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Business Meetings in a Post-Pandemic World: When and How to Meet Virtually?

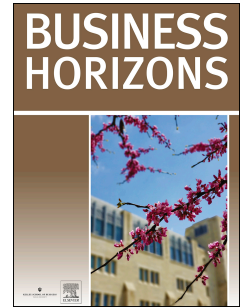
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## **Business Meetings in a Post-Pandemic World: When and How to Meet Virtually?**

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# **Business Meetings in a Post-Pandemic World: When and How to Meet Virtually?**

## **Abstract**

The COVID-19 pandemic that erupted in 2020 forced businesses across the world to adopt virtual meetings. With many people working from home, software platforms like Zoom and Teams became ubiquitous. However, their widespread use also revealed many weaknesses and limitations. While technologies for virtual meetings have existed for decades, these technologies have advanced significantly in recent years, and today range from audio-conference facilities to telepresence rooms with high-resolution video and sophisticated virtual presence features. The available alternatives differ significantly in costs, complexity and capabilities, and choosing the most effective technology for each meeting setting is not always easy. This is important, since after the pandemic, virtual meetings will move from being a necessity to being a widely accepted alternative to traditional face-to-face meetings. Consequently, the questions of when and how to meet virtually will become even more significant. In this paper, we describe a decision-making framework for choosing when and how to meet virtually, based on the importance of communication capabilities for categories of meeting objectives and taking into account meeting size and duration. The framework is based on extensive empirical research conducted in partnership with a number of major US and European companies.

**Keywords:** COVID-19 pandemic, virtual meetings, video-conferencing, meeting objectives, hybrid meetings

## THE SWITCH TO VIRTUAL MEETINGS

Computers and digital networks have been used for virtual meetings, in which participants are not face-to-face but instead in different locations, for almost three decades. Early technologies for virtual meetings ranged from simple audio-conferencing systems to electronically mediated meeting systems (Nunamaker, Dennis, Valacich, Vogel, & George, 1991), and have advanced significantly over the years. The high-end of this market was redefined by companies such as Cisco and Polycom around 2006, when they started selling telepresence technology. By 2018, the global telepresence market was valued at \$ 1.27 billion and projected to reach \$ 5.13 billion by 2026 (OYDesks, 2018). This highly immersive technology allows people to meet from a distance as if they were physically co-located, by combining large high definition displays of participants (in true life size) with spatial audio (voices coming from the direction of participants' screen images) and even identical lighting and furniture across locations to create an experience similar to that of a face-to-face meeting.

The use of virtual meetings expanded suddenly and dramatically during the COVID-19 global pandemic in 2020, as a result of which face-to-face meetings became prohibited or increasingly difficult (Waizenegger, McKenna, Cai, & Bendz, 2020). The stay-at-home and work-from-home measures led to a widespread adoption of virtual meeting technologies, not just for professional use but also for personal and leisure activities (Marks, 2020). In the context of business meetings, participants were forced to attend virtual meetings from home, using technology mostly limited to widely available platforms such as Webex, Zoom and Teams. This forced adoption has led to widespread acceptance of, and familiarity with, virtual meetings.

Post-pandemic, more face-to-face meetings that require (extensive) travel are likely to be replaced by virtual meetings. While the global percentage of virtual meetings rose from

40% before the pandemic to close to 100% during the pandemic, a permanent shift is expected post-COVID-19, to a level of 75% in 2024 (Gartner, 2020). Bill Gates, the founder of Microsoft, has predicted a 50 % drop in work-related travel post-pandemic as “*physically sit[ting] in front of someone else to discuss something in person won't be the ‘gold standard’ anymore*” and so the threshold for business travel is expected to rise (Hartmans, 2020). In addition, extensive work-from-home policies have been announced at several companies and office space is being reduced for the foreseeable future. Increased levels of teleworking will also necessitate face-to-face meetings that did not require travel before to become virtual or a hybrid of co-located face-to-face and virtual interaction (Cichomska, Roe, & Leach, 2015).

