E-Governance Maturity Framework

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About eGovernments Foundation

eGovernments Foundation is a non-profit, mission-driven organisation, founded in 2003, as a collective of world-class technologists, strategists, and policy professionals with an enduring commitment to solve India's societal challenges. eGov catalyses an ecosystem to co-create and deploy locally-relevant solutions that enhance quality of life and ease of doing business in India's towns and cities.

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Introduction

Over the past few decades, there has been a large shift in the role of government in society, and correspondingly in societal expectations of good governance. This has been accelerated by the spread of information technologies, which have had a transformational impact on the availability of information and speed of interaction in our daily lives.

The Government of India (GoI) has through the years recognized and adapted to these trends, seeking to drive growth and good governance through technology. GoI has also adopted technology to improve administrative functions, including the governance and delivery of services.

Looking at the history of technology-oriented reforms specifically in urban India, two major initiatives laid the foundation for digitization of Urban Local Bodies (ULB). In 1994, the (USAID-supported) Financial Institutions Reform and Expansion Program - Debt and Infrastructure (FIRE(D)) Program focused on creating computerised financial management, resource mobilization, and project development capacities[1]. It was followed a decade later by the Jawaharlal Nehru National Urban Renewal Mission (JNNURM)[2], which focussed on improving existing service levels in a financially sustainable manner.

Support for e-Governance continues to find a place in the Government of India's priorities. JNNURM's successor, the Atal Mission for Renewal and Urban Transformation (AMRUT), has mandated implementation of e-governance reforms as a condition for funding. Initiatives such as UIDAI, e-KYC, and UPI have further sought to incorporate digital methods into both government and private functioning in various fields.

Governments at every level across India have evolved new structures and processes to ensure greater utilization of scarce resources and improved responsiveness of governments to citizens and industry. Some key examples are the emergence of "single window" application processes for various industries, the creation of internet-based channels for seeking and receiving applications or communicating with government entities, and the leveraging of technology to reform and streamline processes such as Direct Benefit Transfers (linked to Aadhar)[3], Passport e-Seva[4], and corporate reporting (through MCA21)[5].

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[1] Compendium of Good Practices on Urban Reforms in Indian CIties from Peer Experience and Reflective Learning (PEARL) series prepared by the National Institute of Urban Affairs (NIUA)
http://pearl.niua.org/sites/default/files/GP-IN5_REFORMS.pdf

[2] Ibid

[3] https://uidai.gov.in/contact-support/have-any-question/308-faqs/direct-benefit-transfer-dbt.html

[4] https://portal1.passportindia.gov.in/AppOnlineProject/welcomeLink

[5] http://mca21.gov.in/mcafoportal/showdirectorMasterData.do

At the level of the ULB itself, large metropolitan cities such as Mumbai, Bangalore, Chennai, and Delhi have pioneered the integration of technology into local governance. Many other cities and towns, however, are yet to incorporate technology into their own processes; of India's more than 4000 ULBs, more than 80% lie in the "long tail of small cities"[6], where in many cases even basic record-keeping, applications, billing etc. are done manually, on paper registers and forms[7].

This whitepaper presents an example of an e-governance maturity framework that has been developed in order to account for these variations in levels of e-governance across cities and to provide the ability for them to develop a roadmap to achieve maturity. As the term suggests, **e-governance is the integration of Information Technology (IT) into the functioning of the ULB, especially with respect to the administration and delivery of services to citizens.** As the unit of analysis in this framework is the ULB, it is more precisely an urban e-governance maturity framework.

At its core, e-governance is about augmenting the capacity of ULB employees, improving efficiency by streamlining processes, enabling data-driven performance management and decision-making, and simplifying communication between citizens and local governments (and between entities within government as well). An urban e-governance maturity framework will thus help ULBs understand where they are in this process of digitisation, automation, and simplification, and plan their next steps in this journey, especially for the long tail of small cities.

We believe such a maturity framework can play a central role in driving widespread and decentralised development in India. Urban governance is a complex subject; e-governance holds the promise of simplifying its performance for individual employees and departments, both by automating some of the more mechanical aspects of the work and by enabling the more complex tasks to be broken down into more manageable ones.

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[6] ULBs are divided into three tiers based on population.
- Tier I ULBs have populations above 10 lakh (1 million), and are usually designated municipal corporations.
- Tier II ULBs have populations between 1 and 10 lakh, and are usually designated municipal councils (as a result of which these cities are sometimes known as "council towns").
- Tier III ULBs have populations below 1 lakh, and are usually designated Nagar Panchayats. The smallest Nagar Panchayats may have as few as 10,000 residents.

[7] The financial and human resources of a ULB tend to correspond closely to its size. While almost no ULB in India functions at complete staffing capacity, Municipal Corporations still tend to be the best resourced; even where they are short on staff, they may have the financial wherewithal to contract out functions. These cities tend to be state capitals, or otherwise have commercial significance; as a result, political leadership is also likely to prioritise their development. Conversely, Nagar Panchayats - which we are calling "small cities" for ease of reference - face significant shortages of both personnel and funding.

Note on Terminology

For the purposes of this whitepaper, we refer to all entities as falling at two levels: departments and functional units.

● Department: A city is run by various local and parastatal bodies, each of which is responsible for specific domains or functions. At the highest level, we describe such entities as Departments. Examples include Municipality, Fire Service, Police etc.

● Function: Within a Department, further distribution of responsibilities takes place, with various 'Functions' under the department taking on specific responsibilities. For instance, within the Municipality Department, there can be Functions responsible for property tax, others for civil works, others for finance, and so on.

● Urban Local Body (ULB): This is the official term for the municipal governance body of a city or town in India. The 74th Constitutional Amendment creates three categories of ULBs, depending on the population of the city or town - Mahanagar Palika (Municipal Corporation), Nagar Parishad (Municipal Council) and Nagar Panchayat (Notified Area Council or City Council). In this whitepaper, the term "ULB" is synonymous with "Municipal Department", and is our preferred term for a city government.

The organisation of domains and responsibilities between local and parastatal bodies varies from state to state, and between cities within a given state.

In practice, a given domain or function may fall under the ULB, or under another body; such an entity may be termed a board, company, corporation, nigam, etc.

In turn, functions under such an entity may themselves be termed bureaus, divisions, agencies, etc.; to add to the confusion, they may even be termed departments.

For instance, in some cities, there may be a water and sewerage board, which is a department responsible for water and sewerage services. In other cities, water and sewerage may be functional units within the ULB. This unit may be called the "water and sewerage department", even though it is - in terms of this paper - a functional unit and not a department.

