Tools, Techniques and Skill Sets for an Era of Data Driven Governance

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Abstract

As most businesses in India and the world ride the big data wave in a bid towards more informed, data driven decision making, public services are yet to prepare themselves to maximize the benefits of the data revolution. This paper seeks to outline the state and usage of data in the planning and service delivery process in India, and the avenues that arise for application of new tools, techniques and skill sets by adopting an approach of data driven governance.

Since the turn of the 21st century, significant investments have been made in technology advancements in governance through Indian initiatives such as the National e-Governance Plan, Digital India and the Smart Cities Mission. Various platforms in the Information and Communication Technology(ICT) domain have seen a major thrust because of their potential role in speeding up flow of information. Almost every department of the Government of India now has a process of periodically capturing and reporting information and progress. However, the enabling role of technology in good governance has seen limited results, given that pen and paper surveys continue to be the norm and most planning departments across states continue to be largely reliant on the decennial census for household level data.

This paper builds a case for data driven governance to strengthen ICT based decision making processes for optimization of service delivery. The insights presented in the paper are built upon the on ground experiences of the Tata Trusts in implementing DELTA (Data Evaluation Learning Technology and Analysis), a technology enabled framework of micro-planning with a coverage of 17 lakh households in rural India. The process of managing and using data for decision-making has several intermediate steps including collection, prioritization, meaningful representation, updation, storage and interoperability of platforms. In order to leverage the transformational role of technology, it becomes imperative to have skilled manpower right from the grassroots, up to senior levels of the administration to collect, operate and leverage information and insights emanating from it, with an aim towards good governance. This is to be complemented by an inclusive and localized process of technology planning which truly captures the priorities of the people in a country as complex and diverse as India.

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1   Introduction

The world is witnessing a deluge of data today. With the vast amounts of data being generated by private and public sector entities, social media and the internet of things, the potential for harnessing and using data meaningfully for decision making is immense. Businesses worldwide are using this crowdsourced "digital nervous system" (Gates, 1999) to understand and target customers; while introducing efficiency and transparency in operations, using the power of data and analytics. The advent of big data has furthered the unprecedented growth of data sciences as a field, with advanced technologies such as usage of machine learning, predictive modelling, artificial intelligence and block-chains coming to the fore. According to the National Association of Software & Services(NASSCOM), India is amongst the world's top 10 big data markets with a valuation of USD 2 billion expected to grow multifold by 2025 to a staggering USD 16 billion (PTI, 2017).

The public sector, however, has been a late entrant in the sphere of technology enabled digital innovations, and is currently grappling with the challenges of technology perforations into all aspects of governance and management. For a country as diverse and complex as India, with nearly a fifth of the world's population, technology adoptions in governance have always had the potential to resolve critical challenges in public service delivery and improve interactions between the government and industry, while empowering citizens through their participation in governance exercises.

Decision making in public governance is essentially linked to efficient utilization of welfare funds in alignment with the people's needs and aspirations. It involves a significant quotient of decision making on the part of the administration, to prioritize and allocate funds meaningfully and efficiently. Data emerging from technology applications, and the handling of it, thereby plays a significant role in the process of doing so. In today's environment where data is the new oil, it is imperative that the Indian Government actively builds internal capacities to collect manage and analyse data in a manner that is swift, secure, error-free, meaningful and reflective of the diverse needs and aspirations of the people.

The paper is organized in the following manner: The next section describes the context and reviews the literature on participative planning, e-governance, the state of data and employment gaps in government. It is at this intersection that our study is situated. Section 3 describes the methodology adopted, which is the case study method and entails a detailed description of the DELTA framework developed by the Tata Trusts, based on its work across 4 districts to capture the needs and priorities of 1.5 million citizens involving technology, local youth and government leadership. Section 4 outlines the various phases of the DELTA process and the tools, techniques and skill sets that are important as a part of such an exercise. In section 5, we share our observations, findings and key recommendations on what it would take for the government to scale up such processes. Section 6 summarises and concludes the paper with some key insights on technology and employment in an era of data driven governance.

2   Context and Review of Literature

"Governance is a way of describing the links between the government and its broader environment – political, social and administrative (Ogra & Wellington, 2014)". They, therefore, describe "e-government" as consisting of electronic service delivery, electronic workflow, electronic voting and electronic productivity, whereas, "e-governance" constitutes electronic consultation, controllership, engagement and electronic societal guidance." For the purpose of this paper, the focus is on the key themes of electronic service delivery, consultation, engagement and societal guidance – the evolution of the concepts in the Indian context, investments made, therein, both on the technology and the skilling fronts, and the implementation challenges faced.

In the Approach Paper for the 12th Five Year Plan, the Planning Commission noted that government programmes needed a new architecture: greater localization, breakdown of silos, feedback from citizens, and mechanisms for learning and sharing of best practices. It also highlighted the need for "*greater devolution and empowerment in face of a strong demand from all sectors of society to improve implementation, accountability and service delivery*" (Planning-Commission, 2011). It will be worthwhile to note at this stage, that the philanthropic and donor community had a significant role to play in mainstreaming the ICT for Development(ICT4D) mandate in India, by way of developing frameworks for usage, dissemination and capacity building of government and civil society organizations. While the efforts of the donor community did well to mainstream the language of ICT4D, it met with little success in mainstreaming the concept at scale, because of the lack of convergences between ICT platforms and on ground socio technical infrastructure, thereby dissociating donors from their primary objective of empowering communities (Singh, 2013).

2.1   Participatory Planning and Local Self Governance in India

Let us now review some underlying aspects of planning and governance in India, and their evolution. "*The smallest territorial unit should be able to exercise effective control over its corporate life by means of a popularly elected panchayat*", cites the Objectives Section, Resolution of the Indian National Congress in 1947. The need for decentralization, as captured in the above statement, was captured in the Directive Principles of State Policy (Article 40), "*The state shall take steps to organize Village Panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government.*" (Constitution of India, 1991).

The vision of decentralization for effective governance was clearly missed in the first four decades after independence (1950 – 1990). This period was marked by a single political party being at the helm of governance, centralized allocation of resources, and state led programmes for investments in industry and infrastructure on one hand; and a marked bureaucratic system of controls and regulation, as remnants of the colonial era, on the other. Criticism of the same was first brought up in the Balwant Rai Mehta Committee Report (Mehta, 1957) on the review of the Community Development programme in the late 1950s, clearly stating that in the absence of democratic decentralization, no meaningful development could take place. Limited functions, resources and tenures crippled the functioning of elected panchayats and municipal governments, and elections were left to the mercy of fragmented political realities and instabilities.

