
Information technology in judicial procedures: challenges in the use of videoconferencing for hearings and trials

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Abstract: Before the COVID-19 disease, videoconferencing was used mostly for specific circumstances in judicial proceedings. During the pandemic, its use became widespread as an alternative to in-person hearings. It is already recognized that videoconferencing reduces costs and time spent in judicial proceedings and broadens access to justice. Nevertheless, important criticism is raised referring to the possible violation of justice values. In this paper, we used content analyses of 25 academic research to describe the main concerns relating to virtual judicial hearings. Two dimensions of concern emerged from our review. The first is related to problems that affect the good use of videoconferencing, and the second relates to the use of videoconferencing per se.

Keywords: Virtual hearings. Remote hearings. Videoconferencing. Virtual trials. e-Justice.

Content: Introduction. 1 Methodology. 2 Videoconferencing in the judicial proceedings. 2.1 Pre-pandemic videoconferencing.

2.2 Videoconferencing during COVID-19 pandemic. 3 Benefits of the use of videoconferencing for hearings and trials. 4 Concerns about using videoconferencing for hearings and trials. 5 Conclusion. References.

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Introduction

Since the '80s, many information technologies (IT) have been applied in the justice domain. Examples include using audiotaping and videotaping to replace stenographic records (TERRY; SURETTE, 1986) and the widespread use of personal computers and computer-based tracking artefacts to better manage judicial cases' workflows. In the early 1990s, tracking systems evolved into court Case Management Systems (CMS) that support back-office tasks (FABRI, 2008). The internet boom allowed new ways of using IT in judicial organizations. With the popularisation of Web portals, judicial information became available for citizens, e-filing systems started to be implemented, judicial data exchange became a reality, and virtual hearings were held for specific cases (CANO *et al.*, 2015; MCDERMOTT, 2010; VELICOGNA; ERRERA; DERLANGE, 2011). Nowadays, Artificial Intelligence has a great potential to be used in courts, associated with other IT (BERMAN; HAFNER, 1989; ZHU; ZHENG, 2021).

e-Justice refers to the use of IT in the justice domain for higher efficiency and effectiveness, increasing confidence in the judicial system, and greater legitimacy of judicial power (CERRILLO

I MARTÍNEZ; FABRA I ABAT, 2008). In general, e-Justice is considered a specific field associated with e-Government (e-Gov) which aims for more efficient government, better services to citizens, and improved democratic processes (GRÖNLUND, 2004).

One of the e-Justice tools is videoconferencing, which is used for hearings and trials and was sparingly adopted in courts until the COVID-19 pandemic. During the pandemic, courts worldwide started to use videoconferencing intensively. Beyond efficiency, videoconferencing has a great potential to increase access to justice and digital evidence production. (ROWDEN, 2018; SOURDIN *et al.*, 2020). However, it poses risks that need to be investigated. It's not enough to discuss the dominant aspect of cost and efficiency of videoconferencing adoption. We must further analyse these threats to overcome them and to shape how videoconferencing technology can be used to preserve justice values.

This article presents the issues related to the use of videoconferencing applications in the judiciary and calls attention to the main concerns raised from the broad start of its use. The paper is structured as follows: Section 2 addresses the methodology, Section 3 describes the concepts of videoconferencing and a brief history of its adoption, Section 4 points out the benefits of its use, Section 5 sets the concerns of the current use of videoconferencing, and Section 6 provides conclusions and a research agenda.

1 Methodology

This study is docked in a literature review and is descriptive by nature. We used content analyses as a replicable and valid method “for making inferences by systematically and objectively identifying specified characteristics within text” (STONE *et al.*, 1966, p. 5). A search was conducted, in June 2022, on Scopus and Web of Science, two world-leading databases of peer-reviewed publications for scholars (ZHU; LIU, 2020). The search queries included the words: “videoconferencing,” “virtual hearings,” and “virtual trials,” combined with “justice” and “judiciary.” We used the English and Portuguese languages within the article title, abstract, and keywords for all years of databases. Initially, 60 papers were found. Thirty-five false positives references were excluded, and twenty-five remained for our analyses.

Two analytic dimensions emerged from the collected material: concerns that affect the good use of videoconferencing and concerns related to the use of the technology per se.