Rather than trying to standardise this inconsistent taxonomy, we will use the terms ULB / Municipality Department and Functional Unit throughout this whitepaper, whatever the corresponding entity may be called in practice in any given city or state. We apologise to readers who may be used to seeing different terms used to describe these entities.
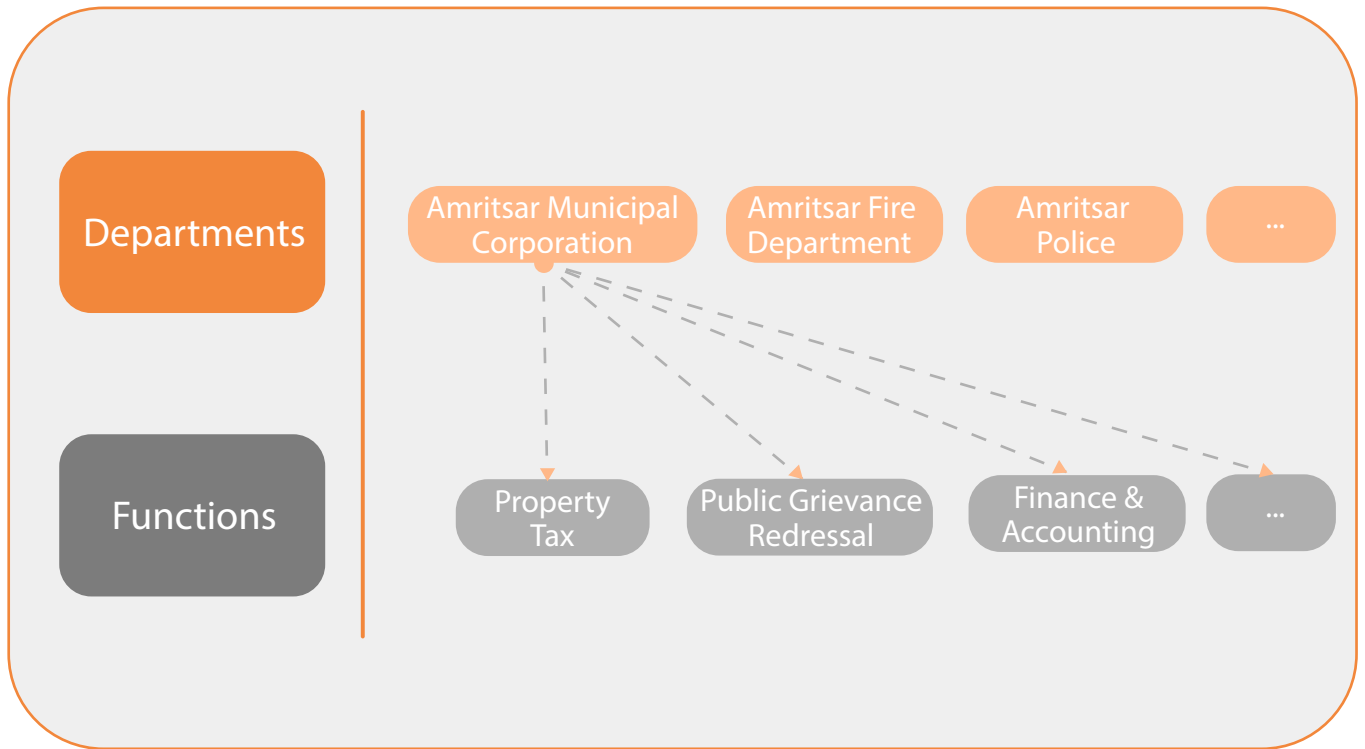
Figure1: Illustration: Departments and Functions for the city of Amritsar, Punjab

The e-Governance Lifecycle

Cities are large and complex ecosystems. In India, many cities are currently in an exciting phase of digital transformation, which combines a move from paper-and-pen processes to electronic ones with an effort to reform or reorganise existing processes. As ULBs move to systems that are both digital and more integrated, the improved data and visibility that results from this shift help illustrate the scale and potential of impact of the reform.

More specifically, benefits of digitization, if designed and implemented well. tend to see benefits accrue in waves:

- At the beginning, electronically supported processes tend to open up accesses for stakeholders and reduce information retrieval efforts. For example, intake and review of applications becomes faster with online channels. The new digital capabilities also open up multiple access channels for citizens to access services.

- The availability of data from digital capabilities affords enhanced efficiency and resolution of process bottlenecks. Cost of service delivery comes down because the employees productivity and effectiveness goes up. It also helps carefully planned outsourcing of activities/ processes

- Finally, there are changes in organisation structure and behaviour, as leaders and employees adjust to the new capabilities and ways of working, and a new culture takes hold in the organisation. Digitization also helps cooperation between various stakeholders and allows joint planning and execution of service delivery across functional and departmental silos.

For instance, if we consider the modernisation of passport centres in India:

- Creation of online forms and appointment booking made application submission easier, increasing the number of applications while reducing the time employees had to spend on each application.

- Between the creation of a standardised portal and reorganisation of the workflow - with each section of employees being assigned specific and relatively simple duties - the efficiency of each employee and each service centre improved.

- Passport offices were able to adopt new guarantees, such as 48-hour issuance or renewal, or dispensing with police verification in case of renewal of a valid passport. SLAs (Service Level Agreement) for various services were published, and passport service centres across the country began to compete for which could show best performance.

Passport issuance or renewal is a relatively narrow and well-defined task; while urban governance can be more complex, it can be broken into multiple specific and optimizable tasks as well. In order to describe, assess, and ensure movement from one phase to the next, we believe that a standardised e-governance maturity framework is required in the urban context.

Levers and Force Multipliers

The e-governance maturity framework is a holistic approach to governance at the urban level; following this framework, ULBs can define and achieve key governance outcomes in an efficient and replicable manner. As the term suggests, "e-governance" is the application of information technology to meet governance outcomes.

Because the framework studies the effects of e-governance, it is assumed that information technology (IT) is being leveraged by organisations (departments and functional units) where it is not being used to its full potential. Simultaneously, to achieve the potential series of waves of benefits described in the previous section, the application of IT cannot be simply to "lift and shift" existing (paper-based) processes to a computer screen; rather, there must be an integrated approach to organization structure and practices, with ability to align to newer structures as needed - which we describe as policy.

Conceptually, then, the benefits of e-governance can be described as the product of changes in **IT** and **Policy**. We think of these as "force multipliers" - each can enhance the impact of the other, and taken together, they enhance the impact of changes made along three tracks or "levers": **Citizen Centricity, People, and Processes**.

