P-942 **Jyoti Kumari, Research Fellow, NJA**

A very good morning to all of you,Before we/I handover to honourable Justice K.S Radhakrishnan, who will be handling all the sessions I just want to have introduction from each one of you and also if you are the member of the HIGH COURT E COMMITTEE and 3rd we would also like to know in two/ three lines what you expect in this, yesterday all got back in your bag progress the schedules and your expectations from this program so that we could try to meet those objectives in the program. so can we start from u sir-

good morning I m Alok Singh from Uttrakhand High Court and I am also heading Uttarakhand High Court E committee. My experiences as a student before coming to the profession, I never learned how to operate computer or computer science however Whatever little I could understand ,that too after joining the bench. So main thing I'd like to stress upon is, right from the very beginning to all the judicial officers to provide computer training not only ..... and taking printout is not sufficient and let me now shared with the August gathering that ours is the first High Court where no undated case is found and every case is available on the net,we have issued instructions in case the petitioners is admitted and moved it is fixed and just say that it will come in usual course and every case will be listed. after the sixth month it will be in the list. So that the litigant may know the status of the case. In case we have also issued instruction to the registry in case court has granted two weeks time to file rejoinder and three weeks time to file counter affidavit. In the sixth week matter will be on the board. Thereafter it is for the judge to hear it or fix a new date. So that no matter should be in the court pending. That's the progress we have done. Thank you very much.

I am Rajesh Bindal from Chandigarh and I am member of the E committee, the main problem that we are facing is that probably in the cadre there is no technical staff we need to have the technical staff to support the system we are all dependent on NIC. Otherwise we're not facing any problem we get all the support from the E-committee and not from the state.

I am Gopal Gowda from Karnataka High Court we are fairly good hardware, training is a big factor and unless handdown training is imparted to staffs as well as officers for officers Academy can provide training but For staff this is a big problem. We're trained to adopt innovative measures but still we are not doing it. We expect this conference to dwell upon the issue of training at all levels and that could be of more help.Thank You.

I'm Justice, Kamal Pasha from Kerala and I and the member of the E-committee as well as on the board of Kerala judicial Academy. I used to make use of the computers for editing my judgement and correcting and everything and it created laws also and have been using this facility for last twelve years and the thing is that my court is the paperless court I have never used paper to correct my judgement and I email it to my PPS so that the fair copy of the judgement can be taken I feel that it is very embarrassing and astonishing result i have achived . And I used to advise to the persons of all districts and most of them are now making use of this. Also that after the workshop I can do more for the district judiciary.

I Justice A. Amanullaha from Patna High Court and also the member of the E committee of the High Court, first I will be very practical the first problem that I've faced a year back when I was inducted in the E committee I found that there was an overall emphasis to somehow achieve results and show statistics what has happened is that it has resulted in our districts about 40% undated cases they just used to fill it somehow because outsourcing to someone and it was

suppose to be done, then when we checked up it is, down 15%, there was no accountability fixed to anyone because somehow we have to reach the results back to without changing the mindset prone to computers and the staff without having any permanent staff, outsourcing people go with no accountability so it is basically zero the achievement that is one problem I can't say it is it is very happy state because we are understaffed it is 50% of the requirement the presiding officers are themself not very keen to use this new system so the POs need to be motivated more because once they keep pressure on the staff then only the staff will pick up as they have to do the feeding and all. That is one point and with training we have sufficiently good results but still Let us see I'm hoping a lot for some solution. And at all India level we need to have a common nomenclatures to find similar cases as there is a lot of confusion around uniform nomenclature. If a case is cited from other jurisdictions we are not able to know the exact jurisdiction as the nomenclatures in different states are different. That is one major step forward I think. Thank you

I am Justice Aol Aradhe from Madhya Pradesh High Court, our chief justice has formulated a new listing policies which is working very well and let me share with you all that this we have 20% vacancies but yet our disposal has increased by 20%. So in this I am also a member of the committee .so we have created various headings for motion hearing matters under which they, come out and let me also share that are High Court is the only High Court where probably no deaths references are pending. Supposing if the Supreme Court passes an order on Thursday that it should come up in an expedited category or where the Supreme Court requests the High Court to hear the case then a supposing an order has been passed on Thursday then the matter comes on the board on Monday and on Tuesday it has been taken so so from this conference I am looking for interconnectivity of law library like various inputs with regard to our listing policies as well.I am Justice Anjani Kr. Mishra from Allahabad High Court I am the member of the E-committee, the basic problem in UP is the availability of funds initially the E committee at install the hardware and now I have been told that it is the State government will fund these projects. This is the biggest problem which we are facing and apart from that there is one issue probably all other High Court are using the NIC website for the official site. The Allahabad High Court has its own website which is not posted by NIC now the district courts are provided access to all sites in the domain of NIC. They cannot access the Allahabad High Court website I think this is a very big issue where the parent High Court cannot be assessed by the district judiciary and something needs to be done about this thank you.

Good morning I am Atul Chandulkar from Bombay High Court recently I met the Nagpur bench of the Bombay High Court and and we have started a good two months And it is in the infancy state and we are in the learning process so whatever "we get from this conference we will try to implement in our state thank you.

Good morning I am Anil Menon from Bombay High Court and I'm not a member of the E-committee. They also have a problem of funding ,because the other day I was on Taxation bench the senior brother judge had digital display and I was using a hard copy so it is a kind of hybrid situation so I think once funding comes in things will improve and the CMIS system, the case management system also needs improvement as there are some loopholes basically it appears to create an issue of funding. From this conference I hope to at least take back useful inputs which can be shared with my colleagues at the idea is to make it more efficient and if one is at doing research in particular also, we will be able to get from other High Court's apart from the Supreme Court will cease to be a problem now so there has to be some kind of uniform search engine which can help us access different views from different High Court's which is lacking with so many databases available but the question is you cannot keep searching in all the databases so if you have some kind of search engine which is centralised feeding,we will be going a great way in improving the system otherwise we are going to do the same things in a different High Court's thank you.

I am Sanjeev Sachedeva from Delhi High Court I am the part of the E-committee Delhi High Court, I started using computers in 1983 and scholar from an IIT we are the part of E- court which is running in Delhi High Court. The 11 benches are e- court and out of these four are division bench which is completely paperless. E-Filing is complete in arbitration company and taxation where there is no paper and e-filing is also in electronic. Companies jurisdiction I was in the company court last year we achieved complete paperless from filing to digital signature achieving paperless court. Even scrutiny etc we have a little bit of progress inE-committee and e- courts and we did not have any difficulty in running the e-courts. I'd like to share something of the hardware and software that we are actually using an Delhi High Court because we have court most of the records digitised and we are very successfully running the e-court in Delhi High Court.

I am Virendra Stdhana from Rajasthan presently and sitting tangible bench the problem of what I felt with this e-system of the district judiciary which is being provided with the computers they may be asked to pay tantalise maximum of the system. This appears which are being provided are outdated or they are not very user-friendly so I would suggest that the latest and user-friendly software must be given to them and second in I'd like to agree with one of my earlier brother the integrity of system of all the High Court's where we have all the High Court database from various icons that will be of great help and guess what I'm looking for and that is what I think would come out from this conference thank you.

I am Rekha Mittal from Punjab and Haryana, I'm not the member of E-committee Justice Bindal waste from Punjab and Haryana High Court has already told about the issues we are going through and process for paperless court.

I am justice Prakash from Madras High Court..... we don't have trained staff as honorable High Court's we are only outsourcing most of it and we have given Mr. Uttapathy to NJA. And as district judge he had started implementing it and we'll donated him to be and all the other infrastructure trained staff is the real problem.

I am Justice Mahadevan from Madras High Court e-filing we tested in one of the benches that but it did not work because lack of staff and trained personnel.

I amJjustice Bedi from Punjab and Haryana High Court although I'm not a member of the e-committee but I was the first court which tried this paperless court and and ultimately it failed for the reasons that bar did not cooperate and second that we did not have trained staff. And and the most burdened person was my steno who had to feed everything in the computer as per night that he knew what others I had to see whatever I have said it could be read by if there was 50 cases in

the list he was able to feed only 20 or 30 so paperless court though ..... venture but ultimately it failed for these reason. I think it has been discontinued but so far as infrastructure is concerned we have got a lot of what I feel is we have got a lot of money out of apparatus but the education and training in is lacking for judges and staff and practical experiences that it is more time-consuming shifting of page you go to one side it is easier to find your page from the paper but from the computer you cannot simultaneously see two pages this is the practical difficulties which I faced. If we want to look and order and generously you want to see an Annexure you had to shift the pages that difficulty was faced by me so I hope that we will be able to improve also. Recently we have got Dragon system and I'm trying that and it is useful .

I am Aniruddha Bose from Calcutta High Court and the member of the project monitoring committee and the Steering committee now our problem is I endorse the problem of other High Court's I have all the problems of other High Court particularly now that the system is migrating from NIC to High Court by a state government we are finding out difficulty but the data satyrs at district level salary was not paid for about four months now that is being clear the problems of all the I think I've liked this program also to address certain macro concerns which eventually aim to replace all the papers in all the courts and whether it is being done for any other organ of the state. Second concern is to what extent all the orders will go in the public domain at the entry stage. The security concern because whatever weeding Is being done, it is very easy to breach. Or hack into the system and once you have the LAN network but what is the security we are thinking of? Because at one level you are replacing paper so the only storage point is that server or cloud or CD or whatever

then the life of the storage. 9697 onwards you started digitising initially we started storing data in CD ag now they have the life of 10 years time, as we are court of records of the, paper from the

1974 that is one. the last one is vernacularization..... has been vernacular data in centralised system so these are broad macro concerns which need to be taught at some level so far as we are concerned of 60 from people to cyberspace these are the main concerns thank you.

I am Justice Roy from Calcutta High Court and not the member of theE- committee I think that my brother who is in the E-committee said everything to you but one thing I must say after the system is followed in our court the litigants are getting the advantage of that but recently we are facing one problem that after signing the order in the same day but when it is put in the server they say that it is not uploaded. I don't know how this problem can be solved but this is my observation. Thank you

I am Justice Taalpatra from Tripura High Court and and the chairperson of the E-committee. The very small High Court and the 64 people and five judicial districts. The report of the Supreme Court committee says that we are doing very well but we have our own problems as well the problems are multifarious and must tell that since Mr Ukrani is here Ubuntu has become a real problem adapting to the software because of the new judicial officers as they are coming to the judicial system are used to operating system Windows and we're just training them and what is happening that despite that strict a administrative order they are using Windows by creating a bifurcations bifurcations by using Windows in the must find a solution to this matter according to me says it is being introduced what Apple expectations from this conference there should be three online accused that someone should be and sing to them the birthplace not accepting it they sound problem of migration also and in this and the cycle they have prepared a mannual as to how to operate ubuntu. The first generation Ubuntu which the e-committee of Supreme Court and the Ministry of Justice must make this kind of manual as how to operate to bring out the optimum use of the system and hard copy it should be supplied to the judicial officers if they really want a

uniform operating system be used all over the country this is the number one number two there was at one point of time the national judicial information as the problem now everything is fine there is inherent inhibition to upgrade the data on the very date. But after that event the Supreme Court committee the is starting a monetaring they are sending a monthly report that there is a discrepancy is in our high court website now goes judicial offices are upgrading the data in the course of the day there will be physically reaction there is this a welcome system but we must not debatable judicial officers how I must say that 99.9% of the data are created/upgraded in the course of the day not for the coercive action but for motivating but the program's there is this particular problem in every High Court and district judiciary perhaps the experience the same the person who was actually handling this kind of uploading tasks they are not trained even I see that the entire state of Tripura has been upgraded to this electronic cause lists system but they uploading the cause lists but in the court they are not using that cause list so what has been taken as the strategy is that in all the districts we have a system officer supervising officer for the system now we have trained them and they are imparting training on the monthly basis and they are monitoring the officers who are not very interested to do that motivating plus training is the difficulty which they are facing. The decentralised that training program which was also a part of the court committee but we have done this and it is giving us an encouraging result second difficulty that we are finding is that NIC they are providing us with the Internet facility I'm just giving you an example that with far-reaching districts the bandwidth is to be 2mbps which is on times 1.2 how we can just criticise our officers why you are not uploading things properly in time because system is refusing them to upload it but in the High Court we are getting it regularly and it is 35 to 40mbps. Because they know these people will be criticising is another proposal is that throughout the country that is this optical fibre is being spread for connecting this including statewide area network I think there is this high time that judiciary must press for an alternate system of Internet

for judiciary and this policy system must come and there is now for the time being that that this is not very easy task to be done alternative firewall access must be given at least to the district system officers unless that is given I think that there would be a lot of difficulty for the time being because I just in our estate I can share the information that wherever it and in the civil judge Jr division level the judgement is pronounced at 4pm,by 7pm it will be uploaded in the net and anybody can see that judgement it is in PDF format and anybody can download it. I also agree with that there should be as sharing system with all types of websites regarding the judgement of the other high courts Supreme Court we can access but there is a problem with the High Court as everybody's having a different database in some High Court they require a password and to be very frank we do not know what is the password so cannot use that site if a security problem I do not know how there can be a concern for security at least with the High Court level they could share the password. Just give you an example that in Bombay High Court they are maintaining a very good library but I found that brothers are from Bombay High Court but they are not updating their library. If Bombay Delhi cannot upgrade then don't expect from us are very small High Court to do it we are in a far-flung and very accessible areas with no technology and giving you an example that is a very sordid kind of an example some systems as well as collapse we informed the vendor after three months they will come because of decentralised system the final word that I've say is that whatever policy decision is taken there should be a scope for flexibility so that reasonable difficulties can be accommodated because we are in the intermediate state meant of virtual courts are visualised by foreign courts maybe someday in Delhi Bombay or Bangalore there could be a virtual court we will be looking at ourselves what we're doing here infrastructure is not there funding is a big issue they should come in for a salvage from this difficulty but I'm not, how there must a policy decision at the highest level so all this are the expectations from this conference that some problems of the is sort or how we're thinking to solve that problem that will

be an enriching experience for us another that how new softwares apart from the hardware development can be used brother from the Punjab High Court was telling about the Dragon software but our experience is very bad.As with Ubuntu,this 12.04 version has come I don't know a lot of things as they incorporated in the Ubuntu before going out for this because sometime back it had become a very big issue of the copy the the that in the open to always there should be a initiative to upgrade Ubuntu as compared to the other available softwares in the market. Thank you.

I am Trilok Singh Chauhan from Hemachal High Court I share the concerns of all what I'd like to say one thing which is very important for me that an High Court level we're not imparting training to High Court judges and probably till the time we don't impart that training it is very difficult even for Them to visualise what the problem is apart from what is being highlighted out here. It should be mandatory at the High Court level that all the judges must be impacted with the training including the member of the committee and a member of the committee but let me tell you honestly that I have not been imparted training so I'm basically very lay-mannish and that it has to become compulsive in fact there should be some sort of training in the High Court. Thank you

I am Justice Manshyam from Gauhati High Court and I'm the member of the E-committee as far as Gauhati is concerned we don't have major infrastructural issues are now the infrastructure is in place all gadgets are available as far as the High Court is concerned and we have taken steps to digitise the records particularly for the Gauhati High Court's and even to include the district judiciary. As far as I'm concerned, I expect to learn from this program as to how we can we can leverage technology to access information. To increase the overall functioning of the courts and I do agree there should be a proper search engine or a mechanism to interlink all the libraries that

judgement and decisions as well as all High Court are concerned in a user-friendly manner thank you.

Thank you very much actually this gives the whole idea of where we are and where we need to go actually in this four days. With this Sir you'd like to say something? It is good that we got feedback from all of you and gives a clear picture as what is happening all over the country I say that if you compare the knowledge of judges on computer-related issues from 1990s to 2015 we are far ahead I'd just indicate a small story not story but all that it happened when I was in the High Court in 1995. I became a judge in 1995 a young lawyer prepared a software on land reforms act because during 1990s there was lot of litigation on land reforms. So he prepared all the case laws and all the sections of land reforms act, a very young enterprenuer..... he did not have the legal Background he came to the Kerala High Court during lunchtime we saw it. He made a demonstration.mokery was made as you all know how the lawyers behave,.....

funding is not a problem at all either the Central government or the State government for we can raise funds funds is not a problem the problem is lack of knowledge use of this IT tools honourable judges and it can take some steps see that proper training is given even at the state Academy level as well as the in the High Court level. I will just referred to nine heads that is good for further discussion. These nine heads are compiled by one expert in the field and he has narrated this nine heads how the technology can be used to enhance the Indian judiciary with nine heads , I will just give you only the heads through proper use you can reduce the arrears of the cases. Most important thing by use of this technology we can use this tech. arrears In clubbing the cases i.e the same type of cases because in various records it is impossible to find out what kind of cases lawyers have filed they might have got interim orders cases which have been dismissed on the same point if they make another case for the entry model and it will live for years and years so

reducing in the process by clubbing of the cases touching upon the similar points of law it can be reduced to reduce multiplicity of the proceedings that is one highlight I have made.Cases that have been infructuos and the interlocutory applications online for years and years. They disposed of cases can be listed using the technology on a priority basis this requires clearing at the registry level district Court as well as High Court bench then quick delivery of judgement it is an assurance to the litigant public as well as judges also that you will not delay judgements. So when a case is heard, and it is put up for final hearing it should also be displayed on the website so quick delivery of Justice and part of digital resource management. Judgement of the courts can instantly be posted on the website. Instead of using the practice of giving hard-copies. Effective use in the lower courts.

Fourth head everything should be connected into national judicial data grid which has information concerning pendency, of the stages of disposal improving evidence collection currently parties are required to be physically present for the evidence and record his statement e-filing can save time and evidence can be recorded using video conferencing . Then upgrading courts infrastructure and automated decision-making system ensuring brighter dissemination of law. And phasing out paper. These were the nine heads he has find out. If we concentrate on 9 heads, I think it will cover all the areas. I will elaborate these heads when the discussion go further, at the moment and not taking much of the time but there is a need of tracing the history, as to when e-committee was formed and what decision and policies were made. And it is necessary for us, the basic thing for us at this time is this lack of knowledge lack of training. One of the very important point highlighted by one the judges was security concern because that is a very important as the draft of Supreme Court judgement was in the possession of the lawyer previous day the the judgement was delivered. The draft of the judgement how it came out of the judges residenc,soe security is a very

very important concern. And as far as possible as one of the judges was pointing out outsourcing which is also sometimes dangerous. Of course to begin with we have the trained staff and all the High Court and district courts properly trained staff rather than outsourcing because in our judiciary we have to keep secrecy also that outsourcing answer we should slowly slowly scrapped is also a very very important point raised by one of the honourable Justice and there are a few other matters also that I will deal with whenever the occasion arises. Now Mr A.K.Ukrani to speak on national policy and action plan.

Session 1 by Mr A K Ukrani on national policy and action formulation

Thank you very much Lordship. Before I begin my humble submissions I recall the days when honourable Lordship was Chief Justice to Gujarat High Court and I was there in computers cell. One great gesture of Lordship has has helped me as the judicial officers which touches upon something recursively discussed in the deliberations we have so far. I had applied for permission of some technical training through distance education it was rejected. The course was diploma in cyber laws six months course I was just probationer of two or three years service so I get silent for two years. Lordship was the Chief Justice and I heard that someone was given permission to do Ph.D also. Then I again dared to reapply the admin judge again said no that you should not be given permission Lordship overruled it and I got the permission did that small course it was through distance education that is the C and L diploma in cyber laws so that part is they are in my life because of Lordship and such initiatives are required at every level so that training that to technical training gets due importance for judicial officers or honourable judges. When

honourable Justice in charge e-committee honourable Justice Mr Madan Lokur Saab places for training of all judicial officers so intensively that at some High Court's when we go there we are also told that y r you people so much after training. I can't share what I have to hear from some of the honourable chief justices here that you people are always doing this thing only. This is also the ground situation, with regards to training. I will be very happy to inform honourable judges in charge E- committee that one of the honourable High Court judges emphasised the need of training for honourable High Court judges also. That is a very inspiring point for us that this is also felt at some quarters. So I tried to touch upon this national plan and action policy. This discussion needs greater time in fact but I will try to summarise as far as possible and this discussion actually touches upon any of the questions and issues raised by honourable judges here and I also have a duty to respond to whatever and they said about Ubuntu. The for that also I'll take your time and I have third session also so so from that session also I will extract some time to answer some of the issues said about the Ubuntu that it is becoming a problem I will deliberate on that also but before that the policy and action plan document. See I have no presentation no PPT, so I don't want to impress upon some slides coming from here and there and there some sound and this and that. Let us go to bare thing itself, no commentary, no bullet points the actual operational version of what was approved at the full coram of the E- committee and their particular full e-committee was chaired by none other but the Chief Justice of India himself being the patron-in-chief of the e-committee so this was on 8th January 2014. What happened was that we have a national policy small book a national policy for computerisation of courts across the country which was created in 2005 it was also approved by the Chief Justice of India and then on the basis of that in 2007 at two years phase 1 was formulated that there would be a phase 1 of e-committee that phase 1 to time to start instead of two years it took three years four years and the government came up with another extension of one year against the wishes of the judiciary. So ultimately till March 2015 we

were phase 1 only phase 1 of the courts project. So whatever targets were set till 2010 2011 were just implemented or trying to implement. Till March 2015 even though those targets were not met the target was to 14,249 courts to become computerised. 14249 was a very known figure in our office 142 for nine so out of 14249 the government and NIC could computerise only 13,400 courts only. So again 1000 courts remained out of phase 1 targets also. Even after one-year extension given to NIC to implementing it. That extension was opposed by the institution saying thatlet us go to faced to in two straightaway, without again having an extension of phase 1. Because phase 2 has lot of new initiatives. But the government said no we have to have extension. So that extension was there and nothing was added during that extension and then during that extension or before that extension the government was pressing for a new document for phase 2 of the project. Keeping in view the lessons learned in phase 1 this is the outcome of that exercise. This is prepared in-house by the e-committee of Supreme Court of India with inputs from Department of Justice government of India and also the NIC for some aspects of this document. So this is the 14 chapter book in fact and in addition to introduction we have implementation module here. My request to all honourable judges here is that this book is supplied in the book supplied here. It is 100 page book if this book has been gone through half of the questions could not have come whatever has come, half or more than half. This implementation model is a major shift from phase 1 to phase 2. How it is to be implemented one honourable judge has raised this issue very aptly that the problems are coming because everything is handled at Delhi. The inventors are being managed from Delhi. And then whatever the problem the CPC will call the e-committee at Delhi office and then we will tell NIC to please tell vendor to do this to do that by this date or by this time. And and things like that and venders don't listen because they are paid by NIC and they are to serve the courts in the regional areas they don't listen so centralisation to too much was a the big problem in phase 1. This implementation model says no centralisation henceforth neither the

Supreme Court of India nor the Department of Justice government of India and also not NIC at Delhi will directly deal with vendors any more. They have been prohibited to deal with vendors that all vendor management right from the publication of the tender up to the issuance of purchase order everything will be decentralised to honourable High Court's so not the high courts are the implementation agency, and show you the the government document also officially the Cabinet has approved this model that high courts are the implementation agency for phase 2 of e-courts project. funding model was big big problem. If you go through the minutes of that document someone saying High Court should not be the direct channel for sending funds from state government to High Court's and some other quarters pressing for it. What the Chief Justice of India commented on it and what the attorney general of India commented on it what honourable Justice Lokur Saab has to say on this is very very enthusiastic. And government agreed informally telling us that this is for the first time after the independence of the country that some funds will go directly from central government to the High Court's otherwise the regular channels is through state governments or through somebody in the central government like NIC was purchasing and was sending the goods to High Court's or for some small activity NIC was sending funds to all the high courts also. For that government had no problem for that government said that we will not send of funds directly to to High Court's we have some consolidated funds issues, we have some state government reservations they dont want us to deal with some of the state governments organs directly on funding issues these were big big problems but the Supreme Court of India was particular about this that no extras channels and we want of funds to go directly to the High Court for computerisation. And this has been approved this is in place right now, this mechanism is official now so this implementation model is one big thing now no centralisation. High courts are the boss now. They will select vendors they will deal with the vendors because that day one of the officers was commenting on one of our meeting that venders only listen to paymasters. They don't

listen to anyone else. The only listen to those or the institution which is ultimately going to pay to them. It does not matter from where the funds have come from. So this is the decentralisation, ownership of high courts, So High Court's is becoming very very important in phase 2 of e-courts project. So this is what is there an institutional model, infrastructure is there where the e-committee's there at the Supreme Court level there are computerisation committee at High Court most of the honourable judges are the members E committee , two of them are the chairperson of the e-committee **who** are participating in the seminar so that computer committee is the decision-making body at the High Court level so the work at the computer committee and High Court level will be assisted by CPC is going to increase manifold because now authorities there discretion is there, responsibilities there. How Cabinet approved it Cabinet said that see funds will flow from Department of Justice to that on renewal grant from their annual budget. The funds will be first sent to Supreme Court of India in a separate an exclusive bank account then e-committee Supreme Court of India will be passing those funds to high courts. High courts will utilise the funds give utilisation certificate back to the e-committee Supreme Court of India and e-committee is benches forward the certificate to Department of Justice that these many months funds have been spent or utilised by so-and-so High Court. Now they have more courts to be computerised so please release the funds. That is the mechanism which have been finally approved. So institutional structure is talking about that. After that the chapter number four on infrastructure model, I'm just on the index page pages hundred page document. I will be only referring to some pages there my brother the central project coordinator from Jharkhand High Court has to talk on infrastructure also that what is going to be provided to the courts in phase 2 so he will be touching this sector four also that is for court this much be provided for court complex this much be provided so that is also there so I will not go into the depth of it only the salient points I will touch that four computers were provided in phase 1 to each court. TheE- committee stressed that four computers are not

sufficient, while drafting of the book neither NIC nor the government was agreeing that you need more than four computers per court. We counted staff and we took into account the admin wing of the court, library ,the record room, different counters for facilitation services to litigants and we pressed that actually we need 13 computers per court. But they said that you don't have that many people with u, so finally eight systems per court was agreed upon. So what will happen is that the courts which were not covered in phase 1 will now get 8 computers per court. And those courts covered in phase 1 which got four systems will get additional four system per court.Kiosks will be there, there will be monitors outside each courtroom to display what is going on in the court. There will the composit display boards in the building to tell people that see this court is handling this matter,there will be devices given to process servers the bailliffs recall in Maharashtra and Gujarat. The process servers get PdS the devices that will have GPS and GSM connectivity. Process server server visiting a place, he will punch if the processes is served. The person will be marking his thumb impression in the machine itself and the machine will be recording the this transaction happened on this location of the earth. So the cases of process server sittinging in the court making endorsement on the processes are to be avoided. So these digital devices are now allowed and we have four process servers in court establishment and we have done counting and sufficient devices are planned for that activity also. So that is an overview of what is to be done because we are talking on policy and not details. Chapter number five system and software applications for judicial process, this chapter no. Five talks about software software and software. And sharing here with an expectation that I may be able to create some curiosity so that this book is referred later on, expecting that those details would be referred later on. I'm just touching the macrolevel issues macrolevel aspects. This chapter talks about what policy and what philosophy judiciary would be following as far as software is concerned. One document if I could share with you which is sanction order from the government of India of this book, when this book was

documented people started saying that the way you were going it is going to be hundred page book have you paid attention to the budget as how much amount of money will be required. The first time accounting was done it was 2400 crore rupees. So some people say no drop it, minus half of the papers and bring it to thousand crores but the judge in charge e-committee Supreme Court of India said that lets attempt the whole thing and see what happens. When actual calculations made this became 2800 crore rupees and when this 2800 crore rupees proposal went to Central government they said see out of this 2000 crore rupees eleven hundred crore rupees we cannot provide to you because those activities are touching upon some activities which actually state governments should do whatever they I think you will be worried about. The records lying in the district court record room are not Central government papers they are state government papers. So we will not pay to digitise them we will not pay to scan them so 750 crore rupees were reduced. Then 300 crore rupees there more there for technical manpower for each for court complex. A technical cadre was a problem in the issues raised we will not provide because there is no central project can provide employment. They have their own financial regulations or some thing like that. So 1100 crore rupees were reduced but something wise prevailed and what happened that they gave us an idea **that** put these 1100 crore rupees on 14 Finance commission. A proposal by Department of Justice and Department of Justice agreed to it..... are going to come from 14 Finance commission and that is also approved. So in a way the whole book is approved, the whole policies approved. 1670 crore rupees breakup is here. We have to spend this in four years. So Lordship very rightly told us that fund is not a problem. I'm repeating this, for district courts also for district court computerisation we can repeat this which is not going to be a problem..... four years is the project period. Here I will say only one thing I will continue with that my third session because time is up but one thing I say out of these 13 heads totalling 16/ 17 crore rupees, not a single rupee was either proposed or approved for software. Not a single rupee is for

software. When Ubuntu Ubuntu is raised here on some hearsay thing I have to submit very humbling that we are not spending single rupee for software we are not purchasing any software we are only using free and open source software in the project I will be tackling this free and open source software in my third session this is the reason that we could limit to 16 or 1700 crores of rupees otherwise it could have become more 2400 crore only this much or these people would have decreased our hardware to 5 or six computers only ..... so I think maybe director will inform us about the timing we have.