During the pandemic, virtual meetings were often held ad hoc, in response to crisis situations and in combination with difficult private (health) situations (Richter, 2020). These were compounded with contextual factors such as sharing a space with family members or dealing with background noises and activities. In addition, telework policies in large corporations sometimes limited the use of cameras when meeting from home, to save bandwidth and protect home privacy. These experiences, as well as the resulting familiarity with virtual meeting technologies, are likely to sensitize managers (and workers in general) to the limitations and weaknesses of the common virtual meeting platforms they were forced to use during the pandemic. Post-pandemic, when virtual meetings are a choice again, people will be less forgiving for the ineffective use of communication capabilities in virtual meetings and expect meeting organizers to make effective choices on which communication capabilities and meeting technologies are used.

Participants in virtual meetings can also face different situational or resource constraints, resulting in multiple modes being used in the same meeting – for instance, some participants could be using video-conferencing on their computers, while others use mobile devices such as tablets and yet others are limited to audio-conferencing on their mobile

phones. The restricted use of communication capabilities in such hybrid meetings hinders meeting interaction, which in turn may negatively impact meeting effectiveness (Standaert, Muylle, & Basu, 2021).

As there are different types of virtual meeting technologies, ranging from audio-conferencing to video-conferencing and even telepresence room-based systems, which all have different capabilities, making effective choices among them is non-trivial. Our research on the effectiveness of different virtual meeting modes for different types of meetings (characterized by the intended objectives of the meeting) shows that choice of the best mode for a business meeting requires consideration of various factors, beyond simply cost and availability. In this paper, we present a decision framework based on our research, that can help business meeting organizers choose when and how to meet virtually, based on the importance of communication capabilities for achieving various meeting objectives and considering cost, meeting size, and duration.

### **BENEFITS AND SHORTCOMINGS OF VIRTUAL MEETINGS**

Since the mid 1990's, distributed teams grew in prevalence as firms increasingly operated within larger and even global ecosystems, using virtual meeting technologies to address complex challenges (Dittes, Richter, Richter, & Smolnik, 2019; Fulk & DeSanctis, 1995). Furthermore, concerns about the environmental impact of travel and global warming are leading many companies to cut back substantially on travel (Wilkes, 2019). Thus, distributed or virtual meetings had become increasingly popular, even before the pandemic. Other benefits of virtual meetings (also reported during the lockdown (Richter, 2020)) include flexibility in scheduling and adding participants, travel time savings, and higher efficiency due to less time spent on unrelated matters (Allison, Shuffler, & Wallace, 2015). Indeed, when lockdowns were imposed in different locations during the pandemic, the

number of meetings and the number of participants in meetings were reported to increase, while the duration of meetings were shorter (DeFilippis, Impink, Singell, Polzer, & Sadun, 2020).

Relative to other communication mechanisms such as e-mail, social media, or instant messaging, meetings (including virtual meetings) are considered to be more effective for obtaining convergence on a topic (Dennis, Fuller, & Valacich, 2008). Effective meetings are important vehicles for organizational effectiveness (Kauffeld & Lehmann-Willenbrock, 2012). Especially during a crisis such as the pandemic, firms have to operate dynamically and facilitate interactions among and across employees at all levels and departments, as well as with external stakeholders (Beck & Plowman, 2014). Business meetings are critical resources for such interactions (Rogelberg, Leach, Warr, & Burnfield, 2006; Schwartzman, 1989).

During the pandemic, many limitations of virtual meetings surfaced and were debated largely, such as the notion that virtual meetings are more tiring, referred to as 'Zoom fatigue' (Fosslien & West, 2020), security and privacy issues (Marks, 2020), and the lack of serendipitous encounters and related innovation halts (Ben-Menahem & Erden, 2020). However, the most notable drawback of virtual meetings that came to the fore has been the lack of informal and social interactions, which negatively impacts wellbeing and is due to the relatively limited nonverbal cues supported by technologies and the absence of ancillary interaction.

What also became apparent during the pandemic was that face-to-face meetings add value in a number of ways beyond serving business operations directly. According to Jay (1976, p. 45), a meeting is a "status arena" as individuals negotiate and validate their formal and informal relationships to each other while they are aiming to achieve the business-related objectives (Schwartzman, 1989; Weick, 1995). Moreover, business meetings function as a

key venue to create, negotiate, and disseminate organizational culture, and serve as a powerful social symbol, making the organization and its structure visible and apparent to its members (Nielsen, 2009).

