México Evalúa

CENTRO DE ANÁLISIS DE POLÍTICAS PÚBLICAS

# DIAGNOSIS OF THE IMPLEMENTATION OF TECHNOLOGICAL TOOLS in Mexican judiciaries

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# Presentation

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Technological development within the judiciaries in Mexico has been poorly studied. Up to now, there has been no systematized data or information on the technological tools implemented by each judiciary, their characteristics, and whether or not they were utilized by their users.

This lack of information is indicative of a reality: until recently, the use of technologies in most judiciaries was not a priority. With the arrival of the pandemic, this changed. But how did the health crisis impact the use of technological tools within judiciaries? Were they prepared to deal with the restrictions resulting from COVID-19? How did users react to this change?

These were some of the questions that prompted the diagnosis you have in your hands today. This study is the result of an exploratory research that consisted of surveys conducted in the 32 local judiciaries of the country, and interviews with more than 20 heads of the various technology departments. In this way, the study systematizes information on various technological tools –such as electronic signatures, management systems, platforms for filing lawsuits and motions, to name a few– and manages to provide an initial overview of their characteristics, the matters and courts in which they are used, and the number of people who use them.

It also documents the accelerated implementation of technological tools by judiciaries and the quantitative leap in the use of these tools, but also the existing gaps in the implementation of these tools between judiciaries, jurisdictions and even geographic areas.

On the other hand, it identifies the challenges that still lie ahead for some judiciaries, such as the improvement and expansion of their technological tools beyond some courts and matters, more training for external users, increased cybersecurity measures, and the evaluation of the impact of their tools, among others. This study concludes with a series of recommendations to address both the internal and external challenges faced by judiciaries.

I would like to thank and acknowledge the transparency of the 32 judicial branches that provided us with the necessary information to carry out this diagnosis, and especially those that enthusiastically allowed us to interview their technology department and answered all our requests for additional information. I would also like to acknowledge the work and commitment of the Transparency in Justice Team in developing this study, and the Fredrich Naumann Foundation for its support in the development of this study.

Although this is merely a first step in answering more complex questions, with this first effort we intend to offer a snapshot of the challenges and opportunities faced by the judiciaries in our country in terms of technological development, and to provide data that allows us to monitor and evaluate progress in this area. All this with the objective of enabling judiciaries to implement more and better technological tools and thus be able to impart prompt and qualitative justice that meets the needs and expectations of modern society.

# Introduction

Judiciaries in different parts of the world have reached a turning point in the last months. The onset of the COVID-19 pandemic has had a catalytic effect, forcing them to look for alternatives to continue their activities while complying with the various restrictions resulting from the health crisis.

In Mexico, the effectiveness of the response to the pandemic by the judiciaries was conditioned in part by their existing level of technological development, since in recent decades, their adoption and use of technological tools had been uneven, mainly due to a series of factors related to regulations, budget and lack of knowledge about the implementation of technology (México Evalúa, 2020).

For the judiciaries that had already implemented technological tools several years ago, these were a valuable resource for partially resuming their services remotely. But the health crisis also accelerated the adoption of this type of tool, since, as we will see below, several judiciaries launched theirs in recent months. For example, while in 2019 only 18 judiciaries had electronic records, today there are 24 judiciaries that have this tool and two more are developing it. Thus, from the use of videoconferencing to conduct hearings, to the implementation of platforms for the remote filing of lawsuits and motions, technology has taken on an increasingly ubiquitous role in the daily activities of judiciaries. This has brought several benefits, such as the reduction of expenses, especially paper and toner —costs traditionally linked to the printing of documents— and the possibility of implementing a remote work scheme, which allowed overcoming the resistance that some judicial officers had expressed before the pandemic.

Additionally, the complex context of recent months has helped to reduce the antagonism that many members of the legal profession and users in general had also shown towards the use of these tools (Susskind, 2021). This may be due to the fact that technology has proven to be useful in reducing the duration of processes and users not having to travel.

However, beyond automating and making processes more efficient —what Rabinovich-Einy (2008) refers to as the "efficiency paradigm"—, the potential of such tools to improve the processes themselves has also been recognized. Indeed, by using technology as a tool for analyzing information and data derived from jurisdictional processes, it is possible to identify ways to improve them and thus promote other judicial values and true procedural justice (Rabinovich-Einy, 2008).

It is worth clarifying that, in order to achieve this, it is not possible to transfer judicial processes from the analog sphere to the technological one; on the contrary,

it is necessary to rethink the functioning of the justice administration processes in order to transform them with the help of technology and avoid replicating existing problems.

In this redesign process, it is also worth recognizing that not all matters are the same and that not all require the exercise of the jurisdictional function. In this sense, it is important to identify which ones can be resolved through other dispute resolution processes or through more automated tools. In this way, judicial officers' time can be freed up to attend to the most important matters and increase access to justice.

It is also important to accept that technology alone is not the panacea that will solve corruption practices and other problems that afflict the administration of justice system. In particular, some voices have warned that technology is not the only solution to all cases or problems, since unequal access to this type of tool carries the risk of affecting the most vulnerable people, who do not have the necessary resources or skills to use this type of tool, which is why it is necessary to implement public policies that guarantee internet access for this population (OECD and Law & Justice Foundation, 2020; Susskind, 2019; México Evalúa, 2020b).

Other specialists have sounded the alarm regarding the negative effects that the implementation of some of these tools —especially automated systems that use artificial intelligence to support the judicial decision-making process— might have and have urged further research with respect to the effects they might have (Australian Human Rights Commission, 2018; FRA, 2018).

That said, it is a fact that the pandemic has accelerated the use of technological tools in the administration of justice and that it is plausible that their use will continue in the coming months given the prevalence of the health crisis and its restrictions. For example, as of October 2021, 46.88% of the judiciaries in Mexico had not yet fully resumed in-person services[1].

In this context, having accurate data on the current status of the implementation of technological tools by the judiciaries in Mexico is vital to reflecting on the implications of their operation and their benefits, as well as any possible risks associated with their use.

**It is necessary to rethink the functioning of the justice administration processes in order to transform them.**

Unfortunately, in Mexico there is very little information on this subject. Until this study was carried out, there was no systematized public information on how many technological tools have been implemented, what their functionalities are, for what purpose and in what areas they are used.

Thus, this project seeks to identify which tools have been implemented by the judiciaries in Mexico, their specific characteristics, their cost and development time, and the level of use by users, among other aspects. We consider this project to be a first step towards laying the foundations for a more in-depth assessment exercise, which will make it possible, on the one hand, to monitor progress and, on the other, to provide evidence on the relevance and impact of the use of technologies in the context of the Mexican justice system.

The purpose of this research is to provide valuable information that may help judiciaries to know what their level of progress is compared to their peers and to make decisions regarding the implementation of these tools and the strategies they adopt to mitigate the effects of the pandemic in the long term, especially in view of a future scenario that foresees a lengthy delay in courts and tribunals and a disproportionate burden of cases once in-person activities are resumed (OECD and Law & Justice Foundation, 2020).

This is confirmed by data from INEGI's 2021 National Census of State Administration of Justice, which showed that during 2020 the number of cases filed and concluded was the lowest since 2011, the year in which this census was conducted for the first time. In addition, the number of first instance cases entered in the judiciaries decreased on average -28.84% with respect to

1 The judiciaries that partially resumed their in-person services implemented measures that provide for only a certain percentage of personnel to come to the offices, and also established shifts or limited the return of personnel who are part of a vulnerable group.

2019 and concluded cases decreased -9.30%, so it is expected that in the coming years judiciaries will face a substantial increase in new cases, thus causing a significant delay.

With these objectives in mind, this study is composed of four sections. The first one presents the methodology of the study. The next section analyzes some elements of the context and aspects that enable the development of technological tools in the administration of justice. The third section describes the main technological tools that the judiciaries have implemented, as well as their characteristics and level of use.

The last section addresses the main challenges of implementing these tools, as well as some recommendations. However, it is important to point out that, throughout this document, some good practices are identified, as well as challenges and opportunities so that the judiciaries may benefit from collective learning.

Judiciaries have the opportunity to take advantage of this situation to rethink their processes in order to make them efficient and fair, scale any technological solutions that have proven useful, and combat any effects of the pandemic from a different perspective that may have a positive impact on access to justice for millions of people.

CHAPTER 1

# Methodology

In order to carry out this exploratory study, two different data collection tools were designed: an electronic questionnaire and a semi-structured interview with the objective of identifying the type of technological tools implemented by judiciaries, their characteristics, their cost, and their level of use by users, among other aspects.

One of the strategies used to gather the necessary information was to send invitations addressed to the Chief Judge of each Judiciary, as well as to the heads of the technology directorates or their equivalent in each one of them. This was decided, rather than sending requests for access to information, because it allowed us to obtain an interview with the heads and, sometimes, their work team, so that they could further their answers, validate any data obtained in the survey and build with them a space for dialogue in which they could explain how the pandemic had affected the functioning of the judiciaries and the development of various technological tools.

The electronic questionnaire was sent by e-mail to the heads of the technology department or their equivalent. This instrument was divided into 12 sections:

1. Procedural case management system.
2. Advanced or digital electronic signature.
3. Electronic record.
4. Sending and receipt of electronic lawsuits and motions.
5. Use of digital tools for remote hearings.
6. Platform for search and consultation of rulings.
7. Interoperability.
8. Support tools for the elaboration of public versions of rulings.
9. Judicial support systems.
10. Online courts and trials.
11. Other technological tools.
12. Infrastructure and storage.

Once the questionnaire was designed, it was piloted in four state judiciaries to validate it and then sent to the remaining judiciaries. In total, 29 state judiciaries[2] agreed to participate in the process and answered the questionnaire. The data collection from the three judiciaries that decided not to participate in the process (those of Mexico City, Guerrero and Veracruz) was carried out through requests for access to information made through the National Transparency Platform with questionnaires similar in content to the electronic questionnaire.

It is worth mentioning that the Federal Judiciary Council and the Supreme Court of Justice of the Nation were invited to participate in the study; however, they declined the invitation arguing that they did not have enough time to answer the questionnaire or participate in the interview. Subsequently, a request for access to information was sent to them, which has not been answered as of the date of preparation of this report. As a second stage and with the objective of validating the responses to the electronic questionnaire, a series of interviews were conducted with representatives of the technology departments of 23 judiciaries. It should be noted that six judiciaries that answered the electronic questionnaire did not continue with the interview process[3]. Additionally, the judiciaries were asked for some supporting documents and evidence to corroborate their responses.

The interviews were very useful to delve into some of the answers from the judiciaries and were useful to clarify or complement some of the answers in the questionnaire, which was not possible with the judiciaries that did not participate in this exercise.

The percentages reported throughout the study were calculated with respect to the 32 judiciaries, except where otherwise indicated.

Finally, all the information presented in this study was requested on June 30, 2021, so tools that were under development and implemented at a later date could not be taken into account.

2 The judiciaries that agreed to answer the questionnaire were those belonging to the following states: Aguascalientes, Baja California, Baja California Sur, Campeche, Chiapas, Chihuahua, Coahuila, Colima, Durango, Guanajuato, Hidalgo, Jalisco, Mexico, Michoacán, Morelos, Nayarit, Nuevo León, Oaxaca, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Sinaloa, Sonora, Tabasco, Tamaulipas, Tlaxcala, Yucatán and Zacatecas.

3 The judiciaries that decided to participate only in the survey were those of the states of Baja California, Colima, Durango, Michoacán, Oaxaca and Tlaxcala. Some of the reasons why they did not participate were lack of time and availability, health reasons or because they did not respond to our interview requests.

CHAPTER 2

# Existing conditions of judiciaries regarding the development of technological tools

Before presenting the diagnosis of the technological tools available to each Judiciary, it is essential to analyze the existing conditions in each institution, which may facilitate or inhibit technological development. This section describes some elements that we identify as essential in technological transformation processes and that could explain the variation in the degree of technological development of judiciaries: the existence of a technological development plan, the capacity to evaluate the technological tools developed, the existing infrastructure and cybersecurity measures, as well as training practices around technological tools.

## 1. Planning of technological transformation processes

Generally, a technological transformation process takes time and requires, among other things, an exhaustive planning process, especially when not all the necessary resources are available from the beginning to carry it out in a comprehensive manner. In this sense, it is essential to have a long-term plan that allows the process to be carried out and the anticipation of each stage.

Although 81.25% of judiciaries reported having a technological development plan, during the interviews we were able to identify that this plan is generally limited to the planning of activities to be carried out during the year or the scheduling of maintenance. In other words, most judiciaries lack a long-term vision that would allow identifying goals, when they should be achieved and how many resources will be needed.

This lack of long-term planning could be due to the fact that technological transformation processes are usually driven by a Chief Judge who includes the issue among his or her priorities, which may change when his or her term ends and a new Chief Judge arrives.

The uncertainty regarding the continuity of technological transformation processes from one term to another was identified during the interviews. In this regard, an interesting finding is that in the judiciaries that implemented more technological tools, the technological transformation process was achieved over several years and was generally possible because, at some point, a president promoted this agenda and it was taken up by his or her successor.

**Most judiciaries lack a long-term vision that would allow identifying goals, when they should be achieved and how many resources will be needed.**

## 2. Evaluation of the tools

One aspect linked to planning is the capacity for evaluation, given that any development plan must contain indicators, an analysis of the situation and the goals to be achieved. In this regard, a low capacity of judiciaries to evaluate the implementation and use of their technological tools was detected[4].

For example, of the 15 judiciaries that said they had electronic signatures, only one mentioned that it had evaluated its impact and, when asked what type of evaluation it had carried out, it mentioned that a general certification of processes[5] was carried out but the effectiveness of this tool had not been specifically evaluated.

The judiciaries that mentioned evaluating other tools reported having conducted user surveys; however, this exercise is not systematic or periodic[6]. Other judiciaries reported conducting internal audits, which generally consist of checking that officials are capturing information correctly.

In none of the cases was there any evidence that a Judiciary had specific indicators that allowed for the evaluation or comparison over time of the results derived from the use of the tools, such as a reduction in case resolution times, savings in terms of resources, or improvements in user satisfaction.

This lack of evaluation may represent an obstacle for the judiciaries to request and obtain resources to develop new technological tools, since the construction of the budget of any public institution is based on budgetary projects and programs that must have verifiable indicators and goals.

4 The number of judiciaries that reported having evaluated their technological tools varied depending on the tool implemented. For example, of the 25 judiciaries that have an electronic record, seven indicated that they had carried out an evaluation. On the other hand, three of 15 judiciaries with a platform for sending and receiving lawsuits and/or motions conducted an evaluation. As for the judiciaries that use a videoconferencing platform, only three out of 30 have evaluated its impact. Likewise, two out of 20 judiciaries have evaluated the search tools for rulings and three out of 24 have evaluated the impact of the public release support tools.

5 Another of the certifications that were mentioned are the ISO Anti-bribery certifications, which consider whether the judiciaries have tools such as closed circuit and access methods for officials, but did not evaluate the impact of each of the tools.

6 For example, one of the judiciaries mentioned that it had posted a question on Facebook to find out how satisfied users were with one of its tools, but it was only asked on one occasion and very few people had responded. Another Judiciary mentioned that this evaluation was done based on requests for attention and service from internal users or the feedback they received.

## 3. Internal and external technological infrastructure

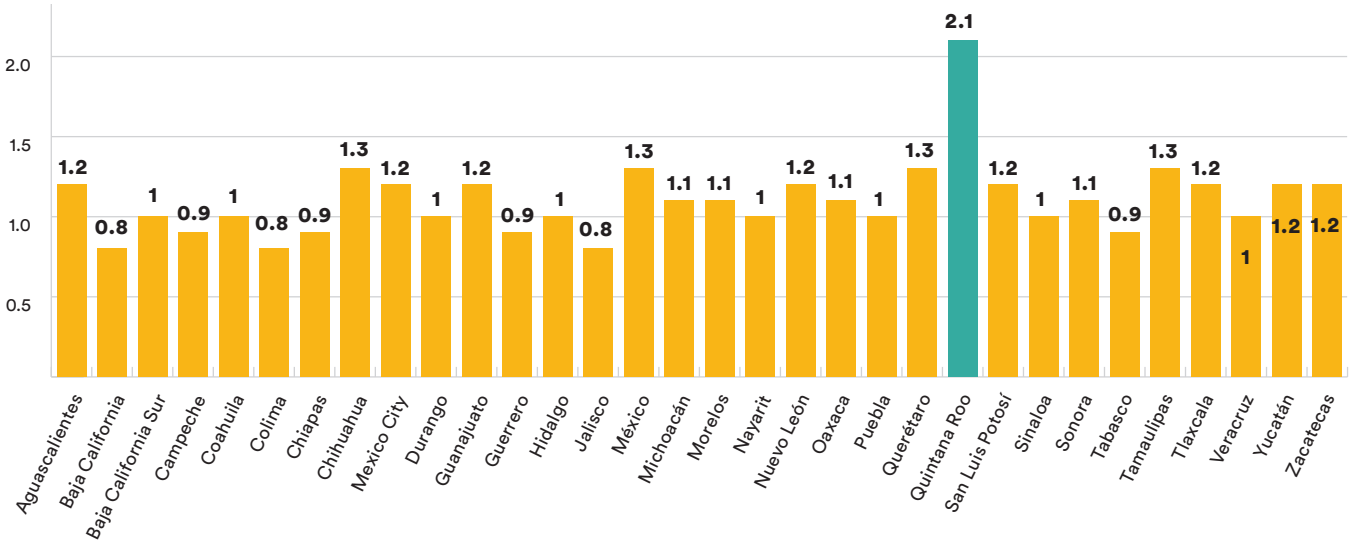
Another challenge frequently mentioned by judiciaries is the lack of adequate infrastructure to implement technological solutions. Although all judiciaries reported having an internet connection in most of their buildings, they also explained that while this is the case in judicial districts in or near the capital, the more distant courts often do not have this service because they are located in areas with inadequate infrastructure.

These conditions highlight the gap that often exists within the judiciaries between the courts located in the center of the state and those located in remote areas —especially in entities with large territorial extension or rugged terrain—. This affects the possibility of implementing and, therefore, the availability of technological tools in some courts, limiting user access in certain geographical areas.

In addition, when asked about the type of internet connection[7], 17 judiciaries reported having fiber optics or dedicated internet access in most of their buildings or in the main ones (located in the capital), and other types of connection in the more remote courthouses[8]. In the remaining eight judiciaries, the connection is through an Asymmetric Digital Subscriber Line (ADSL), which uses the telephone line wiring for data transmission and commercial links, where a modem is used to provide wireless internet[9].

Regarding the judiciaries' own infrastructure, it was observed that the judiciaries have an average of 1.1 computers for each judicial officer. However, differences were found between the proportion of computers per Judiciary. For example, the Quintana Roo Judiciary has 2.1 computers per officer, while the judiciaries of Baja California, Colima and Jalisco have 0.8 computers per officer.

**Graph 1.** Number of computers per judicial officer




**Source:** Own elaboration with data from the Censo Nacional de Impartición de Justicia Estatal 2021, INEGI.

7 The judiciaries of Campeche, Mexico City, Nuevo León, Tabasco, Tamaulipas and Veracruz did not provide information. On the other hand, the Guerrero Judiciary did not answer this section because it did not have these tools, so it is assumed that they do not have internet access.

8 Some judiciaries that had fiber optics also have ADSL connections, ISDN (Integrated Services Digital Network) connection, microwave network and 4G satellite internet and radio antenna links for the most remote areas.

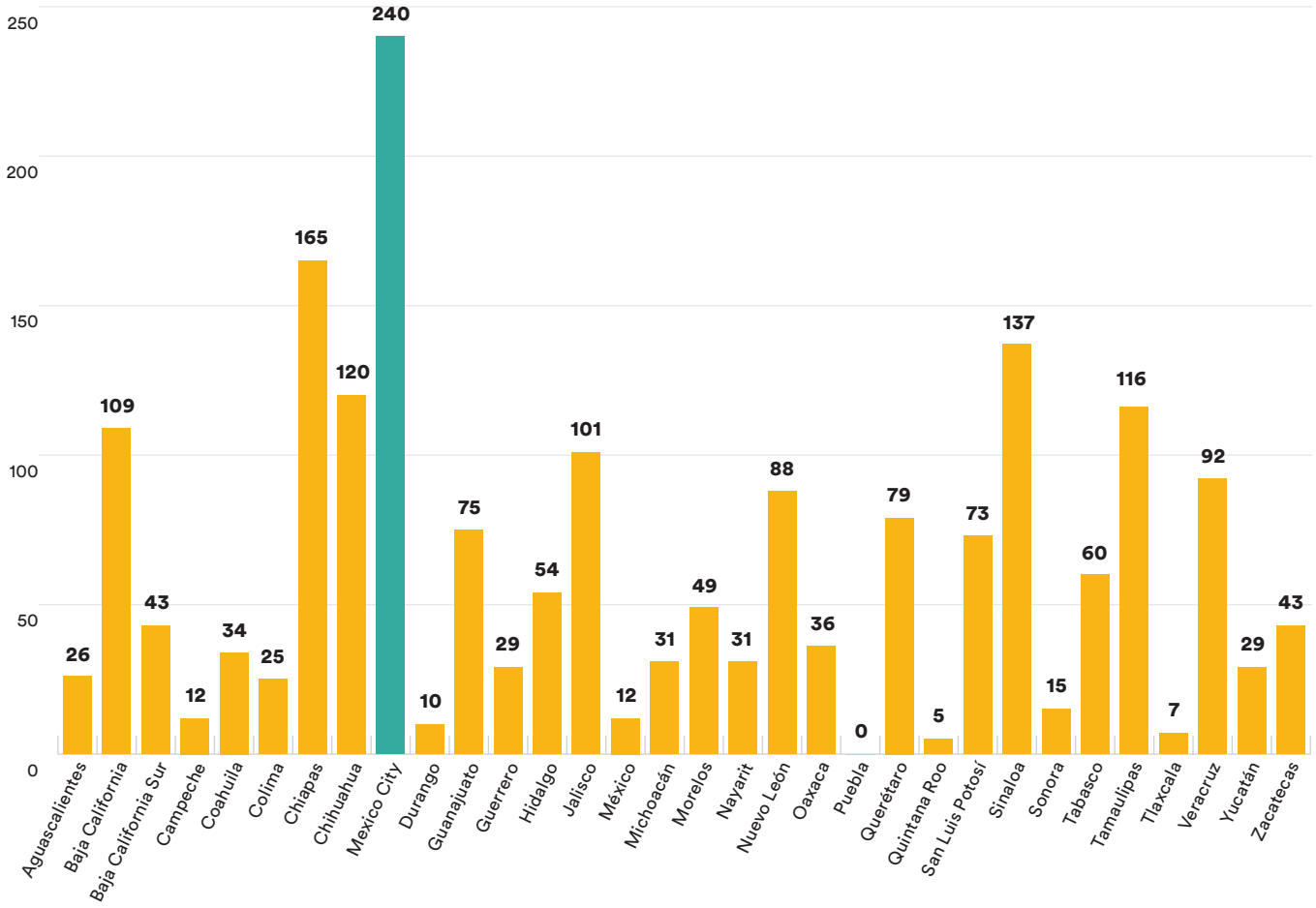
9 Some judiciaries pointed out that with this type of connection it was complicated to develop videoconference hearings because the bandwidth was not enough to hold several video calls at the same time.

On the other hand, in terms of the total number of servers in judicial and administrative bodies, it was found that on average there were 60.8 for each Judiciary in 2020. However, there are significant variations in each Judiciary; for example, Mexico City has the most servers, followed by Chiapas, Sinaloa and Chihuahua.

## 4. Cybersecurity

Another relevant aspect that arises with the transition from the analog to the digital sphere is the need to ensure the security of information and systems, especially given the amount of data and sensitive information

**Graph 2.** Total number of servers in judicial and administrative bodies by Judiciary, 2021




**Source:** Own elaboration with data from the Censo Nacional de Impartición de Justicia Estatal 2021, INEGI.

handled by the judiciaries. In this regard, most of the judiciaries stated that they did not have a cybersecurity plan and those that did have one did not share it for security reasons. Besides, when asked specifically about their security measures, we observed a great heterogeneity, and in some cases, they were quite limited (firewalls and antivirus, mainly)[10].

## 5. Training in the use of technological tools

Finally, another area where many judiciaries[11] that have implemented technological tools have difficulties is in training and dissemination of the use of these tools, especially when they are aimed at external users, which makes it difficult for them to be able to use them, either because they are unaware of their existence or because they do not know how to do so. Thus, most of the judiciaries stated that they did not carry out training practices in this field.

This situation derives from the fact that, in all cases, the area responsible for the training or professionalization of officials or aspiring officials —i.e., the judicial school or the institute of specialization— does not offer training in this field. Therefore, the few trainings related to the use of digital tools that are offered are in charge of the technology departments, which usually do not have experience in developing training courses, nor the human resources or the time to do so, especially when they are also in charge of the development of these tools.

Despite this situation, good practices and efforts were detected on the part of some judiciaries in this regard, not only by providing training via videoconference on the use of certain tools, especially as a result of the pandemic, but also by offering leaflets, manuals and help desks, as well as video tutorials exemplifying their use, among other mechanisms.

Finally, it is worth noting that the staff of the technology departments were not unwilling to provide assistance to those who came to them. The majority reported that with the pandemic and the change to a virtual mode, the number of queries and calls increased, but that they always tried to attend to them.

10 For security reasons of the judiciaries, we consider it convenient not to mention which measures each Judiciary has, but to mention them in a more general way.

11 The number of judiciaries that offered training to external users varies according to the tool implemented. In the case of the electronic signature, only four judiciaries out of 15 that had implemented it offered training to external users. For the electronic record there were 15 out of 24 judiciaries, for the tool for filing lawsuits and motions there were 10 out of 14, for the videoconferencing platforms there were six out of 30, and for the platform for consulting rulings there were two out of 20.

## **Table 1A.** Training provided by the judiciaries by type of tool and user Judiciary

| Poder Judicial | It has electronic signature | Training by type of user | | Case management system | Training by type of user | It has electronic record | Training by type of user | | Platforms for sending and receiving lawsuits | Training by type of user | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Internal users | External users | | Internal users | | Internal users | External users | | Internal users | External users |
| Aguascalientes | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | N/A | N/A |
| Baja California | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ |
| Baja California Sur | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Campeche | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | N/A | N/A |
| Coahuila | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | N/A | N/A | ✓ | ✓ | ✗ |
| Colima | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | N/A | N/A | ✓ | ✓ | ✗ |
| Chiapas | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | N/A | N/A | ✓ | ✓ | ✗ |
| Chihuahua | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | N/A | N/A |
| Mexico City | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ |
| Durango | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | N/A | N/A |
| Guanajuato | ✓ | ✓ | ✓ | ✗ | N/A | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Guerrero | ✗ | N/A | N/A | ✗ | N/A | ✗ | N/A | N/A | ✗ | N/A | N/A |
| Hidalgo | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | N/A | N/A |
| Jalisco | ✗ | N/A | N/A | ✓ | ✓ | ✗ | N/A | N/A | ✗ | N/A | N/A |
| México | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Michoacán | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | N/A | N/A |
| Morelos | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | N/A | N/A |
| Nayarit | ✗ | N/A | N/A | ✓ | ✓ | ✗ | N/A | N/A | ✗ | N/A | N/A |
| Nuevo León | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Oaxaca | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | N/A | N/A |
| Puebla | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Querétaro | ✓ | N/A | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quintana Roo | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| San Luis Potosí | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Sinaloa | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sonora | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ |
| Tabasco | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | N/A | N/A |
| Tamaulipas | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Tlaxcala | ✗ | N/A | N/A | ✗ | N/A | ✗ | N/A | N/A | ✗ | N/A | N/A |
| Veracruz | ✗ | N/A | N/A | ✗ | N/A | ✗ | N/A | N/A | ✗ | N/A | N/A |
| Yucatán | ✗ | N/A | N/A | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | N/A | N/A |
| Zacatecas | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | N/A | N/A |

**Source:** Own elaboration based on information requested from the judiciaries.

**Table 1B.** Training provided by the judiciaries by type of tool and user Judiciary

| Poder Judicial | Conducting hearings via videoconferencing | Training by type of user | | Platform for search and consultation of rulings | Training by type of user | | Tool for public elaboration of rulings | Training by type of user |
|---|---|---|---|---|---|---|---|---|
| | | Internal users | External users | | Internal users | External users | | Internal users |
| Aguascalientes | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✗ | N/A |
| Baja California | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✗ | |
| Baja California Sur | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Campeche | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✗ | N/A |
| Coahuila | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Colima | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Chiapas | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Chihuahua | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✓ | ✗ |
| Mexico City | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Durango | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✓ | ✓ |
| Guanajuato | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Guerrero | ✗ | N/A | N/A | ✗ | N/A | N/A | ✗ | N/A |
| Hidalgo | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Jalisco | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| México | ✓ | ✓ | ✓ | ✓ | ✓ | N/A | ✓ | ✓ |
| Michoacán | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Morelos | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ |
| Nayarit | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ |
| Nuevo León | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Oaxaca | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | N/A |
| Puebla | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Querétaro | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✓ | ✓ |
| Quintana Roo | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✗ | N/A |
| San Luis Potosí | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✓ | ✓ |
| Sinaloa | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Sonora | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Tabasco | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ |
| Tamaulipas | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✓ | ✓ |
| Tlaxcala | ✗ | N/A | N/A | ✗ | N/A | N/A | ✗ | N/A |
| Veracruz | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ |
| Yucatán | ✓ | ✓ | ✗ | ✗ | N/A | N/A | ✓ | ✓ |
| Zacatecas | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ |

**Source:** Own elaboration based on information requested from the judiciaries.

CHAPTER 3

# Implementation of technological tools in mexican judiciaries

The objective of this section is to describe the technological tools that have been implemented in the judiciaries, their characteristics and the level of use by users. The information is presented in four sections and eight subsections, which are explained below.

It should be noted that determining the order in which to present the technological tools implemented in the administration of justice poses a challenge, due to the complexity of the different tools and their characteristics. For this reason, to date there is no single way to classify them. One of the proposals to do so is provided by the IDB (2020), which proposes dividing the tools into three categories:

1. Procedural case management systems and judicial support systems.

2. Electronic record systems and electronic exchange of procedural documents.

3. Criminal justice interoperability platforms.

Since many technological tools intervene in different procedural moments, the IDB opted for a classification linked to the different functions they enable to develop within the judiciaries.