2 Videoconferencing in the Judicial Proceedings

Courtroom Technologies can be defined as the technology adopted mainly for the courtroom, during hearings and trials to facilitate communication and enhance the quality of the court records and evidence display. Although the systems are mostly integrated, making separation difficult, three subjects can be identified: videoconferencing, courtroom electronic records, and evidence display (ROCHA; CARVALHO; SUXBERGER, 2021).

Our research object is the first one. Videoconferencing is a web-based technological environment, it involves the real-time interactive with two-way transmission of data, voice, and image. This technology allows hearings and trials to be conducted independent from physical courtrooms, with its participants located elsewhere (BELLONE, 2013; WALLACE; LASTER, 2021).

Videoconferencing was envisioned as an important tool to facilitate courts' work and function. An example of this was the famous Courtroom 21 project, published in the "Futurist Journal." In 2001, the project evaluated the potential use of videoconferencing by simulating a high-speed videoconferencing with a 360° dome camera that recorded and broadcasted all courtroom activities (STEPHENS, 2001).

2.1 Pre-pandemic videoconferencing

Formerly, videoconferencing was used in some specific situations, such as those related to physical or sexual abuse of children as witnesses of violent acts, as it allowed children to testify without facing the criminal (ALI; AL-JUNAID, 2019; WILLIAMS, 1998). Witnesses living in remote areas, expert witnesses, other vulnerable witnesses, people in custody for security reasons, people medically incapacitated, and international cross-border procedures are other situations in which videoconferencing was adopted (BEYENE; ZERAI; GAGLIARDONE, 2015; EASTON, 2018; GRAY; CITRON; RINEHART, 2013; RATTAN; RATTAN, 2021; ROSSNER; TAIT; MCCURDY, 2021; SALYZYN, 2012;

WIGGINS, 2006). Its use was for exceptional circumstances (MULCAHY, 2008). For example, in France, in the archipelago of Saint Pierre and Miquelon, two islands near Canada, the adoption of video links was considered due to a lack of judges in office (DUMOULIN; LICOPPE, 2016).

Criminal courts were the first to use video link technology more widely and its dissemination occurred as police stations and prisons integrated their video link into the courtrooms (MCKAY, 2018; WARD, 2015). Encouraged by judicial policymakers, courts worldwide started to adopt videoconferencing mainly due to the costs related to transporting prisoners and witnesses (DUMOULIN; LICOPPE, 2016; WALLACE; ROWDEN, 2009; YOUNG, 2011).

Some specific initiatives diverge from the situations exposed. It was the case of Cook County, in Illinois, United States of America (USA). The county held hearings for most felony cases using a closed-circuit television procedure that allowed the defendant to remain at a remote location during the bail hearing (DIAMOND *et al.*, 2010).

In this earlier court configuration, technology was used to supplement a hearing. Most participants appeared in physical courtrooms; only expert witnesses, vulnerable witnesses, and, sometimes, the defendant appeared remotely. Occasionally, the judge was the only person physically present in the courtroom (ROSSNER; TAIT; MCCURDY, 2021).

Besides the specific situations already mentioned, videoconferencing was adopted in pretrial conferences, other non-trial proceedings in civil and criminal cases, and non-contentious administrative hearings in which all parties agreed to a specific outcome (EASTON, 2018; WIGGINS, 2006).

Pre-COVID-19 videoconferencing faced much resistance as other innovations brought by IT. Justice systems culture is known to be resistant to change (CHIODO, 2021; PUDDISTER; SMALL, 2020; THOMPSON, 2015). Additionally, previous research warned that the impact of videoconferencing use in the courts is empirically understudied, and other concerns related to procedural aspects could result in threats to fundamental rights.

2.2 Videoconferencing during COVID-19 pandemic

All concerns, reservations, and wariness had to be suspended as the sudden lockdown occurred around March 2020. Judiciaries locked their doors for health reasons, and courts quickly moved to online hearings and trials (FABRI, 2021; MCINTYRE; OLIJNYK; PENDER, 2020; RATTAN; RATTAN, 2021; SOURDIN *et al.*, 2020; SOURDIN; ZELEZNIKOW, 2020). Many countries allowed live audio or video links in place of in-person hearings. Civil and administrative matters started to be heard virtually. For criminal matter, bail applications, plea hearings, judge-alone trials, and sentencing started to be held by videoconferencing. Jury trials have mostly been suspended (LAMARQUE, 2020; ROSSNER; TAIT; MCCURDY, 2021).

