e-Courts Project: A Giant Leap by Indian Judiciary

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Abstract. This paper enumerates the efforts made by the Supreme Court of India and proposes a road map of how the existing Information and Communication Technology (ICT) can help Indian judiciary to evolve as more technology driven with increased transparency. The main drive behind the efforts made by the Supreme Court is through e-Courts project. The Government of India has unleashed huge amount of funds to enhance the rate of justice and reduce the piling up of huge number of cases in the courts in India. Various steps have been taken to utilize the power of the Internet to ease the life of the litigant and all the other stakeholders in the process. The efforts are specially targeted to help the poor. The e-Courts project has led to scanning, digitization and digital preservation of case records, enabling video-conferencing for courts and jails, etc. A major outcome of the e-Courts project is the National Judicial Data Grid (NJDG). It provides an online, real time information on around 25 million pending cases in Indian courts are various levels.

This paper also provides insights in the potential of ICT to be able to go far beyond than what is proposed in the e-Courts project. The e-Courts project has mainly provided a platform for the consolidation of the ICT infrastructure in the courts. In order to be able to use all this computing machinery efficiently, more services, beyond as envisaged in the e-Courts project have to be developed.

Keywords: Indian Judiciary, e-Courts Project, National Judicial Data Grid, Pending Cases.

1. Introduction

"Justice delayed is justice denied." said the British prime minister William E. Gladstone. This statement is very much true for Indian Judiciary. Almost 27 million cases are pending in Indian courts, of which roughly 8.4% are lying for more than ten years(Hindustan Times, 2016)(NJDG, 2018). In order to speed up the disposal of cases, Indian Judiciary has started, on the initiatives of the Hon'ble Supreme Court of India, various projects to take help of the Information and Communications Technologies (ICT) in the judicial sector. It is important to understand the potential reasons for the delay before seeking any solutions on the problem. For example, the number of judges may be non-adequate some cases take longer than the others for some reasons. Research needs to be conducted to find the current efficiency compared to some optimal benchmark for disposal of cases. As of now, no such

benchmark exists. Hence, it is difficult to quantify how good or bad the current pace of disposing cases is.

One of the reasons for pendency in Indian courts is high citizens to judge ratio. According to a study, there is one judge per 73,000 citizens (Economic Times, 2018). The same study also reveals that in most of the High Courts of India, on an average a judge spends around 2.5 minutes to hear a case and about 6 minutes to decide a case. This clearly implies that human capacity is a bottleneck in the battle against slow justice as the judges are outnumbered by the number of cases that they have to handle. This puts pressure on judges and is known to be one of the primary reasons for mental stress of judges (CJI Breakdown, 2016). Indian judiciary is known to work hard and clear lots of cases per year but the sheer number is beyond the human capacity of judges. It has been pointed out by one of the Chief Justice of India that the number of judges need to be increased drastically. Apart from appointing additional judges, more scientific ways of fast justice for common human of India are to be sought so that the cases can be decided in a timely manner, without compromising on the quality of justice.

The Hon'ble Supreme Court of India, in order to increase the use of ICT as one of the promising candidates for reducing pendency, created an apex body, e-Committee (e-Committee, 2005) – to implement the e-Courts project initiative in 2005 with a budge of ₹4.42 billion (equivalent to roughly 100 million USD back then) (Action Plan Phase-I, 2005). The goal was to implement Information and Communications Technologies (ICT) to speedup the process of deciding cases as well as to provide a more transparent and easy access to justice. The term e-Court has been coined for a court that is equipped with modern ICT devices. For example, the judges are provided with LCD touch screen machines to write the cases and comment upon them. There are screens and projectors available connected through the local area network (LAN) where it is possible for a lawyer to present the case using a laptop. There are electronic boards available in the court premises as well as online tools to display the queue of case numbers scheduled for hearing in the courts on a particular day. The e-Courts project has implementations beyond just computerization of courts. For example, the delay in reaching summons is one of the big reasons for judicial delay. Hence, summons are being sent using SMS on cellular phones as well. Overall, many mechanisms for direct access of information to the litigant are being deployed. There are also provisions for video conferencing between jails and the courts as well as between courts and courts. Apart from creating a physical ICT infrastructure for the courts, many litigant centered services like e-filing of cases, bringing

reforms by training judicial officers, digitization of legal tools, statute laws and case laws, digital archives of cases, etc. are also being carried out as a part of e-Courts project.

Appreciating the steps taken by the Hon'ble Supreme Court of India, the then President of India, Dr. Abdul Kalam Azad had delivered an influential speech, revealing the potential of e-Judiciary, at the event of launching of computerization of courts by the Supreme Court(APJ Abdul Kalam, 2007).