See this 42.7 crore is for the people who will be developing our case information software. See how free and open source model works is that we will not be purchasing software the operating system is also free and open source about Ubuntu we can have lots of discussion and if I can lists the organisations which are using Ubuntu I think that it itself can be the answer. Supreme Court judgements whatever coming on the website they are coming from Ubuntu systems only ,no court master is using Windows they are not being provided Windows we don't ever purchase any software in Supreme Court registry also. I never signed a document on note or proposal give me 50,000 for software purchase. We are doing with open source activities I will touch upon that this is for those people sitting in NIC Pune for developing our softwares for CIS and we are giving the project is giving five programmers for high courts also to develop the periphery of CIS. See one model is there in the software, how it is done is that honourable judges in charge e-committee mooted this idea and was approved by the e-committee and the government and approved by honourable the Chief Justice, India. periphery model for whatever softwares we will be developing in the Supreme Court of India, because being from the federal structure we have something common across the country. And we have many things not common across the country those regional differences in their practices in the rules so those regional practical differences of rules

and customs or any other state regulations state legislations will be taken care of, the similar software will be created by High Court teams and then integrated with the central part of the software. The central part of the software will be, called core software C O R E software and the regionally different software will be called the periphery software. So this will be core - periphery model. So for example whatever happens in the core as per the CPC CRPC and our established practices is common across the country. Obviously we have studied those processes. We are identified about a dozen activities which will be common across the country so one software will take care of and we are identified some modules where some differences are there, major differences are there. For example maintaining of judicial accounts the Nazarat the payment of fines and penalties court fees and things like that. They are not common across the country so that the Nazarat module, judicial accounts module the registers that we maintain in our judicial accounts is left to the periphery part. Process server module is periphery part. The notice generation is core but managing our process serving people what work was given to whom, whether the process served came served or unserved is periphery part. Certifying copy module is periphery part. So these are some of the examples. Please don't think that we are not going to give anything in periphery, we have some base periphery also developed for this which can be supplied to the High Court. Five programmers will be given, those programmers will be trained so that they can change the periphery as per the requirement of the High Court and that can be integrated to the core. So this 42 crore rupees are for the five programmers for High Court 30 programmers for NIC Pune team. And ten programmers are provisioned for the e-committee of Supreme Court of India. The e-committee is also going to have a software team first some of the software in the Supreme Court of India for judicial application like admit status which we have to implement. So for this 42 crores are coming. So because we are going for open and free source model no budget has been sought on the software side. So this is chapter 5.1 declaration is made

in chapter 5 the industry says you know this free and open source software is so important that if we don't think about it or know about it I think this is GK part article of general knowledge. FOSS free and open source solution the industry says that the Department of information technology and communications government of India(DIETY) it is the Department of Central government of India they just came UP with the policy in this new regime about six months back policy of adoption open source software in government applications they have came up with the policy they say as much as is possible only open source software will be implemented in all government applications this is the statement by government of India. And if the Department goes for non-open source and pays from public funds for their software they have to give reasons for that that is the policy approved policy. Even a year or more than that this declaration was there in this book in this policy and action plan. So there are some industry people working on FOSS, there is a community of people for open source system working inside the country and abroad and they are watching everything they say that Indian judiciary as propounded the concept of open source software as no other institution either in the country or outside the country they say this policy was already there in the judiciary which has just been replicated in the Central government policy of adoption of free and open source software. So we have made a declaration in that book that only free and open source software will be implemented and be sought no money for software from the government. So this is chapter 5. I expect that chapters will be referred after this discussion. Chapter 6 is on scanning digitalisation and digital preservation of records. here also lot of things were touched in inputs. In fact I am here only for the first day only I was not permitted for more than this because some other activity at there in Supreme Court. So I got the benefit of having this kind of open house discussion in introduction session itself so that I can touch upon some of them. On scanning digitalisation and digital preservation of records all record rooms of the country of district courts be digitised and proper meter data to be fed. Retention policy to be framed as one of the honourable

judges said for how much PDF we're going to preserve even the soft copies. High Court and Supreme Court being the court of records that perpetuity aspects is there that we have toh old records forever but for district courts we have different angle for different category of records right from six months to 2 years three years five years and 30 years. So that policy also has to be built in digitised record, scan and proper meter data fed, type of document who submitted it the date of document whether it is litigant submitted or court generated. Then weeding of the record done what is not to be preserved in the first instance itself removed them the file is ready to be consigned to the record room that part to be digitised and all information to be fed in then we will have server in the central place that thing will go to the server will be stored and acknowledgement will be given back to the respective courts and record will be made available to be respective courts to authorised users that see you can use this. Even the certifying copy Department can use that virtual record for supply certified copy either in hard to supplied the website because all of the documents will be digitally signed. One question from honourable judges input was that whether any other department has done it as you have heard that Delhi High Court has done a lot in scanning and digitalization honourable Punjab and Haryana High Court has scanned 12-14 crores of pages of records. Supreme Court of India honourable judges committee had directed that this activity should be started on pure free and open source model which is working and about35 lakhs of paper/pages have been scanned digitized. They have been put in document management system called D-space. This is world renowned document management system it is free it is by MIT USA then adopted by all other government and non-government bodies. Now we have this D-space install Supreme Court of India, and we can get 1986 civil appeal give the judges name party name date of decision , search that it record, click it, PDF file digitally signed right from the petition to the statement of the case the reply whatever document is including the impugned judgment and then the judgment of the Supreme Court of India everything separate Digitally signed and then

consolidated into a single file also and put into that D-space with content searching. I will type out a word culpable homicide not amounting to murder if that is there in any of the documents referred that result also I will get through content searching that is in place in fact some of the delegates from Delhi High Court may be aware about one recent communication being sent from the attorney general of India to all High Court's that one public notice be published on the website of the High Court that civil appeals from 1986 to 1993 , the original case records is going to be destroyed very soon. Further, that D-space is the destination of a file but we don't stop there. When I talk of Dspace, it is only up to digitalization, please see the last phrase digital preservation this is something very very important, just digitize it putting it in a laptop or hard disk or in the server room is not going to serve the purpose of rules requirement of preservation of records. Supreme Court rule says to be preserved perpetually for ever and the recent Supreme Court rules 2013 says that the case records of this post Supreme Court cases can be preserved either in physical or electronic form including scan microfilmed microfiche and all other different kinds of electronic forms. As per the decision of the Chief Justice of Supreme Court of India. Whatever form is selected is good for ever. So what be selected in scanned and digitized form then we did digital preservation, this digital preservation is a new concept C-DAC centre of development of advanced computing under DIETY, sibling of NIC that body had created a software in touch with Delhi High Court for Delhi district court to do digital preservation. What do you mean by digital preservation? Is honourable judges and working on PC since 1993 they will be aware that there used to be a software called what star in those days. We used to type out WS files WS 7files and now that software is not there but those judges have collection of whose WS files. Now what to do to those WS files because software which could read those files are extinct. It is not there at all. This can happen to doc file also this can happen to PDF file also, Tomorrow no software will be there to read PDF files then what will happen. For that digital preservation. So what digital

preservation does and does not only preserve the content it preserves the software also. So after 50 years from today is Microsoft Word is not there or Ubuntu is not there, Libre office is not there document viewers are not there are even then PDF can be viewed from our eyes and can be printed on any hard surface like we use paper today. After century from whatever analog methods are used different from the traditional methods for viewing contents are there it can be used. Noida near Delhi has the data centre of C-DAC, and we have started, transmitting our records to noida and after digitalization the destruction will start. The same model is going to be adopted by the district courts also all softwares will be given to all high courts also.so that no further software development is required.just tender it out get money from 14 finance committee from state and put those copy in D-space for certifying copy.so this was all about scanning digitization my 3rd session is about chapter no.-11-Judicial system knowledge management system. Thank You Lordship.

Thank you Mr. Ukrani You have justified my decision of sending you on training. Statesman has this news about funding and Mr. Ukrani has also said that funding is not an issue. how to get our officers trained is a big problem. Now we will have a tea break and we assemble again at 10.35 for next session.

Session 2

Welcome back. We will first be hearing from Sanjeev kr Das form Jharkhand on ICT infrastructure. Thank you very much. A very good morning to all of you.when i was given a task to come and speak for Hon'ble High court judges as Resource person, I was not sure of the focus but after the introductory remarks we came to know what the Lordships are having in their mind. We are made aware of documents by Mr. Ukrani. In phase II, we have the infrastructure in phase I, as

positioning exercise to take off to higher heights and achieve results. when in 90s computerization started and then 700 then900 courts were taken in city courts. then need was felt that planned or phased e-court movement is required. I will just show the deployment of hardware in phase i-we were given 2 system for court and one for JSC and for other as 1+3. now it is in phase II it is 5+3. page no.....U just concentrate on infrastructure. It is dealt in chapter 4 of phase II document. Can u kindly tell progress in Jharkhand. 22 districts in phase I and all of were taken as in I except Ranchi which was in capital city project.we have hardware and all kinds of connectivity, data is uploaded and sms is sent. We are starting for Phase II whereby Ramgarh and 4 other are joining. Phase two document.....We are going to have 14 LAN points, display boards.

I am N.G.Sherpa from Sikkim and I will speak on-INFORMATION AND COMMUNICATION TECHNOLOGY INFRASTRUCTURE MADE AVAILABLE TO COURTS IN INDIA.A very good morning to all of you. Before I come to the topic I would like to share that when I started practice I bought a mobile and my senior scold me for use of technology and now he himself carries two mobiles and he is finding this usage of technology very useful.

Information and Communications Technology (ICT)

Information and communications technology is often used as an extended synonym for information technology (IT), but is a more specific term that stresses the role of unified communications and the integration of telecommunications (telephone lines, wireless signals, Internet, networks, etc), as well as necessary enterprise software, middleware, storage and audio-visual systems, which enable users to access, store, transmit, and manipulate information.

ICT TOOLS AND ITS RELEVANCE TO THE JUDICIAL PROCESS

To bring about a technological revolution in the judicial process various ICT tools must be put in place. Here are some ICT tools and its relevance to the judicial process.

ICT TOOLS AND ITS RELEVANCE TO THE JUDICIAL PROCESS

- Publishing Tools
- Word Processing Tools
- Storage Management Tools
- Regional Language Tools
- Intercommunication Tools
- Fingerprint Recognition System
- Internet, Website and Email tools
- Tools for Encryption, Recognitiozn of Digital Signature, etc.
- Voice Recognition and Recording Tools

ICT TOOLS AND ITS RELEVANCE TO THE JUDICIAL PROCESS

- Imaging and Scanning Tools
- Web-enabled Connectivity
- Bar Code Technology
- Document Management
- Database Management System

1. Courts database
2. Location/address database
3. Judges database
4. Court Staff database
5. Litigants database
6. Advocates database
7. Case database
8. Case Updation database
9. Exhibits and Witnesses database

ICT ENABLEMENT OF INDIAN JUDICIARY

In the Indian Judiciary, need was felt to make the programme of ICT enablement of the Indian Judiciary mission-critical. Effort for computerization of Courts and its processes have been going on. This mission mode project is termed as eCourts Project.

ICT ENABLEMENT OF INDIAN JUDICIARY

The main objectives of the eCourts project are:

- To help judicial administrations of the courts in streamlining their day-to-day activities
- To assist judicial administration in reducing the pendency of cases
- To provide transparency of information to the litigants
- To provide access to legal and judicial databases to the judges
- To reduce use of paper (paperless courts)

ICT Modules under the eCourts Project (Phase- I)

- Site preparation of Judicial Service Centre (JSC)
- Procurement of hardware
- Power backup for the hardware
- Communication, connectivity and LAN (Local Area Network)
- Software (system & application software)
- ICT training of Judicial Officers & court staff
- Technical manpower / support staff
- Data sharing with centralized Delhi server (National Judicial Data Grid)
- Distribution of laptops and laser printers to Judicial Officers
- Digital signatures for Judicial Officers
- Video conferencing
- Website

ICT Modules under the eCourts Project (Phase- I)

SITE PREPARATION OF JUDICIAL SERVICE CENTRE (JSC)

A dedicated area for housing the servers and related ICT equipments was to be set up at each subordinate court complex. This will also serve as the Judicial

Service Centre, a citizen service interface counter for provision of various services such as case filing, status inquiry, etc at the court complex.

Sl. No	Type of Courts Complex	Space and number of windows required at the JSC
1.	1 Court/Judge	100 Sq Ft. 1 window
2.	2-6 Courts/Judges	200 Sq Ft. 2-6 windows
3.	7 or more Courts/Judges	400 Sq Ft. 7 or more windows

PROCUREMENT OF HARDWARE

The site preparation was followed by the procurement of hardware. As in the case of site preparation, the quantity and type of hardware to be procured by the court were ascertained by the number of courts in the courts complex.

S.No	Hardware Description	Type of Court Complex		
		1 Court/Judge	2-6 Courts/Judges	7 or more Courts/Judges
1.	Desktop PCs	1	2 to 6	7 and above
2.	Thin Clients/Workstation	3	6 to 18	21 and above
3.	PS1 Server with monitor	-	2	2
4.	HP Mono Laser Printer	1	2 to 6	7 and above
5.	TVS Dot Matrix Printer	1	2 to 6	7 and above
6.	Scanner	1	1	1
7.	USB 500 GB HDD	1	1	1

8.	Server Distribution Media	-	1	1
9.	Projector	-	1	1

ICT Modules under the eCourts Project (Phase- I)

POWER BACKUP FOR THE HARDWARE

Provision for powerbackup in case of power failure is also provided as follows:

Sl. No.	**Power Backup System**	**Type of Court Complex**		
		1 Court/Judge	**2-6 Courts/Judges**	**7 or more Courts/Judges**
1.	500 VA UPS	1	2 to 6	7 and above
2.	1 KVA Online UPS	1	1	1
3.	5 KVA DG Set	-	1	1

ICT Modules under the eCourts Project (Phase- I)

COMMUNICATION, CONNECTIVITY AND LAN (LOCAL AREA NETWORK)

LAN materials/equipments are provided for setting up server-client network in the Court complexes as follows:

Sl.	LAN Components	Type of Court Complex		
		1 Court/Judge	**2-6 Courts/Judges**	**7 or more Courts/Judges**
1.	Switch	8 ports and 24 ports switches depending upon the number of courts and number of rooms in the complex		
2.	Hub/Patch Panel	CAT 6 Hub/patch panel, 8 ports and 24 ports depending upon the number of courts and number of rooms in the complex		
3.	LAN Access Points / Information Outlets	7 and above depending upon the number of courts and number of rooms in the complex		
4.	Wall Mount Rack	1 and above depending upon the number of courts and number of rooms in the complex		
5.	Patch Chords (3ft)	Equivalent to the number of LAN Access Points		
6.	Patch Chords (2ft)	Equivalent to the number of LAN Access Points		
7.	CAT-6 cables and PVC Conduits	Total length of the Cables and Conduits were ascertained from the survey carried out by NIC prior to the procurement of the LAN		

		components

ICT Modules under the eCourts Project (Phase- I)

COMMUNICATION, CONNECTIVITY AND LAN (LOCAL AREA NETWORK)

The Judicial Officers have been provided with BSNL Broadband Internet Connection at home and office to be used with their laptops. Court complexes have been provided with the 2 mbps leased line Internet connection/BSNL Broadband internet connection to facilitate data sharing/data upload in the NJDG (National Judicial Data Grid). Equipments provided are as follows:

Sl.	**Communication Components**	**Type of Court Complex**		
		1 Court/Judge	**2-6 Courts/Judges**	**7 or more Courts/Judges**
1.	2 mbps Leased Line-Connection	-	1 Router, 2 Modems, Ethernet Interface Card and WAN Interface Card and patch chords	
2.	BSNL Broadband Connection	DSL modem and patch chords		

NICNET has also been provided in the court complexes as a part of communication infrastructure.

ICT Modules under the eCourts Project (Phase- I)

SOFTWARE (SYSTEM & APPLICATION SOFTWARE)

System Software/Operating System

System Software (Ubuntu 10.04 LTS) was preloaded in the desktop PCs that were procured under the eCourts Project. Later the Ubuntu version was upgraded to 12.04 LTS and now 14.04 LTS is the latest in use. The system software in the laptops of the Judicial Officers have also been upgraded to the latest Ubuntu 14.04 LTS as per the directions of the eCommittee. Suse Linux Enterprise Server 11 (Server edition) was preloaded in the servers procured. Later the server version was upgraded to Ubuntu Server 12.04 LTS.

Case Information Software (CIS)

Initially CIS Version-1 (Delhi Version) was rolled out. Later during the year 2012, CIS UNC 1.0 (also termed as Pune Version) was rolled out and is now effectively in use in most of the courts complex. CIS UNC 2.0 which is currently in a testing phase will soon be implemented across all the courts in India.

ICT Modules under the eCourts Project (Phase- I)

ICT TRAINING OF JUDICIAL OFFICERS & COURT STAFF

ICT training had been planned to be imparted to judicial officers and court staff with an aim to make them familiar and proficient in the use of ICT tools. Judicial Officers have already been trained in Change Management and UBUNTU 12.04 and 14.04 Operating System. Master Trainers from each state are first trained at the National Level. The Master Trainers in turn imparts training to the Judicial Officers of their respective states. The court staff are also trained in Change Management and CIS. Selected staff designated as Master Trainers (also termed as District System Administrator) from each district are trained by National Trainers at the National Level. The Master Trainers in turn imparts training to the staff members of their respective districts. Numerous training programmes and refresher courses for Judicial Officers and their staff have already been organized by eCommitte and the High Courts.

ICT Modules under the eCourts Project (Phase- I)

TECHNICAL MANPOWER / SUPPORT STAFF

Technical manpower is to be deployed at all district courts, HCs, HC Benches and SC under the project. The technical manpower will provide ‘troubleshooting’ support and necessary maintenance and training support at the court complex and assist in transition from a manual case management system towards an ICT enabled one.

The Technical Manpower deployed are as follows:

Sl. No.	Court	Technical Manpower/Support Staff		
		Sr. System Officer	System Officer	System Assistant
1	Supreme Court of India	1	1	2
2	High Court	1	1	2
3	District Court/Subordinate Court	-	1	2

ICT Modules under the eCourts Project (Phase- I)

INFORMATION INFRASTRUCTURE FOR THE COURTS

National Data Centre, Data Sharing / Replication With The VM Situated At Delhi Server.

The data entered in the CIS has to be shared/replicated with the central sever situated at Delhi. It is planned that all courts should be brought on to a unified network and a national data centre be made available exclusively for the courts. A disaster recovery plan also needs to be put into place. The network of servers of all courts complex and the central Delhi server is termed as NJDG (National Judicial Data Grid). With the help of NJDG the case information of all courts across India is available in the internet through the website www.ecourts.gov.in.

ICT Modules under the eCourts Project (Phase- I)

DISTRIBUTION OF LAPTOPS AND LASER PRINTERS TO JUDICIAL OFFICERS

Laptops and Laser Printers have been provided to Judicial Officers. Personalized Training is also being imparted to Judicial Officers in Ubuntu Operating System and Libre Office Software.

ICT Modules under the eCourts Project (Phase- I)

DIGITAL SIGNATURES FOR JUDICIAL OFFICERS

Judicial officers have been provided with Digital Signature Certificates (DSC) and USB tokens to enable them to digitally sign the judgments or orders before uploading them in the NJDG or any electronic official documents that require signature. Videoconferencing was planned to establish video conferencing connectivity between prisons and district courts. Video Conferencing permits virtual interfacing of a Judge with witnesses, holding of conferences, meetings, production of under-trial prisoners, etc.

Equipments provided to the courts complex and to the jail/prison to facilitate Video Conferencing:

Sl. No.	VC Equipments
1	LED TV 40 inches
2	1 KVA UPS for power backup

3	Table stand for the LED TV
4	Bluetooth wireless enabled speaker cum microphone
5	Logitech VC HD camera
6	HDMI Cable 10 meters
7	USB cable 3 meters
8	USB extension cable

WEBSITE FOR EACH DISTRICT COURT

The website template has been designed by the NIC where all the District Courts have entered the information regarding their respective courts. Court forms, sample pleadings for litigants and lawyers, Judges on leave information, list of police stations, information on BAR Association, etc are made available in the website. The updation and customization of the website template is user friendly. The website for District Courts is available at www.ecourts.gov.in. Apart from the website template provided by NIC at www.ecourts.gov.in. District Courts can also use their existing official website.

Policy and Action Plan for Phase II of the eCourts Project

In January 2014, eCommittee of the Supreme Court approved Policy and Action Plan Document for Phase II of the eCourts Project. The proposed initiatives as mentioned in the Policy Document in relation to the ICT infrastructure are as follows**.**

ENHANCEMENT OF COMPUTER INFRASTRUCTURE IN COURTS AS COMPARED TO PHASE I

In Phase I of the project, 1+3 computers were provided to courts. But experience of Phase I has shown that this number was low for effective and optimum ICT enablement. Considering that computers are used by all important sections of the Court Registry for day to day processes and service delivery, the Policy Document proposes that the hardware be increased to from 1+3 to 2+6 per court. Therefore, 14,249 phase I Courts will be provided an additional 1+3 computers. Further, 8151 new courts which include:

- Courts that were set up after the approval of Phase I courts and
- Courts expected to be set up in the first two years of Phase II, will receive hardware in the revised 2+6 configuration.

OPTION OF DESKTOPS OR LAPTOPS

For the computer infrastructure, the Policy Document provides for procurement of either desktop with UPS or special configuration laptop depending upon suitability and economy.

HARDWARE TO DISTRICT LEGAL SERVICE AUTHORITIES AND TALUKA LEGAL SERVICE COMMITTEES: The Legal Aid setup has become an integral part of the justice delivery system. The office of District Legal Service Authority (DLSA) and Taluka Legal Services Committee (TLSC) are required to work in tandem with the Court processes for holding of lokadalats, listing of cases in lok-adalats, the cause lists, proceedings, orders etc. in those cases. This requires the DLSA and TLSC office to be integrated with rest of the Court complex ICT infrastructure. Computer infrastructure is therefore proposed to be provided to DLSAs and TLSCs.

HARDWARE FOR COMPUTER LABS IN STATE JUDICIAL ACADEMIES:

For sustainability of the efforts of ICT Training for Judicial Officers and Court Officials, there is a need of providing a full-fledged Computer Lab to State Judicial Academies (SJA). Phase II of the Project will provide the resources for providing ICT Infrastructure for setting up of a Computer Lab for every SJA.

INFORMATION KIOSKS AT EACH COURT COMPLEX:

The Policy Document proposes installation of touch-screen kiosks and printer at all Court Complexes. These kiosks will provide services such as case status and daily order sheets to litigants without having to approach court officials.

DEVELOPMENT OF CENTRAL FILING CENTRES WITH SUFFICIENT INFRASTRUCTURE:

It has been proposed that Judicial Service Centres (JSC), which were envisaged primarily as filing counters in Phase I, will be utilized for a composite set of services, including positioning of kiosks, waiting area for litigants, and Central Filing Centres (CFC) and will be called JSC-cum-CFC.

COURT LIBRARIES COMPUTERIZATION

The libraries of the courts will be computerized. An Integrated Library Management System (ILMS) has been successfully implemented in the Supreme Court. The Policy Document proposes to equip all High Courts and District Courts with ILMS and a Digital Library.

VIDEO-CONFERENCING OF ALL COURT ROOMS WITH PRISONS:

The phase I will cover 500 locations under Video Conferencing. Phase II will cover the balance courts and corresponding prisons, and will not only be used for remand of under trial prisoners but also to record evidence during such VC sessions when required by the presiding officer of the court. The video-conferencing set-up whether studio based or software based will have to be compatible with audio-video recording devices as there will be requirement of having recorded copy of the video conferencing sessions held. Audio-video recording device attachment with sufficient back-up and facility to replicate it on different media will also be provisioned from the Project along with the VC equipment.

SOLAR ENERGY FOR POWER BACKUP:

The UPS and DG sets for servers and judicial service centers have been installed in Phase I of the project, but there is no provision of power back-up for thin clients, printers and other hardware. In this regard, the Policy Document proposes to utilize solar energy, as an alternate source, being environment friendly and easily available. It is proposed to initially cover 5% of the total court complexes.

SERVICE DELIVERY THROUGH USE OF CLOUD COMPUTING:

Service delivery is proposed to be made through cloud computing, thus dispensing with the need for servers in individual court complexes and improving efficiency and scalability of the automation of courts. This will also reduce the need to deploy technical manpower at individual court complexes. **Revamping, up gradation and customization of CIS software based on results of Process Re-engineering underway in High Courts Systems for timely and regular updation of data by laying down protocols for updation and improving connectivity to expedite data updation to NJDG by all courts.**

MOBILE BASED SERVICE DELIVERY THROUGH SMS AND MOBILE APPS:

The Policy Document envisages preparation of mobile phone applications on various mobile platforms for latest case related information, and an SMS Gateway based infrastructure to facilitate push and pull based SMS for litigants and lawyers.

SCANNING AND DIGITIZATION OF CASE RECORDS:

Case records will be scanned and digitized in Phase II of the project. These will be ported to a Document Management System for later retrieval, and will promote secure and systematic preservation of records. The cost of digitization of all case records in courts is proposed to be covered in Phase II of the project.

DIGITAL SIGNATURES FOR JUDICIAL OFFICERS AND COURT STAFF:

During Phase I of the Project, Digital Signature for Judicial Officers have been provisioned. Phase II of the Project will also aim to cover substantial number of Court Officials for Digital Signature allotment as most of the Office Automation and Online Judgments, Online certified copies will need to be digitally signed. **"Widespread use of technology during trial enhances the way evidence is presented, allowing facts, concepts and ideas to be more readily understood by jurors, litigants, spectators, lawyers and the Court." High-Technology Equipments in an E-Courtroom may include the following:**

1. Video Displays

A large video display for the entire courtroom and smaller individual displays for the judge, counsels, witness, etc.

2. Annotation Monitors for witness

Annotation monitors allow witnesses to mark an exhibit with notations that can be preserved for later viewing.

3. Evidence Camera (Audio Video Recording)

An evidence camera is indispensible for a technology-ready courtroom. No other piece of equipment surpasses this item in its ability to encourage litigants to use technology during in-court proceedings.

4. Laptop Connections and Other Digital Input Locations for video and sound

Because of the popularity of laptop computers for presenting evidence as digital images and sound, laptop inputs to the courtroom's audio and image-display systems are a necessity.

5. Combo VCR/CD/DVD Player

This device to be used for playback of video and audio evidence. Can also be used for recording the evidence video and audio into a CD/DVD.

6. Courtroom Printing and Electronic Storage of Exhibits

A color courtroom printer remains a staple of the technology-ready courtroom for printing images of exhibits on which witnesses have made electronic markings. The electronically marked exhibits will be stored by making use of storage devices.

7. Integrated Controller

The ability to control the source of images and sound into the courtroom's video and audio system are handled through a unified controller that is integrated with the courtroom system. Most often, the controller is a touch screen that allows the judge or courtroom clerk to direct the source of the images displayed and sound heard on the courtroom's video-display and sound systems.

8. Wireless Installation

Now, with vast improvement in wireless technology, retrofitting a courtroom to accommodate the integrated system that controls the connection between sources and the courtroom's video and audio system does not require extensive and expensive removal and raising of the floor to accommodate cables.

9. Remote Witness Testimony and Video Conferences

A video camera and broadband availability are essential for transmission or receipt of remote witness testimony or to conduct video conferences. The setup will also be used for presenting the accused.

10. Display monitors outside the courtroom

This will be used to display the cases listed for hearing. It will also display the information on cases for which the hearing have been completed, case currently being heard and the cases which are next to be heard.