The 64th Constitutional Amendment Bill (Constitution of India, 1991) in the late 1980s provided the first structured response to the Constitutional mandate on decentralization. This was adopted in the post Liberalization, Privatization and Globalization(LPG) era in 1992, as the 73rd and 74th Amendment to the Constitution of India. The constitutional mandate acknowledged that top down governance perpetuated exclusion of marginalized groups in the country including dalits, women and tribals; and, that good governance is a by-product of citizen's participation in democratic decision making. The structure for decentralization as provided in the 73rd and 74th amendment (Constitution of India, 1992) is characterized by:

- a fixed tenure of 5 years for elected representatives;
- a neutral body to assure free and fair elections in the shape of State Election Commission;
- a State Finance Commission, constituted every 5 years to recommend the principles governing the division of taxes, resources, fees etc. between the state and local governments;
- reservation of seats and offices in elected bodies for women (not less than one third); and for *dalits* and tribals;
- the entrustment of responsibilities for preparation of plans for economic development and social justice as well for their implementation, upon elected local governments the accountability of elected representatives in Panchayats to the Gram Sabhas

This mandate formed a crucial turning point in India's history of local self-governance (Kashyap, 1998), thereby aiming to convert elected Panchayats and Urban Local Bodies into fully empowered functional and financial units of administration, along the lines of the Preamble of the Indian Constitution, which seeks to form a government "of the people, by the people and for the people".

2.2 E-Governance and Local Self Governance – Implications and Realities
The success of the twin mandates of greater devolution and empowerment of local units of administration, and the thrust on e-governance, is dependent on people's capacities to execute relatively new processes. It involves engaging with a complex legacy of development planning, with both precision and an understanding of processes and technology (Fang, 2002). This can be elaborated on two fronts:

a. Alignment of available public resources with community needs and priorities, bridged by democratic bottom up decision making processes, in order to marrying the realities of citizen's participation, technology embedding, transparent and accountable governance and scheme linked public service delivery

b. Upskilling of government resources at various levels, to understand data and technology systems, and utilize it to converge service delivery efforts in a citizen centric manner.

Both of the above factors are essential to integrate implementation processes , break down silos and address the lack of integration of government applications and databases, low degrees of government process re-engineering and scope for leveraging emerging technologies such as mobile, cloud and internet of things to achieve transparent, effective governance (Guha & Chakraborti, 2014).

In 2015, recognizing the gaps in the ongoing National e-Governance Program (NeGP), the Government of India(GoI) launched the NeGP 2.0, calling it the e-Kranti platform. This was done under the aegis of the Digital India Initiative, a flagship programme of the GoI, with a vision to transform India into a digitally empowered society and knowledge economy. The Digital India Initiative mandates promotion of e-Governance through a centralized initiative to the extent possible, "to ensure citizen service orientation, interoperability of various Government applications and optimal utilization of ICT infrastructure and services, while adopting a decentralized model by giving flexibility to states to identify for inclusion additional state specific projects, relevant for their socio-economic needs".[4]

2.3 The State of Data in Decision Making in Public Governance

A significant part of data management has been taking place in a more rudimentary fashion – data on programmatic and financial fronts is collected manually, and digitized through data entry operators, eventually feeding into government Management Information Systems(MIS), for monitoring, reporting and decision making purposes. This has been the case for major schemes such as the Prime Minister's Awas Yojana(PMAY), National Rural Employment Guarantee Act, and the Janani Suraksha Yojana. The process involves a fair degree of manual interventions at multiple levels. The two cases which emerge:

a. Processes which are data enabled from the ground up – where data is collected using mobile and cloud based applications, and feeds into the decision support systems at different levels of administration.

b. Processes where manual to digital data entry is the modus operandi at an intermediate level, and thereby, forms the basis of the decision support systems thereafter.

At this stage, the state of data in public welfare decision making makes for an interesting exploration. Some insights which emerge, both on the <u>availability and quality of data</u>, which also helps contextualize the DELTA process later in the paper, are as below:

a. Data Availability
   - Non-availability of <u>real time, authentic, and relevant</u> data sets, especially demographic and historic data related to scheme progress. Where available, data requires extrapolation from NSSO or NFHS surveys. The only exhaustive dataset is the census, which is decennial.
   - Non-availability of <u>disaggregated, granular data</u> at the lower units of administration such as block and panchayat, and <u>at a household level</u> - the lowest unit of service delivery. Such data is often inconsistent where available, and hence unreliable.
   - Non-availability of <u>scheme specific demand data</u> especially for infrastructure centric schemes such as PMAY, SBM and NREGA at a disaggregated level; as is the case with the <u>details of finances demanded, allocated, expended and returned to the treasury</u>.

b. Data Quality

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[4] For further details please see http://digitalindia.gov.in/content/approach-and-methodology

Availability of standardized data sets across geographies is also a key challenge, making benchmarking a difficult proposition. This is attributed to lack of standard data formats to capture programmatic and financial data, leading to the case of missing data points, often critical for decision making. Else, there are variances in the definitions of data indicators, leading to inaccurate forms of reference.

c. Data Usage in Decentralized Planning Processes

Generation of community vetted Gram Panchayat Development Plans(GPDPs), which remain in place for 5 years, is expected to form the base layer of decentralized planning (as per the 73rd Amendment of the Constitution of India) in terms of needs assessment. The GPDPs, when aggregated at the district level, feed into the District Action Plans, which once approved, flow back through a similar channel down to the Panchayat level. As has been observed, such plans are often based on a non-scientific methodology, with the Gram Sabhas being conducted at a symbolic level. In the absence of real time, disaggregated, quality data on scheme progress, and people's needs and aspirations, the usage of data is minimal, next to negligible in the planning processes. This reduces the impact of the formulated plans at the last mile, eventually reducing the possible potential of decentralized units of administration.

2.4 Employment Gaps in Technology Adoption and Data Handling

One of the major challenge in implementing technology enabled solutions in the domain of ICT and e-governance in developing countries is the lack of human resources with appropriate skillsets within the Government (Khan et.al., 2010). Change management and up-skilling of existing government professionals, including bringing in fresh and complementary skillsets from the private sector is essential for successful adoption of e-governance initiatives (Sachdeva, 2008). Jobs related to government services are aspirational for the youth of India. At the same time, with the huge numbers of youth entering the workforce every year, it is important to skill them in relevant domains, if India is to reap its demographic dividend (Rajan, 2006). Hence there is a clear need to assess the technology related skilling requirements within the government and supplement this through formal and informal channels.

This is applicable across levels, right from data entry operators at the grass root level, up to decision makers at very senior levels of the administration including district collects, municipal commissioners, departments of planning, statistics, as well as ministries that are involved in the rolling out of government programs and services that interface with ICT systems.

When the National e-Governance Plan (NeGP) was formulated in 2006, dedicated efforts were outlined to capacitate government and private professionals linked to successful delivery of the NeGP. In 2008, the Capacity Building Scheme was approved – Phase 1 was implemented with an objective to build institutional capacity within government systems to effectively deliver services through e-governance

mechanisms The demand assessment for e-governance personnel for various government agencies was as outlined in Table 1.1. (NeGD figures).