The framework further defines five levels of e-governance maturity across the three direct levers, thus providing a roadmap for any ULB attempting the journey from governance to e-governance. Each level represents the attainment of certain key milestones, from defining processes and attaining basic hygiene on transactions, up to IT-enabled comprehensive integration across departments, serving as a beacon for other ULBs.

The framework helps to determine the current status of a city, and to assess the progress made by it along each of the three levers. A policymaker or implementing officer can also use this assessment to map the potential for e-governance reforms and resulting improvements in the local government entity for which they are responsible.

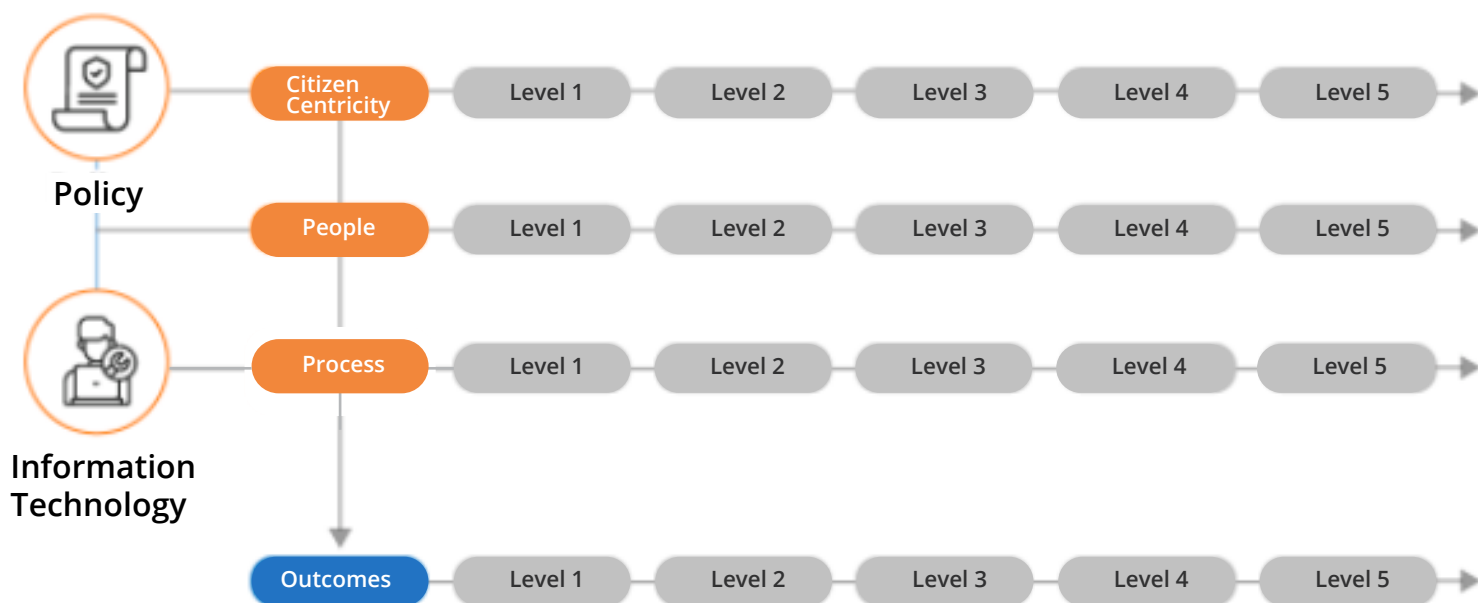## e-Governance Maturity Framework

Figure 2 - An illustration of the e-Governance Maturity Framework

Citizen Centricity

The intent of the 74th Constitutional Amendment is to decentralise and democratise local governance. A number of laws also contemplate public consultations and other forms of **participatory decision-making**. Solutions to local challenges have to be effective in a local context, which is best achieved through active participation of citizens in decision-making.

With the increasing adoption of digital technologies, citizens can be involved in the process of policy-making and government action at a larger scale than was possible before. Social media platforms already illustrate how citizens can contribute **suggestions, complaints, and feedback** on matters that affect or interest them.

While designing a digital system that can elicit and incorporate citizen participation, two specific aspects to consider are **inclusivity** - if particular groups in the population find it difficult to participate or be heard - and **closing the loop** - where the results of any collaborative or consultative activity are incorporated into the decision or action taken, and the same is conveyed to participants and the public at large. These aspects when supported by elements of transparency (such as availability of open data), user friendliness and participatory engagement can lead to an environment of positive shifts in quality of administrative decision making and citizen participation.

Setting objectives or targets for citizen-centricity and participation is a policy task, as is the creation of processes and rules for such engagement. IT can enhance communication between citizens and the ULB, and simplify collaboration by allowing multiple people to contribute to a given task simultaneously or asynchronously.

People

In the context of urban governance, "people" refers to ULB employees and administrators. The success or failure of any e-governance reform depends in part on identifying the right technology for that context, and partly on implementing it in an appropriate and sustainable way. In turn, both these outcomes depend in part on the capacity of people in the ULB or functional unit, and in part on their willingness to adopt the new way of work. The e-governance maturity framework considers the following characteristics of people within the ULB or functional unit:

● **Knowledge and technical skills:** this is a reflection of the person's training and level of experience, and can be understood as their ability to perform technical tasks within the suitable time period and to a suitable quality of output.

● **Communication and coordination skills:** this is a reflection of the person's own skills as well as the organisation's culture, and can be understood as their ability to convey ideas or issues clearly, set realistic expectations, and work well with other persons or teams.

● **Digital literacy:** this is a reflection of the person's comfort with the types of IT used (or proposed to be used) in their functional unit or department. It can be understood as their familiarity with using computers, mobile phones, and websites / applications.

● **Adaptability:** this is a reflection of the person's comfort with change, including their openness to the changes involved in e-governance reforms. This is important because one of the key tenets of e-governance is data-driven innovation, which means that the department or functional unit may change their processes periodically.

● **Leadership:** this is a reflection of the person's ability to influence others, including by setting goals and motivating teams to achieve them, identifying and resolving conflicts, giving feedback in ways that enable improvement, and anticipating and preparing for future needs or crises.

Defining the skills and knowledge needed for different roles is a policy task. IT can augment the capacity of people by automating certain tasks and simplifying others; it can also shorten the feedback loop, enabling people to learn and upskill themselves. With increasing acceptance of remote working, IT can also enable a department or functional unit to bring in specialised persons - or simply extra capacity - when needed, even if these persons are not physically present in that area.