Session 3 by Mr A K Ukrani on National Judicial Knowledge Management System

Thank you very much Lordship. So I was up till chapter 6.I am using Index page and will summarize the document. Video conferencing is there where the Conventional method of studio based is not used now. we have new mode/where lease line is not required. and I got the permission did that small course it was through distance education that is the C and L diploma in cyber laws so that part is they are in my life because of Lordship and such initiatives

are required at every level so that training that to technical training gets due importance for judicial officers or honourable judges. When honourable Justice in charge e-committee honourable Justice Mr Madan Lokur Saab places for training of all judicial officers so intensively that at some High Court's when we go there we are also told that y r you people so much after training. I can't share what I have to hear from some of the honourable chief justices here that you people are always doing this thing only. This is also the ground situation, with regards to training. I will be very happy to inform honourable judges in charge E- committee that one of the honourable High Court judges emphasized the need of training for honourable High Court judges also. That is a very inspiring point for us that this is also felt at some quarters. So I tried to touch upon this national plan and action policy. This discussion needs greater time in fact but I will try to summarize as far as possible and this discussion actually touches upon any of the questions and issues raised by honourable judges here and I also have a duty to respond to whatever and they said about Ubuntu. The for that also I'll take your time and I have third session also so from that session also I will extract some time to answer some of the issues said about the Ubuntu that it is becoming a problem I will deliberate on that also but before that the policy and action plan document. See I have no presentation no PPT, so I don't want to impress upon some slides coming from here and there and there some sound and this and that. Let us go to bare thing itself, no commentary, no bullet points the actual operational version of what was approved at the full coram of the E-committee and their particular full e-committee was chaired by none other but the Chief Justice of India himself being the patron-in-chief of the e-committee so this was on 8th January 2014. What happened was that we have a national policy small book a national policy for computerization of courts across the country which was created in 2005 it was also approved by the Chief Justice of India and then on the basis of that in 2007 at two years phase 1 was formulated that there would be a phase 1 of e-committee that phase 1 to time to start instead of two years it took three years

four years and the government came up with another extension of one year against the wishes of the judiciary. So ultimately till March 2015 we were phase 1 only phase 1 of the courts project. So whatever targets were set till 2010 2011 were just implemented or trying to implement. Till March 2015 even though those targets were not met the target was to 14,249 courts to become computerized. 14249 was a very known figure in our office 142 for nine so out of 14249 the government and NIC could computerize only 13,400 courts only. So again 1000 courts remained out of phase 1 targets also. Even after one-year extension given to NIC to implementing it. That extension was opposed by the institution saying that let us go to faced to in two straightaway, without again having an extension of phase 1. Because phase 2 has lot of new initiatives. But the government said no we have to have extension. So that extension was there and nothing was added during that extension and then during that extension or before that extension the government was pressing for a new document for phase 2 of the project. Keeping in view the lessons learned in phase 1 this is the outcome of that exercise. This is prepared in-house by the e-committee of Supreme Court of India with inputs from Department of Justice government of India and also the NIC for some aspects of this document. So this is the 14 chapter book in fact and in addition to introduction we have implementation module here. My request to all honourable judges here is that this book is supplied in the book supplied here. It is 100 page book if this book has been gone through half of the questions could not have come whatever has come, half or more than half. This implementation model is a major shift from phase 1 to phase 2. How it is to be implemented one honourable judge has raised this issue very aptly that the problems are coming because everything is handled at Delhi. The inventors are being managed from Delhi. And then whatever the problem the CPC will call the e-committee at Delhi office and then we will tell NIC to please tell vendor to do this to do that by this date or by this time. And things like that and venders don't listen because they are paid by NIC and they are to serve the courts in the regional areas

they don't listen so centralization to too much was a the big problem in phase 1. This implementation model says no centralization henceforth neither the Supreme Court of India nor the Department of Justice government of India and also not NIC at Delhi will directly deal with vendors any more. They have been prohibited to deal with vendors that all vendor management right from the publication of the tender up to the issuance of purchase order everything will be decentralized to honourable High Court's so not the high courts are the implementation agency, and show you the government document also officially the Cabinet has approved this model that high courts are the implementation agency for phase 2 of e-courts project. funding model was big problem. If you go through the minutes of that document someone saying High Court should not be the direct channel for sending funds from state government to High Court's and some other quarters pressing for it. What the Chief Justice of India commented on it and what the attorney general of India commented on it what honourable Justice Lokur Saab has to say on this is very very enthusiastic. And government agreed informally telling us that this is for the first time after the independence of the country that some funds will go directly from central government to the High Court's otherwise the regular channels is through state governments or through somebody in the central government like NIC was purchasing and was sending the goods to High Court's or for some small activity NIC was sending funds to all the high courts also. For that government had no problem for that government said that we will not send of funds directly to High Court's we have some consolidated funds issues, we have some state government reservations they don't want us to deal with some of the state governments organs directly on funding issues these were big problems but the Supreme Court of India was particular about this that no extras channels and we want of funds to go directly to the High Court for computerization. And this has been approved this is in place right now, this mechanism is official now so this implementation model is one big thing now no centralization. High courts are the boss now. They will select vendors they will deal with

the vendors because that day one of the officers was commenting on one of our meeting that venders only listen to paymasters. They don't listen to anyone else. The only listen to those or the institution which is ultimately going to pay to them. It does not matter from where the funds have come from. So this is the decentralization, ownership of high courts, So High Court's is becoming very-very important in phase 2 of e-courts project. So this is what is there an institutional model, infrastructure is there where the e-committee's there at the Supreme Court level there are computerization committee at High Court most of the honourable judges are the members E committee , two of them are the chairperson of the e-committee **who** are participating in the seminar so that computer committee is the decision-making body at the High Court level so the work at the computer committee and High Court level will be assisted by CPC is going to increase manifold because now authorities there discretion is there, responsibilities there. How Cabinet approved it Cabinet said that see funds will flow from Department of Justice to that on renewal grant from their annual budget. The funds will be first sent to Supreme Court of India in a separate an exclusive bank account then e-committee Supreme Court of India will be passing those funds to high courts. High courts will utilize the funds give utilization certificate back to the e-committee Supreme Court of India and e-committee is benches forward the certificate to Department of Justice that these many months funds have been spent or utilized by so-and-so High Court. Now they have more courts to be computerized so please release the funds. That is the mechanism which have been finally approved. So institutional structure is talking about that. After that the chapter number four on infrastructure model, I'm just on the index page pages hundred page document. I will be only referring to some pages there my brother the central project coordinator from Jharkhand High Court has to talk on infrastructure also that what is going to be provided to the courts in phase 2 so he will be touching this sector four also that is for court this much be provided for court complex this much be provided so that is also there so I will not go into the

depth of it only the salient points I will touch that four computers were provided in phase 1 to each court. The E- committee stressed that four computers are not sufficient, while drafting of the book neither NIC nor the government was agreeing that you need more than four computers per court. We counted staff and we took into account the admin wing of the court, library , the record room, different counters for facilitation services to litigants and we pressed that actually we need 13 computers per court. But they said that you don't have that many people with u, so finally eight systems per court was agreed upon. So what will happen is that the courts which were not covered in phase 1 will now get 8 computers per court. And those courts covered in phase 1 which got four systems will get additional four system per court. Kiosks will be there, there will be monitors outside each courtroom to display what is going on in the court. There will the composite display boards in the building to tell people that see this court is handling this matter, there will be devices given to process servers the bailiffs recall in Maharashtra and Gujarat. The process servers get PdS the devices that will have GPS and GSM connectivity. Process server visiting a place, he will punch if the processes is served. The person will be marking his thumb impression in the machine itself and the machine will be recording the this transaction happened on this location of the earth. So the cases of process server sitting in the court making endorsement on the processes are to be avoided. So these digital devices are now allowed and we have four process servers in court establishment and we have done counting and sufficient devices are planned for that activity also. So that is an overview of what is to be done because we are talking on policy and not details. Chapter number five system and software applications for judicial process, this chapter no. Five talks about software and software. And sharing here with an expectation that I may be able to create some curiosity so that this book is referred later on, expecting that those details would be referred later on. I'm just touching the macro level issues macro level aspects. This chapter talks about what policy and what philosophy judiciary would be following as far as software

is concerned. One document if I could share with you which is sanction order from the government of India of this book, when this book was documented people started saying that the way you were going it is going to be hundred page book have you paid attention to the budget as how much amount of money will be required. The first time accounting was done it was 2400 crore rupees. So some people say no drop it, minus half of the papers and bring it to thousand crores but the judge in charge e-committee Supreme Court of India said that lets attempt the whole thing and see what happens. When actual calculations made this became 2800 crore rupees and when this 2800 crore rupees proposal went to Central government they said see out of this 2000 crore rupees eleven hundred crore rupees we cannot provide to you because those activities are touching upon some activities which actually state governments should do whatever they I think you will be worried about. The records lying in the district court record room are not Central government papers they are state government papers. So we will not pay to digitize them we will not pay to scan them so 750 crore rupees were reduced. Then 300 crore rupees there more there for technical manpower for each for court complex. A technical cadre was a problem in the issues raised we will not provide because there is no central project can provide employment. They have their own financial regulations or some thing like that. So 1100 crore rupees were reduced but something wise prevailed and what happened that they gave us an idea **that** put these 1100 crore rupees on 14 Finance commission. A proposal by Department of Justice and Department of Justice agreed to it..... are going to come from 14 Finance commission and that is also approved. So in a way the whole book is approved, the whole policies approved. 1670 crore rupees breakup is here. We have to spend this in four years. So Lordship very rightly told us that fund is not a problem. I'm repeating this, for district courts also for district court computerization we can repeat this which is not going to be a problem..... four years is the project period. Here I will say only one thing I will continue with that my third session because time is up but one thing I say

out of these 13 heads totaling 16/ 17 crore rupees, not a single rupee was either proposed or approved for software. Not a single rupee is for software. When Ubuntu is raised here on some hearsay thing I have to submit very humbling that we are not spending single rupee for software we are not purchasing any software we are only using free and open source software in the project I will be tackling this free and open source software in my third session this is the reason that we could limit to 16 or 1700 crores of rupees otherwise it could have become more 2400 crore only this much or these people would have decreased our hardware to 5 or six computers only ..... so I think maybe director will inform us about the timing we have.

See this 42.7 crore is for the people who will be developing our case information software. See how free and open source model works is that we will not be purchasing software the operating system is also free and open source about Ubuntu we can have lots of discussion and if I can lists the organizations which are using Ubuntu I think that it itself can be the answer. Supreme Court judgments whatever coming on the website they are coming from Ubuntu systems only ,no court master is using Windows they are not being provided Windows we don't ever purchase any software in Supreme Court registry also. I never signed a document on note or proposal give me 50,000 for software purchase. We are doing with open source activities I will touch upon that this is for those people sitting in NIC Pune for developing our software for CIS and we are giving the project is giving five programmers for high courts also to develop the periphery of CIS. See one model is there in the software, how it is done is that honourable judges in charge e-committee mooted this idea and was approved by the e-committee and the government and approved by honourable the Chief Justice, India. Periphery model for whatever software we will be developing in the Supreme Court of India, because being from the federal structure we have something common across the country. And we have many things not common across the country those

regional differences in their practices in the rules so those regional practical differences of rules and customs or any other state regulations state legislations will be taken care of, the similar software will be created by High Court teams and then integrated with the central part of the software. The central part of the software will be, called core software C O R E software and the regionally different software will be called the periphery software. So this will be core - periphery model. So for example whatever happens in the core as per the CPC CRPC and our established practices is common across the country. Obviously we have studied those processes. We are identified about a dozen activities which will be common across the country so one software will take care of and we are identified some modules where some differences are there, major differences are there. For example maintaining of judicial accounts the Nazarat the payment of fines and penalties court fees and things like that. They are not common across the country so that the Nazarat module, judicial accounts module the registers CDE a h that we maintain in our judicial accounts is left to the periphery part. Process server module is periphery part. The notice generation is core but managing our process serving people what work was given to whom, whether the process served came served or unserved is periphery part. Certifying copy module is periphery part. So these are some of the examples. Please don't think that we are not going to give anything in periphery, we have some base periphery also developed for this which can be supplied to the High Court. Five programmers will be given, those programmers will be trained so that they can change the periphery as per the requirement of the High Court and that can be integrated to the core. So this 42 crore rupees are for the five programmers for High Court 30 programmers for NIC Pune team. And ten programmers are provisioned for the e-committee of Supreme Court of India. The e-committee is also going to have a software team first some of the software in the Supreme Court of India for judicial application. Like admit status which we have to implement. So for this 42 crores are coming. So because we are going for open and free source

model no budget has been sought on the software side. So this is chapter 5.1 declaration is made in chapter 5 the industry says you know this free and open source software is so important that if we don't think about it or know about it I think this is GK part article of general knowledge. FOSS free and open source solution the industry says that the Department of information technology and communications government of India(DIETY) it is the Department of Central government of India they just came UP with the policy in this new regime about six months back policy of adoption open source software in government applications they have came up with the policy they say as much as is possible only open source software will be implemented in all government applications this is the statement by government of India. And if the Department goes for non-open source and paYS from public funds for their software they have to give reasons for that that is the policy approved policy. Even a year or more than that this declaration was there in this book in this policy and action plan. So there are some industry people working on FOSS, there is a community of people for open source system working inside the country and abroad and they are watching everything they say that Indian judiciary as propounded the concept of open source software as no other institution either in the country or outside the country they say this policy was already there in the judiciary which has just been replicated in the Central government policy of adoption of free and open source software. So we have made a declaration in that book that only free and open source software will be implemented and be sought no money for software from the government. So this is chapter 5. I expect that chapters will be referred after this discussion. Chapter 6 is on scanning digitization and digital preservation of records. here also lot of things were touched in inputs. In fact I am here only for the first day only I was not permitted for more than this because some other activity at there in Supreme Court. So I got the benefit of having this kind of open house discussion in introduction session itself so that I can touch upon some of them. On scanning digitization and digital preservation of records all record rooms of the country of district courts be

digitized and proper meter data to be fed. Retention policy to be framed as one of the honourable judges said for how much PDF we're going to preserve even the soft copies. High Court and Supreme Court being the court of records that perpetuity aspects is there that we have to hold records forever but for district courts we have different angle for different category of records right from six months to 2 years three years five years and 30 years. So that policy also has to be built in digitized record, scan and proper meter data fed, type of document who submitted it the date of document whether it is litigant submitted or court generated. Then weeding of the record done what is not to be preserved in the first instance itself removed them the file is ready to be consigned to the record room that part to be digitized and all information to be fed in then we will have server in the central place that thing will go to the server will be stored and acknowledgement will be given back to the respective courts and record will be made available to be respective courts to authorized users that see you can use this. Even the certifying copy Department can use that virtual record for supply certified copy either in hard to supplied the website because all of the documents will be digitally signed. One question from honourable judges input was that whether any other department has done it as you have heard that Delhi High Court has done a lot in scanning and digitization honourable Punjab and Haryana High Court has scanned 12-14 crores of pages of records. Supreme Court of India honourable judges committee had directed that this activity should be started on pure free and open source model which is working and about35 lakhs of paper/pages have been scanned digitized. They have been put in document management system called D-space. This is world renowned document management system it is free it is by MIT USA then adopted by all other government and non-government bodies. Now we have this D-space install Supreme Court of India, and we can get 1986 civil appeal give the judges name party name date of decision , search that it record, click it, PDF file digitally signed right from the petition to the statement of the case the reply whatever document is including the impugned judgment and

then the judgment of the Supreme Court of India everything separate Digitally signed and then consolidated into a single file also and put into that D-space with content searching. I will type out a word culpable homicide not amounting to murder if that is there in any of the documents referred that result also I will get through content searching that is in place in fact some of the delegates from Delhi High Court may be aware about one recent communication being sent from the attorney general of India to all High Court's that one public notice be published on the website of the High Court that civil appeals from 1986 to 1993 , the original case records is going to be destroyed very soon. Further, that D-space is the destination of a file but we don't stop there. When I talk of Dspace, it is only up to digitization, please see the last phrase digital preservation this is something very-very important, just digitize it putting it in a laptop or hard disk or in the server room is not going to serve the purpose of rules requirement of preservation of records. Supreme Court rule says to be preserved perpetually for ever and the recent Supreme Court rules 2013 says that the case records of this post Supreme Court cases can be preserved either in physical or electronic form including scan microfilmed microfiche and all other different kinds of electronic forms. As per the decision of the Chief Justice of Supreme Court of India. Whatever form is selected is good for ever. So what be selected in scanned and digitized form then we did digital preservation, this digital preservation is a new concept C-DAC centre of development of advanced computing under DIETY, sibling of NIC that body had created a software in touch with Delhi High Court for Delhi district court to do digital preservation. What do you mean by digital preservation? Is honourable judges and working on PC since 1993 they will be aware that there used to be a software called what star in those days. We used to type out WS files WS 7files and now that software is not there but those judges have collection of whose WS files. Now what to do to those WS files because software which could read those files are extinct. It is not there at all. This can happen to doc file also this can happen to PDF file also, Tomorrow no software will be

there to read PDF files then what will happen. For that digital preservation. So what digital preservation does and does not only preserve the content it preserves the software also. So after 50 years from today is Microsoft Word is not there or Ubuntu is not there, Libre office is not there document viewers are not there are even then PDF can be viewed from our eyes and can be printed on any hard surface like we use paper today. After century from whatever analog methods are used different from the traditional methods for viewing contents are there it can be used. Noida near Delhi has the data centre of C-DAC, and we have started, transmitting our records to noida and after digitalization the destruction will start. The same model is going to be adopted by the district courts also. All software will be given to all high courts also. so that no further software development is required. just tender it out get money from 14 finance committee from state and put those copy in D-space for certifying copy. so this was all about scanning digitization and video conferencing. Linux operating system is our official choice and it is made conducive and anti virus is not required. Thank You Lordship.

Thank you Mr. Ukrani .Now we will have a lunch break.

Do you think it is good idea to start 6 min before. So we have Mr. Navkar from Bombay High court and Mr Venukarunakaran from Kerla High Court. They will inform us about human resource infrastructure and ITC interface is concerned.so is Mr. Venukarunakaran ....A very good afternoon Hon'ble Judges.I will explain with slides-

CONTENT

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- Our vision
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- Present Scenario
- How ICT can be Used effectively in Judicial System
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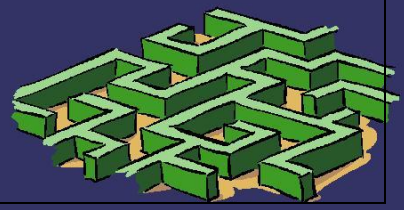
- Effective ICT implementation strategy
- Developing E- Confidence in the System
- Scope of ICT – A SWOT Analysis
- Need of Tech Savvy work force in judiciary
- Development of ICT in Kerala judiciary : *A Snap Shot*



Introduction

Independent, effective & efficient judicial system – Must in a modern administrative system.

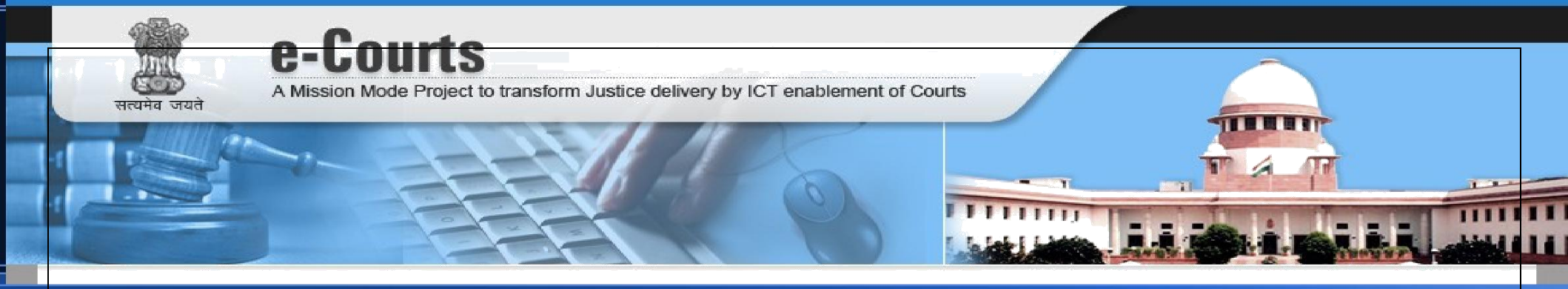
- *Modernization, streamlining and improved efficiency in our court systems are paramount to increase Citizens' faith and confidence in Judicial System and State.*

- ***"Public awareness and culture is demanding that legal systems be more open and approachable" .***

- Prof Vikram Singh ,Author of the book "Impact of ICT in public llife "

Our Vision

To create an enabling environment for the development and management of human resources of the Judiciary for efficient, effective, accountable, responsive and transparent governance.



Journey of ICT in Indian Judiciary

- The process of establishing a judicial e-governance grid that would cover the entire judicial system in India from the district courts to the Apex ones started back in July 2007.

- Two decades back, NIC had initiated the computerization of Indian Judicial activities in 1990 starting with the Supreme Court of India.

- During 1992-1995 NIC took up the computerization of all High Courts on the lines of the Supreme Court computerization program.

- During 1997-1999 NIC implemented IT systems at 430 District Courts with the aim of creating awareness.

- During 2002-2005, it implemented systems at Metro and Capital city courts.

- From 2007 onwards, NIC has been implementing Phase – I & II of the e court project in the Subordinate Judiciary.

PRESENT SCENARIO :

- The concept of e- courts or e-judiciary is not new to India since the talks about establishment of e- courts in India are in progress since 2003.
- Establishment of E-Courts in India is an important aspect of judicial and legal reform. E-Courts in India cannot be established till we have experts who can manage this ambitious e- governance project.
- Similarly, we also need to train our human resource regarding not only e-courts but also for e-confidence.
- India has to do much more and opening of e-courts on “papers only” if it really wishes to encash the benefits of Information and Communication Technology (ICT) for effective, speedier and constitutional justice delivery system.
- The ICT Trends of India 2009 have proved that Indian e-governance initiatives like E-Courts, E- Bharat, etc have failed due to lack of proper training, management and insight.

- Indian courts have been using information and communication technology (ICT) for effective judicial functioning. New features like online cause lists, filing of cases on digital mediums like CDs, providing of judgements online, use of video conferencing, etc. are already being used by courts of India.

- However, automation of courts systems in India is still far from satisfactory. We are still waiting for the establishment of first e-court of India. Till now India has been able to computerise some courts alone and e-courts functionalities are still missing.

- For instance, courts automation and functionalities like e-filing, submission of notices and evidence, online cross examination, online cyber forensics support, etc are still missing.

- Despite many talks, establishment of e-judiciary in India always remained a dream. As far as judiciary is concerned we are suffering from lack of techno legal expertise to manage the same.

- As a result electronic delivery of justice in India is still struggling.

Object of ICT in Judicial System

- To help the Judicial Administration in streamlining its day-to-day activities
- To provide web based information & query counter for the benefit of litigants
- To provide transparency of information
- To cut short delays in all applications
- To comply with RTI Requirements

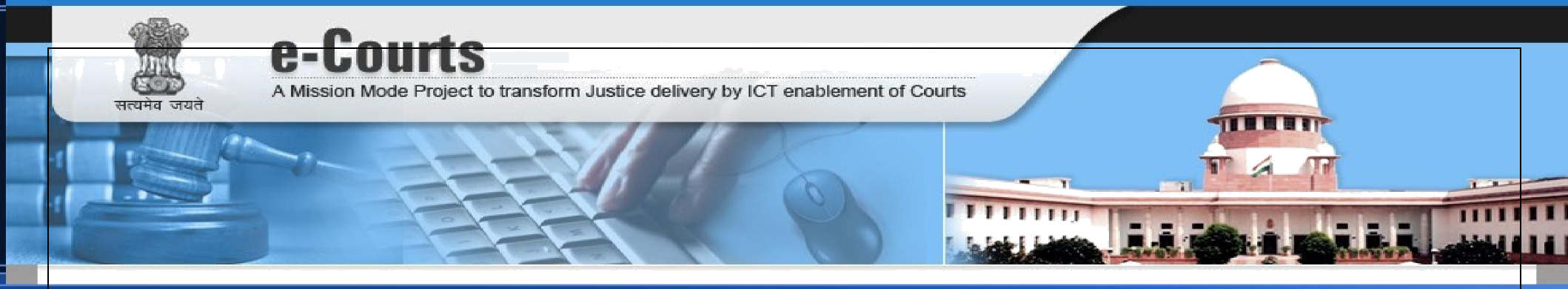
सत्यमेव जयते

e-Courts

A Mission Mode Project to transform Justice delivery by ICT enablement of Courts

IMPACT OF ICT IN THE JUDICIAL SYSTEM

- **User Interface Applications for the stake holders** in the judicial administration for their day- to-day processes.
- **Online availability** of judgements ,cause list, daily orders, defects etc through websites
- **SMS & email communication** can be immediately served to a litigant.
- **e-Filing** of cases,
- **Digitally signed certified copies** and judgements
- **Video conferencing :** victims and witnesses will be produced through video conferencing.
- Notices will be served and summons of higher court will be sent electronically.
- **E-Records** for online reference.
- **Virtual Courts** : Establishment of connectivity between courts, police stationsand Jails.



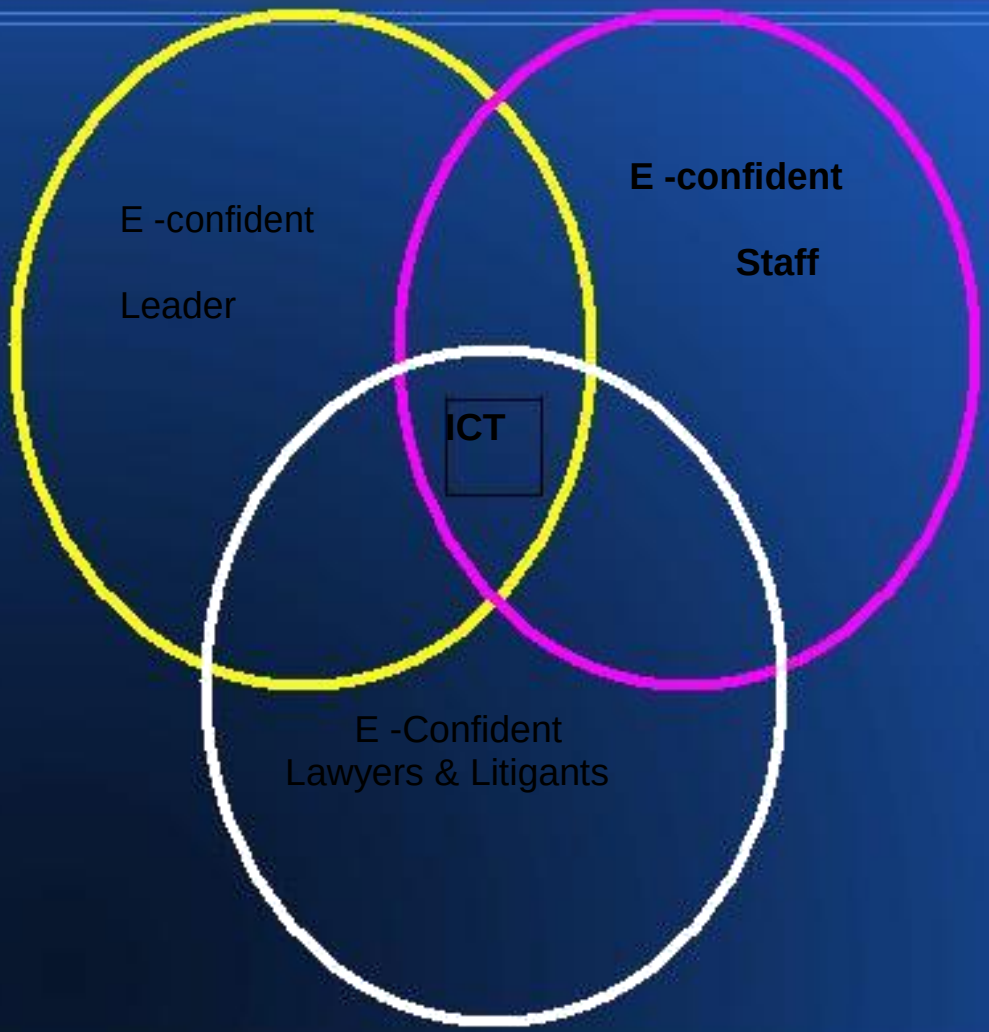
EFFECTIVE ICT IMPLEMENTATION STRATEGEY

HOW ICT CAN BE USED EFFECTIVELY IN JUDICIAL SYSTEM

Technologies in use within the court offices can be divided into three group

- Basic technologies such as hardware , software and both internal and external email facilities for both judges and administrative personnels
- Second group consist of applications used to support administrative component of the court organization and its stake holders which includes office automation , user based applications, case management system , MIS
- Finally the third group consist of technologies that can be used to support the activities of the judges ,lawyers and litigant public

ICT IMPLEMENTATION STRATEGEY



- **DEVELOPING E-CONFIDENCE IN THE SYSTEM**

Building E- confidence in the Judicial System :-

1. E- CONFIDENT LEADER

- Should think more deeply about policies, practices and programs that stimulate and accimilate a diverse work force to the digital revolution rather than resist it
- Priority is to prepare and engineer our work force for a computerised work environment
- Plans, communicates and engages others in action
- Applies ICT systems to improve organisational effectiveness through internal and external communication.
- Promote tech savvy work culture

2. BUILDING CONFIDENCE IN STAKEHOLDERS

- Access to information
- Sensitization and legal information
- Improving user perception
- Feed back from the lawyers and litigants
- Making our procedures transparent and understandable helps to reduce pendency & enhances court user confidence

3. BUILDING TECH-SAVVY HUMAN RESOURCE

- An analysis of some of the existing and anticipated trends, points to many challenges for recruiting, retaining, and developing human capital within judicial system.

- Engaging employees in order to empower them to contribute to their potential, to maintain their interest in working for the judiciary, to reach goals

An approach towards Current v/s Future impact of digital revolution in Court life

- The characteristics of court workers
- The type of work performed
- The current and expected use of technology
- The expectations and skills of court users

The Characteristics of Mixed Generational Court work force

- Baby Boomers **(born before 1964)** with court experience and wisdom can be very useful However they need to adapt up to speed on new electronic methods

- **Generation X (born 1965 -79)** values mobility , autonomy and responsibility in the work place are important to them. They are first generation to grow up with computers and are comfortable with smartphones, texting etc and can adapt well to change , accept alternative and moreover they embrace the digital revolution

- **Millennial Generation (born 1980-2000)** values constant feedback , prefer to work in teams . They are hyper connected to electronic devices.

- **Gen 2020 (born after 2000)** they are a workforce only a few years away from joining the court staff. Having owned digital wireless devices all their lives, familier with the most mordern technology

Need of Tech Savvy work force in Judiciary

- MOTIVE :

--- Adjusting skills of employees to meet the demand of new technology and environmental condition.
--- Independent adaptive accountable and linkable work culture.

- DELIVERABLES :

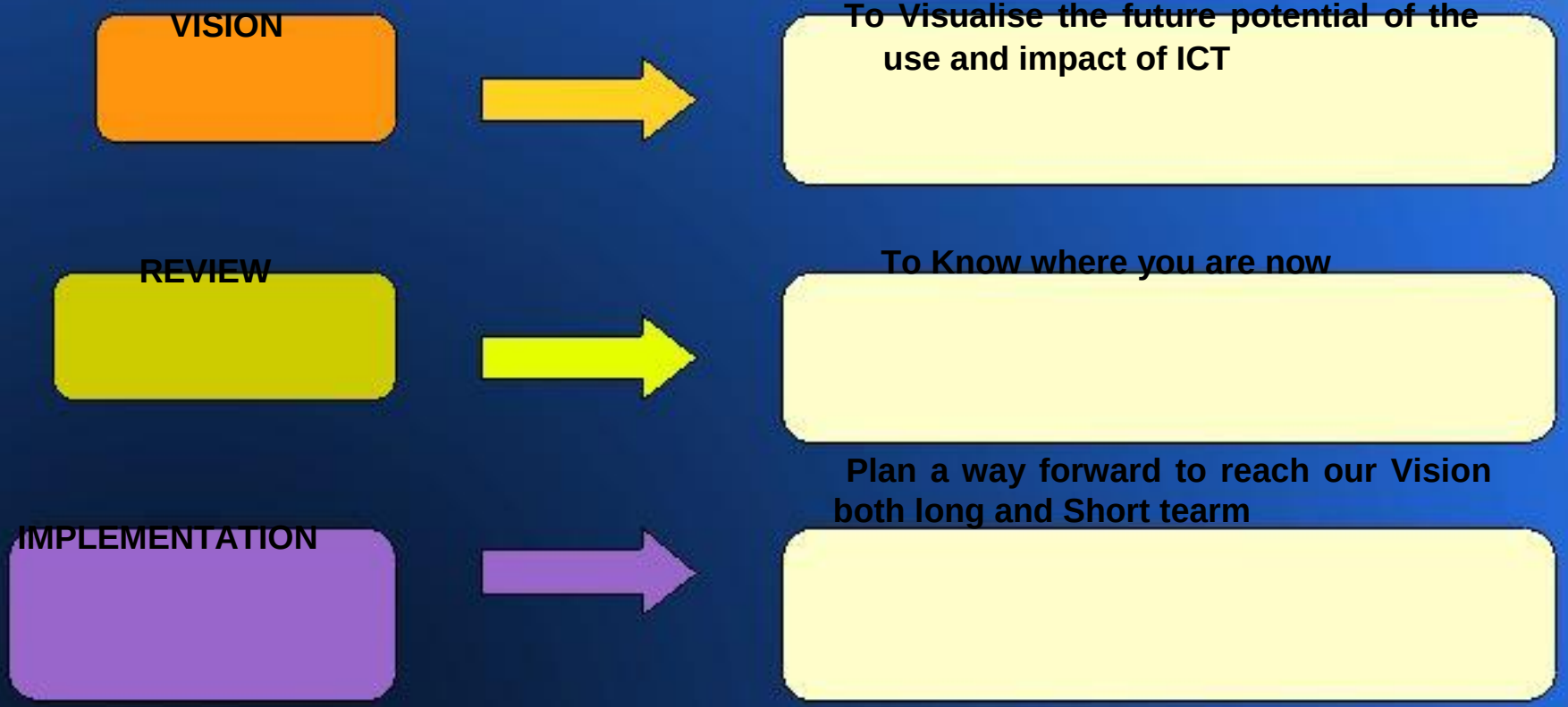
--- Increase transparency
--- Increase number of Services to people
--- Speedy and Accurate delivery of services
--- Intergration with the latest successful e- governance projects like e-sign, Digital Locker, E- office, Online payment and E- filling etc
--- Reduce redundant work , Sharing of essential information and improve overall efficiencies

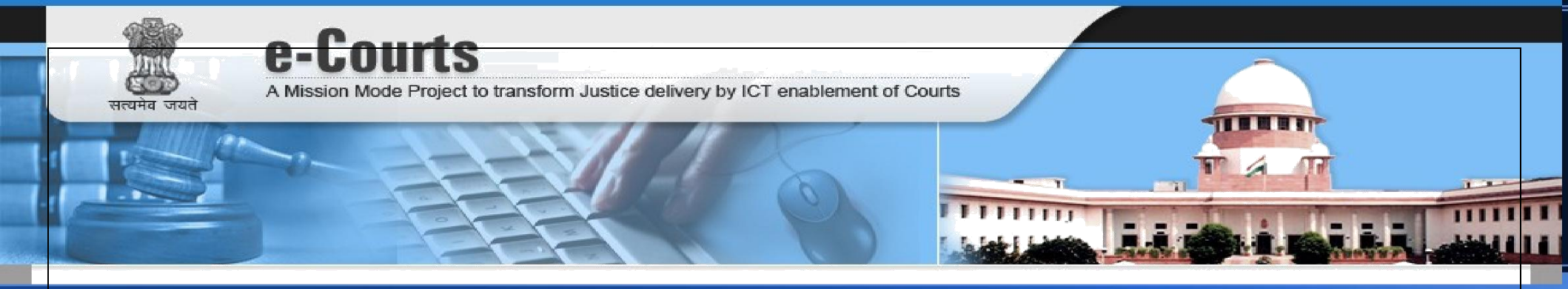
Court leaders need

- To ensure older workers are up to speed on new electronic methods

- To adapt , implement and institutionalize technology changes that have been successful in other courts, or non court organizations, is crucial in modernizing and restructuring work

ICT IMPLEMENTATION MODEL





SCOPE OF ICT
– A SWOT ANALYSIS

SWOT - This Explains our Strengths (S), Weaknesses (W), Opportunities (O) and Threats (T) in current Scenario

STRENGTH

- In-depth knowledge of organization's business needs
- A tech-savvy population and a well-educated IT labour force
- Judiciary being the custodian of Rules and Regulating policies
- Resourceful work force with qualified and experienced employees
- Positive Culture towards Change Management

WEAKNESS

- Poor Infrastructure
- Poor Budget Allocation
- Limited staff resources and posts Lack of support from State Govt Lack of expertise in critical ICT areas
- Under-investment on tech-savvy work force
- Unable to keep pace with the ever changing world.
- Feelings of insecurity and concern about making mistakes
- Slow absorption of Innovation & change

Cont..