In the spirit of decentralization, the capacity gap estimated in rural and urban local bodies came to 2,33,500+ professionals at Panchayats, Panchayat Samitis, Zila Panchayats, District Councils, Municipal Corporations, Municipalities and Nagar Panchayats.

A decade later, several learnings have come along. A snapshot of the achievements of Phase 1 have been outlined in Table 1.2(NeGD figures).

Table 1.1

S.No.	Domain of Governance	Estimated Figures
1	GOI Apex Bodies (like EC, CIC etc)	25 +
2	GOI Ministries (each ministry may	50 +
3	...rates in States / UTs State/ UT ((28+7) * 20)	...
4	Estimated Rural Local Bodies (Panchayats + Panchayat Samities + Zila Panchayat + District Councils)	230000+
5	Estimated Urban Local Bodies (Municipal Corporations + Municipalities + Nagar	3500+
6	Estimated Judicial Institutions (SC + HCs + District Courts + Quasi Judicial Bodies)	500 +
7	Estimated Education Institutions (Education Boards, Central Universities, State Universities, Deemed Universities, Institutions of Excellence excludes colleges)	500 +
8	Estimated PSUs (Central Government)	100+
9	Estimated PSUs (State Government) (28 * 20)	550+
10	Basic Infrastructure Projects (CSC, SWAN, SDC) (35* 3)	100+
11	Estimated Indian Missions Abroad	80 +
12	Estimated Government Hospitals	500+

Table 1.2

Sl No	Training Programme	No. Of Trainings		No. State /UT	No. of Participants	
	Project	Target	Achieved		Target	Achieved
1	Leadership Meet	35	32	26	1050	1787
2	SeMT/NeGD Orientation	25	09	34	625	384
3	Specialized Training (STeP)	270	290	33	6750	8361
4	Chief Information Officer Training (including 2 pilot)	10	10	30	250	219
5	Central Team Program	5	6	34	125	304
6	**Total**	**344**			**8800**	**11055**

With the advancement of technology, varying organizational maturity levels across the centre and states leading to variations in needs and aspirations, and the sheer scale of the country's e-governance requirements, an e-governance Competency Framework (NeGD, 2014(a)) was released as a toolkit under the Digital India Initiative (Phase 2). The implementation of the framework has been entrusted to the National e-Governance Division(NeGD) and is a comprehensive role based assessment framework covering critical roles such as Program & Change Management, Domain Experts, Knowledge & Content Management, Technical & Service Management, basis an overview of the role, desired experience,

proficiency, familiarity and awareness levels, primary and desirable professional skills, and relevant courses and certifications for up-skilling (NeGD, 2014b)..

Given this overall context of the need for participative planning, proliferation of e-governance measures, lack of data and relevant skill sets at a local level, our paper looks at the tools, techniques and skill sets required to enable data driven governance in India based on a series of pilots undertaken from 2015 to 2017 across four states.

3. Methodology

This paper presents a case study of the DELTA framework developed by the Tata Trusts, as part of a systematic effort to address the issues outlined above. Tata Trusts forayed into the world of data driven governance in 2015 – 16. The theory of change of the data driven governance work at the Trusts is based on two major premises:

a. Enabling better convergences within existing planning processes at the levels of the district administration and below, to improve scheme linked service delivery.

b. Operationalizing technology, community owned data management processes, and intensive capacity building of communities and the administration, to further the twin mandates of e-governance and decentralized planning.

The theory of change is being operationalized through the DELTA framework of microplanning, elaborated in the section below. This paper crystallises the ground experiences of the Tata Trusts in implementing DELTA with a coverage of 17 lakh households in rural India, and explains the various steps of a technology enabled framework of micro-planning which also highlights the skill gaps and employment potential in the domain of data driven governance.
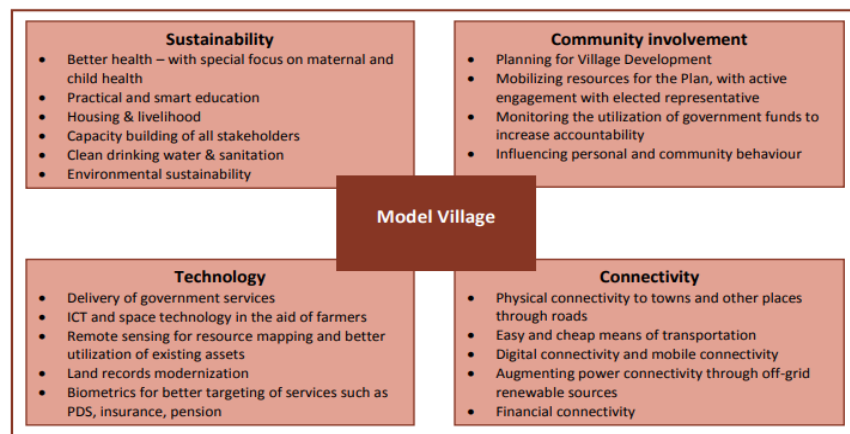
In this paper, we outline the detailed process of the DELTA framework based on interviews held with District Administration, local NGOs, Elected Representatives, Technology Partners, Volunteers contributing to the process at various levels and the Gram Panchayat Executive Officers to understand their roles, perspective and concerns so that they are aptly reflected. Visits were also made in order to observe and understand orientation programmes, training programmes, technology development and use as well as qualitative and quantitative data collection which include Participatory Rural Appraisals (PRA) and Focused Group Discussions (FGDs). The unique feature of the process of data collection with the help of tablet and customised dashboard which helps in preparing of relevant village development plan was also studied. Along with it the development of the process to track these plans was understood and appropriately incorporated to prepare Standard Operating Procedures (Trusts, 2016), which we draw from in this paper.

3.1 Genesis of DELTA (Data, Evaluation, Learning, Technology and Analysis)

The DELTA (Data, Evaluation, Learning, Technology & Analysis) framework of microplanning, was built as a tool to drive technology enabled ground up participatory planning. One of the triggers, was the Sansad Adarsh Gram Yojana (SAGY) programme, based on Mahatma Gandhi's vision of a model village, which was launched by the Government of India on 11th October 2014, under the aegis of the Ministry of Rural Development(MoRD). The focus was to leverage the leadership, capacity, commitment and energy of elected Members of Parliament (MPs) to leverage model Gram Panchayats with the mandate of community mobilization for participatory local level development, and of facilitating convergences between government, private and voluntary entities to deliver sustainable development outcomes.

