

# **EMERGING & FUTURE TECHNOLOGY FOR EFFECTIVE JUDICIAL GOVERNANCE**

Justice Raja Vijayaraghavan

Judge

High Court of Kerala

# How does technology enhance administration of justice

- Processing time be considerably reduced
- Able to speed up additional court processes.
- Once in the court database, filing information can connect to other platforms getting cases further into the legal process with minimal effort.
- Files can automatically go where they need to within the court's system.
- There is less room for human error in improperly entering data from the document to the court databases and sending the document to the wrong part of the court.
- Reduces the amount of on-site document storage required by a court as well as by law firms

# Enterprise IT and E Justice Platforms

- Transformation from standalone tools to a wholly digital environment.  
Interoperable
- IT is no longer a tool. It is an environment.
- Digital workflow in courts is established
- Form a suite of applications to track resources, automate workflow, and support information flow between all stakeholders.
- Procedural standardisation, workflow digitisation, internal and external user involvement.

# How is technology reshaping the justice delivery system

- Assisting to inform, support and advise people involved in the justice system
- Can replace functions and activities that were previously carried out by humans
- Can change the way that judges work and provide for very different forms of justice (disruptive technology), particularly where processes change significantly

# Emerging Futuristic Models in Judicial Governance

- Improve procedural efficiency, aid decision-making processes, and even **predict outcomes consistent with past precedent**.
- Enabling parties to Obtain Information and Court Services Using Their Smartphones
- Using Technology to Simplify the Service of Process
- Enabling Automated Court Messaging to parties
- Enabling parties to Present Photos, Videos, and Other Information from Their Smartphones in the Courtroom
- Enabling Online Dispute Resolution
- Enabling the Creation of an Order or Judgment at the Close of a Hearing or Trial

# Disruptive change

- E-filing
- E-calender
- CMS
- E-challan
- Online notifications
- SUPACE
- Live streaming
- Video hearings
- Virtual courts for Traffic Challans
- Paperless Courts
- Provides the platform to make the court a more accessible and timely dispute resolution platform
- Makes the courtroom more accessible, financially and geographically, and can make the process of accessing the court more cognizant of the human element.
- Ease the rigour of the registry, and aid judges in spending lesser time on administrative responsibilities
- Provide sophisticated automation for banal and time-consuming admin processes.

# AI

- Allowing a machine to behave in such a way that it would be called intelligent if a human being behaved in such a way: John McCarthy-1956
- Machine learning tools assist in intelligent scheduling of cases and creating cause lists
- AI-enabled programs can extract the accurate position of law from a mass of precedents
- Smart e-filing, intelligent filtering/prioritization, tracking of cases
- Use speech recognition techniques
- Translation
- Intelligent algorithms can be used for furnishing basic legal information to potential litigants in a conversational format

# What can AI do for Courts?

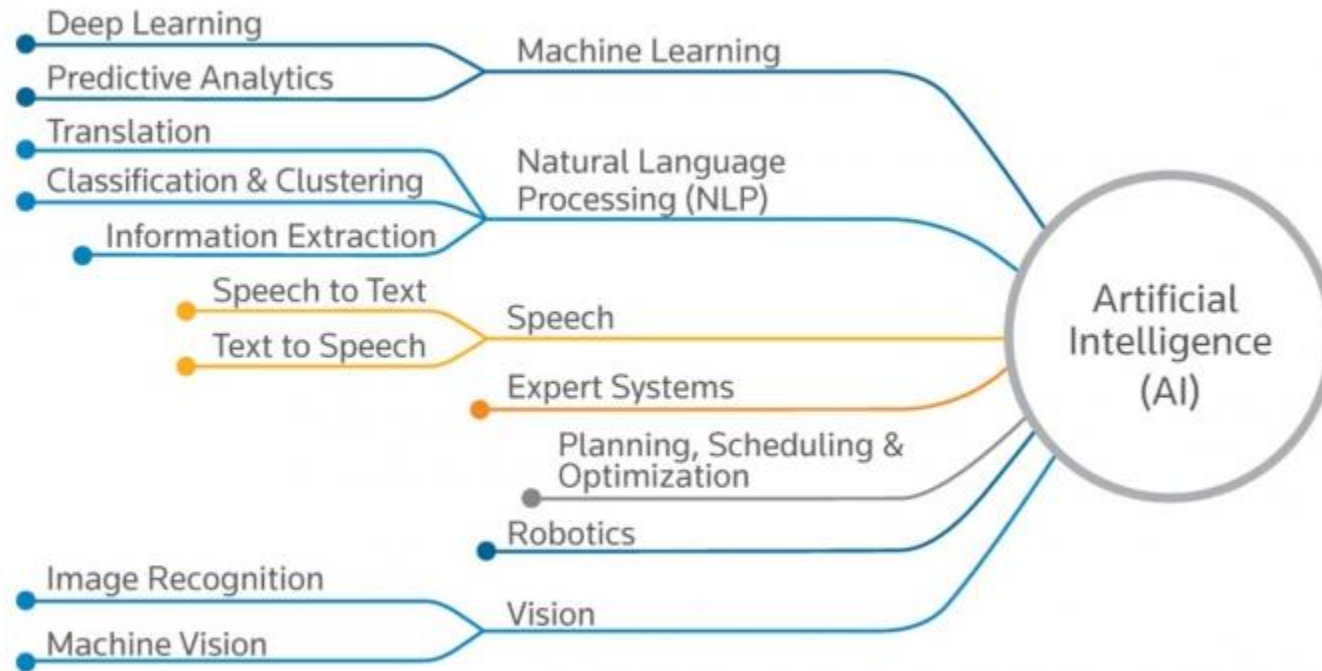
- Be of immense help in organising information
- Improve procedural efficiency
- Can be used to advise potential litigants and arrive at a predictable solution
- Aid decision making process
- Reduce arbitrariness in human decision making.
- Predictive justice by **analysis of large amount of data by the means of AI-enabled technologies for predicting outcomes of legal disputes.**
- Has the potential to transform justice systems worldwide



# Potential use cases of AI

- Tools to ease the rigour of the registry – Streamline administration
- Automation , transparency and openness
- Tools for Intelligent analytics and research
- Predictive justice
- Tools to spread awareness, assist litigants and also decide time consuming prospects
- **AI cannot replace human judgment-** Can be used as support systems and augmentation tools.