OPPORTUNITY

- Building Tech Savvy work force in Judiciary
- Creating a Culture of Trust
- Transparency and accountability in the judiciary and the performance can be open for scrutiny.
- Commitment to Performance Monitoring and Evaluation System.
- Build new capability and new capacity
- Modernization of infrastructure

THREAT

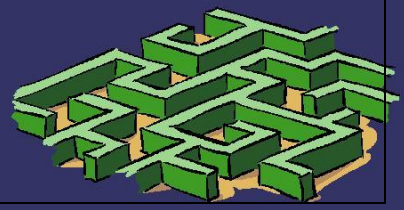
- Complexities of disputes
- Interaction between evidence and technology will become more complex
- Fast change Internet-information technology & new Inventions
- Regulation, protection and restriction
- Poor perception/ poor picture of Bureaucracy

HIGH COURT OF KERALA

Development of ICT in kerala judicary

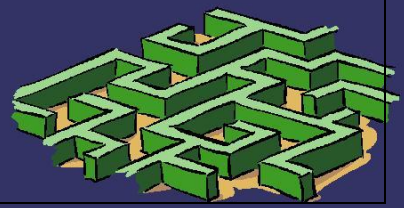
Journey So far …

- **Computerisation in the High Court of Kerala started in 1994.**
- **Printing of Cause lists was started in 1995.**
- **All the section of the High Court were computerised in a phased manner.**
- **All documents like Case, Caveat, Vakalath etc are filed in the Filing section are scrutinised and defective cases are put in notice board with details and nature of defects.**
- **Daily Cause list /Judgements / details of defects are being uploaded to web site and white copies issued from the Enquiry Section**
- **Comprehensive application for the entire recruitment process in High Court which enables filing of online application and payment to admission ticket downloading**
- **Some of the Administrative sections of the High Court were also computerised along with the Judicial Sections.**
- **All citizen centric informations are available in the High Court Website**
- **Intergration of E- Treassury Portal for financial transactions.**



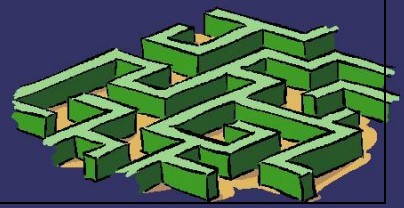
ICT facilities made available to the judges

- Provided Laptops and colour printers to all Hon’ble Judges with services
- Dragon dictation software
- Dragon Naturally Speaking Legal 12 version is provided to all Judges
- User accounts to Manupatra.com
- Case law software of AIR, SCC, KLT and Laws Premium
- Internet Facility



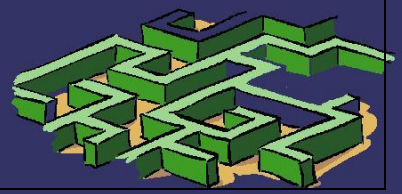
Applications implemented in Kerala judiciary

- Case information system
- Recruitment portal
- Video conferencing
- Despatch management system
- Vehicle management system
- Digitisation of records
- Library automation
- Service and Payroll Administrative Repository for Kerala (SPARK)



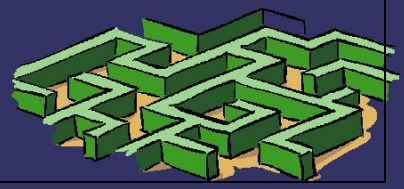
Computerisation in subordinate Judiciary at a glance : e-court Project

- A Steering Committee consisting of five High Court Judges has been constituted in the to oversee various tasks/implementation of the computerization and ICT in the State.
- A District Level Project Monitoring Committee works in close co-ordination with the CPC in the various tasks at District and Taluka levels.
- A Nodal Officer for each district has been appointed.
- 40 Court Complexes comprising of 230 courts were included in the first phase of the eCourts project.
- The Site Preparation, LAN work, supply of hardware were completed and CIS installed in all the 230 COURTS of the 1st phase of the project.
- At present, 226 courts in the first phase alone are ICT enabled. In the second phase 187 courts were included. Work is completed in 174 courts.



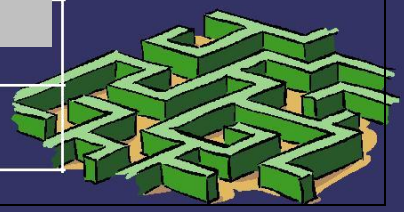
Cont..

- Installation of DG sets is completed in all the 22 and 44 court centres included in the Ist and IInd phase respectively.
- The High Court is monitoring the data uploaded on the National Judicial Data Grid (NJDG) on a daily basis. As of now, 365 Courts are uploading data on NJDG portal on a daily basis.
- Presently 12 Judicial officers have been identified as Master trainers in the State.
- As of now, CIS core version software has been installed in 113 Court Complexes in the State.
- First phase of the project is already completed in the State on 31.3.2015.
- A Memorandum of Understanding has been executed between the Honourable President of India, the State of Kerala and the High Court of Kerala for the effective implementation of e-Courts Mission Mode Project. The roles and responsibilities of each party have been specified in the MoU.



Details of IT Infrastructure at High Court

Sl.No:	High Court e-Services	Installed/Running/ Completed
1	Citizen Services	Running
2	Automated Cause List	Completed
3	Judgement / Order uploading	Running
4	Laptop, Printer and Internet Connectivity for Judges	Completed
5	Official High Court Website	Running
7	Hardware installation- Desktop , Printer Installation	Running
8	Backlog Feeding	Completed
9	Video Conferencing	Running
10	High Court Judges e mail ID : indianjudiciary.gov.in	Running
11	Video Conferencing	Running



12	2 Touch Screen Koisk Installation	Installed

WAY FORWARD

- ***E-Filing :*** In order to promote E-Filing the High court and its core group for High court computerization project is actively exploring various options in the public and private sectors.

- ***E-Office :*** The team NIC has already been directed to develop browser based applica-tions for the automation of judicial and administrative work flow/business of the judi-ciary in order to fully synchronise the justice delivery system with the latest trends in egovernance.

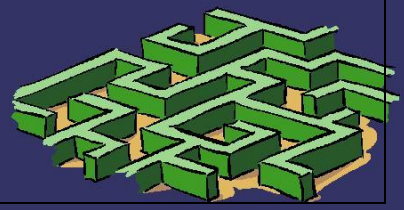
- ***Digitization of Court records*** of High Court and District Courts : High court has accel-erated its digitization initiatives and has constituted a "High Court Computerization project " and a core group of officers

- ***Electronic issuance of Notices and Summons using digital signature.***

- ***Web casting***

- ***ICT enabled court rooms***

- ***Event based SMS and e-mail alerts for High Court and District Courts***



Present status of Human Resource in Kerala judiciary

** Strength of Judicial Officers :*

Name of the court	Judicial Officers	Sanctioned Strength	Working Strength	Vacancy
High Court	High Court Judges	38	36	2
Subordinate Judiciary	District Judges	148	143	5
	Sub Judges /CJMS	73	72	1
	Munsiff-Magistrates	236	208	28
	Total	495	459	36

* *Strength of Non -Judicial Staff* : _

Category	High Court	Subordinate Judiciary :
Gazetted officers	357	261

Non -Gazetted officers	**1270**	**9487**
Total	**1627**	**9748**

The Judge Population Ratio

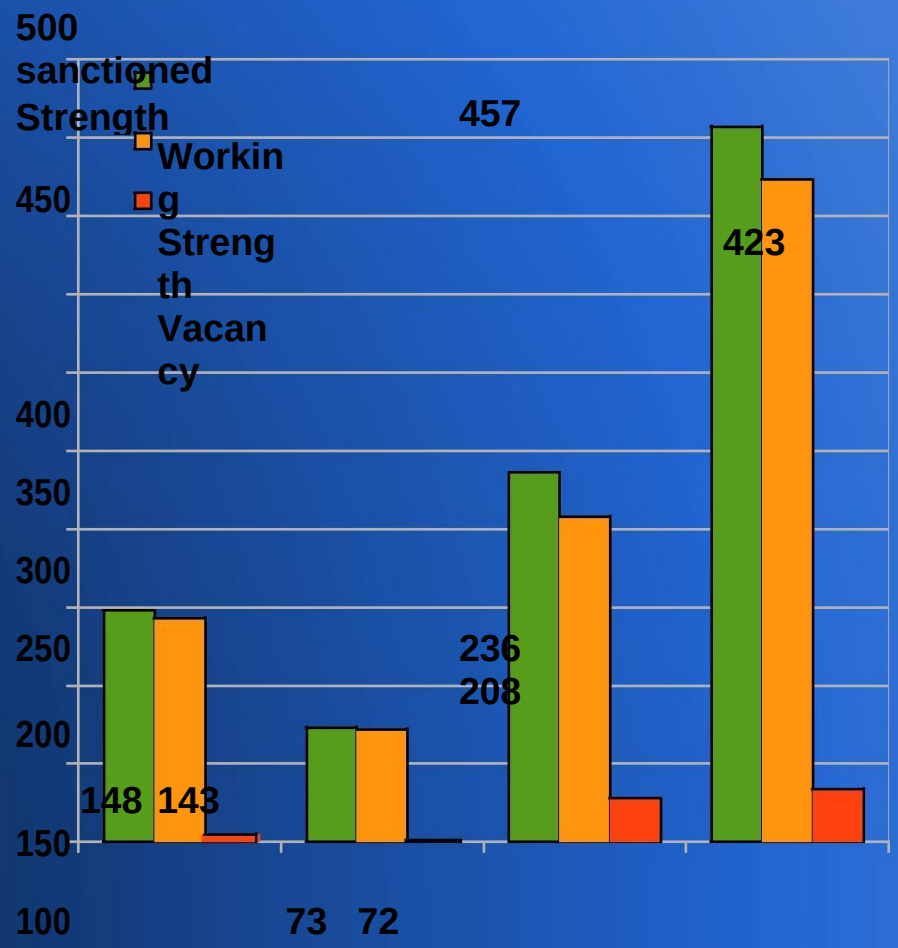
The Judge-Population Ratio :

(Subordinate Judiciary)

Total Population of the State (2014) = 33387677

- Total Sanctioned Strength of Judges = 457

Judge-Population Ratio- = 1:73058



50				**34**
			28	
	5	**1**		
0	**District Judge**	**Sub Judge**	**Munsiff Magistrate**	**Total**

Judicial Statistics

Name of Courts		High Court	Subordinate Courts
Pendency of cases as on 1/1/2015		145906	1331558
		As on 30 April '15	As on 30 June '15
Institution in 2015		33852	671231
Disposal in 2015		24681	618557
Pendency 2015		155077	1384232
Difference in % (i.e % increase or decrease in pendency)	Difference	Increase(+)	Increase(+)
	%	6.29%	3.96%
No. of Cases Pending for more than 5 years as on 31/12/2014	Difference %	31.43%	6.19%
No. of Cases Pending for less than 5 years as on 31/12/2014	Difference %	68.57%	93.81%

** Inflow outflow ratio of High Court and Sub-ordinate Courts:*

Case Status	High Court:	Subordinate Courts:
Case Instituted in 2015 till 31.4.2015	33852	432196
Case Disposed in 2015 till 31.4.2015	24681	417338
Inflow /Outflow Ratio	**1.3716**	**1.0356**

**** Work Load Per Judge (2015): (Arrears + Institution) / Working Strength***

Case Status	High Court:	Subordinate Courts:
Arrears as on 1.1.2015	145906	1331558
	(As on April'15)	(As on June'15)
Institution During the Year	33852	671231
Working Strength of Judges	38	423
Current Work Load Per Judge	1: 4730	1:4734

Comparison of Average age of present work forceorces

- Male Strength : 53 %
- Female Strength : 47%
- Average Age of Employees : 37.85
- Minimum Age : 27

* Category Up to Supervisiory Level

CONCLUSION

Some members may view these modern communication devices as a threat; others may dismiss them as mere gadgetry. It should, however, be viewed as an opportunity for imaginative and constructive use in furthering our goal of administering justice properly and promptly. Digitising of the legal world will not only improve access, but also change the way litigators practise law.

For effective implementation of ICT in the Judiciary, the following is the path to take in the future:-

- Change Management for Judiciary Reform towards use of ICT: To ensure the Judiciary's readiness to undertake change (towards the use of ICT)

- More funding consideration for ICT (Implementation, Training, maintenance and improvement according to strategy)

- Collective and coordinated responsibility over ICT by all Judiciary staff.

THANK YOU

Now I request Mr. Nagesh to Take the session. Thank you Lordship.In the backdrop of whatever was said by Mr.venu, I will try to be very brief, My humble submissions ,these are the pillars. The document which was prepared in 2005by Hon'ble Supreme Court of India, In my opinion, it lays

down the roadmap for entire project. I would like to read the first sentence now and then 2nd sentence and then will conclude my session. Indian Judiciary is in the need of re-engineering its processes. Optimize the use of its human resources and bring about change management by harnessing the potentialities in ICT to its fullest extent. it lays down the complete road map in its first sentence.it speaks about the re-engineering of the processes, change-management and harnessing the potentialities of ICT. so whatever processes we have on admin and judicial side, we need to re-engineer those processes by tech so as to reach the objectives as enumerated in the documents. how we have gone with people management in Bombay high court, first project took off in 1997.a model district was tried to make up and cause list was prepared. Then metro courts were taken up for computerization. In 2007-08a bilingual website in Marathi and English but we cd not complete all the court complexes. When central funding started coming infrom2008 2009 2010 onwards we started completing all our court complexes. We have Maharastra, Goa and Dadar and Nagar Havelli, there are 480 court complexes. Now all courts are provided with ICT infrastructure. The entire data is available except few courts on NJDJ except few courts where connectivity is issue. We have data base of one crore 32 lakhs cases of data base, and we have uploaded judgments for 20lakh case. So how it was done. as told by Mr. Ukrani Maharashtra model of change management was adopted for all other courts. Why all schools of talent has to be tapped. Court processing team shopuld have some tech people and vice versa. And unless we have this the project cannot take off. Two years back for honourable Chief Justice had gone to Singapore and they had visited the courtrooms there when they came back they shared their experiences with us, with all the offices in the registry started and Delhi is doing in the same manner, we asked can we do this and we got the answer is permitted and we in the registry don't get a negative answer. Our deputy registrar is looking after technology matter, he said yes we can do we may not believe but we have done a lot of preparation and have achieved a lot. We are made specific changes in CIMS. The ENTIRE website is developed in-house. And then for the purpose of the courts AS ENVISAGED by the Chief, of we have developed CIMS for the purpose of document management we procured this scanner

which took some kind but Lordship was kind enough to go into the detailing we had demonstrations of three brands of scanner in a place. The committee had gone for the details and we started for scanning the files. They was resistance from the staff and usual, for doing anything new but we dealt with of law and spot analysis. We must believe that we have dedicated staff though there may be some variations but according to me those variations will be very few. The honourable judges are sitting at one place and are doing their work is the same thing is with the staff who are doing their work in the allotted time slot. When the case of achieving targets was placed this slowly accustomed to do the work. There were some minor issues on admin side but we worked out practically. In August 2013 we started the first e court, we started company matters first, then the same fashion as the Delhi High Court has done, now we have started it at Nagpur bench of court.

The communication between registry and the staff change the matter towards good. As far as districts courts are concerned the model was accepted since 1998-99. The longer association with the district judge resulted in good results. The concept of training the trainers and working very good and is Mr Ukrani said we are achieving good results. Many master trainers were made all over India. Even in the last month Mr Ukrani requested us to send four people to Gujarat for data migration. Master trainers from the judicial officers were created in2013.I am also a master trainer and we are fulfilling the expectations of policy document. Communication is important in the change management model. Communication with the staff was supported with the material provided by the NIC.NIC provided the video tutorial for training and Ubuntu. We have different module for filing, scrutiny, case proceeding etc.....

Electronic records are not being processed now but soon we will soon be doing. Data mining will help a lot for various filtering. We need to work with planning and staff should be well trained for management also. Staffs have now a certification for certain kind for skills. Judicial officers are also trained. Electronic / demonstrative evidence dealing is required. We need to have skill development agency and we need to monitor the results.

Justice delivery system need to be accessible and accountable affordable and hassle free justice. Thank you very much.

Next is Library reading. Which is where u can read anything You want. Then Ukrani will tell you about Ubuntu. So you want Ukrani and Ubuntu, thats a good choice. ok.

Session5 by Mr.Atul Kaushik

Thank You Lordship.I will be speaking on -e-Courts Project: Phase I Achievements And Phase II Targets. You have been listening to ICT since yesterday and Mr.Ukrani has explained many things, so I will focus on Phase II targets and what we expect to achieve.

eCourts Project - Introduction

The eCourts Integrated Mission Mode Project is one of the national eGovernance projects being implemented in the Courts of the Country.

- Phase I: Project approved in Feb 2007, revised in September 2010 with a budget of Rs.935 crore for computerization of 14,249 Courts
    - Phase II: enhanced ICT enablement of Courts and universal computerization:
    - Approved with a project timeline of four years at the estimated cost of Rs.1670 crore.
    - Based on the Policy and Action Plan Document of the eCommittee

eCourts Phase I – Project Status

Project Module	Status as on August, 2015	
	No. of Completed Courts	Percentage
Sites Ready	14,249	100
LAN Installed	13,606	95.5

HW Installed	13,436	94.3
Software Deployed	13,672	95.6

- 95% of the activities completed
- The national e-Courts portal (http://www.ecourts.gov.in) is operational
- Most District Court websites operational
- Case status information in respect of over 4.85 crore pending, decided cases and more than 1.4 crore orders/judgments pertaining to district and subordinate Courts available online

eCourts Phase II – Project Objectives

Phase-II of the Project involves enhancement of ICT enablement of Courts with the broad objective of:

- Computerisation of about 5751 new courts, DLSAs/TLCs offices, computer training labs in SJAs
- Additional hardware in existing courts; connectivity improvements eventually leading to integration into the Interoperable Criminal Justice System
- Centralised case Filing Centres and information Kiosks in Courts Complexes
- Digitization, Document Management System, Learning Management Tools, and Judicial Knowledge Management System
- Enhanced availability of e-services to lawyers and litigants through e-filing, e-payment, process service through hand held devices and mobile applications

eCourts Phase II –Key Additional Components

Mechanism for Phase II Implementation

- Project Timelines - Four years (Sanction issued on 4.8.15)
- Implementing Agencies – High Courts
- Institutional Structure:
    - Enlarged eCommittee headed by CJI, steered by Judge-in-Charge
    - Empowered Committee headed by Secretary, Department of Justice
    - Implementing agency structure at High Courts and Subordinate courts
        - High Court Computer Committee
        - Central Project Coordinator at each high court
        - District Court Computer Committee
        - Nodal Officer at every court complex
        -

eCourts Phase II – Proposed Enhancement

1. Enhancement of computer infrastructure
2. Strengthening system of serving notices & summons
3. Option of desktops or laptops
4. Hardware to DLSAs and TLSCs
5. Hardware in State Judicial Academies
6. Information Kiosk at court complex
7. Judicial Service Centres cum Central Filing Centres
8. Court Libraries computerization
9. Video-conferencing of all court complexes and prisons
10. Solar energy for power backup
11. Decentralization of implementation
12. Strengthening the institutional structure
13. Support for computer labs in SJAs
14. Use of cloud computing
15. Upgradation & customization of CIS software
16. Systems for timely and regular updation of data
17. Discontinuation of manual registers
18. Facilitating court and case management
19. Service delivery through Mobile Apps

20. Court record room management automation
21. Judicial Knowledge Management System
22. Process reengineering & Process Automation

Implementation Mechanism

- eCommittee will prepare the basic design and specifications of hardware to be procured in consultation with the Department of Justice and NIC
- The procurement and implementation will be undertaken by High Courts
- Funds shall be transferred by the Department of Justice to the eCommittee of the Supreme Court
- The eCommittee shall allocate the funds to the respective High Courts, procure Utilization Certificates and submit to the Department of Justice for further fund release

Project Challenges Addressed

Suboptimal provision of hardware of Phase I	The quantum of hardware provided under Phase I is inadequate with only 1+3 computers provided to each court. Since this number is too low for effective and optimum ICT enablement, the Policy Document proposes to increase the provision of hardware from 1+3 to 2+6 per court under Phase II including14,249
	Since EFC & CCEA approval in 2010 for Phase I has put a ceiling on number of court complexes to be covered at 3069 and the number of courts to be covered at 14,249 against 18,262 sanctioned courts estimated by eCommittee, a total of 20,000 courts are likely to be available for computerisation by the end of the
Increased Technical	With Cloud Computing in Phase II, new Court Complexes will not require servers as all application & database hosting needs will be catered to by the Cloud thereby ensuring economy & scalability of operations in the long term. Increased
Bridging Digital Gap within the Court System	With additional ICT enablement activities including e-Filing, e-Payment, SMS based service delivery, digitization of case records, document management system, digital archiving/storage/retrieval, Business Intelligence tools enabled MIS and judicial administrative workflow automation, manual Registers to go

	Deficiency in uploading of data on NJDG is attributed to issues relating to lack of effective, stable & reliable WAN connectivity. Hence, it is proposed to improve connectivity of courts through a right mix of SWAN, NICNET, 3G, Broadband, NOFN, NKN & VSAT.
Time & Security Constraints in Criminal	Under Phase II, it is proposed to connect every Court Complex with corresponding Jails through video conferencing facilities with document visualizer. This would help in saving time & manpower by facilitating appearance of accused/witnesses and recording evidence without the need of physical
Process Automation	A number of process automation related issues have been identified. Few of these issues have been resolved with the deployment of unified core CIS software. The ongoing Process re-engineering exercise would result in fresh
Non availability of certified copies - Judicial reforms	Under Phase I, Digital Signatures have been provided to Judicial Officers. Phase II of the project aims to provide digital signatures to all Judicial Officers and relevant court officials so that digitally signed Orders/Judgments are available

E-Courts: Benefits at Grassroots

Now Mr.C M.Joshi will deliberate upon. Thank you Lordship. I will explain with slides.

- Phase I aimed at
  1. Enabling the officers for IT
  2. Enabling the staff of the Courts
  3. Creation of the basic infrastructure at Courts
  4. Creation of the networks
  5. Preparing the application software
  6. Making the reports and case data for the High Courts
  7. Providing the litigants the case information

Enabling the Officers for IT

- Laptops/printers are provided to the Officers
  - Officers have developed the know how to use the laptops
  - All the officers are having the email id on aij.gov.in domain with SMS facility.
- Training on Ubuntu OS for day to day use.
- Broad Band internet for residences of officers
- Master trainers among Officers- has increased the knowledge base
- Created a work environment of IT enabled office.

Enabling the staff of the Courts

- Basic ICT infrastructure in Courts with Servers/TC/Slim PC/Printers/browser for net surfing/word processing/spread sheet etc.
  - This has resulted in the use of technology in Courts
  - CIS training for staff -by giving extensive training for staff and preparing Master trainers among them
  - Reduction of duplication of work
  - Depleted the work pressure

But....Encouragement to use the system generated reports is yet to begin

Creation of the basic infrastructure at Courts

- The basic infrastructure under eCourts
  - 3+1+1 system per Court with 2 printers
  - System with basic requirements of the Courts has resulted in the better communication and managements.
  - The users are now wanting better systems and devices.
  - Judicial Service Center- the filing Counter or Public Help Desk- but JSC is yet to take shape

Creation of the networks

  - LAN for Courts
  - Leased line/VPNoBB connection for Courts
  - Using State Wide Area Networks (SWANs)
    - Results are -the courts are connected laterally and vertically. But is the data flowing?
    - Use of email communication is on the increase
    - Delivery of information has begun
  - With it came SMS facility, internet, access to legal databases……
  - Resulted in basic version of NATIONAL JUDICIAL DATA GRID (NJDG)

Preparing the application software

- Case Information System (CIS)
  - The CIS include almost all the requirements of the Court.
  - Work-flow, recording of the various stages of the lifecycle of the case.
  - Helps the –Management of the Court, dockets, Workload related info, causelists, ……
  - Various reports, disposals, identifying bottle necks…… CIS encompasses 90% of requirements.
  - Core and periphery- Central requirements and State needs- latter to begin

Availability of reports and case data

- Case history is available for litigant and High Courts
- Pendency and year wise breakup of cases
- Monitoring of the progress
- Instant knowledge of the total cases on a day
- Grouping of the cases
- The query builder will virtually give all sorts of reports
- SMS and copy application status instantly available

Providing the litigants the case information

- All the information of the case is made available to the public instantly.
- No need to visit the Court to know the dates
- Stage and what transpired in court is made known
- Judgments and order are also made available. This reduces the load on copy preparation- Can we say “Any copy-anywhere”?
- Visits of the litigant to Courts are minimized
- SMS facility is available for lawyers

- What does it mean to the District Judiciary?
  - Decentralization-Building ownership, enhancing capacities, creating local support systems-local manpower use, local support, self-sufficient and self reliant
  - Increased infrastructure for Courts, better connectivity- 2+6 systems, printers (MFD), cloud computing
  - Better workflow based, citizen centric, Informative Case Information System
  - Interoperability with other entities- Horizontal & Vertical, cross organization
  - Core and periphery- promotes local customizations and meets local requirements
  - Document Management Systems-
  - Video Conferencing with Jails, others-reduce costs, production is ensured
  - E-filing and e Payments-
    - E-filing may be hybrid model. There is a separate session.
    - E-payments- will reduce the load of signing the cheques, physical presence of the claimants obviated

- What does it mean to the District Judiciary?
  - Scanning and Digitization of records
  - Hand-held devices for process Servers – like Flipkart man!
  - Less registers, less paperwork, less file movement
  - Litigants visits to courts are minimized-No crowded Courts
  - Court account system is made easy
  - Transfer of case across establishments will be easy

- What does it mean to High Courts?
  - Reports of the pendency and disposal readily available – due to cloud based approach
  - Management of the Courts easy- with all reports and daily updates

- Knowledge Management System at High Court level-Library on line
- Human Resources – Technical staff requirements at District Courts need to be augmented
- Developing support systems for the ICT infrastructure
- Defining the analysis requirements-Data analytics

- What does it mean to the Litigant?
  - E-filing of the cases, ePayments,
  - Visits to the Courts reduced
  - Mobile apps and SMS will deliver all information
  - Kiosks at Courts will provide instant info
  - Dependency on Certified copies will reduce as orders and Judgments are available online
  - Helpdesk-reception counter at Courts
  - Present JSC will be CFC also.
- It also has challenges.....
  - Effective Change Management
  - Judicial Process Re-engineering is a must to succeed-Procedural rules, registers to be re-visited
    - At Macro level- Rules, registers to be revisited, standardization of data
    - AT micro level-processes to be corrected to suit ICT use
    - Each Court should imbibe re-engineered work flow

National Judicial Data Grid

Benefits of common data management and access system

Introduction

- **Objective of eCourts:**
  - The objective of the eCourts project is to provide designated services to litigants, lawyers and the judiciary by universal computerization of district and subordinate courts in the country and enhancement of ICT enablement of the justice system.
  - The Project envisages the delivery of services to the litigants and lawyers through various delivery channels such as district court website, the ecourts portal, mobile application and Judicial Service Centres at Courts.
  -

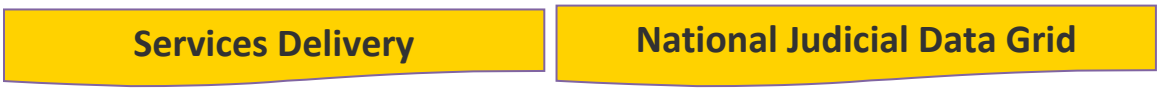
eCourts MMP - Components, Enablers & Outcomes

Main Components

Other Components

Enablers

Outcomes



National Judicial Data Grid (NJDG)

- ❑ The aim of the eCourts Project is to leverage Information Technology for making case handling more efficient and better court management. This is planned to be achieved through universal computerization of courts and connected to the NJDG
- ❑ NJDG
- Provides case data for all courts across the country through a web portal on a daily basis, with a dashboard and drill down facility to reach the case details in each case
- will help to ascertain the number and type of arrears in every court in the country for a better judicial monitoring and management

Benefits of the National Judicial Data Grid

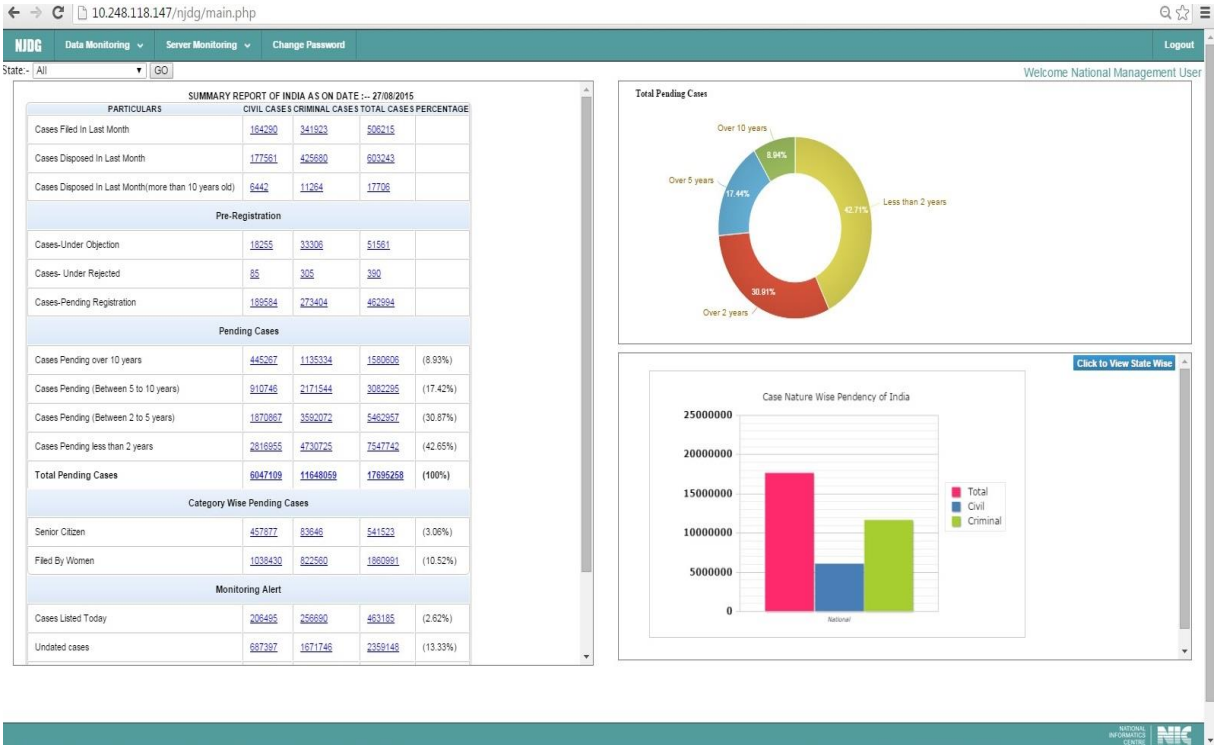
- For the judiciary to improve court and case management and judges' performance
- For the Government to plan policy measures to determine optimal infrastructure and manpower needs in order to reduce pendency of cases
- For lawyers and litigants to access case status including next date of hearing and copies of orders and judgments, obviating the need for frequent visits to court premises

NJDG ARCHITECTURE

NJDG dashboard provides updates on

- ❑ **List of Courts**
- Number of Courts
- ❑ **Number of Cases**
- Data Migration Status
- Total Number of establishments
- Pending age wise
- ❑ **Summary report of Courts**
- Status of cases
- Case wise pendency
- Case age wise pendency

Home screen of NJDG



Progress so far

- The software has been installed at 13672 courts
    - NJDG shows 15412 courts-why?
- These courts are uploading data on regular basis
    - Who is monitoring?
    - Pending cases 1.77 crore on NJDG against 2.6 crore based on manual inputs from High Courts
- Migration under process in Gujarat, Madhya Pradesh and Delhi
    - Fix timelines for migration?
- Campaign to reduce undated cases
    - Who is monitoring?