Process

The core characteristics of a bureaucracy are hierarchy and process. Hierarchy refers to the organisation of people into superiors and subordinates, each with their own powers and responsibilities. Process refers to how a given task will flow from one person in a hierarchy to another, subject to various conditions, until it is either successfully completed or rejected. In simpler terms, a process is a description of "how" any task will get done.

A good process is well-articulated, measurable, and practical.

● Well-articulated processes help administrators, employees, and citizens alike:

● They make it clear what each person is responsible for doing, under what conditions, and in what period of time

● They make it easy to track whether each person is doing what they are responsible for, and if they are doing so in the appropriate time

● They make it easy to track where any gaps or breakdowns are taking place, and so to identify and resolve whatever issue may be leading to that breakdown

The result of a well-articulated process is thus a clear and observable outcome, which can be tracked through each step of the process, and improved upon either by enhancing the capacity of a given person / step, or by revising the workflow and steps themselves. IT is a force multiplier because it achieves the former, whereas the latter can be achieved by policy.

For instance, the ULB can adopt a "citizen charter", which defines service-level agreements (SLA) - the period of time in which a given complaint or service request will be resolved. In order to deliver the promised SLA, the relevant functional unit or units need to:

● Develop a process for classifying complaints / service requests, and routing each to the concerned functional unit.

● Identifying a frontline worker - who will actually respond and carry out the work needed - and assigning the work to them.

● Creating a feedback loop, i.e. how will confirmation of the work being done be provided by the frontline worker, and how will any such report be verified?

● Time limits and quality markers for each step, for each type of complaint or request.

● Data collected at each step, and how these will combine to create visibility of the entire process to administrators, employees, and citizens.

● Communication channels and templates for each step.

Measurable processes allow tracking of key metrics - such as time, cost, effort, and output (quantity / quality) - at each step, whether or not all such data is in fact collected at each step in practice.

● This is useful for employees because it gives them guidance on how to perform their tasks, and a basis for being assessed as performing well or in need of improvement.

● It is useful for administrators, as it enables monitoring and management of the day-to-day workings of a given functional unit or department, without needing deep knowledge of that unit or department's work.

● It is useful for citizens because it sets expectations and creates predictability - they know that they will consistently receive a certain outcome in a defined period of time.

Practical processes, in the context of urban governance, are ones which take into account the realities of on-ground implementation. An overly detailed and rigid process will likely be impossible to follow, all the more so if the ULB lacks the capacity to do a specific task in the specified manner or to the specified quality. Detail must be balanced with discretion, and individuals at suitable levels must have the flexibility to modify or experiment.

The definition of processes is a policy task. IT can help by encoding processes into its operation, thus freeing any individual from needing to know the entire process; it also makes each step measurable, often without requiring any individual to take additional effort to measure or record data. If a process is well-articulated, low discretion, and low skill, it may well be automated at some point, freeing up scarce human resources to focus on tasks that require more skill or are inherently in need of human judgment.

Force Multipliers: IT and Policy

The framework assumes that policy and IT applied together will help a functional unit, department, or city move from lower to higher levels of maturity. As described above, the task of defining goals, processes, and rules is for policy; IT then enables simplification and automation of processes or tasks, augmentation of people, collaboration with citizens, and overall visibility, trackability, and feedback through data.

There is a second sense in which policy and IT interact: policy restrains the tendency for a ULB or department to adopt technology for its own sake, without sufficient attention to the changes in process, people, and citizen-centricity needed to make proper use of technology.

The simplest example of this is what we call "lift-and-shift": the replication of existing, paper-based processes on electronic systems. Another example is the creation of large IT infrastructures - such as data servers - at the ULB level, far exceeding the capacities needed. Policy is about threading the needle between these extremes - of using technology to drive and enable change, instead of treating it as an expenditure target / an end in itself.

Thirdly, technology - or more precisely, the data flows that technology makes available - can be used to monitor progress towards policy goals, and to evaluate and adjust the goals themselves (in a more rigorous manner, based on better evidence than was available when the policy was initially formulated).
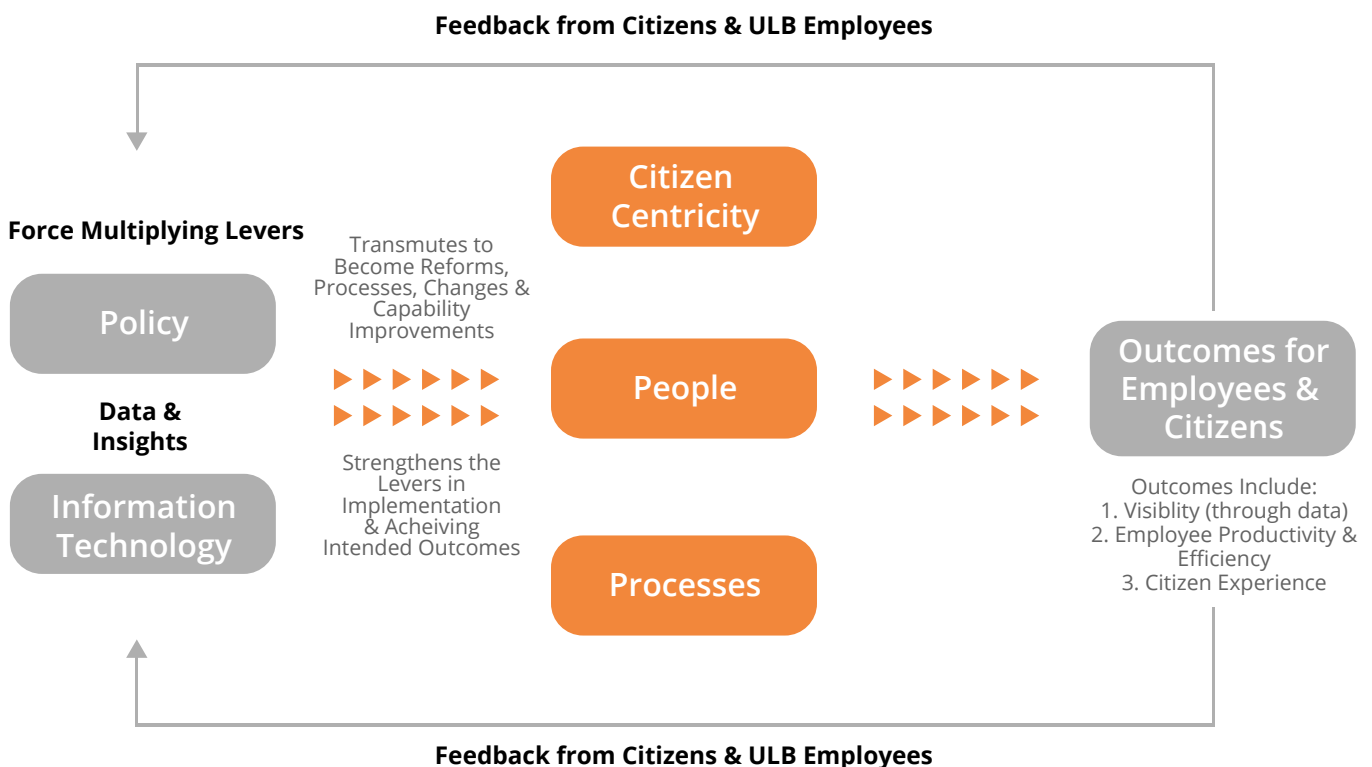
Feedback from Citizens & ULB Employees