While much work has been done in last ten years since this initiative, a lot remains to be done as far as the application of computer science is concerned. With this goal of improvisation the Government of India again released a fund of ₹16.70 billion (equivalent to roughly 400 million USD) (Action Plan Phase-II, 2014). e-Courts should lead to e-Judiciary by judiciously interconnecting various organs of the society, government, institutions and citizens providing seamless flow of information between the above mentioned organs of democracy. The Hon'ble Supreme Court has already laid down a solid foundation that can be exploited by computer scientists to make a bigger impact.

A great leap in providing free access to the judicial information was provided by the implementation of the National Judicial Data Grid (NJDG, 2018). Anyone can view the status of the cases that are pending and information related to past hearings that have taken place. The National Judicial Data Grid (NJDG), an important outcome of the e-Courts projects, has data of almost 27 million pending cases. This data can be studied in many ways to come up with the methods to increase the rate of disposing the cases in a timely manner. True, having just the data is not sufficient, it needs to be polished to reach a state such that it can be used to help the judges in the process of making judgments. The current state of art is a bit far from this ideal goal.

To aid to the efforts made by the Supreme Court for making the data publicly available, use of big data analytics have been suggested(Judicial Mess, 2013). Machine learning and natural language processing can be used to find the similarity in the cases that are pending. This can help in a faster disposal of cases as similar cases can be heard at the same time. All the judgments that have been delivered by the Supreme Court and various High Courts are already online(Judgment Information System, 2018). Once similarity between cases can be found, it becomes easier to decide them which will ultimately speedup the process.

2. Relevant Global Initiatives

Many studies have been conducted and initiatives taken throughout the world to use ICT in order to enhance the functioning of government bodies. We are discussing some of the most noticeable efforts in this section.

2.1. European Case Law Identifier (ECLI)

On the initiatives of the European Union Council of Ministers, the European Case Law Identifier (ECLI) was introduced (Opijnen, 2011). The rationale behind the initiative was to provide a uniform metadata for case laws, to help in legal information retrieval. The idea is that once the courts arrive at a question of law, they are advised to look for the similar cases that have already been pronounced by the other courts in European Union. For example, if a case appears in the courts in Spain, and if such a question cannot be satisfactorily settled by the cases decided in Spain, then the relevant cases in the member countries of European Union should be searched. Since the idea of its adoption in December 2010, the project has come long way and now it is expected to gain even more momentum (Marc, 2016). The greater issues with implementation of ECLI was that multiple governments have to collaborate to make it a reality. On the other hand, all of e-Courts project in India under one authority so it is relatively easier administratively. So the success of e-Courts and NJDG should be seen in near future. More initiatives in Europe can be found in (Velicogna, 2007).

2.2. The United States Supreme Court Database (SCDB)

The United States Supreme Court Database (SCDB) was created by Prof. Harold J. Spaeth with a grant received the from the National Science Foundation of the United States (Spaeth, 2014). The data was made available publicly in 1980s and since then the data has been continuously improved. The data has been designed to be providing data and information for researchers belonging to various different communities, including but not limited to law professors, humanists, policy makers, journalists, even some social scientists, and undergraduates and law students. The data includes and classifies every single vote by a Supreme Court Justice in all argued cases over more than a period of five decades. Recently the data has been used by computer scientists to study and predict the outcome of the cases (Katz, 2016). It is worthwhile to note that if such a database can be build for Indian Judiciary then it can help to reduce the backlog of cases.

2.3. Supreme Court of Brazil

The Brazilian Supreme Court faces similar load as the Indian Supreme Court in terms of the number of cases. Since 1988 more than 1.5 million cases have reached the court, which is comprised of eleven Justices, mostly through appeal. The project *Supremo 2.0* aims that visualization of the high number of cases in a more interactive manner. In (Chada, 2015), the authors have presented an architecture for the visualization.

2.4. Other Initiatives

The role of ICT in Malaysian judicial system is discussed in (Bhatt, 2005). Open government initiatives by Kenya are discussed in (Monica, 2016). e-Judiciary platform for a rural community in the Eastern Cape Province of South Africa is described in (Scott, 2010). However, the ideas are at a much higher level and their exact implementation has not been discussed.