Status of NJDG

- Data in respect of more than 4.85 crore cases and more than 1.4 Crore orders/judgments pertaining to district and subordinate Courts under the jurisdiction of 22 out of 24 High Courts have been uploaded on NJDG

- NJDG has been linked to etaal and is showing 21,14,91,702 transactions as on 31st August, 2015

	Total Districts	Total Establishments	Total Cases	Total Orders	Orders Not Uploaded	Total JoCodes	Total Courts	Total JoCodes Not Given	Total Establishm not Upload
	5	15	30532	1805	20997	9	20	11	0
a	1	7	15875	3999	10681	0	21	21	0
	3	7	5668	153	4333	10	16	6	0
	30	211	1151976	40716	275339	147	467	320	1
	19	144	1680190	4696155	680606	15	751	732	0
	35	692	2447765	75373	1128220	139	1390	1247	1
	4	10	12974	32655	5529	3	28	25	0
u	33	457	2000275	106834	1053081	140	789	638	0
	10	139	1042613	84307	619251	235	346	110	0
	5	36	74591	308133	17411	85	101	16	0

	71	323	7633120	242571	3018833	699	2026	1310	4
nd	12	86	465221	30177	289429	7	224	217	0
	19	220	1949952	342982	438556	167	716	548	1
	511	**4414**	**48582006**	**14094016**	**25852819**	**4968**	**15412**	**10045**	**11**

Status of e-taal

Issues and Solutions

- Court data incomplete
  - Reconcile number of courts
  - Unique IDs of JOs and courts to be populated
  - Courts of 3 States to be added
- Case data incomplete
  - Mandatory fields not filled up
  - Undated/Excessive dated cases to be monitored
  - Nomenclature of cases different across different High Courts – need to harmonise
- CPCs and District Judges to conduct meeting with NIC coordinators and BSNL for connectivity
- Manpower to be enhanced

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Session 7 & 8 on - Can Mathematical Theory of Evidence and Fuzzy Relational Calculus Bring Complex Problems in Legal System into focus by Ashok Deshpande PhD (Engineering)

A ver good after noon to all the judges,Sir I am not a legal person and I am the Founding Chair: Berkeley Initiative in Soft Computing (BISC)-Special Interest Group (SIG)-Environment Management Systems (EMS) , Guest Faculty: University of California Berkeley Ca USA Visiting Professor: University of South Wales, Canberra Australia and IITB Mumbai; Adjunct Professor: College of Engineering Pune; Former Deputy Director: National Environmental Engineering Research Institute (NEERI) India.
My theory is based on perception and averages which is being used in air-conditioners and other concepts of human engineering.

In Introduction I would say that Judiciary is considered as Legal Science. Everyone should respect judiciary as it is designed for the benefit of all. Judicial decision making is not an easy task. In that, intelligence is needed, skills required and more importantly experience counts more.
Dr. K.L. Rao Former Union Minister in Government of India once stated:

"***Experience can not be substituted by any other thing but only by experience"***

Are judicial rulings based solely on laws and facts? Legal formalism holds that judges apply legal reasons to the facts of a case in a rational, mechanical, and deliberative manner. In contrast, legal realists argue that the rational application of legal reasons does not sufficiently explain the decisions of judges and that psychological, political, and social factors influence judicial rulings [1]. In a judicial process, deliberations are linguistic descriptions as a document which is based on partial belief and perception of a judge. This type of uncertainty is invariably of nonnumeric type -termed as epistemic uncertainty.
It can be stated in no uncertain terms that there is cognitive uncertainty / imprecision or fuzziness in human thinking. In summary, Hon' ble Judge is

obliged to take decisions based on his/her belief/perception in an environment of uncertainty/imprecision/fuzziness, partial belief due to insufficient evidence, incompleteness of information and partiality of truth.
Decision Making in a Fuzzy (imprecise or cloudy) environment is the ground reality- says Professor Lotfi Zadeh (94+), father of Fuzzy logic and the highest cited living scientist in the world as on today.
It is our belief that that concerted efforts could be initiated to develop an appropriate mathematical apparatus. A slight change in thinking in thought process is the need the hour
The paper is an attempt to propose a new computational framework using fuzzy relational calculus and evidence theory which will, hopefully, assist the decision maker/fact finder- - Humble Judge. The approach is a paradigm shift in decision making in a legal system.

2. Brief Review of Legal System

In the scientific world the law has a different connotation than in legal terms. We discuss this issue in brief. Principal among the issues of definitional terms in uncertainty representational theories are the word *"coherence"* and the ubiquitous use of the word *"law."* To begin with the latter, the axioms of a probability theory referred to as the *excluded middle* $(A \cup A^C = X)$ will is only as axioms – never as laws.
What is law in scientific world?
Newton produced *laws*, Kepler produced *laws*, Darcy, Boyle, Ohm, Kirchhoff, Bernoulli, and many others too numerous to list here all developed laws. What is then Law in its real meaning? Laws are mathematical expressions describing the immutable realizations of nature. The other term *coherence also* does not connote a *law*.
What do we mean by "Law" in Judicial System? **"The law never is, but is always about to be."**—*Supreme Court Justice Benjamin N. Cardoza.* It is possible to describe law as the body of official rules and regulations, generally found in constitutions, legislation, judicial opinions, and the like, that is used to govern a society and to control the behaviour of its members, so Law is a formal mechanism of social control. Legal systems are particular ways of establishing and maintaining social order.
There are many definitions of Law proposed by the scholars (Ref: Google on Sixth form Law). It is evident that the definitions of Law could be different in different settings, however, we will adhere to use the Law practised in legal system.
The Probable cause

The legal term *probable cause* was first used in 1676. In a court of law, it means that there is sufficient evidence to arrest a suspect and charge him or her with a crime. But what is meant by *"sufficient*" is not known! .It is very difficult to compute a numeric probability for most criminal cases, but no prosecutor would bring a case to trial if the subjective estimate were less than 50%. Of course, lawyers for the prosecution and defense may have different estimates. When they don't, they usually settle out of court.

But what is Insufficient Evidence?

"Evidence," wrote Bentham, "is the basis of justice." This observation aptly describes our legal system, where the outcome of trials critically depends on the parties' ability to produce information that substantiates their claims. Yet, not every piece of information counts as "evidence" in legal procedures. Evidence rules exclude certain types of information—even relevant one—from bearing on the outcome of cases. This, of course, raises the question why? Suppression of relevant information as legally "inadmissible" or "insufficient" presents a serious puzzle [2].

Professor Alex Stein has made an attempt to resolve this puzzle and provide a comprehensive and incontrovertible justification for the extant design of evidence law. Alex goes on to state that our evidence-sorting rules share one important commonality: they are designed to secure that only information that satisfies an adequate *"signal to noise" (SNR) ratio* will be considered by fact finders and decide the outcome of cases. He argues that SNR demonstrates normative superiority over unregulated fact finding. Adoption of SNR principle will remove constitutional ambiguity.

Jury System in India

Indian Penal Code formulated by the British during the British Raj in 1860, forms the backbone of criminal law in India. Jury trials were abolished by the government in 1960 on the grounds they would be susceptible to media and public influence. This decision was based on an 8-1 acquittal of Kawas Nanavati in *K. M. Nanavati vs. State of Maharashtra*, which was overturned by higher courts [Google search].

Types of Models in Judicial Decision Making

- Descriptive (Story model)
- Normative (Probability theory and Bayes Theorem)
- Prescriptive (evidence based)

Descriptive or story models have strong following in judicial system. The best known normative models are based on Probability and statistics with focus on two valued probability theory Bayes theorem models, but are not used in judicial system. Evidence based approach is used in some cases by the fact finder. The perception of a fact finder in implementing the rules, after hearing a body of evidence, is a key in legal system. Information Technology has and will continue to progress rapidly. There are perception based modeling methods available for practical applications. What is needed is human centric approach in legal decision making- a grand paradigm shift. ***May be Soft Computing for Hard Decisions***

The objective of the paper is to present a different kind of formalism wherein public participation as *unbiased jury system is* suggested but in a different setting. The suggested *Out of the Box* proposal needs a few logical changes at the decision making level. Positive thinking with an open mind should ultimately lead to success. Before arriving at Yes/ No decision, there is a need to experiment on this idea. Let us give a fair trial to the proposed idea-initially on an experiment. ***Where there is will there is a way.***

3. Mathematical Preliminaries

Decision making in an imprecise or uncertain or fuzzy environment is a challenge.

Transition from certainty to uncertainty has a long history. Two prevalent forms of uncertainty are those arising from vagueness and the other from imprecision. How do vagueness and imprecision differ as forms of uncertainty? Vague statement has no upper boundary while *fuzziness-the term* coined by Professor Lotfi Zadeh, the father of fuzzy logic has an upper limit.

It is a deep-seated tradition in science to employ the conceptual structure of bivalent logic and probability theory as a basis for formulation of definitions of concepts. What is widely unrecognized is that, in reality, most concepts are fuzzy/vague rather than bivalent, and that, in general, it is not possible to formulate a co-intensive definition of a fuzzy concept within the conceptual structure of bivalent logic and probability theory**.** Fuzzy logic via

Computing With Words and Evidence Theory can model almost all the types of uncertainties such as vagueness, fuzziness, belief, imprecision and alike. The analytical frame work of modeling perceptions of the experts, used in the paper is based on the following mathematical formalisms:

3.1 Signal to Noise Ratio

An alternative definition of SNR is as the reciprocal of the coefficient of variation, i.e., the ratio of mean to standard deviation of a signal or measurement:

$$\mathrm{SNR} = \frac{\mu}{\sigma}$$

Where μ is the signal mean or expected value and σ is the standard deviation of the noise, or an estimate thereof. Notice that such an alternative definition is only useful for variables that are always non-negative (such as photon counts and luminance). Thus it is commonly used in image processing, where the SNR of an image is usually calculated as the ratio of the mean pixel value to the standard deviation of the pixel values over a given neighborhood. Sometimes SNR is defined as the square of the alternative definition above. [2]

3.2 Dempster-Shafer Evidence Theory

Theory of Evidence is a branch of mathematics that is concerned with combining evidence to calculate the probability of an event. The Dempster-Shafter theory is well-known for its usefulness to express uncertain judgments of experts. The Dempster-Shafer theory (DST) was introduced in the 1960's by Arthur Dempster (1967) and developed in the 1970's by Glen Shafer (1976). According to Glen Shafer the D-S theory is a generalization of the Bayesian theory of subjective probability [3].

- The most important feature of DST is that the model is designed to cope with varying levels of precision regarding the information and no further assumptions are needed to represent the information.

- It also allows for the direct representation of uncertainty of system responses where an imprecise input can be characterized by a set or an interval and the resulting output is a set or an interval.
- **What is a Power Set?**
- Null set is analogous to impossible event, and the whole set is analogous to certain event. All possible sets of X constitute a special set *called the Power Set P(X).*
- Example:
- A universe (say tall men) comprises of three men (Elements), X = { a, b, c}. Therefore, Cardinality Number $n_x = 3$. The Power Set is:
- **P(X) = [Ø ,{ a},{ b}, { c}, { a, b}, { a, c}, { b, c}, {a, b, c].The cardinality of power set,** denoted by $n_{p(x)}$ is found as: $n_{p(x)} = 2^{nx} = 2^3 = 8$

Why Belief Measures?

Example: Court of Law

For a convict: Two conditions: Ω = {guilty), (not guilty)

As the set of possible outcomes. From collected evidences:

probability (guilty)= 0.6

Probability(not guilty)= 0.2.

probability(guilty) + Probability(not guilty)= 0.8

The remaining 0.2 is called missing probability or Ignorance.

Basic Evidence Assignment

Basic evidence assignment (bea/bpa) can be used to express and determine both belief and plausibility measures as follows:

$m : P(X) \rightarrow [0,1]$

$$m_{12}(A) = \frac{\sum_{B \cap C = A} m_1(B) m_2(C)}{1 - K} \quad :1$$

$$A \in P(X) \ \#$$

The measure m (A) is the degree of belief that a

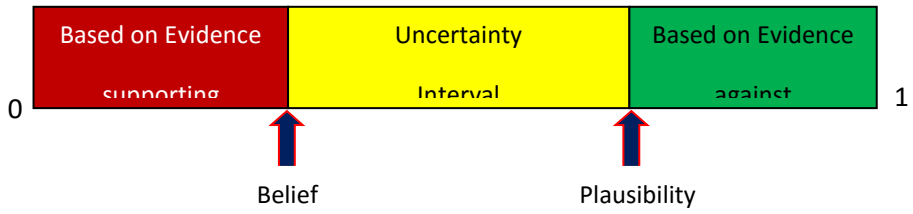
specific element, x , of X ∈ A *but not to any specific subset of A.* In this way, m (A) differs from both belief and plausibility.

Belief & Plausibility functions

Likelihood for event *A* lies in the interval [*Bel*(A), *Pl*(A)]

Combined Evidence

Suppose the evidence for certain fuzzy measures come from more than one source, say two experts/one source with two evidences. Then the evidence obtained from two independent sources and expressed by two *bea's* (m_1,m_2) on some power set *P(X)* can be combined to obtain a joint *bea*, denoted by m_{12}, using Dempster's rule of combined evidence. Traditionally, probability theory has been used to characterize both types of uncertainty. However, the recent criticisms of the probabilistic characterization of uncertainty claim that traditional probability theory is not capable of capturing epistemic uncertainty (fig. 2). The application of traditional probabilistic methods to epistemic or subjective uncertainty is often known as Bayesian probability. A probabilistic analysis requires that an analyst have information on the probability of all events. In situations where very little information is available to evaluate a probability or the information is nonspecific, ambiguous, or conflicting D-S theory could be used as the framework for representing uncertainty.



Probability:

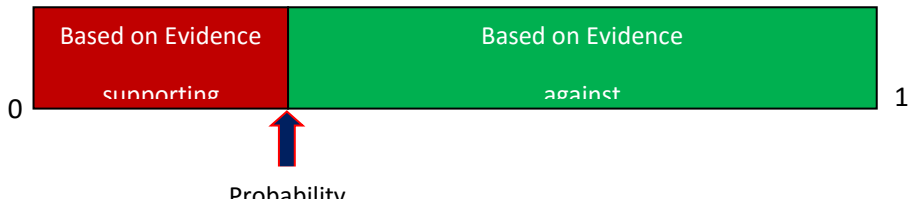


Figure 2 Demspter-Shafer Evidence Theory and Probability Theory

The Dempster's Rule of Combination

The purpose of aggregation of information is to meaningfully summarize and simplify a corpus of data whether the data is coming from a single source or multiple sources. Combination rules are the special types of aggregation methods for data obtained from *multiple* sources. Dempster's rule combines multiple belief functions through their basic probability assignments (*m*). These belief functions are defined on the same frame of discernment, but are based on *independent* arguments or bodies of evidence.

Suppose the evidence for certain fuzzy measures comes from more than one source, say two experts. Then the evidence obtained from two independent sources and expressed by two *bea's* (m_1,m_2) on some power set *P(X)* can be combined to obtain a joint *bea*, denoted by m_{12}, using Dempster's rule of combined evidence. The equations for combined evidence are as follows:

$$m_{12}(A) = \frac{\sum_{B \cap C = A} m_1(B) m_2(C)}{1 - K} \qquad 3.17$$

$$\forall\, A \neq \emptyset, \text{and } m_{12}(\emptyset) = 0 \text{ where}$$

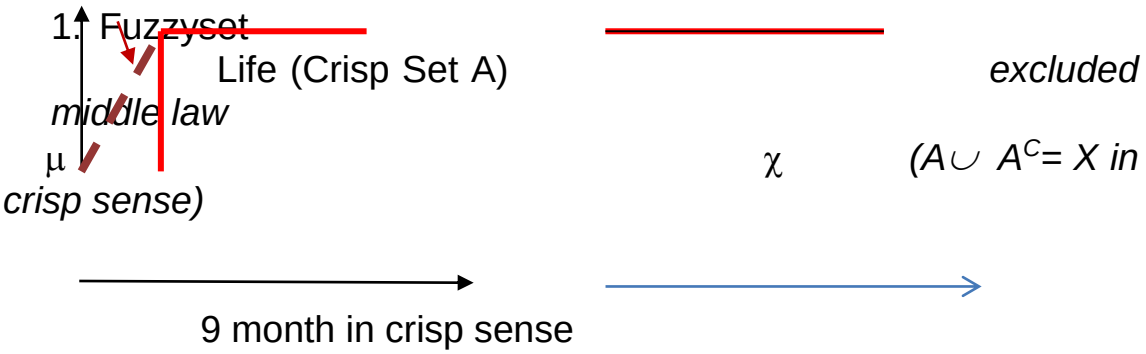
$$K = \sum_{B \cap C = \emptyset} m_1(B) m_2(C) \qquad 3.18$$

K represents basic probability mass associated with conflict. This is determined by the summing the products of the *bea's* of all sets where the intersection is null. The denominator in Dempster's rule, *1-K*, is a normalization factor. This has the effect of completely ignoring conflict and attributing any probability mass associated with conflict to the null set [3,4]

3.3 Fuzzy sets and Fuzzy Relational Calculus

What is a fuzzy set?

In classical or crisp sets, the transition for an element in the universe between membership and non - membership in a given set is abrupt and well defined (crisp). For an element in a universe that contains fuzzy sets, this transition is gradual. This transition among various degrees of membership can be thought of a conforming to the fact that the boundaries of the fuzzy sets are vague and ambiguous.



μ is membership function in a fuzzy set and χ is characteristic function in a classical set

Fig. 3 Child in Not Born

Fig. 3 refers to crisp or classical set for Life (A) and No Life as A^c). We can state that there is no life before a child is born i.e. till nine months. This is far from reality. There are many mythological stories about the birth of a child. In modern days, using sonography we can see the child in mother's womb-the child is already born in that sense! In reality this could be termed as a partial belief as the child is still in mother's womb. How to deal with such a real life phenomenon?

Algebraic properties of fuzzy set and alpha cut

Definition 3.1 Let X is a collection of objects denoted generically by x. A fuzzy set $\tilde{A}$ in X is defined as a set of ordered pairs [5]:

$$\tilde{A} = \{(x, \mu_{\tilde{A}}(x)) \mid x \in X\} \qquad 3.19$$

Where, $\mu_{\tilde{A}}(x)$ is called the membership functions or grade of membership of x in $\tilde{A}$. The range of the membership function is a subset of the nonnegative real numbers whose supremum is finite. As an example, let the fuzzy set, $\tilde{A}$ is represented as {0.1/2 + 0.4/5 + 0.5/8 + 1.0/10 + 0.7/12.0 + 0.8/20}.

Definition 3.2 The α-cut of a fuzzy set $\tilde{A}$ is defined as the set of elements that belong to the fuzzy set $\tilde{A}$ at least to the degree α. For example, $A_{\alpha=0.5} = \{8, 10, 12, 20\}$. Therefore, mathematical representation of α-cut of a fuzzy set $\tilde{A}$ can be written as $A_\alpha = \{x \in X \mid \mu_{\tilde{A}}(x) \geq \alpha\} = [A_L,\ A_U]$. So, α-cut of a fuzzy set is represented as a closed interval.

Fuzzy Relational Calculus (FRC)

A Fuzzy Relation *R* is a mapping from the Cartesian space $X \times Y$ to the interval [0, 1], where the strength of the mapping is expressed by the membership function of the relation for ordered pairs from the two universes, or $\mu_R(x, y)$. Relations can be used to represent *similarity.* Suppose *R* is a fuzzy relation on the Cartesian space $X \times Y$, *S* is a fuzzy relation on $Y \times Z$, and *T* is a fuzzy relation on $X \times Z$; then fuzzy max–min composition is defined in terms of the function-theoretic notation in the following manner [3]:

$$\mu_T(x,z) = \bigvee_{y \in Y} \left[[\mu]_R(x,y) \bigwedge \mu_S(y,z) \right)$$

3.20

Fuzzy Equivalence and Fuzzy Tolerance Relation

A fuzzy relation, *R* on a single universe *X* is also a relation from *X* to *X*. It is a fuzzy equivalence relation or a similarity relation if all three of the following properties for matrix relations define it:

Reflexivity $\mu_R(x_i, x_i) = 1$

3.21

Symmetry $\mu_R(x_i, x_j) = \mu_R(x_j, x_i)$

3.22

Transitivity $\mu_R(x_i, x_j) = \lambda_1 \& \mu_R(x_j, x_k) = \lambda_2 \rightarrow \mu_R(x_i, x_k) = \lambda \text{ where } \lambda \geq \min[\lambda_1, \lambda_2]$

3.23

Fuzzy tolerance relation was observed while examining the similarity matrix. In order to defuzzify fuzzy tolerance relation to obtain ultimately the classical relation, it is necessary to transform the relation to fuzzy equivalence relation using transitivity closure operation expression. A fuzzy tolerance relation can be transformed into fuzzy equivalence relation by almost (*n*-1) compositions.

$$R_1^{n-1} = R_1 \circ R_1 \circ R_1 \circ R_1 \ldots\ldots\ldots\ldots \circ R_1 = R \qquad 3.24$$

Fuzzy relations describe the interactions between variables. While an equivalence relation clearly groups elements that are equivalent under the relation into disjoint classes, the interpretation of a similarity relation can be approached in two different ways. First it can be considered to effectively group elements into crisp sets whose members are similar to each other to some specified degree. Obviously when this degree is equal to 1, the grouping is an equivalence class.

We may wish to consider the degree of similarity that the elements of X have to some specified element x ∈ X Thus for each x ∈ X, a similarity class can be defined as a fuzzy set in which the membership grade of any particular element represents the similarity of that element to the element x.

If all the elements in the class are similar to x to the degree of 1 and similar to all elements outside the set to the degree of 0 then the grouping again becomes an equivalence class. We know every fuzzy relation *R* can be uniquely represented in terms of its α-cuts by the formula $\cup \alpha_{\alpha\in(0,1]} \mathbf{R}$.

It is easily verified that if *R* is a similarity relation then each α-cut, ${}^{\alpha}R$ is a crisp equivalence relation. Thus, we may use any similarity relation *R* and by taking an α-cut ${}^{\alpha}R$ for any value $\alpha \in (0,1)$, create a crisp equivalence relation that represents the presence of similarity between the elements to the degree α. Each of these equivalence relations forms a partition of X. These partitions are nested in the sense that π (${}^{\alpha}R$) is a refinement of π (${}^{\beta}R$) if and only $\alpha \geq \beta$.

3.3.1 Similarity Measures or Value Assignments

An appropriate question regarding relations is: Where do the membership values that are contained in a relation come from? One of the most prevalent forms of determining the values in relations is through manipulations of data. The more robust a data set, the more accurate the relational entities are in establishing relationships among elements of two or more data sets.

Cosine Amplitude Method

This similarity metric method makes use of a collection of data samples, *n* data samples in particular. If these data samples are collected they form a data array,

$\boldsymbol{X} = \{\boldsymbol{x}_1, \boldsymbol{x}_2, \ldots, \boldsymbol{x}_n\}$. Each of the elements, $\boldsymbol{x}_i$, in the data array $\boldsymbol{X}$ is itself a vector of length *m*, i.e. $\boldsymbol{x}_i = \{\boldsymbol{x}_{i1}, \boldsymbol{x}_{i2}, \ldots, \boldsymbol{x}_{im}\}$.Hence, each of the data samples can be thought of as a point in m-dimensional space, where each point needs *m* coordinates for a complete description. Each element of a relation, r_{ij}, results from a pair-wise comparison of two data samples, say $\mathbf{x}_i$

and $\mathbf{x}_j$, where the strength of the relationship between data sample $\boldsymbol{x}_i$ and data sample $\boldsymbol{x}_j$ is given by the membership value expressing that strength, i.e. $r_{ij} = \mu_R(x_i, y_j)$.

The relation matrix will be of size $n \times n$ and, as will be the case for all similarity relations, the matrix will be reflexive and symmetric—hence a tolerance relation. The cosine amplitude method calculates r_{ij} in the following manner, and guarantees, as do all the similarity methods, that $0 \leq r_{ij} \leq 1$:

$$r_{ij} = \frac{\left|\sum_{k=1}^{n} x_{ik} x_{jk}\right|}{\sqrt{\left(\sum_{k=1}^{m} [x_{ik}^2]\right)\left(\sum_{k=1}^{m} [x_{jk}^2]\right)}} \text{ where } i, j = 1, 2, \ldots, n \qquad 3.25$$

When two vectors are co-linear (most similar), their dot product is unity; when the two vectors are at right angles to one another (most dissimilar), their dot product is zero.

4. Decision Support System (DSS) in legal Decision making

Logically, Hon'ble High Court Judge will be the team leader in the development of the DSS in judicial decision making which is expected to serve :

1. Objectivity

   Finally arrive at the belief and plausibility of a defendant "Found Guilty OR Not Guilty" using Dempster-Shafer Theory of Evidence and Fuzzy Relational Calculus.

2. *Impartiality*

   Juries will be selected using random number generation approach. Based on the evidence provided to them via video graph of the court hearing, the identified juries will provide a number between 0 and 1 as their belief. Lower values may signify insufficient evidence The jury

will not know about the mathematical procedure and therefore, DSS ensures impartiality.

Evidence produced in the Court

Court proceedings should be Video graphed. We are aware that such s procedure was refused in 1960 under presumption that it will be misused by the media. Times have changed –electronic and print media can get information from the court, very easily. Videography is basically for obtaining opinion of jury on evidence produced in the court. We are not aware of any scientific studies made on: *Effect of videography of court proceeding related violence.* To say NO to videography with no experiments may not be accepted, scientifically and Judiciary is a science...

Note: Positive thinking people can only make a change. Why not Indian makes a beginning in developing and trying DSS in legal system? What is needed is a paradigm shift in thinking.

1. The list of evidence produced in the court will be sent to the identified 10000 jury by e-mail as well as a video recording of that day proceeding for a particular case. These mails will be sent independently. The juries are now asked to give their opinion in the form of belief (the value between 0 and1). It is possible that a jury might feel that the evidence is fabricated; hearsay and he/she may record a low value for its acceptance. A defined time frame will be set by the courts for receiving belief from the jury for all the evidences produced in the court on that day. A maximum of 7 days should be OK for such a simple but actually a difficult task.

How to select Juries as experts for reviewing the evidence?

1. Identify a mix of, say, 100,000 Indian residents from different walks of life with their address, phone numbers, and e-mail contacts. All of

them will be informed, separately, much before the start of court proceedings. The cases referring to Felony (may be murder case) will be considered on priority.

2. Identify 10000 out of 100000 juries using random number generator. The list of evidence produced in the court will be sent to the identified jury by e-mail as well as a video recording of that day proceeding for a particular case. These mails will be sent independently. The juries are now asked to give their opinion in the form of belief (the value between 0 and1).