However, this classification was not used due to the particularities of the tools used by the judiciaries in Mexico. While in some of the country's judiciaries the case management systems integrate tools such as the electronic record and/or tools for the exchange of procedural documents, in others each of these tools operates separately. In addition, there are other technological tools that do not fall under this classification, such as those for supporting the preparation of the public version of rulings or platforms for the publication and consultation of rulings for both internal and external users, for example.

On the other hand, in the *Guía de buenas prácticas en el uso de nuevas tecnologías para la administración de justicia (Guide to Good Practice on the Use of New Technologies for the Administration of Justice) published by México Evalúa (2020)* we used a classification that took into account the user's point of view and according to the procedural stage in which the technological tools intervene: the procedural activation stage, where tools are found for the filing of lawsuits or the judicialization of a criminal investigation; the prosecution stage, where tools are found to communicate with the parties, to guarantee remote interaction and to make work management more efficient; and finally, the stage of formulation and execution of rulings.

Although this classification contemplates the existence of a larger number of tools than that of the IDB, the challenge of classifying them by procedural stage is that there are some that are used throughout the process.

In order to align these two points and for the purposes of this study, we propose to organize the technological tools according to their functionalities, as well as their prevalence throughout the process. Thus, four categories are stipulated:

A) **Cross-cutting tools:** those that are used in different parts of the process, i.e., from its processing to its conclusion, which may also be part of other technological tools.

**Table 2.** Classification of tools according to their functions and prevalence during the stages of the process

| Category | Type of technological tools |
|---|---|
| Cross-cutting tools | - Electronic or digital signature.<br>- Case management systems.<br>- Electronic record (consisting of documents and/or multimedia files). |
| Tools for the remote processing and consultation of matters | - Platforms for sending and receiving documents (lawsuits, motions, notifications).<br>- Use of videoconferencing.<br>- Online trials and courts. |
| Tools for the publication and consultation of rulings | - Support tools for the elaboration of the public version of the rulings.<br>- Databases of rulings and/or jurisprudence. |
| Other tools | - Appointment system for the presentation of documents at the filing clerk's office.<br>- Administrative case management systems (budget, purchasing, accounting, storage, human resources, material resources, etc.).<br>- Remote training systems.<br>- Systems for online dispute resolution. |

**Source:** Own elaboration based on information requested from the judiciaries.

B) **Tools for the remote processing and consultation of matters:** those used to process and follow up on matters through a technological tool. These systems are more complex and may include some of the cross-cutting tools as part of their functionalities.

C) **Tools for the publication and consultation of rulings:** those used to make the public version of the rulings, make them available on a platform or search engine for public consultation.

D) **Other tools:** those used to systematize processes other than jurisdictional ones, such as the management of the Judiciary's administrative activities, the provision of training to officials or online dispute resolution systems.

The order of the tools does not reflect their degree of importance; it only reflects the order assigned in this document and the order that best suits the needs of this study.

Next, we describe the findings we found for each of the tools.

## 1. Cross-cutting tools

### 1.1. Advanced or digital electronic signature

The electronic signature is an authentication mechanism that allows the verification of user identity. There are several types of electronic signatures, ranging from the digitalization of a handwritten signature to the use of more complex means to ensure the identity of the person signing. In this section we will analyze the advanced electronic signature, since it is the one that provides the highest level of security, as it gives certainty about the identity of the person who has signed a document and allows detection if there has been any alteration to it.

The electronic signature is an authentication mechanism that allows the verification of user identity.

Unlike other types of signatures that consist of a PIN number or identifier that is combined with a password (México Evalúa, 2020), this signature is composed of two files, called public key and private key, which are provided by a certifying entity, which performs a process to validate the identity of the person. The private key can only be used through a password, which can only be accessed by the person who holds the signature. When a person needs to sign a document, he/she enters the password and encrypts the contents of the document using his/her private key. Subsequently, the document is sent and the receiver can decrypt that message using the sender's public key. This verifies both the identity of the signer and that the document has not been altered (Gupta et al., 2004).

The use of advanced electronic signatures has several benefits. Among them stands out the reduction in the use of paper (since it is not necessary to sign documents physically), the elimination of the requirement of having to be in a specific place to sign a document, the reduction of physical storage space (since it is not necessary to keep printed copies), unlimited access to signed documents and the increase in security, especially when they are sent.

In addition to the aforementioned benefits, having an advanced electronic signature is essential to guarantee that the person signing is who he/she claims to be, an essential requirement to grant validity to jurisdictional processes.

12 Although some people use the terms "digital signature" and "advanced electronic signature" interchangeably, it is important to specify that the first term refers to the encryption and decryption technique through the application of algorithms on which an advanced electronic signature is based to unequivocally identify the person signing and ensure that the message is not manipulated (Soto, 2020).

This is relevant since many of the technological tools contemplate a remote and often asynchronous interaction or exchange of information, which requires an authentication mechanism with the same characteristics.

In Mexico, an important step towards the implementation of this type of mechanism was the approval, in 2011, of the Advanced Electronic Signature Law, which was created to allow citizens to carry out procedures remotely and governs the use of this tool for the entities and agencies of the federal public administration, their public servants and individuals (Izquierdo Enciso, 2011). In addition, several states had already issued a Law on the use of Advanced Electronic Signature or its equivalent, which in some cases included the Judiciary as one of the obligated subjects.

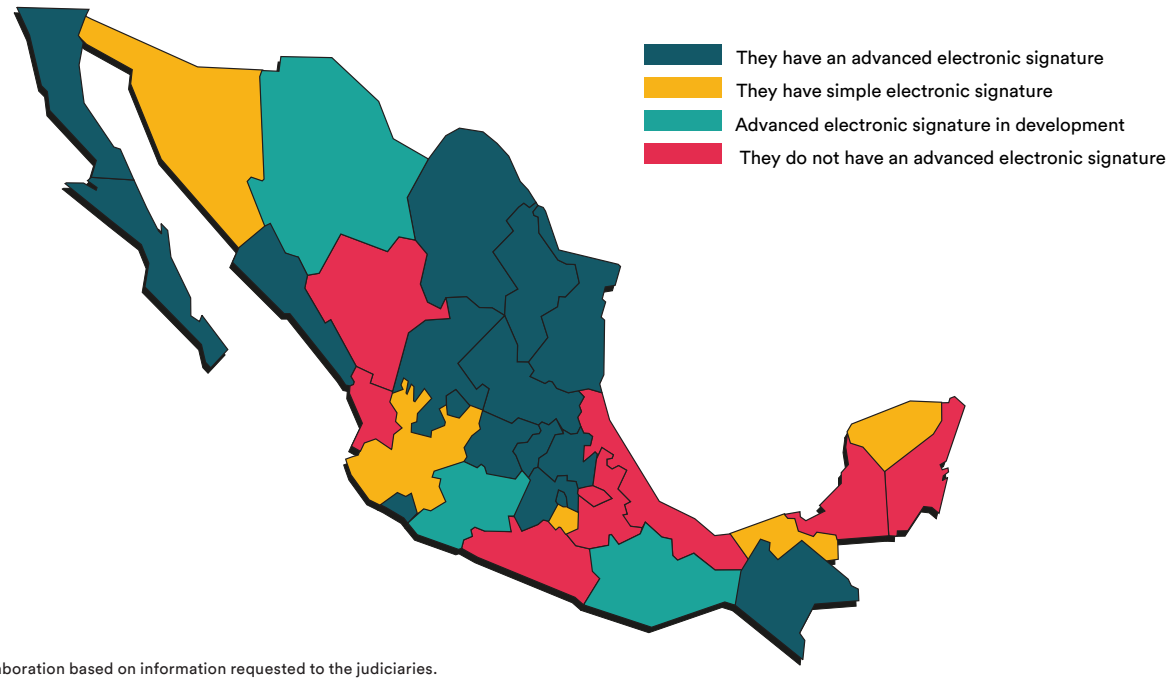
The following section analyzes the implementation of the advanced electronic signature by local judiciaries.

**In the case of local judiciaries, 46.88% have enabled a system to use an advanced electronic signature.**

### 1.1.1. Implementation of the advanced electronic signature

In the case of the judiciaries, five of them have created their own signatures and have their respective regulatory framework for their use. For example, derived from the reform of the Amparo Law in 2013, the Federal Judiciary issued that same year an agreement for the use of the Certified Electronic Signature (FIREL) in the processing of the writ of amparo (Acuerdo General Conjunto 1/2013, 2013).

**Map 1.** Implementation of advanced electronic signature in the judiciaries, 2021




**Source:** Own elaboration based on information requested to the judiciaries.

13 These are the states of Baja California, Chiapas, Colima, Mexico City, Durango, State of Mexico, Guanajuato, Guerrero, Hidalgo, Jalisco, Morelos, Quintana Roo, Sonora and Yucatán.

14 For example, in Guanajuato and Sonora, this law regulates the services provided by the Judiciary, as well as its interactions with other agencies and individuals..

15 These are the judiciaries of Coahuila, Guanajuato, State of Mexico, Tamaulipas and the Federal Judiciary..

In the case of local judiciaries, 46.88% have enabled a system to use an advanced electronic signature[16], 9.38% have a simple electronic signature[17], 25% do not have any type of signature and 18.75% are developing one[18].

It should be noted that of the 15 judiciaries that reported having an advanced electronic signature, nine have signed agreements with the Federal Judiciary (PJF, according to its initials in Spanish) to use the FIREL or with the Tax Administration Service (SAT, according to its acronym in Spanish) for the use of the e.firma[19] (e.signature) or with the State Executive Branch to use its signature[20]. The remaining six judiciaries have developed or contracted their own signature[21].

The judiciaries that have signed agreements to use FIREL and/or the e.firma mentioned that they chose this option because it requires less investment than developing or hiring their own signature. Moreover, some of them specified that this decision was also due to the fact that the PJF offered to carry out the interconnection and provide the tools and the necessary follow-up to be able to implement it.

As for the judiciaries that have signed agreements with the PJF and SAT, another of the advantages they underlined is that, if at any time there is a problem with the server of a signature, if the user only has one or if the certificate of one of them is not valid, he/she always has the option of using the other one.

On the contrary, among the disadvantages of using these signatures is the fact that the issuance of new electronic signatures remains exclusively in the hands of the institutions that own the signature, in this case the PJF and the SAT. This was a challenge during the health crisis, because, in both institutions, the issuance of certificates was done in person.

For example, before the pandemic, the processing of the FIREL required individuals to go to a service module, generally located in a judicial body of the PJF, in order for a certifying agent to cross-check the documents, take a photograph, digitize the handwritten signature and register the fingerprints (Acuerdo General Conjunto 1/2013, 2013). In view of the sudden growth of FIREL demands, in June 2020, the PJF enabled a procedure for processing such signatures online[22] through a mobile application called "App FIREL".

The procedure consists of a pre-registration on the FIREL website and then completing a document verification process, as well as providing biometric data through the app, such as a photo and fingerprint registration, which are corroborated with the INE database, all from a cell phone (Consejo de la Judicatura Federal, 2020).

For their part, the judiciaries that have contracted their own advanced electronic signature mentioned that this decision was taken to avoid depending on a third party in case of technical failure, in addition to having the possibility of taking advantage of the available technological infrastructure and being able to connect it more easily with more tools. On the other hand, some mentioned that the decision was taken because there was resistance from representatives of the legal profession to use the e.firma, since they thought that the SAT could carry out an audit of their income if they used it.

Additionally, the judiciaries that have contracted their own advanced electronic signature are responsible for managing certificates, which allows the judiciaries to

16 These are the judiciaries of Aguascalientes, Baja California, Baja California Sur, Mexico City, Chiapas, Coahuila, Colima, Guanajuato, State of Mexico, Nuevo León, Querétaro, San Luis Potosí, Sinaloa, Tamaulipas and Zacatecas.

17 These are the judiciaries of Chihuahua, Michoacán and Oaxaca. The Chihuahua Judiciary mentioned that it was their own signature that was only used for signing some judicial documents in criminal matters and the declaration of assets. On the other hand, the Michoacán Judiciary said that the electronic signature was mainly used for signing administrative documents such as statistical reports, pay slips, internal records and declarations of assets. On the jurisdictional side, they stated that it was used for sending electronic notifications in civil and family matters and for the access of attorneys to the Electronic Court for digital file consultation and electronic notifications. They also mentioned that they had plans to implement the advanced electronic signature. Finally, the Oaxaca Judiciary stated that its signature was only used for external users to access the court's virtual platform.

18 These are the judiciaries of Hidalgo, Jalisco, Morelos, Sonora, Tabasco and Yucatán, which mentioned that the advanced electronic signature was in the process of development or implementation.

19 These are the judiciaries of the states of Aguascalientes, Baja California Sur, Colima, Querétaro, San Luis Potosí and Zacatecas. The judiciaries of Nuevo León and Sinaloa have an agreement to use both FIREL and e.firma.

20 This is the case of Chiapas, which uses the signature developed by the state Executive Branch in collaboration with the Institute of Science, Technology and Innovation.

21 These are the judiciaries of the states of Baja California, Mexico City, Coahuila, Guanajuato, State of Mexico and Tamaulipas. In the case of Coahuila, a company was hired to develop the electronic signature engine, which also accepts the signature of SAT and FIREL.

22 The validity of the signature obtained through this procedure lasts for one year, as opposed to the signature obtained through a face-to-face procedure, which is valid for three years.

carry out the process of verifying the identity of the applicant and to suspend or extinguish the digital certificates[23]. Besides, like the FIREL, a self-signature has the possibility of being recognized by other judiciaries.

The Tamaulipas Judiciary is one of the judiciaries that has implemented the use of the advanced electronic signature for internal and external users, which is why it has been integrated both in the case management systems, as well as in the Electronic Court. In this regard, the Head of the Information Technology and Telecommunications Department mentioned the following:

> *[I would like to] emphasize what it means that all documents in court are signed with an advanced electronic signature. We provide transparency and security to the user since the advanced electronic signature bears the date, hour, minute and second in which it was signed. What used to exist in the past, when documents and agreements were hidden or made later, when they were sewn and unsewn, we [do not have that] (...) Little by little we have been strengthening the case management systems [since] four or five years ago. Because we have the advanced electronic signature for the use of the external user by the electronic court, but our internal user, such as judges and clerks who sign every document, every agreement they make, from 2018 to now, [they do it] 100%. Even the clerks of the court, not only the judges and clerks, but also the clerks of the court[24]. So that gives a tremendous security, the documents are secured with that information* (A. Cantú Garza, personal communication, August 11, 2021).

**The judiciaries that do not yet use an advanced electronic signature agreed that this is due to lack of budget.**

On the other hand, the judiciaries that do not yet use an advanced electronic signature agreed that this is due to lack of budget, since the cost of contracting a signature is usually very high or requires investment in infrastructure. However, most of them expressed their interest in signing an agreement in the near future for the use of FIREL or e.firma.

Another obstacle in the use of this signature in civil and family matters has been the omission of the Congress of the Union to issue the National Code of Civil and Family Proceedings —which should have been issued in 2018—. This has prevented some local congresses from reforming their respective codes to provide for the use of the signature and other technologies in these types of proceedings[25] (Carbonell, 2020; Pantin, 2021).

### 1.1.2. Use of the advanced electronic signature

The advanced electronic signature can be used for different purposes. The following is an analysis of its use within each Judiciary, i.e., the type of documents that can be signed with it or the type of access it provides and in what matters. The type of users that can use it is derived from this.

First, while in some judiciaries this tool is only used to sign specific documents in some matters, such as petitions and agreements, others use it to sign a larger number of documents such as rulings, agreements, bills, lists, petitions, notifications, and even video recordings of hearings. On occasion, it also allows trial attorneys to sign lawsuits and motions to file them remotely. Some judiciaries even require it to provide access to the electronic record consultation platform or to access hearings held by videoconference.

23 Persons requesting an advanced electronic signature are entitled to request the suspension or termination of the electronic certificate. Generally, the suspension process is carried out when the person no longer uses the signature, has identified a misuse, or has shared or forgotten his/her password. On the other hand, it is considered extinction of the signature when the validity of the certificate ends.

24 The clerks of the court have the function of carrying out the personal notifications and the procedures that are entrusted to them. A fundamental requirement they must comply with is to prepare the respective record of circumstances at the time of performing the procedure, which is added to the file. For this reason, the use of the advanced electronic signature is especially useful, since it is possible to prepare the records and sign them, stating the exact date and time at which they were made.

25 The Supreme Court of Justice of the Nation resolved the unconstitutionality action 32/2018 and 58/2018 in the sense of invalidating the reforms to the civil procedural codes in the states of Coahuila and Aguascalientes since it estimated that such reforms invaded the competencies of the Congress of the Union (Pantin, 2021).

**Table 3.** Use of the advanced electronic signature according to the responses received by each Judiciary

| Judiciary | User type | Use |
|---|---|---|
| Aguascalientes | Internal | It is used in matters of Criminal Orality and the use is for the signature of lists of agreements, agreements and bills. |
| Baja California | Internal and external | In civil, family and commercial matters for agreements, hearings, petitions, official notices; and in criminal matters for the signature of proceedings and official notices by judges and administrative personnel, as well as the signature of motions sent through the Electronic Court by the parties and for their access to it. |
| Baja California Sur | Internal and external | It is used to sign electronic motions, electronic notifications and electronic petitions. |
| Mexico City | Internal and external | Use in case management systems and for parties to send lawsuits and motions. |
| Chiapas | Internal | To sign the declarations of assets. |
| Coahuila | Internal | It is used within the case management systems in some processes involving the issuance of agreements and rulings where judges and clerks sign. It is also used in the issuance of arrest warrants, search warrants, and in the Collegiate Criminal Court's official letters. |
| Colima | Internal | For the signing of civil, family and commercial court agreements within the new electronic court website implemented in 2021. |
| Guanajuato | Internal and external | To sign agreements that are notified electronically, as well as to sign electronic motions. |
| State of Mexico | Internal and external | It is used in jurisdictional proceedings determined in the procedural regulations of the state, as well as in the Administrative field determined by the Council. |
| Nuevo León | Internal | Signing of legal rulings, official communication documents and other administrative documents. |
| Querétaro | External | For the signing of motion documents by registered users to consult the electronic record. |
| San Luis Potosí | External | For litigants and the general public to have the chance to send motions and lawsuits electronically. |
| Sinaloa | Internal | For matters of Oral Mercantile jurisdiction and amparo proceedings in civil and family matters in the Judicial District of Culiacán and in all matters in the processing of petitions. |
| Tamaulipas | Internal and external | It is used for the signing of the daily agreement, digitalized motions, official letters and other documents. It is also used in the electronic platform with which the external user promotes through the internet. |
| Zacatecas | Internal | It is used to sign internal petitions and some notifications. |

The function given to the electronic signature depends to a large extent on its integration with other technological tools. In this regard, of the 15 judiciaries that have implemented an advanced electronic signature, 12 of them[26] have integrated it into their case management systems so that officials can sign documents using this tool.

In turn, four judiciaries (those of Baja California, Mexico City[27], State of Mexico and Tamaulipas) have managed to implement the electronic signature in an integrated manner, that is, it is used both by internal users in the case management system and by external users not only to access the platform for file consultation and filing of

26 The judiciaries of Baja California, Mexico City, Coahuila, Guanajuato, State of Mexico, Nuevo León, San Luis Potosí, Sinaloa, Tamaulipas and Zacatecas indicated that all their case management systems integrate this tool. The judiciaries of Aguascalientes and Baja California Sur indicated that they only have it integrated into some of their case management systems.

27 Although the Judiciary of Mexico City indicated that it has contracted its own signature for internal users, it also stated that up to now the signature that external users use to access its platform for sending motions in civil and family matters is the e.firma or the FIREL. However, it was reported that in August 2021 the Judiciary would begin to provide its own electronic signature to external users. On the other hand, it is important to note that for the consultation of the electronic record, external users use a username and password and not the signature.

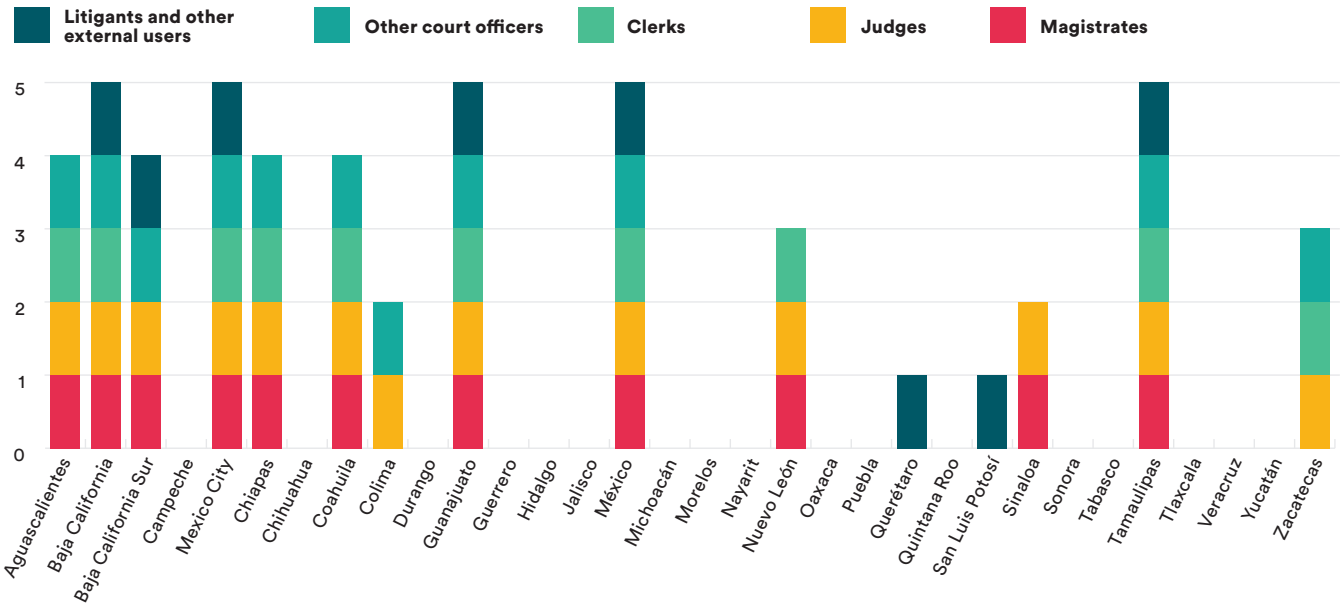
lawsuits and/or motions but also to sign them on such platform. In the case of the Judiciary of the State of Mexico, in addition to these functionalities, the advanced electronic signature is used by the parties and other participants (defense counsel, litigant, witness or expert witness) to access hearings held remotely.

It should be noted that the judiciaries of Baja California Sur, Guanajuato, Querétaro and San Luis Potosí[28] have also linked the signature to the platforms for the filing of lawsuits and/or motions, not to enter them, but for external users to sign their pleadings. Finally, the judiciaries of Chiapas[29] and Colima[30] have not integrated the electronic signature to any of the systems described above.

Consequently, important differences can also be seen in terms of the type of users that can use the advanced electronic signature. For example, only in six judiciaries (Baja California, Baja California Sur, Mexico City, Guanajuato, State of Mexico and Tamaulipas) both internal and external users can use the electronic signature. In seven others (Aguascalientes, Chiapas, Coahuila, Colima, Nuevo León, Sinaloa and Zacatecas) only internal users can use it, and in the remaining two (Querétaro and San Luis Potosí) only external users can use it.

The following Graph shows the types of users that can use the advanced electronic signature by Judiciary.

**Graph 3**. Type of users who can make use of advanced electronic signatures by Judiciary, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

28 These are the judiciaries of Baja California, Baja California Sur, Mexico City, State of Mexico, Guanajuato, Querétaro, San Luis Potosí and Tamaulipas.

29 At the time of the survey, the Chiapas Judiciary indicated that the electronic signature was only used for signing declarations of assets, but that it was in the process of developing other tools for signing agreements and rulings, as well as for use by the Comptroller's Office.

30 The Colima Judiciary mentioned that the signature is used for the signing of agreements of the civil, family and commercial courts.

31 The Labor Justice Reform derives from the constitutional reform of February 24, 2017, which removes the Conciliation and Arbitration Boards and transfers to the judiciaries the power to hear labor disputes, so they are in the process of creating courts in this matter. The implementation of this reform was foreseen in three stages. In the first stage, which was completed in October 2020, it was implemented in eight states (Campeche, Chiapas, Durango, Hidalgo, State of Mexico, San Luis Potosí, Tabasco and Zacatecas). In the second stage, which was completed in November 2021, it was implemented in 13 states (Aguascalientes, Baja California, Baja California Sur, Colima, Guanajuato, Guerrero, Morelos, Oaxaca, Puebla, Querétaro, Quintana Roo, Tlaxcala and Veracruz). The third stage will be completed in 2022 and will cover the rest of the states (Secretaría del Trabajo y Previsión Social, n.d.). Regarding the implementation of the electronic signature in the judiciaries of these entities, we see that the three judiciaries that had electronic signatures in other matters and were part of the first stage of implementation of the Labor Justice Reform (State of Mexico, San Luis Potosí and Zacatecas) implemented the signature in labor matters. As for the second stage of implementation of the Reform, which has just been completed, six judiciaries already had an electronic signature in other matters and, of these, three also implemented it in labor matters.

Now then, as can be seen in the following Graph, the electronic signature has been implemented mostly in civil and family matters, while in labor matters its use is not very common. The gradual implementation of the Labor Justice Reform[30] is one of the reasons why some judiciaries have not implemented the advanced electronic signature in such matters.

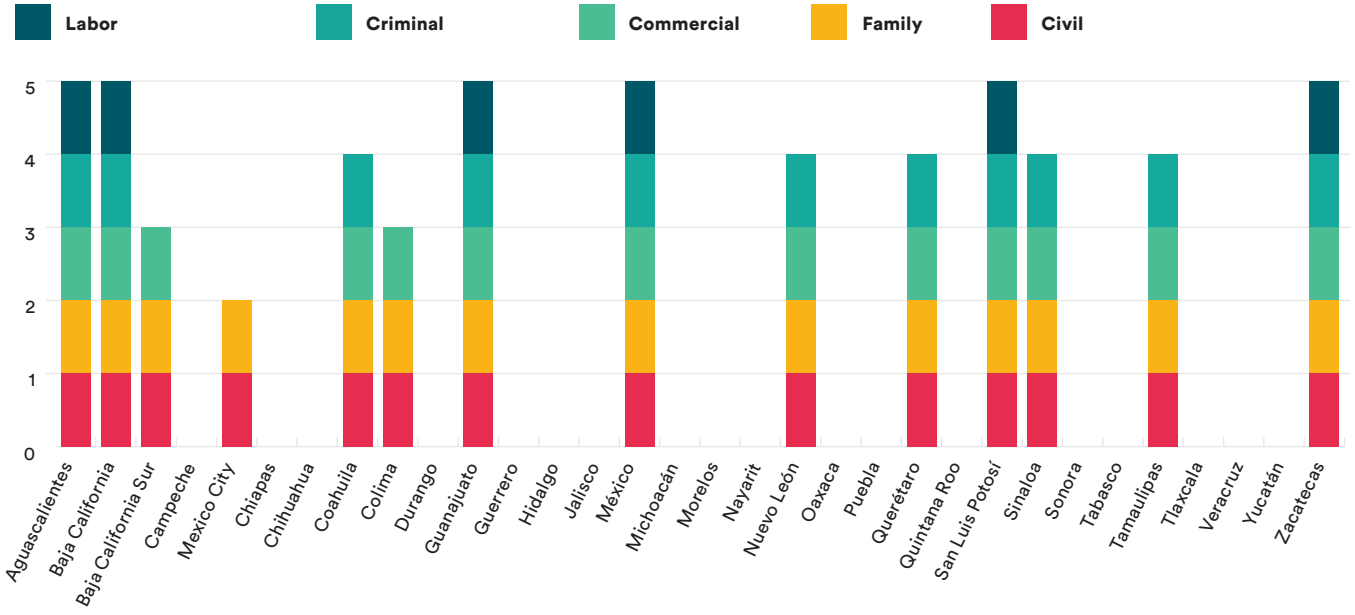
### 1.1.3. Data on the number of users of the electronic signature

As mentioned in the previous section, one of the key differences between the use of one's own advanced electronic signature and that of a third party is the management of certificates, which corresponds to the issuance, suspension and deletion of the certificates that make up the electronic signature. For this reason, in the case of judiciaries that use a third party's electronic signature (such as FIREL or e.firma), it is not possible to count the number of signatures that have been issued for use in that specific Judiciary. In this sense, this section only reports the number of electronic signatures issued by judiciaries that have their own electronic signature.

As can be seen in Table 4, the number of electronic signatures issued increased considerably in 2020 and 2021, especially for external users. For example, in Baja California, it was 24.6 times higher than with respect to 2019. In the State of Mexico, the number of signatures issued in 2020 was 4.7 times higher than with respect to 2019.

In the latter case, the increase in the number of signatures issued to external users may be due to the fact that such Judiciary required, for hearings held remotely, that any parties and other participants have their advanced electronic signature (FEJEM), in order to verify their identity.