# AI



Source: Neota Logic

# Big data is the food for AI efficiency

- In order for AI to be able to process legal information effectively, the legal information must first be made machine processable.
- As technology progresses, more and more tasks will be performed by non-specialists with the assistance of digitized processes and systems.
- AI, in order to work, needs 'big data'. Luc Julia, one of the creators of the digital assistant Siri, evokes this image, 'if a machine is to be able to recognize a cat with 95% certainty, we need about 100,000 pictures of cats.'

# Machine Learning and Deep Learning

- AI teaches computers how to “learn, reason, perceive, infer, communicate, and make decisions like humans do.”
- Machine learning enables the computer make decisions with minimal programming.
- Deep learning uses more advanced algorithms to perform more abstract tasks such as recognizing images.
- Ultimately, with machine learning or deep learning, computers actually become better at their tasks with experience.
- Fundamental to this learning are the three core processes of how cognitive computing works:
  - 1) gather information,
  - 2) analyze and try to understand the information, and
  - 3) make decisions based on this understanding.

# Happenings in another jurisdiction



- The involvement of AI for illustrative purposes, the main categories are as follows:
  - ► Advanced case-law search engines
  - ► Online dispute resolution Assistance in drafting deeds
  - ► Analysis (predictive, scales)
- Categorisation of contracts according to different criteria and detection of divergent or incompatible contractual clauses
- “Chatbots” to inform litigants or support them in their legal proceedings

# US Justice System- COMPAS and PSA

- The most popular and widely used risk assessment tools used in the are Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) and Public Safety Assessment (PSA).
- **COMPAS:** This tool uses many datasets to predict an offender's rate of recidivism, risk of violent recidivism, and failure to appear in court. COMPAS breaks it down into static factors including past arrests and dynamic factors including substance abuse, employment history and pessimism.
- **PSA:** This tool makes its decisions on nine risk factors such as current arrest, current violent offence, pending charge at the time of the offence, a prior misdemeanour conviction etc. It then weighs each factor and creates a score for individuals. This score predicts the likelihood of a repeat offence.

# European Court of Human Rights (ECHR).

- AI tool uses using natural language processing and machine learning to predict whether or not in a particular situation the Court will rule whether a particular provision of the European Convention on Human Rights (ECHR) has been violated.
- The tool works with information from earlier judgments and with great accuracy.

# Gina the Avatar

- The Superior Court of Los Angeles' uses [Gina the Avatar](#), an online assistant, helps residents handle their traffic citations. The jury bot is built on top of the Microsoft Cognitive Services platform that leverages features like natural language understanding, QnA maker, and translation services. Gina knows five languages and helps over 5,000 citizens a week.



# Brazilian Supreme Court – supported by - AI VICTOR

- In Brazil, an AI tool called VICTOR is being used to conduct preliminary case analysis to reduce the burden on the court. The tool supports the Brazilian Supreme Court by providing analysis of the cases that reach the court using document analysis and natural language processing tools.
- The goal of this tool is to accurately and quickly track resources that deal with issues of ‘general repercussions’.
- This concept of general repercussion is intended to ensure that only questions that are truly relevant to the wider society are heard by the court and exclude appeals that reflect only the unsuccessful party’s unwillingness to accept defeat.

# SUVAS

- The ‘Supreme Court Vidhik Anuvaad Software’ is a machine-assisted translation tool trained by Artificial Intelligence.
- SUVAS has the capacity and capability of translating English Judicial documents, Orders, or Judgments into nine vernacular language scripts and vice versa.
- This is the first step towards the introduction of Artificial Intelligence in the Judicial Domain.”

# SUPACE (Supreme Court Portal for Assistance in Courts Efficiency)

- The Supreme Court through this a portal intends to use machine learning to deal with the amount of data received regarding the various cases.
- It is a hybrid system and a perfect combination of human intelligence and machine learning that works wonders in combination with human intelligence.
- The AI-controlled tool is designed to process only information and make it available to judges for decision. It does not participate in the decision-making process.
- Judges dealing with criminal matters would use it on an experimental basis.

# The five principles of the Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and their environment

- Principle of respect for fundamental rights
- Principle of non-discrimination
- Principle of quality and security
- Principle of transparency, impartiality and fairness
- Principle “under user control”

# Safeguards

- Human oversight, and discretion are needed to complement the efficiency of intelligent decision
- Ensure that AI tools do not become prescriptive by overshadowing case specific reasoning
- Make sure that supporting systems based on AI is used by judges by applying their mind
- Judges should have meaningful autonomy so as to be able to deviate from the outcome of the algorithm
- Prevent Value lock in and stagnation in law
- AI's use should be consistent with our constitutional values

# Casemine

The screenshot displays the Casemine website interface. At the top, there is a navigation bar with the Casemine logo, a search bar with the text "Enter keywords or case title", and a "Citation Search" button. To the right of the search bar are links for "Select Case/Topic", "CaseIQ™", "Columns", and "Browse". A user profile icon labeled "RV" and the Indian flag are also visible.