In order to ensure large scale uptake of the scheme, the Government was keen on developing scientific frameworks which could enable MPs to identify the pulse of the identified villages, scan through the visible and perceived developmental gaps, map available financial resources against needs(existing central and state sponsored schemes, MP funds available to the tune of INR 5 cr every year, available Corporate Social Responsibility funds in the region, region specific funds such as the District Mineral Fund, and mobilize SHG and Gram Panchayats to raise loans in case of deficit funding), and drive effective delivery of government schemes and private initiatives, according to the local needs and aspirations of people.

The Tata Trusts began to deliberate along the lines of how data and participatory planning could be combined to support this process of prioritization. Four pilot projects were initiated in 4 different locations - Vijayawada (Rural) in Krishna district in Andhra Pradesh, Chandrapur district in Maharashtra, Balasore district in Orissa and West Singhbhum district in Jharkhand. In all these four constituencies the structure that was implemented had some salient features – a resource group consisting of District Administration, local NGOs, elected representatives and technology partners was formed to plan and implement the process, purposeful investment in the capacities of the local youth who then carried out this process, conducting of PRA tools in every village, census survey of each household was conducted through handheld device (tablets) leading to greater accuracy and reliability of data leading to preparations of evidence based plans. A tracking mechanism for monitoring of the implementation of these plans has also been prepared which enhances the credibility of these plans.

Sustainability
- Better health – with special focus on maternal and child health
- Practical and smart education
- Housing & livelihood
- Capacity building of all stakeholders
- Clean drinking water & sanitation
- Environmental sustainability

Community involvement
- Planning for Village Development
- Mobilizing resources for the Plan, with active engagement with elected representative
- Monitoring the utilization of government funds to increase accountability
- Influencing personal and community behaviour

Model Village

Technology
- Delivery of government services
- ICT and space technology in the aid of farmers
- Remote sensing for resource mapping and better utilization of existing assets
- Land records modernization
- Biometrics for better targeting of services such as PDS, insurance, pension

Connectivity
- Physical connectivity to towns and other places through roads
- Easy and cheap means of transportation
- Digital connectivity and mobile connectivity
- Augmenting power connectivity through off-grid renewable sources
- Financial connectivity

This led to the genesis of the DELTA framework, a tool to inform, impact and improve policy making. The DELTA framework is an intended effort to integrate new age technology with traditional Participatory Rural Appraisal (PRA)[5] methods (Chambers, 1994; Mukherjee, 1997), thereby creating a resource envelope for local development needs of rural communities, and supporting decision makers for targeted allocation and delivery of government schemes. This involved developing a systematic structure of participatory micro-planning in a two pronged manner:

✓ Collecting data from communities on their current socio-economic-demographic-cultural status, and information on their needs and aspirations; and complementing it with their assessment of service delivery from government institutions, and
✓ Collecting data from government service delivery institutions regarding status of funds available, status of infrastructure, scale and outreach figures and challenges in current service delivery.

The information is then analyzed, vetted and reproduced in a format which serves as a ready reckoner for decision makers with actionable information related to prioritization of developmental activities and domains, resource optimization and mapping, and technology enabled web platforms for monitoring and tracking of plans.

As a toolkit, DELTA has been designed in a manner which enables contextualization, as will be seen in the subsequent sections – the design and implementation of the toolkit maintains synergy with certain key developmental planning processes, while retaining the fluidity to be adapted to geographies with diverse socio, cultural, political and resource realities. The toolkits can be accessed at http://deltadriveindia.in/.

3.2 Stakeholders & Associated Roles
In order to comprehensively arrive at the outcomes outlined above, multiple partners with different technical and non-technical skill sets are required to be a part of the process. Following stakeholder classifications indicate different roles that need to be played for successful implementation of the process. A person or an agency can however choose to play multiple roles.

1. Leading Agency (LA): The person/ agency that initiates the process, invites other stakeholders on board, takes lead in strategizing and mobilizing resources for successful implementation of the process.

2. Execution Agency (EA): The person/ agency that is mandated / responsible to carry out the process under the said scheme and hence is responsible for mobilisation of resources and providing leadership to the process.

3. Technology Agency (TA): The agency that is responsible for developing the data collection tools/ questionnaires and to provide IT support for data collection, consolidation, analysis and report in the form of dashboards.

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[5] Robert Chambers, a key exponent of Rapid Rural Appraisals (RRAs) and Participatory Rural Appraisals (PRAs), says that the approach owes its genesis to the Freirian theme (referring to Paulo Freire's work on activist adult education methods), that the poor and exploited people can and should be enabled to analyse their own reality. PRA tools enable the rural poor to investigate, analyse and disseminate their own realities.

4. Implementation Agency (IA): The agency that is responsible for networking in the villages identified, to identify human resource to support the process, to develop their capacities for carrying out the DELTA process and to monitor the progress of the process.

5. Extension Agency (ExA): The local district administration that is responsible to provide appropriate administrative context to the process and to support in implementing DELTA in the framework of the existing government schemes.

6. Resource Agency (RA): Any person or agency that contributes various resources such as knowledge, experience, finance, human resource etc.

The pilot and resultant framework throws up valuable insight on the interplay of data, technology and skill sets to facilitate participatory planning. It showcases how the power of big data and applications for data collection can be deployed by citizens directly, and throws up important findings and observations on how the ecosystem needs to prepare itself with the required tools and skillsets, and factor in the changing landscape and reality of how youth interact with technology.

4   The DELTA Framework

The following section is an elaboration of the key phases of DELTA, and its continuation in the form of DELTA Plus. There are five distinctive phases of operations viz - (1) Initiation, (2) Preparation, (3) Training, (4) Data Collection and (5) Village Development Plan (VDP) preparation. Each phase is divided in number of segments which consists of several activities and delivers some intermediate outputs which are used as input for the following processes.

4.1 Designing the Scope of DELTA Implementation

The process of DELTA implementation is driven by the presence of a leading agency, responsible for delineating the areas of implementation, initiating and establishing dialogues with the nodal government agencies such as a district or a block administration or the concerned Member of Parliament, and on-boarding of different partners required for the process implementation. The leading agency plays a key role in taking ownership of the exercise on an end to end basis, integrating the efforts of the partners in alignment with the vision of the process, and problem solving on an agile methodology where required.

It is important to note that surveys can be on a Census basis (covering all households in a village), or on a sample basis (fraction of the entire population covered). In the latter case, it becomes crucial to define the sampling techniques and the sample size, in a manner which is statistically representative of the population covered. In the case of the DELTA exercises implemented so far, Census surveys are taken to enable drilled down representation of needs, and tracking of schemes (primarily individual) at a later stage.

Once the project scope is finalized, the process of stakeholder engagement is initiated, the major objective of which is to establish a common understanding amongst the stakeholders about the nuts and bolts of the DELTA process, the vision in terms of the eventual outcomes, and the monitoring and evaluation mechanisms established to fast track project implementation. Thereafter, the organizational

structure, attached financial models and budgets, and the project implementation structure is developed and agreed upon amidst the various stakeholders involved. A project management plan is also agreed upon and finalized with a detailed listing of activities and associated timelines.