## VIRTUAL MEETING TECHNOLOGIES

Technologies such as audio-conferencing, video-conferencing, and telepresence provide alternative modes for face-to-face meetings. Figure 1 shows how the capabilities of the key modes differ, based on which they can be ordered from lowest (audio-conferencing) to highest (face-to-face meetings).

[Insert Figure 1 about here]

In addition, the cost for using the different modes varies significantly (see vertical axis in Figure 1). With respect to virtual meeting technologies, the costs vary over a wide range. On the low end, the cost of using audio- and video-conferencing is low, and software solutions such as Skype or Zoom (with some restrictions) can even be used for free. Paid licenses cost between \$100 and \$200 per year, depending on the software provider and the set-up (e.g., number of people in the meeting and duration of the meeting). On the other hand, a high-end telepresence room comes at an investment cost of about \$300,000 (ITprice.com, 2021). Alternatively, a telepresence room can be booked, for instance at a hotel, by the hour for about \$250 per room (WhyGo.net, 2021), so with \$500, at least 2 people could meet.

The cost of face-to-face meetings depend to a large extent on the locations of the participants. If the participants are in the same building or vicinity, the cost is very low. On the other hand, if extensive travel is required, the cost can easily surpass \$2,000 for a single meeting participant, taking international airfare and hotel costs into account. Since the cost of a virtual meeting is not location-dependent for most modes, the relative cost of a face-to-face meeting versus a virtual meeting is greater as the participants are further apart.

The high variance in cost and capability of different meeting modes strongly motivates the importance of understanding which technology is appropriate for specific types of meetings. Put differently, meeting organizers need to get a sense of when to use high-end solutions such as immersive telepresence relative to both face-to-face meetings or lower capability virtual meetings, such as audio-conferencing and video-conferencing (Standaert, Muylle, & Basu, 2016).

### **MEETING THE RIGHT WAY**

Past research shows that the intended objectives of a meeting are a crucial consideration in deciding *how* to conduct the meeting (Daft, Lengel, & Trevino, 1987; Short, Williams, & Christie, 1976), while considering the urgency of the situation and the cost of using the meeting mode as constraining factors. A useful way to make this choice is by determining the communication capabilities that the meeting mode would have to support to achieve the relevant objectives (Dennis et al., 2008; Te'eni, 2001), and then choosing the least costly meeting mode that supports those capabilities.

For example, consider a small, distributed team that meets regularly to exchange information. Should they set up a video-conferencing meeting? Following the logic we develop next, the focus is on a shared screen with content, not on the visual cues, hence audio-conferencing suffices, which can be done at low cost. Adding other visual cues through video-conferencing, which is also low cost, may even be a distraction. Having one or more participants in this meeting join through audio only (for instance while driving) is also ineffective as they cannot pay attention to the shared screen. As another example, consider a large, global team that is newly formed and assigned a multi-year strategic project. How should the team have their kick-off meeting? This meeting involves exchanging opinions and feelings on sensitive and confidential subjects, whilst also establishing trust-based relationships. Meeting in audio- or video-conferencing, while low cost, would not be

adequate for achieving these objectives, given the importance of experiencing co-location. Given the objectives and the large group, the kick-off meeting should be held face-to-face. A hybrid of co-located and virtual interaction should also be avoided, as remote participants would have difficulty being engaged in the meeting.

To formalize our proposed decision logic: *why* you meet (meeting objectives) is related to *how* you meet (choice of meeting mode) through *what* (capabilities) you need to effectively achieve the specific business meeting objectives. This decision logic is presented in Figure 2. Academic researchers have been studying the impact of technology on collaborative work and group decision processes for many years (Ahuja, Dennis, Sarker, & Sarker, 2020). We draw upon this rich body of work and our own empirical research to provide guidelines on effective choices for business meetings when participants are not co-located.

[Insert Figure 2 about here]

In the following subsections, we discuss the different elements of the decision logic presented in Figure 2, by addressing the following questions in turn: “Why do you meet?”; “What capabilities are important?” and “How to meet?”. We also discuss the role of meeting size and duration and present a comprehensive framework for making an effective meeting mode selection at the lowest possible cost, at the end of this section.