3. It is possible that a jury might feel that the evidence is fabricated; hearsay and he/she may record a low value for its acceptance. If SNR ≤ 2, then the evidence will be considered as ineffective and will not be considered in further analysis. Only useful evidence will be used in estimation of the belief and plausibility of the defendant is Guilty in numeric terms using DST and FRC. A defined time frame will be set by the courts for receiving belief from the jury for all the evidences produced in the court on that day. A maximum of 7 days

About understanding Technology

Every technology has limitations. Sometimes a highly specialized tool that does only one thing very well is the best choice for that application. In other cases, a very general tool (such as a Swiss Army Knife) is useful if you don't have the resources to buy, make, or carry more than one tool.

Fundamental principle: Anybody who doesn't know the limitations of a particular tool or technology doesn't really understand it.

Illustrative Example

Five people {A, B, C, D and E} are locked in a room when light goes out. When the lights are on E is found dead- stabbed with a knife.

- No suicide was attempted (stabbed in the back). No other person entered the room.

- FIR was registered by the relative of E. The police, after interrogation, booked the four possible criminals under relevant IPC Sections

- A, B, C and D were produced in the court. Public prosecutor and the defendant's lawyer presented evidences and argued in the presence of Hon'ble Judge who gave dispassionately patient hearing to both the sides.

- Based on his/ her perception he tried to resolve the issue. On day one of the hearing, only two evidences were produced.

- The case was decided and the final judgment was given after a period of six months with a total of 5 hearings on different days. (This time is too short. In our view, such cases should meet its logical conclusion in a period of maximum 12 months).

Permissions needed

1.If needed, necessary permission of Videography of the entire judicial hearing

2. Also in order to support the decision maker, permission to introduce Jury system

Question: Who killed E?

The Possible Solution

The numeric data as bea for all the evidences, say, 50, obtained from 10000 jury will statistically analyzed. Mean and standard deviation will be worked out in order to compute SNR. SNR < 2 signifies insufficient evidence and could be ignored. However, opinion of the fact finder will be final. *No conflict between the evidence was assumed. While giving bea , jury thinks ade rethinks before assigning a number between 0 and 1*

✓ *Classification of Jury*

It is important to classify juries based on their similarity in their belief.. The model proposes that around 10000 juries, based on the video graphic evidence, will submit their Basic evidence / belief assignment- a number between 0 and 1. Similarity coefficients between the juries will be worked using expressions 3. 19 through 3.25 and will be categorized in various possibility levels (α-level cut).

Those Juries who satisfy, say, 0.95 possibility will be considered in further study on the estimation of belief and possibility.

Table 1 presents the bea/ bba of identified seven juries (out 0f 10000) . The normalised values of the evidence/belief function of juries (J1-J7) are presented.Table 1 Jury and their Basic Evidence assignment

Focal Element no.	**Guilty**	**J-1**	**J-2**	**J-3**	**E4**	**J-5**	**J-6**	**J-7**
1	A	0.04	0.15	0.15	0.04	0.09	0.10	0.10
2	B	0.08	0.12	0.05	0.07	0.08	0.08	0.08
3	C	0.01	0.03	0.14	0.01	0.02	0.03	0.02
4	D	0.02	0.00	0.03	0.01	0.01	0.01	0.02
5	A∪B	0.09	0.14	0.07	0.09	0.10	0.10	0.10
6	A∪C	0.05	0.09	0.15	0.04	0.05	0.08	0.07
7	A∪D	0.05	0.08	0.05	0.06	0.06	0.06	0.04
8	B∪C	0.08	0.08	0.08	0.08	0.08	0.06	0.05
9	B∪D	0.09	0.06	0.02	0.08	0.04	0.05	0.05
10	C∪D	0.02	0.02	0.04	0.02	0.02	0.02	0.02
11	A∪B∪C	0.09	0.10	0.10	0.10	0.10	0.10	0.10
12	A∪B∪D	0.10	0.07	0.03	0.10	0.11	0.12	0.10
13	A∪C∪D	0.09	0.03	0.05	0.09	0.09	0.05	0.10
14	B∪C∪D	0.10	0.02	0.03	0.09	0.03	0.03	0.04
15	A∪B∪C∪D	0.10	0.02	0.01	0.10	0.11	0.12	0.10

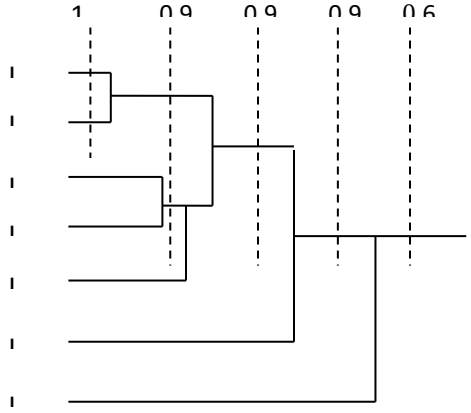
Similarity of experts was worked out using cosine amplitude method as the elements of the matrix (Table 2) are on two different universes. Sometimes, it is fuzzy tolerance relation which was transformed to fuzzy equivalent relation . Table 2 is already fuzzy equivalent relations as:

$(E_2, E_3)=0.86$ and $(E_3, E_5)=0.74$, but $(E_2, E_5)=0.88 \geq \min[0.86,0.74]$
$(E_1, E_5)=0.95$ and $(E_5, E_4)=0.94$, but $(E_1, E_4)=1 \geq \min[0.95, 0.94]$
$(E_2, E_1)=0.80$ and $(E_1, E_7)=0.93$, but $(E_2, E_7)=0.88 \geq \min[0.80, 0.93]$
Therefore, it is a fuzzy equivalence relation

Experts'	**E1**	**E2**	**E3**	**E4**	**E5**	**E6**	**E7**
E1	1.00	0.80	0.64	1.00	0.94	0.92	0.93
E2	0.80	1.00	0.86	0.79	0.88	0.90	0.88
E3	0.64	0.86	1.00	0.64	0.74	0.77	0.77
E4	1.00	0.79	0.64	1.00	0.94	0.92	0.93
E5	0.94	0.88	0.74	0.94	1.00	0.98	0.99
E6	0.92	0.90	0.77	0.92	0.98	1.00	0.97
E7	0.93	0.88	0.77	0.93	0.99	0.97	1.00

Table 2: Fuzzy Equivalence relation using transitivity closure

Using α- cut level for de-fuzzifcation method for fuzzy to crisp converse, we will get similar juroesat the desired α- cut levels which is portrayed in Figure 3 as a dendrogram. Pulmonologists E_1 and E_4 could be classified in one group with possibility (α- cut level 1.0), whileE_1, E_4 , E_5 and E_7 are in one group with possibility (α- cut level 0.99) and E_1, E_4, E_5, E_7 and E_6 are in one group with possibility (α- cut level 0.97). It can be inferred that out of E_7 experts E_5 agree with one another with possibility of 0.97. We live in uncertain or fuzzy world and in real life situation, all the experts' might not agree which is in line with Consistency Principle.



Application of Dempster- Shafer Theory

The insufficient evidences were not considered while assigning basic evidence belief by the unbiased public, selected randomly from India. The court hearings were video graphed and the video clippings were sent to the selected juries via e-mail.

The evidence confirmed that no one entered in the room and assuming only one killer.

Θ = {A, B, C, D}

P (Θ) = {$\varnothing$}, {A},{ B}, {C}, {D}, { A, B}, {A, C}. {A, D}. {B, C}, {B, D},{C,D}, { A,B,C}, { A,C,D}, {A, B,C,D}

Unbiased public after reviewing crime scene, assigned two basic belief/evidence assignments (m_1 and m_2)

Belief in X :

The belief in an element A of the Power set is the sum of the masses of elements which are subsets of A (including A itself).

E.g., Element X = {A, B, C, D}

Bel (X) = m{A}+m{B}+m{C}+{D} + m({A,B}+m{A,C}+m{A, D}

+m({B, C}), m {B, D}, m{ C, D}, m{ A, B, C}, m{ B, C, D], m{A, B, C, D}

Plausibility of X: pl(A)

The plausibility of an element , pl(X), is the sum of all the masses of the sets that intersect with the set X:

Belief Interval of X:

The certainty associated with a given subset A is defined by the belief interval:

[bel(X) pl(X)] .

Disbelief (or Doubt) in X: dis(X) ; The disbelief in X is simply bel(¬X).

It is calculated by summing all masses of elements which do not intersect with X.

The plausibility of X is thus 1-dis(X): pl(X) = 1-dis(X)

Belief Intervals & Probability

The probability in X falls somewhere between bel(X) and pl (X).

– bel(X) represents the evidence we have for X directly. So prob (X) cannot be less than this value. – pl(X) represents the maximum share of the evidence we could possibly have, if, for all sets that intersect with X, the part that intersects is actually valid. So pl(A) is the possible value of prob (X).

Belief Intervals:

Belief intervals allow Demspter-Shafer theory to reason about the degree of certainty or certainty of our beliefs.

– A small difference between belief and plausibility shows that we are certain about our belief.

– A large difference shows that we are uncertain about our belief.

However, even with a 0 interval, this does not mean we know which conclusion is right. Just how probable it is!

Table 3 Two Basic Evidence Assignment (m_1 and m_2) from Jury 1

Focal elemnt	**Evidence 1 1from Jury1**	**Plausibility**	**Evidence 2 from Jury 1**	**Plausibility**	**Combined Evidence**	**Pla**

	m_1=bea/.bba			m_2=bea/.bba					
	m_1	bel_1		m_2	bel_2		$m_{1,2}$	$bel_{1,2}$	
A	**0.04**	**0.04**	**0.61**	**0.04**	**0.04**	**0.63**	**0.12**	**0.12**	**0.4**
B	**0.08**	**0.08**	**0.72**	**0.07**	**0.07**	**0.72**	**0.21**	**0.21**	**0.5**
C	**0.01**	0.01	0.54	**0.01**	0.01	0.54	0.06	0.06	0.3
D	**0.02**	**0.02**	**0.56**	**0.01**	**0.01**	**0.56**	**0.07**	**0.07**	**0.3**
A∪B	**0.09**	0.21	0.95	**0.09**	0.20	0.96	0.09	0.43	0.8
A∪C	**0.05**	0.10	0.82	**0.04**	0.09	0.83	0.06	0.23	0.6
A∪D	**0.05**	0.11	0.83	**0.06**	0.11	0.84	0.06	0.26	0.6
B∪C	**0.08**	0.17	0.89	**0.08**	0.16	0.89	0.08	0.35	0.7
B∪D	**0.09**	0.18	0.90	**0.08**	0.17	0.91	0.08	0.37	0.7
C∪D	**0.02**	0.05	0.79	**0.02**	0.04	0.80	0.03	0.16	0.5
A∪B∪C	**0.09**	0.44	0.98	**0.10**	0.44	0.99	0.03	0.65	0.9
A∪B∪D	**0.10**	**0.46**	**0.99**	**0.10**	**0.46**	**0.99**	**0.03**	**0.68**	**0.9**
A∪C∪D	**0.09**	0.28	0.92	**0.09**	0.28	0.93	0.03	0.43	0.8
B∪C∪D	**0.10**	0.39	0.96	**0.09**	0.37	0.96	0.03	0.57	0.8
A∪B∪C∪D	**0.10**	1.00	1.00	**0.10**	1.00	1.00	0.01	1.00	1.0
Total	1.00			1.00			1.00		

Results and Discussion

Table 3 presents two basic evidence assignments from one jury. In the proposed study, around 10000 juries will be sent video clippings of the court hearing and their bea's for all the evidences will be obtained via in the opinion poll. Similar tables will be constructed and analysis will be made as given below:

It can be observed that , that the murder could either A Or B ot D, as th difference in degree of belief is minimum (0.95-0.68)=0.27. This small difference ensures that we are certain about our belief.

Now let us verify the combined evidence of m_1 and m_2 for the possible murderer A OR B OR D. A closer look at table1will infere that the difference between plausibility and belief in A is minimum (0.44-0.21)=023. [For B it (0.58-0,21)= 0.37 and for D (0.36-0.07) =0.31].

Conclusion based on single jury and two evidences:

A has murderer and he murdered E. From the analysis, one can argue that B, C and D are also partly responsible for the murder. They could have made a serious to avoid such an unfortunate incidence, i,e,. murder of person E.

B, C and D should also be given appropriate punishment deemed suitable by the decision maker. Numeric values arrived using mathematical frame work might find useful to Hon'ble Judge while deciding the quantum of punishment.

Let us assume that , in the final analysis 97500 favoured A as the murder (because the difference in plausibility and belief is minimum), the A has definitely murdered E. The other B, C and D should also be given appropriate quantum of punishment. The decision of Hon'ble judge will be final as he understand the legal system due to his/ her several years of experience.

5. Concluding Remarks

There are remarkable successes witnessed with present judicial system. However, due to variety of reasons the approach used in this system is being debated. There has been an ongoing dialogue on judicial accountability. Though he tries to be impartial, the fact finder is also under stress and is inclined to take decisions based on his interpretation of judicial law. In this essay, soft computing based formalism is suggested to arrive at the belief and plausibility of a person as Guilty OR Not Guilty. It is our belief that the DSS developed will assist the Hon'ble judges and

thereby enhance credibility of India judicial system. It is necessary to give a fair trial to the formalism for its experimentation before arriving at any conclusion in its favor or against the model.

Acknowledgements

I sincerely thank Professor Geeta Oberai for inviting me for the talk. I am sure, the Hon'ble Judges might find fooled my modest research of practical utility. This is out of the box solution which will assist the Judiciary system to take decisions. We need to carry out at least 50 experiments to decide the utility of the mathematical frame work in dichotomous terms (yes/No).

This is a group work in which the Hon'ble High Court Judges will lead the team of researchers.

The author expresses deep sense of gratitude to Justice Gundewar, Professor Shirish Deshpande, Advocate Shreedhar Purohit, Dr. Sanjay Jain for their timely assistance.

Session 9 By A.K.Sinha Gujarat Good morning to all.Sir I am a technical person and have been working on various modules and recently on Digitalization .I would explain my deliberations with the slides- WHAT IS DIGITALIZATION?

- DIGITALIZATION IS THE PROCESS OF CONVERTING INFORMATION INTO A DIGITAL FORMAT. IN THIS FORMAT, INFORMATION IS ORGANIZED INTO DISCRETE UNITS OF DATA CALLED BYTES. THIS IS THE BINARY DATA THAT COMPUTERS AND MANY DEVICES WITH COMPUTING CAPACITY CAN PROCESS.

WHY DIGITALIZATION?

- MODERN TECHNOLOGY OFFERS A WAY TO MAKE DOCUMENTS MORE ACCESSIBLE TO THE PUBLIC AND TO ELIMINATE PAPER COPIES AND HENCE REDUCE THE DEMANDS FOR STORAGE IN A PHYSICAL LOCATION.
- IN THIS PROCESS, HOWEVER, VALUABLE HISTORICAL DOCUMENTS MUST NOT BE LOST.

- DIGITIZATION GIVES AN OPPORTUNITY TO IMPROVE ACCESSIBILITY, PRESERVE INFORMATION IN THE EVENT OF A DISASTER AND REDUCE THE DEMANDS FOR PHYSICAL SPACE FOR STORAGE.

- **STREAMLINE PROCESS**
  - DELIVER INFORMATION/DATA TO THE RIGHT PERSON AT THE RIGHT TIME.
  - STREAMLINE PAPER-BASED PROCESSES
  - OPTIMIZE PROCESSING TIME
  - IMPROVE PRODUCTIVITY AND EFFICIENCY

- **DOCUMENT MANAGEMENT**
  - ARCHIVE AND MANAGE DOCUMENTS IN A STRUCTURED AND SECURED MANNER.
  - PROTECT PAPER RECORDS.
  - REDUCE RISK OF LOST/MISPLACED DOCUMENTS.

- **CONTINUOUS AVAILABILITY**
  - KEEP END-USERS CONSTANTLY CONNECTED TO THE DOCUMENT MANAGEMENT SYSTEM USING LOCAL AREA NETWORK(LAN) OR WIDE AREA NETWORK(WAN).
  - PROVISION OF ROBUST HIGH AVAILABILITY AND DISASTER RECOVERY SOLUTION.

- **MINIMIZE PAPER STORAGE**
  - THE DOCUMENT STORAGE SPACE CAN BE REDUCED.
  - SPARED STORAGE SPACE OF PHYSICAL FILES CAN BE USED FOR OTHER PURPOSE.

- **ELIMINATE MANUAL SEARCHES**
  - SEARCHING FOR DOCUMENTS IS TIME CONSUMING.
  - ELECTRONIC DOCUMENT MANAGEMENT CAN PROVIDE AN IMMEDIATE RESPONSE TO A QUERY, BYPASSING THE LONG PROCESS OF A PAPER SEARCH.

- **REDUCE STORAGE COST**
  - THE COST OF STORAGE SYSTEM FOR STORING PHYSICAL FILES IS STAGGERING.

- ONE FILING CABINET OF INFORMATION CAN BE HELD ON A SINGLE OPTICAL PLATTER, WHICH COSTS VERY MINIMUM.
-

METHODOLOGY

- TEXT AND IMAGES CAN BE DIGITIZED SIMILARLY; A SCANNER CAPTURES AN IMAGE OR IMAGE OF TEXT AND CONVERTS IT TO AN IMAGE FILE, SUCH AS BITMAP ETC.
- AN OPTICAL CHARACTER RECOGNITION (OCR) PROGRAM ANALYZES A TEXT IMAGE FOR LIGHT AND DARK AREAS IN ORDER TO IDENTIFY EACH ALPHABETIC LETTER OR NUMERIC DIGIT, AND CONVERTS EACH CHARACTER INTO AN AMERICAN STANDARD CODE FOR INFORMATION INTERCHANGE (ASCII) CODE.

DIGITALIZATION WORKFLOW

- IMAGE CAPTURE
- IMAGE PROCESSING
- QUALITY CONTROL
- DELIVERY
- STORAGE & BACKUP

IMAGE CAPTURE

- DOCUMENT(S) OR OTHER MATERIALS ARE CAPTURED IN DIGITAL FORM USING A SCANNER.

IMAGE PROCESSING

- IMAGE EDITING (IF NECESSARY)
  - COMPRESSION OF FILES, SHARPENING OF IMAGES, IMAGE ROTATION, CROPPING, DELETING AND REORDERING PAGES.
- OPTICAL CHARACTER RECOGNITION
- CREATING DERIVATIVES
- ADDING SECURITY TO THE SCANNED DOCUMENTS
- CREATION OF METADATA DESCRIBING THE SCANNED MATERIALS.

QUALITY CONTROL

- WHAT TO LOOK FOR WHEN CHECKING DIGITAL IMAGES FOR QUALITY:
  - MISSING PAGES.
  - INCORRECT ORDER OF PAGES.
  - PAGES OF DIFFERENT SIZES.
  - READABILITY OF TEXT.
  - BLACK OR WHITE AREAS ON SOME PARTS OF THE PAGE THAT IS COVERING THE CONTENT.
  - IMAGE NOT THE CORRECT SIZE
  - IMAGE IN WRONG RESOLUTION
  - IMAGE IN WRONG FILE FORMAT

DELIVERY

- THE PROCESS OF GETTING THE SCANNED IMAGES/DOCUMENTS TO THE DIGITAL REPOSITORY FOR FUTURE USE.
- THE SCANNED MATERIAL IS USED WITH DOCUMENT MANAGEMENT SYSTEM FOR RETRIEVAL.

STORAGE & BACKUP

- STRATEGIES FOR STORAGE AND BACKUP MAY INCLUDE HOW THE SCANNED IMAGES/DOCUMENTS BEING STORED TO THE SYSTEM
  - DATABASE SYSTEMS
  - FILE-BASED SYSTEMS

BENEFITS OF DIGITALIZATION

- DIGITALIZING INFORMATION MAKES IT EASIER TO PRESERVE, ACCESS, AND SHARE. DIGITALIZATION IS EXPECTED TO ACHIEVE THE FOLLOWING BENEFITS:-
  - ULTIMATE OBJECTIVE OF REDUCTION OF STORAGE SPACE FOR PRESERVING FILES.
  - MINIMISING THE FILE SEARCH TIME.
  - INCREASE IN PRODUCTIVITY OF PROCESSES.
  - AVAILABILITY OF THE DOCUMENT FOR SENDING IN ELECTRONIC FORMAT

- REDUCED TURNAROUND TIME OF PROCESSES
- IMPROVED CONTROL OVER ALL THE IMPORTANT DIGITIZED DOCUMENTS BY RESTRICTING ACCESS.
- PREVENTION OF LOST RECORDS.

STORY

- OVER THE LAST THREE DECADES MOST INSTITUTIONS HAVE INTEGRATED TECHNOLOGY INTO ALL ASPECTS OF THEIR MISSION AND SERVICES.

- THE EXPANSION OF GLOBAL COMPUTER NETWORKS AND HIGH-SPEED ACCESS TO THE INTERNET HAS LED TO A PROLIFERATION OF DIGITAL CONTENT, DELIVERED TO INCREASING NUMBERS OF COMPUTER USERS WORLDWIDE. THERE IS A GROWING DEMAND FOR IMMEDIATE ACCESS TO RICH CONTENT AND EASILY ACCESSED, UP-TO-DATE INFORMATION.
- DIGITIZATION OF THE COURTS SYSTEM IS IMPERATIVE NOT ONLY TO KEEP PACE WITH PUBLIC EXPECTATIONS OF JUSTICE AND GOVERNMENTAL INSTITUTIONS IN A MODERN DEVELOPED ECONOMY, BUT ALSO TO SERVE AS THE FOUNDATION AND CATALYST FOR IMPROVING EFFICIENCY THROUGHOUT THE SYSTEM.
- A COMMON, SUSTAINABLE AND ADAPTABLE SOLUTION MUST BE ONE OF THE TOP PRIORITIES OF A SUCCESSFUL COMMON PLATFORM PROGRAMME FOR DIGITALIZATION.
- SUCCESSFUL WEB2.0 WEBSITES, SUCH AS YOUTUBE AND FLICKR, HAVE BUILT THEIR FOUNDATIONS, ALLOWING USER-GENERATED CONTENT TO BECOME THE KEYSTONE AROUND WHICH THEIR SERVICE IS DELIVERED.
- IF THEY ARE TO ACHIEVE GREATER SUCCESS, FUTURE DIGITISATION VENTURES NEED TO QUESTION THEIR TRADITIONAL PARAMETERS, AND DEVELOP SERVICES THAT RESPOND TO THE GREATER DEMAND FOR USER INTERACTION.
- THE DIGITAL PUBLICATION OF SOME SPARKLING CULTURAL RESOURCE WAS RICHER IN 2009 AS

- WORLD'S OLDEST BIBLE PUBLISHED IN FULL ONLINE
- HISTORIC IMAGES OF POLAR EXPLORATION MADE PUBLIC
- UNIVERSITY OF KENT'S ONLINE ARCHIVE OF TWENTIETH-CENTURY POLITICAL CARTOONS

DIGITALIZATION OF VARIOUS JURISDICTIONS

- DIGITALIZATION OF JUDICIARY
  - JUDICIAL ADMINISTRATION
  - ADMINISTRATION OF JUSTICE

DIGITALIZATION OF JUDICIAL ADMINISTRATION

- KEY GOALS
  - PRESERVE HISTORICALLY VALUABLE ORDERS / JUDGMENTS.
  - RESTORE HISTORICALLY VALUABLE ORDERS/JUDGMENTS.
  - CONVERT PAPER DOCUMENT FILES OF ALL AGES INTO A DIGITIZED FORMAT IN A USABLE CASE MANAGEMENT SYSTEM.
  - RETAIN HISTORICALLY VALUABLE ORDERS/JUDGMENTS IN THEIR ORIGINAL FORMAT.
  - RETAIN SAMPLE COURT DOCUMENTS FROM DIFFERING PERIODS OF COURT HISTORY.
  - DIGITIZE ORDERS/JUDGMENTS.
  - ELIMINATE WHEREVER POSSIBLE THE USE OF PAPER FILES.
  - MAKE MORE DATA MORE ACCESSIBLE TO CONSTITUENTS IN A USER FRIENDLY FORMAT

DIGITALIZATION OF ADMINISTRATION OF JUSTICE

- KEY GOALS
  - PRESERVE
    - AGENDA OF THE MEETINGS
    - MINUTES OF THE MEETINGS

- IMPORTANT OFFICE NOTES
- GOVERNMENT RESOLUTIONS
- NOTIFICATIONS
- SERVICE RECORDS OF THE JUDICIAL OFFICERS AND EMPLOYEES

- IN THE MEETING OF CPC HELD ON 5TH AND 6TH OF SEPTEMBER, 2015, THE E-COMMITTEE, SUPREME COURT OF INDIA, EXPLAINED THE SCANNING AND RETRIEVAL PROCEDURES FOLLOWED BY THE HON'BLE SUPREME COURT OF INDIA. THE PROCESS HAS 3 STAGES VIZ.

  - **SCANNING AND/OR CONVERTING ANY DOCUMENT FORMAT TO PORTABLE DOCUMENT FORMAT (PDF)**
    - AFTER IDENTIFYING DOCUMENTS/PAPERS TO BE DIGITALIZED, THE DOCUMENTS/PAPERS SCANNED OR CONVERTED INTO PDF FORMAT.

  - **VERIFICATION**
    - AFTER SCANNING OR CONVERTING INTO PDF, THE SAME IS BEING VERIFIED BY THE CONCERNED PERSON FOR ACCURACY.
    - IF ANY DISCREPANCY IS FOUND, THE DOCUMENT WILL BE CORRECTED AND ONCE AGAIN SCANNED INTO PDF.

- **STORING DIGITAL CONTENT TO DIGITAL REPOSITORY**
  - AFTER SCANNING AND VERIFICATION, THE DIGITAL DOCUMENT BEING STORED INTO DIGITAL REPOSITORY NAMELY "DSPACE".
    - DSPACE IS AN OPEN SOURCE REPOSITORY SOFTWARE PACKAGE TYPICALLY USED FOR CREATING OPEN ACCESS REPOSITORIES FOR PUBLISHING DIGITAL CONTENT.

- HON'BLE SUPREME COURT IS READY TO SHARE
  - TOOLS/MODULES USED FOR HANDSHAKING THE SCANNING AND VERIFICATION PROCESSES.
  - METHODOLOGY ADOPTED IN THIS REGARD

HON'BLE THE SUPREME COURT STORES THE DIGITAL ARCHIVES IN THE SERVER OF THE C-DAC, A NODAL AGENCY OF CENTRAL GOVERNMENT TO RETRIEVE THE DATA IN ANY UNTOWARD CIRCUMSTANCES.

Session 11 by Arun Bhardwaj for Delhi High Court **e-Courts -A very good afternoon to all, On** 15th December 2009 First e-court set up in Delhi High Court. I will briefly explain as yesterday Lordship from Delhi High court has explained various aspects.

- Today 11 courts
  - Including 4 division benches

  Functioning as e-courts.

- 3 jurisdictions
  - Company,
  - Taxation
  - Arbitration

are nearly paperless with now only electronic filing.Digitization of records of decided cases started in September 2006.

- Approximately 100 million pages have been scanned.
- The entire record of decided cases up to the year 2012 has been digitized.
- Certified copies are being issued from the Digitized record.
- Till 01st September 2015, a total of 5,15,232 files and 5,84,91,878 pages have been digitally signed and weeded out by the Weeding Cell/Record Room.
- About 35,000 sq.ft. Space has been vacated, after weeding out of cases.
- 1150 Desktop computers installed in the registry
- 18 High speed scanners have been installed for scanning and updation of cases
- 13 kiosks installed in the court complex for use by advocates, clerks and litigants

Providing access to the website of High Court and to information about:

- Display Board
- Customized Cause Lists
- Status of cases

- Orders, Judgments
- Status of applications for Certified Copies
- High Court Rules
- Forms
- Nominated Counsel List
- Tender Information
- Recruitment
- Roster of Judges
- Case History
- and various other information.

Technology

- Internal Support
  - Hardware
  - Software
- External Support

Internal Support

- Hardware provided in e-Courts.
  21+" Wacom touch screen Monitor with digital pen.

Software available on the screen in electronic form

- Adobe Acrobat
- Microsoft Office with one note
- Supreme Court Cases
- Delhi Law Times
- Lawpack Supreme Court and High Court
- Such other software as may be required for the specific jurisdiction
- Bare Acts

Digital Court File

- The court files are stored in PDF format.
- The case files are maintained in portfolios representing separate file folders.
- Ease of access to a multi media file e.g.: an audio clip or a video clip.
- Voluminous handling of record.
- Notes available for all times.

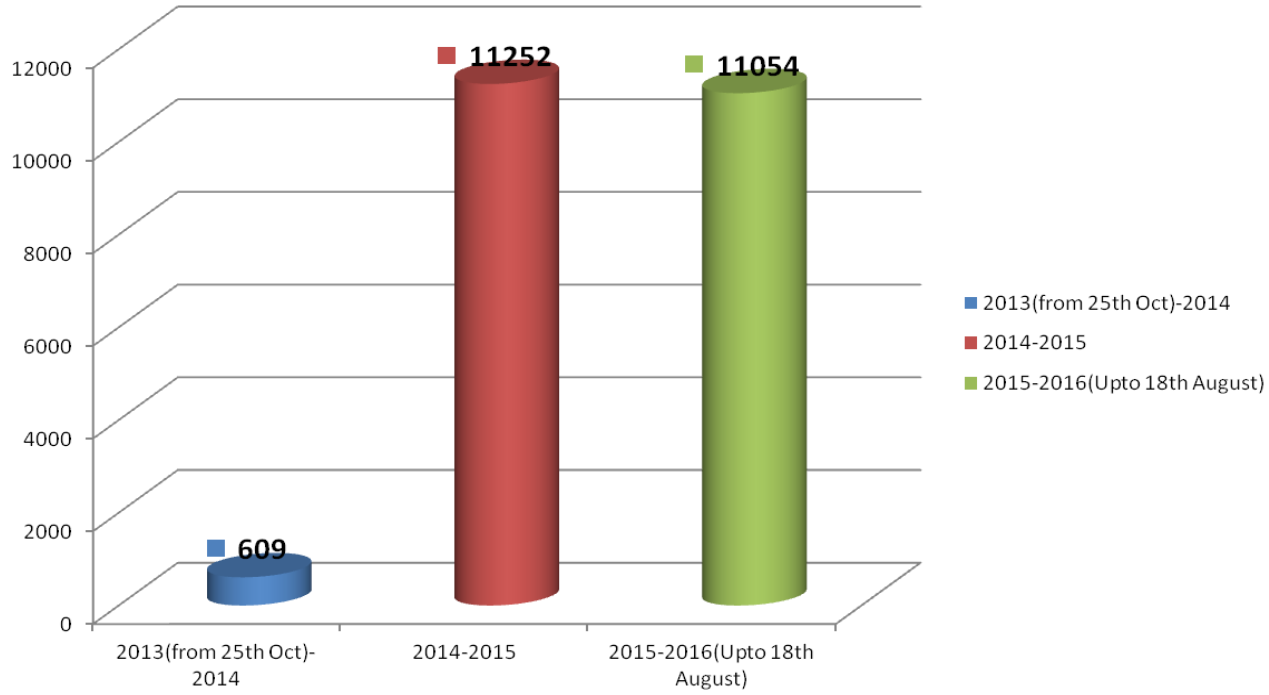
- Availability of trial court record.
- Availability of all material ensuring ease of dictation of judgment.
- Dust free environment and court files. More so in respect of old records.
- Online checking of draft daily orders.
- Digital signing of orders.