3. The e-Courts Project

As briefed before, the main objectives of the e-Courts project is to bring more transparency in judicial matters and to bring the judiciary closer to the common litigant of India. The common litigant of India should be able to access the judicial services without incurring the huge cost that they have to bear today, despite being poor. According to a survey (Daksh Report, 2016), 90.1% of the litigants have annual income less than ₹300,000 (roughly US $4500). Thus, from the beginning, the e-Courts project has concentrated on citizen centric services to reduce the inconvenience occurring to the common human of India due to judicial procedures. We enumerate some of the deliverables of the project. Many of them are also listed on the e-Courts project website (e-Courts, 2016). For a detailed information on e-Courts project, refer to (Action Plan Phase-I, 2005; Action Plan Phase-II, 2014; e-Courts, 2016).

1. Citizen Centric Service: This is the most important objective. The goal is to provide efficient and time-bound citizen centric service delivery. The citizens should be able to feel the part of the system. The information that they require and which concerns them should be available to them without any hassle, including timely justice. As elaborated on the website of a civil society organization that undertakes research and activities to promote accountability and better governance in India, Daksh (Understanding Pendency, 2016),

the ultimate goal should be to reduce pendency to a level that can be considered acceptable by the most important constituent of the litigation process: the litigant.

2. Decision Support Systems: To develop, install and implement decision support systems in courts, i.e., proper mechanisms need to be developed to use the ICT infrastructure in the court that support in dissemination of judicial decisions efficiently. For example, the judgments are to be uploaded to the cloud so that they can accessed publicly. In order to make sure this happens, a uniform case nomenclature must be designed and the judgments must be uploaded on time. This will not happen automatically. The system is supposed to aid in this process too.

3. Transparency of Information Access: One of the biggest challenges that the judiciary in India, or for that matter any where in the world, faces is to show it is transparent. As mentioned in the national policy itself (Action Plan Phase-I, 2005) that those who are beneficiaries of the current non-transparent system may resist the changes. Automation of certain tasks, in particularly the data that is made available publicly is the key to provide transparency of information access to its stakeholders, including the litigant. This will ensure that no human, beneficiary or otherwise, is involved, achieving greater transparency.

4. Justice Delivery System: To enhance judicial productivity both qualitatively and quantitatively, to make the justice delivery system affordable, accessible, cost effective and transparent. As discussed before, a common litigant in India is very poor and generally cannot afford the expense of the justice delivery system. In order to have the fruitful impact of the e-Courts project, the whole system has to be made accessible and transparent to the general public. This will increase the confidence in the system.

5. Court Management and Case Management System: Due to sheer population, the Indian Judiciary faces lots of problems, including the management of cases and the courts themselves. It is envisaged to make policy for managing case loads in the e-Court project so that effective Court Management and Case Management can be administered. To this end, Case Information System (CIS) is being developed to manage the court cases centrally.

6. Interoperability and Compatibility: Indian Judiciary is in a process of making most of its organs modern. They are supposed to be more transparent, automated to some extent. All such softwares

may be designed by different teams with different mindsets. It is crucial to provide interoperability and compatibility with National Case Management System; Inter-operable Criminal Justice System, National Legal Services Authority (NALSA) and other programmes to enhance the quantity and quality of Justice Delivery System.

7. Improving Legal Awareness: According to (Daksh Report, 2016), more than 80% of the litigants have not attended a university or a college. This amalgamates with the poverty and leads to a completely ignorant human being with respect to the rights they possess. One of the achievements of the e-Courts project will be to bring the judicial procedures closer to common man, directly accessible from reliable sources, rather than depending on the man-in-the-middle who may take their unfair advantage.

4. National Judicial Data Grid

The National Judicial Data Grid (NJDG) is a monitoring tool that can be used to identify, manage and reduce the pendency of cases. It provides real time data for the number of pendencies. Figure 1 provides a snapshot of NJDG as on April 5, 2018. It can be seen that lots of information is already available to the litigants as well as to the general public. One can see the cases disposed and filed in last month. It can be noted that separate statistics are shown for the cases that are more than ten years old. The disposed cases are also classified into civil and criminal cases. The registration status of the cases are shown as well as the pending cases are shown. The total pending cases, roughly 27 million, are classified in four categories listed below and Figure 1 shows an instance of the percentage of such cases on April 5, 2018.

1. Less than two years (46.92%)
2. Over two years (28.71%)
3. Over five years (15.95%)
4. Over ten years (8.42%)

Classification of pending cases by women and senior citizens are also available. Monitoring Alert (not visible in the figure shown here), is also shown in which the cases listed on the day of viewing and the total number of courts/judges are also shown.

