Digitizing Court Systems: Benefits and Limitations

Raman Maroz, Oleksandra Popova, and Santiago Satizábal Acosta*

The eagerness with which governments across the world rushed to digitize their court systems during the COVID-19 pandemic might create an impression that new technologies alone can solve the multitude of issues associated with the quality and efficiency of dispute resolution. However, while digitization can indeed contribute positively to the operation of judicial institutions, new technologies constitute only one factor, albeit an important one, affecting the outcomes in the complex, multifaceted system for resolving disputes. The findings in this Brief show that while increased digitization is associated with greater accessibility and transparency within judiciaries, it may not necessarily result in significant improvements in the efficiency of the court processes unless a more holistic approach is considered.

Background on digitization of courts

Even though digitization of courts began as long ago as the 1980s, when personal computers and text processing software appeared, until recently its pace hardly could be described as fast. Only in the past two decades, in addition to the adoption of general hardware and information and communications technologies (ICT), have courts begun to introduce electronic tools and applications tailored specifically to their work. Some jurisdictions gradually enabled the electronic filing of lawsuits and subsequent documents, introduced electronic service of process and electronic payment, or made it possible to communicate with courts electronically (CEPEJ 2016). Following the outbreak of the COVID-19 pandemic, however, the importance of switching to the digital handling of cases and remote communications became apparent. The electronic flow of documents and remote hearings turned out to be the necessary tools to allow court users and judges to carry on their activities during the health crisis (Fabri 2021). As a result, many economies rushed to digitize their court systems to avoid inflicting irreparable harm to the interests of the parties and creating a backlog of cases (OECD 2021).

Over the period 2020–21, the World Bank Development Economics Indicators Group (DECIG) conducted a special data collection exercise in 120 economies, monitoring the introduction of digital features across judiciaries and recording the information on suspension of court services due to safety measures, when applicable. The collected data, which took into account only newly developed applications and tools, indeed showed a spike in reforms aimed at digitizing judicial institutions. More specifically, in 2020, the level of court digitization increased in 43 out of 120 measured economies. The pace of reforms continued to accelerate in 2021, when 77 out of 120 economies introduced additional electronic features in courts.

The pandemic, however, also widened the digital divide between developed and developing economies. As illustrated in Figure 1, in both 2020 and 2021, a large share of high-income and upper-middle-income economies were able to swiftly introduce reforms in the area of court digitization as part of their response to the COVID-19 emergency. At the same time, a much smaller portion of lower-middle-income economies had the capacity to provide additional electronic tools. Low-income economies were largely left behind in this process, with only 4 percent of these economies able to increase their court digitization level in 2020, followed by 17 percent in 2021. The gap in court digitization between developed and developing economies, which had already existed before the pandemic, widened even further.

Digitization of courts and access to justice

Access to justice is a cornerstone of any dispute resolution system. When individuals and businesses are denied access to justice, their rights are impaired, which hampers their growth and development. A variety of sources indicate that digitization can improve access to justice. Evidence suggests that new technologies can help litigants by making it easier to find necessary legal information online, allowing electronic filing of documents, providing the possibility to track the progress of cases from home, enabling remote interaction with attorneys, and so on (Cabral et al. 2012). Sending updates to court users about their cases via text messages (SMS) can also enhance access to justice, including for marginalized people, by eliminating the need to travel to courts in order to receive the latest information (Egessa and Cherotich 2017). Moreover, thanks to digitization, even traveling to court to attend hearings may no longer be required, further removing the necessity to take long breaks from work and family (Bulinski and Prescott 2016). Evidence indicates that the use of online platforms for resolving minor disputes may lead to the greater participation of litigants (Prescott 2017). Online dispute resolution mechanisms also offer a unique and easily accessible remedy for settling disputes in the field of transnational e-commerce, sparing consumers and firms from the hardship of dealing with complex jurisdictional matters (Schmitz 2018).

Affiliations: * World Bank, Development Economics. For correspondence: rmaroz@worldbank.org.

Acknowledgements: The authors would like to thank Luise Daniela Dyer Melhado, Nabintu Olivia Mutambo Mpatswe, and Debasmita Padhi for their great research assistance. The authors are grateful to Varun Eknoth, David C. Francis, Norman Loayza, and Valeria Perotti for their helpful comments. Nancy Morrison provided editorial assistance.

