



LAND RECORDS COMPUTERISATION IN TAMIL NADU

Land is one of the most significant physical assets of individuals and families. Be it is inherited or acquired, land preserves family heritage, upholds social status and ensures economic stability. People, therefore, consider preservation of rights over their land as a major responsibility and take all necessary steps to protect it. No wonder, in our country where presumptive titles are in effect, a huge majority of civil cases in courts are related to land disputes. This necessitated preservation of land records by the Government.

TamilNILAM - The Journey Begins:

Land records were one of the preliminary areas chosen for computerization by NIC in all States. The land records project in Tamil Nadu, christened as TamilNILAM (Tamil Nadu Information system on Land Administration and Management), commenced its journey in early 1990s with the development of an application with an initiative to capture the Rural Land Records Data with the help of GIST terminals in FoxBase programming language. The progress of data capture was closely monitored by the higher authorities in the department during the fortnightly meeting which was attended by District Revenue Officers (DROs).

Then technology took an elevation towards the end of 1990s with the advent of Microsoft Windows and replacement of black and white monitors with color monitors. The software was re-developed in Visual Basic as front end and SQL Server-2005 as database. A major revolution was the introduction of local language where data was captured using the third party Bamini font. RoR details of the Urban and Natham land records were also captured in this way, along with the Rural land records.

Land Records for Public Viewing:

Introduction of KIOSKS in early 2000s, where the Patta could be viewed for Rs.2 and printed for Rs.10, was a major milestone where the citizen at grass root level could taste the fruits of land record computerization. This really turned-out to be a digital revolution for the citizen as they could get a 'conclusive' proof for the ownership of their lands in their hands without any hassles. In those days the entire software system was architected in client-server mode and the setup was operational throughout the State for a longtime. Data backups were regularly taken in CDs and one copy each were preserved at Taluk Headquarters and Office of CoSS respectively. Sufficient number of desktops were provisioned in all Taluks along with Compatible Server for smooth digitization. Later, thin Clients were considered as a better option over desktops as there was no need for any client-side storage.



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TamilNILAM software designed and developed by NIC, Tamil Nadu as an offline software to digitize the land records for the state of Tamil Nadu, provided computerized Record of Rights to the land owners.

Later on, it is developed into web-based application in the year 2014 which resulted in a transformative change in the provision of land records related services to the land owners. This system is successfully handling 4.5 crore land records as of today.

Web based TamilNILAM has improved the transparency and accountability in land governance process in the state. It has empowered people to access land records any time anywhere through online services by removing the hassle of going to Taluk office physically to access land records. Along with Web CollabLand system, it further enhanced the utility of the system by integrating spatial records also into textual records.

Further, integration of it with Registration department's STAR software in 2018 resulted in automatic triggering of mutation process, which has eliminated the need to apply for land records mutation separately. Introduction of Automation in the year 2021 is another significant reform and milestone in the journey of digital mutation process and TamilNILAM.

The role of NIC in designing, developing and maintaining TamilNILAM and Web CollabLand software is commendable since this system is able to handle the processing of around 45 lakhs mutation applications every year.

Integration with Registration process:

Registration Department also got digitized in the year 2000 with emerging STAR (Simplified and Transparent Administration of Registration) application. This was introduced in phased manner in all 650 offices throughout the State. It was further enhanced with Photo and Thumb Capturing Modules. Land Records and Registration Projects were among five Mission Mode Projects of Tamil Nadu State and funds were provided from NLRMP (presently known as DILRMP). Subsequently, STAR was migrated as a web application and citizen were facilitated to book appointments online for registration process with SRO, which was inaugurated by the then Honorable Chief Minister. During 2014, TamilNILAM also got migrated as a web based application and all Taluks in Rural domain were covered in a phased manner. All legacy data were checked with validation scripts and data in local language were converted into Unicode format using designated tools. Multiple rounds of data validation were done for the data from each district before moving them into central location. With the consistent and dedicated effort of the NIC TamilNILAM team and the department staff, all Taluks were made online by 2017. Subsequently registration department was linked with TamilNILAM for auto mutation in June 2018.



CollabLand - Maps becoming Digital:

The most visibly appreciated part of Land records is the Cadastral Maps. Tamil Nadu being the center of erstwhile Madras Presidency of British India, the land survey was carried out mostly using metric Chains and recorded in Field Measurement Books (FMB) in the form of five column Ladder Tables. The maps were drawn in paper and

preserved sacrosanct for decades and even centuries together. Digitization of these FMB maps was a serious challenge to the department as few vendors could provide a satisfactory solution and whatever solutions available were not affordable for large scale roll-out across the State.