**Graph 4.** Matters in which the advanced electronic signature has been implemented by Judiciary




**Source:** Own elaboration based on information requested from the judiciaries.

**Table 4.** Number of signatures issued to internal and external users by Judiciary from 2018-2021

| Judiciary | Characteristics of the advanced electronic signature | | | Issuance of advanced electronic signature for internal users | | | | | Issuance of advanced electronic signature for external users | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Is there an advanced electronic signature? | Type of signature | Type of use | 2018 | 2019 | 2020 | 2021 (as of June 30) | Total signatures issued since implementation | 2018 | 2019 | 2020 | 2021 (as of June 30) | Total signatures issued since implementation |
| Aguascalientes | Yes | FIREL | Internal | | | | | | | | | | |
| Baja California * | Yes | Own | Int. y ext. | 51 | 72 | 170 | 24 | 567 | 155 | 135 | 3,327 | 334 | 4,355 |
| Baja California Sur | Yes | FIREL | Int. y ext. | | | | | | | | | | |
| Mexico City | Yes | Own /FIREL | Int. y ext. | | | | | 2875* | | | | | |
| Chiapas | Yes | Own | Internal | | | | | 2,467 | | | | | |
| Coahuila | Yes | Own | Internal | | | 5,848 | 8,001 | 13,849 | | | | | |
| Colima | Yes | FIREL | Internal | | | | | | | | | | |
| Guanajuato* | Yes | Own | Int. y ext. | 1,111 | 516 | 1,251 | 613 | 9,958 | 30 | 2 | 121 | 1,889 | 2,042 |
| Hidalgo | Under development | | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Jalisco | Under development | | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| State of Mexico* | Yes | Own | Int. y ext. | 1,733 | 1,427 | 1,312 | 775 | 6,100 | 2,252 | 6,998 | 33,460 | 22,231 | 65,099 |
| Morelos | Under development | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Nuevo León | Yes | FIREL /SAT | Internal | | | | | | | | | | |
| Oaxaca* | No | | | | | | | | | | | | |
| Querétaro | Yes | FIREL | Externo | | | | | | | | | | |
| San Luis PotoYes | Yes | FIREL | Externo | | | | | | | | | | |
| Sinaloa | Yes | FIREL /SAT | Internal | | | | | 193 | | | | | |
| Tabasco | Under development | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Tamaulipas* | Yes | Own | Int. y ext. | 656 | 591 | 590 | 327 | 2,207 | 174 | 228 | 2,593 | 705 | 5,217 |
| Yucatán | Under development | | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Zacatecas | Yes | FIREL | Internal | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Total** | | | | **3,551** | **2,606** | **9,171** | **9,740** | **35,341** | **2,611** | **7,363** | **39,501** | **25,159** | **76,713** |

* These judiciaries report the total number of electronic signatures issued since the date of their implementation, therefore the total is bigger than the sum of the signatures of 2018-2021. The judiciaries that have FIREL did not provide information since it is the Federal Judiciary Power that issues these signatures.

**Source:** Own elaboration based on information requested from the judiciaries.

### 1.1.4. Year in which the judiciaries started to use the advanced electronic signature

Regarding the year in which the judiciaries started using the advanced electronic signature, the first to implement it was that of the state of Tamaulipas, in 2010, followed by Guanajuato, in 2013, and Nuevo León and Baja California, both in 2015. Coincidentally, these judiciaries have also managed to integrate the electronic signature to a greater number of technological tools and those that report a use by a greater diversity of users (Figure 1)[32].

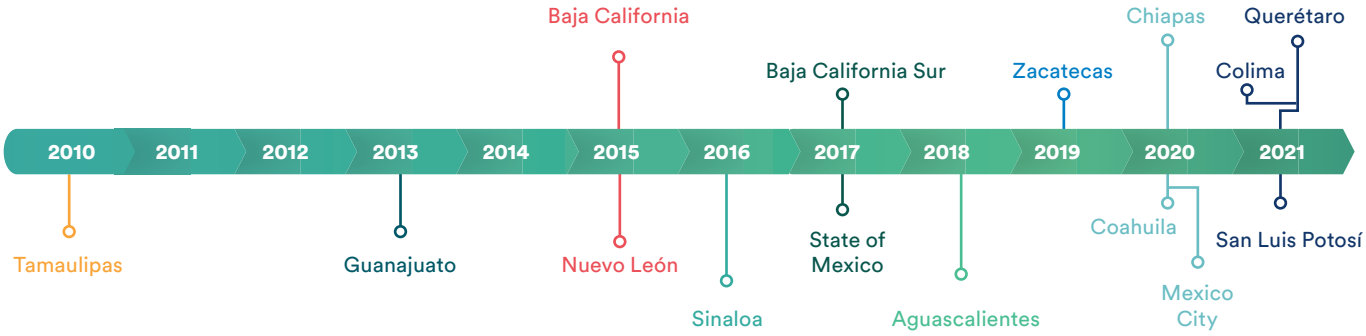
As can be noted in the timeline, during the last two years, the pace of adoption of this tool has accelerated: six judiciaries have implemented it and another five (Hidalgo, Jalisco, Morelos, Tabasco and Yucatán) reported that they are in the process of doing so. It can be assumed that this accelerated implementation is due to the pandemic and the suspension of the service of the courts and tribunals, which did not have this type of tool.

### 1.1.5. Development cost

Regarding the cost of the advanced electronic signature, there are important variations. First, most of the judiciaries that have implemented an advanced electronic signature reported that it was costless because they use the signature of the Federal Judiciary or the SAT[33]. It is important to note, however, that it is likely that these judiciaries omitted the costs associated with the purchase of servers, as well as other infrastructure adaptations required to implement the use of FIREL or the e.firma.

Therefore, in order to report the cost of implementing this tool, only those judiciaries that acquired the advanced electronic signature through a company and reported approximate costs were taken into account. We also included the Hidalgo Judiciary, which purchased this tool and is in the process of implementing it.

**Figure 1**. Year of implementation of the advanced electronic signature by Judiciary




**Source:** Own elaboration based on information requested from the judiciaries.

32 The exception is Nuevo León, the only one of these judiciaries that only contemplates the use of the Advanced Electronic Signature for internal users.

33 The judiciaries of Baja California Sur and Yucatán (which is in the process of implementing FIREL) were the only ones that reported costs associated with its implementation, of $2,745,400.00 Mexican pesos and $6,747,636.24 Mexican pesos, respectively. In the case of Yucatán, this amount includes the purchase of servers and the adaptation of its site (the place that houses the servers and telecommunications-related equipment of an institution). On the other hand, the Baja California Sur Judiciary informed that this amount included the licensing and maintenance of the electronic signature generation application, the license and maintenance of the application for time stamping in the signature, the license and maintenance for integration with web/desktop applications, professional services such as installation, configuration, testing and remote support policy.

**Table 5.** Cost of the advance[34] electronic signature by Judiciary

| Judiciary | Reported cost of the signature in Mexican pesos | Cost in constant Mexican pesos 2021 | Year of acquisition of the signatur |
|---|---|---|---|
| Baja California | $4,127,692.18 | $5,558,098.14 | 2015 |
| Baja California Sur | $2,745,400.00 | $3,280,258.41 | 2017 |
| Mexico City* | $13,145,366.66 | $13,974,506.30 | 2020 |
| Coahuila | $4,000,000.00 | $4,252,298.67 | 2020 |
| State of Mexico | $10,000,000.00 | $11,948,198.48 | 2017 |
| Guanajuato | $4,000,000.00 | $5,784,029.26 | 2013 |
| Hidalgo* | $9,000,000.00 | $9,000,000.00 | 2021 |
| Tamaulipas | $1,500,000.00 | $2,426,028.29 | 2010 |
| **Average** | **$6,539,008.41** | **$7,027,927.19** | |
| **Median**[35] | **$4,127,692.18** | **$5,671,063.70** | |

*The Hidalgo Judiciary is in the process of implementing its own advanced electronic signature, but provided data on the cost of its acquisition.

**Source:** Own elaboration based on information requested from the judiciaries.

When comparing prices by Judiciary, it is observed that Mexico City and the State of Mexico are the ones that have acquired a signature for a higher cost than the average. However, the difference in costs could be due to several factors such as the brand of the signature acquired, its security (basic or more advanced) or the number of electronic certificates that can be issued[36].

On the other hand, it is important to remember that long-term costs could be higher since, in some cases, the purchase of the advanced electronic signature from a third party may include an annual policy that includes maintenance and support.

## 1.2. Case Tracking Systems or Case Management Systems

Case Management Systems (CMS) or Case Tracking Systems (CTS) are an essential tool for tracking cases within courts and tribunals. Their attributes include ensuring that each case has followed the proper procedure and having the potential to make the operation of courts and tribunals more efficient (Cordella and Contini, 2020).

**Case Management Systems or Case Tracking Systems are an essential tool for tracking cases within courts and tribunals.**

34 Given that the year of implementation of the signature has been different in each Judiciary, the cost reported was calculated in constant Mexican pesos, taking as a deflator the year in which it was originally implemented, in order to calculate its equivalent for the year 2021. The constant Mexican pesos are obtained through a process called "deflation" and allow the comparison of amounts over time by removing the effect of inflation.

35 In statistics, the median is a measure of central tendency and represents the value in the middle of a group or distribution of numbers.

36 Some providers offer unlimited issuance of electronic certificates, while others offer the possibility of issuing a certain number of certificates per year at a lower cost.

The functionalities of the tracking systems are varied and the extent to which they are more or less advanced depends on them.

Among the simplest systems are the case tracking systems, which are responsible for handling, managing and organizing the basic information of the case files. Their functionalities include assigning an identification code to each case, keeping a record of all case data, such as the names of the parties, case matter, type of trial, the subject matter of the case, etc. Generally these systems are the first step in developing more complex case management systems.

More advanced systems, which can be called case management systems, allow, in addition to the basic functionalities described above, the tracking of deadlines and terms, sending reminders to parties about specific events, organizing and tracking workloads, using case data to automatically fill out forms and randomly assigning cases, among others (Cordella and Contini, 2020; México Evalúa, 2020). These systems make it possible to automate certain tasks to make the work of the courts more efficient. Furthermore, they can be a first step in subsequently developing interoperable and publicly accessible platforms[37].

According to Cordella and Contini (2020), some of the benefits of the use of case management systems are the standardization of procedures, the reduction of errors that may result in procedural exceptions, the reduction of opportunities to voluntarily alter the file as a result of acts of corruption, the speeding up of administrative activities and the automatic generation of detailed statistical data on cases, among others.

These systems completely replace the written records that compiled the general information of each file and its procedural stages, known as government books, allowing officials to locate the data and location of a specific file. In addition, they replace the records of file exchanges between areas and/or officials, since each movement is recorded electronically in the system.

Table 6 shows a comparison of the main functionalities offered by case tracking and case management systems.

**Table 6.** Comparison of the most important functionalities of case management systems and case tracking systems

| Functionalities | Case Tracking System | Case Management System |
|---|---|---|
| It identifies each case through the assignment of a unique code. | ✓ | ✓ |
| It records chronologically all the cases in the judicial body. | ✓ | ✓ |
| It allows organizing case indexes by the names of the intervening parties in alphabetical order. | ✓ | ✓ |
| It allows the registration of each act of the procedure, deadlines and terms of each act or actions, subjects involved and other data. | | ✓ |
| It randomly assigns cases based on established criteria. | | ✓ |
| Provides real time information on the status of the procedures. | | ✓ |
| It has alerts to inform internal users when deadlines are due. | | ✓ |
| It allows sending reminders to the parties about deadlines, terms and other relevant information. | | ✓ |
| It automatically fills in templates and forms with information from the cases. | | ✓ |
| It keeps a calendar of hearings. | | ✓ |
| It automatically fills in templates and forms with information from the cases. | | ✓ |
| It organizes the work and the division of labor of officials and allows the supervision thereof. | | ✓ |
| It allows access to information from multiple locations. | | ✓ |
| It prepares detailed statistical reports. | | ✓ |
| It sends notifications to the parties. | | ✓ |

**Source:** Own elaboration based on Cordella and Contini (2020) and México Evalúa (2020).

37 Some case management systems have integrated the electronic record tool as one of their functionalities, in which, through a text editor, officials can write various documents, which are automatically digitalized and added to the electronic record for consultation by the parties through a platform set up for this purpose.

### 1.2.1. Implementation of case management systems in the judiciaries

Almost all the judiciaries (90.62%) claim to have at least one case management system for some matter[38]. However, very few have managed to deploy this type of system for all matters, courts and instances.

First, we note that the development of these case management systems has been heterogeneous and, to some extent, bumpy. Generally, the judiciaries have implemented multiple case management systems, with different functionalities depending on the matter and instance, which do not necessarily share information with each other. According to the interviews conducted, this is because they generally consider that it is not possible to implement a single case management system for all matters and instances, since the system must reflect each of the processes and requirements established in the procedural rules of each matter, which differ from one another.

Another reason why this development has been so fragmented is that this type of tool has been implemented according to the resources available or the existing capacities of the judiciaries. In other words, progress has been made in dribs and drabs, without necessarily having a comprehensive vision of the development of this type of tool. This, of course, poses challenges in terms of external interoperability, when these technological solutions were not developed to exchange information with those of other institutions or do not have the necessary technical conditions to do so.

However, some judiciaries have found ways to develop this type of system in an increasingly uniform manner. For example, during the interviews, it was identified that they tend to group case management systems into two sets, taking into account the similarity of the processes. Thus, in most cases there is a case management system used in civil, family and commercial matters —in its traditional aspect—, and another system or systems[39] used for the adversarial criminal system and the oral systems in family and commercial matters.

Another tendency is that these types of technological solutions have been implemented primarily in the courts of the capital city or those closest to it, where the heaviest workload is concentrated.

This situation has generated a differentiated technological development in two ways: between judiciaries and within each Judiciary. That is, while some judiciaries do not have any case management system or only have one for a specific matter[40], others have several case management systems for each of the matters and instances, which have been implemented in all judicial districts[41].

We identified three main causes that complicate the implementation of case management systems. On the one hand, the interviewees mentioned the lack of resources allocated to the area of technology, which is reflected in the impossibility of creating case management systems for each of the matters or of implementing such systems in all the courts, especially when they are located in the periphery. On the other hand, the lack of internet service in remote areas or areas whose orography does not allow it is another of the most common obstacles that prevent the implementation of existing case management systems in these places. Finally, the resistance of officials has also been one of the limitations to the comprehensive implementation of these case management systems[42].

38 If we consider that, according to Table 6, a case tracking system has only three functionalities (case identification through a unique code, chronological registry of cases filed and organization of indexes), 90.62% of the judiciaries have case management systems. However, differences were observed with respect to the functionalities of these systems by Judiciary. For example, the judiciaries with case management systems with the least functionalities (6 to 9) are those of Baja California Sur, Colima, Jalisco, Morelos, San Luis Potosí and Yucatán. On the other hand, the rest of the judiciaries have case management systems with 10 to 14 functionalities.

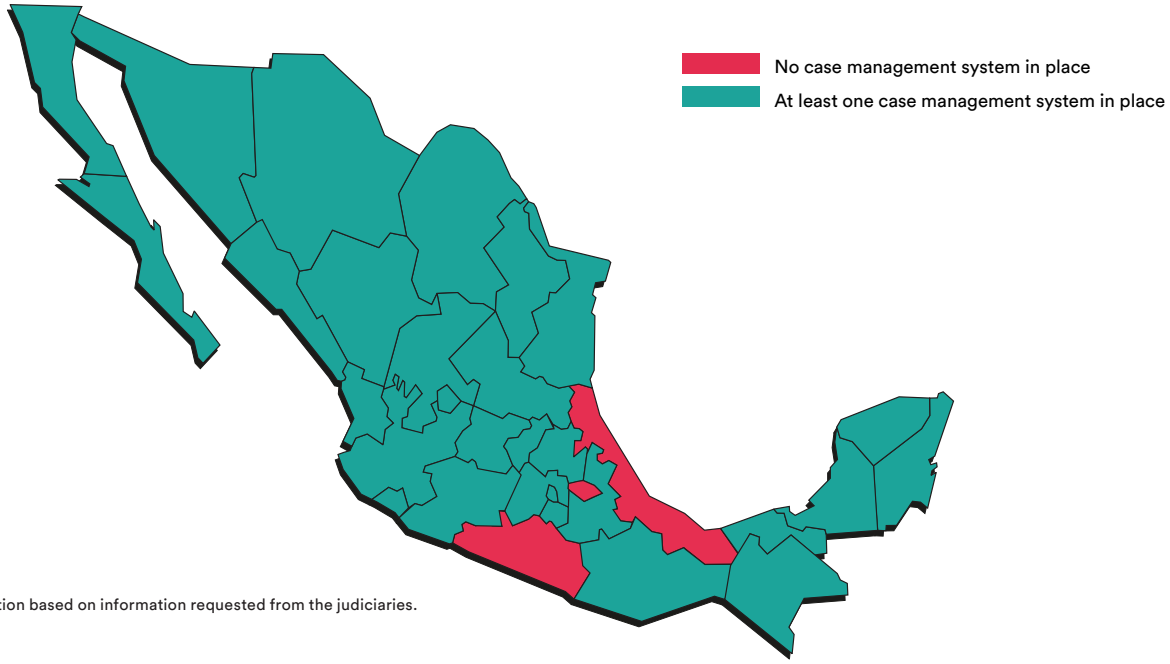
39 For example, the Querétaro Judiciary has only one system for the adversarial criminal system, which is called Single Computer System and is interconnected with the other institutions of the criminal justice system. But, in other cases, there are several systems. For example, the Guanajuato Judiciary has an oral criminal case management system, another for the execution of sanctions, another for alternative justice and another for adolescent justice.

40 This is the case of the judiciaries of Guerrero, Tlaxcala and Veracruz, which do not have a case management system, and the case of the Judiciary of Morelos, which has implemented a case management system only for oral commercial matters, which operates only in one court located in the capital.

41 Such is the case of the Judiciary of Guanajuato, which has 12 case management systems: for civil, family, commercial and criminal matters in their traditional first and second instance, family oral proceedings, commercial oral proceedings, criminal oral proceedings, execution of sanctions, traditional criminal proceedings for adolescents, criminal oral proceedings for adolescents, labor and alternative justice.

42 Some judiciaries mentioned that sometimes resistance within the courts is so great that they choose not to implement the case management system or that the system is implemented but the court officers do not use it.

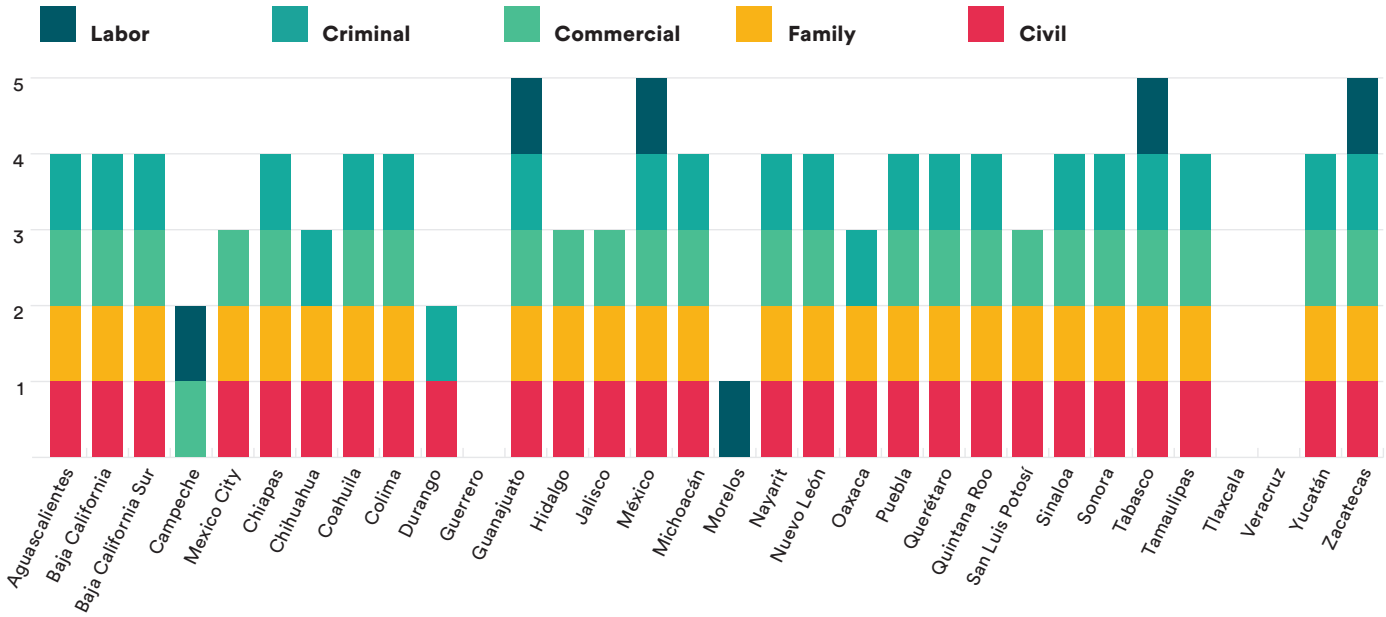
## **Map 2.** Judiciaries that have implemented at least one case management system in at least one matter, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

Consequently, as the following Graph shows, only 12.90% of the judiciaries have case management systems for all matters (civil, family, commercial, criminal and labor), but as mentioned above, this can be explained by the fact that the labor justice reform is still in progress. On the other hand, 51.61% of judiciaries have a case management system for civil, family, commercial and criminal matters. In addition, the subject matter in which a case management system has been implemented the most is the civil (90%), followed by family (86.66%), commercial (83.33%), criminal (80%) and labor (16.66%).

## **Graph 5.** Matters where a case management system has been implemented by Judiciary, 2020




**Source:** Own elaboration based on information requested from the judiciaries.

### 1.2.2. Year of implementation

Although most of the case management systems were implemented from 2008 onwards, some judiciaries, such as those of Guanajuato, Nuevo León, Oaxaca, Sonora, Tamaulipas and Zacatecas, have been using them for more than 20 years. One of the reasons for the acceleration of the adoption of this type of system as of that year is the reform of the Criminal Justice System[43]. In this regard, José Ricardo González, Head of the Information Technology and Telecommunications Directorate of the Judiciary of the State of Guanajuato, mentions the following:

> *Criminal orality is born and with it other needs such as how to create a case management system where the whole process of a trial is carried out, the procedural part, but which also generates an electronic record, which can be consulted by the parties, by the Public Prosecutor, by the Public Defender's Office, etcetera. Thus, the vision of what was previously a system just for the control of records begins to open up a little, right? But now we are starting to think about the external part, the external users, who may have access to all that information. A trigger for this was criminal orality and even there we changed technology. I remember that it was a desktop technology we had, with a desktop application, which we still have, but when criminal orality was born we thought of (...) a web application, so that any internal user of the Judiciary, be it judge, court officer, clerks, etc., could access the system from wherever they were* (J. R. González, personal communication, July 16, 2021).

### 1.2.3. Cost and development time for implementation of case management systems

Of the 29 judiciaries that reported having a case management system, the majority (65.51%) reported that it was developed internally; 17.21% reported a hybrid development —where some case management systems were purchased from a company and others developed internally—; 10.34% reported having purchased all case management systems from a company; and 6.89% developed it in collaboration with a higher education or research institution or other institutions[44].

The way in which technological solutions are developed could provide some clues as to the capacity of the judiciaries' technology departments to develop their own tools. It is likely that the judiciaries that purchased their case management systems did so because they do not have sufficient human resources or the necessary expertise to develop them. However, the purchase of software from external companies has certain disadvantages. First, although it may seem a more affordable solution in the short term, some interviewees warn that

**Figure 2.**Timeline of the year in which the first case management system was implemented in each Judiciary


**Source:** Own elaboration based on information requested from the judiciaries.

43 In 2008, the Criminal Justice System was reformed and a period of eight years was established for its coming into force throughout the country.

44 This is the case of the Baja California Sur Judiciary, which indicated that it was carried out in collaboration with a Higher Education Institution (without specifying which one), and of the San Luis Potosí Judiciary, which carried it out with the Potosí Institute of Scientific and Technological Research

the costs associated with maintenance can make these tools more expensive in the long term. Also, in some cases, it is very difficult to make changes to the software once the company delivers the final product, or they are very expensive.

On the other hand, when a Judiciary does not have many resources to develop case management systems, resorting to collaboration with other institutions (whether academic or other judiciaries) seems to be a good option[45]. During the interviews, we identified that some

**Table 7.** Type of case management system development by Judiciary

| Judiciary | Do you have at least one case management system? | Type of development |
|---|---|---|
| Aguascalientes | Yes | Internal |
| Baja California | Yes | Internal |
| Baja California Sur | Yes | Internal, in collaboration with other institutions |
| Campeche | Yes | External |
| Mexico City | Yes | Hybrid |
| Chiapas | Yes | Internal |
| Chihuahua | Yes | Internal |
| Coahuila | Yes | Hybrid |
| Colima | Yes | Hybrid |
| Durango | Yes | External |
| Guerrero | No | - |
| Guanajuato | Yes | Internal |
| Hidalgo | Yes | Internal |
| Jalisco | Yes | Internal |
| State of Mexico | Yes | Internal |
| Michoacán | Yes | Internal |
| Morelos | Yes | External |
| Nayarit | Yes | Internal |
| Nuevo León | Yes | Internal |
| Oaxaca | Yes | Internal |
| Puebla | Yes | Internal |
| Querétaro | Yes | Internal, in collaboration with other institutions |
| Quintana Roo | Yes | Internal |
| San Luis PotoYes | Yes | Internal, in collaboration with other institutions |
| Yesnaloa | Yes | Internal |
| Sonora | Yes | Internal |
| Tabasco | Yes | Internal |
| Tamaulipas | Yes | Internal |
| Veracruz | No | - |
| Yucatán | Yes | Internal |
| Zacatecas | Yes | Internal |

**Source:** Own elaboration based on information requested from the judiciaries.

45 In this regard, the Querétaro Judiciary is peculiar in that it indicated that the COSMOS model case management system is the product of a collaboration among all the justice institutions involved in the criminal justice chain, but its other systems were developed internally.

judiciaries had received visits from other judiciaries to learn how their case management systems work and to adopt best practices, and some had even shared their developments with their counterparts who adapted them to their needs.

This kind of inter-institutional collaboration could also take place jointly among the judiciaries within the framework of a platform such as CONATRIB, which could lead this type of effort aimed at the co-creation of case management systems[46] (México Evalúa, 2021).

Regarding the cost of creating and implementing their case management systems, most judiciaries did not provide information and indicated that it was impossible to calculate this data, since they were developed by the technology area over time, in addition to the fact that both human and material resources were shared among multiple projects.

The lack of clarity about the cost of case management systems is especially due to the fact that the technology departments that develop them do not usually have a specific budget for this purpose other than any human resources of that area. Despite this, it is important for technology departments to calculate their costs, since this implies recognizing and valuing the work done by the area, in addition to the fact that this data is essential for an adequate budget design.

On the other hand, although some judiciaries did provide information on the cost of this tool, we consider that the comparison can be confusing, first because the cost varies depending on whether the development was internal or external, the number of case management systems they have implemented and their functionalities. On the other hand, not all of them considered the same aspects when reporting costs. Some judiciaries reported an approximate cumulative cost of labor used during the development of all their case management systems, while others only reported the cumulative cost from a certain year onwards; others, in turn, shared an approximate cost but mentioned that some elements were donated and a few more mentioned that they received subsidies.

Lastly, regarding development time, most judiciaries indicated that the creation time was between one and two years. However, it is important to note that this time should only be taken as a reference since some judiciaries mentioned that this type of system is in constant development due to improvements, modifications or suggestions from users or unforeseen situations that arise as the system is used.

### 1.2.4. External interoperability of case management systems

External interoperability[47] is the characteristic that enables the systems of different organizations to exchange information and data, allowing them to "work together to achieve common goals" (Cordella and Contini, 2020, 40). In order to make systems interoperable, two important aspects must be taken into account: first, that case management systems have the characteristics that offer this information exchange and, second, that the technological tools implemented by the institutions have characteristics that allow the exchange of information, as well as the legal and institutional infrastructure necessary to make this exchange possible[48].

In case management systems, interoperability with external institutions is an essential feature that allows end-to-end and automatic information exchange between

**External interoperability is the characteristic that enables the systems of different organizations to exchange information and data.**

46 An example of this type of initiative has been the consortium created by the National Center for State Courts (NCSC) and formed by judiciaries from countries such as Nigeria, Trinidad and Tobago, Zambia, Namibia, Guyana and Barbados to give them access to an open-source case management system that was developed by the NCSC and improved by each member of the Consortium (Mexico Evalúa, 2021).

47 Although case management systems can interoperate internally, for example, from an area to a judicial body, this section only covers external interoperability, i.e., that exchange that occurs with other institutions outside the judiciaries.

48 Cordella and Contini (2020) mention that infrastructure is the foundation for operations and processes. The technical infrastructure refers to the standards, protocols and links that make the connection between systems possible. The legal infrastructure has to do with the regulations governing the institutions' communication and providing it with a legal basis. Finally, the institutional infrastructure refers to the administrative procedures and rules that enable the exchange of data (e.g., those that regulate the quality of the data that are collected and exchanged).

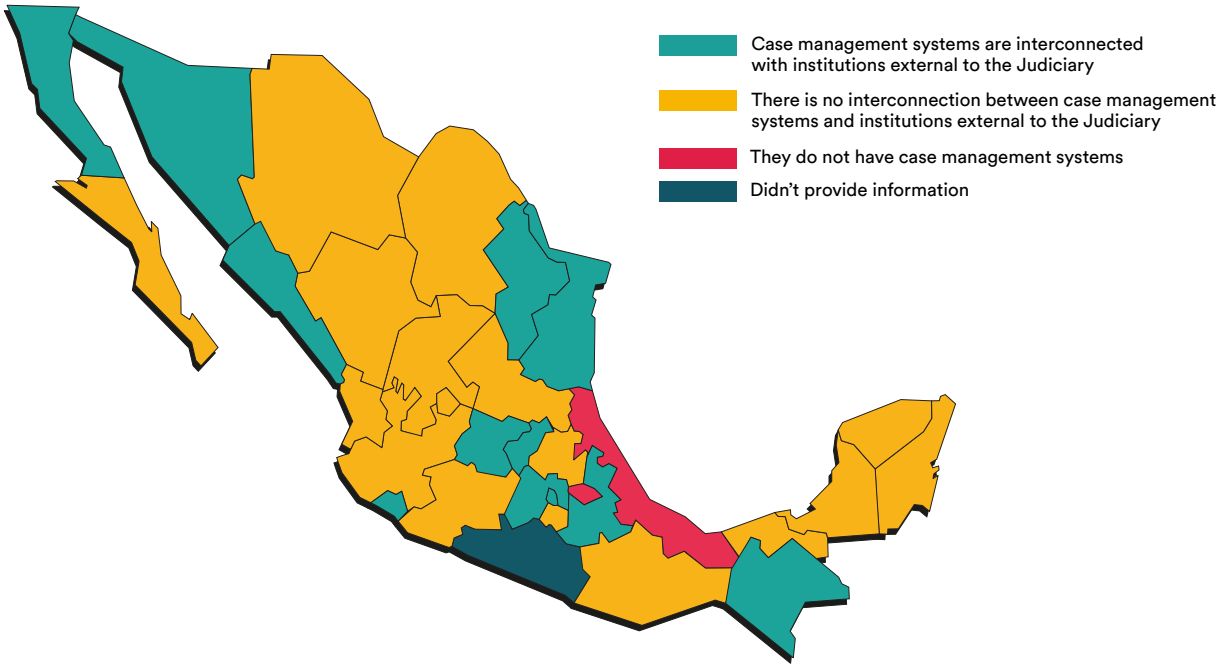
the Judiciary and these institutions, and generates a more fluid interaction between them. This feature can be present in the case management systems of any matter. For example, in civil matters, case management systems can be connected to agencies such as the Civil Registry or the Public Registry of Property, allowing them to access databases and exchange information. On the other hand, case management systems in criminal matters can be connected with institutions such as the Police, the District Attorney's Office, the Public Defender's Office, the Penitentiary System, etc., which is especially useful since the criminal process requires constant interaction between these institutional actors.