Force Multiplying Levers

Policy

Transmutes to Become Reforms, Processes, Changes & Capability Improvements

Citizen Centricity

Data & Insights

People

Outcomes for Employees & Citizens

Information Technology

Strengthens the Levers in Implementation & Acheiving Intended Outcomes

Processes

Outcomes Include:
1. Visiblity (through data)
2. Employee Productivity & Efficiency
3. Citizen Experience

Feedback from Citizens & ULB Employees

Figure 3: Force Multipliers, Levers, and Outcomes

Illustration: Force Multipliers and Levers in Action

The following example illustrates how Policy and IT can power the e-governance journey:

● A policy reform to make welfare distribution more effective: citizen charter commits to deliver the welfare amount to beneficiaries no later than the 7th day of each month.

● This is a substantial and recurring commitment. Standard operating procedures have to be defined to ensure it can be met.

● Assume two major bottlenecks identified are:

 - calculation of benefits

 - printing and distribution of cheques

● To address these bottlenecks, the following objectives are defined:

  - Calculation & confirmation of amount to be completed by the 2nd day of the month

  - Enablement of direct beneficiary transfer (DBT) instead of cheque distribution

● This means a bank account must be on record for each beneficiary - a complex task, given the larger context of financial exclusion and illiteracy. Hence, the welfare function has to work with IT and Outreach / Marketing / Financial Inclusion teams, to identify:

  - Where data gaps exist, so that eligible beneficiaries are not excluded

  - How to reach out to beneficiaries to collect information on bank accounts and to influence those who do not yet have bank accounts to get one

  - Phased targets to move from cheques to electronic transfer, so that beneficiaries who still lack or refuse to operate bank accounts are not excluded

● Progress can be mapped by creating a dashboard, which tracks all eligible beneficiaries, how many have bank accounts, how many are willing to accept DBT, etc. Processes can also be defined for banks to report failed transfers or accounts that remain inactive.

● People - both in the department, at banks, and possibly in the field - must be trained to use the new system. They should be guided by a process on how to reach out to and interact with citizens, how to collect feedback, and how to offer options during the transition from cheques to electronic transfers.

● Citizen feedback is critical, as exclusion is to be avoided at all costs. Citizen feedback may lead to modifications in goals or processes, or even reversal of the reform itself.

The policy goal is thus transformed into processes, people are trained on those processes, and they are implemented in a citizen-centric manner, optimised for no exclusion. IT enables both the processes and the feedback, and monitoring of the entire reform.

Five Levels of e-Governance Maturity

Broadly, the maturity assessment of the ULB in consideration falls into 3 groups:

Levels 1-2 focus on the function. These levels lay the foundation of e-governance. The functional unit moves from building a digital database post-facto (i.e. after conducting their duties manually / using paper-based tools and processes) - at Level 1 - to a digital way of transacting with citizens and other stakeholders at Level 2. This can be described as '**transactional hygiene'**, which underpins all further progress: the completeness and accuracy of data generated by the system enables further improvements and integration.

Level 3 can be said to be a watershed level. Multiple functions in a department integrate with each other, providing a common view / interface to stakeholders, and bringing efficiency and comprehensiveness in department planning and operations. At this level, the function of the Department seamlessly share information and have integrated processes. This allows stakeholders to view the **department as a whole**, use the data from transactions to inform decision-making, and expect to work with a single, responsive interface, as the department functions efficiently / effectively as an organisation with smooth distribution and transition of tasks to meet the specific goal or outcome relevant to a given interaction.

Levels 4-5 assess a department's effectiveness in participating in the city ecosystem with other departments. This is also where we can begin to see convergence of different policy areas, aiming for convenience for the citizens. Reciprocally, citizens are also encouraged to engage and participate in the decision-making process of utilizing city's funds. The vision of the last level is to create a '**one city experience**' - cutting across multiple departments, all accessible through a single interface (not necessarily digital), and through multiple channels - and a unified budget that can be deployed to the needs of the city, ideally as identified through a participatory budgeting and planning process.

The advantage of arranging the levels in this manner is that as a ULB achieves one level, the subsequent level becomes its de facto target for further improvement.

5 Leadership

4 Advanced Applications

3 Integrations

2 Digitally-Enabled Operations

1 Manual Operations

Figure 4 - The Five Levels of e-Governance Maturity

At **Level 1 (Manual Operations)**, digital records may exist; however, these are entered by hand, usually with some lag between the task being done and the data being recorded.

- ULB employees use manual or semi-automated processes to conduct their duties.

- Administrators lack real-time visibility into the operations of each function - they must talk to respective unit leaders to understand the present situation of the unit.

- Citizens typically have to physically visit a ULB office, carrying paper records of their own, in order to receive any service; they fill paper forms, and cannot receive real-time / on-demand status information about their requests except by visiting the office.

- The recording, retrieval, sorting / analysis, and reporting of data is a time-consuming, high-effort task, on which ULB employees and administrators spend many hours.

- The online presence for the function (if made available) is limited to static information - like list of offices, list of services and functions, forms to be downloaded etc.

At **Level 2 (Digitally-Enabled Operations)**, the Department introduces basic automation in the functional units to conduct transactions with relevant workflows, and manual processes are reduced or eliminated.

- Employees of each function perform their tasks using the IT-enabled system. Manual or post-hoc data entry is reduced to a minimum, with the goal of eliminating it entirely.

- Administrators can look at online reports/ dashboards to assess performance of service provisions, processes and guide/set priorities for the functional unit teams.