Unlike the pre-pandemic, in pandemic videoconferencing configuration the participants interact with a single screen, each from a different location. The video screen shows others in a gallery view. This technology was already known to many people who used it to talk to family members or for educational purposes (ROSSNER; TAIT; MCCURDY, 2021).

Videoconferencing was the most demanded technology during COVID-19. It has both “potential but also the weakness of such systems that need to be addressed” (FABRI, 2021, p. 5). Unlike other technologies that alter how things are done, videoconferencing changes some of the essential aspects of trials, making it very difficult to equally substitute in-person proceedings (FABRI, 2021; MULCAHY, 2008).

The question now is whether virtual hearings will continue to be a widespread practice, considering the decline of the COVID-19 pandemic. As occurred with remote work, the courts will likely change how they conduct hearings and will not get back to the point before the health crises. For example, the Remote Courts Worldwide¹ website reports that 168 jurisdictions worldwide have already hosted remote hearings of one sort or another, usually by video. Another factor indicating that we will not return to the pre-pandemic status is that users like to use videoconferencing. In the United Kingdom (UK), a civil and commercial court users’ survey published in the middle of 2021 indicates that virtual

¹ Available at: <https://remotecourts.org/>. Accessed on: 4 Oct. 2022.

hearing experiences are generally positive, with ~66% rating their experience as good or excellent (BAKER MCKENZIE, 2021).

The challenge now is to identify the threats that can negatively affect judicial values to shape the new paradigm of virtual hearings. In the next section, before detailing the concerns of virtual hearings and trials, we will address its recognized benefits.

3 Benefits of the use of videoconferencing for hearings and trials

The most cited benefit of videoconferencing is the gain of efficiency since it removes travel costs and increases flexibility in scheduling to save time. Thus, hearings can be settled earlier than when parties are required to be physically present. Authors assert that remote participation speeds up court processes and substantially reduces costs and delays (DUMOULIN; LICOPPE, 2016; ROWDEN, 2018; SALYZYN, 2012; SOURDIN *et al.*, 2020). Contrary to the prevailing assumption, Yamagata and Fox (2017) found no difference in the average time that it takes to complete the Temporary Protective Order hearing between the in-person and videoconference hearings.

Due to the convenience of remote witnessing, the quality of evidence tends to improve. The evidence obtained can be more consistent by increasing the likelihood that a witness will appear before the judge. By interviewing court participants, Rowden (2018, p. 271), identified that remote hearings "...enable evidence that might not otherwise be obtained." Access can also be broadened for the many cases that previously justified the exception of virtual

trials, such as people medically incapacitated, expert witnesses, or to facilitate access to justice when in-person attendance is unavailable (ROWDEN, 2018; SOURDIN *et al.*, 2020; YAMAGATA; FOX, 2017). For example, in Ethiopia, the distance of rural citizens from the big cities poses difficulties to the administration of justice. Research has shown that videoconferencing increased the accessibility and speeded delivery of justice to citizens (BEYENE; ZERAI; GAGLIARDONE, 2015).

Another recognized advantage of videoconferencing is the elimination of the risks associated with bringing inmates to the courtroom and moving them around in non-secured areas in the building, which increases both perceived and actual public safety and court security (DUMOULIN; LICOPPE, 2016; YAMAGATA; FOX, 2017). Sourdin *et al.* (2020) also emphasize that some people can experience a higher level of comfort during videoconferencing communication.

4 Concerns about using videoconferencing for hearings and trials

From specific technological problems to the historical social subjective symbolism of the courtrooms, the researchers pointed out a list of concerns that ultimately have the potential to interfere with fundamental rights, affect due process, and threaten the legitimacy of the justice system.

We divide the concerns into two different dimensions. The first dimension includes concerns about the proper use of

videoconferencing, since its inappropriate use affects some pillars of judicial hearings. The second dimension relates to concerns regarding safeguarding individual rights, even if the virtual hearing perfectly took place.