### ***Why Do You Meet?***

Considering the meeting objectives implies going beyond the meeting subject (e.g., “Product Launch”; “Performance Review”; “Budget Meeting”) to the specific outcomes that the meeting is intended to produce. For instance, when the meeting subject is “Product Launch,” the underlying objectives may be to exchange information about the new product design and price, making a decision on the product packaging, sharing opinions on the product branding, and assembling a team to make the launch a success. Each of these

objectives falls into a different category (Standaert et al., 2021). The first category, *exchanging information*, includes exchanging both routine and non-routine information, as well as clarifying an issue or idea (Daft et al., 1987; Lengel & Daft, 1989). A second category is *making decisions* and includes finding a solution and generating consensus on an idea (Allen, Beck, W. Scott, & G. Rogelberg, 2014; Jay, 1976; Leach, Rogelberg, Warr, & Burnfield, 2009; McGrath, 1984). *Communicating sentiments* is a third category, which includes exchanging opinions and confidential or sensitive information, as well as communicating feelings, emotions, or concerns (Fish, Kraut, Root, & Rice, 1992; King & Xia, 1997; Rice, 1993). The final category of meeting objectives involves *building relationships* and includes building and maintaining trust, as well as assembling a team (Hoegl & Gemuenden, 2001; Mennecke, Valacich, & Wheeler, 2000; Te'eni, 2001).

Having established *why* the meeting takes place, the meeting organizer needs to obtain an understanding of *what* communication capabilities are important to effectively achieve the set objective(s), which can then be the basis for selecting an appropriate meeting mode (*how* to meet).

### **What Capabilities Are Important?**

Drawing from prior research, we next discuss how the above categories of objectives align with the importance of individual capabilities. We summarize the findings from prior research in Figure 3.

[Insert Figure 3 about here]

Two capabilities are considered important for all categories of meeting objectives: “Hear attendees’ voices” and “Use shared computer screens and/or work spaces.” While speech is considered the primary basis of communication in meetings, meeting participants usually also share screens and/or work spaces to discuss or develop content (Allen et al., 2014; Standaert et al., 2021). In addition, two visual capabilities (“See attendees’ body

language and gestures” and “Discern attendees’ facial expressions”) are important for multiple categories of objectives, as they involve the mutual exchange of social and emotional elements (King & Xia, 1997), as well as the factual information exchange present in the first category (Hollingshead, McGrath, & O’Connor, 1993). Finally, the capabilities “Experience co-location” and “Observe what attendees are looking at” are only important for *Building relationships* objectives. Indeed, these objectives involve group dynamics and interpersonal relationships and conflict, which suggests why there are most demanding in terms of capabilities (Kock, 2004; Markus, 1994; Short et al., 1976).

### ***How to Meet?***

Based on the above, the capabilities important for each category of meeting objectives can be related to the different meeting modes to identify which ones are effective for each category of objectives. To do so, we first relate the modes to the important capabilities. Audio-conferencing only supports the capabilities: “Hear attendees’ voices” and “Use shared computer screens.” Video-conferencing also supports the previous capabilities and in addition supports two visual capabilities (“See attendees’ body language” and “Discern attendees’ facial expressions”). Finally, both telepresence and face-to-face support all of the previous capabilities, in addition to “Experience co-location” and “Observe what attendees are looking at.”

Given the determination of the capabilities needed for each type of meeting objective, and the capabilities supported by each meeting mode, the meeting objectives (*Why*) can be related to the meeting modes (*How*) through the meeting capabilities (*What*), as shown in Table 1, and as discussed below.

[Insert Table 1 about here]

To start with, meetings for *exchanging information* are equally effective in each of the meeting modes, as only two capabilities are found to be important (i.e., “Hear attendees’

voices” and “Use shared computer screens”) for the objectives in this category. Therefore, for a meeting that only has objectives in this category, audio-conferencing is a low-cost, effective way to meet. The use of more sophisticated virtual meeting technology (i.e., video-conferencing and telepresence) with additional capabilities, adds to the costs of the meeting, but not the effectiveness.

For meetings where *making decisions* and/or *communicating sentiments* are key objectives, audio-conferencing is less effective than the three other modes, due to the importance of capabilities to see attendees' body language and gestures and discern attendees' facial expressions. Furthermore, for such meetings, video-conferencing, telepresence and face-to-face are similar in their effectiveness, among which video-conferencing would be the lowest cost mode, if a face-to-face meeting requires travel.