In 2005, NIC came up with an appropriate and affordable application for digitization and mosaicing of cadastral maps in the form of CollabLand (<https://collabland.gov.in/>). Initially developed as a Client-Server application, CollabLand is capable of handling a variety of survey systems like Chain, Theodolite and Total Station (ETS) which were prevailing in Tamil Nadu. CollabLand can not only create maps of individual land parcels from survey data but also mosaic them into village maps. Extensive training on CollabLand was provided to the staff from survey department on digitization and mosaicing modules which enabled them to digitize maps of over 50 Lakh survey numbers. CollabLand could handle Rural, Urban and Natham Maps in single software, was an added advantage during this process.

CollabLand was later web-enabled which made it handy for easy upgradation and quick roll-out, besides integration with other applications. Web enabled CollabLand is now fully integrated with web-based TamilNILAM and that the officials work seamlessly in both textual and spatial modules to complete the mutation process. Citizen can now access the ownership details of the land holdings along with the cadastral maps from a single interface provided in the 'Anytime Anywhere eServices' of Department of Survey and Settlement Government of Tamil Nadu (<https://eservices.tn.gov.in/>). The data from TamilNILAM and CollabLand databases are currently being shared with many other government departments as service.

Conclusion:

This success journey of computerization of land Records in Tamil Nadu has received accolades from various quarters, including the Union Ministry of Land Resources. The seamless integration of RoR and cadastral map (irrespective of the survey system used) during mutation as well as for public viewing is a role-model for all States. The journey will continue further and progress forward with more and more innovations and advancements using emerging technology.



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Acknowledgments: Team Land Records

Microservices a popular architectural style for building software applications are designed to be small, independent and loosely coupled distributed service. It enables application to be easier, maintainable and scalable. It aims to create a set of single function modules with well-defined interfaces and operations. Microservices follow a decentralized approach wherein each service has an individual outcome and communicates with other services through Application Programming Interfaces (API). Services are stand alone and can be updated independent of others thereby enhancing system's agility and speeding up development process.

Various Microservices Patterns:

Design

Provides a way to design software that is more modular, flexible and scalable. They provide a template or a blueprint that can be applied to different situations to solve a particular design problem. Microservices design patterns provide a set of best practices and methodologies. These can be used by software developers to define how services can communicate amongst themselves.

Service decomposition

Strangler pattern gradually replaces an existing monolithic application by creating new microservices around its functionalities until the old system is entirely replaced.

Domain-driven design (DDD) organizes services around specific business domains ensuring that each microservice focuses on a particular business logic aspect.

Data management

In Database per service pattern microservice has its own database ensuring data independence. Synchronization between services is handled asynchronously. Distributed transactions across multiple services are managed in Saga pattern ensuring data consistency in a microservices environment.

Command query responsibility segregation (CQRS) separates the read and write operations for data storage to optimize read and write models.

Resilience

Circuit Breaker prevents cascading failures by temporarily stopping requests to a failing service thereby allowing it to recover and prevent other services from being overwhelmed.

Communication

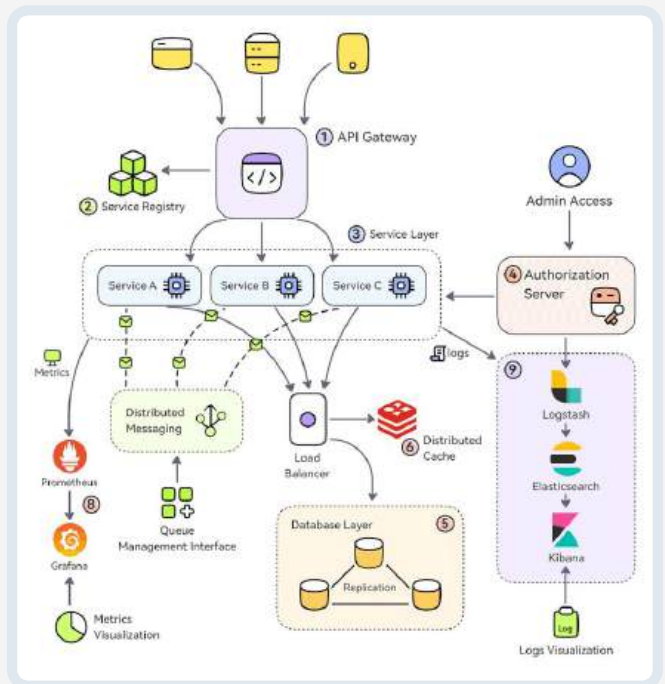
API gateway: Acts as a single entry point for clients, aggregating requests and routing them to appropriate microservices. It also handles authentication, load balancing and caching.

Service mesh manages service-to-service communication, handling tasks like load balancing, service discovery, security and monitoring.

Event-driven architecture: Communication between services occurs through the exchange of events. Events are disseminated by publishing them to a message broker and other services subscribe to pertinent events thereby facilitating asynchronous communication.

Deployment

Blue-green deployment: Running two identical production environments (blue and green). One environment serves live production traffic, while the other can be updated and tested. Traffic is switched once the update is validated.