Table 1 presents the result of our review and points to four categories of concern that can affect the good use of videoconferencing. Technical and infrastructure issues are the most common problem reported by researchers. It refers to the lack of good communication, electrical infrastructure, and even the absence of a single platform to be used among participants (BELLONE, 2013; BEYENE; ZERAI; GAGLIARDONE, 2015; BIELIK *et al.*, 2020). Technological problems such as delays, poor audio and video quality, high noise levels, picture freezing, unreliable WIFI connections, and other videoconferencing malfunctions are reported as regular occurrences in virtual hearings. They can affect the conduction and result of the judicial proceedings (NIR; MUSIAL, 2022; ROWDEN, 2018; SOURDIN *et al.*, 2020; STEPHENS, 2001; TURNER, J. I., 2022). Moreover, there are important concerns about security in videoconferencing communication (BELLONE, 2013). Technological and infrastructure problems would hinder the court's ability to assess witnesses and can prevent attorneys and defendants from hearing and effectively participating in parts of proceedings, affecting the integrity of judicial procedures (SALYZYN, 2012; TURNER J. I., 2022). An experiment analysed audio quality in virtual courts and found that technological interruption produces cognitive

interruptions that influence perceptions of witnesses and their evidence, variables that can contribute to trial outcomes (BILD *et al.*, 2021).

Table 1 – Concerns about having adequate use of videoconferencing

Concerns	Sources
Technology and Infrastructure	Bellone (2013); Beyene, Zeraí and Gagliardone (2015); Bielik <i>et al.</i> (2020); Bild <i>et al.</i> (2021); Nir and Musial (2022); Puddister and Small (2020); Rowden (2018); Sourdin <i>et al.</i> (2020); Stephens (2001); Jenia I. Turner (2022)
Access (Digital Divide)	Bellone (2013); Bielik <i>et al.</i> (2020); Puddister and Small (2020); Rossner (2021); Sourdin <i>et al.</i> (2020)
Procedural	Beyene, Zeraí, and Gagliardone (2015); Nir and Musial (2022); Sourdin <i>et al.</i> (2020)
Normative	Dumoulin and Licoppe (2016); Puddister and Small (2020); Stephens (2001)

The digital divide represents the disparity in individuals' ability to access and use digital technologies encompassing educational and social aspects (YUSUF, 2009). Authors affirm that access to virtual hearings is limited due to the lack of equipment, connection, or experience in videoconferencing technology (BELLONE, 2013; BIELIK *et al.*, 2020; PUDDISTER; SMALL, 2020; ROSSNER, 2021; SOURDIN *et al.*, 2020). Procedural aspects of virtual hearings and trials can negatively affect the outcome of the judicial processes. Lack of preparedness for the virtual hearing includes the absence of adjustments to the

previously physical procedures and a shortage of well-trained information system technology professionals. Courts may have people that know how to run the system and help with videoconferencing issues. Procedural faults may hinder the conduction of court cases, resulting in more tiring hearings and delays in sentencing (BEYENE, ZERAI; GAGLIARDONE, 2015; NIR; MUSIAL, 2022; SOURDIN *et al.*, 2020). At last, normative constraints embraces the absence or incompatibility of videoconferencing with prevailing legal regulations and, in some countries, encompass constitutional challenges, e.g., the right to a presential jury and defence (DUMOULIN; LICOPPE, 2016; PUDDISTER; SMALL, 2020; STEPHENS, 2001).

As already underlined, the above concerns can interfere with the proper realization of videoconferencing. Now, imagine a hypothetical situation where there are no technological problems, no digital divide, the procedures are well designed and carried out during videoconferencing, and a good normative framework already exists to support the virtual proceedings legally. Even so, some important criticisms highlight risks to the due process and the legitimacy of trial outcomes. Table 2 addresses concerns related to the use of videoconferencing per se.