In Mexico, there is little interoperability of case management systems with institutions outside the Judiciary. Of the judiciaries that reported having a case management system, only 41.37% indicated that one of their case management systems is capable of connecting with another institution outside the Judiciary, such as justice institutions or other public administration agencies.

Among the judiciaries that do have this possibility is the Tamaulipas Judiciary, in which the case management system in civil and family matters is connected to the Civil Registry and the Public Registry of Property and Commerce. The system sends rulings to these institutions electronically, as well as the agreements that become final judgments, in order to guarantee the veracity of the information. In this regard, Arsenio Cantú Garza, Director of the Information Technology Department, mentions:

> *All that which is an official letter addressed to the Civil Registry, the agreement that becomes final judgment and the ruling —in addition to the fact that the attorney takes it in an envelope and it is delivered to him/her through mailboxes—, also arrives electronically to that agency external to us, we send it to them through a system we call procedural communication. So it arrives electronically. When the interested user goes to pay for his/her registration at the Civil Registry for his/her divorce certificate, for example, they see the documents that have a stamp and everything, but they can be forged. So, apart from the physical documents, they check them against what we send them electronically, which*

## **Map 3.** Interoperability of case management systems with institutions external to the Judiciary, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

> *has a guide with an identification number, a number. Then they can see that indeed it is something that was born in the court and comes from it, and it arrives directly to them* (A. Cantú Garza, personal communication, August 11, 2021).

Likewise, in the aforementioned Judiciary, the case management systems in criminal matters interoperate with the District Attorney's Office, the Public Defender's Office and the Victim Assistance Centers. In addition, an interconnection agreement was recently signed with the Federal Judiciary Council to exchange information on requests for defense with judicial bodies of the Federal Judiciary.

In the case of the State of Mexico Judiciary, the case management system for civil matters exchanges information with institutions such as the Institute of the Registry Function of the State of Mexico, the Civil Registry, IMSS, ISSSTE, among others. This has made it possible to make some procedures more efficient and reduce the time required. For example, in alimony trials, the Judiciary can consult the alimony debtor's salary directly in the IMSS database in order to determine the alimony amounts, thus avoiding sending an official letter and waiting about a month to receive a response.

As can be observed in the above examples, the ability of these systems to exchange information makes the process more efficient, which can lead to reducing case resolution times, and ensures the veracity of the information.

However, this interoperability is particularly difficult to achieve as it requires collaboration between different institutions that may have their own agendas and interests. Therefore, it often requires the signing of collaboration agreements.

Furthermore, in certain matters, such as criminal matters, the Judiciary does not necessarily control the process, but is just another institutional actor within the process (Cordella and Contini, 2020). An example of interoperability in the criminal justice system is the Single Computer System of the COSMOS model in Querétaro, which was developed by all the operating institutions of the Adversarial Criminal Justice System, which "handle the processes related to Investigation Files, court orders, complaints, precautionary measures, alternative solution agreements, victim assistance, etc." (Comisión para la Evaluación del Sistema Cosmos, n.d.). The creation of this system has required a solid collaboration between the different institutions and teamwork. In this regard, Carlos René Dinorín Mondragón, Director of Information Technology of the State of Querétaro Judiciary, mentions the following:

> *The support we have from the heads of the Judiciary, Executive Branch, this support and the fact that they have put their bets on the technological issue, is what in some way [has contributed to] Querétaro having a lot of development (...) For example, the COSMOS system has achieved this interaction. Between institutions we have precisely achieved this communion. That is to say, District Attorney's Office, Secretariat of Public Safety, Public Defender's Office, UMECAS, Judiciary (...) we have brought this communion to be able to develop what now exists in COSMOS (...) When the SIU (Sistema Informático Único [Single Computer System]) system was initially developed, the developers were together, from all the agencies I mentioned, and that made it much easier for us. "You, District Attorney's Office, what do you need? And I need, Judiciary, that you send me such data". And so on, among all of us. So, as developers, we were constantly meeting, the way of working was always as a team* (C. R. Dinorín Mondragón, personal communication, August 13, 2021).

However, institutional cooperation is only one of the obstacles to be overcome in order to achieve institutional interoperability. Some judiciaries that have not been able to achieve this interconnection point out that another major obstacle is the incompatibility of the technological tools used by some institutions and the incipient technological development of the Judiciary or of the institutions with which they intend to connect. For example, the absence of an electronic signature as a mechanism for authenticating the identity of both the sender and the receiver of the information in each of the institutions may hinder the interoperability of the systems.

Finally, even when agreements have been signed and the systems are interoperable, cases were mentioned of resistance from operators who prefer to continue exchanging physical documents instead of using the interoperable system.

**The ability of these systems to exchange information makes the process more efficient.**

## 1.3. Electronic record

Electronic record systems are those that provide a repository or archive of the procedural documents of a case. Among their functions is to provide the parties with information on the process through the visualization of procedural documents, such as audios, videos or transcripts of the various hearings (México Evalúa, 2020).

According to Contini and Cordella (2020), electronic records should also make it possible to initiate a judicial process, exchange procedural documents and send and receive notifications electronically. They even mention that for the file to be effective, it should exchange information with the case management system. However, they recognize that electronic records can also exist as a platform that is not linked to this type of system and that not all electronic records have the same functionalities, which is why they classify them in two: complete systems and partial systems.

For the purposes of this study, a classification of the different types of electronic record endemic to the judiciaries in Mexico is provided, and while it is recognized that a more advanced version of the electronic record may comprise a platform for filing lawsuits and motions, this type of tool is discussed in a separate section below.

Indeed, in Mexico, the electronic record tool is at an initial stage in most of the judiciaries. Although 25 judiciaries (equivalent to 78.13%) claim to have an electronic record in some matter, important differences were detected with respect to the characteristics and operation of this tool. In this way, it is possible to identify three types of electronic records:

1) Digitized record for internal use: these records are composed of procedural documents scanned directly from the printed record and are available only for consultation by judicial officers, meaning that they are for internal use.

2) Digitized record for internal and external use: they are those with the characteristics of a record for internal use, but which are also available to the parties. Generally, users can access the record through an electronic platform, but it is not possible to send or receive documents.

**Electronic record systems are those that provide a repository or archive of the procedural documents of a case.**

3) Advanced record: these are those records that constitute a repository of documents generated mainly electronically from the case management system itself or received through the lawsuits and/or motions platform or from interconnected systems of other institutions. However, they may also include scanned files of printed documents; for example, if one of the parties decides to file a motion in person at the Filing Clerk's Office. These records can be consulted by officials in the case management system or by users through a specific platform that generally allows the parties to send and receive procedural documents, although this is not always the case (for this reason, we review the platforms for sending and receiving lawsuits and motions in a separate section).

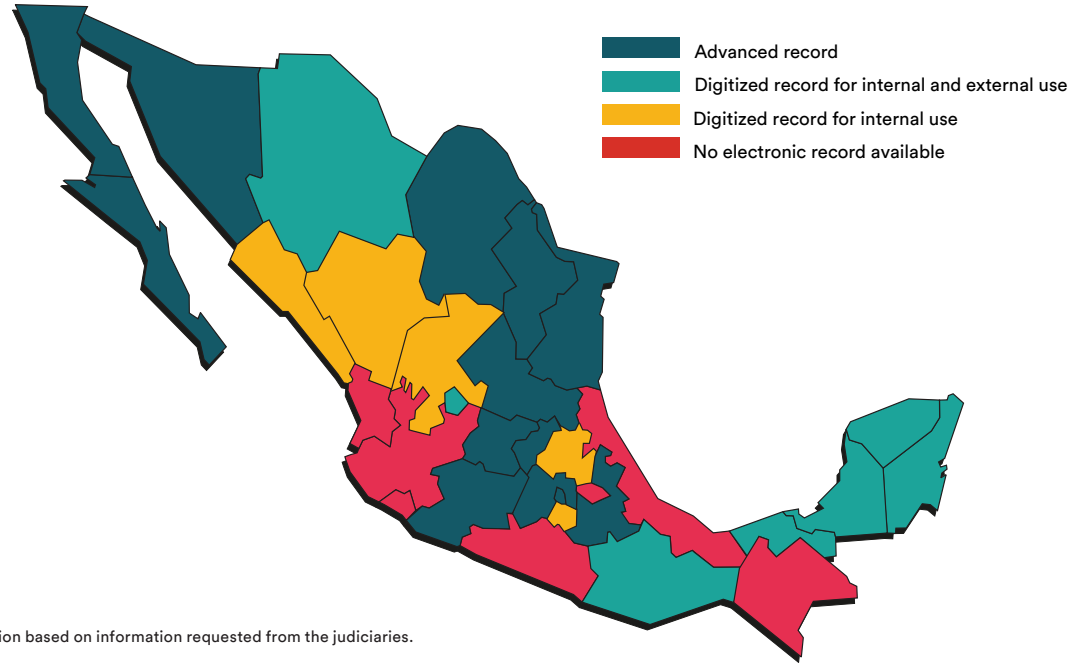
In this regard, it was identified that of the judiciaries that mentioned having an electronic record, 13 (52%) had an advanced electronic record[49], 7 had a digitized record for internal and external use (28%) and 5 (20%) had a digitized record available only to internal users.

Next is a map of the judiciaries according to the type of electronic record they have.

The difference between the different types of electronic records is important because it is their characteristics that define the type of functionalities and tasks that can be carried out with them.

49 Although the Nuevo León Judiciary has an advanced electronic record, it is only available for external use.

## **Map 4.** Use of electronic records by type, by Judiciary, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

As for the most basic electronic records composed of only scanned documents, the functionalities are extremely limited. The fact that this type of record contains files in image format makes searching for words or terms in the text complicated and sometimes impossible.

On the other hand, this type of record involves a challenge in terms of storage, since the documents are usually saved in image format, creating very heavy files. In this regard, Jeffrey Apperson, vice president for International Relations at the National Center for State Courts (NCSC) comments:

> *A larger drive space is needed for the images. Images are more difficult to manage. [To develop an electronic record], you have to start digitally, not scanning, but typing. Then, as you enter the information into the program, you archive that information and then you have more extraction capability [...] I know some companies are making scanning more digital, but I think it's better to start that way* (J. Apperson, personal communication, August 24, 2021).

The most advanced electronic records have greater functionalities. When they are connected, for example, to the case management system, the files generated by officials are automatically incorporated into the electronic record. This is possible because some case management systems have an integrated word processor (similar to Microsoft Office or OpenOffice) that allows documents to be generated from the system itself and integrated into the electronic record.

On the other hand, when electronic records are integrated to a platform that allows the exchange of procedural documents, the lawsuits and motions filed remotely by external users become part of the electronic record automatically, without the need to be scanned.

For these reasons, navigation in the text files is optimized since they are displayed in PDF format, which allows, in a simple way, searching by keywords and other terms, and also makes it possible to incorporate multimedia files such as audios and videos.

Finally, this type of platform also allows sending and receiving notifications electronically, as well as using an electronic signature to sign documents, without the need to print them, and with the guaranteed verification of the identity of the signer.

One of the judiciaries that has an advanced electronic record is the Tamaulipas Judiciary, which allows the consultation of the stage in which the process is, as well as viewing different procedural documents that make up the record —such as motions filed, agreements, actuarial records, among others—, in addition to video recordings of the hearings. This record also has a tool for filing motions electronically, requesting an appointment to go to court and even paying electronically for certified copies required by the parties[50].

As can be observed in the following Figure, the electronic record interface is divided into different sections to facilitate the location of documents. Although not all advanced records have this type of interface, it is desirable that the design be user-friendly and facilitate the location and search for information for internal and external users.

Lastly, 20 judiciaries (equivalent to 80% of those that mentioned having an electronic record) have implemented this consultation tool for external users, while the remaining five judiciaries (20%) use it exclusively for internal use.

Although we recognize that the effort made by the judiciaries to digitize the records is an important step

**Figure 3.** Demo version of the interface of the advanced electronic record in civil matters of the Tamaulipas Judiciary

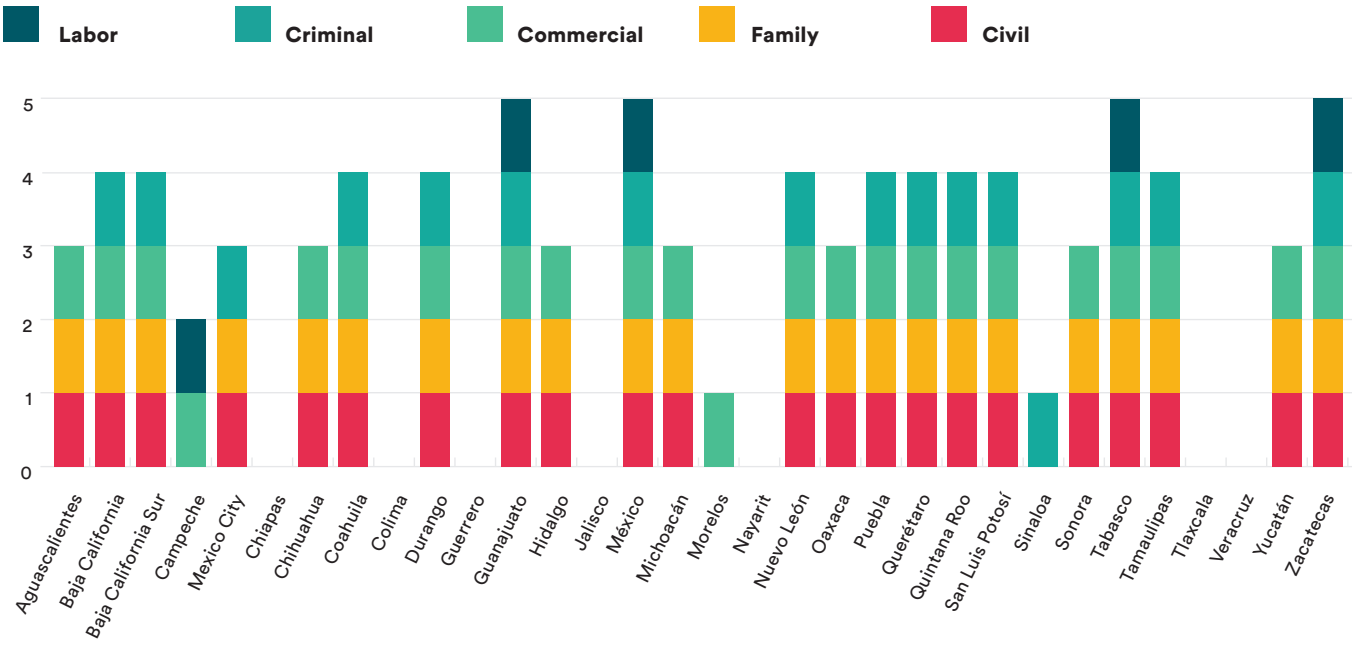

50 With this functionality, litigants can select the number of certified copies they require, the reason for which they need them and make the payment online. Subsequently, litigants must send a motion to the court requesting the issuance of the certified copies along with their payment receipt. Once the issuance of certified copies is authorized by the courts, a PDF document is generated with such copies, which can be viewed from the same platform. In order for the agencies receiving the copies to verify their validity, two mechanisms have been developed: the first consists of a section within the Electronic Court called "validation of digital certified copies", where the agencies enter the folio number of the copies; the second consists of verifying the validity of the documents by scanning the QR code of said copies.

towards creating functional electronic records, several further efforts must still be made to make them accessible to both internal and external users. The fact that the record can be consulted by the parties has great potential to broaden access to justice as well as to remove the obstacles that traditionally arise when parties want to access it. Consultation of records in the courts generally involves a considerable loss of time for users and can also be a place where bribes are solicited or offered. In addition, as will be seen in the next section, the electronic record should also allow for the exchange of procedural documents between the parties and the judicial body.

### 1.3.1. Matters in which the electronic record has been implemented

The implementation of the electronic record —as well as the case management system— has been heterogeneous within each Judiciary. Only four judiciaries have created an electronic record for each one of the matters and 10 more for the four matters, except for labor (whose implementation, as we have already said, is in progress). As can be observed in the following Graph, of the judiciaries that reported having an electronic record, 92% have one in commercial matters, 88% in civil and family matters, 64% in criminal matters and 20% in labor matters.

**Graph 6.** Matters in which the electronic record has been implemented by Judiciary, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

**The majority of judiciaries (72%) began implementing the electronic record from 2010.**

It is important to mention that there are different challenges depending on the matter in which the electronic record is to be implemented. In criminal matters, for example, where the parties have the right to access the digital folders with the record of the hearings, it is necessary to have the relevant tools to store and reproduce the multimedia files.

With the aim of safeguarding this file and making it available to the parties, the Guanajuato Judiciary has implemented a tool for safeguarding hearings, which has a remote viewer of hearings. This tool functions as a library that organizes each video by work center, record and type of hearing, and links it to the case management system, so that officials can upload it, classify it and associate it with the record number or criminal case. Once the video has been uploaded to the case management system, it is electronically signed by the judges who carried out the hearing to validate its authenticity.

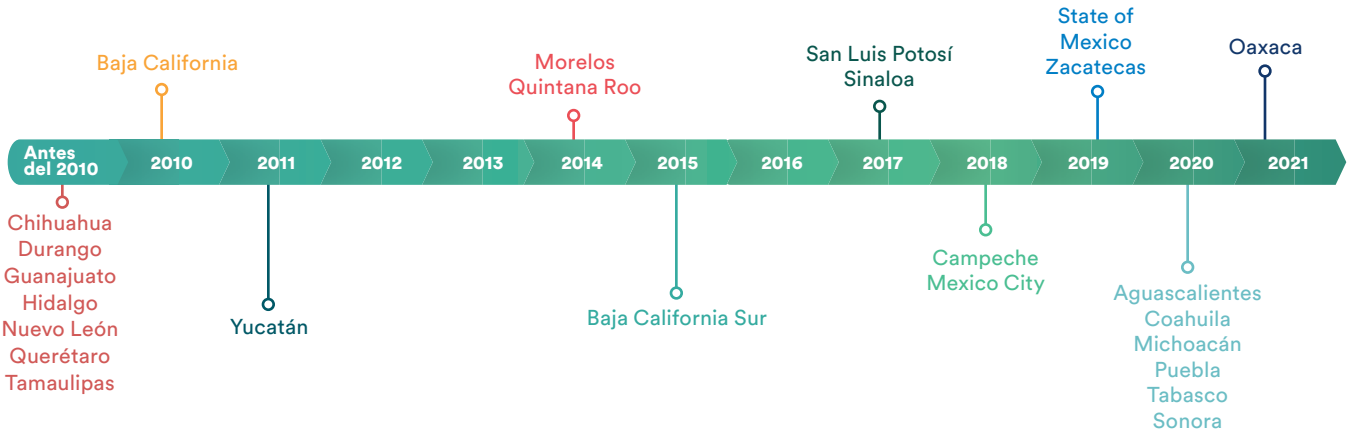
Subsequently, parties may request access to the recording of the hearing and view it through a mobile application or a web browser. The Head of the Information Technology and Telecommunications Department puts it this way:

> *When it is electronically signed, everything is concluded. And at that precise moment, if any party wants to have access to the hearing, they can be given that access and, through a mobile application or through a web browser, a document is issued to them, and they can view it. Through a mobile application, it only scans the QR code that generates that document and it can be seen by both the judge and the parties. Yes, in the app or through a browser, the only thing I need is to have that document issued by the court where there is a link, it has a PIN and has a QR code and a validity, which they can request access for a day, two days, a week, a month, there is no limit, but generally they give it for a certain limited time (...) Then I open my application, if I have it installed on my mobile device, my cell phone, my smartphone, if not, I download it. On Android it's on Play Store, and on iOS it's on App Store. The download is free. That mobile application also gives us other functions, not only to see the hearing, but also to give us the option to consult settlements, make requests, see my electronic record, see my notifications, etc.* (J. R. González, personal communication, July 16, 2021).

### 1.3.2. Year of implementation of the electronic record

The majority of judiciaries (72%) began implementing the electronic record from 2010. However, seven of the judiciaries already had this tool in place before that year. Additionally, there was a considerable increase in 2020 and 2021, years in which seven judiciaries implemented this tool (equivalent to 28% of the total number of judiciaries that said they had an electronic record).

**Figure 4.** Timeline of the year in which the electronic ecord was implemented by Judiciary




**Source:** Own elaboration based on information requested from the judiciaries.

### 1.3.3. Access to the electronic record

The mechanisms for accessing the electronic record ensure that the information can only be viewed by those authorized to do so. In this regard, the judiciaries have put in place various procedures for parties to access this tool. In general, two processes can be distinguished: those for accessing the consultation platform and those for accessing the specific record.

In order to access the platform, it is necessary to fill out a form with contact information through the platform itself and obtain a username and password. However, in some cases, this registration must be done through an in-person procedure in which, in addition to their personal data, the legal representative must present his/her professional certificate proving that he/she is an attorney.

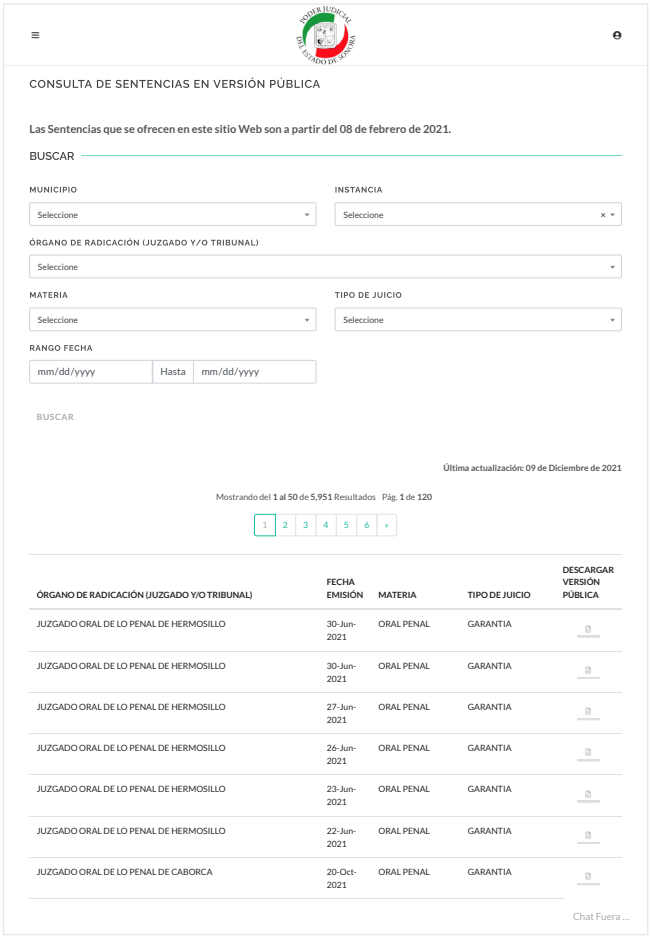
Once the user has a username and password, it is necessary to request access to the specific record from the court through a motion. In most cases it is the Rulings Clerk who, through the case management system, can grant access to users, as well as revoke permission from any attorneys who are no longer authorized to see the record.

It should be noted that in the Sonora Judiciary, in order to consult the electronic record, it is not necessary for the trial attorneys to file a motion in person, but rather from the platform itself it is possible to send a request for access that is subsequently answered by the court in question, and which may be tracked using the same platform (Supremo Tribunal de Justicia del Estado de Sonora, 2020).

Some heads of technology departments mentioned that this process of authenticating external users to grant and/or revoke permission to view a record is fundamental, as it ensures the security of the information and prevents unauthorized persons from viewing the record.

Most judiciaries allow both internal and external users to consult the electronic record by means of a username and password and in only three cases (Baja California, State of Mexico and Tamaulipas) access by external users is through advanced electronic signature, while in two of them, internal users also access by this means.

**Figure 5.** Module of the electronic record platform of the Sonora Judiciary to request access to a record




### 1.3.4. Elimination of paper records

A relevant aspect related to the use of the electronic record is the replacement of paper records. In 22 judiciaries (equivalent to 88% of those that have an electronic record), the electronic record has a paper copy and three of them[51] mentioned that only in some matters is the paper record still generated. The reason

51 These are the judiciaries of Guanajuato, State of Mexico and Nuevo León. The first two mentioned that for criminal matters (except in traditional criminal courts) the use of paper has almost been eliminated. Besides, the State of Mexico Judiciary also commented that for labor matters there are no paper records either. On the other hand, the Nuevo León Judiciary commented that any cases in Virtual Family Court do not have a physical record.

behind the use of the paper record, according to the interviewees, is the limitation of the regulations that require a physical record.

Therefore, some interviewees considered it important that the National Code of Civil and Family Proceedings eliminate this requirement to reduce the use of paper and toner, as can already be done in criminal and labor matters, as it could represent significant savings for the institution. Although we consider this to be a positive step towards the digitalization of justice, it is important that in this paradigm shift —in which the electronic record is the rule and not the exception— reflection be made as to in which cases and for what type of procedure or document there should be a paper[52] copy and alternative solutions be implemented —such as the establishment of modules with computer equipment in the judicial offices for consultation by external users—.

### 1.3.5 Cost and time of development

Regarding the cost of developing the electronic record, some judiciaries report that it was nil or, like the case management system, that it is not possible to calculate it because it was developed internally with shared resources for various projects or because there was no specific budget to develop it.

However, some judiciaries that developed it internally or externally did provide information, which is presented below.

In order to adjust the costs incurred by judiciaries that acquired it in past years, the cost in constant Mexican pesos as of 2021 is also reported. As may be observed, costs are variable depending on the type of electronic record, the number of matters covered and the capabilities of the IT department to develop this tool.

**Table 8A.** Cost of electronic record development by Judiciary

| Judiciary | Year of acquisition/ development | Type of record | Type of development | Cost reported in current Mexican pesos | Cost in constant Mexican pesos 2021 | Observations |
|---|---|---|---|---|---|---|
| Baja California | 2010 | Advanced electronic record for civil, family, commercial and criminal matters | Internal | $5,780,505.00 | $9,349,112.45 | |
| Campeche | 2018 | Advanced electronic record for commercial matters | Internal | $2,164,093.38 | $2,463,904.50 | Corresponds only to the electronic record of commercial matters |
| Coahuila | 2020 | Advanced electronic record for civil, family, commercial and criminal matters | Internal | $100,000.00 | $113,853.91 | The amount indicated corresponds only to the purchase of a server |
| Durango | 2009 | Digitized record for internal use in civil, family, commercial and criminal matters | External | $1,500,000.00 | $2,536,376.38 | |
| Guanajuato | 2009 | Advanced electronic record for civil, family, commercial, criminal and labor matters | Internal | $2,000,000.00 | $3,381,835.1 | |
| Hidalgo | 2009 | Digitized record for internal use in civil, family and commercial matters | Internal | $6,500,000.00 | $10,990,964.30 | |

52 For example, records could be kept when one or both parties do not have the means to access the electronic record and want to consult it physically. On the other hand, judicial resolutions such as rulings should keep a paper copy, especially in criminal matters when it is necessary to communicate such resolution to the accused who is in custody.

**Tabla 8B.** Cost of electronic record development by Judiciary

| Judiciary | Year of acquisition/ development | Type of record | Type of development | Cost reported in current Mexican pesos | Cost in constant Mexican pesos 2021 | Observations |
|---|---|---|---|---|---|---|
| State of Mexico | 2019 | Advanced electronic record for civil, family, commercial, criminal and labor matters | Internal | $1,458,510.96 | $1,594,429.76 | |
| Morelos | 2014 | Digitized record for internal use in commercial matters | External | $5,694,286.00 | $7,884,695.21 | |
| Nuevo León | 2009 | Advanced electronic record for civil, family, commercial and criminal matters | External | $8,000,000.00 | $13,527,340.68 | |
| San Luis Potosí | 2017 | Advanced electronic record for civil, family, commercial and criminal cases | Internal | $4,230,000.00 | $5,054,087.96 | |
| Sinaloa | 2017 | Digitized record for internal use in criminal matters | Internal | $18,793,605.00 | $22,454,972.26 | |
| Tamaulipas | 2009 | Advanced electronic record for civil, family, commercial and criminal matters | Internal | $420,000.00 | $5,460,000 | The cost reported in the first column corresponds only to the annual lodging payment; in the second column the total cost of the lodging payment from 2009 to 2021 is calculated |

**Source:** Own elaboration based on information requested from the judiciaries.

Regarding the development time of the electronic record, most judiciaries mentioned that it took from one to two years. Regarding the type of development, it was identified that in 19 judiciaries the technology department oversaw the development (75%), in one Judiciary (4%) the development was hybrid, that is, one was developed internally and another acquired externally[53], three judiciaries acquired it externally (12%)[54] and two (8%) developed it in collaboration with other institutions[55].

### 1.3.6 Number of users, consultations and notifications through the electronic record

Regarding the use of this tool, statistical data on its use by external users is presented below. Variations in the data between judiciaries could be due to several factors such as the number of matters in which this record is used, its year of implementation and the number of cases filed.

53 This is the Campeche Judiciary, which stated that the electronic record tool in commercial matters had been acquired externally and the electronic record in labor matters had been developed internally.