- Citizens are offered digital access to services - i.e. they can file service requests online, potentially across multiple channels, as well as in person. They can track the status of these requests online, and escalate or give feedback to the ULB.

- Transactional hygiene makes data analysis and reporting far simpler than at level 1; over a period of time, the data becomes more complete and representative, and can be used not just for performance monitoring but planning and reconfiguration.

This is the first critical step in the maturity journey: it sets expectations of transactional hygiene through digital means on the one hand, and builds trust in data from the system on the other.

At **Level 3 (Integration)**, the focus shifts to the Department as a whole, where it (the Department/ULB) begins identifying areas where technology can be used to make improvements beyond basic transaction tracking and process efficiency. The Department develops the ability to view the impact of different programs on the performance of various operations across the function. The Department also ensures that different programs systematically deliver on the promise and that upstream and downstream processes are impacted positively.

● At this level, the Department tracks performance effectively and actively identifies opportunities for restructuring operations for better efficiency and outcomes, for example - creating common field teams for different functional units.

● The Department also brings more focus on capability improvement of its team (data savviness, informed decision making, collaborative working, vendor management, contract management and more) and makes decisions on outsourcing smartly to achieve goals.
The ULB employees can coordinate across function if needed, and have achieved a certain level of comfort with digital systems and tools.

● Administrators can get a real-time view of the entire ULB, across multiple function, and engage in more advanced data-based operations - e.g. anticipate and plan for waterlogging in the monsoon, or identify 'black spots' for waste or drainage - based on patterns in public grievance data - for extra attention.

● Citizen experience and trust become explicit goals, and the various interfaces reflect this priority. They can easily find the information they need - for example, details of all services, application status etc - from the existing and new interfaces including ULB website/portal and/or mobile app and/or chatbot. Ideally, they can see a real-time or near-real-time view through public dashboards, and contact the ULB with ideas and suggestions of their own. Integrating data from multiple function means that the ULB has moved from incorporating IT into "business-as-usual" functioning to exploring ways that IT can make service delivery more effective and reliable.

● One illustration of Level 3 functioning is the adoption of integrated billing in Andhra Pradesh - citizens used to receive multiple, printed bills for property tax, water charges, sewage charges etc. Once ULBs in the state reached this level of e-governance maturity, they could combine those workflows and send citizens a single, electronic bill. As both checking and paying the bill was simpler - and the amount itself was more substantial - the rate of bill payment increased, without the ULB having to incur expenses on enforcement.

At **Level 4 (Advanced Applications)**, the ULB seeks to deploy more advanced technology and collaborative practices to enhance its capabilities.

● Administrators are now able to look beyond what is and plan for what might be, or what they want to create.

● The city is generating enough reliable data to attempt to create real-time decision support systems.

● Department Heads can begin running experiments and pilots to compare different processes or interventions.

● Reliable operational and revenue data can enable the ULB to seek credit ratings, and to float municipal bonds / raise capital in the market for infrastructural needs.

● Citizen expectations shift, as multi-channel and on-demand access becomes the norm, and more avenues for participatory planning and decision-making are introduced.

● Department employees can benefit from augmentation, ranging from capabilities to proactively plan projects and execute coordination amongst departments, up to more advanced systems that incorporate insights from behavioural science to make the employees healthier and more productive.

● Common definitions between the Departments emerge; they also begin to use common city wide nomenclature. Other elements of city-wide coordination are also standardised such as usage of common base maps and intra-city boundaries.

● The ULB also begins integrating with other departments operating in the city, seeking to replicate the gains in administrative efficiency and citizen ease achieved at a city-wide level.

The capital city of Mozambique, Maputo launched the Open Data Roadmap initiative in 2017 to improve transparency and accountability through open data. Several apps have been developed towards a more citizen-centred, data-driven and transparent governance. The SISCod app helps to reduce the risk of disputes over land titles by making land records held by the municipality more accessible. Another app, Imp+, allows city taxes to be collected electronically to minimize corruption and arbitrariness

This is a simple use of digital capacity for e-governance and urban planning, for attracting private investments to provide basic urban services and for investments in manufacturing and other industries. The Open Data Roadmap initiative is being scaled up in Mozambique to include other cities and rural communities. Over a period of time, as this pipeline of initiatives are integrated, they can provide reliability to data being generated by the city and enhance the quality of decision making focused on improving quality of life for citizens[8].

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[8] http://www3.weforum.org/docs/WEF_Smart_at_Scale_Cities_to_Watch_25_Case_Studies_2020.pdf

At **Level 5 (Leadership)**, the city has achieved a 'one city' experience for citizens, with active integration and collaboration across departments.

- ULB employees are digitally-proficient and high-skilled professionals; they enjoy a high status among their peers, and are deeply embedded into the social networks of the areas where they live, creating a positive feedback cycle for hyper-local development.
City leaders - including the ULB administrator and administrators of other departments - explore innovative and future-minded ways to improve the city and the experience of its residents.

- Citizen-centricity is core to all functions and decisions. Leadership and planning are both informed by data and designed to include citizen perspectives; decentralisation can proceed to a hyper-local level, with different wards or localities developing their own systems and initiatives.

- Open data practices are the norm, and entrepreneurs and researchers help the city to understand itself better and innovate in thus-far unforeseen ways. The city functions as an example for other government agencies, and for other cities on a global level.

- Estonia has been referred to as the most advanced digital society in the world. The initiative, e-Estonia has consists of a few core building blocks around e-governance, e-identity, interoperability services, security and safety, healthcare, mobility, business and finance, and education and research, which provides the entire of actors "flexibility and the ability to integrate its different parts, while improving e-services and allowing government systems to grow.[9]"

[9] https://e-estonia.com/solutions/

The e-Governance Maturity Matrix (3x5)