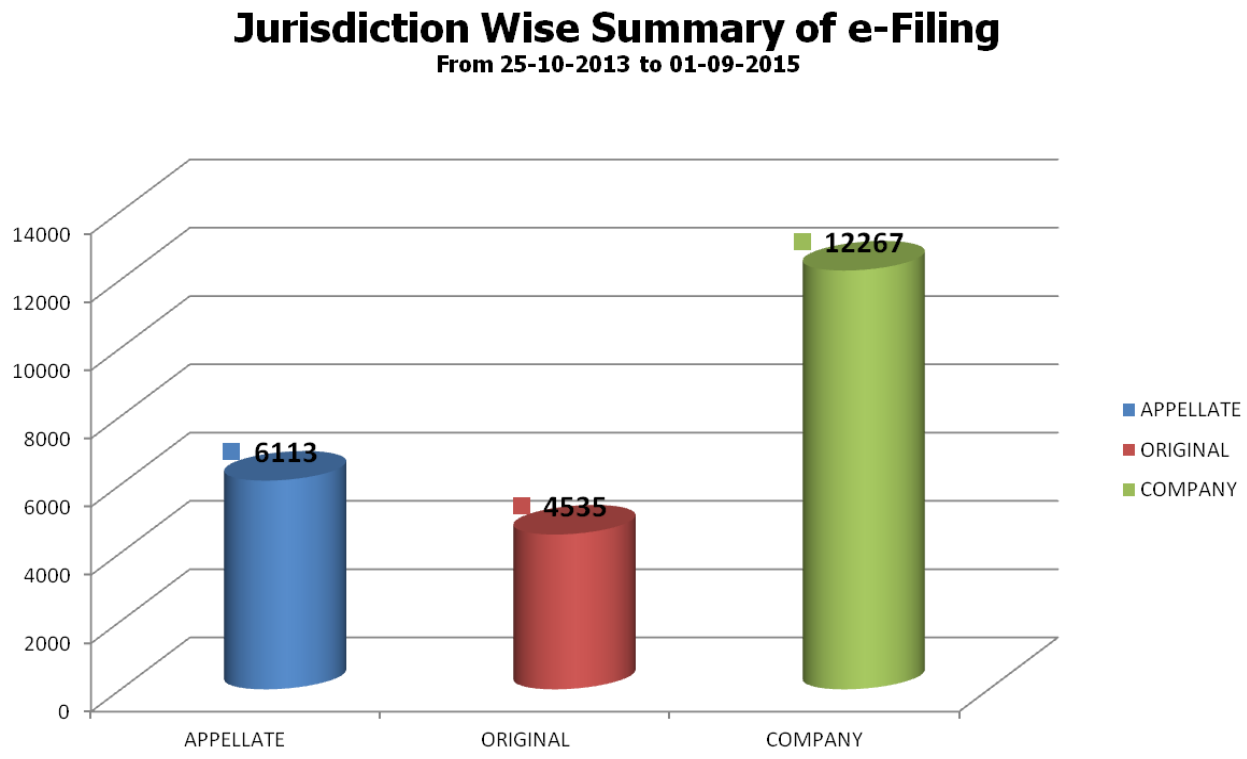
External Support

- **e-Court-fees**: first sale counter inaugurated in Delhi High Court on 20th November 2012.
- Online Facility of purchase of e-Court-fees commenced w.e.f. 22nd July 2013.
- **Electronic Filing**
  - e-Filing of taxation and company matters commenced on 25th October 2013.
  - Now it is mandatory in taxation, company and arbitration cases.
  - e-Filing can be done by Advocate, clerk or a litigant.
  - Caveat is checked automatically at the time of filing.
  - Digitization/portfolio preparation facility is provided in the High Court premises for the benefit of litigants and advocates.

Year Wise Summary of e-Filing

From 25-10-2013 to 01-09-2015





- File is checked for defects
  - If defective, then returned to filing counter and an SMS and email sent to advocate requiring the advocate to cure the defects.
  - During scrutiny office noting is electronically added.
- Once defects are cured, file is sent for listing.
- File is broken into portfolios
- Uploaded to court

Server Room

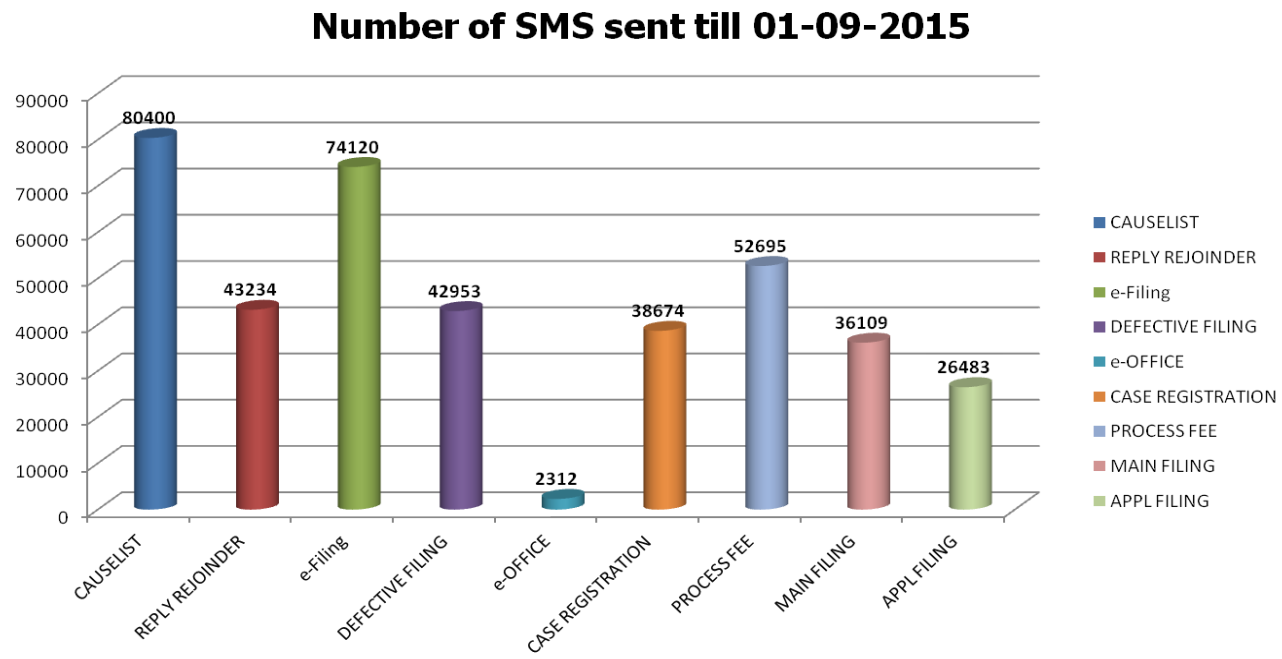
- State of art infrastructure is created for Server Room
- Two 30 KVA UPS are installed for server room.
- HP Prolient and HCL Xenon servers are used in Server Room(Now we are replacing old servers with Blade servers)
- 1500 units of 10G LAN nodes.

Data Backup

- one 10 TB SAN
- two 32 TB NAS
- five 8TB capacity NAS.
- (20TB) storage at National Data Centre for disaster recovery(DR)

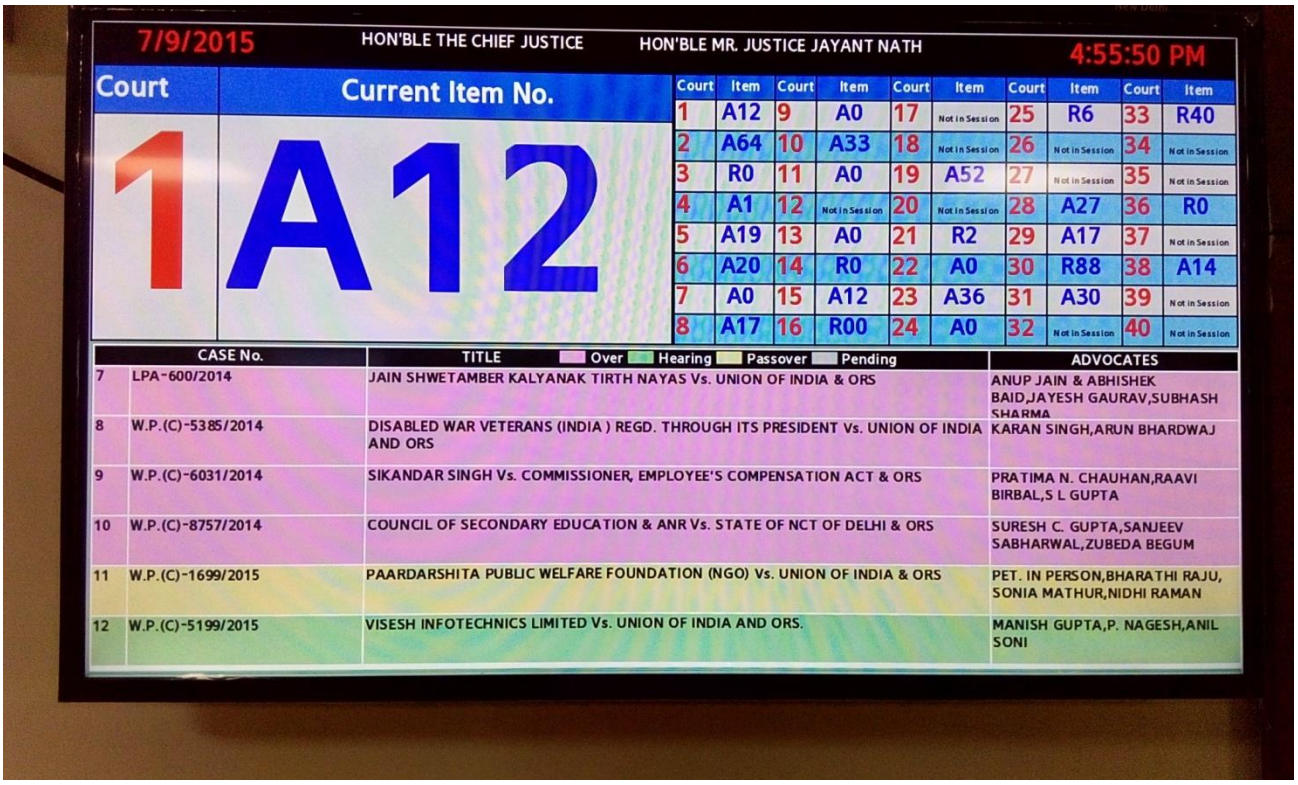
Litigant/advocate's perspective

- Cost effective. Save cost of paper/making multiple copies.
- e-Cause List is forwarded to 6266 advocates via e-mail.
- Cause List information transmitted to the concerned advocate/litigant via SMS.
- On an average 1200 SMSs containing information relating to Cause List, filing, listing and defects are sent daily.

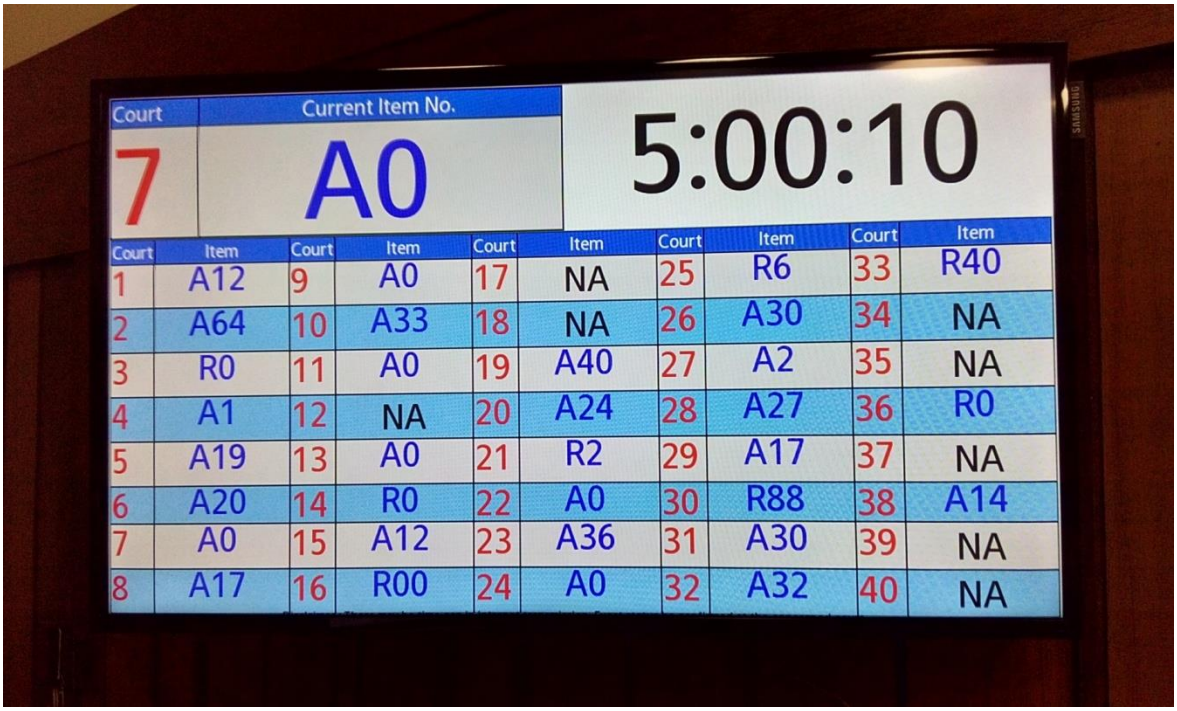


Digital Display Boards

- Digital Display Boards have been provided outside each courtroom
- The board displays information about the case number being taken up by court.
- The item number of all the court rooms
- The causelist of the court with status of each case being displayed in different colour.



- Inside each courtroom a display board displays the item number of the court and also of all other courts.



e-Post Office

- The facility of delivery of Summons/Notices/Documents etc. of the Delhi High Court through e-Post was inaugurated by the Law Minister on 3rd February 2014.
- A counter has been opened in the Despatch Branch of this Court by the Postal Department.
- Specially designed envelopes with box type jacket have been printed and are available for sale on this counter.
- After the summons/notices are signed and sealed in the specially designed envelopes the same are booked at the Extension Counter itself with acknowledgement i.e. Proof of Delivery (POD) specially designed for Delhi High Court and are dispatched on the same day through speed post across the country.
- After the articles are delivered a scanned copy of the POD is sent to Delhi High Court immediately through e-mail address of the officer of the Despatch Branch who forward the same to the concerned Judicial Branch.
- Though it was agreed that POD will be sent through e-mail within three days of the dispatch of the notices/summons but in fact they are being received within 24 hours in most of the cases.
- POD is duly signed by the recipient with name and relation with the addressee, if the notices are received by other than the addressee.
- The Advocate/litigant can also track the status of the notices online and file the affidavit of service with the track report.
- The POD in original is also received thereafter.

e-Inspection

- Delhi High Court has introduced e-Inspection facility.
- Inspection of soft copies of case files is provided to the concerned advocate/litigant on computer systems installed in the concerned branches.
- This facility has significantly eased off the work load of various branches of the registry as they do not need to move physical case files from the branch for the purpose of inspection.
- Soft copy of the case file is provided to the concerned advocate/litigant free of cost on furnishing of a CD/DVD. (soft copy is provided without office noting and signed order sheets)

Concerned advocate is provided access to the file with a unique user id and password to inspect the file. The user id and password is valid only for the concerned file and for a limited time.

Case History

- The entire case History of each case has been made available on the High Court website.
- The case history gives details of all events of filing, inspections, listings, orders etc. in respect of each case.
- By clicking on the highlighted link, one can access the order sheet of the relevant date.

Electronic recording of evidence

- The Joint Registrars attached with the Delhi High Court are recording evidence using digital means.
- The evidence is stored in PDF format and are updated to the portfolio of the concerned file.
- Signature pads have been provided to the JRs for obtaining signatures of the witnesses and for marking exhibits on the digital documents.

Recording of evidence through video conferencing

- June 2011 – evidence of a witness resident of Kuala Lumpur, Malaysia was recorded through video conferencing.
- Regularly – evidence is being recorded through video conferencing facility provided in the High Court premises.

e-Library resources

- Constituent Assembly Debates
- Hamlyn Lectures
- Westlaw
- Lexis-Nexis
- Hein Online
- SCC Online with access to English Cases

- What next?
- E-filing from District Courts?
- Online filing?
- Virtual Courtroom?
- Arguments through video conferencing?

]

Website - A website refers to a location on the internet and a collection of web pages, images, videos which are addressed relative to a common Uniform Resource Location (URL). It's nothing but a domain name hosted on a server which is accessible via a network called internet or private local area network. Owning a website becomes an essential part for any businesses and company with no web presence is just running the risk of losing the business opportunities.

Typical Website Attributes

- ✓ It's a Public Interface
- ✓ Supports the user in specific task (marketing or ecommerce)
- ✓ Provides targeted content from independent resources to specific audience
- ✓ Content is generally focused, eliminates the need of visiting different sites
- ✓ Select & organize the materials needed to be accessed
- ✓ Establish your presence in online global market
- ✓ Reach the targeted audience

Intranet

- Internal company network that uses Internet standards (HTML, HTTP & TCP/IP protocols) & software.

- **Accessed only by authorized persons, especially members or employees of the organization**
- Workforce productivity
- Time
- Communication
- Business operations and management
- Cost-effective
- Enhance collaboration
- Cross-platform capability

- Promote common corporate culture
- Immediate updates
- Supports a distributed computing architecture

Intranet Communication:

- Intranets can serve as powerful tools for communication within an organization, vertically strategic initiatives that have a global reach throughout the organization. The type of information that can easily be conveyed is the purpose of the initiative and what the initiative is aiming to achieve, who is driving the initiative, results achieved to date, and who to speak to for more information. By providing this information on the intranet, staff have the opportunity to keep up-to-date with the strategic focus of the organization.
- Some examples of communication would be website, chat, email, and/or blogs, rss feed, social media networks etc.,.
- Accessing using Intranet - Examples include: employee manuals, benefits documents, company policies, business standards, news feeds, and even training, can be accessed using common Internet standards (Acrobat files, Flash files, CGI applications). Because each business unit can update the online copy of a document, the most recent version is usually available to employees using the intranet.

Web Portal

Web portal refers to a website or service that offers broad array of resources and services such as email, forums, search engines and online shopping malls. It's an organized gateway that helps to configure the access to information found on the internet. Web portal applications offers consistent look and feel with access control & procedures for multiple applications and databases. Some of the web portals are AOL, iGoogle, Yahoo and even more.

Typical Portal Attributes:

- ✓ Web portal is a Public & Private Interface (extranet, intranet, etc...)
- ✓ Offers Access for Multiple User Roles
- ✓ Personalization / Role specific functionality & content
- ✓ Endowed with Versatile / Enhanced functionality & flexibility
- ✓ The user can access to broad resources
- ✓ Supports the user in multiple task
- ✓ Offers content from diverse resources
- ✓ Spans content, collaboration and ecommerce
- ✓ Extensive & unfocused content can be created to accommodate unidentified users needs.
- ✓ Searchable but not customizable, the content are created for every user.

Information & Communication

Effective Communication is giving, receiving or exchanging of information, opinions or ideas so that the message is completely understood by everybody involved.

Information and communication are effective, if

- ❖ The information meets the needs of the recipient,
- ❖ The information is correct,
- ❖ The recipient can access it,
- ❖ The recipient can understand it,
- ❖ The recipient can trust and accept it,
- ❖ The recipient can act on it and will know what to do next, and
- ❖ The recipient feels confident that the actions he or she undertakes will achieve the result envisaged.

Information & Communication

Content and presentation, Accessibility and Acceptability **are sine qua non for the wider and easy communication of any information**

Information needs of General Public

Persons with justiciable problems first and foremost go looking for information on how to solve the problem. They need information on

- How to settle and handle disputes once they arise and stay out of court or
- How to take their case to court.

Open availability of practical, correct and complete information about

- Rights, liabilities and disabilities of the people,
- Legal Aid, advice and other services,
- Court procedures and processes
- Rules and regulations,
- Policies and decision support systems

Would impact

- the awareness the people of what they can expect when they come to court,
- the perception of the outcome of the case,
- the willingness of the people
- to resort to out-of court settlement, or
- to come to court well prepared for their case, so that so their case can be resolved in the best manner possible

Information needs of General Public

While considering the technology and preparing the content of information for litigant public,

their competence and perception about the courts are important issues to be kept in mind.

Level of Website facilities for consideration

Information online about public services

Communication/interaction: Downloading of forms

Communication/two-way interaction: Processing of forms

Transaction: eFiling, eCourt fee, Video conferencing etc

Information needs of General Public

Because the information provided

impacts the access to the justice delivery system,

addresses the problems of delay, and

enhances public trust in the judiciary through transparency,

it cannot be left to others and it is proper and fair if the judiciaries take up this responsibility on themselves.

Lawyers Information needs

- Causelist – Advocate in the complex.
- Access to their case status information.
- Filing of scanned documents on the fly.
- Case list docket visible on the fly.
- A-diary of the courts.
- B-diary.
- Access to decided cases of Courts of records.
- Submission of Appellate court details on stayed matters.
- Marking their court call presence.

Court clerks Information needs

Information necessary to process the files from the time of filing to disposal of the case through scrutiny, Registration, posting the matter in the cause list, process in the court etc.

Statutes, Rules and Regulations for scrutiny. In addition to this Court staff requires information in respect of :-

- Cause-list
- Police station

Stage

- ❑ Age of the case (main or IA)
- ❑ View documents on the fly
- ❑ Capture of pen-signature of the deponent
- ❑ A-diary of the court
- ❑ B-diary
- ❑ Access to law Journals
- ❑ Witness statement Information
- ❑ Connect with Jails through VC for Remand extension

Court clerks Information needs

View

- Appellate court details on stayed matters
- Access to NJDG Data
- Access to District court Cases
- Access to High Court Cases.
- Access to Supreme Court cases

Users that come to a Court website generally fall under the following categories:

- ✓ Members of the Public.
- ✓ Journalists.
- ✓ Self-represented Litigants.
- ✓ Practitioners: Lawyers, Paralegals, Stenographers, Translators, etc.
- ✓ Researchers: Law Professors, Law Librarians, Law Students.
- ✓ Commercial Law Publishers.
- ✓ Government (Public Servants).
- ✓ Employees and Judges of the court.

STAKEHOLDERS

1. General Public.
2. Litigants.
3. Lawyers.
4. Court Staff, Clerks.

5. Judges.
6. Government.
7. Police, Jail authorities, FSL.

Court Website Content:

There are categories of information deserving of publication by all courts, because courts are in a better (if not unique) position to ensure the timeliness and accuracy of published information, and because the information relates to the fundamental mission of the court.

Web Content according to G.I.G.W.

(Guidelines for Indian Government Websites)

- ✓ About Us
- ✓ (Ministries/Department / State Govt./ Organisation/ District Administration)
- ✓ Profile of a Sector / Region
- ✓ Programmes & Schemes
- ✓ Services
- ✓ Application Forms
- ✓ Acts & Rules
- ✓ Documents/Reports
- ✓ Circulars/Notifications
- ✓ Tenders
- ✓ Recruitment
- ✓ News and Press Releases
- ✓ Contact Information on Government Websites
- ✓ Presence on the National Portal

Court Website Content:

In addition to court decisions & Case information, there are several other types of information that ought to be found on a court web site:

- Court Jurisdiction.
- Docket and Court Schedule Information.
- Case Information and Files.
- Rules of Practice and practice directives.
- Notices to the Legal Professions.
- Judges Biographies (past and current).
- Self help guides for self-represented litigants.
- Alternative Dispute Resolution (ADR) information.
- Court hours, location(s), Phone numbers and other contact information for key Court personnel.
- Web Site Policies (Copyright, Privacy, Accessibility, etc.).
- Court news (initiatives and projects)
- Court forms
- Court fees and fines
- Annual reports of the court, if published
- Frequently asked questions
- Key documents (e.g. child support guidelines; sentencing guidelines)
- Historical information about the court (creation, important historical moments, judges over time, pictures/locations of the court buildings and courtrooms
- Educational materials
- Topical reports, if published (e.g. inquests, commissions)

INTRANET PROJECTS ARE SUITABLE FOR

- Case Information System (CIS) for daily & monthly cause list generation.
- Judicial Officers Activity Monitoring System (for sub ordinate Courts).
- Judicial Officers performance Evaluation System.
- Judgment Writing Information Management System.
- Copying Section Information Management System.
- Record Room Information Management System (For Civil & Criminal)
- Criminal Section Case Information Management System.
- Statistical Reports Management System.

Judicial Portal

Benefits to Citizens

- Upto date information is available.
- Availability of current cause-lists, orders and judgements on internet free of cost.
- Information on locations of courts.
- Transparency in the functioning of Courts.
- Faith of the public in judiciary is reinforced.
- Online search facilities is possible.

Benefits to Lawyers

- Audio-visual presentation facility.
- Helps in plug and play their e-devices.
- Advocate Case track record.

- Search options on Orders/ Judgments. Advocate causelists for all courts in the complex/District.

Benefits to Clerk of the Courts

- ❑ Maintain case histories/statistical reporting.
- ❑ Monitor and schedule cases.
- ❑ Document preparation.
- ❑ Case indexing.
- ❑ Issues summonses.
- ❑ Notifies witnesses, advocates and other principle parties.

Benefits to Judges

- ❖ Access to complete information.
- ❖ Case Calendar on classification.
- ❖ Weekly cause lists.

Benefits to Administrative office of the courts

- Administer personnel systems.
- Budget preparation.
- Develop and revise legal forms.
- Records management.
- Statistical reporting.
- Work Review Performance.

Barriers to Communication

No matter how good the communication system in an organization is, unfortunately barriers can and do often occur. These barriers are those which make the message doubtful for the reader to understand it and they get confuse to interpret the meaning for which the message is sent to them.

Points to think…

So what exactly should a website have in order to be accessible?

What do we mean by ‘**accessible’ website**?

What is Accessibility?

The ease with which one can reach ANY text, link, image, table irrespective of the type of device, technology, or assistive technology

Civil right - Right to participate within a society on an equal footing with everyone else

Accessibility and Technology

Products should be designed and developed such that it can be used by people with or without disabilities

Web Accessibility – India Scenario

Web Guidelines for Indian Government websites

Understanding

Guidelines for Indian Government Websites

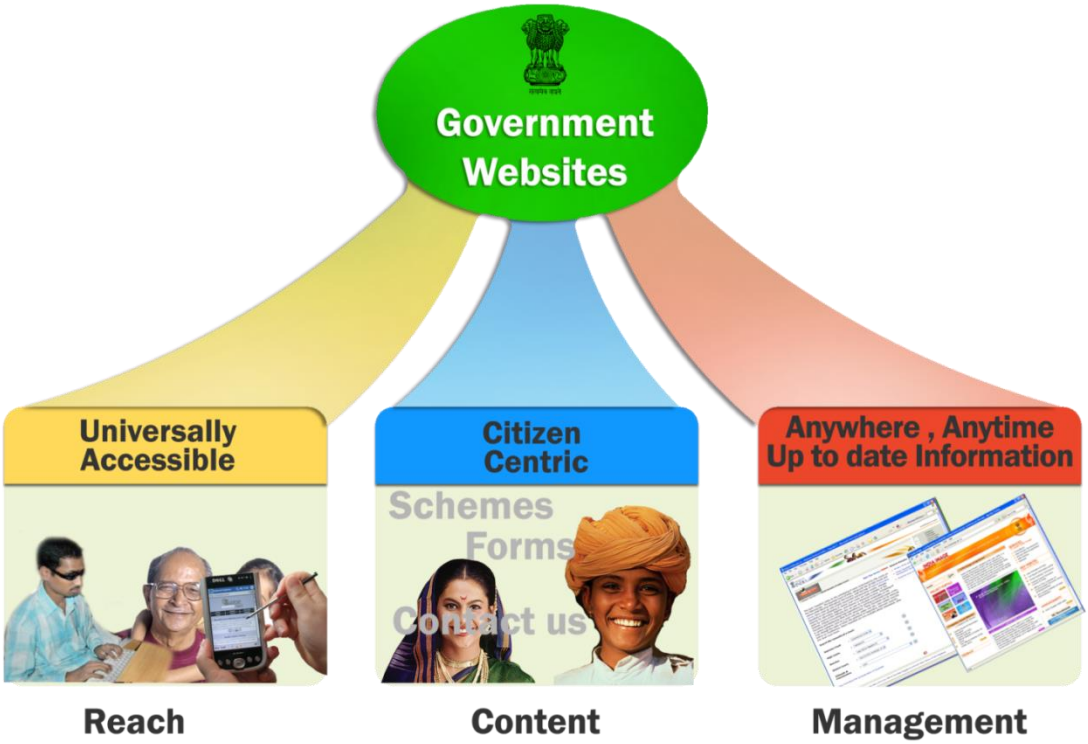
To deal with

Content, Accessibility and Acceptability of web content

Over 7000 websites in Indian Government web space representing all tiers of governance


Apex/ independent offices
States and UTs
Districts
Supreme Court
High Courts
District Courts
Institutions
Organizations
Indian Missions
State Legislatures
Lok Sabha
Rajya Sabha
Prime Minister of India
President of India
Central Govt Ministries
Central Govt Independent Depts.
EXECUTIVE
JUDICIARY
LEGISLATIVE

Three Focus Domains of GIGW



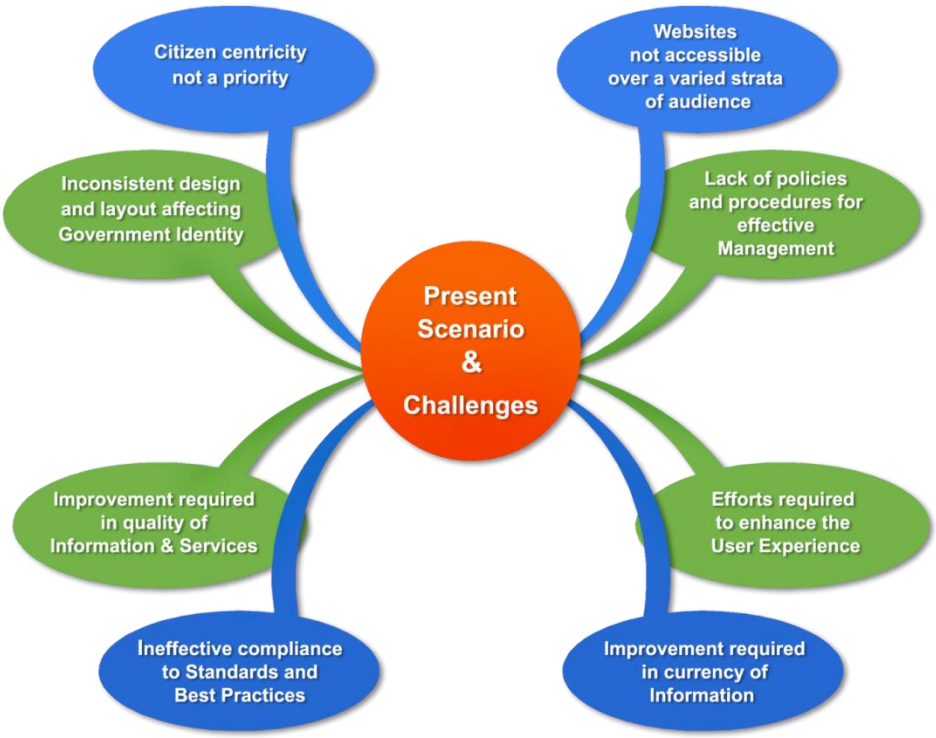
Background

Indian Government has laid a lot of emphasis on **Anytime, Anywhere delivery** of Government services Over 5000 Government websites Problem.

