I talk more during discussions that are held through an online medium.	0%	2%	43%	43%	11%
Q7: I talk more during discussions that are held in-person.	7%	35%	33%	22%	4%
Q8: I feel that I engage in more spontaneous communication while working with on-site colleagues.	40%	29%	24%	7%	0%
Q9: When working remotely, I consider the input of on-site colleagues equally during group decision-making processes.	37%	39%	17%	7%	0%
Q10: When working on-site, I consider the input of my remote colleagues equally during group decision-making processes.	39%	37%	17%	4%	2%
Q11: I feel people that work remotely have more influence on the agenda of a meeting.	4%	4%	42%	31%	18%
Q12: I feel people that work in person have more influence over decisions.	9%	28%	33%	22%	9%
Q13: When working remotely, I feel that I can effectively participate in group discussions.	22%	17%	33%	26%	2%
Q14: When working on-site, I feel that I can effectively participate in group discussions.	17%	46%	30%	7%	0%

Q15: I believe that remote work hinders my ability to influence group decisions.	4%	20%	28%	24%	24%
Q16: I believe that on-site work enhances my ability to influence group decisions.	7%	41%	33%	15%	4%
Q17: I feel that I get unnecessarily involved in decisions more often when working on-site.	2%	22%	38%	31%	7%
Q18: I feel that I get unnecessarily involved in decisions more often when working online.	2%	17%	37%	30%	13%
Q19: I feel hybrid meetings are a suitable medium for making group decisions.	17%	26%	39%	17%	0%
Q20: I feel in person meetings are a suitable medium for making group decisions.	11%	40%	31%	13%	4%
Q21: When I want to express disagreement, I prefer doing it through digital voice channels.	4%	4%	22%	35%	35%
Q22: When I want to express disagreement, I prefer doing it face to face.	15%	37%	26%	15%	7%
Q23: I am more likely to express disagreement online.	0%	9%	48%	24%	20%
Q24: I am more likely to express disagreement by email or a messaging app.	2%	15%	24%	30%	28%

Table 3: Frequency distribution of survey results

Descriptive statistics were also used, looking at measures of both central tendency, such as mean, median, and mode, and of variability through standard deviation (see Appendix B.1). For this analysis, the response scale from “1 – Strongly Disagree”, to “5 – Strongly Agree”, was used as a numerical discrete scale ranging from 1-5. Based on this same numerical scale, correlations were calculated between the individual questions (Appendix C.1).

When evaluating found correlations between survey responses, the following scale was used (Table 4) based on the equivalent p-values associated with the sample size of 46 participants (Appendix C.2), where a p-value of 0.05 corresponded to a correlation of about 0.3, a p-value of 0.1 to a correlation of about 0.25, and a p-value of 0.01 to a correlation of about 0.375.

Positive correlation	Negative correlation	Correlation Strength
Between 0 and 0.1	Between 0 and -0.1	No significant correlation
Between 0.1 and 0.3	Between -0.1 and -0.3	Weak correlation
Between 0.3 and 0.5	Between -0.3 and -0.5	Moderate correlation
Above 0.5	Below -0.5	Strong correlation

Table 4: Scale for correlation analysis

Based on the type of question, results were either interpreted in isolation, within their respective groups, or in connection with other questions, especially if patterns were found to arise between certain responses. This resulted in a more in-depth analysis of certain questions, which were found to be more connected to other responses found from the survey. While the questions were assigned markers based on challenges identified from the literature, in the correlation analysis, questions that were not from the same marker were also compared.

Looking at the central tendency helped to find trends towards either side of the scale in a more nuanced way than considering only the mean. For example, the related questions Q9 and Q10,

which asked if participants considered the input of on-site colleagues equally when working remotely during group decisions and vice versa, had the same mean value of 4.04 and the same median of 4, while the mode was 4 and 5 respectively. This implied that while the average value was the same, there was stronger disagreement between responses in Q10, which was also to be reflected in a higher standard deviation.

Considering variability based on standard deviation, helped to understand how distributed the responses of certain questions were. For example, the lowest standard deviation was found for Q6, which asked if participants talked more during online discussions, to which the responses leaned towards disagreement, while standard deviation was 0.71, whereas the highest standard deviation was found for Q3, which asked if participants trusted colleagues they have met in person more easily, to which responses leaned towards agreement but which however had a much higher standard deviation of 1.20. Such differences might show that participants had differing opinions based on other underlying factors.

4.3 Survey Analysis

The empirical data from the survey has been further presented and analyzed in this section. Following an overview of the results of the surveys pertaining to each challenge identified from the literature review, an analysis will identify if they appear to be challenges in practice in relation to the literature. However, as all the challenges are interconnected, other questions and relevant challenges will be mentioned where relevant. A correlation analysis (Appendix C.1) was applied to strengthen the understanding of the responses and patterns among respondents. Conclusions from the survey analysis are described as they impact the topics of the focus group.

Trust

Questions on trust were meant to verify if respondents were more or less likely to trust individuals and their work depending on if they worked on or off site. Based on the responses, it seems that individuals are significantly more likely to trust colleagues they have met in person, despite a high standard deviation (Appendix B.1), as opposed to those they have not met in person. However, there does not appear to be a significant difference between trusting the quality of work of on and off-site colleagues. Still, respondents are slightly more likely to disagree and strongly disagree to trusting the quality of on-site colleagues more easily, while more likely to stay neutral on trusting the work of remote colleagues, represented with a mean answer of 2.70 and 2.85 respectively (Appendix B.1).

Based on the results, the survey shows that there does in fact seem to be a challenge regarding building trust with colleagues which respondents have not met in person. However, according to the survey, this does not necessarily negatively impact perspectives on their quality of work. Therefore, while trust can be identified as a challenge, this survey does not show it would reduce effectiveness due to distrust in the quality of work.

Correlation analysis of the following questions is further used to analyze relationships between trust and mode of work.

Q1: I feel I can trust the quality of work of on-site colleagues more easily.

Q2: I feel I can trust the quality of work of off-site colleagues more easily.

Q3: I am likely to trust colleagues I have met in-person more easily.

Q4: I am likely to trust colleagues I have never met in-person more easily.

The responses to Q1 and Q2 appeared to show a weak positive correlation (0.282), implying that some participants might have graded their level of trust high for both on and off-site colleagues, which might suggest that participants do have relatively close levels of trust in their colleagues' work, regardless of their working mode.

Q19: I feel hybrid meetings are a suitable medium for making group decisions.

Furthermore, there is a moderate negative correlation (-0.389) between Q1 and Q19. This suggests that individuals who have higher trust in on-site colleagues might prefer in-person meetings over hybrid ones for decision-making processes. As a result, this correlation further confirms that trust is a challenge for PDM in hybrid teams, and corroborates the idea that trust and participation are a symbiotic relationship. If individuals have higher trust in on-site colleagues and simultaneously prefer in person decision making, then their participation could be impacted by these preferences.

Q12: I feel people that work in person have more influence over decisions.

There is also a moderate positive correlation (0.461) between Q3 and Q12, which might suggest that individuals who value meeting in person in regards to building trust, might also value in-person presence more strongly in regards to decision-making, which could again be due to perceptions of trust. Finally, Q4 was asked to better differentiate responses to Q3, however no significant correlation (-0.098) was found between Q3 and Q4. This could signify that from the respondents' perception, there is no relationship on an individual level between trusting colleagues that they have met before and those that they have not.

Based on this analysis, since trust did not seem to impact the perceived quality of work, focus group discussions were instead aimed at better understanding the trust-building process for remote colleagues, especially for those they have never met. This was to provide greater detail on perspectives of specific factors which could inhibit trust building, which could be obstacles to mitigate. Furthermore, respondents were asked more generally if the results aligned with their experiences, to verify the data and further ensure trust of work is not a significant concern in practice.

Communication

The questions measuring communication focus on when individuals talk more, engage in spontaneous communication more, and are more up-to-date, depending on their working configuration. Based on the responses, the survey indicates that individuals are less likely to speak in discussions that are held online compared to in person. They also overwhelmingly feel that on-site workers are more likely to engage in spontaneous conversations, with the mode response being strongly agreed (Appendix B.1). Respondents also indicated that they perceive on-site workers to be more up-to-date, though the higher standard deviation (Appendix B.1) indicates greater variety and less consensus than regarding spontaneous communication.

Considering the survey data, communication can be considered as a challenge for PDM in hybrid teams particularly in the context of knowledge sharing and keeping everyone up-to-date. If information is not distributed or accessed equally between on-site and off-site workers, then there is not equal communication. Furthermore, a tendency of respondents to disagree that they talk more during online meetings highlights further potential barriers, and supports the hypothesis that video conferencing may be particularly fatiguing. Respondents postulating that they speak less during online meetings overall shows that hybrid work can lessen the richness of communication, which is especially limiting for PDM.

Correlation analysis helps to shed light on why on-site workers might be perceived to be more up-to-date by looking at the following questions on communication:

Q5: I feel on-site workers are more up-to-date with current events.

Q6: I talk more during discussions that are held through an online medium.

Q7: I talk more during discussions that are held in person.

Q8: I feel that I engage in more spontaneous communication while working with on-site colleagues.