Objective and disclaimer: This Brief uses novel and unique data on the COVID-19 pandemic and court digitization collected by the Development Economics Indicators Group (DECIG) across 120 economies, as well as data from the Doing Business 2016–2020 reports. Global Indicators Briefs synthesize existing research and data to shed light on a peculiar issue for policy debate. The names of the authors are indicated above and should be cited accordingly. The findings, interpretations, and conclusions are entirely those of the authors. They do not necessarily represent the views of the World Bank Group, its Executive Directors, or the governments they represent. All Briefs in the series can be accessed at: https://www.worldbank.org/en/research/brief/global-indicators-briefs-series.
The COVID-19 pandemic compelled policy makers and researchers to look at this subject from a new perspective: that is, how the digitization of courts can ensure uninterrupted delivery of justice during an emergency. The DECIG special data collection exercise in 2020–21 found that as of May 1, 2020, 81 out of 120 tracked economies had to interrupt judicial services due to public health safety measures. As suggested by some research, those jurisdictions that were from the very beginning better prepared in terms of court digitization were able to navigate through the lockdown periods and subsequent restrictions with fewer operational disruptions (Sourdin, Li, and McNamara 2020; Strauss and Bradautanu 2021). Other economies, however, had to quickly implement reforms to digitize their court systems. In less than two years, to ensure access to justice during the health crisis, 65 jurisdictions enabled remote hearings, 41 introduced electronic filing of documents, another 41 introduced electronic notifications, and 25 made it possible to serve documents electronically (Figure 2). Unsurprisingly, more reforms occurred in the areas that judiciaries prioritized less before the pandemic, such as electronic notifications and remote hearings (31 economies enabled both features), compared to the areas that had already received some recognition within courts (17 economies introduced both features for the first time). One year later, as of May 1, 2021, the number of economies experiencing interruptions of judicial services decreased to 16. It seems reasonable to assume that the rapidly increased level of court digitization contributed to this reduction.

**Digitization of courts and transparency**

It is widely recognized that transparency plays a crucial role in fostering trust in government institutions and tackling corruption (Kaufmann and Bellver 2005; World Bank 2017). Researchers...
contend that electronic initiatives can increase the transparency of
governments in general (Shim and Eom 2008), as well as of courts
in particular (Ahmed et al. 2022). For instance, a study of the
Brazilian judiciary found that digitization can bring judges and
their work closer to the public, increasing openness within the
court system (Filho 2009). An analysis of digitization efforts in the
Malaysian judiciary showed that a special electronic software can
ensure a more ordered and transparent interaction between court
staff and lawyers (Hamin, Othman, and Mohamad 2012). In a
research project conducted to evaluate the implementation of an
e-court system in an appellate court in the region of Kurdistan in
Iraq, the participants stated that the initiative enhanced
transparency: specifically, that the new e-system promoted it by
allowing users to track their cases, view hearings, and access court
decisions online, and by ensuring automatic case assignment
among judges (Ahmed et al. 2020). A review of a pilot project in
Pakistan revealed that an electronic management system (ECMS)
may further bolster transparency through integration of schemes to
detect statistical anomalies that identify questionable cases within
the judiciary (Rahman et al. 2014).

Existing studies on the effect of digitization on court
transparency, in most cases, focus on only one jurisdiction, whether
at the national or subnational level. A separate DECIG dataset,
Doing Business 2016–2020, however, allows this relationship to be
tested at the global scale. In particular, the Doing Business
2016–2020 data make it possible to construct two indexes: one
accounting for digitization of courts and the other measuring
judicial transparency. The digitization index is composed of five
Doing Business components: electronic filing, electronic service of
process, electronic payment, ECMS for lawyers, and ECMS for
judges; this index has a maximum score of 5. The transparency
index aggregates three Doing Business components: case assignment
among judges, release of performance measurement reports, and
publication of commercial judgments across different levels of the
judiciary; this index has a maximum score of 3.

The global panel data set covering five years shows that
digitization of courts is indeed strongly and positively correlated
with judicial transparency (Figure 3). That is, the judiciaries that
are more advanced in terms of digital adoption also largely appear
to be more transparent. This relationship can potentially be
attributed to the fact that it is easier for courts to collect and publish
the data about their activities once they have necessary ICT
infrastructure. For example, unlike paper submissions, the
electronic flow of documents typically allows courts to quickly
amass information on the duration of proceedings. As a rule, the
data are already present in the e-system. Accordingly, if judiciaries
are willing to share such information with the public, they will not
incur significant extra costs.

**Digitization of courts and efficiency**

Efficiency is critical in dispute resolution. A fundamental legal
maxim posits that justice delayed is justice denied. Unreasonably
lengthy court proceedings may subject litigants to endless
uncertainty, deprive them of necessary financial resources, and
ultimately create a feeling of distrust toward the judiciary. Several
studies have found a correlation between advanced digitization and
increased court efficiency. For instance, an overview of the
implementation of ICT-related reforms in the High Courts in
Malaysia showed that the measures taken simplified the
administration of justice and increased judges’ productivity
(Hamin, Othman, and Mohamad 2012). A study of delays in

![Figure 3](image-url)

**Figure 3** Digitization of courts is strongly and positively correlated with judicial transparency


*Note:* The sample includes 191 economies. These results stand after running a partial regression plot controlling for the gross domestic product (GDP) per capita, an indicator of the World Bank’s World Development Indicators database applied for the respective Doing Business years.
adjudicating cases in Italy suggested that new technologies could be used to expedite court proceedings (Cusatelli and Giacalone 2014). An analysis of the panel data that covered labor courts across different levels of the Brazilian judiciary concluded that investment in digitization has a direct and positive effect on the productivity of courts (Gomes, Alves, and Silva 2018). Furthermore, a study of the backlog of cases in the Kenyan Environment and Land Court found that the issue could be tackled through the uptake of artificial intelligence (Ogonjo et al. 2021).