During this phase, a resource group is formulated to coordinate and deliver the plans with representation from the implementation, execution, extension and technology agencies.

4.2 Preparing the Ground for Rollout

This phase involves contextualization of the toolkit to the ground realities of the project areas on the following fronts:

a. Contextualizing Survey questionnaires, both at the household and institutional levels, basis project requirements – for eg, in a tribal dominant region, the questions are directed at capturing tribal histories, cultures, and traditional sports and livelihoods particular to the region. The selection criteria for finalizing the questionnaires typically involves using a set of holistic indicators with the ability to bring about incremental changes on all aspects of quality of life in the selected communities. The larger DELTA database has a list of 150+ questions, with the functionality to edit, add and delete basis contextual realities.

b. The questionnaires are run past the Resource Group and field tested in a village, representative of the target population of the project, and translated into regional languages as per the project areas. The Implementation Agency takes the onus of the field testing process, and sets out to identify the villages basis the selection criteria finalized in the Project Management Plan in Phase 1.

c. The finalized questionnaires are pre-loaded onto a mobile device, along with the Census codes at the village/hamlet level, with the following functionalities:

   ✓ Consent of the Respondent
   ✓ Local language usability
   ✓ Works in a no internet location and allows syncing onto a cloud application in a network zone
   ✓ Geotagging of assets
   ✓ Houses pre-set validations and conditional questions
   ✓ Allows anomaly filling
   ✓ Functionality of retaining drafts and editing before submission

d. This phase also involves laying the ground for building the web dashboards (Image below shows a sample dashboard) to be eventually used for visualizing the Village Development Plans, and enabling tracking of its implementation. Typically, the Technology Partner prepares wireframes (sample use cases or mockups) for the dashboards basis the finalized questionnaires and indicators, and through intensive discussions with all other involved partners around specific requirements from the dashboard. The mockups go through a process of feedback from the

administration at different levels, leading to the finalization of the dashboard design and layout with the approval of the DC/BDO/MP/any other authority.

e. The DELTA training manuals are also translated and contextualized basis project needs, alongside the preparation of the Secondary Village Situational Analysis reports. The latter is done to arrive at a matrix of benefits available to households and individuals through various government schemes/programmes and associated eligibility criteria. This is done in addition to the status of finances available through central and state government resources in the village, thereby creating a resource envelope for mapping at a later stage, once the VDPs and GPDPs are prepared.
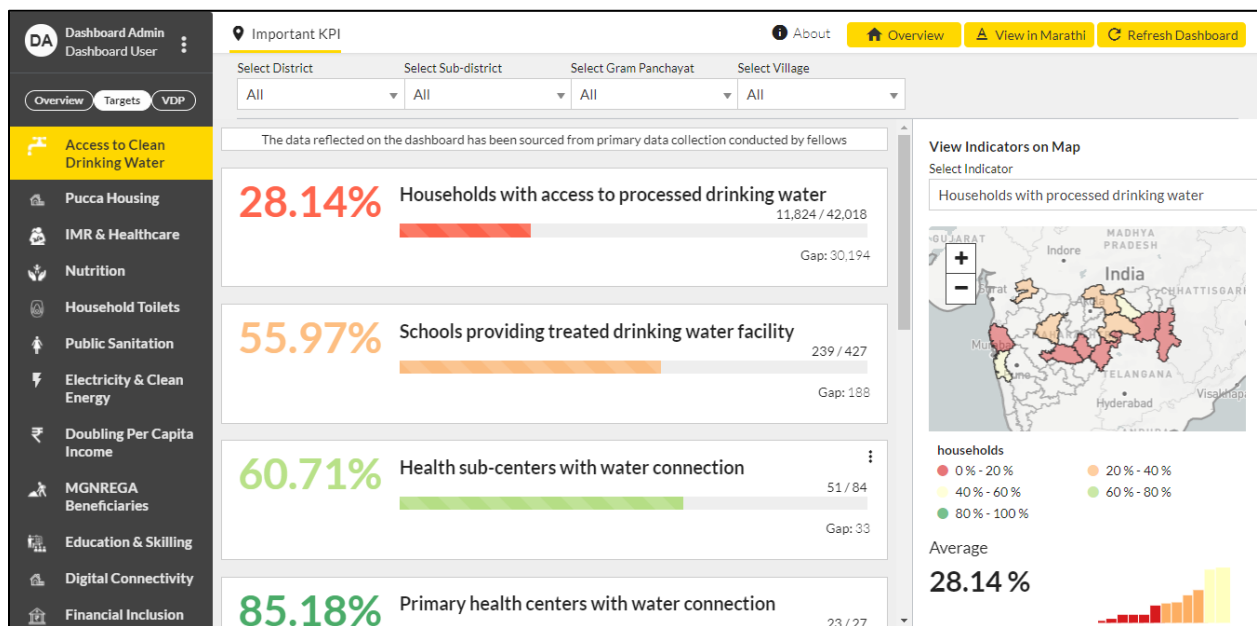
4.3 Phase 3: Creating a Skilled Workforce of Data Enumerators and Trainers

As has been determined in the earlier sections, data handling at the level of last mile service delivery remains a challenge, with limited vision to capacitate such agents and enhance their functional and technical capacities to take on large scale data collection exercises to increase developmental outcomes. This has been seen in the case of scheme specific exercises, such as an ASHA or Anganwadi worker collecting data for Health, and Women and Child Development Ministry run schemes, or school teachers administering pan India level Census, SECC and NSSO surveys.

Given the repercussions of lack of authentic and reliable data feeding into developmental planning, it was important to integrate into the DELTA process, a specific and detailed component on recruitment and training of master trainers, survey managers, and enumerators, under the aegis of the technology agency involved in the exercise (detailed job descriptions shared by the leading agency with the implementation agency for selection of candidates for hiring).

The IA selects candidates with some level of prior experience in handling android devices from the communities specifically, so that candidates come in with previous understanding of the geography and local community patterns. A pool of expert trainers, along with representation from the Block and Gram Panchayat, with expertise in Participatory Rural Appraisal (PRA, Village and Gram Panchayat Development Plans formulation) are empaneled through a rigorous five-day residential training to initiate the training process. The Teaching Learning materials and toolkits are finalized through field testing and iterative feedback approaches.

The objective of the capacity building component is two-fold:

a. Sensitize the team of trainers, surveyors, managers and survey coordinators on the vision of participatory planning, functional aspects of implementation inclusive of tools and techniques of data collection and sanitization, and inculcate the principle of learning by doing by providing adequate field exposure through the process.

b. Enable the team to handle technology applications with ease – questionnaire administrations, handling of sensitive questions related to menstrual health or domestic violence, dealing with open ended and pre coded questions to increase accuracy levels, error and gap handling, syncing of questionnaires on a cloud based web application, and issues of consent on the field.