The first one states that videoconferencing may have the potential to change the nature of litigation, court architecture, and administration of justice (DONOGHUE, 2017; LEDERER, 1999). One of the explanations for this disruptive potential is that “functional requirements easily met in oral hearings are difficult

to replicate in video-conference mediated hearings” (CONTINI; CORDELLA, 2015, p. 127). Authors underline that disrupting the physical geography of adjudication, including the aspect of the spatial distances between courtroom participants, turns the ritual less formal, which can trivialize the judgment and the role of state adjudication (MULCAHY, 2008; SALYZYN, 2012).

Table 2 – Concerns about the use of videoconferencing

Concerns	Sources
Courtroom symbolic and ritual aspects	Heinsch <i>et al.</i> (2021); Mulcahy (2008); Nir and Musial (2022); Rossner (2021); Rowden (2018); Rowden and Anne (2018); Salyzyn (2012)
Courtroom participation (communication, connection, and interaction)	Dumoulin and Licoppe (2016); Heinsch <i>et al.</i> (2021); Mckay (2018); Rossner (2021); Rowden (2018); Salyzyn (2012); Sourdin <i>et al.</i> (2020)
Access to Counsel	Bellone (2013); Rowden (2018); Jenia I. Turner (2022)
Privacy	Puddister and Small (2020); Rossner (2021); Sourdin <i>et al.</i> (2020)
Public trial	Dumoulin and Licoppe (2016); Puddister and Small (2020); Rossner (2021)
Physical presence	Jenia I. Turner (2022); Wiggins (2006)

The symbolic and ritual aspect of the courtroom is the most cited concern in the literature. It refers to the solemnity of the trial and the symbolic representation of the courtroom’s architecture,

each one's specific place in the room and the judge's image. Reflecting on the architectural aspect, Mulcahy (2008, p. 477) emphasizes that the courthouse aesthetic serves to reinforce the idea of an unusual place, and the solemn atmosphere serves to "[...] prepare those involved in legal proceedings for the trial and to encourage the need for reflection." Similarly, Rowden (2018) affirms that the place where trial decisions are taken is special, and the decisions made within the court need to be perceived as more authoritative and binding than those made outside of them. Establishing a special civic judicial space through which these pronouncements are made is, therefore, important to help legitimize the adjudication. The image of the judges can also be affected by the videoconferencing proceedings as the control over the judicial tasks (monitoring participant behaviour, exercising control over proceedings, facilitating witness testimony) is less present in video trials. Empiric research suggests that judges should exert control and authority in a video-linked court proceeding and pay attention to elements of their performance and how it may impact perceptions of their authority and their role in minimizing this problem (ROWDEN; ANNE, 2018).

Videoconferencing is criticized for affecting participation, connection, interaction, and communication in the hearings. Court sessions are based on communication, and effective communication is fundamental to guarantee to the participants a sense of fairness in the judicial procedures. Communication can be seriously limited since the virtual perception of non-verbal

communication, such as facial expressions, voice inflexions, and gestures, is impaired when participants appear remotely (BELLONE, 2013; ROWDEN, 2018; SOURDIN *et al.*, 2020). It may also interfere with participants' emotional connections and interactions, undermining the court audiences' dynamic (DUMOULIN; LICOPPE, 2016; SALYZYN, 2012; SOURDIN *et al.*, 2020). It's argued that face-to-face contact is much more likely to confer interaction with meaning; other ritualistic events like parliaments, weddings, and bar mitzvahs are not held virtually (MULCAHY, 2008). Specific concerns were raised in criminal cases, especially when defendants participate from prisons or detention centres. According to empirical research, defendants perceived that their participation was being diminished in legal proceedings via videoconferencing (MCKAY, 2018; ROSSNER, 2021). Judges can also be isolated and not connected to other participants, considering that distance may make harsh sentencing easier and potentially more likely (HEINSCH *et al.*, 2021).

Videoconferencing proceedings can threaten the right to counsel. Consulting privately with counsel in remote hearings is not always possible, affecting procedural justice. This right encompasses the ability for immediate and unmediated contact with counsel (ROWDEN, 2018). The research found that attorney-client private communications are detrimental when the attorney is in the courtroom but the client is in a remote location, such as a jail or prison. This situation would create problems of "marginal or inadequate representations" (BELLONE, 2013, p. 47).