Below the navigation bar, there are social media sharing icons for WhatsApp, Facebook, Twitter, LinkedIn, and Email. A row of utility buttons includes "Text Highlighter" (with a "ON" indicator), "Bookmark", "PDF", "Share", and "Report a problem".

The main content area is divided into two columns. The left column contains sections for "CITATION CODES", "CASE NO.", and "ADVOCATES". The right column displays the case details: "K.S. Puttaswamy And Another v. Union Of India And Others", "Supreme Court Of India", and "Aug 24, 2017".

Overlaid on the right side of the case details is a "CaseIQ™ (AI Recommendations)" panel. It features the CaseIQ logo, the text "Use AI to get other relevant cases.", and a blue button labeled "Run CaseIQ on this judgment".

**CITATION CODES**  
2017 AIR SC 4161 • 2017 ALLMR 5 686 • 2017 ALR 124 877 • 2017 BOMCR 6 78 • 2017 KLT 4 1 • 2017 MLJ 6 267 • 2017 SCALE 10 1 • 2017 SCC 10 1 • 2017 SCC ONLINE SC 996 • 2017 AIR SC 4161 • 2017 AIC 178 1

**CASE NO.**  
Writ Petitions (C) No. 494 of 2012 with Nos. 829, 833, 932 of 2013, 37, 220 of 2015, 797 of 2016, 342, 000372 of 2017, Transfer Cases (C) Nos. 151-52 of 2013, Transfer Petitions (C) Nos. 312-13 of 2014, 921 of 2015, Contempt Petition (C) No. 144 of 2014 in Writ Petition (C) No. 494 of 2012, Contempt Petition (C) No. 674 of 2015 in Writ Petition (C) No. 829 of 2013, Contempt Petition (C) No. 470 of 2015 in Writ Petition (C) No. 494 of 2012, Contempt Petition (C) No. 444 of 2016 in Writ Petition (C) No. 494 of 2012, Contempt Petition (C) No. 608 of 2016 in Writ Petition (C) No. 494 of 2012, Contempt Petition (C) No. 844 of 2017 in Writ Petition (C) No. 494 of 2012 and SLP (Crl.) No. 2524 of 2014, decided on August 24, 2017

**ADVOCATES**  
K.K. Venugopal, Attorney General, Tushar Mehta, Additional Solicitor General, Jugal Kishore Gilda, Advocate General, D.K. Singh, Shiv Mangal Sharma, Additional Advocates General, Arvind Datar, Ms Meenakshi Arora, Anand Grover, Shyam Divan, Gopal Subramaniam, C.A. Sundaram, Rakesh Dwivedi, Sajan Poovayya, Jayant Bhushan, J.S. Attri, Kapil Sibal and P.V. Surendra Nath, Senior Advocates [Anish Kr. Gupta, Avdhesh Kr. Singh, R.K. Rajwanshi, Chandra Shekhar Suman, Ms Deep Shikha Bharti, Ms Geetha Kovilan, Rahul Narayan, Apar Gupta, Ms Ananya, Shashwat Goel, Ms Bhavna, Gautam Bhatia, Ms Krutika, Shadan Farasat, Ms Tripti Tandon, Ms Lorraine Misquith, Ms Srinidhi Rao, Ms Priyam Cherian, Prasanna S., Suraj, Vijayant Singh, Nipun Saxena, Anando Mukherjee, Pratap Venugopal, Udayaditya Banerjee, Ms Niharika, Anuj Sharma, Ms Kanika Kalaiyaran, Ms Sameeksha G., Ms Kritika Bhardwaj, Apar Gupta (for M/s K.J. John & Co.), Vipin Nair, P.B. Suresh, S. Prasanna, Ms Samiksha Godiyal, Abhay Pratap Singh, Govind Manoharan, V.K. Biju, Ms Nidhi Khanna, Dr Abhishek Atrey, Ravindra Lokhande, Ms Aishwarya Bhati, Ms Neha Meena, Jaideep Singh, Anirban Sen, Ms Taniya, M/s

# Casemine

CASEMINE All Enter keywords or case title Citation Search Select Case/Topic CaseQ™ Columns Browse RV IN

Graphical View | Uploaded Document | Citations Found 2

Legend

Suggested Precedents 2 | Suggested Arguments 2

1 [K.S. Puttaswamy And Another v. Union Of India And Others](#) 🔖  
COURT NAME: SUPREME COURT OF IN... DATE: AUG 24, 2017 CITED BY: 6 CORAM: 9

...Constitution. In India, the position is similar to the **United States of America**. **The power of Parliament or for that matter, the ...that possibility:62. The requirement that crimes must be defined with appropriate definiteness is regarded ...commit "house-breaking by night".** — **Section 449—House-trespass in orderto commit offence ...one lakh rupees, or with both. Information Technology (Reasonable security practices and procedures and sensitive personal ...Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011. The....— Save as otherwise provided in this Act or any other law for the time being in force, if any person...**

Show CiteTEXT 🔽 🔗

2 [Naz Foundation v. Government Of Nct Of Delhi And Ors](#) 🔖  
COURT NAME: DELHI HIGH COURT DATE: JUL 2, 2009 CITED BY: 12 CORAM: 2

...with **freedom of speech and expression, Article 19(1)(d)** dealing with... Conceding ground in favour of **right to respect for private and family life**, in the submission of Union...**Union for Civil Liberties v. Union of India, (1997) 1 SCC 301** and **Sharda v...Code of Criminal Procedure, 1973; and Indian Evidence Act, 1872**. In the Indian penal Code...indicated in **Indra Sawhney v. Union of India, (1992) Supp. 3 SCC 217**. In...**Maneka Gandhi v. Union of India, (1978) 1 SCC 248**, a...