The training is rolled out in a cascaded manner, with the expert trainers training a cohort of master trainers, who further train the Gram Panchayat Coordinators, Panchayati Raj Institution(PRI) representatives and Data Enumerators at scale. At every stage, a specific set of performance evaluation indicators have been outlined which help benchmark the qualitative and quantitative outcomes of the exercise, with troubleshooting as required. Some examples include:

✓ Ratio of Trainers required versus trained
✓ Key concepts covered and oral recounting on a random basis by participants
✓ Number of Tools each participant has learnt to use
✓ Feedback by participants on training content, methodologies and facility

The following concepts are covered during the training exercises for all levels of the survey team, including supervisors and coordinators:

a. Understanding of DELTA: Introduction & Sensitization to the Vision, Approach, Compilation of Tools and Techniques to be used, and Expectations from Participants.

b. Introduction to Local Self Governance – Structures and Mandates of PRIs, Overview of Village Level functionaries and committees with roles and responsibilities, Introduction to the concept of welfare with an overview of important flagship schemes of the GoI.

c. Introduction to PRA Tools – Detailed overview of tools such as creation of social maps, resource maps, transect walks, village timelines, seasonal calendars and problem ranking, administering

Focus Group Discussions within smaller groups, and classroom exercises to supplement the learning in a visual engaging format.

d. Introducing participants to the six DELTA questionnaires – Household/Individual, PRI (Village, Panchayat), Health Facility, Anganwadi and School, the concept of surveys, and the use of technology in conducting surveys. This includes major concepts of technology handling such as saving, syncing, cleaning, flagging, validating data and data analysis followed by a practice session on the use of mobile/tablet administered surveys.

e. PRA & Survey Administration covering all tools covered in the orientation session in a hamlet/village, discussion on learnings and challenges faced. Recapitulation of roles and responsibilities of all stakeholders in the survey team.

4.4 Phase 4: Facilitating Data Collection at the Village Level

In order to activate community ownership of the Census based data collection exercise, the first step involves creating awareness amongst villagers about DELTA, the possible outcomes and its significance to their daily lives. This is led by the Implementing Agency and implemented through a group of performing artists identified from within the pool of GP Coordinators, Village Volunteers, PRI elected representatives and other villagers. The artists use a host of campaigning materials including posters, banners, street plays, village marches, and other localized folklore and activities. The mobilization is interactive, participative and inclusive, involving children, women and the elderly in the village.

Certain resources are allocated and appropriately stocked prior to the data collection process – they include mobile/tablet devices and charges, power supply extension boards, data cards, wifi routers/broadband internet connections at selected locations with no internet access, public instruction systems (microphones and loudspeakers), first aid kits, food/refreshments and accommodation as required.

The data collection process involves simultaneous facilitation of household and institutional surveys, with both the quantitative and qualitative components of the exercise being implemented by the Implementation Agency. All facilities are geo-tagged for effective visualization and tracking at a later stage. The objective of this sub phase is to enable the community in the GP to review their situation collectively, develop an insight into participatory planning, and arrive at a consensus regarding solutions to local issues.

The different components covered during this twelve-day period tentatively include:

a. Village meeting to communicate the purpose of conducting a participatory VDP, Focus Group Discussions and Consultation within the community to lay the ground for the activities planned

b. Compilation of Village History and Timelines, and setting expectations for the facilitation of the Social Map, Resource Map, Problem Tree identification and prioritization of problems

c. <u>Household Surveys</u> basis the finalized questionnaires on a mobile device (sections covered include basic and demographic data, housing categories, economic status and land holding patterns, agriculture, animal husbandry, non-farm activities and associated potential, health and hygiene status, educational dynamics, availability of basic amenities and linkages to govt schemes, and socio economic dynamics such as deprivations, marginalization and exclusions).

The household survey data components such as social stratification, entitlements, and socio economic status, are superimposed over the social map for the purpose of triangulation.

d. Preparation of <u>Social Map, Resource Map, Seasonal Calendar, Transect Walk, Problem Identification and Ranking</u> through engagement with the community

e. <u>PRI surveys</u> enable collection of information about the functioning of the local Panchayat, one of the 3 tiers of the decentralized system of governance in India enabled by the 73rd Amendment of the Constitution of India (the other two being the Block and Zila Parishad). It also covers the availability of necessary infrastructure and any special statuses awarded to the GP (such as Open Defecation Free).

The PRI survey in addition to the institutional surveys below complement the FGDs with GP members, VDP formulation and prioritization activities.

f. <u>School Survey</u> is administered to capture basic information about the school, status of provisions/facilities mandated under the Right to Education(RTE) Act, and enrolments and teacher information.

g. <u>Health Facilities Survey</u> is administered with the objective of collecting information about different types of health centers for human and animal care, and the functional status of health facilities and their adherence to Indian Public Health Standards(IPHS).

h. <u>Anganwadi Survey</u> is administered with the objective of capturing information about the services being provided by Anganwadi centres(AWCs), population and area coverage, and available of necessary infrastructure for service delivery as a part of the Integrated Child Development Services(ICDS) program.

The process is monitored through a web application, where enumerators and coordinators are given daily and weekly targets on a location specific basis, in light of the overall timelines and the number of households and institutions to be covered – the implementation and lead agency is thereby able to identify laggards and keep the exercise on track.

The primary data collected is reviewed on a daily basis for errors related to:

a. Mismatch between primary and secondary data
b. Over reporting of survey numbers basis field practicalities/geography/terrain
c. Missing data fields or incomplete data formats

Incongruent data sets are flagged, and reviewed/re-collected by enumerators. This leads to a reliable and validated data set of all village level indicators.

4.5 Phase 5: Preparation & Vetting of Village Development Plans

This phase brings out the essence of the participatory planning process, with the VDPs being placed before the Gram Sabha officially for discussion, vetting and validation. The steps followed include:

a. Preparation of the Prioritization Matrix and the draft copy of the VDP for vetting
b. Organizing a truly representative Gram Sabha with equal representation of males and females, of the youth and elderly, of the marginalized sections of the village including dalits, tribals, scheduled castes, scheduled tribes, differently abled, widows etc.
c. Updation of the resource envelope with support from BDO's office. All extension officers to share information on financial resources available to villages through govt. schemes. Concerned extension officer to prepare a final list of financial entitlements for each GP. The compilation of the Secondary Village Situation Analysis report is done in a similar manner.
d. Circulating the draft matrices and digitized VDPs and tabling it for unanimous prioritization against the resource envelope in the Gram Sabha
e. Facilitating and recording final approval by the Gram Sabha; VDPs consolidated at the block and district level for usage by the BDO and DC.
f. Making the approved VDPs and GPDPs available on the dashboard with actionable items, mapped against the available resource envelope.