54 These are the judiciaries of Mexico City, Durango and Morelos.

55 The San Luis Potosí Judiciary indicated that the electronic record had been developed in collaboration with a multidisciplinary technical team from the Potosí Institute of Scientific and Technological Research. On the other hand, the Yucatán Judiciary mentioned that it had been developed with IT employees in coordination with the technical staff of the Merida Initiative project.

First, it is noted that the number of external users registered to view the electronic record remotely has increased exponentially over the past two years. From 16,314 external users registered to view the electronic record in 2018, it has now gone to 300,603 users, representing a growth rate of 1,742.6%.

As can be observed in Table 9, in some judiciaries the increase is even greater. For example, in Puebla it is 16,439% and in the State of Mexico it is 6,638.71%. On the other hand, while the average growth rate of external users registered to review the electronic record between 2018 and 2019 was 55.68%, between 2019 and 2020 it increased to 934.53%, and between 2020 and June 30, 2021, this increase was 541.41%.

These data undoubtedly reflect the effect of the pandemic and the closing of courts and tribunals, but they

**Table 9.** Number of external users registered to consult the electronic record by Judiciary, 2021

| Judiciary | Type of electronic record | Use | 2018 | 2019 | 2020 | 2021 (January to June) | Total registered users |
|---|---|---|---|---|---|---|---|
| Aguascalientes | Digitized record | Int. y Ext. | N/A | N/A | 694 | 779 | 1473 |
| Baja California | Advanced record | Int. y Ext. | 81 | 140 | 3990 | 1172 | 5383 |
| Baja California Sur | Advanced record | Int. y Ext. | 1,858 | 404 | 2,365 | 960 | 5,587 |
| Campeche | Digitized record | Int. y Ext. | N/A | N/A | 2 | 211 | 213 |
| Mexico City | Advanced record | Int. y Ext. | N/A | N/A | 37,360 | 54,204 | 91,564 |
| Chihuahua* | Digitized record | Int. y Ext. | 1,071 | 1,382 | 1,976 | 1,615 | 20,637 |
| Coahuila de | Advanced record | Int. y Ext. | 0 | 531 | 2,132 | 805 | 3,468 |
| Durango | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Guanajuato* | Advanced record | Int. y Ext. | 1,008 | 1,357 | 1,556 | 1,040 | 14,861 |
| Hidalgo | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| State of Mexico* | Advanced record | Int. y Ext. | 806 | 5,276 | 26,165 | 18,905 | 54,314 |
| Michoacán* | Advanced record | Int. y Ext. | 42 | 59 | 1,347 | 286 | 1,818 |
| Morelos | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Nuevo León* | Advanced record | External | 7,374 | 8,320 | 9,174 | 8,479 | 28,025 |
| Oaxaca | Digitized record | Int. y Ext. | 0 | 0 | 0 | 1,591 | 4,964 |
| Puebla* | Advanced record | Int. y Ext. | 221 | 418 | 24,858 | 10,234 | 36,553 |
| Querétaro* | Advanced record | Int. y Ext. | 1,549 | 1,848 | 2,580 | 1,398 | 7,255 |
| Quintana Roo* | Digitized record | Int. y Ext. | 415 | 238 | 626 | 451 | 5,917 |
| San Luis Potosí* | Advanced record | Int. y Ext. | 985 | 742 | 2,829 | 1,167 | 5,729 |
| Sinaloa | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Sonora | Advanced record | Int. y Ext. | 0 | 0 | 5247 | 1070 | N/A |
| Tabasco | Digitized record | Int. y Ext. | N/A | N/A | 0 | 770 | 770 |
| Tamaulipas | Advanced record | Int. y Ext. | 443 | 422 | 2,195 | 560 | 7,088 |
| Yucatán | Digitized record | Int. y Ext. | 461 | 559 | 1,390 | 574 | 6,457 |
| Zacatecas | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| **Total** | | | **16,314** | **21,696** | **120,545** | **104,422** | **300,603** |

*In the case of the judiciaries that implemented the electronic record before 2018, the total number of users is bigger than the aggregate of the ones reported between 2018 and 2021.
**Source:** Own elaboration based on information requested from the judiciaries.

also show the high level of acceptance and demand by the legal profession nowadays. Therefore, it is urgent that any judiciaries that do not have an electronic record develop one and that those that do have a digitized one for internal use, allow external users to consult it.

On the other hand, in addition to the number of registered users, we also requested from judiciaries the number of consultations of the electronic record. However, most of them do not keep a record of this data. Next, we present the number of consultations of the judiciaries that did provide information.

**Table 10.** Number of consultations made of the electronic record by external users 2019-2021

| Judiciary | Type of electronic record | Type of use | 2018 | 2019 | 2020 | 2021 (January to June) | Total |
|---|---|---|---|---|---|---|---|
| Aguascalientes | Digitized record | Int. y Ext. | N/A | N/A | S/I | S/I | S/I |
| Baja California | Advanced record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| Baja California Sur* | Advanced record | Int. y Ext. | 2,601 | 2,435 | 9,037 | 5,036 | 23,274 |
| Campeche | Digitized record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| Mexico City | Advanced record | Int. y Ext. | N/A | N/A | 1,783 | 185,727 | 187,510 |
| Chihuahua* | Digitized record | Int. y Ext. | 4,024,449 | 4,894,331 | 4,362,756 | 3,627,089 | 33,975,131 |
| Coahuila | Advanced record | Int. y Ext. | N/A | 1,750 | 57,395 | 318,936 | 378,081 |
| Durango | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Guanajuato* | Advanced record | Int. y Ext. | 75,580 | 92,103 | 111,833 | 86,981 | 1,147,365 |
| Hidalgo | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| State of Mexico | Advanced record | Int. y Ext. | 4,525 | 178,984 | 3,551,950 | 5,861,352 | 9,596,811 |
| Michoacán | Advanced record | Int. y Ext. | S/I | S/I | 9,869 | 12,154 | 22,023 |
| Morelos | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Nuevo León* | Advanced record | External | 7,763,556 | 8,708,772 | 7,787,054 | 5,618,344 | 98,662,810 |
| Oaxaca | Digitized record | Int. y Ext. | N/A | N/A | N/A | 700 | 700 |
| Puebla | Advanced record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| Querétaro | Advanced record | Int. y Ext. | 3,030,967 | 3,250,468 | 3,306,729 | 1,165,245 | 10,753,409 |
| Quintana Roo | Digitized record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| San Luis Potosí | Advanced record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| Sinaloa | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Sonora | Advanced record | Int. y Ext. | N/A | N/A | N/A | 148,406 | 148,406 |
| Tabasco | Digitized record | Int. y Ext. | N/A | N/A | N/A | 348 | 348 |
| Tamaulipas* | Advanced record | Int. y Ext. | 1,266,187 | 1,544,023 | 2,901,293 | 3,043,275 | 10,741,655 |
| Yucatán* | Digitized record | Int. y Ext. | 206,297 | 214,659 | 322,471 | 253,214 | 1,833,653 |
| Zacatecas | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| **Total** | | | **16,374,162** | **18,887,525** | **22,422,170** | **20,326,807** | **167,471,176** |

*In these judiciaries, the electronic record was implemented before 2018, so the total number of consultations is bigger than the aggregate of the ones reported between 2018 and 2021.
**Source:** Own elaboration based on information requested from the judiciaries.

As can be observed, the number of consultations of the electronic record between 2018 and 2019 increased with a growth rate of 15.35% in the judiciaries that reported the data; in a similar way, the growth rate in 2020 with respect to the previous year was 18.71%. From the data obtained, it also emerged that in the judiciaries of Mexico City, Coahuila and the State of Mexico, the number of consultations grew considerably from 2020 to the first half of 2021.

Regarding the number of notifications made electronically[56], the Mexico City Judiciary mentioned that it did not keep a record of this, while others did not report the data. However, in the judiciaries of the states that did provide information, an increase in the number of notifications was observed in 2020 with respect to the previous year, being particularly notable in the judiciaries of the State of Mexico, San Luis Potosí, Sonora,

**Table 11.** Number of notifications made electronically by Judiciary from 2018-2021

| Judiciary | Type of electronic record | Type of use | 2018 | 2019 | 2020 | 2021 (January to June) | Total |
|---|---|---|---|---|---|---|---|
| Aguascalientes | Digitized record | Int. y Ext. | 163,918 | 192,563 | 173,409 | 110,468 | 640,358 |
| Baja California | Advanced record | Int. y Ext. | 365,603 | 452,007 | 363,294 | 414,480 | 1,595,384 |
| Baja California Sur | Advanced record | Int. y Ext. | 8 | 13 | 66 | 102 | 189 |
| Campeche | Digitized record | Int. y Ext. | N/A | N/A | 42 | 9,480 | 9,522 |
| Mexico City* | Advanced record | Int. y Ext. | N/A | N/A | S/I | S/I | S/I |
| Chihuahua | Digitized record | Int. y Ext. | 110,978 | 153,133 | 125,211 | 94,540 | 483,862 |
| Coahuila | Advanced record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| Durango | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Guanajuato | Advanced record | Int. y Ext. | 205,454 | 258,130 | 249,981 | 202,382 | 915,947 |
| Hidalgo | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| State of Mexico | Advanced record | Int. y Ext. | 3,175 | 21,472 | 42,640 | 56,225 | 123,512 |
| Michoacán | Advanced record | Int. y Ext. | 932 | 1,449 | 5,397 | 10,468 | 18,246 |
| Morelos | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Nuevo León | Advanced record | External | 1,646,639 | 1,941,589 | 1,562,678 | 1,180,602 | 6,331,508 |
| Oaxaca | Digitized record | Int. y Ext. | 65 | 78 | 7,847 | 18,931 | 26,921 |
| Puebla | Advanced record | Int. y Ext. | 7,320 | 9,238 | 155,006 | 210,900 | 382,464 |
| Querétaro | Advanced record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| Quintana Roo | Digitized record | Int. y Ext. | 132,214 | 109,653 | 86,485 | 88,741 | 417,093 |
| San Luis Potosí | Advanced record | Int. y Ext. | 85 | 94 | 2,002 | 3,309 | 5,490 |
| Sinaloa | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| Sonora | Advanced record | Int. y Ext. | 1,191 | 2,375 | 50,592 | 34,912 | 89,070 |
| Tabasco | Digitized record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| Tamaulipas | Advanced record | Int. y Ext. | 3,766 | 6,224 | 38,603 | 57,261 | 105,854 |
| Yucatán | Digitized record | Int. y Ext. | S/I | S/I | S/I | S/I | S/I |
| Zacatecas | Digitized record | Internal | N/A | N/A | N/A | N/A | N/A |
| **Total** | | | **2,641,348** | **3,148,018** | **2,863,253** | **2,492,801** | **11,145,420** |

*In these judiciaries, the electronic record was implemented before 2018, so the total number of consultations is bigger than the aggregate of the ones reported between 2018 and 2021.
**Source:** Own elaboration based on information requested from the judiciaries.

56 Electronic notifications can be made through the electronic record or through an external platform. However, the judiciaries did not detail whether there was an additional platform or whether these were made exclusively through the electronic record.

Oaxaca, Puebla and Tamaulipas. Also noteworthy is an increase in the number of electronic notifications in the judiciaries of Campeche, Michoacán and Oaxaca during the first half of 2021.

## 2. Tools for remote processing and consultation of cases

### 2.1. Platform to file lawsuits and/or motions remotely

Platforms for sending and receiving lawsuits and/or motions are automated systems that allow the asynchronous exchange of documents between the judicial bodies and the parties to a particular case. Although some authors study these platforms as one more functionality of electronic records (Cordella and Contini, 2020), this type of platform may or may not be integrated to the electronic record system. This situation may be observed in the case of the judiciaries in Mexico, where two of them (those of Chiapas and Colima) stated that their platform was not linked to the electronic record.

That is why in this section the existence of these platforms is analyzed separately from the electronic record, although we recognize the importance of these tools being connected to each other to provide a more fluid exchange of data and information and to make the functioning of this tool more efficient.

On the other hand, it is important to note that in the context of the COVID-19 pandemic, this type of tool was especially useful in resuming the administration of justice. However, some judiciaries that did not have them came up with alternatives to receive various documents. In this regard, the judiciaries of Baja California Sur, Campeche[57], Querétaro *(Acuerdo del Consejo de la Judicatura, 2020) and Sinaloa (Acuerdo por el que se expiden los lineamientos para la recepción de promociones y notificaciones vía electrónica de los órganos jurisdiccionales de primera instancia del Poder Judicial del Estado de Sinaloa,* 2020)[58] enabled the receipt of lawsuits and/or motions via e-mail[59]. On the other hand, several judiciaries installed mailboxes outside the Filing Clerk's Office so that parties could file lawsuits and/or motions without having physical contact with the officials (México Evalúa, 2020).

**Platforms for sending and receiving lawsuits and/or motions are automated systems that allow the asynchronous exchange of documents between the judicial bodies and the parties to a particular case.**

#### 2.1.1. Implementation of the platform for sending lawsuits and/or motions

So far, 16 judiciaries have implemented a platform to receive lawsuits and/or motions, and two mentioned that they are in the process of developing one[60]. It is worth noting that, of the total number of judiciaries that have implemented one, 10 have the possibility of receiving both lawsuits and motions, while the remaining six can only receive electronic motions.

Next a map of the adoption of these tools by Judiciary is shown.

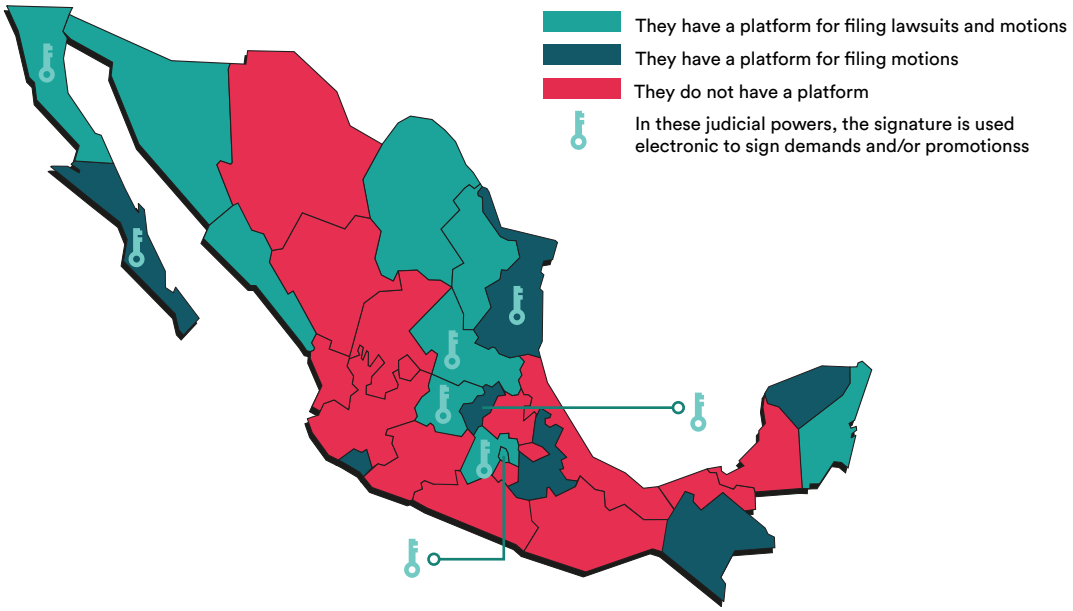
57 Although the judiciaries of Baja California Sur and Campeche indicated in the questionnaire that they had enabled the possibility of receiving lawsuits and/or motions by email, the respective agreement was not located.

58 Although these judiciaries mentioned having this possibility, only the Judiciaries of Querétaro and Sinaloa provided data on the number of lawsuits and motions received by email. The Querétaro Judiciary reported a total of 37 lawsuits from 2020 to June 2021; however, regarding motions, a total of 7,780 were received by email (4,436 from January to June 2021 and 3,346 in 2020). For its part, the Sinaloa Judiciary reported having received 73 lawsuits by email (37 from January to June 2021 and 36 during 2020).

59 Although at first glance the receipt of lawsuits and/or motions by email might seem a more practical solution than the development of platforms for the receipt of these documents, in general the platforms have mechanisms that allow the identification of users, as well as other ways of guaranteeing the secure sending of the documents.

60 The Yucatán Judiciary and the Tlaxcala Judiciary mentioned that they are developing this type of platform.

## **Map 5.** Use of platform for filing lawsuitsand/or motions, by Judiciary, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

It is worth remembering that traditionally it is a court officer with public faith who is in charge of processing any lawsuits and motions in courts and tribunals, as well as verifying the identity of the parties and their legal representatives by means of the physical presentation of an official identification. This is why this type of platform must contemplate a mechanism that allows the verification of the identity of the persons who present the documents, such as the advanced electronic signature[61]. In the case of lawsuits, this represents greater challenges since the lawsuit is the document that initiates an action and requires the presentation of a series of additional documents[62], in addition to the fact that it must be submitted to the relevant court and admitted by the judicial body in order to assign a file number. In the case of the submission of motions, the process is relatively simpler since the identity of the parties has already been verified and a file number has already been assigned[63].

It is important to highlight that only eight judiciaries[64] require users to use the electronic signature to sign their lawsuits and/or motions[65]. On the other hand, as mentioned above, the platform for filing lawsuits and/or motions may or may not be integrated with the electronic record, which facilitates the exchange of information. In this regard, 14[66] of the 16 judiciaries that have a platform indicated that it is connected to the electronic record system.

61 Some judiciaries that do not have an advanced electronic signature allow parties to sign documents by handwriting and scanning the signed document..

62 The documents on which the plaintiff bases its right, the power of attorney that proves the personality of the legal representative, as well as the documents of proof.

63 For example, the judiciaries of Guanajuato and Querétaro stated that, at the moment, it was only possible to receive motions without addendums. In this regard, they explained that in order to receive addendums, it was necessary to specify the type of addendum attached, which could not be done on the platform (for example, if it was a copy of the original document or a certified copy), in addition to verifying that the documents corresponded to the description.

64 These are the judiciaries of Baja California, Baja California Sur, Mexico City, State of Mexico, Guanajuato, Querétaro, San Luis Potosí and Tamaulipas

65 In the case of the Querétaro Judiciary, although the parties may sign the motions with the FIREL signature, not having it is not an impediment, since it is also possible for them to send digitalized motions in which they include their handwritten signature.

66 These are the judiciaries of Baja California, Baja California Sur, Mexico City, Coahuila, Guanajuato, State of Mexico, Nuevo León, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Sinaloa, Sonora and Tamaulipas

## In 11 judiciaries, the authentication mechanism is through a username and password and, in the remaining five, the entry is done with an electronic signature.

Now, regarding the process that users must follow to access this platform, we find that, in 11 judiciaries, the authentication mechanism is through a username and password and, in the remaining five, the entry is done with an electronic signature.

Next, we offer some examples of the process that users must follow in order to access these platforms and send lawsuits and/or motions in different judiciaries.

Last year, the Nuevo León Judiciary enabled the Virtual Filing Clerk's Office[67], which allows parties to send lawsuits and motions. To access this platform, users need a username and password —the same one they use to access the Virtual Court—. In addition, this platform has a double check mechanism, which sends a confirmation message to the email address or cell phone number that users have registered so that they can verify their access. Subsequently, the user accesses the module for filing lawsuits and motions and, if it is a lawsuit, fills out a form with general information —such as district, matter and type of trial—, attaches the lawsuit and any corresponding addendums in PDF format and clicks send. It should be noted that the plaintiff may follow up on the same platform and know whether it has been admitted or rejected (D. Olaguíbel Aguilar, personal communication, June 20, 2021).

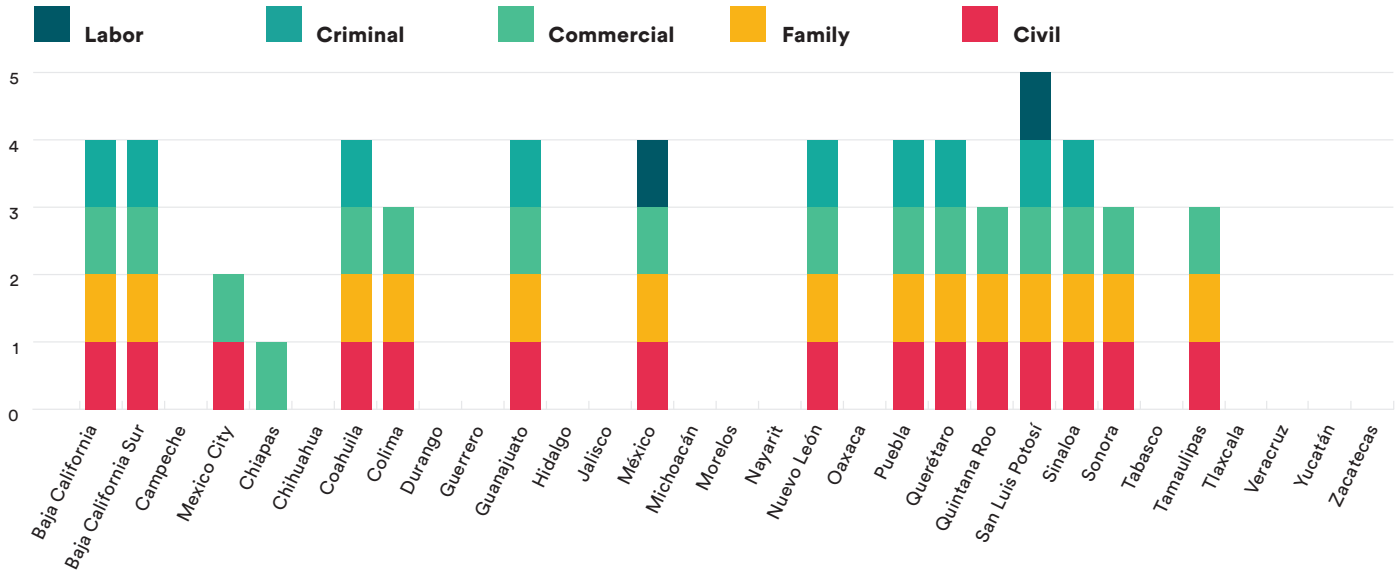
The process is similar in the Guanajuato Judiciary, where, once the interested party has requested authorization to submit motions electronically and its account has been associated with the corresponding electronic record number, it can enter the platform, select the record to which it wants to send the motion and upload it. However, unlike other judiciaries, in Guanajuato it is required to use an advanced electronic signature to send motions. In this regard, the Head of the Information Technology and Telecommunications Directorate of this Judiciary points out:

> *The only thing they [the attorneys] have to comply with is to have their electronic signature because even if they do not have it, they cannot file the motion. That and another requirement is that they are part of the record, in such a way that (...) it is not open to the public. In other words, I cannot enter my platform (...) and send motions to everyone. No, what we did was to close that channel (...) The subscribers have a mailbox and in that mailbox they have access to certain numbers of records, so we hunt for them there, that is, we use that information to tell them: "Attorney, you have this number of records, you can send that motion to them", and that helped us a lot* (J. R. González, personal communication, July 16, 2021).

The implementation of the platforms for sending lawsuits and/or motions, as well as other tools, was carried out in a heterogeneous manner in the judiciaries. As can be noted in the following Graph, the 16 judiciaries that have implemented this tool have done so in family matters, 15 (93.33%) in civil matters, 14 (86.67%) in commercial matters, 9 (60%) in criminal matters and 2 (13.33%) in labor matters.

67 Before the creation of the Virtual Office of Parties, the Virtual Court had already permitted the receipt of electronic motions. Thus, the Virtual Office of Parties expanded the service so as to receive lawsuits as well.

**Graph 7.** Matters in which it is possible to file lawsuits and/or motions by Judiciary, 2021



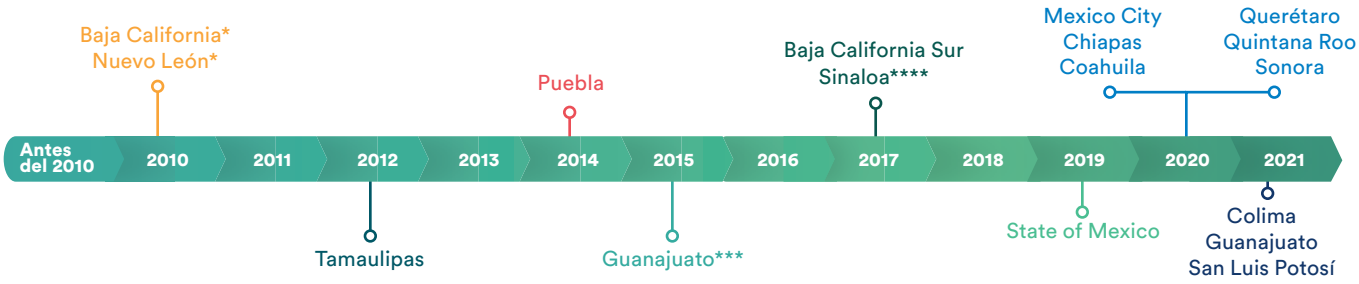

**Source:** Own elaboration based on information requested from the judiciaries.

### 2.1.2. Year of implementation

Just over half of the platforms for sending lawsuits and/or motions were implemented during the pandemic (56.25%), although the first to do so (Nuevo León and Baja California) date back to 2010. For their part, the judiciaries of Yucatán and Tlaxcala stated that they are in the process of developing their own.

This growth is evidence of the impact that the health crisis has had on the implementation of this type of platform. In fact, some judiciaries mentioned that although they had considered the possibility of implementing one at some point, the pandemic forced them to develop one in order to provide access to litigants. For example, in the case of the judiciaries of Nuevo León and Guanajuato, although they had implemented several years ago a platform with the option of sending motions (in the case of Nuevo León) and lawsuits (in the case of Guanajuato), it was in 2020 that they began to offer the possibility of receiving both types of writs.

**Figure 6.** Year of implementation of platforms to send awsuits and/or motions remotely by Judiciary

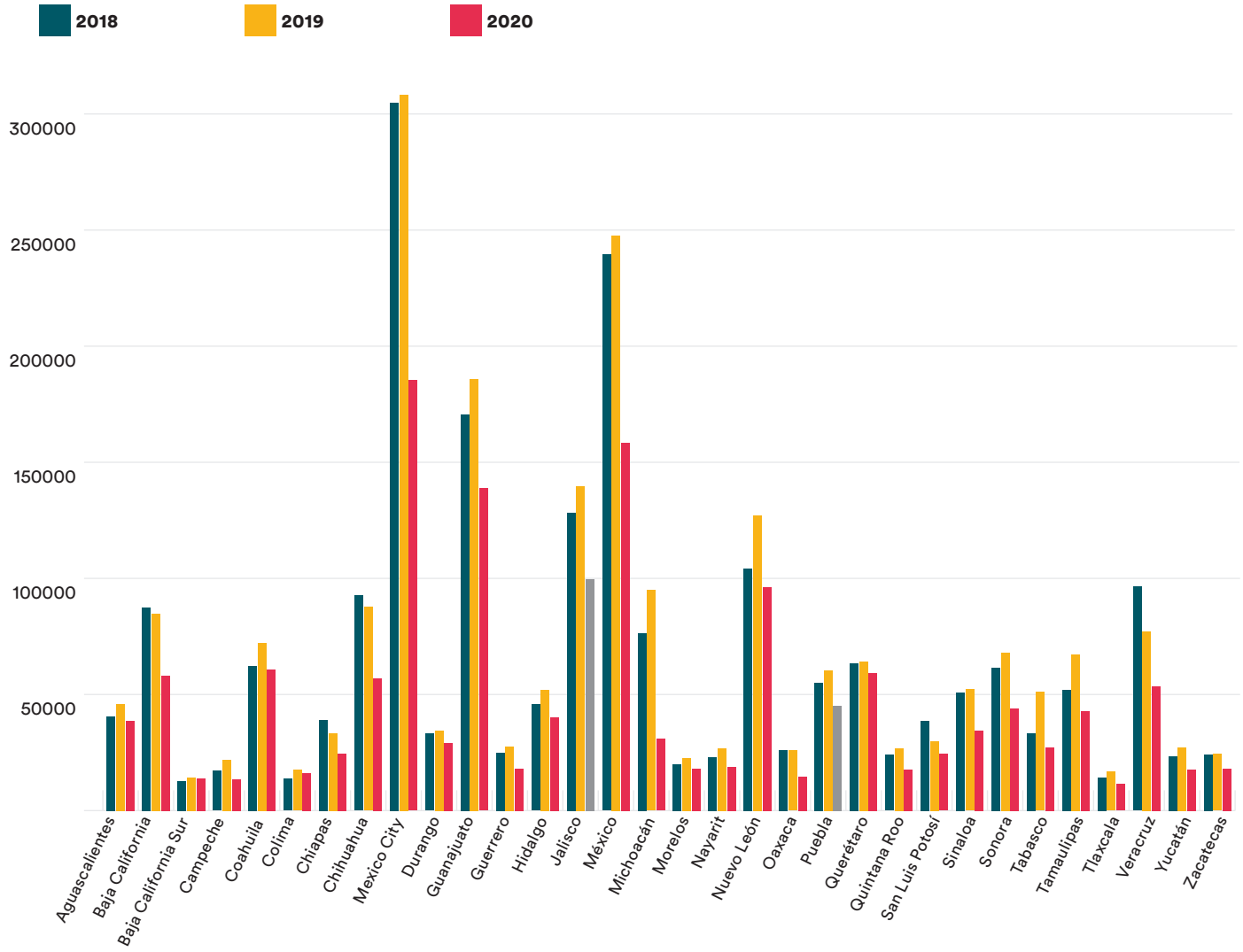



* In the case of the Baja California Judiciary, although it had in 2010 the sending of lawsuits in civil matters and the sending of motions in criminal matters, it was not until 2016 that the sending of motions for civil matters was incorporated. ** Although it has been possible to send motions in the Nuevo León Judiciary since before 2010, it was in 2020 that the possibility of sending lawsuits through these platforms was incorporated. *** In the case of Guanajuato, since 2015 there has been the possibility of filing lawsuits electronically, but it was not until 2021 that the possibility of filing motions was incorporated. **** In the Sinaloa Judiciary it has been possible to send and receive electronic motions since 2017, but in 2021 the possibility of receiving lawsuits was implemented.
**Source:** Own elaboration based on information requested from the judiciaries.