Conclusion :

Microservices architecture offers numerous benefits viz., scalability, flexibility and resilience although there are challenges related to complexity and data management across distributed systems. Microservices if properly designed and implemented, can empower users and business organizations to build agile, scalable and resilient software applications.



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Kalaiginarin Kanavu Illam Scheme 2024

Tamil Nadu Govt. launched an Online Application during October 2024 for Rural Development & Panchayat raj Department, Govt. of Tamil Nadu developed by NIC Tamil Nadu State Unit for the distribution / payment of money to the beneficiaries under Kalaigharin Kanavu Illam Scheme 2024. More than 1000 crores has been disbursed so far to the beneficiaries. The scheme provides permanent housing to homeless citizens. According to the Tamil Nadu government, a total of 8 lakh houses will be constructed for all the homeless citizens in the state



AEBAS implementation in Pasteur Institute of India, Coonoor

Pasteur Institute of India (PIIC), an Autonomous Body under the Ministry of Health and Family Welfare, Govt. of India, a leading Institute in the production of DPT group of vaccines for Universal Immunization Programme was onboarded in AEBAS. NIC, Tamil Nadu State Unit has provided necessary guidance, training and support to PIIC.

Training on eKalaal application to District Officials from Prohibition and Excise Department

eKalaal web application (<https://ekalaal.tn.gov.in>), developed by NIC covers the core activities of the Prohibition & Excise Department, Government of Tamil Nadu. The activities include the issuance of new licenses, license renewals, import permit, real-time monitoring, transport permit for different stakeholders. Total of 72 services have been developed. A Training Programme on eKalaal application was organized along with hands-on session at Tamil Nadu eGovernance Agency Training facility from 26-11-2024 to 28-11-2024 in three batches, each batch comprising approximately 13 Districts, totaling 105 members covering 38 Districts.



Launch of Integrated State Portal of Government of Tamil Nadu

Integrated State Portal of Government of Tamil Nadu (<https://tn.gov.in>) is GIGW, WCAG and NeSDA Complaint with new features viz., Chat-bot with more than 550 questions comprising of general questions about Tamil Nadu. Content rich data with more than 1.75 Lakh documents like Government Orders, Press Releases, Policy Notes, Announcements etc., are available in the portal.


Marathon Against Drug Usage Organized By District Administration Sivaganga, Tamil Nadu

As an e-Governance initiative at grass root level, NIC-Sivaganga and NIC-TNSC Serviceplus team developed an online registration form for the participants to register online using NIC-Service Plus platform as per the criteria defined by the district administration.




HAPPY RETIREMENT



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THISAI - Maiden Issue Release



ITMS - HRCE - GIS Online



Ek Ped Maa Ke Naam



Launch of revamped TNSEC website



Meity - Secretary Visit



GELS - 2024 Preparation



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நத்தம் இணையவழி
பட்டா மாறுதல் திட்டம்

★ கிராமப்புற மக்கள் அவர்களுடைய
நத்தம் வீட்டுமனைக்கு பட்டா
வாங்குவதில் சில சிரமங்களை
சந்திக்கின்றனர் என்பதை நான்
அறிந்தேன்.

★ அதை இணையவழி மூலமாக
எளிமையாக்குவது தான் இந்த
புரட்சிகரமான திட்டம்.

மயிலாடுதுறைமில் நத்திட்ட உதவிகள்
வழங்கும் விழாவில் முதலமைச்சர் உரை

Natham
PattaTransfer Inauguration



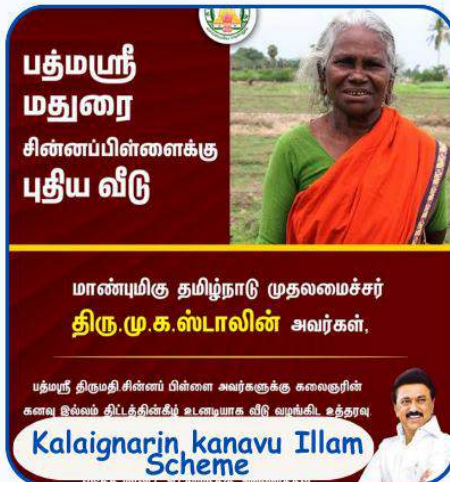
DL & RC - Smart card Dispatch Inauguration



PICME 3.0



e-trans' 24



பத்மஸ்ரீ
மதுரை
சின்னப்பிள்ளைக்கு
புதிய வீடு

மாண்புமிகு தமிழ்நாடு முதலமைச்சர்
திரு.மு.க.ஸ்டாலின் அவர்கள்,

பத்மஸ்ரீ திருமதி சின்னப் பிள்ளை அவர்களுக்கு கலையாசன
கனவு இல்லம் திட்டத்தின் கீழ் உடனடியாக வீடு வழங்கி, உத்தரவு

Kalaingarjan kanavu Illam
Scheme



Vigilance Awareness week Pledge



LLR application through CSC



Swachhta Pakhwada



Hindi Pakhwada

Photo Collage by:



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