Q5 and Q7 show a moderate positive correlation (0.374) indicating that people who perceive on-site workers as better informed might also have a higher level of communication when face-to-face. Similarly, Q5 and Q8 have a positive correlation (0.283) between feeling on-site workers are more up-to-date with current events and engaging in more spontaneous communication while working with on-site colleagues. Taken together, these findings might suggest that people who believe on-site workers are more informed could be basing this on their own experience when working on-site, such as higher level of impromptu conversations with these colleagues or more involvement in discussions.

Q12: I feel people that work in person have more influence over decisions.

Q14: When working on-site, I feel that I can effectively participate in group discussions.

Furthermore, correlations have been identified with questions coded for other challenges as well. A moderate positive correlation (0.303) was found between Q5 and Q14. This suggests that people who believe on-site workers are more up-to-date with current events also tend to feel that they can effectively participate in group discussions when working on-site. There was also a strong correlation (0.552) between Q5 and Q12. This suggests that people who believe on-site workers are more up-to-date with current events also tend to think that in-person workers have more influence over decisions. These findings might therefore imply that the perceived level of information or knowledge among on-site workers might be associated with the influence they have in PDM.

Based on these results, the purpose of the focus group in relation to this challenge could be outlined. The goal was to get richer interpretations of why people may feel they talk more during in person discussions, to better understand the limitations they may feel they are facing. This also helps to identify further if people talk less because they feel they hold less information, because of challenges such as zoom fatigue, or other unidentified challenges.

Team Identification

For the challenge of team identification, divisions aimed to be identified through perceived influence, and if input is considered. Respondents tended to slightly agree more that those working in person have more influence over decisions, over a similar question over influence of remote workers on an agenda. However, respondents overwhelmingly agreed that they consider the input of remote and onsite colleagues equally. The mean for questions on considering input was exactly the same (Appendix B.1), however the standard deviation was slightly higher for the question on remote colleagues. Therefore, this question did have a slightly wider range of answers.

Based on the initial results, there does appear to be a slight perceived divide between on-site workers and remote workers, which impacts individuals perceptions of influence, indicating that problems with team identification can be considered an inhibitor to PDM in hybrid teams. If individuals have a tendency to feel that those who work on site have more influence over decisions, they therefore perceive a division in how much influence certain members of the team may hold. Surprisingly however, when asked if they consider the input of in-person and remote colleagues equally, there was strong general agreement that they do. Therefore, according to the survey, work configuration does not change how respondents perceive the input of their colleagues. This creates a misalignment, since if certain individuals have more influence in decision-making, this is likely because of what they say being taken into greater consideration; however, as mentioned, respondents stated to consider the input of colleagues equally.

Correlation analysis gives greater depth to the responses related to team-identification:

Q9: When working remotely, I consider the input of on-site colleagues equally during group decision-making processes.

Q10: When working on-site, I consider the input of my remote colleagues equally during group decision-making processes.

Q11: I feel people that work remotely have more influence on the agenda of a meeting.

Q12: I feel people that work in person have more influence over decisions.

A moderate positive correlation (0.423) between Q9 and Q10 might suggest that a subgroup of participants value both ways of participating, i.e., remote and in-person, to the same extent, regardless of whether they work on-site or online themselves. This implies that this subgroup of participants might not see remote work as a hindrance, or on-site work as an enhancement. However, it can also be presumed that some participants might still value their own current medium for providing input higher, possibly forming a second subgroup.

The existence of the former subgroup is to some extent reflected in the paired correlations between Q9 and Q10, and Q15 and Q16 respectively:

Q15: I believe that remote work hinders my ability to influence group decisions.

Q16: I believe that on-site work enhances my ability to influence group decisions.

A moderate negative correlation (-0.304) was found between Q9 and Q15, furthering evidence that those who consider remote work and on-site work similarly valuable or effective, therefore also might not see remote work as a hindrance. This is also seen in the moderate negative correlation (-0.202) between Q10 and Q15. Similarly, moderate negative correlations (-0.378) also found between Q9 and Q16, which in turn implies that participants who value both modes of working do not see on-site work as an enhancement to their ability. This is also found to be again the case in the moderate negative correlation (-0.329) between Q10 and Q16.

In fact, when looking at the 10 questions that had the highest absolute correlation with Q10 (Table 5), it can be seen that 9 out of them (marked blue), inquired whether remote or on-site work were seen to be more or less effective, with the correlations implying that participants saw them as equally effective, further validating the previously mentioned subgroups.

Question	Correlation with Q10
Q9: When working remotely, I consider the input of on-site colleagues equally during group decision-making processes.	0,423
Q12: I feel people that work in person have more influence over decisions.	-0,396
Q15: I believe that remote work hinders my ability to influence group decisions.	-0,378
Q23: I am more likely to express disagreement online.	-0,359
Q1: I feel I can trust the quality of work of on-site colleagues more easily.	-0,349
Q16: I believe that on-site work enhances my ability to influence group decisions.	-0,329
Q19: I feel hybrid meetings are a suitable medium for making group decisions.	0,318
Q5: I feel on-site workers are more up-to date with current events.	-0,307
Q13: When working remotely, I feel that I can effectively participate in group discussions.	0,298
Q11: I feel people that work remotely have more influence on the agenda of a meeting.	-0,265

Table 5: 10 questions with the highest absolute correlation to question 10

Due to the inconsistency identified, that respondents perceive individuals working on-site to have greater influence yet consider input equally themselves, the focus group for this challenge was guided toward understanding how people perceive influence to change. Specifically to understand what people believe might provide those in person with greater influence over decisions. Special attention was also paid to identifying subgroups which view the ways of working as equally effective. A general question of how influence may fluctuate was asked, followed by the results with a more pointed question on the influence of on-site workers.

Participation

The sets of questions concerning how participation is impacted by PDM in hybrid teams looked largely at the topics of influence and general perceptions of participation. Concerning influence, respondents generally agreed in-person work supports the ability to influence decisions, but there was simultaneously a slight tendency to disagree that remote work is a hindrance to influence. However, it was also the question with the second highest standard deviation (Appendix B.1), highlighting that while the average idea was that remote work is not a hindrance, there is a split between those who agree and those who disagree. For participation, while the majority of respondents agreed that they can participate when working on site, there was also a tendency to agree that they can effectively participate when working remotely. However, the mode median and mean was lower for the question of participation of remote work, with a higher standard deviation (Appendix B.2); therefore there was slightly less agreement from respondents that they can participate effectively remotely over in person.

The survey results do not show clearly that participation is perceived as a significant challenge during hybrid PDM. Overall, there seems to be stronger agreement that on site participation is more effective than remote work, but there is still no general disagreement on effective participation during remote work. This indicates that participation may be seen as only slightly

less effective during remote work, but according to the survey results, not ineffective. Similarly, while remote work is not seen as a hindrance to influence in decisions, on site work was seen as a slight enhancement. Although remote work was not seen as a hindrance, on-site work was more likely to be viewed as an enhancement to influence, which could mean remote workers participate less if they view their voice as less influential in comparison.

Correlation analysis of the following questions shows further nuance in the meaning and trends of responses:

Q13: When working remotely, I feel that I can effectively participate in group discussions.

Q14: When working on-site, I feel that I can effectively participate in group discussions.

Q15: I believe that remote work hinders my ability to influence group decisions.

Q16: I believe that on-site work enhances my ability to influence group decisions.

To start, Q15 and Q16 show a moderate positive correlation (0.488), suggesting that there is some overlap between seeing remote work as a hindrance, and on-site work as an enhancement. This could further imply that there are two main groups within the participants, one of which sees little difference between the effectiveness of participation during remote and on-site work, and one which prefers on-site work. A moderate negative correlation (-0.486) was furthermore found between Q15 and Q13, which could imply that the variation in responses to Q15 was caused by how effectively participants felt they could participate in remote discussions. Therefore, although it may not be an overwhelming majority, there does appear to be a portion of respondents who indicate that they view participation as a challenge for PDM in a hybrid format.

Q12: I feel people that work in person have more influence over decisions.

A strong positive correlation (0.755) was found between Q16 and Q12, showing that participant responses to the two questions aligned almost linearly. This suggests that those who consider that on-site work enhances their ability to influence group decisions almost universally also find that people present have more influence over decisions that are being taken, and vice versa. Here it should be noted that both Q12 and Q16 had generally neutral to slightly positive responses, implying that this linear association ranges from coupled disagreement, to coupled agreement to both questions, hence showing that there is no agreement in regards to the statement itself.

As the results of the survey do not strongly support that participation is a significant issue for remote discussions, the focus group discussion was aimed at considering more generally potential factors which would impact participation during PDM. This was to also show if participants find there to be any factors at all, or if participation is truly not an significant challenge in practice. Presentation of the survey results to the focus group also offered further interpretation and insights on the data.

Implementation

For implementation, the questions were formulated to focus on if hybrid formats might be suitable for PDM, and if it is implemented in appropriate contexts. While remaining equally neutral and disagreeing on if unnecessarily involved in decision-making more when working in person, respondents were more likely to disagree that this was a problem online. There was slight agreement that hybrid meetings are suitable for making group discussions, as well as agreement that in-person meetings are suitable. However, the mode and median (Appendix B.1) was greater for feeling in person meetings were a suitable medium compared to hybrid ones, showing the consensus is stronger towards in person meetings.