Finally, when the objective of a meeting is to *building relationships*, both audio- and video-conferencing are less effective than both telepresence and face-to-face. This is due to the importance of the ability to “Experience co-location” and to “Observe what attendees are looking at.” In addition, audio-conferencing is less effective than video-conferencing (because of the importance of visual cues), while telepresence and face-to-face are at the same level of effectiveness. This last observation runs against the widespread notion that “trust needs touch.” In fact, face-to-face is not found to be more effective than telepresence for any category of meeting objectives, indicating that in situations where face-to-face meetings would involve higher costs than distributed meetings using telepresence, the latter would be the best choice.

Clearly, the patterns of relative meeting mode effectiveness differ across the categories of objectives. This reinforces our argument that the *why* question for the meeting is a key criterion for choosing how to meet. It also implies that selecting a meeting mode is not

simply a matter of choosing the most sophisticated mode that is available, as less sophisticated and costly modes can be equally effective. And finally, although capabilities are an intermediate consideration to link meeting objectives to meeting modes, they provide a useful basis for judgment and compromise. In other words, knowing that certain capabilities are driving the choice of a particular mode for a meeting, the meeting organizer can evaluate the importance of these capabilities, if an alternative mode has to be used.

### **Meeting Size and Duration**

In addition to the meeting objectives, the number of meeting participants (size) and the duration of the meeting are relevant considerations in choosing a meeting mode. For instance, virtual meetings are not constrained in size by meeting facility capacity. Indeed, the number of meeting participants is generally higher in virtual meetings. However, such inclusiveness can be a double-edged sword, as the effectiveness of virtual meetings could be negatively related to meeting size (Standaert et al., 2016). Indeed, in large meetings (more than 5 participants), (more) capabilities become important and hence a higher capability meeting mode may be required to meet effectively. With respect to meeting duration, virtual meetings are found to be shorter than face-to-face meetings. However, the effectiveness of meeting modes with limited support for visual capabilities is found to decrease for meetings longer than one hour (Standaert et al., 2016).

Figure 4 illustrates guidelines for choosing meeting modes based on meeting objectives, meeting size (2-5 vs. more than 5 participants), and meeting duration (up to or more than one hour). It shows that, except for *making decisions*, meeting size and duration are important moderators for selecting the most effective meeting mode.

[Insert Figure 4 about here]

## HYBRID MEETINGS

As we mentioned earlier, sometimes different participants in a meeting may use different modes, resulting in a “hybrid meeting” (Chidambaram & Jones, 1993). One such scenario is when some participants are meeting face-to-face while others are participating remotely. As the social distance measures related to the COVID-19 pandemic are eased, more permanent work-from-home measures are expected to remain and the prevalence of such hybrid meetings is also expected to accelerate (Richter, 2020). Another scenario is where all participants are participating virtually, but using different technologies/modes. In both instances, hybrid meetings are found to be less effective across the different meeting objectives and should therefore be avoided (Standaert et al., 2016). It is important to note that the bigger the difference in the capabilities of the modes that are combined (which is the case for combining face-to-face with audio-conferencing, see Figure 1), the higher the likelihood of a less effective meeting.

When hybrid meetings are necessary, some additional considerations can help (Cichomska et al., 2015; Saatçi et al., 2020). For instance, meetings in which some participants are co-located face-to-face and others in high-end video-conferencing require two-way interaction based on visual cues, audio, and screen-sharing. This can be facilitated by equipping the room(s) where multiple people are gathered with room-based video, audio, and shared screen technologies. Another solution is to level the playing field and have all participants use the ‘lowest common denominator’ – the meeting mode with the lowest capabilities.

## CONCLUSION

During the lockdown, virtual meetings have become mainstream, which is why meeting organizers will increasingly consider meeting virtually as an alternative for face-to-face meetings in the post-pandemic “new normal.” The guidance provided in this article can

help firms assess their investments in virtual meeting technologies, and can also help meeting organizers select an effective business meeting mode.