Show CiteTEXT 🔽 🔗

3 [Navtej Singh Johar & Ors. v. Union Of India, Through Secretary, Ministry Of Law And Justice .](#) 🔖  
COURT NAME: SUPREME COURT OF IN... DATE: SEP 6, 2018 CITED BY: 0 CORAM: 5

...."62. **The requirement that crimes must be defined with appropriate definiteness is regarded as a ...consenting adults was an infringement of his right to privacy under Article 17 of the International Covenant on Civil and Political Rights ("I... (Amendment) Act, 2013 and the Protection of Children from Sexual Offences Act, 2012 (POCSO Act...personal liberty except according to procedure established by law. By reason of numerous judgments of the...protected the right to respect for private and family life. The ECtHR held that the law violated Article...with privacy within the meaning of Article 17 of the International Covenant on Civil and Political Rights.(2...**

# Casemine



All  Citation Search

Select Case/Topic CaseIQ™ Columns Browse RV



Harness the power of Artificial Intelligence for your Case Research

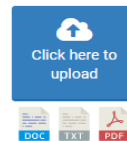
Upload Document

Add Text

Add Url

Use any legal document to retrieve judgments with similar facts and legal issues. You can upload:

1. **Pleadings** (yours, opposition or amicus) to find additional cases that make such pleadings more authoritative.
2. **Lower court judgments** to quickly find precedents with similar facts and legal issues.
3. **Legal articles/notes** to obtain a comprehensive set of relevant case law on your topic of research.
4. **Moot problems** to quickly understand the legal principles and statutes present and to find relevant authorities.



CaseIQ™ FAQs

Harness the power of Artificial Intelligence for your Case Research.  
[Quick Demo](#)





# QuillBot



Modes: Standard Fluency Formal Simple Creative Expand Shorten Synonyms:

The present appeal projects and frescoes a scenario which is not only disturbing but also has the potentiality to create a stir compelling one to ponder in a perturbed state how some unscrupulous, unprincipled and deviant litigants can ingeniously and innovatively design in a nonchalant manner to knock at the doors of the Court, as if, it is a laboratory where multifarious experiments can take place and such skillful persons can adroitly abuse the process of the Court at their own will and desire by painting a canvas of agony by assiduous assertions made in the application though the real intention is to harass the statutory authorities, without any remote remorse, with the inventive design primarily to create a mental pressure on the said officials as individuals, for they would not like to be dragged to a court of law to face in criminal cases, and further pressurize in such a fashion so that financial institution which they represent would ultimately be constrained to accept the request for "one- time settlement" with the fond hope that the obstinate defaulters who had borrowed money from it would withdraw the cases instituted against them. The facts, as we proceed to adumbrate, would graphically reveal how such persons, pretentiously aggrieved but potentially dangerous, adopt the self- convincing mastery methods to achieve so. That is the sad and unfortunate factual score forming the fulcrum of the case at hand, and, we painfully recount.

239 Words

Rephrase

3/3 Sentences • 129 Words

The present appeal paints a picture of a situation that is not only troubling but also has the potential to cause a stir. This makes one wonder, in a disturbed state, how some unscrupulous, unprincipled, and deviant litigants can come up with clever ways to knock on the doors of the Court as if it were a place where many experiments can be done, and then use the process of the Court to their own advantage. As we go on, the facts will show clearly how these people, who act like they're wronged but could be dangerous, use self-convincing mastery methods to get what they want. This sad and unfortunate fact is at the centre of the case at hand, and we have to tell it again and again.