These survey results indicate that respondents do agree that hybrid meetings are suitable for PDM, and they do not feel more likely to be unnecessarily implicated in PDM online. Therefore, this could indicate that at least in some regards the way PDM is being implemented in hybrid formats for these respondents is not a challenge.

Correlation analysis on the questions relating to this challenge can provide further analysis:

Q17: I feel that I get unnecessarily involved in decisions more often when working on-site.

Q18: I feel that I get unnecessarily involved in decisions more often when working online.

Q19: I feel hybrid meetings are a suitable medium for making group decisions.

Q20: I feel in person meetings are a suitable medium for making group decisions.

There is a weak negative correlation (-0.262) found between Q17 and Q18, which implies that there might be a slight split between those that feel more often involved in decisions unnecessarily online or on-site, compared to a subgroup of people that feel involved in decisions unnecessarily in general, which could have been inferred from a stronger positive correlation. Similarly, between Q19 and Q20, a moderate negative correlation (-0.319) was found, implying that there might again be a split between those that consider hybrid meetings or in person meetings a suitable medium for group decisions.

Q7: I talk more during discussions that are held in-person.

Going back to Q7, its responses also had a moderate negative correlation (-0.307) with Q19, and inversely a moderate positive correlation (0.305) with Q20. Based on this, it can be inferred that those who talk more when in an in-person setting feel like they cannot participate as effectively when working remotely, and therefore consider remote meetings a worse medium for group decisions.

Q15: I believe that remote work hinders my ability to influence group decisions.

Furthermore, a moderate positive correlation (0.491) was found between Q18 and Q15. This suggests an overlap between those feeling involved in decisions unnecessarily when working remotely, and those who believe remote work hinders their ability to influence group decisions. This could indicate that they feel less able to influence decisions because the decisions they are implicated in while remote are unnecessary from their perspective. These could perhaps be decisions on topics they are less informed on, or deem inappropriate for PDM.

As the results seem to show respondents find hybrid mediums to be generally suitable for PDM, the goal of the focus group was to identify further what leads to good implementation of PDM. The responses were compared to what was found in the literature to ensure no factors were missed. Participants were also asked if the results of the survey align with their expectations, hoping to get insight that may further explain some of the correlations found. This is especially in regards to the split among respondents, and those whose answers correlate to feeling hybrid mediums are a worse format for PDM.

Undiscussables

Looking at undiscussables, the goal of the survey questions was to identify the mediums individuals preferred to utilize to bring up “undiscussables”, presented in the survey in the form of disagreements. Respondents significantly prefer to express disagreement face-to-face rather than via digital voice channels, email or messaging. Digital voice channels appeared to be the least preferred medium, with most strongly disagreeing to this being their preferred format (Table 3), followed by email or messaging app. Respondents chose to remain largely neutral on their likelihood of expressing disagreement online.

Nonetheless, based on the survey results, the frequency distribution of responses in relation to the questions on undiscussables indicate that respondents have a strong aversion to expressing disagreement in online formats. The results of this survey show that hybrid work configurations could worsen the challenge of undiscussables, as individuals might be even less likely to address disagreement when not face-to-face. Still, when asked if respondents were more likely to express disagreement online, they remained predominantly neutral, with neutrality being both the mean and mode of answers (Appendix B.2). This leaves the unclarity of why, if respondents clearly prefer expressing disagreement face to face, they would not express distaste toward expressing disagreement online.

Again, correlation analysis is applied to further understand the implication of these responses:

Q21: When I want to express disagreement, I prefer doing it through digital voice channels.

Q22: When I want to express disagreement, I prefer doing it face to face.

Q23: I am more likely to express disagreement online.

Q24: I am more likely to express disagreement by email or a messaging app.

As mentioned above, among questions 21-24, which inquired participants’ willingness to express disagreement through various media, only Q22, which asked about face to face expression, had generally positive responses, with the most common one being “4 – Mostly Agree” (Table 3).

Furthermore, between these questions, correlations were found to be in a reasonable pattern, with strong positive and moderate positive correlations found between the various questions asked regarding expressing disagreement online (Table 6). However, a strong negative correlation between preferring to express disagreement face to face and any online medium was not found, with only a weak negative correlation between Q22 and Q24. Given the contradictory nature of these questions, such a negative correlation could have been expected. This might suggest that the questions were not seen as contradictory by participants.

Prefer to express disagreement:	Q21	Q22	Q23	Q24
Q21: Voice channels	1			
Q22: Face to Face	-0.047	1		
Q23: Online (general)	0.550	0.169	1	
Q24: Email / messaging app	0.570	-0.157	0.353	1

Table 6: Correlation between questions on undiscussables

While the results show respondents are more likely to express disagreement online, and that they dislike messaging or calls for this purpose, for this challenge the focus group was centered around understanding why respondents stayed neutral on their likelihood of expressing disagreement online. First, a general question was asked about what communication channels are preferred for difficult topics. This leaves an open-ended question for participants to respond with any channel, including those potentially not included in the survey. Next, a more specific question was targeted to interpret the initially stated unclarity on the neutrality regarding expressing disagreement online.

5. Focus Group Results and Analysis

This section presents and analyzes the results of the qualitative data from the focus group. First, the participants of the focus group and their contributions are outlined for context. Next, the data is briefly presented thematically, followed by an in-depth analysis. The results for each challenge is first shortly summarized, in order to show adapted understandings from the survey analysis following the focus group. Finally, general themes across challenges are looked at deeper, to strengthen the understanding of the challenges themselves as well as find further connections between them. These connections are presented visually.

5.1 Focus Group Participants

The focus group was held online with four participants and two moderators to facilitate the discussion. The participants were composed of three team members, and one manager from supply management for EMEA. The team members included both recent additions, having worked at Tetra Pak for about one year, and long-time employees of the company, having worked for 10 years, which allowed for a more differentiated discussion.

Below, a figure shows the share of each participant's contribution based on the focus group transcript, including the two moderators (Figure 4). It can be seen that while participation was not equal, each participant did speak and provide input, and it can therefore be assumed that all viewpoints are represented.

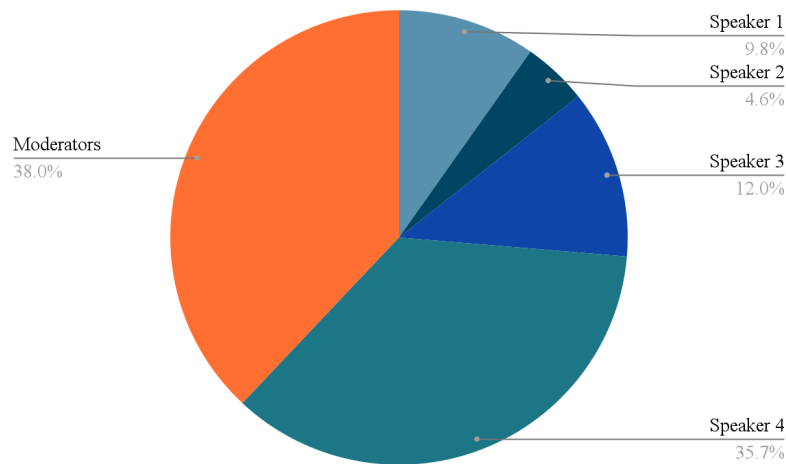


Figure 4: Participants' shares in the discussion

5.2 Focus Group Data

The focus group transcript was coded and thematically divided for each challenge (Table 7). The frequency of mentions for each theme was also noted, including the specific topics for each. The challenges were color coded with the same colors as the survey results for ease of comparison.