In the top left, there is a provision for navigation by states and union territories. The portal, as on April 5, 2018, shows the corresponding

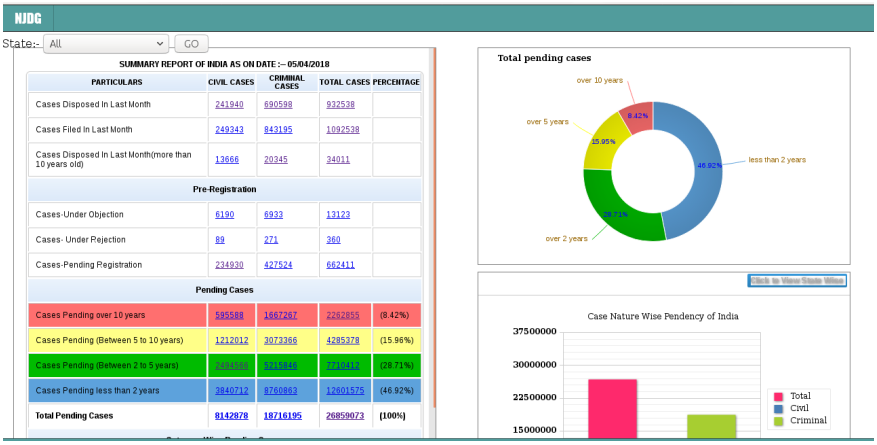

Figure 1. A snapshot of the National Judicial Data Grid as on April 5, 2018.

data as described above for the district judiciary of 32 states and union territorie1s in India. The portal also provides a zoomed in information of data. For example, if one clicks on "241940" in Figure 1 then the cases disposed in last month in various states and union territories can be seen. It can be zoomed even further and one can get up to the court level to find the number of pending cases. This already provides a huge amount of data to study that can help in improving the judicial system.

A similar portal exists for various High Courts as well (HC-NJDG, 2016). As mentioned by Justice Madan Lokur of the Supreme Court of India, NJDG for High Courts will bring out a great deal of transparency in the functioning of the courts and in checking the pendency (Game Changer, 2016).

As shown in Figure 2, it is possible to see the pendency of cases at a finer granularity. In this case, the pendency for various districts in the state of Himachal Pradesh are shown, as on April 5, 2018. We have chosen Himachal Pradesh for this particular figure because it has lesser number of districts and can be easily seen in the picture. A similar graph can be seen for all the states and even districts in each state.

NJDG will be required to improve over time. In order to really help deciding the pending cases, more classification than the current one is required. Various machine learning and clustering approaches can help in achieving this goal as discussed in the next section.

5. Improving the State of the Art

The previous sections have discussed the initiatives taken by the Supreme Court of India to bring judicial reforms. The central entity to such

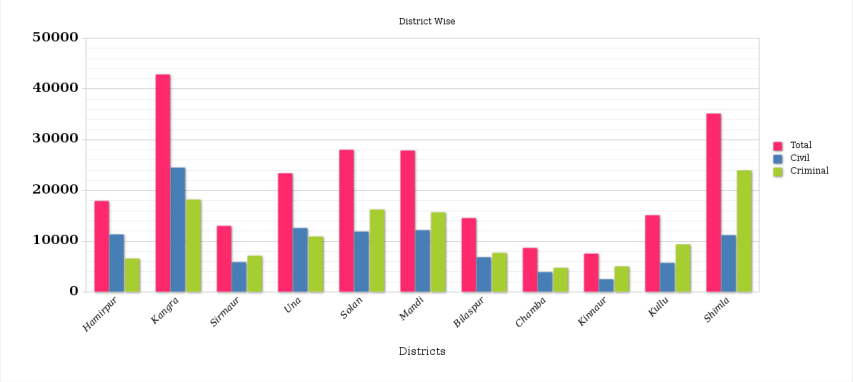

Figure 2. A snapshot of the district-wise pending cases in the state of Himachal Pradesh as on April 5, 2018.

reforms has been the litigant. While the initiatives of the Supreme Court are extraordinary in their own respect, they may lead to under-utilization if more research into the same is not promoted. To this end, in this section, we elaborate how computer science can help achieve the ultimate goals of the Supreme Court's initiatives.

Some of the areas where computer science can be of great help to the judiciary are discussed below. They consider one aspect of the proposed research – scheduling of court cases.

5.1. Design of Efficient Algorithms for Scheduling of Cases

We already know from the studies conducted that a lot of time is wasted in proceedings and hearings that do not take place on the scheduled day (Daksh Report, 2016). For example, as available on e-Courts website roughly 541,000 cases were listed on 29th July in 18,152 courts. However, not all of them get a chance of hearing. If all the listed cases were heard, the pendency will reduce drastically. In fact, according to a study (though not representative and at a very small scale) conducted in (Time Motion Study, 2016), only 6 out of 50 listed cases were heard. This is due to the time spent in adjournments.