4.6 Facilitating Last Mile Linkages through DELTA Plus

While the first phase of DELTA emphasized the streamlining of community driven, technology enabled, data collection processes, one realized soon enough that there was a significant need to create ownership within communities and governments, to not only drive transparency in budget allocation, but also positively influence need - based delivery of schemes by enabling decision makers with the power of real time data.

Thus, was born DELTA Plus – an effort towards creating a well - rounded platform integrating technological, social and administrative pathways towards implementation of community vetted development plans. DELTA Plus bridges the gap in provision of "last mile linkages" by juxtaposing community mobilization with activation of administrative processes, backed by a robust technology enabled platform, thereby creating a sustainable model of participatory governance. The DELTA Plus exercise is divided into 3 distinct phases (the image below contains a snapshot of the end to end process):

- **Phase 1 – Development of an Online Tracking System**
  Given their familiarity with micro-planning processes, elected representatives, administrative officers, community based organizations, and village communities in Chandrapur and Balasore, were keen on being trained on different aspects of monitoring, review and tracking of the VDPs developed in the first phase. As has been explained in the earlier sections, a combination of qualitative and quantitative data led to the formulation of VDPs, and subsequent vetting by the

Gram Sabhas. The dashboards developed during the pilot phase were static and did not have the functionality of integrating dynamic data sets, pivotal to tracking of schemes over a continuous timeframe. This led to the development of an 'online tracking system (OTS)'.

- **Phase 2 – Capacity Building & Handholding :**
  Post handover of the VDPs to the block and district administration in a digitized format on a trackable dashboard, it was important to capacitate and hand hold government officials to use the dashboard on a continual basis, and hold their staff responsible for delivery of services as cited in the plans. It was important to identify a few key areas of intervention which could lead to visible impact in the initial couple of years, as a demonstration effect. 20 measurable interventions were prioritized from a list of more than 100+ recommendations. The district, block and village level government officials and functionaries; in addition to the elected representatives and other community champions, were trained to use static DELTA dashboards, and eventually the live OTS on a real time basis. On the other hand, a dedicated team of volunteers and coordinators were created to develop a demonstrable model of DELTA Plan implementation on a relatively small scale to start with. Dedicated human resources were trained and deployed in each of the 164 GPs from five blocks of both the districts. This resource pool has the mandate to guide and support village communities leverage government support for implementing village development plans and for ensuring individual entitlements.

- **Phase 3 – Community Ownership & Handing Over**
  Two types of coordination committees, comprising of concerned government officers and elected representatives, are formed at the block and the district level. The block and district coordination committees meet once in a month and once a quarter respectively to review progress and streamline priorities set as per the VDPs, and initiate correspondence with the state government where required to align delivery of flagship schemes. Similarly, community mobilization and awareness activities are carried out by local voluntary organizations to ensure accountability on the part of communities and at the Gram Sabhas at a systemic level.

DELTA Plus has been successfully implemented in Chandrapur(Maharashtra) and Balasore(Odisha), enabling optimal utilization of 270 crores of government funds through targeted public welfare schemes.

DELTA Plus	Phase 1: Development of Online Tracking System	Phase 2: Capacity Building & Handholding	Phase 3: Community Ownership & Handing Over
Scale	Constituency	Demonstrative Scale (22 Villages)	Demonstrative Scale (22 Villages)
Key Activities	1. Identification of implementation partner and Technology Partner 2. Development of technology driven data collection and processing platform 3. Knowledge creation and training HR 4. Process Standardization	1. Identification of potential model villages 2. Dashboard trainings, handholding for district administration	1. Formation of BCCs and DCC 2. DELTA Plan implementation drive 3. Strengthening Gramsabhas for decision making & monitoring 4. Last mile linkage: Creating bridges between administration and communities
Trusts' Role	Owner, Leader	Knowledge partner, mentor	Facilitator
Governments' Role	Supporter	Leader	Owner
Communities' Role	Respondent	Partner	Owner
Timeline	Six Months	Six Months	One and a Half Year

5. Findings and Recommendations

Certain insights at this stage will be useful to note, when we look at the DELTA framework as a means to add incremental value to the overall design and implementation of e-governance mechanisms in the country from 2005 onwards:

a. Capacitation efforts for senior leadership within the government, and for apex bodies within the Govt. at both the centre and state levels, have demonstrated significant results, wherein such officials are sensitized, possess the technical and functional vocabulary to speak about the importance of e-governance, and are able to design associated projects by bringing in different stakeholders like academia, consultancies, private technology companies and donors into the picture. Departmental heads and officers are however less equipped to handle technology implementations, and any change on that front has been incidental and unplanned.

b. The same holds true for elected officials at the last mile, which includes the Sarpanch, PRI and Ward members. Given that elected members play a vital role in the allocation and disbursal of funds for developmental schemes, and have a critical understanding of the communities' needs, it will be worthwhile to bring them into the fold of technology enabled administrative procedures, by gradually building their capacities and increasing their exposure to developmental planning and processes.

c. On the data management front, the NeGP has made progress on system integration at the apex levels of governance, within ministries at the central and state level. However, at the district level, system interoperability exists as an issue, with officials having to use different IT enabled systems for different purposes. The same drills down to the last mile service delivery agents such as ASHA, Anganwadi & Health workers. In addition to systems existing in silos, gaps also

exist in data collection, data sanitization, data analysis, and usage of data in helping plan future projects. Grassroots workers require technical and functional training, especially on usage of mobile applications for data collection, common challenges and best practices in the domain of large scale data collection exercises, and effective usage of data in administrative decision making.

As a framework which drives ground up planning and implementation in a time bound manner, DELTA has received traction within government and non-government circles, and is being implemented at scale, such as, in the case of the Village Social Transformation Foundation[6] ((MKCL), 2017) in one thousand marginalized villages in the state of Maharashtra. Similarly, the DELTA process has been contextualized to operate as the backbone of the "Transform Aspirational Districts" Initiative[7] of NITI Aayog. The major objective of the initiative is to drive visible change in the human development indicators by facilitating performance benchmarking between the aspirational districts (DELTA being used in 85 out of the 115). This is being done by mapping incremental improvements in development outcomes through periodic collection of data at household (on a sampled basis) and institutional levels.

The large scale uptake of DELTA across different levels of administration and think tanks indicate that administrators and policy makers are keen to find innovative methods of decentralized planning with demonstrated potential at scale. The usage of data and technology has been seen as a challenge, in ways that can empower citizens and administrations equally, while leading to effective public service delivery and redressal of citizen's aspirations and grievances.