Meeting the right way is not simply a matter of using the most sophisticated technology available. While using technology with unnecessary capabilities is not likely to reduce effectiveness, it does consume scarce and costly resources that could be used more effectively in meetings where those capabilities contribute to meeting effectiveness. If people have to meet for multiple objectives that fall within different categories, the capabilities required by the most demanding objective can be the decisive factor in determining how to meet. Also, virtual meeting technologies have to be used with caution: when virtual meetings involve larger groups and/or longer durations, they can become less effective, and special attention should also be paid to the organization of hybrid meetings (Schwartzman, 2015).

The rise of virtual meeting technologies is also a disruptive force in travel-related industries. Companies such as airlines and hotel chains were already worried about the impact of virtual meetings on their highly profitable business travel segment (Denstadli, Gripsrud, Hjorthol, & Julsrud, 2013; Lohr, 2008). This has been reinforced by the pandemic, which may have a lasting impact on business travel. In response, forward-thinking airlines have promoted ‘responsible’ flying, by encouraging more sustainable alternatives or virtual meetings for short-distance travel (for instance see <https://flyresponsibly.klm.com/en#keypoints>). And many hotels have invested in conference facilities equipped with extensive video-conferencing and telepresence technology and some deploy them beyond regular business meetings to facilitate ‘tele-dining,’ which involves people in remote locations having the same meal while they meet virtually.

Finally, the forced use of virtual meetings during the pandemic has caused a general reflection on productivity, inclusiveness, and stress related to business meetings, leading to technology innovation that “aims to improve meetings” (Chen, Hand, & Wu, 2021). For

instance, Virtual Reality could offer an enhanced way of viewing (immersive) content, increasing productivity. As to inclusiveness, AI could help with moderation, such that every attendee participates (equally) in the meeting (Samrose et al., 2021). Lastly, (bad) meetings have been found to be negatively related to wellbeing at work (Allen et al., 2012). Using Internet of Things applications such as wearables could enable the monitoring of actual biological indicators of stress, which can be used to recommend stress relief measures to meeting participants. As such changes evolve, understanding how to best organize a business meeting will become increasingly important.

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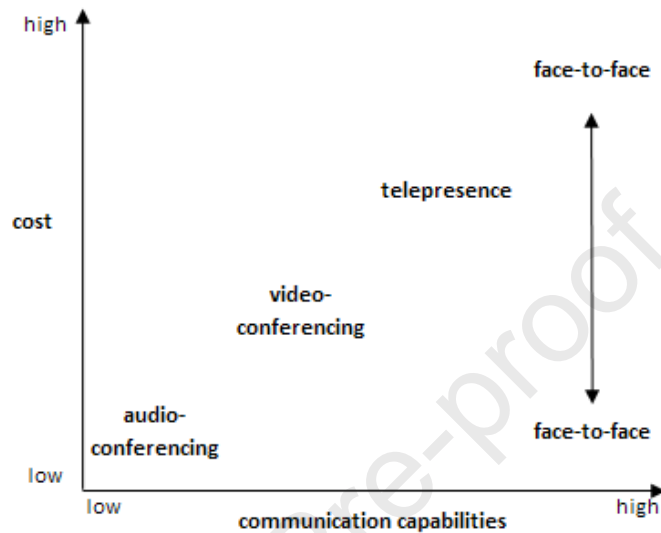
## TABLES

**Table 1: Identifying an Effective Meeting Mode**

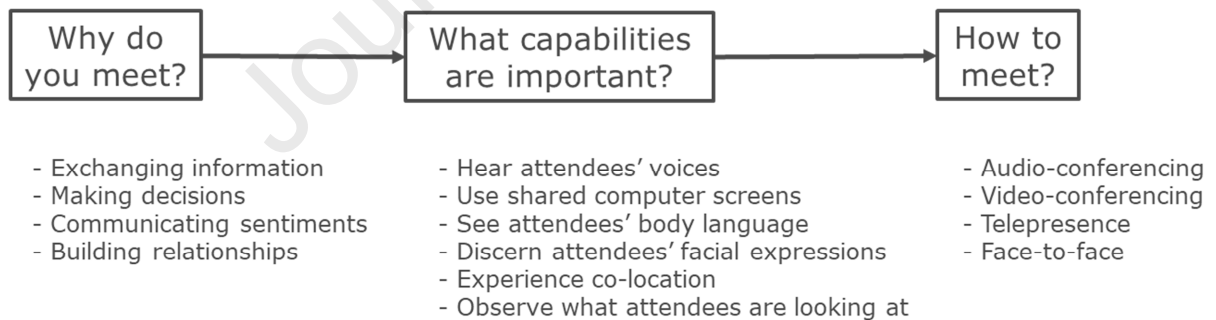
<b>Meeting Objectives</b>	<b>Audio-Conferencing</b>	<b>Video-Conferencing</b>	<b>Telepresence</b>	<b>Face-to-face</b>
<i>Exchanging information</i>	X	X	X	X
<i>Making decisions</i>		X	X	X
<i>Communicating sentiments</i>		X	X	X
<i>Building relationships</i>			X	X