Trust	
Showing ability to deliver work (2x)	Trust was described in a workplace as when colleagues show tasks can be completed and delivered as asked , which shows they can be counted on. (2x)
Easier to build trust in person (8x)	Participants agreed that it is easier to build trust and connection with a person they have met in person . (3x) One participant repeated that it is easier to build and maintain trust over time even if you have only met in person once (2x). Participants found that working with someone remotely does not allow for in-depth discussions to get to know someone. (3x)
Communication	
Reading facial expressions (1x)	A participant points out that it is harder to read facial expressions over video call , and therefore more difficult to adapt the conversation accordingly. (1x)
Being up-to-date (1x)	There is the perception that working in the office by default makes you more up-to-date , even by listening to the conversations around you. (1x)
Small-talk (2x)	Not being in person was perceived to mean that one may not anticipate upcoming topics of discussion due to less small talk, however, in a meeting with many people it may not have as much of an impact as people will share their knowledge.(1x) One speaker said that in-person small talk also leads to deeper connections . (1x)
Disengagement (2x)	Disengagement of remote colleagues was repeatedly mentioned as a challenge especially when there is an imbalance , with on-site participants dominating the discussion. (2x)
Team Identification	
Hybrid (1x)	A participant explained if hybrid meetings are imbalanced between remote and on-site workers, particularly if there are more remote workers, that the in-person participants tend to forget the remote workers . (1x)
Online (3x)	Remote colleagues have been perceived to disengage faster (1x) especially if they are a minority in a hybrid meeting. Participants identified online meetings as beneficial to introverted individuals as they can interject without having to speak with features like being able to raise their hand. (2x)
In-person (3x)	In-person meetings may be disadvantageous for introverted individuals as extroverts may dominate the conversation . (1x) Participants also viewed that being in person allows them to spontaneously align with colleagues to form decisions before a meeting has started. (2x)
Participation	
Decision consensus (1x)	One participant explained that they do not participate if they feel there is already an unofficial consensus on a decision.(1x)
Imbalanced remote/on-site participants (3x)	It was emphasized that if there are few remote members of a meeting, there is an imbalance and their ability to influence a discussion may be negatively impacted . (2x) Participants felt more participants in person then remote means the tendency for remote participants to disengage . (1x)
Implementation	
Unnecessary involvement (1x)	Respondents did not express experiencing any circumstances of being unnecessarily involved in decisions, not matter the work configuration. (1x)
Role awareness (3x)	Knowing your role in a PDM process was expressed to be the most important aspect to good implementation. (2x) Knowing your role includes being informed of what one is participating in, in advance. (1x)
Undiscussables	
Expressing in-person (3x)	A participant expressed that the more you know a colleague , the more you may prefer to face disagreements in person. (1x) It may also be preferred when an in-depth conversation is required.(1x) Similarly for important conversations, such as negotiations or layoffs, to show a level of care and increase personal connection . (1x)
Expressing online (3x)	For simple disagreements, a call or message was called an easier and more efficient approach. (3x)
Limiting expressing (1x)	One participant expressed they might hesitate to bring up difficult topics with superiors, which is impacted by cultural background. (1x)

Table 7: Thematic analysis of focus group

5.3 Focus Group Analysis

Overall, the focus group results presented crucial insights and interpretations to better understand the survey data. It helped to simultaneously shed light on the challenges perceived as most crucial, identify aspects that may have been left out of the survey, and distinguish what may not be relevant. Responses to challenges can be considered in isolation, but this also exposes many points of interconnection between the themes of the challenges. As a result, new connections between challenges can be found, which are expanded upon in subsections below, and old ones better understood.

Beginning with trust, the focus group corroborated the hypothesis that employees have an easier time trusting their onsite colleagues, or even colleagues they have only met once. However, the survey resulted in a majority of neutral responses on the impact of this on perceived quality of work, with correlations that showed participants do have relatively close levels of trust regardless of work configuration. Focus group participants tended to state that trust in colleagues was heavily based on their ability to deliver on their work as expected. This can indicate that while trust can be built with remote colleagues in this way, it may take longer as colleagues cannot physically see individuals working on their tasks.

On the challenge of communication, participants unanimously agreed that, from their experience, on-site workers are more up-to-date, and engage in more spontaneous communication. This supports the survey correlations that suggest those who believe those on site workers are better informed are basing this on experience. It was even stated that those working remotely may have a harder time anticipating upcoming topics in a meeting. However, it was mentioned that for PDM with many participants, information gaps close as people share knowledge through discussions. Furthermore, once again, participants agreed they talk more during discussions held in person, and especially that imbalanced ratios of in-person to remote members can cause those remote to disengage.

Considering team identification, the survey found respondents do consider the input of colleagues equally, regardless of work configuration. However, respondents also agreed those working in person had more influence. The focus group offered a new angle to this, once again mentioning the challenge of imbalanced meetings. Therefore, it may not be that the input of remote colleagues is considered less, but that they may have less influence due to being less engaged, or inadvertently sidelined. As a result, the finding from the correlation analysis which suggests that at least a group of respondents valued input equally is likely accurate.

Moving to the challenge of participation, survey respondents disagreed that on-site work hinders ability to influence, but strongly agreed they effectively participate on site. They also agreed, however less strongly, they participated in group discussions remotely. Further interpreting these results through the focus group, the imbalance of a meeting was once again given as a reason for lack of participation. The perception that there may already be an unofficial decision can also

decrease participation. Therefore, certain contexts of PDM in hybrid formats could negatively impact participation, but if avoided participation could be leveled. This supports survey correlations that at least some do view participation as a challenge for hybrid PDM, but again, the focus group showed this likely depends on context.

For the implementation of PDM, individuals in the focus group, similarly to the survey respondents, felt that being unnecessarily involved in decisions was not an issue. Unlike survey correlations implied, no subgroup was unveiled from the focus group who did view this as an issue. However, what was stated as most important for implementation is knowing your role in the process, which must be informed in advance. This was said to allow for PDM across formats.

Finally, on the challenge of undiscussables, the preferred medium to bring up difficult topics or express disagreement seemed to depend heavily on the situation, which may explain why there was not a strong negative correlation from the survey between preferring to express disagreement face to face and any particular online medium. Still, as with the survey, there did appear to be a preference toward in person discussions, especially for complex topics. However, participants said that sometimes a simple email might be enough to express and solve a simple disagreement in order to reach agreement more quickly. Therefore, the choice of channel depends on factors such as the level of disagreement, the need for a quick decision, and the extent of investigation required. A participant also added that two factors; namely power distance, perceptions of which can be impacted by culture, and familiarity, can influence the choice of communication channel.

Building Connections

The focus group participants noted the relationship between interactions, and forming relationships. The effect of physical proximity was particularly emphasized, with a participant stating that it is “of course easier” to build trusting relationships when face-to-face. Participants stated they could communicate more effectively and establish a more personal connection through face-to-face interactions over remote discussions. This was closely tied to trust, since as mentioned, the in-person connections made it easier to build trust. One participant even stated a single in-person meeting was enough to maintain trust with a colleague over time.

Building connections was also attributed to the challenge of communication during the focus group. Small talk and casual conversation, which was said to occur more frequently in person, were perceived to lead to deeper connections. Similarly, for the challenge of undiscussables, establishing a level of personal connection to show care was perceived as important for undiscussables of lofty weight. Creating this connection was similarly perceived to be easier in person. Therefore, creating connections was repeatedly stated as important across the challenges of PDM in hybrid teams (Figure 5). In particular, creating connections was perceived to be easier and deeper when done in person.

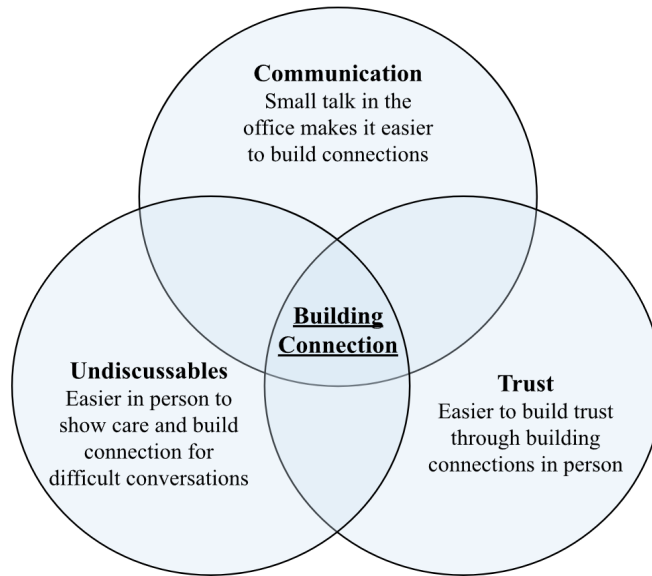


Figure 5: Building trust as an intersection for the challenges of trust, communication and undiscussables

Information Exchange

Flow of information in a team happens both through intentional and unintentional, often passive means. The focus group participants acknowledged that being physically present in the office created grounds for incidental exposure to information, such as overhearing conversations or informal updates. One even went so far as to say “You will never be as up-to-date as if you're in office”, generally feeling that being in the office grants you with more streams of information. Participants said that staying in the loop is easier in an office environment, where communication happens more organically.

The group also noted that another factor which makes staying updated more difficult in a remote setting is that the attention span of remote participants may vary based on their level of involvement in the discussion. While those who are fully engaged in the topic may pay more attention and participate compared to those who are passively listening, it was said that it is nevertheless easier to lose attention during remote discussions. Participants also felt that it is easier to adjust their communication style accordingly during in-person discussions, where it is easier to read someone’s body language compared to communicating through a screen, making it difficult to follow longer conversations.

Furthermore, being in the office also allows for discussions before and after meetings, as opposed to joining remotely, where participants said they “go straight to business”. As a result, one participant stated that this can lead to spontaneous alignment, where in-person participants of a meeting have already come to an agreement before the meeting. Therefore, an unsaid consensus could be reached even before remote members join a meeting, which shows divisions in the cohesion of the team.

While spontaneous alignments were found to be an issue to fostering truly participative PDM, ensuring that everyone in the process knows their role was found to be one of the most important aspects to successful implementation. However, it was emphasized that participants must therefore be informed of their role, stating “implementation success will depend on what role you believe you're taking in those meetings”, and if they do not know the purpose of the meeting, then they will not be able to fully contribute. Participants mention that knowing whether you are leading, deciding, or participating in the meeting is crucial for successful implementation. Overall, the aspect of exchanging information can therefore be specifically related to implementation, communication, and team identification (Figure 6).