8

# Manupatra

Search Analytics

Judge Analytics

Advance Judge Analytics

Select Court ▼

Selected Court : Jammu and Kashmir

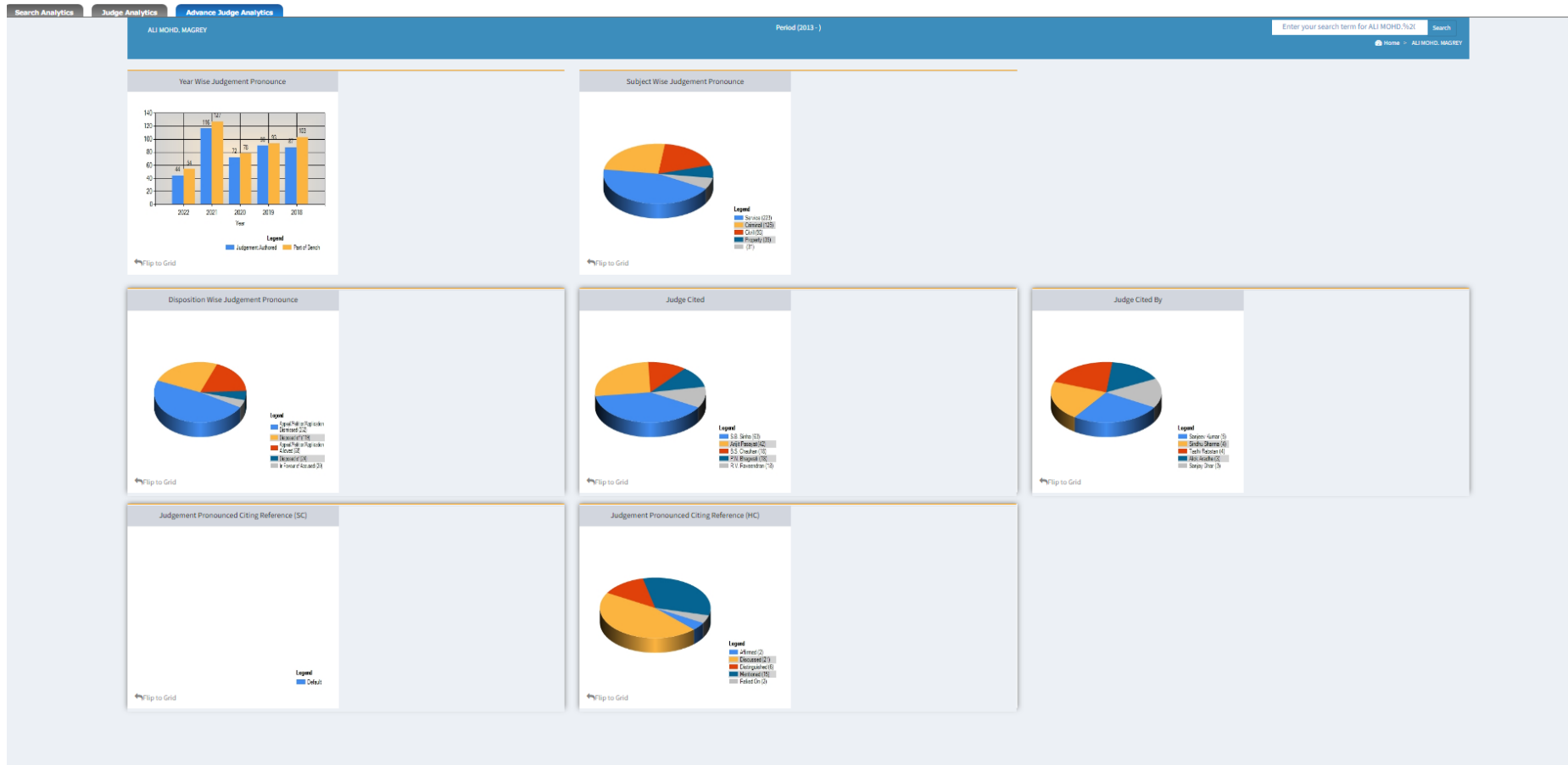
Name of Judges	No of Judgments Written	No of judgments Cited in	Appointment Year	Retirement Year
ALI MOHD. MAGREY	622	39	2013	
ALOK ARADHE	193	18	2016	2018
B.S. WALIA	104	9	2015	2017
BADAR DURREZ AHMED	58	3	2017	2018
DHIRAJ SINGH THAKUR	363	13	2013	2022
GITA MITTAL	64	1	2018	2020
JANAK RAJ KOTWAL	237	26	2013	2018
JAVED IQBAL WANI	190	2	2020	
M.K. HANJURA	367	10	2017	2018
MOHAMMAD YAQOOB MIR	482	52	2007	
MOHAN LAL	21	0	2021	
MOHD. AKRAM CHOWDHARY	57	0	2021	
MOKSHA KHAJURIA KAZMI	15	0	2022	
MUZAFFAR HUSSAIN ATTAR	457	66	2010	2017
N. PAUL VASANTHA KUMAR	267	34	2015	2017

In Judge Analytics we are including the judgments and/or final orders of the Supreme Court and the High Courts wherein the name of the judge who has authored the judgment/order is available.

Highcourt Judges details are available from Aug 2016 onwards.

Please type judge name atleast 3 character and select from list

# Manupatra – Judge Analytics



# E-filing of cases

- With the ability to read and file from anywhere, it's like having the court at your fingertips.
- Full case information is available immediately to Lawyers, parties, and the general public online
- The judge and Lawyer can review the case file at any place.
- Immense convenience- Even Court Fee can be paid online
- All orders can be served to the Government Departments in real time
- Seamless and accurate
- Decongest Courts
- Environment friendly
- Ascertain pendency and case pattern
- Transparency, inclusiveness efficiency and enhanced access to justice

# Inter-operable Criminal Justice System (ICJS)

- The Inter-operable Criminal Justice System (ICJS) enables seamless transfer of data and information among different pillars of the criminal justice system, like courts, police, jails and forensic science laboratories, from one platform.
- With the aid of the ICJS platform, FIR, case diary and charge sheet can be accessed by Courts
- Speedy Disposal of Bails- VC in Jails for remand prisoners