## FIGURES

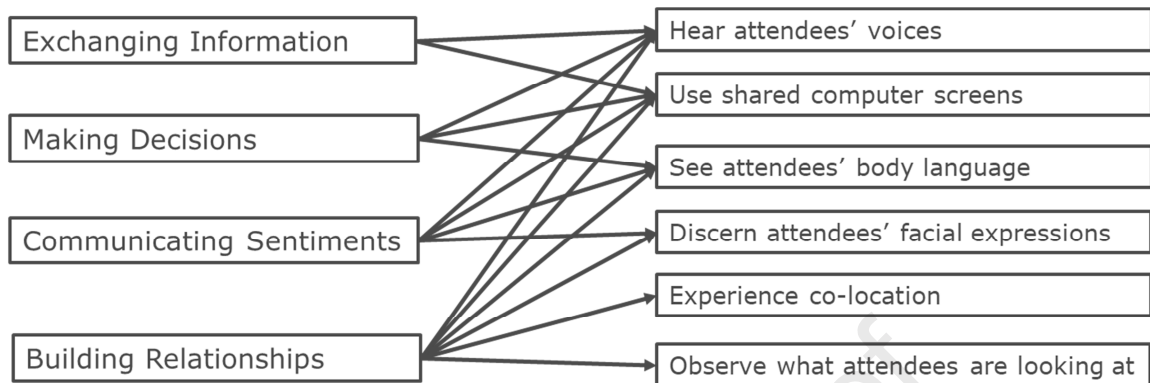
**Figure 1. Cost and Communication Capabilities of Business Meeting Modes**  
(adapted from Standaert, Muylle, & Basu, 2013, p. 551)



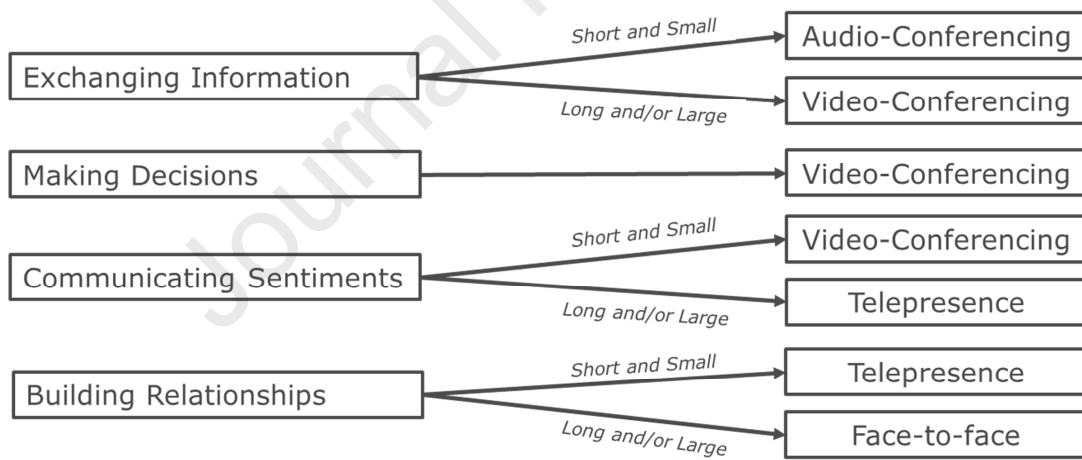
**Figure 2: Decision-Making Framework for Choosing How to Meet**



**Figure 3: Important Capabilities for Meeting Objective Categories**



**Figure 4: Deciding How to Meet Taking into Account Meeting Size and Duration**



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