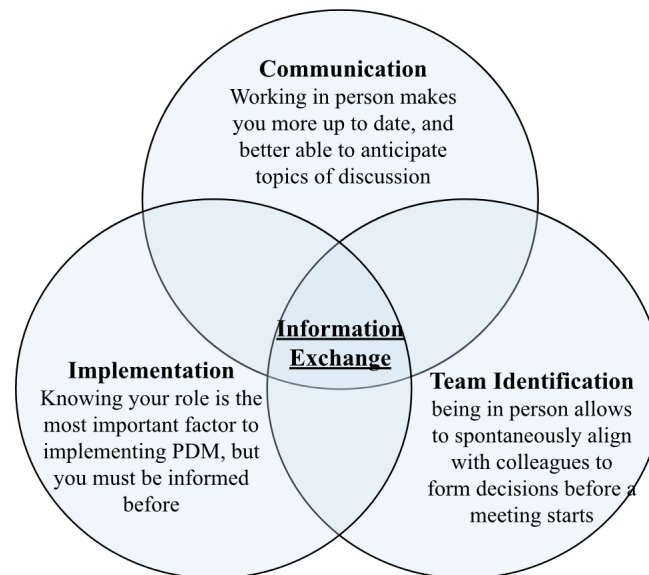


Figure 6: Information exchange as an intersection of the challenges of implementation, team identification and communication

Exclusion of Remote Participants

One theme that was brought up during the focus group was regarding the involuntary exclusion of remote participants from meetings. This can be both due to their absence, or due to them not being able to exert their presence. One example that was repeatedly brought up was regarding the exact composition of hybrid meetings. It was mentioned that an imbalanced meeting, particularly with a greater number of on-site participants than remote participants, might inadvertently leave out the remote participants from the discussion. One participant explained that “let's say 80% of the people are on-site and 20% off, you tend to forget about your remote colleagues, and if the meeting is quite long, and then you lose them at some stage”. Therefore the risk of an imbalanced meeting causing exclusion was also attributed to a perceived disengagement more likely to occur for remote participants. Participants may disengage not only because they are being sidelined from the meeting, but also due to a perceived shorter attention span. As connecting remotely is less engaging, the attention span may waver, leading to less engagement

and participation. This issue was mentioned within discussions on the challenges of team identification, participation, and communication, indicating that this is a barrier across challenges for PDM in hybrid teams (Figure 7).

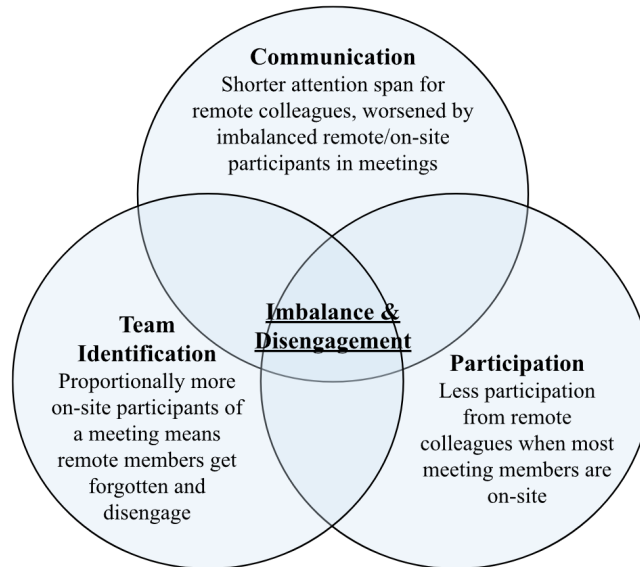


Figure 7: Imbalance and disengagement as an intersection for challenges participation, team identification, and communication

Furthermore, this involuntary exclusion was also mentioned to occur outside of the meetings themselves, with one participant mentioning that in-person meetings are often preceded by shorter spontaneous discussions, which allow for alignment and decisions to be formed before the actual meeting takes place. This aspect may increase the influence of in-person participants compared to remote participants. A participant also mentioned that sometimes it can feel like a decision has already been made unofficially, and that this perception might decrease their level of participation. While participants stated that this can happen regardless of their mode of participation, based on the previous finding that on-site meetings allow for such “pre-meeting” discussions, it might be the case that this feeling of being left out of predetermined decisions is a more common experience when working remotely.

However, it was also acknowledged that for in-person team environments, introverted individuals may find it more challenging to express themselves, whereas extroverts might tend to dominate the discussion. They said that in virtual meetings, software features like “raising hands” can give individuals an easier opportunity to contribute, potentially making virtual meetings more efficient in terms of giving everyone a chance to speak, thereby leveling the dynamic. Therefore, there are also ways in which virtual tools can contribute to more balanced communication.

6. Discussion and Adapted Framework

With the completion of a survey and a focus group based on those results, which have both been analyzed, empirical data has been collected. Further discussion on this data guides an adaptation of the preliminary framework. To do this, the challenges of PDM will once again be placed in the context of the challenges of hybrid teams. Connections of challenges within concepts will also be further related.

6.1 Revisiting PDM in the hybrid context

Following an analysis of the results from both of the methods utilized in this study, the analysis can now be considered in the context of the preliminary framework, to be adapted as needed. The preliminary framework identifies three main challenges of PDM: participation, implementation, and undiscussables, as well as three main challenges of hybrid teams: trust, communication, and team identification. The framework anticipates how these challenges may be interrelated, specifically from the perspective of PDM within the context of hybrid teams, although relations are also considered within concepts. Empirical data gathered now allows for more context into the potential interrelationships of challenges, as well as new connections to be identified and supported (Figure 8).

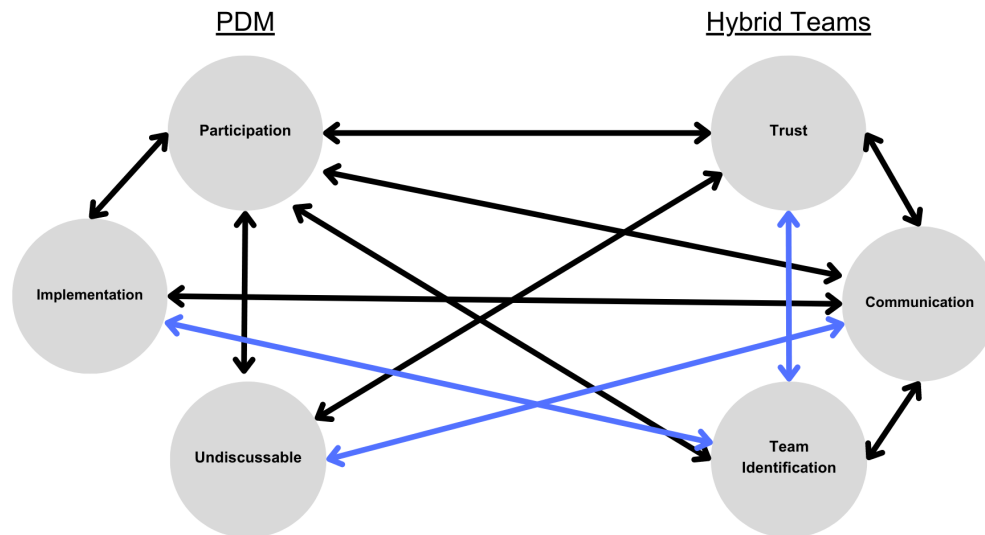


Figure 8: Adapted framework

With participation being a central element of PDM, problems with it can also be detrimental. The challenge of participation can be linked to all three main challenges within hybrid teams, making it a crucial consideration. Looking first at trust, implementing participation only in theory was identified as a potential barrier to trust by Lengnick-Hall & Lengnick-Hall (1992). A main

finding in relation to this is that people were found to feel that a meeting imbalance between on-site and remote participants could lead to those remote participants feeling ignored and sidelined, therefore likely feeling less like they are actually participating in PDM discussions. This could be exacerbated by the findings from both methods that it is more difficult to build trust with off-site colleagues, particularly those they have never met in person, which aligns with previous research (Horwitz, Bravington & Silvis, 2006; Zolin et al., 2004). Therefore, not only may remote colleagues feel ignored or overshadowed in meetings where in-person participants are the loudest voices (Donovan, 2011), this could further inhibit already difficult-to-build trust.

Moving to the connecting challenges of participation and communication, this can once again be linked to the issue of imbalanced meetings, where remote members may not only feel pushed aside, but have been more likely to disengage due to a less engaging format. Furthermore, the issue of zoom fatigue (Bailenson, 2021) can also be combined with this, as empirical data found that it was more difficult to read facial expressions and adjust communication style accordingly virtually. It is therefore possible that the fatigue from the virtual format is also what leads to quicker disengagement, and, subsequently, less participation and communication during PDM, supporting the argument of Fosslien and Duffy (2020). Coupled with this is the overarching theme that those in person are perceived as more up-to-date and generally more informed than those working remotely, which can strain participation efforts since information received in advance of PDM can dictate the possible degree of involvement (Dachler & Wilpert, 1978).