# N Step

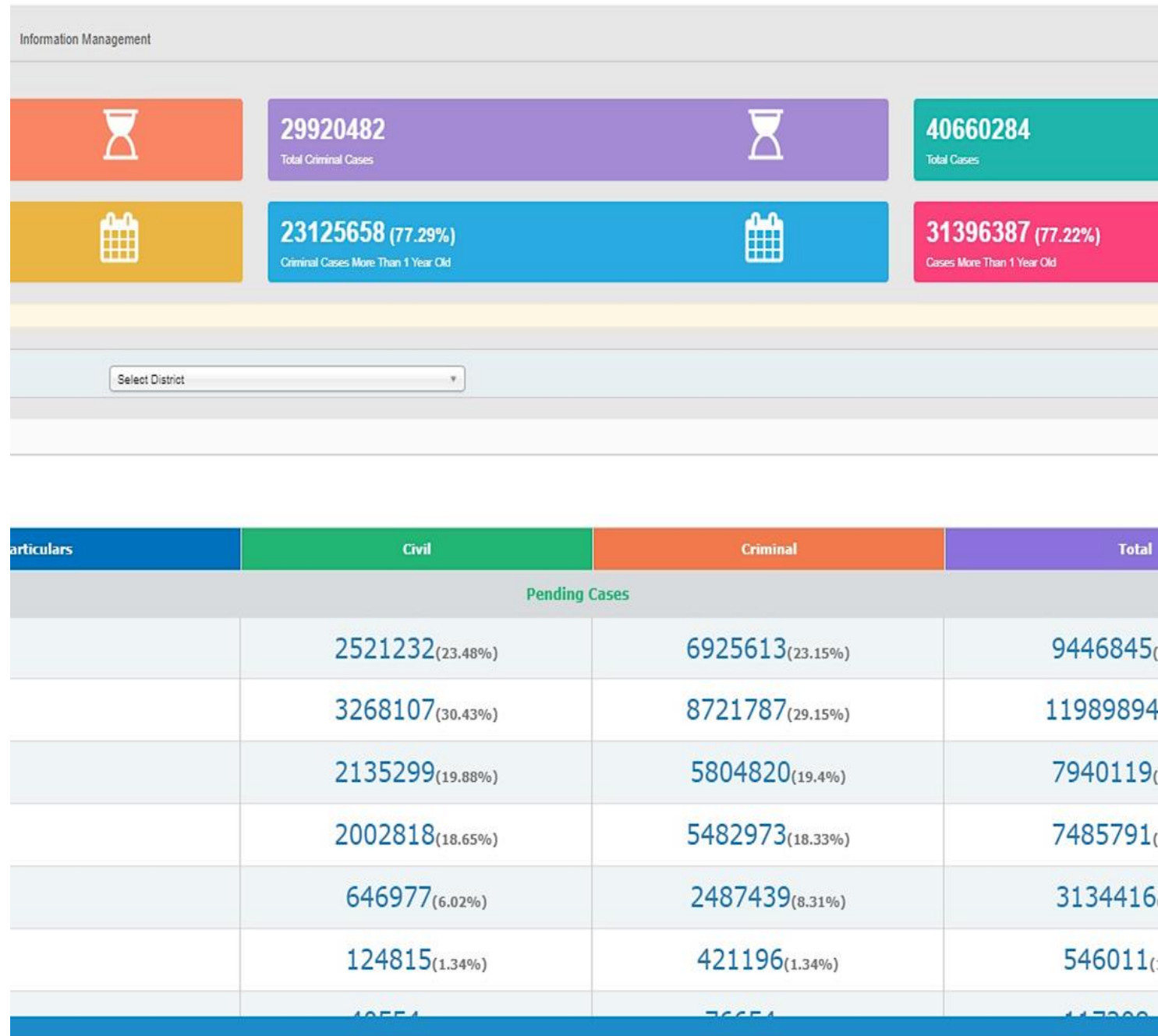
- The service of summons and processes by traditional methods are often a cause for inevitable delay in speedy disposal of cases.
- NSTEP is a centralised process service tracking application comprising of a web application and a complementary mobile app designed to streamline the process.

# E-challan

- Efficient use of technology in providing an easy, efficient and comprehensive traffic enforcement system
- Nation-wide data sharing and lead to better traffic discipline and road safety.
- Issuance of traffic challans, managing records/ back-end operations, tracking offence history, payments, reports etc. by leveraging latest technologies
- Connecting all the stakeholders through a common system which is ensuring data integrity, reliability and transparency.
- Minimizing time and efforts of citizen in making payments or follow-up actions which they face after getting challan on Road

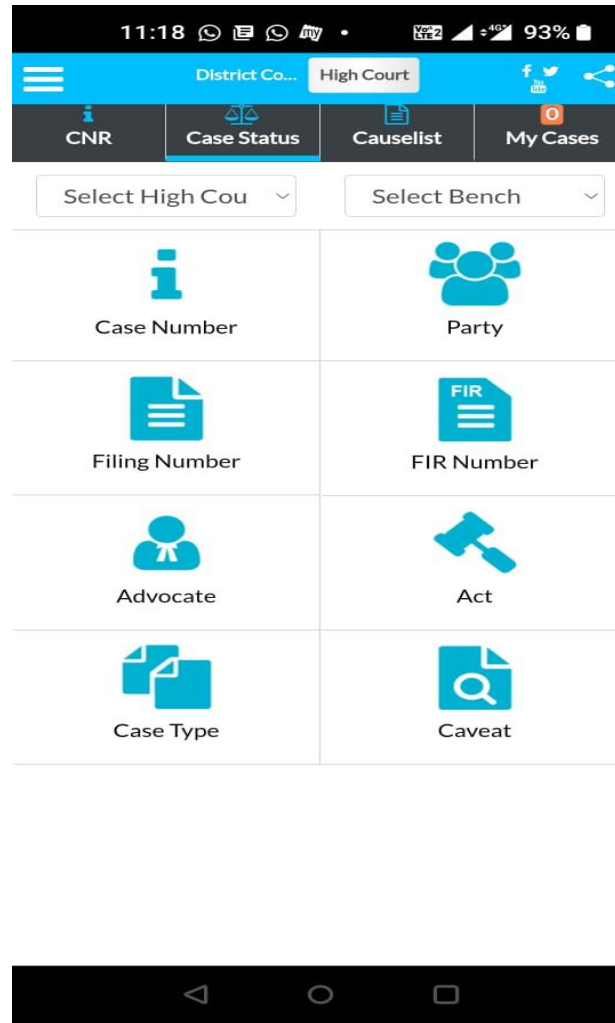
# NJDG

- NJDG is a national repository of data relating to cases pending and disposed of in all district and taluka courts of the country and also the High Courts
- Enables efficient case management and monitoring of cases leading to effective disposal of cases.
- Data uploaded and collated on the portal can be accessed and analysed in all parameters
- NJDG gives the consolidated figures of cases instituted, disposed and the pendency of cases in all courts across the country.





# E Services App



# Blockchain

Blockchain is a shared, immutable, distributed ledger that facilitates the process of recording transactions and tracking assets in a network.