### 2.1.3. Number of lawsuits and/or motions filed electronically

In general, the use of platforms for sending lawsuits and/or motions has been very well accepted by users. However, there are some differences between judiciaries in terms of usage data in each of them. This difference may be due, first, to the variation between judiciaries in the total number of lawsuits and motions they receive, whether by traditional or electronic means. For example, as can be observed in the following Graph, the judiciaries with the highest number of cases filed in the first instance in the last three years are those of Mexico City, Guanajuato, State of Mexico and Jalisco.

**Graph 8**. Number of cases entered by Judiciary from 2018 to 2020




**Source:** Own elaboration based on information requested from the judiciaries.

Regarding the electronic filing of lawsuits, the following Table shows that in judiciaries that already had this possibility prior to the pandemic, such as Baja California and the State of Mexico, an increase can be observed in 2020 with respect to the previous year. Only in Guanajuato is there a lower number of lawsuits filed with respect to that year. It is worth noting, however, that while some judiciaries that have very recently enabled their tool, such as Quintana Roo, San Luis Potosí and Sinaloa, still have very few or no lawsuits filed through this means, others have registered a considerable number of electronic lawsuits since launching theirs.

For its part, the number of motions filed electronically has increased significantly during the pandemic. In fact, half of them were filed between 2020 and June 2021, with the judiciaries of Baja California, State of Mexico, Sonora and Tamaulipas registering the highest growth. It is noteworthy, however, that in the Nuevo León Judiciary —one of the judiciaries that has offered the possibility of sending motions since 2010—, the number of these in 2020 decreased compared to the previous year, although it increased again in 2021. According to the Head of Technology, this drop in the number of motions may be due to the suspension of judicial terms due to the pandemic during the period from March 16 to May 5.

**Table 12.** Number of lawsuits filed through an electronic platform from 2018 to 2020

| Judiciary | Year of creation | 2018 | 2019 | 2020 | 2021 (January to June) | Total |
|---|---|---|---|---|---|---|
| Baja California* | 2010 | 14,964 | 16,687 | 18,699 | 15,048 | 91,862 |
| Mexico City | 2020 | N/A | N/A | 34,902 | 45,992 | 80,894 |
| Coahuila | 2020 | N/A | N/A | 1,718 | 966 | 2,684 |
| Guanajuato* | 2015 | 7,737 | 10,191 | 9,447 | 7,062 | 45,974 |
| State of Mexico | 2019 | 413 | 2,428 | 7,275 | 5,226 | 15,074 |
| Nuevo León | 2020 | N/A | N/A | 17,903 | 11,560 | 29,463 |
| Quintana Roo | 2020 | N/A | N/A | 289 | 364 | 653 |
| San Luis Potosí | 2021 | N/A | N/A | N/A | 4 | 4 |
| Sinaloa** | 2017 | N/A | N/A | N/A | 0 | 0 |
| Sonora | 2020 | N/A | N/A | 12,587 | 32,563.00 | 45,150 |
| **Total** | | **23,114** | **29.306** | **102,820** | **118,785** | **311,758** |

* For those judiciaries that implemented their platform to receive lawsuits before 2018, the total number of lawsuits may be greater than the sum of those reported from 2018 to 2021.
** In the case of the Sinaloa Judiciary, it was mentioned that the platform for receiving lawsuits had been launched very recently, so they did not yet have data to report.
**Source:** Own elaboration based on information requested from the judiciaries.

**Table 13.** Number of motions filed electronically from 2018 to 2021

| Judiciary | 2018 | 2019 | 2020 | 2021 (January to June) | Total |
|---|---|---|---|---|---|
| Baja California | 46 | 207 | 43,041 | 26,075 | 75,369 |
| Baja California Sur | 33,923 | 38,559 | 79,914 | 57,991 | 274,972 |
| Mexico City | N/A | N/A | 52,290 | 85,995 | 138,285 |
| Chiapas | N/A | N/A | 131 | 191 | 322 |
| Coahuila | N/A | N/A | 12,114 | 29,657 | 41,771 |
| Colima | N/A | N/A | N/A | 16 | 16 |
| Guanajuato | N/A | N/A | N/A | 17,114 | 17,114 |
| State of Mexico | 90 | 2,676 | 61,561 | 61,783 | 126,109 |
| Nuevo León | 205,064 | 258,129 | 213,946 | 163,416 | 1,418,635 |
| Puebla** | N/A | N/A | N/A | N/A | 83,619 |
| Querétaro | N/A | N/A | 6,566 | 13,058 | 19,624 |
| Quintana Roo | N/A | N/A | 422 | 1,663 | 2,085 |
| San Luis Potosí | N/A | N/A | N/A | N/A | S/I |
| Sinaloa | N/A | N/A | 6,671 | 6,546 | 13,217 |
| Sonora | N/A | N/A | 28,086 | 225,423 | 253,514 |
| Tamaulipas | 36,900 | 47,551 | 244,558 | 261,256 | 721,912 |
| **Total** | **276,023** | **347,122** | **721,214** | **724,761** | **2,933,050** |

* In the case of judiciaries that implemented their platform to receive motions before 2018, the total number of lawsuits may be greater than the sum of those reported from 2018 to 2021.
** The breakdown of data by year was not provided.
**Source:** Own elaboration based on information requested from the judiciaries.

Regarding the acceptance of this tool, the heads of some technology departments mentioned that the legal profession reacted positively to its implementation and that this had allowed them to operate remotely during the pandemic. The Head of Information Technology of the Guanajuato Judiciary mentions the following:

> *It was a tool that helped us a lot in the pandemic; it is currently in force and with a lot of acceptance, we already have a good number. Despite the short time in which it was implemented (...), from February to date we have had a very good response, the courts are happy, the attorneys are happy, they always ask us for more as well* (J. R. González, personal communication, July 16, 2021).

Other judiciaries mention that acceptance has been differentiated and that there are two groups of litigants: those who are willing to use this type of tool and others who prefer to do it in the traditional way[68].

### 2.1.4. Cost data

As in other matters, most judiciaries did not provide information regarding cost data or, if applicable, argued that it was not possible to quantify because the platform had been developed internally. It should be noted that only the judiciaries of Sinaloa, Quintana Roo and Nuevo León indicated the following costs:

68 Raúl Martínez Gudiño, Head of the Systems Development Department of the Chiapas Judiciary, mentions: "They are really divided in the meetings that I have been invited to, the Chief Clerk of the Judiciary Council, where litigants are present, we have all ranges, from the one who from his/her cell phone can scan a record and consult it later, to the one who needs to have it [printed] and read it at that moment and it takes half an hour, then, if they are so divided, I would give them a 50-50" (R. Martínez Gudiño, personal communication, September 1, 2021).

**Table 14.** Platform costs to file lawsuits and/or motions by Judiciary

| Judiciary | Year of acquisition | Reported cost of the record in current Mexican pesos | Cost in constant Mexican pesos 2021 |
|---|---|---|---|
| Sinaloa | 2017 | $18,793,605.00 | $22,454,972.26 |
| Quintana Roo | 2020 | $6,000,000.00 | $6,378,448.01 |
| Nuevo León | 2010 | $14,000,000.00 | $22,642,930,732.36 |

**Source:** Own elaboration based on information requested from the judiciaries.

## 2.2. Use of videoconferencing to conduct remote hearings

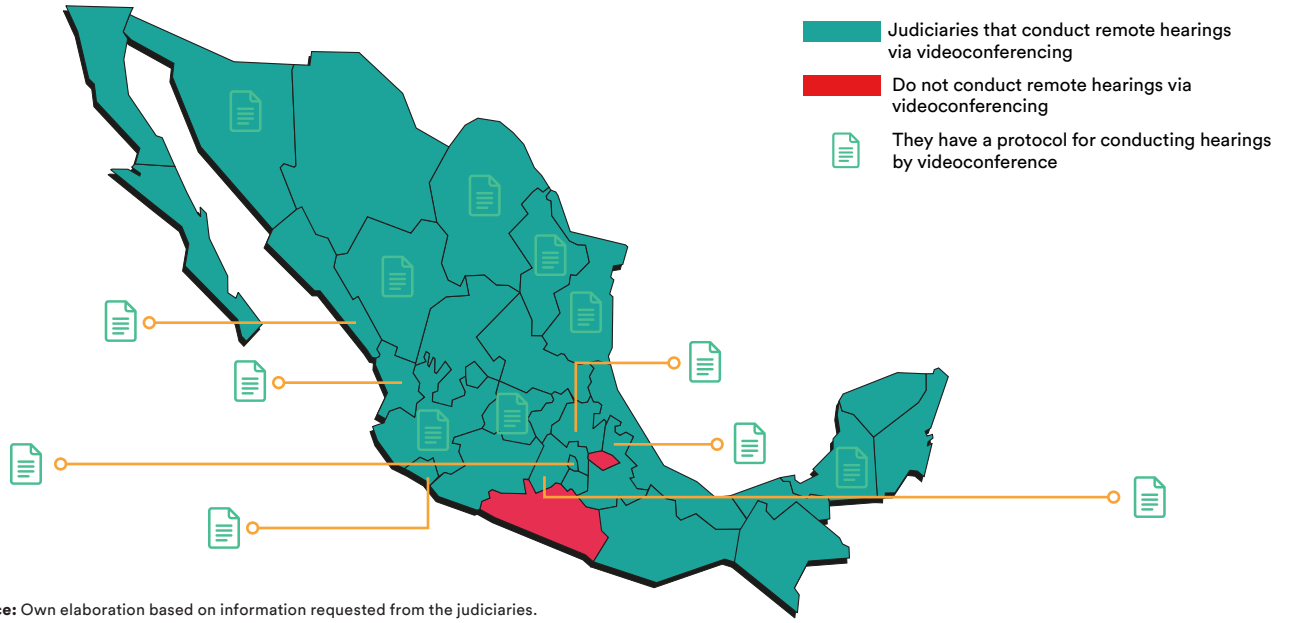
The platforms for videoconferencing have been used to carry out hearings remotely when it is impossible for the parties or other intervening parties to participate in person. This tool was already used —although not on a daily basis— by the judiciaries before the arrival of the pandemic.

As may be observed in Map 6, almost all judiciaries (93.75%) stated using videoconferencing platforms to carry out remote hearings[69]. Besides, half the judiciaries (50%) commented that they established protocols for conducting hearings remotely[70].

However, during the interviews we were able to observe a differentiated use of this tool according to each Judiciary, since not all of them use it with the same frequency to resolve jurisdictional processes.

For example, in some judiciaries, the use of videoconferencing for jurisdictional matters is limited to conducting hearings where it is necessary to link with another court

**Map 6.** Use of videoconferencing for carrying out remote hearings, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

69 As can be observed in Map 6, the only judiciaries that do not conduct videoconference hearings are those of Guerrero and Tlaxcala.

70 These are the judiciaries of Aguascalientes, Campeche, Mexico City, Coahuila, Colima, Durango, Guanajuato, Jalisco, State of Mexico, Morelos, Nayarit, Nuevo León, Puebla, Sinaloa, Sonora and Tamaulipas.

## The difference in the use of videoconferencing among the different judiciaries could be explained by the variation in infrastructure between states.

or when, in criminal matters, the defendant is incarcerated in a penitentiary located in another state.

Whereas, in judiciaries such as the one in Guanajuato, the use of these tools to conduct hearings has become quotidian. In particular with criminal matters its use has increased during the pandemic since it allows each party to connect from a different location. According to the Head of the Information Technology Directorate, this increase has been possible because the implementation of this type of tool was carried out in coordination with other institutions such as the Public Defender's Office, the District Attorney's Office and the centers for reintegration into society (J. R. Gonzalez, personal communication, July 16, 2021).

The difference in the use of videoconferencing among the different judiciaries could be explained by the variation in infrastructure between states, i.e., the type of connectivity and the level of access to technological tools by the general population. In this sense, the challenge regarding the use of videoconferencing for carrying out hearings is twofold: it depends, on the one hand, on the capacity of each Judiciary, but also on the ease of access to these tools for external institutions and users.

One of the main technical obstacles identified by the heads of the technology departments in the use of these tools was the internet connection. Those responsible pointed out that, in many locations where courts and users are located, internet access is deficient, which prevents videoconference hearings from taking place. Nevertheless, some judiciaries found solutions to overcome this challenge. For example, the judiciaries of Baja California Sur, Coahuila, State of Mexico, Guanajuato, Nayarit, Nuevo León, Puebla, Tamaulipas, Tabasco and Sinaloa set up spaces inside some of their buildings, both for the use of officials and external users, in order to guarantee good quality internet access and provide technological means to any party that lacked them[71].

Manuals, videos and tutorials[72] were also developed with information on the necessary connection characteristics, how to measure bandwidth, among other relevant data for internal and external users[73]. Some judiciaries even went further and trained external users in the use of this tool. For example, the Nuevo León Judiciary carried out a live simulation via Facebook, showing how the different parties should interact (D. Olaguíbel Aguilar, personal communication, June 20, 2021).

Another challenge that could explain the difference in the use of videoconferencing hearings is the storage capacity available to judiciaries. In some cases, for example, the courtroom recording system allows connection to the platform to carry out videoconferences, recording them and storing them automatically. However, this requires sufficient storage space to preserve the hearings, which could have been a difficulty for some judiciaries, especially when conducting hearings in matters other than criminal matters.

71 The Director of Information Technology of the Coahuila Judiciary mentioned: "If any person who was going to participate in the hearing stated that they did not have the necessary means, we tried to support them as far as possible [to] provide them with an area with computer equipment already connected to the videoconference to be able to hold this hearing. We did it in some courts here in Saltillo, in Monclova, and well, little by little this service was less requested, we put it as an additional service to the general public and to the Judiciary officials themselves to guarantee the continuity of the videoconference" (G. Valdez Lozano, personal communication, August 21, 2021).

72 For example, the Guanajuato Judiciary developed a manual for external users that explained how to connect to a videoconference and perform audio tests.

73 The Director of Information Technology of the Nuevo León Judiciary comments: "We had to develop information and make it available to the people, for example, what to do in case of slowness, what to do in case you share your internet with many people, how to measure the bandwidth, why did that happen... you, an employee of the Judiciary, or you, an official, were at home but there were also your children, your wife and all the time... So how to start telling people... or how to somehow measure the services you have at home and not cause you problems" (D. Olaguíbel Aguilar, personal communication, June 20, 2021).

In this regard, the Director of the IT and Telecommunications Department of the Tamaulipas Judiciary mentions:

> *One of the challenges that emerged with the hearings was that before, in family matters, the hearings were in person and then a written document was generated, not a video. Now, with the incorporation of video, one of the challenges is to strengthen the servers because they are filling up quickly. The capacities that we had programmed there..., well, suddenly there were some servers that were already reaching their maximum capacity (...) It was also a challenge to have to safeguard all those videos, maintain the systems and the [tele]communication part that was also being solved* (A. Cantú Garza, personal communication, August 11, 2021).

But the challenges were not only technical but also of a legal and cultural nature. At the beginning of the pandemic, some judiciaries were hesitant to hold hearings by videoconference because they felt that some principles of due process may be violated, such as the principle of immediacy, for example, and that, in the event of an unfavorable outcome, some litigants could use this argument to request the annulment of the proceedings.

However, as already noted, with the exception of the judiciaries of Tlaxcala and Guerrero, the rest reported conducting hearings by videoconference. In fact, resistance to adopting them, both internally and externally, decreased over time. For example, in some judiciaries, officials were initially reluctant to use videoconferencing. Nevertheless, in a matter of weeks, when they saw the advantages offered by the tool, they began to adapt to its use and videoconference hearings became indispensable for the development of their functions.

Many judiciaries even mentioned that judges have become accustomed to the use of these tools, with which they already feel comfortable. They also stated that some judges found it very satisfactory to conduct hearings from their homes[74].

Additionally, several judiciaries mentioned that carrying out hearings by videoconference expedited their development, given that with its use it is possible to hold several hearings simultaneously, while when they are carried out in person, they are held in an oral trial room, which may be occupied due to another hearing[75].

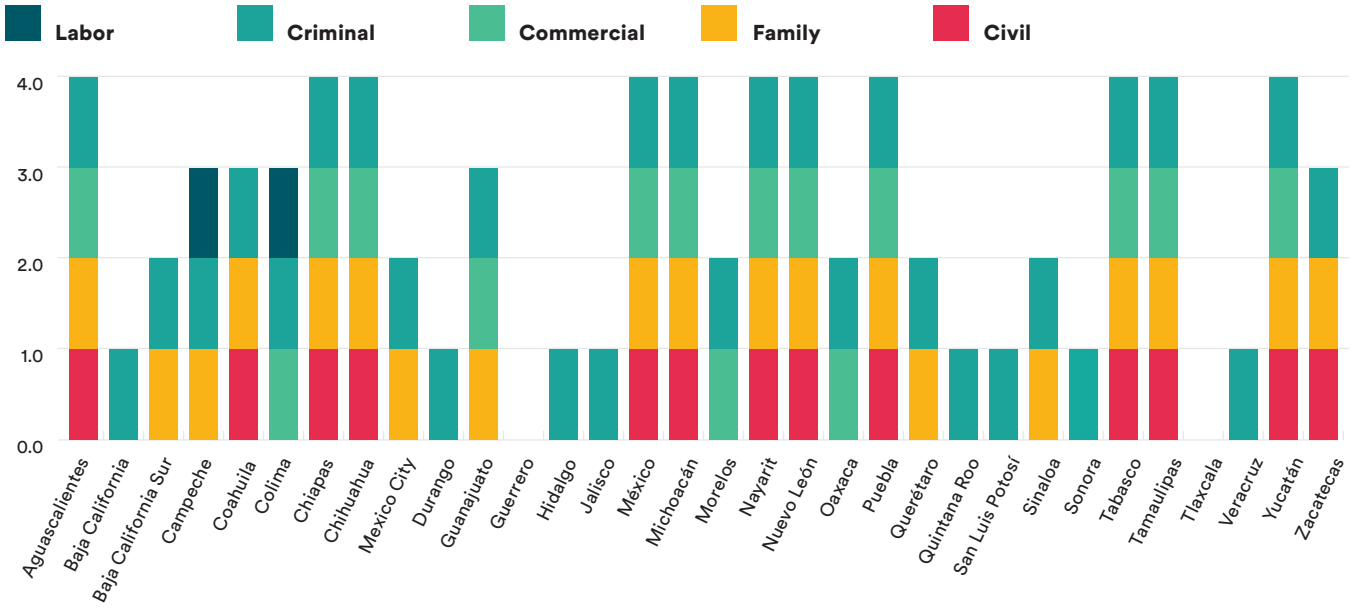
Regarding the matters in which the judiciaries use this tool, it is observed that all judiciaries that said they utilize this tool use it for criminal matters, followed by family matters (63.33%), commercial matters (50%), civil matters (43.33%) and labor matters (6.67%).

**Many judiciaries even mentioned that judges have become accustomed to the use of these tools, with which they already feel comfortable.**

74 The Head of the Technology Department of the Chihuahua Judiciary commented that judges in criminal matters had become so familiar with videoconference hearings that they no longer wanted to return to court, since they could conduct hearings from home without the need to attend in person, especially in the case of people with care duties. This was also possible since the administrator was in charge of administering the courts, unlike in other matters where this model did not exist and judges had to attend (D. Fernández Mena, personal communication, December 10, 2020).

75 The Head of the Technology Department in Guanajuato mentions: "There are oral courts where there were eight judges, for example, but they only had four courtrooms and they began to rotate them and now it turns out that with this tool [videoconferencing] it was as if there were eight courtrooms and so they began to work and produce more. Why? Because they did not depend on a physical space to execute, or to have a logistics that many people had already arrived. No. Here these tools such as Webex, Meet, or like Telmex, you can connect a certain number of users, depending on the license, without any problem and you don't need a physical space, so they saw those benefits" (J. R. González, personal communication, July 16, 2021).

**Graph 9.** Use of videoconferencing in the judiciaries by matter, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

The prevalence of the use of this tool in criminal matters can be explained with several reasons. First, any adversarial criminal procedure is oral and requires the carrying out of hearings at the different stages of the procedure[76], as opposed to other matters where the procedure is still predominantly written[77]. On the other hand, when activities in the judiciaries were suspended at the beginning of the health contingency, a high percentage of the proceedings in criminal matters were considered essential —therefore they were not suspended—, and instead mechanisms were installed —which included security, but very quickly also videoconference hearings— to resolve urgent affairs such as the classification of detentions, indictments, the issuance of precautionary measures related to preventive detention, arrest and search warrants, as well as protection orders. On occasion, some procedures were also contemplated in family matters, especially to deal with cases of gender-based violence, but this was not as systematic as it was in criminal matters.

On the other hand, it is observed that the adoption of these tools has been heterogeneous, since only 36.67% of judiciaries use them for four or more matters, 16.67% for three matters and 46.67% for two matters or one.

Likewise, some judiciaries mentioned that they use videoconferencing tools to carry out plenary sessions and courtroom sessions.

It is important to note that the use of videoconferencing has not been limited to jurisdictional matters. For example, the Hidalgo Judiciary mentioned that, although videoconferencing had not been used permanently to conduct hearings, its use had been indispensable during the pandemic for the development of internal work. In this regard, Arturo Monzalvo Skewes, Director of Modernization and Systems of the Hidalgo Judiciary points out:

> *Let us say [that in] the internal administrative, operational process of the Judiciary, there has*

76 The Head of the IT Department of the Puebla Judiciary mentions the following: "Where we did have a quite considerable growth was for [the] oral criminal matters; there was a greater growth, because let's say here it was still under consideration, let's say of the judges, but in criminal matters it had to be held in one way or another, so access to the litigant was limited a bit due to pandemic issues, we jumped to this issue of videoconferencing" (J. C. Morales Flores, personal communication, July 13, 2021).

77 At the federal and national level, legislation in criminal, commercial and labor matters (which recently came into force) envisages oral proceedings, which is not contemplated for other matters. However, in some states, local legislation does envisage orality in certain matters.

> *been a very important increase. We have adopted the use of videoconferencing as a tool for the execution of the Judiciary's own internal work, not only for the conduct of hearings that was already being carried out, but now it has also been adopted as part of the Judiciary's administrative and operational work* (A. Monzalvo Skewes, personal communication, August 6, 2021).

Thus, some judiciaries have implemented them to hold talks and family gatherings with minors[78], to carry out the mediation processes in charge of the Alternative Justice Center, to provide training to officials and even to carry out bids and tenders or judicial auctions[79].

### 2.2.1. Year of implementation of videoconferencing tools for carrying out remote hearings

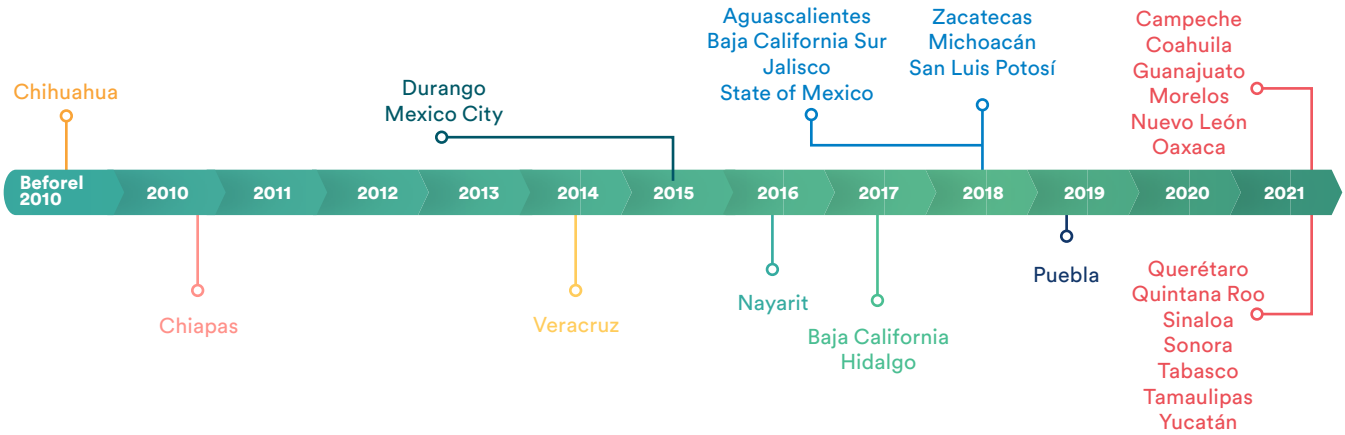
Of the 29 judiciaries that reported using videoconferencing for conducting hearings, just under half (14) said they had implemented it in 2020 as a result of the health crisis. However, some had implemented it since 2010 (as is the case of Chiapas) and even before (as is the case of Chihuahua).

### 2.2.2. Particular aspects of the use of videoconferencing platforms for carrying out hearing

One of the main challenges in conducting hearings by videoconference is to identify the parties involved in them. In this regard, it is important to mention that all the judiciaries, except one, ask the participants to identify themselves by means of an official identity document (such as IFE, INE or passport) and bring it close to the camera in order to verify the details.

**One of the main challenges in conducting hearings by videoconference is to identify the parties involved in them**

**Figure 7.** Year of implementation of videoconferencing tools for carrying out remote hearings by Judiciary




**Source:** Own elaboration based on information requested from the judiciaries.

78 The Querétaro Judiciary mentioned that even these gatherings and talks have been developed in the international sphere, so the use of videoconferencing has been key.

79 The Nuevo León Judiciary has set up a room for auctions or judicial sales derived from civil, commercial and small claims litigation, which allows bidders to participate in the bids either in person or remotely (Poder Judicial del Estado de Nuevo León, 2021).

As previously mentioned, there are alternative mechanisms that help to establish the identity of persons more effectively, especially when it is not possible to verify in person the authenticity of the identity documents presented by the parties. One of these mechanisms is the advanced electronic signature. Thus, in order to participate in a hearing in the State of Mexico Judiciary, the parties, experts, witnesses, attorneys, defense attorneys, public prosecutors and other intervening parties must have the advanced electronic signature of the State of Mexico Judiciary (FEJEM).

In this Judiciary, besides helping to verify the identity of the persons intervening in the hearing, the use of the electronic signature has brought other benefits, such as the exchange of information through a secure channel. This is because when the parties request their FEJEM, the Judiciary provides them with an institutional email address, through which the link to the videoconference is sent and, when it is necessary for any of the parties or intervening parties to sign any document derived from the hearing, this is also sent through this channel and signed electronically.

Another aspect to take into account when conducting hearings is the choice of the videoconferencing platform to be used. Choosing an appropriate platform is essential to ensure that the exchange of data during the hearings is secure. Although during the pandemic the use of platforms such as Zoom became popular, there are a number of concerns regarding the security and privacy of users using these tools.

For example, although Zoom's platform at one point claimed to use end-to-end[80] encryption, the company later clarified that it did not use such encryption (Derechos Digitales América Latina, 2019; Lee and Grauer, 2020) before it began offering it in October 2020 (Krohn, 2020). Moreover, in April 2020, it was discovered that when a person logged into Zoom, a data mining feature of the software sent names and email addresses to a system of the company that linked them to their LinkedIn profiles (Krolik and Singer, 2020).

Given these potential privacy violations, it is important that the judiciaries take into account the characteristics of the platforms they use to carry out hearings via videoconferencing, especially in certain cases, such as, for example, when it comes to hearings involving minors.

In this regard, most judiciaries mentioned using Zoom, Microsoft Teams, Meet, Webex or the platform developed by Telmex. It should be noted that the Chihuahua Judiciary is the only one that uses the Jitsi platform[81] to conduct most hearings[82], as it is considered a safe and low-cost alternative, since it is a free and open-source software that does not require the creation of an account or the installation of any other software.

In this regard, David Fernández Mena, Director of Information Technology of the Chihuahua Judiciary, mentions the following:

> *We use Jitsi on servers installed and controlled by ourselves. We are reluctant to use Zoom to the maximum extent possible. First, when the pandemic began, Zoom was not reliable, not in the least, that is to say, Zoom had some extremely high accusations of lack of security, of sharing data with third parties* (D. Fernández Mena, personal communication, August 21, 2021).

### 2.2.3. Number of hearings conducted by videoconferencing

Regarding the use of videoconferencing, a marked growth in the number of these tools can be observed, especially during the years 2020 and 2021. However, a differentiated use can also be seen between judiciaries of similar size. For example, while in the State of Mexico Judiciary 85,217 hearings were carried out in 2020, in Mexico City only 1,294 were held under this procedure.

80 End-to-end encryption is "the act of applying encryption to messages on a device so that only the device to which it is sent can decrypt it" (Kaspersky, n.d.). This means that if such a message is intercepted, it will not be possible to know its contents.

81 The software is available on the website: https://meet.jit.si/

82 When the defendant is detained in a Center for Reintegration into Society, Webex is used because the videoconferencing equipment in these centers only works with this application.