Finally, participation also revolves around how it impacts the challenge for hybrid teams of fostering team identification. Considering the issue of subgroups within teams, they are perceived as a challenge in literature due to those with less influence conforming or withholding information (Hollingshead, 1996). As imbalanced influence translates to certain individuals having greater power in the decisions made (Bachrach & Baratz, 1962; Dahl, 1957; Lukes, 1974), this does not represent true PDM. This has been found to be a potential issue, as empirical results from both methods show that those working in person are perceived to have greater influence. Unlike the initial correlation analysis indicated, it does not appear that there are necessarily two groups: those who view remote work as a hindrance to team influence and those who do not, but rather that this perception can change depending on specific contexts. For example, if there is an imbalanced meeting in terms of participants' modes of communication. The issue of imbalance being a particular issue supports the findings of Fiol and O'Connor (2005) that team identification is a particular issue for hybrid teams that requires special consideration.

Moving on to the challenge of implementation of PDM from the perspective of hybrid challenges, which has also now been identified to include the challenges of communication and team identification. Looking first at the relationship between implementation and communication, this can be connected by the finding that the most important factor in the implementation of PDM is ensuring everyone knows their role, and is informed in advance,

which is really a matter of proper communication. Knowing your role aligns with Lengnick-Hall and Lengnick-Hall's (1992) "set of rules" for proper implementation, which includes the organization being required to express their expectations of participation for employees. Furthermore, this relates to the mutual knowledge issue expressed by Cramton (2001); if participants of PDM are not informed of their roles ahead of time, there is a lack of mutual knowledge. This can be further attributed to the issue of restricted communication "sessions" when working remotely (Hinds & Mortensen, 2005), and the issue found from empirical data that those in person are overall considered more up-to-date than those working remotely, showing there is an issue of proper information exchange. Overall however, empirical data in this research did not find inappropriate application of PDM to be an issue, unlike Kanter (1982) implied it could be in certain contexts.

Moving to the connection of implementation and team identification, an issue of proper implementation of PDM can be identified through the subgroups of in-person and remote. This study found that in-person members of a team are more likely to partake in spontaneous alignments before a meeting has even started, meaning greater influence for those in person and a lack of true participation potential for those remote, supporting the findings of Lau and Murnighan (1998). This issue of reduced collaborations can be related to the hypothesis of geographic distribution causing faultlines (Cousins, Robey & Zigers, 2007) as well as a previous study that found hybrid teams had reduced collaborations (Yang et al., 2022) since collaboration may be happening less across whole teams, and more across only in person members.

Finally connecting the challenges of PDM to those for hybrid teams, means looking at the issue of undiscussables. Undiscussables in PDM can be correlated to the challenges of trust and communication in hybrid teams. Looking first at trust, Flanagan and Runde (2008) argue that addressing difficult topics leads to the building of trust, which can be connected to the empirical finding that individuals prefer to address difficult topics face-to-face due to the perception that it streamlines building a personal connection. Addressing undiscussables in person was perceived to show a level of care; therefore, hybrid discussions may be a barrier to undiscussables of significant weight. However, for simpler disagreements, this was not found to be a barrier. Addressing these topics to superiors was also a barrier on all formats. Therefore, whether or not undiscussables are addressed in a hybrid format, and therefore help to build trust, depends at least partially on the level of discomfort it may imply.

Undiscussables and communication are closely tied to the previous connection with trust. Starting with the finding that it was a preference to build connections in person, including because it is harder to read facial expressions online, again presenting the challenge of zoom fatigue (Bailenson, 2021). The preference of building connections in person was stated both within the challenge of communication and undiscussables, again highlighting the risk of avoiding communicating undiscussables over a hybrid format, which could mean a decrease in participation and leaving important topics untouched. These findings therefore support research

by Donovan (2011) that undiscussables may lead to less effective PDM if topics are left unmentioned. Furthermore, it was found that certain mediums are preferred depending on the gravity and complexity of the undiscussable itself. This aligns with previous studies which found that different media are better suited for different intents of communication (Dennis, Fuller & Valacich, 2008; Yang et al., 2022). Empirical data found that synchronous communication is preferred for undiscussables of greater weight, while asynchronous forms can be applied to simpler disagreements.

Finally, the interconnection of challenges within concepts can be briefly considered. Participation was already linked to both issues of implementation and undiscussables, and this has been further corroborated. Participation is contingent on proper implementation (Lengnick-Hall & Lengnick-Hall, 1992), which was found to be highly related to individuals being informed of their roles, in order to feel they are ready to participate in PDM in any format. Similarly, if undiscussables are not addressed, either because the medium is not preferable, due to perceived barriers between hierarchies impacted by culture, or both, this also means reduced participation. Therefore, this supports the idea that readiness to participate (Pasmore & Fagans, 1992; Glew et al., 1995) can be heavily impacted by contextual factors including hierarchy, management, and individual attitudes (Falcone, 2017),

Within the concept of hybrid teams, communication was already tied to trust and team identification (Jarvenpaa & Leidner, 1999; Lau & Murnighan, 1998). These were also further verified from the empirical data. Trust and communication were found to be deeply tied, as in-person communication in particular was perceived as integral to building trust, whereas remote communication takes more time and effort to build trust. This is in line with Hinds and Cramton (2014) suggestion that regular site visits facilitate the building of relationships. This could also be an issue for managers, where limited trust in work could potentially lead to limited autonomy, implied in previous studies (Wiatr & Skowron-Mielnik, 2023). Furthermore, the challenges of damaged team identification for hybrid teams relate largely to unequal communication across in-person and remote members. While in-person members have ample casual communication to build connections, those who are remote do not, which leaves weak team ties. Finally, team identification can also be tied to trust for similar reasons; if there is no chance to build connections in person, it was found to be more difficult to trust other colleagues. Therefore, the potential lack of trust leads to weak ties and reduced team identity.

Overall, the analysis of the empirical data of this study has shed light on the interrelationships and interconnectedness of challenges within the context of participative decision-making (PDM) in hybrid teams. The preliminary framework, which identified challenges in PDM (participation, implementation, and undiscussables) and hybrid teams (trust, communication, and team identification), has been further supported and expanded upon through empirical data. The findings have provided a deeper understanding of how these challenges are intertwined and how they impact each other, and unveiled three new interconnections (Figure 8). The results also

show how perceptions of these challenges and issues within them might vary depending on whether individuals are working in person or remotely (Table 8). Overall, remote work appeared to be perceived more often as leading to new layers of difficulty.

HYBRID TEAMS - VARYING PERCEPTIONS	
In-person	Virtually
- Easier to build trust	- Longer and more deliberate to build trust
- More up-to-date	- Less up-to-date, more difficult to anticipate topics of discussion
- More communication, which helps to build connection	- Less communication, and it is planned and limited which limits connections
- Easier to read facial expressions and cues	- More difficult to read facial expressions and cues
- More engaged in discussions	- Faster to lose engagement and a shorter attention span
- Hard for introverts to speak up	- Virtual meeting tools make speaking up easier for introverts
- Less impacted by an imbalance of more remote to in-person participants	- Heavily impacted by more in-person to remote participants
- Better to express complex disagreements or important topics	- Better to solve simple disagreements

Table 8: How perceptions vary for challenges when remote or in person

7. Conclusion

In this thesis, by utilizing an approach comprising a broader survey and an in-depth focus group discussion, it was sought to uncover the dynamics of the complex issues surrounding the perception of PDM in hybrid teams. Alongside these empirical investigations, a framework was adapted that integrated the empirical findings with the theoretical insights from an extensive literature review. This integrated perspective facilitated a multi-dimensional analysis. In this conclusion, the key findings will be highlighted, the implications of the research underlined, and potential avenues for future research in the realm of hybrid team decision-making suggested.

7.1 Research Aims

The aim of this research was to create a theoretical framework in order to identify and analyze the perceived challenges of participative decision-making in hybrid teams. This research fulfilled this aim by first developing the preliminary framework, which identified six main challenges, three within each concept of PDM and hybrid teams. The preliminary framework also presented the initial interconnections of the challenges, based on the literature. The analysis of these challenges occurred by applying the framework to develop a mixed methods research design that allowed to first test the validity of the challenges, and then further understand their roots, causes, and implications, therefore answering the first research question (Figure 8). Furthermore, the second research question was answered by considering the results of both methods, which showed varying perspectives on the challenges depending on whether the challenges were considered when working in person or remotely (Table 8).

While there were no additional challenges added to the initial framework, the challenges found were instead studied in depth, and barriers were considered under the umbrella of these main challenges. Therefore, the scope of the challenges themselves simultaneously broadened while their understanding was honed.

7.2 Key findings

This research was identified as relevant partially due to the gap identified between bridging PDM and hybrid work, both concepts that, as previously mentioned, are only increasing in prevalence and popularity. The problem was identified as a lack of consideration for how the implementation of PDM in hybrid contexts may impact each other, especially considering the already identified challenges within them.

This research found that not only are the challenges highly interrelated (Figure 8), but also that hybrid work is an important context to look at for PDM considering how its specific configuration can change the perceived impact and degree of the challenges, with remote work in particular seeing a greater impact from these challenges. Following this study, there is greater

clarity on how the major challenges of implementing PDM play out in the context of challenges of hybrid teams. Therefore, there is now greater knowledge on the perceived obstacles of implementing PDM in such a context as a result of this study, which is summarized below.