As discussed before, National Judicial Data Grid keeps a record of the status of the pending cases. It is envisaged and has been developed as a tool to help reducing the number of pending cases in the courts. It provides very useful information at the case level. For example,

– the age of a case

– the information about the court in which the case is pending

– judge name, etc.

Given that such information exists, it will be underutilization of the resources if the existing data is not studied to design a better scheduling of the cases so that the timely disposal of the cases can be maximized. For example, with all this information it is possible to classify related cases that can be scheduled for hearing on the same date. Clearly, there might be many more variables that govern the scheduling of cases, but the sheer volume of the cases is so high that my conjecture is that one can always find the number of cases to be scheduled together. This will save the time of judges as even if the adjournments are to be made, some cases will be disposed of for sure. Similarity of cases will have lesser context changes enabling the judges to be better prepared. The judges would be required to deal with the cases of a specific nature on any given day instead of a huge possibility of anything related to any law or act. This will enable them to study only the laws and judgments related to the cases scheduled on the next day as they know what questions of law they can expect from the scheduled cases.

From the above discussion, it is clear that in order to efficiently schedule the cases, ways of classifying the cases have to be devised. The next subsection elaborates on how to classify the cases.

5.2. Classification of Cases: Zipf Distribution?

National Judicial Data Grid is already a big leap in the presentation of data on the pending cases. It has potential to change the way pending cases were being handled in the courts until now. However, it can be taken to the next level where it presents even more data. For example, the classification of cases, as of now, is very naive. Only two kinds of cases are listed in NJDG data, civil and criminal. The data can be classified in a much better manner to provide more insights on pendency. The cases can be classified based on relevance with the similar judgments as well as the similarity between the pending cases.

While a better classification of cases already exists, it is not sufficient. The courts have divided the types of cases but this is not sufficient. Even if 25 million cases are divided into 20-30 classes, it does not solve the problem. Mechanisms have to be designed to find the similarities such that solving one case should mean multiple of them are solved by citing the same law or the already decided cases, if available. Mechanisms have to be designed to find the sections of different acts and the articles of the Constitution of India to be applied in the case at hand.

Like social and physical sciences, we may expect that such a huge volume of pending cases follow a Zipf distribution, i.e., there must be

very little number of Sections of the Acts that are responsible for most of the litigations and most of the acts have little number of litigations. In such a scenario, it is easier to find a related case that has already been decided by the Supreme Court or any High Court. The subordinate judiciary may just use those judgments to decide the case if such related cases can be found. The cases can be sorted based on the applicability of different laws and acts. Use of machine learning and natural language processing may help in this process.

5.3. Visualization of Similar Cases

While technical mechanisms may be designed, one has to be careful that the members of judiciary are not used to the jargon of computer science. So the final output should be creating a graphical user interface (GUI) which will help visualize the relationship between related cases will really be a crux of all the solutions listed above. If the related cases can be visualized then they can be scheduled together, saving a lot of time and effort of all the stakeholders.

We acknowledge that finding whether a pending case is related to some existing judgment is going to be a non-trivial task. To this end, natural language processing is likely to play a big role but such kinds of works have already begun. For example, (Schartum, 2016) studies applications of algorithms to law, (Curtotti, 2015) studies the readability of legislative sentences using machine learning. Such techniques can be enhanced and deployed to achieve our goals but exact details are left as future work.

6. Conclusion

It is known that ICT can only assist and the true initiatives have to come from the judiciary (Marc, 2016) and also that achieving progress in India can be difficult unless judiciary is efficient (Justice Khehar, 2016). On the initiatives of the Supreme Court of India, Government of India is investing huge amount of money for modernization of the courts in India. Under the e-Courts project, the courts in India are to be equipped with the state of the art computing machinery. Hence, Indian Judiciary has already taken substantial steps on its part. There is still, however, a long way to go as millions of pending cases are to be disposed properly and timely without compromising on the quality of justice. The mechanisms have to be so designed such that not only the current backlog of cases reduces but also that no piling of the newly registered cases occur. e-Courts project and its subsidiary projects are

a big leap in this direction and it is very much likely that they will start producing the fruitful results in near future. At the same time, the present implementation leaves a lot of room for the improvement. In order to improve upon the state of the art, relatively new computer science areas like machine learning, natural language processing, etc can be used to better utilize the ICT infrastructure procured by the courts.

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