Levers	Level 1	Level 2	Level 3	Level 4	Level 5
	Manual Operations	**Awareness**	**Integration**	**Advanced Application**	**Leadership**
Processes	Most processes are manual; some data may be digitised, however, this is post-facto data entry, often with significant delays between the task and data entry.	**Transactional Discipline** - building data integrity in transactions, incorporating review cadence, capturing employee feedback.	**Whole of Department** process integration, defining common data standards and metrics, creating integrated tracking mechanisms, deriving new insights.	**Integrating Multiple Departments** - new processes, goals and metrics are defined for collaboration beyond the ULB / with multiple departments.	**One City** - visibility into entire city from transactional data, planning includes pilots / projections, common goals with greater flexibility on methods, cross-leverage of resources
People	Existing levels of domain, communication, and leadership skills can vary; digital fluency generally low.	**Change management with focus on transactional hygiene** - a core team to be identified which would ensure a clear vision from leadership with budget lines and policies; it would also ensure appropriate training to employees and encourage IT use in processes.	**Developing a clear view of the entire department** - employees and administrators have broad comfort with digital systems and dashboards for performance management, planning, and skill enhancement /	**Cross-department collaboration and growth** - deciding common goals with other departments, including with inputs from citizens; creating custom roles and flexible teams.	**Designing for the city** - across departments, employees are skilled and feel empowered to explore options for innovative, participatory, and hyper-local development.
Citizen Centricity	**Sharing of basic information with citizens** i.e. forms, notifications, circulars etc., including through ULB website if one exists. Mostly one-way communication, i.e. no form submission, updates, or dashboards.	**Enabling access to Services / information through multiple channels** including website, mobile app, chatbot, helpline, service centre etc. (with common backend for all channels). Citizen can receive live / on-demand status update through mobile or website.	**Increasing transparency by sharing more information** (for example through dashboards) and initiating avenues to listen to citizen's voices - feedback, publishing RTIs etc. Single window for Citizen Services across entire ULB.	**Taking initiatives to build trust such as open data practices** - proactively seeking citizen feedback and establishing inter-departmental linkages to strengthen citizen trust.	**Enable free-flow interaction** between citizens and ULB such as volunteering, involvement in local decision-making, and participatory policy planning, budgeting, etc.

Using the Framework

This framework is intended to be a practical tool. The State/ ULB can use this tool to clearly define specific goals they want and create metrics and methods to achieve it.This whitepaper provides a high-level description of the levers, the levels, and the logic for organising them into a matrix; for each lever and level, a more technical definition can also be attempted, based on the specific ULB or department to which the framework is being applied.

Even short of creating this specifical technical guidance, we believe the e-governance maturity framework can help administrators and planners in a number of contexts. It can be used to create shared expectations of outcomes / desired progress, for instance, in the context of:

- **Planning Governance Journey:** When an e-governance initiative is being launched, the framework can help city administrators, technology providers, and implementation partners design a roadmap for the intervention, with specific outcomes identified, and a clear understanding of the contingencies / dependencies between IT and the other leveers. This will ensure that the outcomes targeted from the e-governance reform go beyond just integrating software into current methods.

- **Implementation Plans:** As functions of an urban department mature over a period of time, implementation plans and targets can be developed against each of these levers, based on the assessed and target level of e-governance for that department / city.

- **Building on Initial Automation:** The framework can help the city and administrators to plan the continuity of their e-governance efforts from transactional hygiene to a true 'one city' experience. It can be used to set benchmarks for not just existing but anticipated use as well, making sure that the systems created are robust even as they are scaled up in response to success.

- **Annexure to RFP (Request for Proposal):** The framework can be used as an annexure to RFPs issued by the local governments for e-governance projects, where it will serve as a method for defining successful implementation of the project. It can also be used for multi-year RFPs or phased projects, to ensure that goals in each phase are aligned with the long-term vision, and that each phase builds on the previous in predictable ways.

Appendix 1: On Measurement

The e-governance maturity framework's primary aim is to help administrators and ULBs to assess existing levels of e-governance, and determine a roadmap for improvement. Both of these activities will require certain metrics or measurement frameworks.

In this framework, we use a combination of qualitative and quantitative measures for individual ULB assessment. These measures can be further classified into input, output, and outcomes measures. Using property tax as an example again:

● Input Measures - describe the amount of resources identified and utilized i.e % increase in Property count in the ULB.

● Output Measures - describe what was produced or services delivered i.e. % increase in Demand (number of properties as well as value).

● Outcome Measures - describe the extent to which impact of the function was delivered i.e. % increase in demand collected.

As a department moves towards attaining maturity, it needs to measure and evaluate its performance against targets to remain on track. It can use any of the following:

● Key Target Measures: A department can decide for itself the targets it aims to achieve in a given phase. These are directly related to the functions of the department.
●
Performance Measures: Departments make an effort around improving the performance of the employees to improve overall project performance. At different stages of maturity, pre-determined measures pertaining to employee performance corresponding to the needs of the program/phase can be used as a proxy.

● Municipal Indices: The department can use already stipulated framework and indices to measure performance of the program. For instance, the Government of India has released a Municipal Performance Index (MPI) for the ULBs in India to measure their effectiveness and efficiency.

● Mission-Level Targeted Compliance: Each mission/scheme of the government is tied to certain metrics of success, which can be used by the relevant department as a proxy at their scale.

Appendix 2: Illustration - Applying the Maturity Framework for Property Tax

Property Tax (PT) is the principal source of revenue for local governments in many developed and developing countries. The interest in property tax reforms shown by many international donors and national governments is reflective of its importance in enabling effective and capable local administration. Despite many studies and attempts to reform it, the property tax system in India continues to function at low levels of effectiveness[10]. India's property tax-to-GDP ratio, at 0.48%, is one of the lowest amongst G-20 countries[11].

Across all categories of revenue sources, PT is the only major source of inflow that can be controlled by the ULB itself. ULBs are otherwise dependent on grants from central and state governments for resources to manage their expenses. The report of the 15th Finance Commission recommends that states notify floor rates for property tax, and then show improvement in collections consistent with the state's own GSDP growth rate, as a condition for ULBs to be eligible for any grants from 2021-22.

With India's PT-to-GDP ratio at 0.48%, on average only 37% of the tax demanded is collected. Even in a major city like Mumbai, with relatively high administrative capacity, this figure remains as low as 55%[12]. Even a moderate increment to these numbers will be sufficient to support ULBs to expand developmental activities, and meet the performance conditions proposed by the 15th Finance Commission.

This creates an opportunity for both states and ULBs to prepare policies and implementation plans for the next few years to enhance revenue collection from Property Tax. In the following passages, we will use PT as an example to illustrate the application of the framework.

Citizen-Centricity

The ULBs should start off by determining the channels to make services available through and plan corresponding messaging to citizens to enthuse them to avail of the newer channels. As the ULB gradually strengthens its capabilities with new channels of service delivery and improves its response time and quality, it can capture the promise of providing ease to the citizens for all services in the citizen charter.

The ULB eventually is able to provide proactive communications to the citizens on the status of their transactions, applications etc. Citizens also receive access to simpler ways of executing transactions on self serve mode - such as getting past bills, receipts - reducing dependence on visiting the ULB office. The ULB also actively collects citizen feedback.