Participation

Participation for PDM was connected to all challenges of hybrid teams, implying as expected that it is a central factor of PDM in hybrid teams. The degree of participation was found to be perceived as heavily impacted by the hybrid configuration, especially if a PDM process had more on-site than remote participants. It was found that this imbalance leads to disengagement and less communication, as well as a feeling of exclusion, which could damage trust. As a result, the imbalance can also increase perceived sub-groups of a hybrid team, as in-person participants appear to have greater influence.

Implementation

Implementation of PDM was related to two challenges of hybrid teams, and its most important factor of success was perceived to be proper communication of roles and purposes. Furthermore, improper implementation was found to be an issue not due to applying PDM in inappropriate contexts but rather due to spontaneous PDM which can occur without remote colleagues, hence worsening team cohesion.

Undiscussables

Undiscussables, an issue that limits proper discussions in PDM, were found to be a problem for hybrid teams and specifically related to two challenges. It was a preference for individuals to discuss significant undiscussables in person in order to show care and build connections, which also builds trust. However, not having this option might therefore lead to avoidance, especially with one's superiors, which are included in PDM processes. Similarly, building connections was perceived to be easier in person, while reading social cues was perceived to be more difficult online, displaying the communication challenges which come with implementing PDM in a hybrid format.

7.3 Practical implications

Fulfilling the purpose of this thesis, there is now a created theoretical framework that has identified and analyzed perceived challenges of participative decision-making in hybrid teams. In practice, this means that there is now a structured and systematic approach to studying these concepts in conjunction, which can aid researchers in future studies, which will be expanded on in 7.5. Beyond academics, this study and the resulting framework can be considered valuable for organizations and professionals within them that apply PDM approaches as well as have hybrid team configurations. By understanding the challenges as well as underlying factors and dynamics through the framework, hybrid organizations can implement appropriate measures and strategies to overcome barriers and foster effective PDM. Nonetheless, it is also important to acknowledge

the obstacles which may come with implementing this framework, which can largely be attributed to the generalizability of the framework as well as the necessity of its ongoing refinement. This will be further discussed in the following section, 7.4.

Although the purpose of this research was not to develop suggestions to prevent these challenges, but rather to identify and analyze them, certain suggestions can be initially extracted from the findings. These suggestions can be initially summarized as follows:

1. Create balanced meetings between remote and in-person participants for PDM processes to limit a feeling of exclusion and disengagement from remote participants.
2. Offer opportunities for colleagues to meet in person, even just once, to contribute to trust building and strengthen connections across teams, which can in turn enrich PDM discussions.
3. Inform participants of PDM discussion of their role and expected contributions ahead of time, for both in-person and remote participants.

These suggestions are still preliminary and require further research for proper implementation. However, the main key findings of this research contribute to the scientific literature on PDM as well as hybrid teams, and start to bridge the gap between both of these concepts, although with these strengths also come limitations.

7.4 Strengths and limitations

As this research followed a deductive approach, the foundation of the study is firmly established in the literature, which developed a theoretical framework that was the roadmap of the empirical study. However, this means the study was heavily guided by what was originally found in the literature, which certainly impacted the results. If this study had followed an inductive approach, by first collecting empirical data and then turning to the literature, the final results may be different, with other challenges found. This may be an option for future research, but as the concepts had not previously been systematically connected, developing a framework first was seen as important to create an appropriate structure for the study.

Furthermore, the purpose of this study was to develop a framework, not rigorously test it. Although the survey did validate the challenges, which were then able to be further reviewed and analyzed from the focus group, this was done within only one company which may in some ways limit the generalizability of the framework. Still, the framework was initially rooted in previous studies, which were based in a wide variety of contexts collected by numerous different research methods. Therefore, the basis of the framework is general but has thus far been carefully tested in one organization. As a result, this highlights how the results of this research have created a

roadmap for researchers, as there are plenty of opportunities for further testing and future related research in the field.

7.5 Future research

As mentioned, opportunities for future research in relation to this study can be found in exploring different contexts, both for the testing of the framework as for putting PDM in new contexts. First, considering testing the framework, this was done so far with specific mixed methods within one company, Tetra Pak. Future testing could include various organizations in different countries and work cultures, allowing for comparisons and potentially large samples to help further validate the framework. Furthermore, future studies on the topic could also utilize new methods, which could lead to new findings, particularly with an inductive approach. The results of an inductive approach can also be subsequently compared to the framework and potentially refined or modified.

Second, this research looks at PDM in the specific context of hybrid teams, however, future studies can also shed light on PDM, including its strengths and challenges, in other contexts. These certain contexts could include specific industries where PDM may be implemented, various organizations, or even countries. Overall, PDM has, as mentioned, largely been studied for its potential benefits and limitations, with debates still ongoing. However, the implications of PDM have rarely been cross-checked in specific work contexts, allowing for a wide range of future potential studies.

Finally, future research in relation to this topic can be suggested to focus on ways to mitigate found challenges from the framework. Leonardi (2015) looks at the awareness of hybrid team members' knowledge and interactions between each other. Specifically, Leonardi (2015) looked at how allowing hybrid or remote working employees to see each other's communication patterns would increase their efficiency to a level closer to on-site work. With the idea that emulating aspects of office interactions in a digital environment would help overcome the challenges of hybrid work, it could be suggested that similar adaptations could be beneficial in dealing with the challenges of PDM in a hybrid context. Future research could also utilize other theories and models to find ways to mitigate the challenges laid out in this framework and take into consideration the mentioned suggestions. Therefore, there are overall plenty of opportunities for future research considering this topic, which was a previously unexplored intersection.

7.6 Final Remarks

This research looked at two relevant concepts to modern workplaces and aimed to consider their impacts simultaneously. First identifying six main challenges through a theoretical framework, they were able to be further analyzed with a mixed-method approach, utilizing both a survey and focus group. While the survey helped to verify the challenges were perceived as challenges in

practicality, the focus group helped to further understand under what circumstances, why, and the nuanced nature of these challenges, which helped to find new connections within the challenges. Therefore, utilizing a deductive approach, and building of a developed theoretical framework helped to look deeper into identified challenges. As a result, a greater understanding of why PDM in the context of hybrid teams may exacerbate certain challenges has been outlined, as well as perceptions on how issues change based on the hybrid configuration.

Overall, this research has shown how these concepts provide many elements for consideration, which is especially relevant at a time when they are being applied more and more. Consequences such as the increasing emphasis on democratic and participative organizational structures, as well as physical changes in how we work, particularly from the Covid-19 pandemic, mean workplaces are facing original dynamics. This research is a step towards better understanding these newly widespread dynamics and creating building blocks to hopefully improve organizational processes in regards to PDM in hybrid teams.