Personal privacy is at risk when the virtual hearing takes place. The authors highlight a sense of a loss of privacy and the possibility of parties recording video sessions or other online interactions (PUDDISTER; SMALL, 2020; SOURDIN *et al.*, 2020). The right to be physically present is mentioned by Jenia I. Turner (2022) and Wiggins (2006) as a concern in videoconferencing. The right to confront witnesses, and the defendant's consent to the remote hearings are issues addressed in this category.

The right to a public trial is another concern referring to the use of videoconferencing. Mulcahy (2008) goes back to biblical quotations that refer to fairs at the gates of cities as places where, historically, justice has commonly been dispensed. She emphasizes that justice is delivered where people gather. Videoconferencing could diminish public participation, which is essential to ensure fairness and limit possible abuses of judicial power (TURNER, J. C., 2002).

Some researchers have already suggested alternatives to how videoconferencing is held to lessen its negative aspects. Jenia I. Turner (2022) suggest that States can still accommodate public access by broadcasting remote proceedings online or on television monitors installed in the courtroom and accessible to the public. Rossner, Tait, and McCurdy (2021) propose redefining the design of screens to give each participant their own 'place' in the courtroom and use rituals to reinforce traditional values (or new ones reimagined in the world of the virtual court), so the participants feel included and respected by each other.

5 Conclusion

This research aims to identify the main concerns related to videoconferencing in legal proceedings. Two dimensions of concerns that may affect procedural justice and the legitimacy of legal proceedings emerged from the literature. The first refers to factors that may interfere with the adequate realization of videoconferencing. The second refers to videoconferencing per se. We grouped each dimension into categories. We placed technology and infrastructure, access, procedural, and normative problems in the first dimension. In the second dimension, we placed courtroom symbolic and ritual aspects, courtroom participation, communication, connection and interaction, access to counsel, privacy, public trial, and the right to be physically present as concerns in videoconferencing.

Despite all concerns, judicial procedure hearings have already changed due to the pandemic, and videoconferencing is likely to be incorporated into justice systems (CHIODO, 2021). The benefits of time and cost savings cannot be overlooked either since they promote access and improve the quality of the evidence obtained. Authors affirm that we are in a new paradigm and must reimagine the way hearings and trials should occur from now on (ROSSNER; TAIT; MCCURDY, 2021). To reshape the hearings in a virtual space, it is fundamental to assess whether prevailing configurations in the courtroom and its environs continue to be vital in the modern legal system (MULCAHY, 2008). As virtual environments dominate our age, IT tools have become the default,

and it probably won't be different with courts. In this context, properly evaluating its effects becomes a pressing issue.

Further research is needed to create a deeper and broader discussion on these issues. The main challenge is to appraise whether the benefits of having hearings via videoconferencing don't interfere with fundamental principles of justice. Analysing the specificities of law in which videoconferencing is more beneficial can help indicate its best use.

By summarising the main concerns, this research contributes to constructing and organising knowledge of e-Justice studies in videoconferencing legal procedures, in addition to being useful for judicial decision-makers in designing improvements in virtual hearings. It was not possible to further discuss each of the aspects since many different and complex subjects were described. We did not analyse the references considering the matter of law, which we suggest being done in future research. We also suggest broadening the literature review by including other databases in the search.

Título: Tecnologia da informação em procedimentos judiciais: desafios no uso da videoconferência para oitivas e julgamentos

Resumo: Até a pandemia de covid-19, a videoconferência era utilizada em procedimentos judiciais em circunstâncias específicas. Durante a pandemia seu uso tornou-se generalizado, servindo de alternativa às audiências presenciais. Já é reconhecido que a videoconferência reduz o custo e o tempo gastos em processos judiciais, além de ampliar o acesso à justiça. No entanto, críticas importantes têm sido feitas relativas à possível violação dos valores da justiça. Neste artigo usamos a análise de conteúdo de 25 trabalhos acadêmicos para descrever as principais preocupações relacionadas às audiências judiciais virtuais. Duas dimensões

emergiram de nossa revisão: a primeira está relacionada a problemas que interferem na adequada realização da videoconferência, e a segunda diz respeito ao uso da videoconferência em si.

Palavras-chave: Oitivas virtuais. Oitivas remotas. Videoconferência. Julgamentos virtuais. Justiça eletrônica.

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