**Table 15.** Statistical data on the use of technological tools for carrying out hearings remotely by Judiciary from 2018 to 2021

| Judiciary | Year of implementation | 2018 | 2019 | 2020 | 2021 (January to June) | Total |
|---|---|---|---|---|---|---|
| Aguascalientes | 2020 | N/A | N/A | 5,032 | 10,215 | 15,247 |
| Baja California | 2017 | 401 | 512 | 14,765 | 22,413 | 38,091 |
| Baja California Sur | 2018 | 12 | 51 | 2,018 | 1,398 | 3,479 |
| Campeche | 2020 | N/A | N/A | 2,262 | 3,778 | 6,040 |
| Mexico City | 2015 | 135 | 244 | 1,294 | 1,976 | 3,935 |
| Chiapas | 2010 | S/I | N/A | 148 | 131 | 279 |
| Chihuahua | Before 2010 | S/I | 2,150 | 35,960 | S/I | 38,110 |
| Coahuila | 2020 | N/A | N/A | 760 | 675 | 1,435 |
| Colima | 2020 | N/A | N/A | 16 | 10 | 26 |
| Durango* | 2015 | S/I | S/I | S/I | S/I | S/I |
| Guanajuato | 2020 | N/A | N/A | 16,396 | 23,331 | 39,727 |
| Hidalgo | 2017 | 77 | 116 | 292 | 257 | 742 |
| Jalisco | 2018 | S/I | S/I | S/I | S/I | S/I |
| State of Mexico | 2018 | S/I | S/I | 85,217 | 71,454 | 156,671 |
| Michoacán | 2018 | 108 | 780 | 7,950 | 6,002 | 14,840 |
| Morelos | 2020 | N/A | N/A | 185 | 291 | 476 |
| Nayarit | 2016 | 65 | 144 | 1,206 | 1,630 | 3,045 |
| Nuevo León | 2020 | N/A | N/A | 56,014 | 56,327 | 112,341 |
| Oaxaca | 2020 | N/A | N/A | 3,066 | 6,955 | 10,021 |
| Puebla* | 2019 | S/I | S/I | S/I | S/I | S/I |
| Querétaro | 2020 | 3 | 2 | 5 | 2 | 12 |
| Quintana Roo | 2020 | N/A | N/A | 4,622 | 7,534 | 12,156 |
| San Luis Potosí | 2018 | 105 | 406 | 1,626 | 915 | 3,052 |
| Sinaloa | 2020 | N/A | N/A | 155 | 117 | 332 |
| Sonora* | 2020 | S/I | S/I | S/I | S/I | S/I |
| Tabasco | 2020 | N/A | N/A | 1,845 | 1,333 | 3,178 |
| Tamaulipas | 2020 | N/A | N/A | 11,831 | 31,033 | 42,864 |
| Veracruz | 2014 | 12 | 34 | 47 | 636 | 729 |
| Yucatán | 2020 | N/A | N/A | 553 | 736 | 1,289 |
| Zacatecas | 2018 | 97 | 357 | 261 | 259 | 974 |
| **Total** | | **935** | **4,678** | **253,202** | **247,999** | **518,267** |

* These judiciaries did not report information.
For those judiciaries that implemented videoconferencing prior to 2018, the total number of videoconferencing hearings may be greater than the sum of those reported from 2019 to 2021.Some data provided by the judiciaries show inconsistencies, but despite requests for clarification, we did not obtain any.
**Source:** Own elaboration based on information requested from the judiciaries.

## 2.3. Online trials

Online trials are those jurisdictional processes that can be carried out remotely through technological tools, from their beginning to their conclusion, without the need for the parties to attend in person. In general, the matters that are resolved through these tools are non-litigious proceedings and summary processing, which are relatively easy to resolve.

However, despite this, carrying out trials online poses a challenge in terms of technological capabilities as it

**Online trials are those jurisdictional processes that can be carried out remotely through technological tools, from their beginning to their conclusion.**

requires the use of various tools to conduct the different stages of the process.

### 2.3.1. Implementation of online trials

By the cutoff date of this study (June 2021), the judiciaries of the State of Mexico and Nuevo León are the only ones to have implemented online trials. The latter was the first to do so, with the creation in 2014 of the Virtual Family Court, which hears special proceedings for the rectification of certificates, special trials for the modification of certificates and authorization for minors to marry through voluntary jurisdiction formalities (Acuerdo 14/2014, 2014).

To initiate a proceeding, it is necessary for the plaintiff to file his or her lawsuit through the Virtual Court. Once filed, the plaintiff must file a motion in order to be authorized to consult the electronic record. In addition, all notifications are made through the Virtual Court. In the event it is necessary to hold a hearing, it is carried out by videoconference or in person. And, if any of the parties lacks the necessary technological means, the court is responsible for providing access to such resources (Código de Procedimientos Civiles del Estado de Nuevo Léon, 2021).

For its part, the State of Mexico Judiciary has implemented the Online Family Court, the Court Specialized in Adoption Proceedings, the Online Civil Court, as well as an Online Control Court Specialized in Searches and Arrest Warrants[83].

The Online Family Court was created in 2018 for divorce proceedings by mutual consent, identity of persons, economic dependence, authorization to leave the country, certification of cohabitation, change of property regime, ratification of agreements, inheritance trials and matters of presumption of death statement (Circular 20/2018, 2018). In the same year, the Court Specialized in Adoption Proceedings was also created, which hears special proceedings for adoption, international restitution of minors, declaration of underage status, appointment of legal guardians, and summary proceedings for termination of parental authority, among others.

On the other hand, the Online Civil Court was created in 2019 to conduct preliminary proceedings for trial on acknowledgment of content and signature or declaration under oath, non-litigious judicial proceedings on judicial notice, non-litigious judicial proceedings on consummation of usucaption and ratification of contract or agreement (Circular 20/2018, 2018).

In order to file any of the proceedings described above, users must submit the lawsuit, evidence and attachments on the website of the State of Mexico Judiciary and sign them with the advanced electronic signature (FEJEM). Before the health contingency, in the event it was necessary to hold a hearing, the parties had the possibility of attending one of the venues closest to their home for the hearing. During the contingency, when it resumed the proceedings of the various online courts, the Judiciary determined that, for some of them —such as those of birth certificate rectification, declaration of absence and presumption of death, person identity proceedings—, the hearings would be conducted remotely (Circular 4/2021, 2021). Besides, all notifications are made through the institutional email. Finally, parties may lodge an appeal against the ruling issued by the civil judge online through the same website.

83 On October 27, 2021, the State of Mexico Judiciary launched the Online Court Specialized in Family Violence, which operates 24 hours a day and aims to facilitate the determination of protection measures and the reception of lawsuits (Poder Judicial del State of Mexico, 2021).

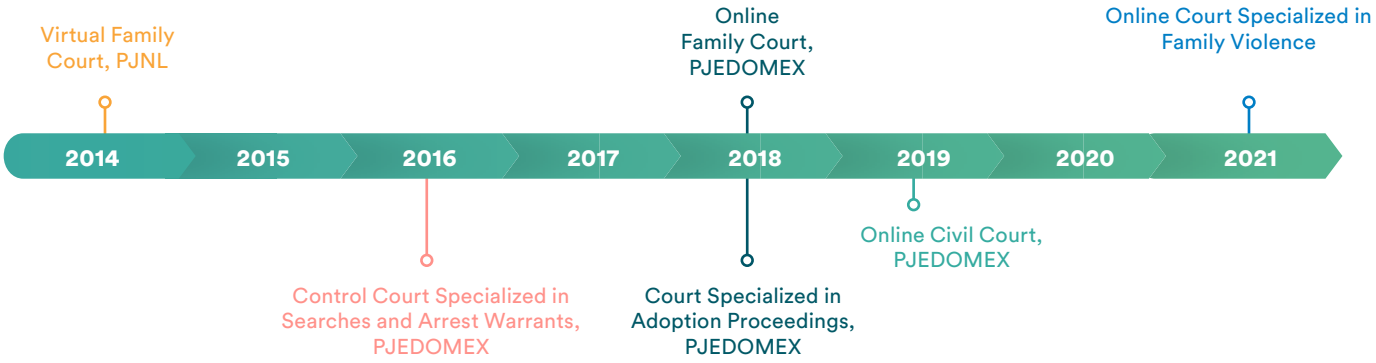
For its part, the Online Control Court Specialized in Searches and Arrest Warrants, created in 2016, hears requests for arrest warrants and search warrants made by the Public Prosecutor's Office. To make this request, the Public Prosecutor's Office must submit it through the Criminal Judicial Case Management System platform, as well as the evidence and data it deems necessary. Thus, the Specialized Control Judge has a 24-hour term to rule on the request for an arrest warrant and six hours to rule on the request for a search warrant. Once the judge has resolved the request, he/she notifies the corresponding Control Court to integrate the folder and issue copies of the resolutive points. This system also allows the lodging of appeals against the ruling issued by the Specialized Control Judge (Circular 33/2016, 2016).

### 2.3.2. Number of online trials concluded

The Nuevo León Judiciary has seen a significant increase in the number of special proceedings on the rectification of Civil Registry certificates; however, while this has increased, the number of special proceedings on the modification of certificates has decreased.

Interestingly, the number of both proceedings decreased in 2020 compared to the previous year, although in both cases the number of proceedings increases in the first months of 2021.

**Figure 8.** Chronology of the implementation of online courts in the judiciaries of the State of Mexico and Nuevo León




**Source:** Own elaboration based on information requested from the judiciaries.

**Table 16.** Number of online trials concluded in the Nuevo León Judiciary from 2014-2021

| Type of online trial (from January to October) | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|
| Special trial on the modification of a Civil Registry certificate | 1,394 | 3,826 | 5,931 | 4,662 | 227 | 109 | 103 | 115 |
| Special trial on the rectification of a Civil Registry certificate | 716 | 2,404 | 1,796 | 2,529 | 7,058 | 7,424 | 3,796 | 5,058 |

**Source:** Own elaboration based on information requested from the judiciaries.

# 3. Support tools for the preparation and publication of public versions of rulings

In this section we will jointly address the tools to support the preparation of public versions of rulings, as well as the platforms used to publish them. It is important to remember that in the past, the judiciaries were obliged to publish only those rulings that they considered to be "of public interest". However, with the aim of making judicial rulings transparent —and avoiding ambiguity as to what type of rulings had to be published—, following the reform to Article 73 of the General Law on Transparency and Access to Public Information promoted by the citizen collective #LoJustoEsQueSepa[84]s and published in the DOF on August 13, 2020, it was established that, as of August 9, 2021, the judiciaries had to make public versions of all rulings issued available to the public.

In this context, the support tools for the preparation of public versions of rulings and the platforms to publish them became even more relevant and essential for the proper fulfillment of this obligation.

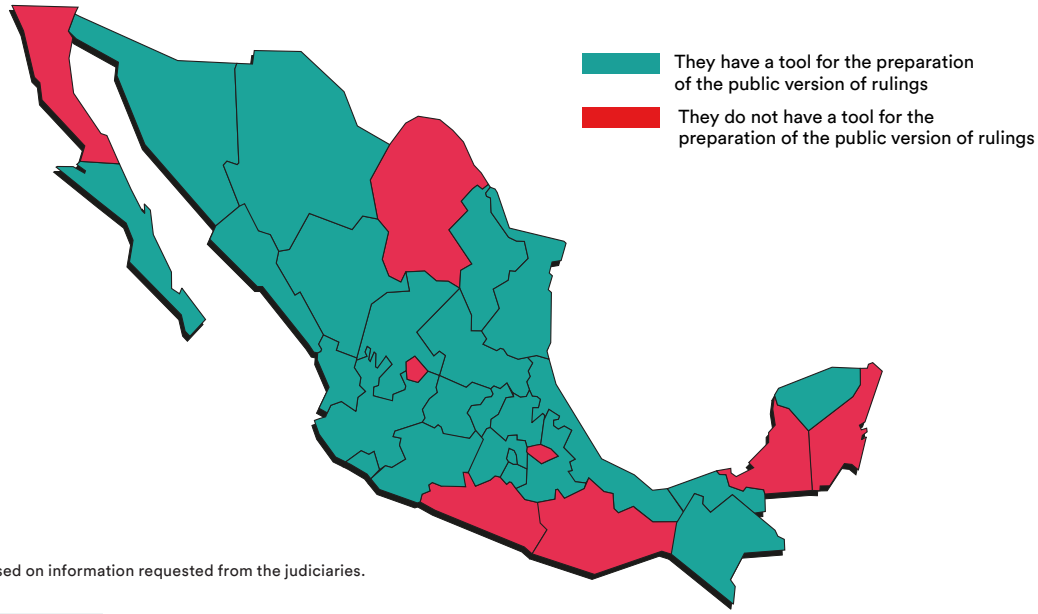
## 3.1. Support tools for the preparation of public versions of rulings

Generally, support tools for the preparation of public versions[85] of rulings are used to help officials and consist of the automatic or semiautomatic substitution of personal data. These tools help officials detect personal data and replace them with asterisks or some other symbol, a process known as "redaction".

An important aspect of these tools is that their characteristics define to a large extent the ease with which officials can carry out this process. While some judiciaries have tools that work with artificial intelligence and perform this process automatically —since they are trained to detect personal data and redact them— others use semiautomatic tools in which the manual intervention of an official is required.

As can be observed in Map 7, 24 judiciaries (75%) reported using an automatic[86] (3 cases) or semiautomatic (21 cases) tool, while

**Map 7.** Judiciaries that have implemented a tool for the preparation of public versions of rulings, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

84 The #LoJustoEsQueSepas collective is composed of EQUIS Justicia para las Mujeres (EQUIS), México Evalúa, Mexicanos Contra la Corrupción y la Impunidad (MCCI), Borde Político, ARTICLE 19, Controla tu Gobierno and Fundar.

85 It consists of that version of a document in which the information classified as sensitive (that which endangers public security) or confidential (personal data) has been redacted (hidden).

86 Upon analysis, it was possible to identify that they are more advanced than the others, but still require the intervention of officials.

Semiautomatic tools generally require more work and time on the part of officials, since they must manually identify personal data —by underlining them with a color or bold letters— and the program subsequently redacts them. For example, in the Aguascalientes Judiciary, to prepare the public version of the rulings, personal data are marked in red and the software automatically detects them and replaces them with asterisks. In addition, the tool converts the Word file to PDF and automatically uploads it to the website as well (J. M. López Pérez, personal communication, July 16, 2021).

The Querétaro Judiciary developed a similar semiautomatic system where the official writes the word(s) he or she wants to redact and the system replaces all matching terms with asterisks. Once the process is finished, the software adds a header to the document —which includes the reason for the classification and the legal basis—, saves the file in PDF and uploads it to a module of the case management system[87] called "public versions of rulings" to be approved by the Transparency Committee. If the public version is approved, it is automatically uploaded to the ruling publication platform. Otherwise, the public version is rejected and returned through the case management system. It should be noted that the fact that the module for preparing and sending public versions is integrated to the case management system allows identifying the person who uploads the public versions (C. R. Dinorín Mondragón, personal communication, August 13, 2021).

Another tool to support the redaction of rulings, "ELIDA" (Elimination of Data), developed by the Jalisco[88] Judiciary, works through a search command in which the terms to be redacted are entered and, instead of replacing them with asterisks or another symbol —as other tools do—, the official can choose from a catalog the type of data being redacted and the tool replaces it with the description of the data. In other words, if the data to be redacted is the CURP, in the public version it appears as "deleted_CURP", in order to make it easier to read. Subsequently, the tool generates a PDF file with the redacted data and a legend containing the legal basis.

**Figure 9.** Public version of ruling redacted with ELIDA

Pág. 1
TOCA.- 110/2019
*Segunda Sala Penal del STJ*

**GUADALAJARA, JALISCO, 26 VEINTISEIS DE AGOSTO DEL AÑO 2019 DOS MIL DIECINUEVE. - - - - - - - - -**

**VISTO** para resolver el recurso de apelación que se tramitó en el Toca Penal número **110/2019,** relativo al proceso número **139/2007-B,** procedente del Juzgado Primero de lo Penal correspondiente al Primer Partido Judicial en el Estado, instruido en contra de **[No.1]_ELIMINADO_el_nombre_completo_[1],** por su responsabilidad penal en la comisión del delito de **HOMICIDIO CALIFICADO** previsto y sancionado por el numeral 213, en relación al 219, fracción [No.2]_ELIMINADO_el_nombre_completo_[1], incisos A,B,C, D Y E, en términos del artículo 11 fracciones III y VI del Código Penal del Estado**,** cometido en agravio de **[No.3]_ELIMINADO_el_nombre_completo_[1].**

**R E S U L T A N D O :**

**1.-** El Juez Natural, con fecha **17 DIECISIETE DE OCTUBRE DEL AÑO 2018 DOS MIL DIECIOCHO,** dictó sentencia **DEFINITIVA**, dentro del proceso antes mencionado, resolviendo en su apartado propositivo lo siguiente:

"...**PRIMERA**.- Por los fundamentos y motivos que se dejaron expuestos en el considerando IV de esta resolución, SE ABSUELVE a el acusado [No.4]_ELIMINADO_el_nombre_completo_[1], de la acusación que el Representante Social de la Adscripción formulara en su contra en la comisión del delito de HOMICIDIO CALIFICADO, previsto por el artículo 213, en relación con el 219 fracción [No.5]_ELIMINADO_el_nombre_completo_[1], en sus modalidades de VENTAJA incisos a), b), d) y e) del Código Penal para el Estado de Jalisco, cometido en agravio de quien en vida respondiera al nombre de [No.6]_ELIMINADO_el_nombre_completo_[1].
**SEGUNDA**.- Remítase copia certificada de este fallo al Inspector del Reclusorio Preventivo del Estado de Jalisco, a efecto de que deje en INMEDIATA

Documento para versión electrónica.
El documento fue testado con el Programa 'ELIDA' Eliminador de Datos Judicial del Supremo Tribunal de Justicia del Estado de Jalisco

87 According to the Head of the Information Technology Department, a comment field is currently being developed in which the Transparency Unit will be able to point out any changes required when the public version of a ruling is rejected.

88 The Nayarit Judiciary commented that it signed a collaboration agreement with the Jalisco Judiciary to use ELIDA.

In this regard, Joel Urrutia Hernández, Director of Information Technology of the Jalisco Judiciary, who is responsible for the development of ELIDA, comments the following:

> *This system practically makes a public version of about 500 pages in less than ten minutes. How does it work? Very simple, everyone works from Word, then we develop something so that, for example, you want to redact "Joel Urrutia", then what it does is, it searches in all your ruling "Joel Urrutia" and puts it according to the catalog, in this case: "person's name", "defendant's name", an example, isn't it? "Defendant", you put it like that [and the system] prepares it for redaction and you do the same with all the personal data. We are talking about a catalog of about 130 data, RFC, CURP. This catalog has a legal basis previously established by the State Transparency Law. Then, when you have already prepared your document for redaction, you click on "redact" or "process" and what it does is generate three files: the first one, the original, stays the same; the second one is the one prepared for redaction; and the third one is the public version already automatically converted into PDF, attaching the legal basis of each of the redacted words in the entire document* (J. Urrutia Hernández, personal communication, August 18, 2021).

Although these tools have made the work of officials more efficient with respect to the redaction of rulings, none of the judiciaries has been able to fully automate the redaction of rulings. The tools that do it use artificial intelligence, which identifies terms that are personal data and automatically redacts them.

In this regard, it was observed that, in general, members of the judiciaries are distrustful of this type of technology as they consider them inaccurate and still in need of human supervision, in addition to being costly. However, there are tools, such as the one developed by the work cooperative Cambá, in Argentina, with the aim of "facilitating transparency among institutions in order to enhance the citizen's involvement" (FACTTIC, n.d.). This program, which works with artificial intelligence, called IA[89] and implemented in Argentina with good results[90], is a free and open-source software that facilitates the automatic redaction of data.

In most cases, these tools were created in the last three years. However, the judiciaries of Hidalgo and Morelos mentioned that they had implemented this tool in 2015.

In addition, 87.5% of these tools have been developed internally, i.e., by the technology departments. However, two judiciaries (8.33%) indicated that they had signed an agreement to use a tool from another institution[91] and one Judiciary (4.77%) reported having done so in collaboration with another institution[92].

Finally, it is important to note that the judiciaries identified two main challenges derived from the implementation of this type of tool.

First, there is still uncertainty about the type of data to be redacted, especially in family matters, since it is difficult to define what constitutes personal data that must be classified or whether it is information whose public nature must be preserved.

Although the National Transparency System issued in 2016 general guidelines *(Acuerdo del Consejo Nacional del Sistema Nacional de Transparencia, Acceso a la Información Pública y Protección de Datos Personales, 2016)* for preparing public versions of documents[93], it has not published specific guidelines regarding public versions of court rulings. Notwithstanding the fact that some judiciaries have published their own guidelines for

89 For more information, please visit the IA2 website at: https://www.ia2.coop/#que-es-ia2

90 It has been implemented in the Contraventions and Misdemeanors Criminal Court No. 10 of the Autonomous City of Buenos Aires, Argentina, under the charge of Judge Pablo Cruz Casas.

91 These are the Veracruz Judiciary, which signed an agreement with INAI to use the Test.Data tool, and the Nayarit Judiciary, which in turn signed an agreement with the Jalisco Judiciary to use ELIDA.

92 The San Luis Potosí Judiciary mentioned that the tool had been developed with the support of a multidisciplinary technical team from the Judiciary and the Potosí Institute of Scientific and Technological Research, which is a public research center belonging to the network of centers of the National Council of Science and Technology (CONACYT).

93 Although there are the General Guidelines on the classification and declassification of information, as well as for the preparation of public versions issued by the National Council of the National Transparency System, they do not include a list of personal data to be redacted (Pantin and Quezada, 2021).

this purpose[94], significant differences can be detected among each of them, which generates confusion and heterogeneity in the way public versions are made. For example, each one defines a list of personal data that does not correspond to that of the other judiciaries (Pantin and Quezada, 2021)[95].

This is why México Evalúa has recommended in several forums that the National Transparency System lead an inter-institutional working group, which integrates local judiciaries and local transparency guarantor bodies, to define general guidelines taking into account the good practices that have already originated from the judiciaries themselves (Pantin and Quezada, 2021).

Second, the implementation of this type of tool was complicated because some officials saw the fact of making the public versions of the rulings as an additional workload. However, this also reveals the importance of not redacting the data with a marker pen and on physical files but using technological tools that can undoubtedly facilitate this task, in addition to reducing time and costs.

## 3.2. Tools for the publication of public versions of rulings

Public version publication platforms are archives of rulings with search mechanisms that facilitate the location of those that may be of interest to each user.

Generally, the process for publishing the rulings is fairly simple when there are data-redacting tools linked to the search platform, since once the official has prepared the public version of the ruling and converted it to a PDF version, the document is placed in a folder where it is automatically published on the platform.

**Public version publication platforms are archives of rulings with search mechanisms that facilitate the location.**

At the time of conducting the study and a few days before the obligation of the judiciaries to publish all their rulings became a reality[96], only 21 judiciaries said they had developed a platform, five indicated that they did not have one and six indicated that it was under development[97].

It is a positive sign that, although it is not an obligation to create a platform with a search engine, most of the judiciaries have done so. However, it is not enough to generate an online archive; it must also be functional and allow information to be found.

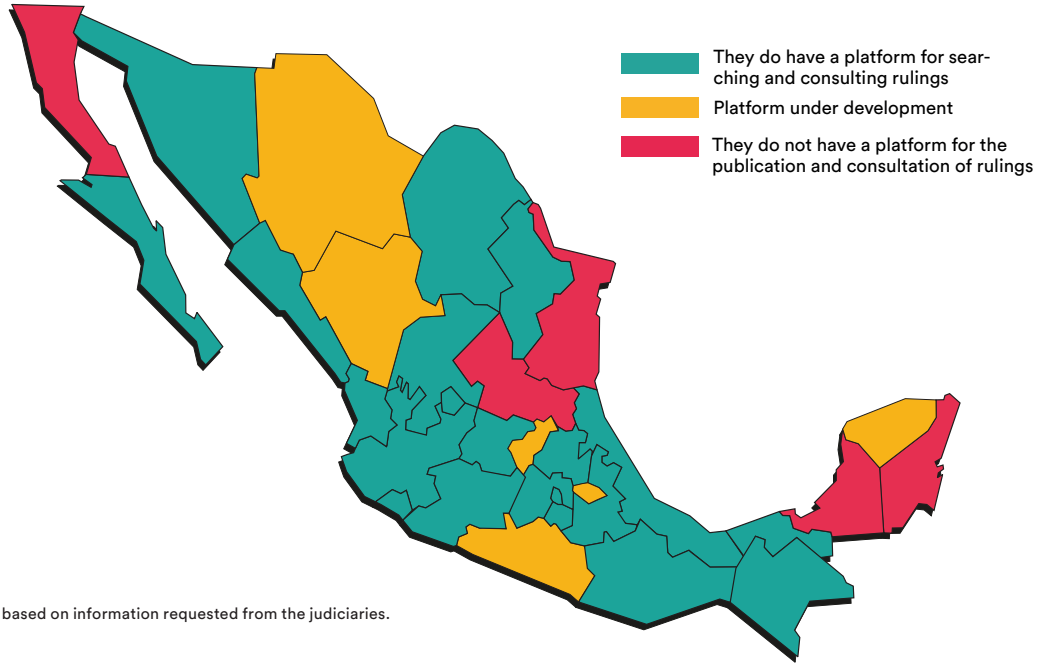
94 Examples of judiciaries that issued guidelines in 2021 are the Baja California Sur Judiciary (Reglamento para la elaboración y publicación de versiones públicas de sentencias definitivas emitidas por los órganos jurisdiccionales de primera y segunda instancias del Poder Judicial del Estado de Baja California, 2021), the Guanajuato Judiciary (Acuerdo General del Consejo del Poder Judicial del Estado de Guanajuato, por el que se expiden los "Lineamientos para la elaboración y publicación de versiones públicas de las sentencias dictadas por los órganos jurisdiccionales el Poder Judicial del Estado de Guanajuato, 2021), the Hidalgo Judiciary (Acuerdo General 14/2021 por el que establece los lineamientos para la elaboración y publicación de versiones públicas de sentencias definitivas firmes de expedientes judiciales, 2021) and the Tlaxcala Judiciary (Lineamientos para la elaboración y publicación de las sentencias y resoluciones que emiten los órganos jurisdiccionales y administrativos del Poder Judicial del Estado de Tlaxcala, 2021). While the judiciaries of Michoacán (Lineamientos básicos para la elaboración de versiones públicas de sentencias y resoluciones dictadas por los diversos juzgados y salas del Poder Judicial del Estado de Michoacán, 2017) and Tamaulipas (Acuerdo mediante el cual se aprueban los Lineamientos para la Elaboración de Versiones Públicas y de Sentencias y Resoluciones dictadas por los Juzgados y las Salas del Poder Judicial del Estado de Tamaulipas, 2017) have had their respective guidelines since 2017.

95 See the article "La publicidad de sentencias: primer corte de caja", available at:: https://eljuegodelacorte.nexos.com.mx/la-publicidad-de-sentencias-primer-corte-de-caja/

96 The collective #LoJustoEsQueSepas, of which México Evalúa is a member, succeeded in promoting a reform to section II of Article 73 of the General Law on Transparency and Access to Public Information, and as of August 9, 2021, it is mandatory for all judiciaries in Mexico to publish all their rulings

97 A review conducted on the institutional portals of the judiciaries as of November 1, 2021, detected that 27 of the 32 judiciaries at the state level had already developed and set in motion a platform with a ruling search engine.

## **Map 8.** Implementation of platforms for searching and consulting rulings, by Judiciary, 2021




**Source:** Own elaboration based on information requested from the judiciaries.

Some recommendations we have made are that "the publication should be made through an electronic platform that is easy to use, does not require the downloading of any special computer program to operate and displays the following information: the total number of rulings published; the total number of rulings issued; overall statistics on rulings; the date as of which rulings began to be published on the platform; and the date of most recent update" (Pantin and Quezada, 2021).

On the other hand, we found that, in addition to publishing the rulings, some judiciaries also classify them beyond the subject matter and petition in order to optimize the search for users[98]. Several judiciaries[99] even mentioned identifying whether the ruling is judged with a gender perspective or whether it is in an easy-to-read format.

For example, Claudia Meza, Technical Secretary of the Presidency of the Supreme Court of Justice of the State of Sinaloa mentioned:

> *We have a section within the microsite of the Human Rights Commission [with] rulings with a gender perspective and we even upload them to the CONATRIB platform. When it is through this modality, what we do is that the judges send us "in these files there is a gender perspective" and those are the ones we use and we upload them*

98 The Head of the Information Technology and Telecommunications Directorate mentions: [the official] clicks on publish, and at that moment it already gets stored, but it is already properly classified. It is like a book in a library, right? It already has the metadata so that any user can search in the search engine for a series of data (...), he/she enters a series of criteria and clicks on search, and then as all the resolutions or rulings were previously classified, it brings everything that shares that series of criteria that he/she selects (J. R. González, personal communication, July 16, 2021).

99 These are the judiciaries of Sinaloa, Nayarit and Puebla. In the case of the first two, they indicated that they had identified rulings in which judgments were passed with a gender perspective, and in the case of the Puebla Judiciary, it was specified that they were working in a platform with similar features.

*to other tools* (C. Meza, personal communication, September 9, 2021).

Likewise, in the Puebla Judiciary, a questionnaire[100] was developed to classify the content of the ruling and to identify its characteristics so that users could identify them more easily and thus avoid having to send a request for access to information. In this regard, the Director of Information Technology of the Puebla Judiciary states:

> *The idea is to try to prevent the litigant from sending a query from our transparency unit saying, for example: "Can you tell me how many rulings have been issued with an international Human Rights treaty?". It is to try to avoid that and say: "You know what, on the website there is a section in which if you want to see which rulings have been identified as being from a Human Rights treaty, you can filter them in the system". Another is the easy-to-read format, for example. Another is whether the ruling was issued from a gender perspective, also from the perspective of fundamental human rights, protection of women or equality versus non-discrimination. So, that is the purpose of this questionnaire. It is a job that the clerks or project designers have to do to classify those rulings, but at the end of the day it is easier to do it when you are uploading it because you know what the ruling contains, than when a transparency requirement arrives telling you: "Tell me which rulings you made in this", and you have to dive into your files or your notes to see which ones they might be. So, that is the intention of this questionnaire, to try to make it a tool for the interested user and also allow us to generate statistics* (J. C. Morales Flores, personal communication, July 13, 2021).

**Figure 10.** Interface of the Portal for Consultation of Public Rulings of the Puebla Judiciary


100 The Agreement of the Judiciary Council of the Judiciary of the State of Puebla whereby it is determined to enable on the official website of this court the microsites for consultation of public versions of rulings issued by the judicial bodies and judicial statistics contemplates a form within the search and consultation search engine of rulings to identify those with the following characteristics: a) Prepared under the format of easy reading, b) issued under an International Human Rights Treaty, c) passed under gender perspective criteria, d) analysis of a fundamental right, e) fundamental human rights analyzed specifically, f) developed with effective implementation of an international and/or national code for the protection of women's rights, of equality and against discrimination, and g) request for reparation of damages or ruling decreeing it (Acuerdo del Consejo de la Judicatura del Poder Judicial de Puebla, 2021). However, as of October 2021, these changes had not been implemented in this Judiciary's platform.

A good practice that demonstrates the knowledge of the user population and their needs is the one implemented by the Yucatán Judiciary, which, in order to facilitate access to the public versions of its most relevant second instance rulings, offers a translation into Mayan.

Regarding the use of this type of platform, it was found that not all judiciaries keep a record of their number of visits and consultations[101], so only eight judiciaries provided data in this field.