- An asset can be
  - tangible — a house, a car, cash, land; or
  - intangible like intellectual property, such as patents, copyrights, or branding. Virtually anything of value can be tracked and transacted on a blockchain network, reducing risk and cutting costs for all involved.

The blockchain can be imagined as a decentralized database in which entries are unchangeably grouped in chronologically sorted, linked blocks.

# Features of Blockchain

- **Consensus:** For a transaction to be valid, all participants must agree on its validity.
- **Provenance:** Participants know where the asset came from and how its ownership has changed over time.
- **Immutability:** No participant can tamper with a transaction after it's been recorded to the ledger. If a transaction is in error, a new transaction must be used to reverse the error, and both transactions are then visible.
- **Finality:** A single, shared ledger provides one place to go to determine the ownership of an asset or the completion of a transaction.

# Smart Contracts

- Smart contracts are digital contracts stored on a blockchain that are automatically executed when predetermined terms and conditions are met.
- Used to automate the execution of an agreement so that all participants can be immediately certain of the outcome, without any intermediary's involvement or time loss.

# Tracking vehicle Ownership- Conventionally

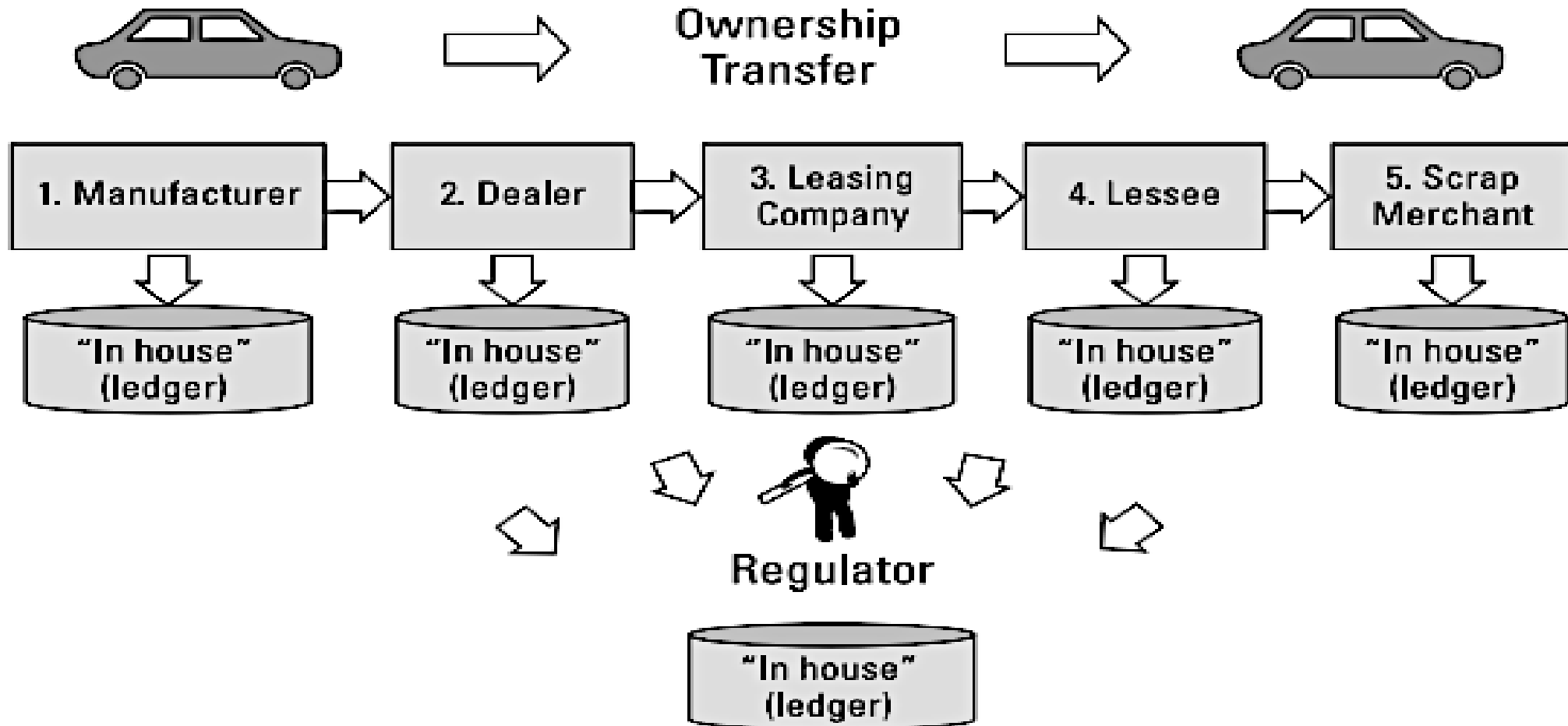


FIGURE 1-2: Tracking vehicle ownership without blockchain.