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[10] https://egov.org.in/wp-content/uploads/2021/03/PT_Whitepapaer.pdf

[11] http://www.idfcinstitute.org/site/assets/files/15116/reforming_urban_india_idfc_institute.pdf

[12] https://www.nipfp.org.in/media/medialibrary/2013/04/wp06_nipfp_041.pdf

Over a period of time, the ULB should be enhancing access to all citizens. building trust with the citizen and community and encouraging participation in policy changes and governance initiatives. The citizen should also be invited, through both online and offline public forums, to participate and contribute to city policy such as PT rates and revision plans. Ultimately, the aim of embedding citizen participation in all critical decisions of the city should be pursued, including roles in steering and other decision-making committees and processes.

Andhra Pradesh has provided multiple access points to citizens to request service, report grievances and update information such as website, application and Citizen Service Centres (CSC). This allows for both vaster coverage and collection. These efforts are supported by regular notifications to citizens on billing period, rebate period expiry, penalty kick-ins and extensions. Some reform interventions are also made to allow partial payments, advance payments and collection of dues.

People

To start off, the ULB employees should not only be trained to follow the documented processes but trained on improved processes and usage of software for conducting the transactions and other functions. These should later be aligned with how the software is designed to complement the execution.

Another important component of the successful implementation of an e-governance program is the set-up of the teams and organizational structure. Three groups - leadership, core and field teams - should be formed and arranged in a hierarchy of responsibilities. The leadership team will set-up the program and provide the overall direction, the core team will be responsible to drive the program and the field team will be held accountable for execution.

In phases, the leadership team should create linkages with other programs and formulate policies for different departments to work together to propel overall city growth and sustainability. The core team should clearly articulate goals and augment field team capabilities and drive collaboration with other departments/functional units. The field team should execute the laid processes and program.

In Andhra Pradesh, a clear structure of roles and responsibilities has emerged to drive the e-governance program for PT. A state-level team guides the program and creates linkages with other ongoing programs, which are executed by field-level teams at each ULB. The proper training of employees on the processes and using the IT infrastructure has also sped the implementation.

Process

One of the major challenges that PT systems face is the loosely defined processes of enumeration, valuation, assessment, collection and other PT processes. In addition, isolated and incomplete databases of property records add to the strain of an already complicated policy-making process.

When defining the processes for building or redesigning the PT system, considerations for citizen could include:

● Does the municipal record of the property detail reflect up to date and comprehensive information about the property - namely, dimension, usage, occupancy etc - which determines the Property Tax for the same?

● Does the citizen know how much taxes he has to pay? And does he trust the amount demanded from him?

● Does he get intimation of the dues in a timely manner?

● What are things that we have done to make tax paying experience easy? Is it good enough compared to the best payment experience on a retail site like a Bank or an e-commerce website?

● Are we compliant with the current ACTS in the state?

● Is our database of city properties in current form reliable? What should we do to improve the quality of the data?

● Is the classifications of Property aligned to other municipal upstream / downstream functions like Building Plan / Water Connection / Sewerage connection etc.

● Do we have a digitally unique set of Localities / Mohalla in the cIty and and its mapping towards/ zones correctly established for? Are the zones defined for computing taxes clear to avoid mistakes

The ULBs need to start by establishing clear rules and processes and consolidating all records of properties and collections at a single place to reap any substantial rewards in the future. Subsequently, these efforts need to be digitised to have real-time visibility and induce an audit trail.

Once the digitization effort is completed and stability in collections is achieved, the ULB can begin to plan advancements towards Level 3 and 4 where possibilities of vertical and horizontal integrations with other departments and offices should be explored and implemented. Simultaneously, discipline should be enforced on all employees to align on the processes and efforts made to maintain and even enhance the quality of data collected. The ULB can continue to make efforts on collecting new data through GIS, making new processes and data integrations to generate more value as a sum of the individual parts. Similarly, the city can eventually plan efforts at a city-level rather than at departments by executing processes in a coordinated manner; it can also create common windows for application and clearance of all services.

Andhra Pradesh created a common property registry using legacy data, new (manually-entered) data, and citizen request data, integrated with field survey records and GIS survey records. The new data registry is being used for Building Plan Approvals, Property Registration, GIS Surveys, and Water and Sewerage Charges. The exercise resulted in a 30% increase in coverage and consolidation of the bill generated for Property Tax and Water and Sewerage charges for the citizens.

	Citizen Centricity	People	Process	Information Technology
Level 1	- Services are largely delivered in ULB premises - Online is limited to basics static information	- Employees are trained on routine manual steps based on norms than documented processes	- Processes are loosely defined - Records in physical ledgers and/or receipt books of individual property tax collectors.	- Basic website - Basic Office tools like emails, spreadsheet for report presentation
Level 2	- Clear articulation of promise in the citizen character - Establishing new access channels - Self assesment enablement	- Leadership sets up the PT program - Core team drives efforts and establishes a culture of review cadence - Fields team is trained on processes & execute	- Properties are classified clearly per standard - Processes are clearly defined - Records converted to digital form - Multiple channel dashboards	- All property records are in system - All PT transactions happen through the system - Demand is system generated in the first month of the year - Enabling Channels for Citizens
Level 3	- Increasing ease of access - value and channels - Trust Building with Citizens - Compelling Communications for Value Addition	- Leadership creates linkages with ongoing programs - Core team articulates goals and augments capiblities - Fields team works adapts to new processes and gives feedback	- Comprehensive Processes designed - Upstream and Downstream Integration - Expansions and ensuring quality of data - Enforcement of Descipline	- Integrated bills - Integration with other processes - Enabling Data Corrections to prevent leakages - Support Quality Audits Lorem ipsum dolor sit amet,
Level 4	- Improving citizen trust - Encouraging citizen participation through surveys and involvement in PT rate revision plans	- Leadership creates policies to work with other departments - Core team collaborates across departments to drive outcomes - Field team works on strategy and laid out processes	- Comprehensive view of risk levels of defaulters - Enhanced process to embedd GIS - Process / Data integration with other departments	- Support & create scenario simulations - Enable Cross-departmental data sharing - Enable propery data lake. Leverage ML and AI
Level 5	- Strengthen participation through volunteering through policy formulation, and critical decision making around PT	- Leadership propels propery and other relevant programs - Core team collaborates with other depts to execute city programs - Field teams execute programs	- Redefine as city - level processes rather than department level - Single window clearance process - Single Integrated application - Execute process in coordinated manner	- Enable Single Window access to all PT and related services - Enable Cross departmental workflows - Enable process level alerts based on inferential AI engines

Figure 5: e-Governance Maturity Framework for Property Tax