**Table 17.** Number of visits to the platform for consultation of public versions of rulings

| Judiciary | 2019 | 2020 | 2021 (January to June) | Total |
|---|---|---|---|---|
| Coahuila | N/A | 8,490 | 7,759 | 16,249 |
| Guanajuato | N/A | N/A | 4,678 | 4,678 |
| Hidalgo | 12,000 | 13,800 | 5,500 | 31,300 |
| Michoacán | N/A | N/A | 8,944 | 8,944 |
| Oaxaca | 18,600 | 23,400 | 6,500 | 48,500 |
| Puebla | N/A | 285 | 1,319 | 1,604 |
| Sinaloa | N/A | 303 | 1,260 | 1,563 |
| Tabasco | 85 | 70 | 49 | 204 |
| Zacatecas | N/A | N/A | 3,274 | 3,274 |

**Source:** Own elaboration based on information requested from the judiciaries.

This information gives an idea of how often rulings are being consulted and, to some extent, could be an indication of the need to improve accessibility and ease of use of the platforms and search engines (if there are few visits), or a positive indicator showing that authorities that publish their rulings are really meeting a civic need (if the number of visits is high and increasing). Therefore, the importance of having these records (México Evalúa, 2021b).

## 4. Other technological tools

Besides the technological tools described in previous sections, we identified that judiciaries have implemented a number of solutions to carry out their activities more efficiently. Some of these have even been adopted in order to resume the services of the judiciaries following the closure of courts and tribunals during the pandemic.

One has consisted of implementing online appointment systems in order to allow litigants to file their briefs at the Filing Clerk's Office or consult their files in person with the corresponding security measures with respect to the permitted capacity. Appointments are requested through the institutional portal, where the day and time on which the litigant must attend is indicated. According to the judiciaries, although these systems emerge as a response to a specific need of the health contingency, they have provided greater organization and have saved time for litigants, who arrive at the time of their appointment and do not have to queue or wait, so it is expected that they will be used permanently.

In this regard, Juan Manuel Páez, Deputy Director of Software Engineering of the Puebla Judiciary mentions:

> *One [tool] that at the time we thought was going to be temporary was precisely for attorneys to make appointments through the platform to file lawsuits, but it is something that has been increasing and in fact it is useful because the attorneys themselves already feed their information from their office and there's only need to corroborate the data they are presenting (...) Before, only the attorneys could file three lawsuits, for example. It was limited and now it is no longer. Up to now there have been attorneys filing 50 lawsuits at one time. The services have been increasing and in fact the attorneys already arrive with the certainty that if they have an appointment at 10:00 in the morning they already know that they will arrive at 10:00 and at the latest 10:15 they are already done, or even in less time, depending on what they are filing* (J. M. Páez, personal communication, July 13, 2021).

Another Judiciary that has implemented a variant of this tool is that of Tamaulipas, which developed a pre-registration system for lawsuits and motions and physical mailboxes in which to deposit them. This system generates a cover sheet with the date on which the litigant can go to file a pleading. The cover sheet is glued to the

101 Despite not having had data at that time, the Judicial Power of the State of Mexico indicated that as of October 2021 they would implement a counter to keep a record of visits to said platform.

envelope containing the corresponding pleadings and attachments and is inserted into a physical mailbox, which scans it and provides a receipt.

These appointment systems show that the implementation of technological tools does not always require a large investment of resources and that creativity and innovation are good allies when it comes to developing solutions with a reduced budget.

**Several technological tools have also been implemented to make the work of notifiers, clerks of the court and executors more efficient.**

On the other hand, several technological tools have also been implemented to make the work of notifiers, clerks of the court and executors more efficient. For example, the Querétaro Judiciary implemented Actuarius, a web-based system that helps clerks of the court to find addresses and automatically offers a dynamic and optimized route of any addresses they have to visit along the way. Through a GPS, the system is connected to the general coordination of clerks of the court, which monitors the activities of all notifiers and the results of any procedures in real time. In this way, it is possible to generate updated reports and statistics on the results of procedures. Finally, this system has a help button that, when activated, sends an alert directly to the Central Clerks of the Court Office to be able to communicate with them and request assistance.

There is also a similar system in the judiciaries of the State of Mexico[102], Campeche, Nuevo León, San Luis Potosí and Tamaulipas.

In order to avoid the crowding of people during the pandemic, the Tamaulipas Judiciary developed a mobile application to allow people released on bail to take a georeferenced photograph to prove that they were within the judicial district where they should be, without the need to go in person.

The Director of the Information Technology Department of the Tamaulipas Judiciary explains the following:

> *In order to avoid contact with the pandemic, an app was programmed in which the accused on bail would go one time to a registration module that was in the criminal court buildings, and an app was downloaded with the accused's own smartphone. And now he/she, from his/her home, every Saturday, there in the app sees the date on which it is his/her turn to sign attendance, so he/she accesses his/her app, registers and takes a photograph, which in addition to photographing the person with the date and time [the picture] was taken, detects the latitude and longitude in such a way that it validates that he/she is in the city. Subsequently, reports are derived for the court: who signed, who did not sign, what time they signed, how many signed* (A. Cantú Garza, personal communication, August 11, 2021).

These tools in the Tamaulipas Judiciary have been adopted as a general measure applicable to all interested defendants, and not in a discretionary manner, as is the case in other judiciaries, which was recently demonstrated by a controversial case[103].

In addition to the aforementioned tools, several judiciaries have implemented other systems to make administrative tasks more efficient. For example, in the State of Guanajuato, a case management system has been implemented for the Judiciary Council, which allows for the exchange of information between different departments. For example, in the event that an official requests a leave of absence, the system links the point of agreement that grants or denies this leave and alerts the human resources department. It also has a supplier registry that assists the bidding processes, i.e., through this platform suppliers register, an invitation is sent to them and they make their proposal.

**102** In 2011 this Judiciary implemented the Central Clerks of the Court Office and is currently developing a version that contemplates a teleworking modality that will allow clerks of the court to perform notifications from home.

**103** This is the case of Emilio Lozoya, former director of PEMEX, who despite having been charged by the District Attorney's Office for probably committing four crimes, has not come in person to sign before the judge, but has been granted "special measures" to sign remotely (Angel, 2021).

In a similar way, the State of Mexico Judiciary has developed an administrative system to support the areas of planning, budgeting, purchasing and storehouses, among other things. An important feature of this system is that it is connected to the case management system, which allows for the automatic exchange of information.

Other interesting tools are the systems for assigning psychologists and social workers, as well as the expert witness system of the Morelos Judiciary. These systems randomly assign psychologists and social workers from the family counseling department who are required by the family courts in particular cases. In addition, in the case of the expert witness system, experts are randomly assigned from a list of validated experts in different fields.

For its part, the Chiapas Judiciary created a weblog for the Family Coexistence Center, in which the coexistence between minors and their mother or father is recorded. This weblog is used to provide a periodic report to the family court on the compliance of these relationships.

CHAPTER 4

# Recommendations for the development of technological tools in the judiciaries

The objective of this section is to analyze the different challenges identified during the diagnosis in terms of planning, development, implementation and evaluation of each of the technological tools in the judiciaries and to offer some recommendations in this regard. Given the diversity of these challenges, we decided to group them into two categories: internal and external challenges.

The former refer to those areas of opportunity that originate mostly within the judiciaries, while those grouped in the second category are factors wholly or partially generated from outside the judiciaries.

# 1. Internal challenges

Under the category of institutional challenges are grouped those related to budget and strategic planning, evaluation, training, infrastructure and cybersecurity, and statistical data.

## 1.1. Budget and strategic planning

As mentioned already, some of the people interviewed agreed that the development, implementation and maintenance of technological tools require a high deployment of both human and financial resources. If we add to this the fact that many judiciaries are currently facing budget cuts and a lack of strategic planning, their development becomes even more complicated, especially if the aim is to ensure their continuity and sustainability.

### *Recommendations regarding the budget*

- The development of technological tools in collaboration with other judiciaries or other institutions can be a strategy to reduce costs. As mentioned in previous sections, the judiciaries of San Luis Potosí and Morelos have developed some technological tools in collaboration with universities, research centers and higher education institutions. Other judiciaries have donated part of their technological solutions to their peers in order to facilitate their implementation and eliminate costs associated with software development.

  The projects of co-creation of technological tools not only reduce the costs associated with the development of technological solutions, but also eliminate the dependence that occurs when judiciaries acquire these tools through private companies. Co-creation also makes it possible to make any improvements or updates available to all judiciaries. This is especially true when the tools are open source, as in the case of ELIDA, for example.

  As already mentioned (México Evalúa, 2021), in Mexico there is great potential for the judiciaries, together with CONATRIB, to jointly develop technological tools. A first step in fostering these collaborations would be to revive previously existing spaces for the exchange of ideas —suspended due to the pandemic— among the heads of the Information Technology departments so that they can share experiences and reach agreements to jointly create technological tools.

### *Recommendations regarding planning*

- Planning is an essential prerequisite for the development of technological tools. Although we recognize that it may be an obstacle for judiciaries to carry out a planning exercise without a multi-year budget, one solution is to plan in stages or periods that allow for a long-term projection of the projects to be carried out. However, this requires, first of all, that technological development be considered a fundamental and permanent issue for judiciaries, and thus go beyond the tenure of whoever is in charge of the Judiciary.

- This planning should take the form of a Technological Development Plan that combines the mission, vision, goals to be achieved in terms of digital justice and indicators to measure that these goals are met. Such a plan should consider a detailed planning of technological projects, as well as the identification of any costs associated with each of them. It is essential that the technology department actively participates in the creation of this plan —and is involved in the decision-making processes regarding the planning of priority activities and budget management— together with other actors.

- Another recommendation for the judiciaries that develop their technological tools internally is to recognize that their development does involve an internal cost that needs to be quantified. Although we admit that it may be complicated to calculate the cost of technological tools that are in a constant process of trial and error or continuous improvement cycles, technology departments should quantify the cost of development, implementation and maintenance of technological tools in order to establish and request a defined budget to perform these tasks in a realistic manner and based on past experience, as well as to project future needs such as hiring more personnel.

On the other hand, this calculation is important to support decision-making regarding the acquisition of external tools. For example, it is possible that, when evaluating internal development costs compared to external development costs, it may be more convenient to hire specialized personnel who can develop technological tools internally, thus strengthening the capabilities of the technology department and avoiding the dependence that the purchase of technological solutions could generate.

## 1.2. Evaluation

Another area of opportunity that we were able to identify is that most judiciaries do not evaluate the technological tools they have implemented. They generally do not have data or evidence on the effectiveness of these tools, their impact or the satisfaction of users.

- From the time of planning, judiciaries must foresee an evaluation mechanism that allows them to measure the impact of the technological tools they plan to implement. In this sense, the construction of indicators is essential to provide evidence about the impact, both positive and negative, of the tool. This information is of great value since it should allow visualizing the results, which is essential when negotiating or requesting a budget for the area or to justify any resources requested or spent. In addition, these indicators could help document these tools as good practices and thus the possibility of replicating interventions in other fields or bodies.

  It is important to remember that an essential aspect for the construction of adequate indicators is to have a baseline, meaning information that allows us to know the current situation, as well as the goals to be achieved in a given time frame. For example, if we want to build an indicator that allows us to measure the time it takes to resolve an issue using a technological tool, it is necessary to have the average time it takes to resolve a process today without this tool, in order to subsequently track it and make comparisons.

- These evaluation exercises should also include a measurement of users' satisfaction. This can be achieved through focus groups or surveys. On the other hand, it is important that these types of spaces also provide an opportunity for users to give feedback on the tools in order to improve or strengthen the use of existing technological tools.

## 1.3. Training

Another area of opportunity within the judiciaries is the training in the use of technological tools offered to external users.

- The judiciaries should recognize that the development of technological tools requires a training component so that users are able to use them. Since some technology departments are not in a position to have the human resources or sufficient time to conduct training, they could work in collaboration with the judicial schools to conduct the training, freeing up time for the technology departments' own activities. However, it would also be desirable that the technology departments themselves have sufficient and specially trained personnel to carry out these trainings, because they would have a better knowledge of the tools.

- In order to expand the impact of the training sessions, it is important to convene and invite the participation of bar associations, law firms, independent litigants, law schools, civil society organizations and the general public who are interested in learning about these tools. An example of good practice is the training sessions held by the judiciaries of Nuevo León and the State of Mexico, which have been broadcast via Facebook Live to explain how certain technological tools are used.

- On the other hand, the creation of help sections or chats so that users may send their questions or concerns regarding the use of these tools may be useful. For example, in Tamaulipas virtual help desks were created by setting up telephone lines to answer questions from litigants regarding the use of these tools.

- Lastly, in the event that it is not possible to develop training sessions, judiciaries may develop interactive materials that allow users to access them when needed. For example, the judiciaries of the State of Mexico, Nuevo León and Tamaulipas have produced videos, tutorials, websites and brochures to explain to users how to use some tools.

## 1.4. Infrastructure

An indispensable requirement for developing technological tools is to have adequate infrastructure (such as a good internet connection and servers with sufficient storage capacity, computer equipment, cameras, microphones, etc.) to enable the implementation and effective use of tools and allow expanding access to justice. Although judiciaries have adequate infrastructure for courts located in the capital city, this is not always the case for courts that are located in other parts of the country, where it is generally not possible to implement these technological solutions.

- To prevent infrastructure from being an obstacle for the most remote communities to access justice, judiciaries must work together with the Executive and Legislative Branches to put the issue on the agenda and improve infrastructure conditions in the most remote areas. To this end, it is essential that

judiciaries do not waste the current context, since the interest in digital justice may serve as a lever to strengthen their infrastructure.

- Another recommendation is to use the infrastructure that other authorities already have in this type of location. For example, thanks to a collaboration with the Executive Branch, the Chihuahua Judiciary uses the internet connection provided by the former in its buildings for its courts located in remote areas.

### 1.5. Cybersecurity

As mentioned in previous sections, many judiciaries do not have cybersecurity plans or adequate mechanisms that would allow them not only to guarantee the security of their data but also to increase user confidence.

- The judiciaries must have a cybersecurity plan to guarantee the integrity of their information. Besides, it is essential to acquire or develop tools that allow the judiciaries to be protected from external threats, as well as to back up information and have differentiated protection mechanisms depending on the sensitivity of the information.

- One of the most important strategies in terms of cybersecurity is the training of people who use technological tools. Raising staff awareness of the importance of IT security, as well as good practice in the work environment to maintain it, is essential in reducing the likelihood of human error that could compromise the security of the entire institution. Having security mechanisms in place and communicating their importance to users may help overcome resistance to the use of technological tools and even increase the trust in them.

### 1.6. Statistical data

In the data area, it was observed that some judiciaries do not keep records of the use of their tools.

- Judiciaries must develop or include mechanisms —preferably as part of technological solutions— that allow them to keep records of the use of technological tools by external users. This information is essential to be able to evaluate tools and know their impact, but above all to be able to inform judiciaries' decision making in terms of budget, project viability, usage projections and storage needs, for example.

- On the other hand, it is important to have homogeneous definitions of the meaning of each of the data. To this end, judiciaries must be clear about the definition of any information collected or obtained. In addition, having clarity on the data and information that each of the systems may generate is useful not only for analysis, but also as an aspect that facilitates the interoperability of technological tools with other institutions outside the Judiciary.

## 2. External challenges

In the external challenges aspect, challenges related to the scalability of the tools are grouped together.

### 2.1. Homogeneous implementation of technological tools within judiciaries

As mentioned throughout the study, there is a significant gap in the implementation of technological tools in the judiciaries, but also within each Judiciary. That is to say, technological tools are generally implemented in a heterogeneous manner in some matters and in some courts, mainly due to challenges in terms of infrastructure, budget or the lack of regulatory support in some matters.

- The lack of regulations, especially in civil and family matters, has been identified by those interviewed as one of the main causes hindering technological development in these matters. Therefore, it is urgent that the Congress of the Union approve the National Code of Civil and Family Proceedings in such a way that it enables judiciaries to implement technological tools.

A recent example of how the change in regulations encourages the implementation of technological tools is the reform promoted by civil society for judiciaries to publish the public version of all their rulings. In this regard, most judiciaries implemented platforms to publish their rulings and, in addition, developed tools to redact any personal data in the public versions. Before the reform, very few had this type of tool, but after the reform there are few that do not have them, and most of them are in the process of developing them.

- Besides the regulatory aspect, it would be important to get to know and look into the successful experiences of other judiciaries that have managed to implement their technological tools in most of the matters and districts, in order to know the particular challenges in the implementation in each of the matters.

## 2.2. Budget as an external challenge

- Although the budget issue was addressed in the section on internal challenges, it is important to remember that budget allocation does not depend entirely on the judiciaries. In this sense, in the face of budget cuts and austerity policies, it is important to be aware of the significance and necessity of digital justice. Therefore, it is essential that local congresses anticipate resources to invest in the issue and, to achieve this, judiciaries must take advantage of the context to raise awareness of its importance and the need for it to be considered a priority expenditure.

## 2.3. Interoperability of technological tools

As previously mentioned, one of the greatest challenges is to have technological tools that are capable of exchanging information in the different matters and, automatically, end-to-end, both within the Judiciary and with external institutions.

- In order to create tools that interoperate with each other, the collaboration and political will of different institutional actors is necessary. It is desirable that, from the outset, these tools be developed collaboratively and that they be a comprehensive system that allows information to be centralized.

- In the event that this is not possible, it is recommended that when judiciaries are designing technological tools, they should always anticipate the possibility of these tools having features that will allow them to exchange information with systems of other institutions in the future.

# Annex

## **Annex I.** Technological tools by Judiciary

| Judiciary | Advanced electronic signature | Case management system | Electronic record | Platform for filing lawsuits | Platforms for filing motions | Hearings by video-conference | Public version | Platform for consultation | Online trials |
|---|---|---|---|---|---|---|---|---|---|
| Aguascalientes | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ |
| Baja California | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ |
| Baja California Sur | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Campeche | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ |
| Mexico City | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Chiapas | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Chihuahua | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | In development | ✗ |
| Coahuila | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ |
| Colima | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Durango | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | In development | ✗ |
| Guanajuato | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Guerrero | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | In development | ✗ |
| Hidalgo | In development | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |
| Jalisco | In development | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |
| State of Mexico | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Michoacán | In development | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |
| Morelos | In development | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |
| Nayarit | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |
| Nuevo León | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Oaxaca | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ |
| Puebla | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Querétaro | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | In development | ✗ |
| Quintana Roo | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ |
| San Luis Potosí | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| Sinaloa | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Sonora | In development | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Tabasco | In development | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |
| Tamaulipas | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | ✗ |
| Tlaxcala | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | In development | ✗ |
| Veracruz | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |
| Yucatán | In development | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | In development | ✗ |
| Zacatecas | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |

**Source:** Own elaboration based on information requested from the judiciaries.

# Bibliography


- Acuerdo del Consejo de la Judicatura. (2020). https://www.tribunalqro.gob.mx/transparencia/leeDoc.php?cual=298&transpliga=4

- Acuerdo del Consejo de la Judicatura del Poder Judicial del Estado de Puebla (2021).

- http://www.htsjpuebla.gob.mx/secciones/acuerdos/pdfs/ACUERDO_HABILITA_MICROSITIOS.pdf

- Acuerdo del Consejo Nacional del Sistema Nacional de Transparencia, Acceso a la Información Pública y Protección de Datos Personales, por el que se aprueban los Lineamientos generales en materia de clasificación y desclasificación de la información, así como para la elaboración de versiones públicas (2016). http://www.dof.gob.mx/nota_detalle.php?codigo=5433280&fecha=15/04/2016

- Acuerdo General 14/2021 por el que establece los lineamientos para la elaboración y publicación de versiones públicas de sentencias definitivas firmes de expedientes judiciales (2021).

- https://periodico.hidalgo.gob.mx/?tribe_events=periodico-oficial-alcance-9-del-12-de-febrero-de-2021

- Acuerdo General Conjunto Número 1/2013, de la Suprema Corte de Justicia de la Nación, del Tribunal Electoral del Poder Judicial de la Federación y Consejo de la Judicatura Federal relativo a la firma electrónica certificada del Poder Judicial de la Federación (FIREL) y al expediente electrónico. (2013). https://www.pjf.gob.mx/Docs/Acuerdo%20General%20Conjunto1-2013%20(FIREL)%20Version%20Aprobada.pdf

- Acuerdo General del Consejo del Poder Judicial del Estado de Guanajuato, por el que se expiden los "Lineamientos para la elaboración y publicación de versiones públicas de las sentencias dictadas por los órganos jurisdiccionales el Poder Judicial del Estado de Guanajuato (2021). https://www.poderjudicial-gto.gob.mx/pdfs/Lineamientos%20para%20la%20Elaboraci%C3%83%C2%B3n%20y%20Publicaci%C3%83%C2%B3n%20de%20Versiones%20P%C3%83%C2%BAblicas%20de%20las%20Sentencias%20Dictadas%20por%20los%20Organos%20Jurisdiccionales%20del%20Poder%20Judicial%20del%20Estado%20de%20Guanajuato%20%2010-mayo-21.pdfAcuerdo mediante el cual se aprueban los Lineamientos para la Elaboración de Versiones Públicas y de Sentencias y Resoluciones dictadas por los Juzgados y las Salas del Poder Judicial del Estado de Tamaulipas (2017). http://po.tamaulipas.gob.mx/wp-content/uploads/2017/05/cxlii-54-040517F.pdf

- Acuerdo por el que se expiden los lineamientos para la recepción de promociones y notificaciones vía electrónica de los órganos jurisdiccionales de primera instancia del Poder Judicial del Estado de Sinaloa. (2020). https://www.stj-sin.gob.mx/assets/files/acuerdos/Acuerdo_Lineamientos_recepcion_promociones_notificaciones_via_electronica.pdf

- Acuerdo 14/2014, del Pleno del Consejo de la Judicatura del Estado relativo a la creación del Juzgado Virtual de lo Familiar del Estado de Nuevo León, así como a su jurisdicción, competencia, fecha de inicio de funciones y reglas de operación. (2014). http://www.pjenl.gob.mx/CJ/Transparencia/Anexos/Publica/Respuesta/AnexoRespP750(1-9-2014)_1.pdf

- Alok Gupta, Tung, A. Y., y Marsden, J. (2004). D*igital signature: Use and modification to achieve success in-next generational e-business processes.* 41, 561–575. https://doi.org/10.1016/S0378-7206(03)00090-9

- Angel, A. (2021, enero 6). *Lozoya no pisa el reclusorio ni para firmar su libertad; se agota plazo para definir su caso.* Animal Político. https://www.animalpolitico.com/2021/01/lozoya-reclusorio-firma-libertad-plazo-caso/

- Australian Human Rights Commission. (2018). H*uman rights and technology* (pp. 11–12). Law Council of Australia. https://www.lawcouncil.asn.au/docs/89d805e0-14d8-e811-93fc-005056be13b5/3533%20-%20Human%20Rights%20and%20Technology.pdf

- Carbonell, M. (2020, abril 28). *¿Por qué es urgente aprobar el Código Nacional de Procedimientos Civiles y Familiares?* El Juego de la Suprema Corte. https://eljuegodelacorte.nexos.com.mx/por-que-es-urgente-aprobar-el-codigo-nacional-de-procedimientos-civiles-y-familiares/

- Circular 33/2016. (2016). https://www.ipomex.org.mx/recursos/ipo/files_ipo/2016/1/6/87d98165978536fb4c94e289f0ef22a7.pdf

- Circular 20/2018. (2018). http://www.pjedomex.gob.mx/DocumentosGenerales/transparencia/MarJurCirculares/Circular_20-2018.pdf

- Circular 4/2021. (2021). http://gestion.pjedomex.gob.mx/gestion2/WebAvisos/288-CIRCULAR_04_2021.pdf

- Código de Procedimientos Civiles del Estado de Nuevo Léon. (2021). http://www.hcnl.gob.mx/trabajo_legislativo/leyes/codigos/codigo_de_procedimientos_civiles_del_estado_de_nuevo_leon/

- Comisión para la Evaluación del Sistema Cosmos. (s/f). https://www.cosmos.gob.mx/sub-comisiones/tecnologias. COSMOS. Recuperado el 7 de octubre de 2021 de https://www.cosmos.gob.mx/sub-comisiones/tecnologias

- Consejo de la Judicatura Federal. (2020). T*utorial para generar la FiREL en línea.* https://www.youtube.com/watch?v=ac8PJvfpfGU

- Cordella, A., y Contini, F. (2020). *Tecnologías digitales para mejorar los sistemas de justicia. Un conjunto de herramientas para la acción.* BID.

- Derechos Digitales América Latina. (2019). *Así que necesitas hacer una videollamada. Una guía para ayudarte a elegir una herramienta más apropiada de acuerdo con tus necesidades.* https://www.derechosdigitales.org/wp-content/uploads/pub_videollamadas.pdf

- FACTTIC. (s/f). IA2. IA2. https://www.ia2.coop/#

- FRA. (2018). #BigData: *Discrimination in data-supported decision making (FRA Focus)*. European Union Agency for Fundamental Rights.

- Instituto Nacional de Estadística y Geografía. Censo Nacional de Impartición de Justicia (2021). Tabulados básicos. Recuperado de: https://www.inegi.org.mx/programas/cnije/2021/

- Izquierdo Enciso, L. (2011). *La implementación de la firma electrónica en México.* Economía Informa UNAM, 369. http://www.economia.unam.mx/publicaciones/econinforma/369/08leonizquierdo.pdf

- Kaspersky. (s/f). *El cifrado de extremo a extremo: Ventajas e inconvenientes.* Recuperado el 20 de octubre de 2021, de https://latam.kaspersky.com/blog/what-is-end-to-end-encryption/20089/

- Krolik, A., y Singer, N. (2020, abril 2). *A Feature on Zoom Secretly Displayed Data From People's LinkedIn Profiles.* The New York Times. https://www.nytimes.com/2020/04/02/technology/zoom-linkedin-data.html

- Krohn, Max. (14 de octubre de 2020). *Zoom Rolling Out End-to-End Encryption Offering.* Zoom Blog (blog). https://blog.zoom.us/zoom-rolling-out-end-to-end-encryption-offering/.

- Lee, M., y Grauer, Y. (2020, marzo 31). *Zoom Meetings Aren't End-to-End Encrypted, Despite Misleading Marketing. The Intercept.* https://theintercept.com/2020/03/31/zoom-meeting-encryption/

- Lineamientos básicos para la elaboración de versiones públicas de sentencias y resoluciones dictadas por los diversos juzgados y salas del Poder Judicial del Estado de Michoacán (2017). https://www.poderjudicialmichoacan.gob.mx/web/consejo/aviso.aspx?idAviso=1154

- Lineamientos para la elaboración y publicación de las sentencias y resoluciones que emiten los órganos jurisdiccionales y administrativos del Poder Judicial del Estado de Tlaxcala (2021). http://periodico.tlaxcala.gob.mx/indices/Peri11-4a2021.pdf

- México Evalúa. (2020). *Guía de buenas prácticas en el uso de nuevas tecnologías para la impartición de justicia. México Evalúa.* https://www.mexicoevalua.org/guia-de-buenas-practicas-en-el-uso-de-nuevas-tecnologias-para-la-imparticion-de-justicia/

- México Evalúa. (2021). L*ineamientos por la planificación, Desarrollo, implementación y evaluación de procesos de transformación tecnológica en los poderes judiciales.* México Evalúa. Agregar link

- México Evalúa (2021b). I*nformación desde y para los poderes judiciales. México Evalúa.* https://www.mexicoevalua.org/mexicoevalua/wp-content/uploads/2021/09/informacion-poderes-judiciales-final.pdf

- OECD, y Law & Justice Foundation. (2020). *Access to justice and the COVID-19 pandemic—OECD*. https://read.oecd-ilibrary.org/view/?ref=136_136486-rcd-8m6dvng&title=Access-to-justice-and-the-COVID-19-pandemic

- Pantin, L. (11 de marzo de 2021). *¿Por qué urge aprobar el Código Nacional de Procedimientos Civiles y Familiares?* Proceso. https://www.proceso.com.mx/opinion/2021/3/12/por-que-urge-aprobar-el-codigo-nacional-de-procedimientos-civiles-familiares-260006.html

- Pantin, L., y Quezada, A. (2021). *La sentencia más transparente. México transparente,* 1, 48–56. https://snt.org.mx/images/revistasnt/MexicoTransparente1agosto2021.pdf

- Pantin, L. y Quezada A. (2021). *La publicidad de sentencias: primer corte de caja.* Nexos. https://eljuegodelacorte.nexos.com.mx/la-publicidad-de-sentencias-primer-corte-de-caja/

- Poder Judicial del Estado de Nuevo. (2021). *Remates Judiciales.* Remates Judiciales. https://www.pjenl.gob.mx/RematesJudiciales/

- Poder Judicial del State of Mexico. (2021). *Juzgado en línea de violencia familiar dará seguirdad a mujeres.* https://www.pjedomex.gob.mx/vista/noticia/2021/10/27/429

- Rabinovich-Einy, O. (2008). *Beyond efficiency: The transformation of courts through technology*. UCLA Journal of Law & Technology, 12(1).

- Reglamento para la elaboración y publicación de versiones públicas de sentencias definitivas emitidas por los órganos jurisdiccionales de primera y segunda instancias del Poder Judicial del Estado de Baja California (2021). https://tribunalbcs.gob.mx/admin/imgDep/Tribunal/Acuerdos/Conjuntos/REGLAMENTO%20VP%20DE%20SENTENCIAS%2010-06-2021.pdf

- Secretaría del Trabajo y Previsión Social. (s/f). Unidad de Enlace para la Reforma al Sistema de Justicia Laboral. Reforma Laboral. Recuperado el 8 de octubre de 2021, de https://reformalaboral.stps.gob.mx/#container

- Soto, L. (2020, noviembre 5). Firma digital versus firma electrónica: ¿en qué se diferencian? https://blog.signaturit.com/es/firma-electronica-versus-firma-digital-que-se-diferencian

- Supremo Tribunal de Justicia del Estado de Sonora. (2020, septiembre 8). Solicitud Acceso a Expediente Toca. https://www.youtube.com/watch?v=TMQxlAl-DEb8

- Susskind, R. (2019). *Online Courts and the Future of Justice. Oxford University Press.*

- Susskind, R. (2021). *The Future of Courts. The Practice,* 7(6). https://thepractice.law.harvard.edu/article/the-future-of-courts/

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