Basis the DELTA experiences of implementation, the following recommendations are suggested to enhance local capacities and empower administrations and policy makers to improve delivery mechanism of public utilities and civic services:

a. A state level assessment of capacities will be useful to note the status, gaps and further efforts required on policy formulation to address skill building issues across governance levels and related private entities. The capacity assessment may be done basis the 5 stage e-government evolution model proposed by the United Nations (DESA, 2008). The different assessment levels possible include:

   - State level ministerial and departmental officials including

Box 3.2: UN Five-stage Evolution Model

Stage I-Emerging: A government's online presence is mainly comprised a web page and/or an official website; links to service providing ministries or departments may/may not exist. Much of the information is static and there is little interaction with citizens.

Stage II-Enhanced: Governments provide more information on public policy and governance. They have created links to archived information that is easily accessible to citizens, as for instance, documents, forms, reports, laws and regulations, and newsletters.

Stage III-Interactive: Governments deliver online services such as downloadable forms for tax payments and applications for license renewals. In addition, the beginnings of an interactive portal or website with services are evident.

Stage IV-Transactional: Governments begin to transform themselves by introducing two-way interactions between 'citizen and government'. It includes options for paying taxes, applying for ID cards, birth certificates, passports and license renewals, as well as other similar G to C interactions, and allows the citizen to access these services online 24/7. All transactions are conducted online.

Stage V - Connected: Governments transform themselves into a connected entity that responds to the needs of its citizens by developing an integrated back office infrastructure. This is characterized by:
1. Horizontal connections (among government agencies)
2. Vertical connections (central and local government agencies)
3. Infrastructure connections (interoperability issues)
4. Connections between governments and citizens
5. Connections among stakeholders (government, private sector, academic institutions, NGOs and civil society)
(Source: United Nations e-Government Survey 2008)

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[6] Further details on Maharashtra Village Social Transformation Mission are available at https://www.mvstf.org/en
[7] To know more, please visit http://niti.gov.in/content/about-aspirational-districts-programme

program managers, consultants and associates involved in design and delivery aspects

- District level officials from the Collectorate downwards, including line department process owners and scheme based delivery agents

- Elected Members of Parliament and Members of Legislative Assemblies, linked officials at the constituency levels and civil society organizations mapped to the functioning of the offices of the MPs and MLAs.

- Block and Panchayat level appointed, contractual and elected officials, and last mile service delivery agents including resources operating on an incentive based model

- Mapping of technology entities and consultancies involved in delivery of technology initiatives in the governance domain– start-ups, governance arms of IT companies, public sector verticals in small, mid and large sized consultancies

- Mapping of NGOs, CSOs, youth groups, voluntary and grassroots organizations equipped with delivery of technology innovations

- Mapping of e-government based academic and training organizations (both private and public), their offerings and gaps

The repercussions of limited capacities in each of these categories may be noted with respect to the UN Evolution Model, with rating mechanisms put in place for all assessment levels.

b. On the policy front, the results of the assessment exercise will be manifested in the form of concrete programs designed to cater to the emerging employment potential of the e-governance domains. This could be done with the creation of specific Sector Skill Councils within the IT/ITes domain under the Skill India Initiative, catering to e-governance skill based certification programs in partnership with skill development firms such IL&FS and skill development arms of private entities such as ICICI and Mindtree. This could also be done in partnership with industry consortiums such as Federation of Indian Chambers of Commerce and Industry(FICCI) and the National Association of Software and Services Companies(NASSCOM). Given the skilling gaps that currently exist, and the foreseeable demand of civic and government technology skillsets in the governance domain, current investments in skilling government and private entities concurrently will lead to multi-fold returns over the next decade.

c. One needs to alter the lens of change management and capacity building for rural and urban units of administration, and for greenfield and brownfield units of administration. As an example, a mature smart city and a recently identified smart city would have different requirement curves, and hence nuanced capacity building needs. Similarly, districts with established ICT mechanisms such as Gandhinagar and Surat in Gujarat, require domain expertise and advanced training to drive implementation of emerging technologies, whereas districts such

as West Singhbum in Jharkhand and Balasore in Odisha require continued handholding and visioning support.

d. In terms of the technical and functional content to be administered under skill development programs, a list of indicative domains has been suggested below, which may be modified basis the level of administration of the content:

- Overview of IT and ICT enabled systems prevalent at the state, district, block and panchayat levels
- Challenges in the current level of execution of NeGP
- State of Data in Indian Governance Systems – Genesis, Issues in Quality, Authenticity and Reliability
- Data Handling Skillsets – Capacities to be built in data collection, sanitization, correlations with secondary data sets
- Integration of data with technology – designing effective data visualizations to facilitate effective story telling; the art of designing and using dashboards for decision making
- Ensuring functional and financial convergences and integration of schemes, leading to transparent service delivery
- Integration of data with people's planning and developmental planning processes – empowering local self-governments to use data for planning and implementation of schemes

6. Summary and Conclusions

In order to enable India to move towards an electronic government system in its entirety, the focus needs to shift from technology to governance using data as its premise. The DELTA framework of microplanning through its pilot four locations - Vijayawada (Andhra Pradesh), Chandrapur (Maharashtra), Balasore (Odisha) & Nuamundi (Jharkhand) has resulted in a rich repository of development indicators for 1.5 million people in India. This resulted in the development of 1200 Village Development Plans (VDPs), available in the form of interactive dashboards for use by decision makers and policy makers. 780 VDPs have been adopted by the administration to determine focus areas and roll out associated schemes. In addition an entire pool of local youth skilled with technology has been created, proving that it is possible to create such capacities the local level with the right set of tools and techniques.

This case study outlines a step by step process of the tools techniques and skills sets that need to be developed in order to enable data driven governance. The five phases of DELTA - (1) Initiation, (2) Preparation, (3) Training, (4) Data Collection and (5) Village Development Plan (VDP) preparation help to layout a systemic form of data based participative planning which can inform local area development and prioritization, while bringing technology close to the citizens and involving them in the planning process. This way, the "dangerous enthusiasm" linked to e-government in a developing/transitioning country like India can evolve into "prudent realism" when associated with carefully designed capacity building efforts for government and non-government stakeholders, both by public and private entities, on usage and uptake of data and technology systems, their impact on planning processes, and means to

optimize them. This when done in an inclusive, decentralized manner with meaningful integration of people's participation will ensure large scale coverage of the perceived benefits of e-governance and decentralized planning.

As planning and governance models emerge, it is clear that specific data centric jobs like city data officers, panchayat data processors and so on, are likely to emerge within government, while existing jobs may becoming defunct unless the individuals get up-skilled and are able to use technology. This includes village teachers, ASHA workers, ANMs as well as district statistical and planning officers (DSO, DPOs) moving away from pen and paper mode of data collection. The way the census is conducted and the role of enumerators is likely to undergo a sea change as well. There is an entire eco system of technology players, start-ups and new models of partnership with government which can be tapped to maximize impact. It will be best to embrace this change and hence prepare the workforce within the government and at the grassroots to harness the power of technology for effective governance and improved employment and development outcomes.

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