Websites follow Different look and feel as well as functionality.

Solution - Need for Standardisation and Uniformity in websites.

Government Webspace: Challenges



Contents of the Guidelines

Guideline document is divided into: 10 chapters

01 Introduction

02 Government of India Identifiers

03 Building Confidence

04 Scope of Content

05 Quality of Content

06 Design

07 Development

08 Website Hosting

09 Website Promotion

10 Website Management

Why is Compliance to Guidelines essential?

Guidelines framed to make Indian Government Websites conform to the essential pre-requisites of **UUU** trilogy-

- ❖ Usable
- ❖ User-Centric
- ❖ Universally Accessible

Why is Compliance to Guidelines essential?

Also form the basis for obtaining Website Quality Certification from Standardization Testing Quality Certification (**STQC**)

Guidelines are being circulated amongst all Indian Government Departments at all levels:

- Central
- State, and
- District

How to use these Guidelines

- ➢ Departments are expected to **read**, **understand** and **implement** these guidelines on all of their web-based initiatives
- ➢ Though not mandated, it is advised that **even Intranet applications** of the Departments, which are mostly browser based, may follow these guidelines

Mandatory, Advisory & Voluntary

Guidelines divided into 3 categories:

Mandatory – **MUST**

Departments are supposed to mandatorily comply with

Advisory – **Should**

Recommended practices or advisories that are considered highly important and desirable but for their wide scope and a degree of subjectivity these guidelines would have otherwise qualified to be mandatory.

Voluntary – **May**

Can be adopted by a Department if deemed suitable.

Want to Implement GIGW?

- Understand the compliance matrix
- Identify the your target audience
- Ensure that GIGW is a part of your RFP or Tender
- Test the product post vendor delivery

Barriers for effective communication

Trust

People will access the website if the website is authenticated one and the content is trustworthy.

- Government of India Identifiers.
- Copyright policies
- Navigation to Non-Governmental websites.
- Terms and Conditions

Barriers for effective communication

Physical disabilities

- People with disabilities (visual, hearing, mobility and cognitive disabilities)
- People having difficulties when reading or comprehending a text
- People being in a situation where their eyes, ears, or hands are busy or interfered (e.g., driving, working in a noisy environment, etc.)

Barriers for effective communication

Problems of People with Visual Impairment.

- Images that do not have ‘alt’ text.
- Complex images (e.g., graphs or charts) that are not adequately described.
- Video that is not described in text or audio.
- Tables that do not make sense when read serially (in a cell-by-cell or linear fashion).

- Frames that do not have "NOFRAME" alternatives or that do not have meaningful.
- Names.
- Forms that cannot be tabbed through in a logical sequence or that are poorly labeled.
- Browsers and authoring tools that lack keyboard support for all commands.
- Browsers and authoring tools that do not use standard applications programmer interfaces for the operating system they are based in Non-standard document formats that may be difficult for their screen reader to interpret.

Barriers for effective communication

Physical disabilities - Difficulties

Partially Impaired

- ❑ Web pages with absolute font sizes i.e. that do not enlarge or reduce easily.
- ❑ Web pages that, because of inconsistent layout, are difficult to navigate.
- ❑ Enlarged, due to loss of surrounding context.
- ❑ Web pages, or images on Web pages, that have poor contrast, and whose contrast.
- ❑ Cannot be easily changed through user override of author style sheets.
- ❑ Imaged text that cannot be re-wrapped.
- ❑ Also many of the barriers listed for blindness, above, depending on the type and extent of visual limitation.

Indian Scenario

Civil right of people with disabilities in India for:

Equal **O**pportunities

Equal **P**articipation

Equal **A**ccess

Understanding needs of **different types of disabilities** is important

Types of Disabilities

Functional

Disabilities caused due to some sort of:

physical,

mental &

sensory disability

Situational

Inability to perform an action, in a given situation, or under certain circumstances.

Age related

As we grow older we may get low vision or mobility impairment and need assistance**.**

Barriers for effective communication

Physical disabilities - Solutions

- ✓ **Provide equivalent alternatives to auditory and visual content**. Provide content (text equivalents) that, when presented to the user, conveys essentially the same function or purpose as auditory or visual content. Text equivalents for auditory and visual content can be rendered in ways that are accessible to people from various disability groups using a variety of assistive technologies.

Barriers for effective communication

Physical disabilities - Solutions

- ✓ Create tables that transform gracefully. Ensure that tables have necessary markup to be transformed by accessible browsers and other user agents. Tables should only be used Condition of Web Accessibility 74 to mark up truly tabular information, but not to lay out pages because that causes special problems to users of screen readers.

- ✓ Ensure user control of time-sensitive content change. Ensure that moving, blinking, scrolling, or auto-updating objects or pages may be paused or stopped. People with cognitive or visual disabilities are unable to read moving text. Screen readers are unable to read moving text.

Physical disabilities - Solutions

- ✓ Don't rely on color alone. Ensure that text and graphics are understandable when viewed without color. In contrary, people who cannot differ certain colors and users with devices that have non-color or non-visual displays will not receive the information. When foreground and background colors are too close to the same hue, they may not provide sufficient contrast when viewed using monochrome displays or by people with different types of color deficits.
- ✓ Use interim solutions. This will help assistive technologies and older browsers to operate correctly. For example, older browsers do not allow navigating to empty edit boxes. It is also advisable to avoid changing the current window or popping up new windows, because this confuses blind users.

Physical disabilities - Solutions

- ✓ Use W3C technologies and guidelines. The current guidelines recommended W3C technologies (HTML, CSS, etc.) include "built-in" accessibility features. On the other hand, non W3C formats (Shockwave, PDF, etc.) require viewing with either plug-ins or stand-alone applications. Often, these formats cannot be viewed or navigated with standard user agents (including assistive technologies).
- ✓ Ensure that documents are clear and simple. Consistent page layout, recognizable graphics, and easy to understand language benefit all users, but especially people with cognitive disabilities and people whose first language differs from your own.

Assistive Technologies

Users with disabilities frequently rely on hardware and software to make web content accessible for them. These tools are known as assistive technologies.

- ✓ A screen reader represents software used by blind users of the Web for reading the content of a web page out loud. For that purpose, it is essential to provide text descriptions for images and animations, because a screen reader can only read text. Such a text description of images and animations is called alternative text, or shortly, 'alt' text.
- ✓ A touch screen helps a mobility impaired individual to navigate a web page using his/her hands without the fine motor control required by the mouse. For the use of touch screens it is very important that the components of the page are designed to work without using the mouse. For example, dropdown menus and rollovers should have keyboard shortcuts.
- ✓ A head pointer helps a mobility impaired individual to interact with a keyboard or a touch screen. It is a stick placed in the user's mouth or mounted on a head strap. To be available the elements of the page are to be designed to work without using the mouse.

Dependency on technology

People owning an early version of a browser, a totally different browser, a voice browser, or a different operating system.

People who do not have or are not able to use a keyboard or a mouse.

Text only screen, small screen, or slow Internet connection owners.

Dependency on technology - Solutions

- ✓ Use markup and style sheets and do so properly. Misusing markup for a presentation effect (e.g., using a table for layout or a header to change the font size) makes it difficult for users with specialized software to understand the organization of the page.

- ✓ Ensure that pages featuring new technologies transform gracefully. Ensure that pages are accessible even when newer technologies are not supported or are turned off.
- ✓ Ensure direct accessibility of embedded user interfaces. Ensure that the user interface provides device-independent access to functionality, keyboard operability, self-voicing, etc. When an embedded object has its “own interface”, it must be accessible. If such an interface cannot be made accessible, an alternative accessible solution must be provided.

Dependency on technology - Solutions

- ✓ Design for device-independence. Use features that enable activation of page elements via a variety of input devices.
- ✓ Use interim solutions. This will help assistive technologies and older browsers to operate correctly. For example, older browsers do not allow navigating to empty edit boxes. It is also advisable to avoid changing the current window or popping up new windows, because this confuses blind users.

Dependency on technology - Solutions

- ✓ Use W3C technologies and guidelines. The current guidelines recommended W3C technologies (HTML, CSS, etc.) include “built-in” accessibility features. On the other hand, non W3C formats (Shockwave, PDF, etc.) require viewing with either plug-ins or stand-alone applications. Often, these formats cannot be viewed or navigated with standard user agents (including assistive technologies).

Physical disabilities and Technology - Solution

- ✓ Provide context and orientation information. Grouping elements and providing contextual information about the relationships between elements is useful for all users. On the other hand, complex relationships between parts of a page may be difficult for people with cognitive disabilities and people with visual disabilities to interpret.

- ✓ Provide clear navigation mechanisms. Provide clear and consistent navigation mechanisms (orientation information, navigation bars, site maps, etc.). This is very important for the orientation of people with cognitive disabilities or blindness, and benefits all users.

Language

People who do not speak or understand the language in which the document is.

Clarify natural language usage. Use markup that facilitates pronunciation or interpretation of abbreviated or foreign text. When content developers mark up natural language changes in a document, assistive technologies can automatically switch to the new language.

Natural Language usage

- ✓ Clarify natural language usage. Use markup that facilitates pronunciation or interpretation of abbreviated or foreign text. When content developers mark up natural language changes in a document, assistive technologies can automatically switch to the new language.
- ✓ Ensure that documents are clear and simple. Consistent page layout, recognizable graphics, and easy to understand language benefit all users, but especially people with cognitive disabilities and people whose first language differs from your own.

Lack of Feedback

Feedback is important as it enables confirmation of understanding to be made by both parties.

Web Content Accessibility Guidelines

Guideline 1: Provide equivalent alternatives to auditory and visual content.

Guideline 2: Don't rely on color alone.

Guideline 3: Use mark-up and style sheets and do so properly.

Guideline 4: Clarify natural language usage.

Guideline 5: Create tables that transform gracefully.

Guideline 6: Ensure that pages featuring new technologies transform gracefully.

Guideline 7: Ensure user control of time-sensitive content changes.

Guideline 8: Ensure direct accessibility of embedded user interfaces.

Guideline 9: Design for device-independence.

Guideline 10: Use interim accessibility solutions.

Guideline 11: Use W3C technologies and guidelines.

Guideline 12: Provide context and orientation information.

Guideline 13: Provide clear navigation mechanisms.

Guideline 14: Ensure that documents are clear and simple.

Web Content Accessibility Guidelines (**WCAG**)

These guidelines are organized under the following 4 principles.

- ✓ Perceivable.
- ✓ Operable.
- ✓ Understandable.
- ✓ Robust.

Perceivable

- ❖ Provide text alternatives for non-text content.
- ❖ Provide captions and alternatives for audio and video content.
- ❖ Make content adaptable; and make it available to assistive technologies.
- ❖ Use sufficient contrast to make things easy to see and hear.

Operable

- ❑ Make all functionality keyboard accessible.
- ❑ Give users enough time to read and use content.
- ❑ Do not use content that causes seizures.

- ❑ Help users navigate and find content.

Understandable

- Make text readable and understandable.
- Make content appear and operate in predictable ways.
- Help users avoid and correct mistakes.

Robust

- ➢ Maximize compatibility with current and future technologies.

Session 13 on Computer Network security for courts-

Good morning to all of you, we welcome among all of us honourable Justice Mr.kurien Joseph from Supreme Court of India. The plan is like that for our first session which will be delivered by Mr Navneet Gupta who is a scientist in the Department of information and technology government of India before he starts making presentation about what are the security network related issues each one of you first raise your security related issues or concerns and then Mr,Navneet answers them before he makes his presentation, if that is acceptable to the house because there are a lot of computer security related issues. But he should know that where you are thinking. Okay.

You wall want Mr Navneet to make the presentation first. Though compared to Delhi we are far behind in using the tools which are being used there. Our committee started working on digitization of records" was on and on and in the midst somebody left, there is concerned of outsource. Under the strict surveillance of the registry it was outsourced and the left. Then we went for the other tender. Then came a new committee, then the digitization was for a lakh of copies. We had to 3 issues there one about the old records which when taken up got broken into worse then powder then how do we address that issue probably. How to take the digital version of such copies number one. Number two are interesting questions often asked what the assurance that the whole thing is in the CD. Papers have been kept for 50 years what the reassurance that you have after 20 years in case if we want to retrieve just giving you base for what is the assurance that we can retrieve the data it cannot be correct as the corruption goes

into the virtual world. The virtues vices are also coming. One member made a suggestion you go for digitization but keep the records also. If you keep the records from one place to different place than what is the idea behind this digitization. Then back to we need this digitization at all. Some of the lawyers brought the issue of historic records. Why do you want to destroy the assets in the name of the digitization of records. Suppose the progeny wants to see your paper records there will be no paper as such after e-filing starts. The next generation if would like to know how the court function they will not be able to know this. We have come to the solution that the lawyers can the courts they are filed after the disposal of the case and after the digitization. Concern is one life security and other concerns of the digitization. Thank you.

> Sir hello, as your first question as how to preserve the documents there are different technology and different storage points. And that should be configured in the level of five ..... permission of the rules and the firewall admin should define the rules also filtering rules is based on the source and destination. Network layout is categorized as state and non-state. In stateful firewall there is a connection, we will check the packet from which connection coming if it is from the valid connection of value connection number there and it is allowed to pass. Otherwise it will simply drop. There are certain networks where there is no protocol and that is useless a taken example little bit so this is web server which is hosted in an organization so first what will happen is the TCP, TCP the part of transport layer protocol, it will stand sending the packet the web server to the server at the entry will be made in the connection table. An external port is there626200 so where a w that it is very. Received iseb packet is there. It will start receiving web packets. THEN the server will is start sending the packets Web Server. We will stand sending all the packets from these sources to the destination. Then state full firewall operations for into is that there are certain protocols which the data is transferred by protocols state full or stateless. Then it will create 2 IP external and internal, port switching protocol Fttp is there whatever controls that there, suppose you are downloading something there is the concept

of file transfer protocol. The data is transferred using TCP and FTP. So it will create a connection626200 the check the sink. And one more connection will be opened between the port. We're to first make and access to firewall or install something is firewall? Firewall is a point and first we have to access that point. Network firewall different type of firewall. This can be configured from the laptop to the network firewall can be installed in the laptop also and some firewall can be as big as my height. I will show you how to configure firewall in my laptop. In a state full configuration whatever is allowed will be allowed or it will be dropped if the packet is part of the communication it is allowed and its it is not be part of the communication it is dropped there is this case of identification by sequence number valid sequence number is allowed. So this is the firewall in which we have set the rules. It is a network firewall rules. Sir should explain or alleviate because it is tot technical. You have the LAN for five years and years what network will be required and accordingly the same is to be configured. And it should be done at the time of tender for purchase. Suppose today working on 20 MBPS and incoming five he available only or 10 years I will need 40 2 50 MBPS then I have to buy a firewall of 50 MBPS. It is hardware based. Software can be updated but hardware cannot be updated it is with the manufacturing thing, you will have to replace again and purchase new one. Even the firewall is having one operating system developed by Cisco or some other vendors. It has certain vulnerability. The admin has to change the password at the time of purchase. Otherwise, someone will change the network and will have access to all the information.

Now Mr. Ramesh Babu from E-committee Supreme Court of India wants to say something. Seeded team is responsible for blocking the unwanted websites. We're not able to block the website at national level, he can issue an advisory for ISP to block sites on the national level. ISP has to block Google or you tube or any other malicious software. Firewall is simply a set of rules you can build in routers for particular network. China is able to block it because they are having a gateway. There only one gateway is there. Indian having multiple

network gateway to have a single gateway a huge infrastructure is required with a huge pipe otherwise network will be choked it will require huge fund and all the ISP will have to pass through one single gateway in airtel and Vodafone is there. The security of the network being used in the judicial institution is our main concern. The architecture which you are showing to us and the network security, firewall is one of the mechanism. What kind of protocol do you advise to the institution of the government we must know. Use a pen and paper and show you to..... a flowchart diagram was made.... This is the bandwidth, ISP one network 181 application DNS is hosted, then according to the hierarchy used in the institution the protocol on the rules Are fixed firewall is the first level security and they are other levels of security as for mail we have to install mail server for application I have put the facts for DNS it should have a DNS poisoning mechanism than one application is required to be deployed only for antivirus frozen and other malwares. , One segment is required for the progress gateway purposes. The issue because you were talking about the blocking of some of the sites. In Delhi we are using 10 GP network this is sufficient for next 50 years for the Delhi High Court, the CPSC sites require the heavy traffic monitoring. We have1200 computers installed in the registry be found at some bandwidth was being used and some people where downloading the movie or they were watching the movies so we have installed a firewall whereby the rules and has been moving sites cannot be opened fire basically a filtration whereby you stop the attack of viruses. And prevent the staff from misusing the bandwidth whereby you can assess the Facebook and YouTube. And apparently the 10 GP that for the current purposes distributed will perform is more than sufficient for our institutional purpose. 10 GB LAN insufficient bandwidth and it is managed by the firewall the concept of the IPS which take care of all the attacks. Firewall is very simple it is having set of rules only. IPS mechanism protects from legitimated Attacks. Pendrive was provided by NJA that got infected when I go back I will for antivirus checking attacks. You are using Microsoft and not Ubuntu because one antivirus solution is not sufficient for complete

protection to the tools we should use for taking precautions the problem here is that they don't use the Microsoft they use the open software free software that is ubuntu. Even in linux there is little bit of virus, Trojan is for Linux operating system that is why it on the server use solar arrays or antivirus so that less number of viruses shift on our server. Linux doesn't have a threat or virus issue's? No it is not like that. It's not that Linux has zero virus but the amount is less. Working on Linux is not easy for everyone they are there but they are paid activity the concept of one gateway is a senior level decision. They have to make policies for them and organization cannot believe are running on Linux, Linux is not completely freeware people as for the maintenance and it comes with the price it is difficult for the users to work on it. It is for general usage but if the virus is designed for Linux we have to take care .if the virus is not designed for Linux it will not work. I'm not aware of Ubuntu much. Mr. I think the session is going to technical so now let us take some question-and-answer session because actually hear people would like prefer Linux operating system. There are all the operating system but it is a little difficult to handle. Delhi High Court is on Windows. There are certain plus points and certain limitations. Mr. the right that too is not free of viruses what actually happens is that since they are less number of people using Ubuntu less number of buyers that being developed for bugs if open source system is attacked by viruses people do the same damage to Microsoft or Windows Vista operating system. They are different kind of security mechanisms web application firewall anti malware. Application firewall is the second level of firewall it is designed for the specialized application this is the proxy firewall. A few years back we had a technical session and one of the judges was nodding too much and he said that if we nod too much we actually don’t understand. So this is to technical technical in area. Well this is the passing phase for our judges. Here beginners and veterans here. It is managed and we hide here and there and try to grasp as much as possible. Maybe the new generation of judges will not have problem. 50% of the words used by Mr. Gupta I'm sure nobody has understood here. But it is also a fact that if we have to

play an important role in our high courts the need to understand all its unless we know what the problem is and what the requirements are and what the possible threats are we will not be in a position to take the control of the situation and this is simply being hijacked by the technical people so they this concerned to understand the security threats and how to solve that it is a fact that we do not have a unified security system or a protocol the Citibank problem I think we have to understand. Delhi judiciary is spreading in their own ways and they have their own innovative methods, it is time now to learn something from them as they are going ahead from us. I don't think there is any other court like Delhi in India. As advanced that much as far as technology concern there the need of the hour as far as NJA and Supreme Court is concerned is that we should have a policy or guideline for software and hardware installation, that the backup and deal with the viruses also this is actually created a problem in the key people who are actually able to guide misguide us now very practical problems on concerned when we use our personal laptops or other electronic gadgets use of technology by the High Court and use of technology by the subordinate Courts or subordinate judiciary the subordinate judiciary expression in itself is of some irritation to some the need to have you that three le at the Supreme Court of India subordinate courts district judiciary second at the High Court and third Supreme Court of India feel free to address some of your concerns which you like to address some of our brothers and sisters were using your and actually find a solution also. Can we have an open discussion don't worry about your limitations lack of knowledge and information just address those concerns. Mr. Cherry can you complete in dignified 10 minutes and then honourable Justice Delhi High Court also wants share something.

Can we have the break-inside? I have one suggestion can we extend the session and then go for the break. Sitting monotonous for three hours we have some problem so we'll continue. Till the time the new system is sitting in can I tell you about some of the antivirus that Delhi High Court is NIC people are using trend Micro in Delhi we had this

problem that if you put the pen drive it got corrupted and all the adjustments were gone. I checked with the software and found that there was a malware. Antivirus system does not have malware checking system. In my personal computer I have norton and in my court computer I have Macaffee installed.

14th Session **Topic:** Applications (Android Apps) that can be used by Judges in Court Rooms

“The Court Room Technology workshop” -A very good morning to all of you.These mobile usage has increased manifold.Since mine is the last session,I would be brief through my slides-

What is Android?

- Android is the name of the mobile operating system made by American company; Google. It most commonly comes installed on a variety of smartphones and tablets from a host of manufacturers offering users access to Google’s own services like Search, YouTube, Maps, Gmail and more.

INTRODUCTION

- **WHAT IS ANDROID?**
- A Software platform and operating system for mobile.
- Based on the Linux kernel.
- Android was found way back in 2003.
- It was developed in Palo Alto, California.
- Android was developed by the Andy Rubin, Rich Miner, Nick Sears and Chris White.
- Android was purchased by the GOOGLE in AUGUST,2005 for 50 million $.

Features of Android

- Android is not a single piece of hardware.
- Android supports wireless communication using:-
- 3G Networks
- 4G Networks
- 802.11 Wi-Fi Networks
- Bluetooth Connectivity
- Android is a multi-process system, in which each application (and parts of the system) runs in its own process.

Features of Android

- Interface that is better than the previous touch screen mobiles.
- User gets millions of applications that user can not get in any other mobile operating system.
- Android supports advanced audio/video/still media formats such as MPEG-4, H.264, MP3, and AAC, AMR, JPEG, PNG, GIF.
- Developing an android application is not tough using SDK(standard development kit) and java emulator we can easily develop applications that we want.

Limitations

- Making source code available to everyone inevitably invites the attention of hackers.
- Android operating system uses more amount of battery as compared to normal mobile phones.
- As there are so many user sometimes it becomes difficult to connect all the users.
- As we call Android is world of applications we continuously need to connected with the internet which is not possible for all the users.

Benefits of Android Apps

Some organizations are adopting BYOD (Bring Your Own Device) strategy by offering mobile devices and tablets that run on OS's like Android to its workforce. Android App Development helps the enterprise to create custom solutions catering the business needs and demands.

Android is free and an open platform built on Linux. It is also an open source solution for mobile devices offering a complete software stack including operating system, middleware and key mobile applications. User acceptance to Android was very low when it was launched in 2007, as it was still in its early development cycle. But after Google's acquisition and development efforts, visibility for Android mobile technology grew.

This is the reason why it is competing against Apple and other popular smartphone operating system. The demand for Android app development grew through its robust offerings with many new android devices.

Advantages of Android App Development

- **Low Investment**
- Android comparatively has a low barrier to entry. Android provides freely its Software Development Kit (SDK) to the developer community which minimizes the development and licensing costs. The development costs can be divided into three stages: Stage#1 – application development, Stage#2 – testing, and Stage#3 – hardware cost for testing and deploying the android mobile application.

Open Source

- Get the open source advantage from licensing, royalty-free, and the best technology framework offered by the Android community. The architecture of the Android SDK is open-source which means you can actually interact with the community for the upcoming expansions of android mobile application development. This is what makes the Android mobile application development platform very attractive for handset manufacturers & wireless operators, which results in a faster development of Android based phones, and better opportunities for developers to earn more. That’s the magic of Android.

Easy to Integrate

- The entire platform is ready for customization. We can integrate and tweak the mobile app according to our need. Android is the best mobile platform between the application and processes architecture. Most of the platforms allow background processes helping to integrate the apps.

Easy Adoption

- Android applications are scripted in Java language with the help of a rich set of libraries. Anyone can build Android applications with the knowledge of Java. According to a recent survey, a lot of Java programmers find it easy to adopt and script code for mobile applications in the Android OS. It is now very beneficial for Java developers to transition the code script into a mobile application, and can also implement android application development services in the app.

It's largely supported by Google

- Think without them being in the picture Android might have only gained mild success in terms of it's push on the market. Especially the first iteration, it essentially looked like a BlackBerry copycat.

It's open and free.

- The beauty of Android is that you can customize to your heart's content, provided that the manufacturers are willing to hand over the source code.
- Plus due to the very fact of it being open, it makes it free and thus the only cost is primarily the device.

It's pretty much runs on everything mobile, and otherwise

- When looking at Android we see that right now it runs on mobile phones, tablets, wearables and even the likes of set-top boxes. This gives it the edge in the market in which you can be sure to write in one language that should cover most devices available. If anything IoT (Internet of Things) will be running Android to boot.

It's the current market leader

- With around 1 BILLION devices activated monthly, it gives developers and users the advantage of most probably having their devices supported.

Cost Effective

- The first thing about Android is its cost. People who used to be with base level mobiles would be fed up with the boring options. But with the low price now they can go for Android phones with good design and lot of applications which is not possible with the Apple, Blackberry and some.
-

Ease of Notification

- Any SMS, Email, or even the latest articles from an RSS Reader, there will always be a notification on the Home Screen Android phone, do not miss the LED indicator is blinking, so you will not miss a single SMS, Email or even Misscall.

It Supports MP4, 3GP, MPEG4, MIDI

- It supports different types of formats. There is no need to convert from one format to another, as it enabled with different formats of audio and video styles.

Video Calling

- Faster data connection enables to do video call. We can take advantage of bandwidth and new generation networks using Android.

Great Social Networking Integration

- Integration can be made to different social networking sites, so you can enhance features.
- Free to customize the applications and features, using user enabled development

Low Chance of Crashing

- The Android OS is very smooth and easy to operate and less chances of crashing down
-

Android Applications that can be used by Judges in Court Rooms.

Judicial Database

Cause-list

Court based cause list

- Stage wise,
- Age of the case wise,
- Police station wise etc.,

(In the cause list populated each case number is linked to the Case details).

Cause List

Cause List Selection

Case-wise Search

Cause List

- **Stage wise summary of Cause list**
  (In the summary each number is a link to the list of cases in that Stage.)

- Current date
- Weekly
- Monthly
- Quarterly etc.,
- Party institution wise,
- Advocate wise,
- Calendar
- Matters relating to remands posted to that date.

Case-wise Search

- Case Status details
- Documents
- Daily orders

Case wise search

View Case Document

Party-wise Search

Issues

Video Conference

- Video Conference to the Prisons to secure the virtual presence of the prisoner for extending the remand and recording of evidence.

Deposition

View and amend the depositions on fly.

Insert File

- Whenever a deposition is recorded and signed by the Judge and for that matter any scanned copy of document can be uploaded to be part of particular case through this application.

Insert /Upload Files

Delete File

- Any document can be selected and deleted by this application.

Case Documents

- View and comment on fly,
- the material papers including pleadings, evidence,
- Depositions and exhibits and other material papers relating to any case can be accessed from this page.

Case History

- B-Diary in civil cases and the mile stones in any criminal case

Daily orders

View and Modify the Case docket.

Online Orders/Judgements on fly

- Case wise
- date-wise
- Party-wise
- Advocate wise
  - Viewing the Orders and Judgements online.

Online Orders

Legal Database

- Access to statutes rules regulations etc. and also law journals.
- Law Suit,
- Supreme Today
- TEMPLATES OF ISSUES/CHARGE/SENTENCE GUIDELINES

Marking of Document

- Marking endorsements or comments on PDF documents.

Use of Stylus

Note taking

– A Judges taking notes and saving or transmitting the same is facilitated through this application

Signatures

- Signatures on the dockets or relevant documents..

Bookmarks

- Any document of any case can be linked with the current case for future reference.

Record Audio / Video

- Any deposition or argument can be recorded and audio/video file can be attached to the case file.

Access the information relating to

1. Other subordinate Court cases.
2. High Court cases.
3. Supreme Court cases.

(To view the appellate and stay matters other connected material if any).

4. NJDG for uploading the data on fly.

5. Information secured from other departments on fly through web-services (Police, Revenue, FSL etc.,)

Send SMS

- Instant SMS to Advocates/Law Officers.

Send e-Mail

- Instant e-Mail to Advocates/Law Officers.

Thanx a lot. A concern on cyber waste is also required to address. Thanks to Hon'ble judges and program co-coordinator, K.K, and all associated in this Kindly send your response feedback form and then all can proceed for the Lunch. Thank You.