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Appendix A

Preliminary Theoretical Framework

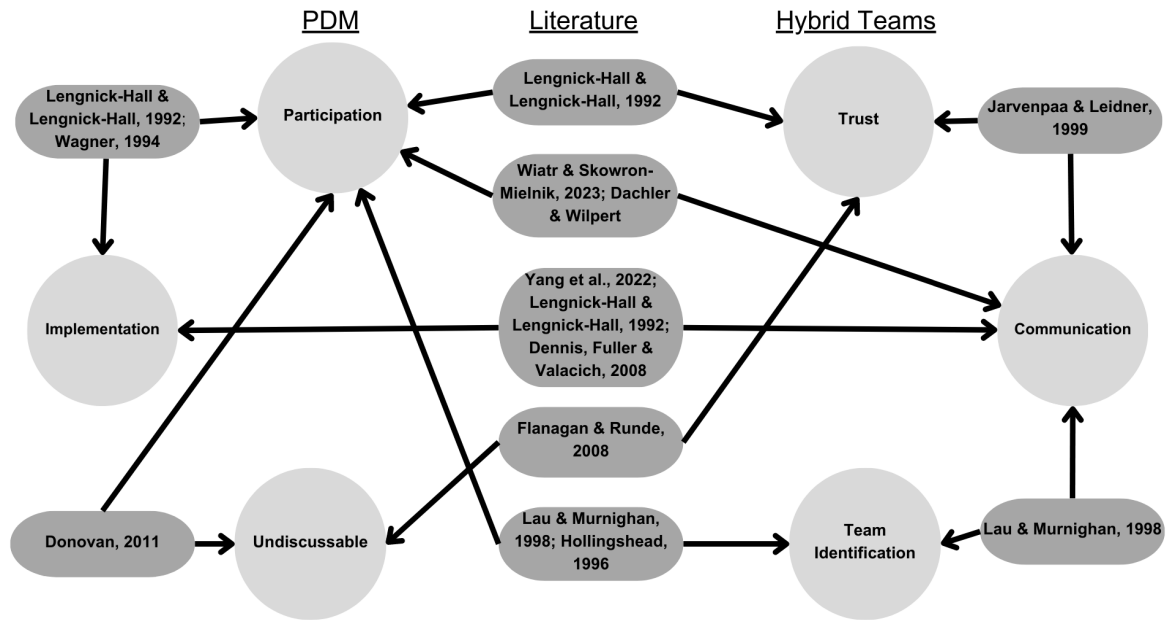


Figure A1: Challenges of PDM and hybrid teams in conjunction with sources

Appendix B

Results

Question	Mode	Median	Mean	Standard Deviation
1: I feel I can trust the quality of work of on-site colleagues more easily.	3	3	2,70	0,99
2: I feel I can trust the quality of work of off-site colleagues more easily.	3	3	2,85	0,87
3: I am likely to trust colleagues I have met in-person more easily.	4	4	3,57	1,20
4: I am likely to trust colleagues I have never met in-person more easily.	2	2	2,45	1,07
5: I feel on-site workers are more up-to-date with current events.	4	3,5	3,38	1,13
6: I talk more during discussions that are held through an online medium.	2	2	2,38	0,71
7: I talk more during discussions that are held in-person.	4	3	3,17	1,00
8: I feel that I engage in more spontaneous communication while working with on-site colleagues.	5	4	4	0,97
9: When working remotely, I consider the input of on-site colleagues equally during group decision-making processes.	4	4	4,04	0,90
10: When working on-site, I consider the input of my remote colleagues equally during group decision-making processes.	5	4	4,04	0,98
11: I feel people that work remotely have more influence on the agenda of a meeting.	3	3	2,478	0,99
12: I feel people that work in person have more influence over decisions.	3	3	3,06	1,10
13: When working remotely, I feel that I can effectively participate in group discussions.	3	3	3,3	1,15
14: When working on-site, I feel that I can effectively participate in group discussions.	4	4	3,72	0,83
15: I believe that remote work hinders my ability to influence group decisions.	3	3	2,57	1,19
16: I believe that on-site work enhances my ability to influence group decisions.	4	3	3,3	0,96
17: I feel that I get unnecessarily involved in decisions more often when working on-site.	3	3	2,83	0,94
18: I feel that I get unnecessarily involved in decisions more often when working online.	3	3	2,66	0,99
19: I feel hybrid meetings are a suitable medium for making group decisions.	3	3	3,43	0,98
20: I feel in person meetings are a suitable medium for making group decisions.	4	4	3,39	1,01
21: When I want to express disagreement, I prefer doing it through digital voice channels.	1	2	2,11	1,07
22: When I want to express disagreement, I prefer doing it face to face.	4	4	3,38	1,13
23: I am more likely to express disagreement online.	3	3	2,47	0,91
24: I am more likely to express disagreement by email or a messaging app.	2	2	2,34	1,12

Table B1: Descriptive statistics of survey result

Appendix C

Analysis

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24
Q1	-																							
Q2	0,282	-																						
Q3	0,173	-0,021	-																					
Q4	0,255	0,097	-0,098	-																				
Q5	0,350	0,017	0,103	0,207	-																			
Q6	0,069	-0,195	-0,300	-0,158	-0,102	-																		
Q7	0,349	0,031	0,303	-0,052	0,374	-0,093	-																	
Q8	0,032	0,031	-0,133	0,056	0,283	-0,177	0,303	-																
Q9	-0,102	0,070	-0,140	-0,007	-0,113	-0,073	-0,013	0,024	-															
Q10	-0,349	0,064	-0,265	-0,071	-0,307	-0,068	-0,218	0,022	0,423	-														
Q11	0,127	0,179	0,109	0,067	0,234	-0,079	0,155	-0,106	0,065	-0,265	-													
Q12	0,529	0,219	0,461	0,145	0,552	-0,116	0,475	0,042	-0,249	-0,396	0,271	-												
Q13	-0,249	0,114	-0,230	-0,092	-0,145	0,212	-0,415	-0,150	0,215	0,298	-0,040	-0,331	-											
Q14	0,254	-0,087	0,044	0,106	0,303	-0,021	0,218	0,570	0,112	-0,089	-0,111	0,141	-0,171	-										
Q15	0,416	0,129	0,231	0,293	0,180	0,063	0,329	0,048	-0,304	-0,378	0,171	0,447	-0,486	0,176	-									
Q16	0,568	0,189	0,408	-0,045	0,421	-0,136	0,384	0,042	-0,202	-0,329	0,141	0,755	-0,306	0,241	0,488	-								
Q17	-0,207	0,214	-0,067	-0,280	-0,188	-0,073	-0,059	-0,174	-0,008	-0,007	0,153	-0,010	0,177	-0,381	-0,214	0,012	-							
Q18	0,321	0,221	0,345	0,313	0,045	-0,003	0,085	-0,369	-0,024	-0,022	0,138	0,386	-0,138	-0,032	0,491	0,322	-0,262	-						
Q19	-0,389	0,105	-0,067	-0,248	-0,258	0,179	-0,307	-0,082	0,193	0,318	-0,020	-0,273	0,470	-0,131	-0,331	-0,237	0,161	-0,069	-					
Q20	0,415	0,226	0,109	0,008	0,174	-0,202	0,305	0,225	-0,265	-0,222	0,121	0,218	-0,205	0,129	0,244	0,357	0,310	-0,058	-0,319	-				
Q21	0,299	0,444	0,143	-0,053	0,266	0,103	0,277	-0,154	-0,075	-0,112	0,184	0,465	0,140	-0,124	0,135	0,318	0,170	0,259	0,217	0,063	-			
Q22	0,390	0,017	0,289	0,151	0,034	-0,018	0,315	0,179	0,084	-0,024	0,194	0,230	-0,317	0,088	0,330	0,257	0,090	0,045	-0,339	0,381	-0,047	-		
Q23	0,232	0,230	0,171	0,043	0,320	0,248	0,327	-0,089	-0,199	-0,359	0,389	0,500	-0,029	-0,045	0,331	0,319	0,226	0,179	-0,003	0,172	0,550	0,169	-	
Q24	0,294	0,144	0,198	0,046	0,356	0,125	0,128	-0,132	-0,044	-0,204	0,152	0,289	0,215	-0,002	0,193	0,154	-0,184	0,265	0,192	-0,080	0,570	-0,157	0,353	-

Table C.1: Correlation strengths between question responses (N=46)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24
Q1	-																							
Q2	0,057	-																						
Q3	0,249	0,892	-																					
Q4	0,087	0,522	0,517	-																				
Q5	0,017	0,912	0,494	0,168	-																			
Q6	0,649	0,194	0,043	0,295	0,502	-																		
Q7	0,017	0,836	0,040	0,732	0,010	0,539	-																	
Q8	0,832	0,838	0,379	0,712	0,057	0,240	0,041	-																
Q9	0,501	0,646	0,354	0,963	0,455	0,630	0,932	0,874	-															
Q10	0,018	0,670	0,076	0,641	0,038	0,655	0,146	0,884	0,003	-														
Q11	0,399	0,233	0,473	0,659	0,117	0,600	0,305	0,482	0,667	0,075	-													
Q12	0,000	0,143	0,001	0,336	0,000	0,441	0,001	0,784	0,095	0,006	0,069	-												
Q13	0,095	0,451	0,124	0,544	0,335	0,156	0,004	0,318	0,151	0,044	0,792	0,025	-											
Q14	0,088	0,564	0,772	0,483	0,041	0,888	0,146	0,000	0,458	0,559	0,464	0,351	0,256	-										
Q15	0,004	0,395	0,123	0,048	0,231	0,677	0,026	0,753	0,040	0,010	0,255	0,002	0,001	0,242	-									
Q16	0,000	0,207	0,005	0,766	0,004	0,369	0,008	0,784	0,178	0,026	0,351	0,000	0,039	0,107	0,001	-								
Q17	0,168	0,152	0,660	0,059	0,211	0,627	0,698	0,249	0,959	0,962	0,309	0,947	0,239	0,009	0,153	0,936	-							
Q18	0,030	0,141	0,019	0,034	0,767	0,986	0,575	0,012	0,876	0,885	0,359	0,008	0,359	0,834	0,001	0,029	0,078	-						
Q19	0,008	0,485	0,658	0,096	0,083	0,234	0,038	0,588	0,199	0,031	0,894	0,066	0,001	0,386	0,025	0,112	0,286	0,647	-					
Q20	0,004	0,131	0,471	0,956	0,246	0,177	0,040	0,132	0,075	0,138	0,424	0,146	0,172	0,392	0,102	0,015	0,036	0,700	0,031	-				
Q21	0,043	0,002	0,344	0,725	0,074	0,497	0,062	0,307	0,621	0,459	0,222	0,001	0,353	0,411	0,370	0,031	0,258	0,083	0,148	0,677	-			
Q22	0,007	0,912	0,051	0,316	0,821	0,905	0,033	0,234	0,581	0,875	0,197	0,125	0,032	0,560	0,025	0,085	0,553	0,767	0,021	0,009	0,755	-		
Q23	0,121	0,124	0,256	0,778	0,030	0,096	0,027	0,557	0,186	0,014	0,007	0,000	0,846	0,768	0,024	0,031	0,131	0,234	0,983	0,254	0,000	0,263	-	
Q24	0,047	0,340	0,186	0,761	0,015	0,408	0,398	0,381	0,774	0,175	0,312	0,051	0,152	0,989	0,198	0,308	0,222	0,075	0,200	0,598	0,000	0,298	0,016	-

Table C.2: P-Values based on correlation strengths and sample size (N=46)