# Tracking vehicle Ownership with Blockchain

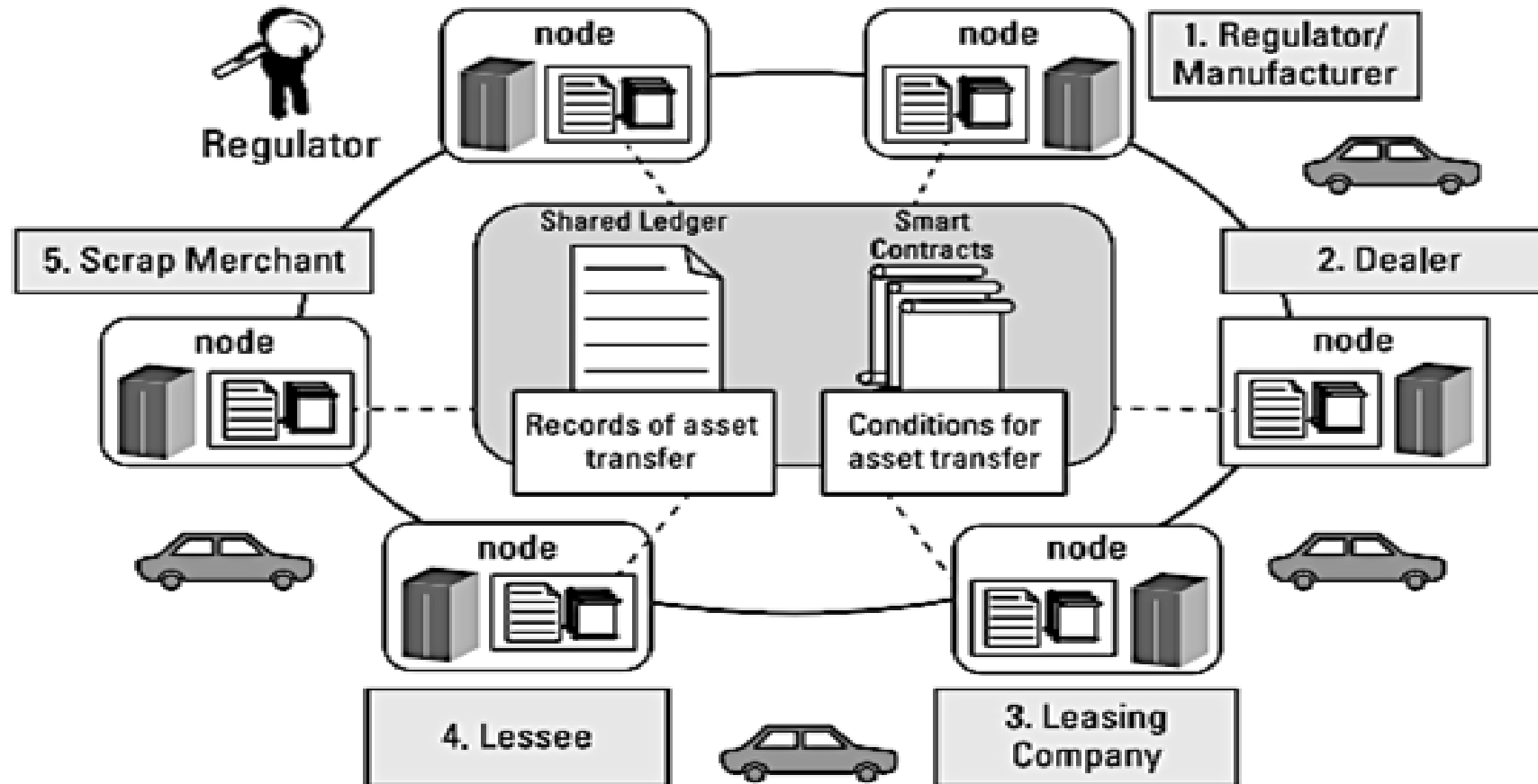


FIGURE 1-3: Tracking vehicle ownership with blockchain.

# Case Scenario-1- Insurance

The insurance industry can also use blockchain.

Insurance providers need an efficient way to process claims, verify that an insurable event (such as an accident) actually occurred, and provide customers with fair and timely payouts. With automated insurance claim processing, policy conditions are written into a smart contract stored on the blockchain and connected to publicly available data via the Internet. Whenever an insurable event occurs and is reported by a trusted source, the insurance policy is automatically triggered, the claim is processed according to the terms of the policy specified in the smart contract, and the customer is paid.

The benefits for insurance are as follows:

- » Eliminates the cost of processing insurance claims
- » Reduces the opportunity for insurance fraud
- » Great relief for citizens

# Vision to enhance justice delivery system

- **Enhancing justice delivery** – Technology to assist and not replace judges  
Improve efficiency and reduce the backlog
- **Securing rights of citizens** – Secure rights  
Right to explanation regarding the functioning  
Transparency of algorithm
- **Functionality & Interoperability-** Training & Awareness of stakeholders  
Handshake with stakeholders



**E-Governance Model Conceptualised,  
Created & Implemented in the High  
Court of Kerala**

# **Trial Court Voice to Text**



# Minor hiccups.

- Dedicated e-POST service for courts - Soft copy through the internet and hard copy at the destination. With GPS, photo/ NSTeP integration
- Amendments to Acts and Rules-Process reengineering -Online Copy Application in Trial Courts.
- Providing dashboards to all stakeholders to disseminate real-time information
- Incompatibility issues with software developed on a National level- Need for Standardisation
- Better use of Data and Machine Learning for roster management

# Advantages

- Structuring of legal information-. AI can help individuals, litigants, and judges with organizing information.
- As the library of legal information is enriched, Artificial intelligence can also help predict, advise and suggest solutions.
- Judges need to understand how AI works to make adequate use of it.
- Courts, in turn, need to digitalize their information and provide it with legal interpretation to make it more usable for artificial intelligence systems.

# Conclusion

- The needs of citizens should be at the heart of the justice system, with modernization efforts focused on outcomes.
- By leveraging technology tools, courts can optimize their internal process and improve services to citizens through more efficient use of resources, increased reach and accessibility of justice, and improved transparency and accountability of court activities.
- However, while judicial transformation must be driven by court system professionals and users, policymakers must create the correct framework and an enabling environment to foster this.

**THANK YOU**

A teal-colored curved graphic element is located in the bottom right corner of the slide, curving upwards and to the left.