Nonetheless, some other studies take a more cautious stance toward the relationship between digitization and efficiency. For example, an overview of ICT-related initiatives taken in Europe showed that often these measures have fallen short of the original expectations because their implementation had to contend with a number of challenges, such as the need to identify the proper level of complexity, ensure adoption, and select the right infrastructure (Velicogna 2007). A different study of the impact of technology investment on court performance demonstrated that while ICT investment has a positive effect on productivity, its influence is modest (Louro, Santos, and Filho 2017). In addition, a study centered on tax enforcement matters in Brazilian courts found no significant difference in terms of duration between cases filed in a traditional manner and those submitted electronically (Procopiuck 2018).

To investigate efficiency, the Doing Business 2016–2020 data were again used. In particular, the data allowed the DECIG analysis to calculate the time to resolve a standardized dispute in court (for which the time for the filing and adjudication phases was used) and to compare it with the digitization index. Contrary to some expectations, the results of the regression showed no strong correlation between a higher degree of judicial digitization and a faster dispute resolution process (Figure 4). Furthermore, while the relationship between the two variables is negative (which means that in economies with better levels of digital adoption resolving a dispute takes less time), it is also not statistically significant.

These findings, however, should not be interpreted as implying that digitization is not important for improving court efficiency. Rather, the results are a reminder that dispute resolution is a complex, multifaceted system, where reforms aimed at reducing proceedings’ duration should take into account a variety of factors, not just digitization. As established in research, other factors that can also affect court efficiency include the demand for judicial services (Beldowski, Dąbrowski, and Wojciechowski 2020); the number of judges and assistants (Mitsopoulos and Pelagidis 2007); their specialization and expertise (Palumbo et al. 2013); leadership and culture (Gramckow and Ebeid 2016); and the quality of procedural legislation (Mitsopoulos and Pelagidis 2007); among others. To maximize the benefits of digital adoption in courts, it is therefore crucial to pursue a holistic approach when enhancing judicial efficiency. This involves complementing the introduction of new technologies with other reform initiatives: namely, those that invest in court personnel, streamline procedural laws, arrange training activities for private practitioners, and so on.

Conclusion

Digitization has been occurring in many judicial systems for the past several decades, but the pace accelerated remarkably with the outbreak of the COVID-19 pandemic. The crisis prompted governments around the world to implement an unprecedented number of reforms to digitize their judiciaries. Nevertheless, this

**Figure 4**

No strong correlation was found between a higher degree of judicial digitization and a faster dispute resolution process

![Figure 4](image-url)


*Note: The sample includes 191 economies. These results hold after running a partial regression plot controlling for gross domestic product per capita, an indicator of the World Bank’s World Development Indicators database applied for the respective Doing Business years. The relationship also remains relatively weak \(r = -0.16\) after removing the apparent outlier from the sample, even though its significance improves \(p-value = 0.03\).*
surge in digitization efforts also further widened the divide between developed and developing economies in terms of their capacities.

DECIIG data suggest that higher levels of digitization can facilitate access to justice, specifically with respect to operation of courts in time of emergency. In addition, the data show that advancements in the adoption of new technologies by the judiciaries are strongly and positively correlated with increased court transparency. The relationship between digitization and judicial efficiency, however, was found to be relatively weak. Caution is warranted when anticipating the impact of digital adoption on the duration of court proceedings. Digitization is only one factor, albeit an important one, that can influence the time to resolve a dispute.

The recent COVID-19-related reforms aimed at judicial digitization often also expanded the existing capabilities of what can be done online in dispute resolution and introduced new features. Furthermore, as artificial intelligence penetrates deeper into business operations and public services, some judiciaries are already exploring how it can be used in their work (Reiling 2020). Against this background, there is a clear need for an updated and more comprehensive cross-country data set that would allow policymakers and researchers to track the impact of these developments on court accessibility, transparency, and efficiency. The upcoming Business Ready (B-READY) project of the World Bank Group is expected to fill this data gap. Continuous studies are essential to enrich the understanding of how economies can successfully leverage the increased digital adoption in courts.

References


Ogono, Florence, Joseph Theuri Gitonga, Dr. Angeline Wairegi, and Dr. Isaac Rutenberg. 2021. "Utilizing AI to Improve Efficiency of the Environment and Land Court in the Kenyan Judiciary: Leveraging AI Capabilities in Land Dispute Cases in the Kenyan Environmental and Land Court System." Proceedings of the Second International Workshop on AI and Intelligent Assistance for Legal Professionals in the Digital Workplace (LegalIAI 2021), held in conjunction with ICAIL 2021, Sao Paulo, Brazil.


