डॉ. नीता वर्मा
महानिदेशक

Dr. Neeta Verma
Director General

D.O. No. M-13/1465/2021-EARD

Dated: 04/01/2022

This refers to DO letter number 4-3/IT/SI/2018/427 dated 26th March, 2021 from the Secretary(IT), Andman & Nicobar Islands UT Administration to DG(NIC) regarding preparation of **Blueprint of digital transformation for Andaman & Nicobar Island with vision of Smart Island ensuring delivery of online services Anytime Anywhere.**National Informatics Centre(NIC) has been playing a significant role in major modernization efforts of the A&N Administration by means of IT consultancy and computerizing activities of many of the departments and the district administrations including facilitating rollout of online services.

The comprehensive set of activities were carried out by NIC in order to prepare first draft of desired BluePrint including the possible list of services i.e. Five hundred & seventy four(574) from major departments(40). This draft BluePrint prepared by NIC was presented during 2-day workshop on 25-26Novermber, 2021at Port Blair facilitated by IT department and participated by large number of other departments. Based on the valuable inputs from various stakeholders, a transformational Blueprint has been improvised for A&N Islands)for fulfilling the goal of building A&N "Digital" Islands.

The Blueprint presents an implementation roadmap for rollout of digital services catering to the citizens, business and within government. The impetus is on fast-forwarding the governance in A&N Islands through enabling digital technologies by improving accessibility and transparency. The blueprint has been conceptualized in sync with **Vision 2030** document prepared by Planning Department of A&N Administration and provides a roadmap for achieving the same.

It gives me immense pleasure to submit this Blueprint for your kind perusal.

Yours sincerely,
-Sd-
(Neeta Verma)

To,
Shri Jitendra Narain
Chief Secretary
Andman & Nicobar Islands Administration
Port Blair

Copy for kind information to:

1. Shri Pankaj Kumar, IT Secretary, Andman & Nicobar Islands Administration, Port Blair.
2. Office copy.

(Neeta Verma)

Andaman and Nicobar Administration
Government of India

TRANSFORMATIONAL BLUEPRINT FOR DIGITAL ISLANDS

Ensuring Delivery of Services Online, Anytime Anywhere

Vision and Blueprint Overview

December 2021

NIC National Informatics Centre

Dr. Neeta Verma

Director General,
National Informatics
Centre

Ministry of Electronics
& Information
Technology

Message from Director General, National Informatics Centre

Over the last two decades and particularly with the launch of Digital India programme, India has taken numerous forward strides in the government digital ecosystem. At the same time, new approaches introduced by developments like IndEA Framework have highlighted the opportunities to catalyse and energise governance via digital platforms and infrastructures.

There has been a continuous thrust on the development of our islands and with the strategic importance of Andaman & Nicobar Islands, transformation is imminent. The vision, principles and high-level blueprint described in this document acts as a harbinger of change and provides a glimpse of the immense impact it can bring in the lives of the citizens, in ease of doing business and in public service delivery. It would act as a foundation for the structure of an entire digital ecosystem to be developed in a phased manner.

Over the years, NIC has been a proud provider of state-of-the-art systems and technologies to the Government. The learning generated during the development of information systems underpinning some of the most extensive programmes and schemes across the nation has been utilised in creating this document.

I express gratitude towards the IT Department of Andaman and Nicobar Islands for entrusting NIC with the opportunity and thank NIC officials for their efforts to develop the document.

Shri Deepak Chandra Misra

Deputy Director General, Scientist-G, National Informatics Centre

Ministry of Electronics & Information Technology

Executive Summary

A **Connected Government** drives towards modernization in society by fulfilling citizen expectations from government and going beyond. Accuracy, quality, response and security are the key pillars for a well-founded governance. It is observed that a connected government enhances citizen involvement in governance and leads to effective decision-making and accountability from government.

The Vision 2030 for A&N Islands sets the context of development encompassing the departmental goals, targets and strategies. It requires a paradigm shift in the manner of conducting business in government and bridging the gap to achieve the targets within the desired timeline. The strategies mentioned in the Vision 2030 document requires concerted efforts and deeper analysis of the services and the delivery mechanism. The siloed approach of governance is unlikely to yield the desired results and hence a holistic development mechanism is needed. The current document envisions the need for connected government in Andaman & Nicobar Islands (A&N). It gives a high-level blueprint view for fulfilling the goal of building A&N "Digital" Islands, enabling administrators to act on administrative / policy re-structuring wherever necessary.

National Informatics Centre, Government of India has conducted a study of government services in A&N. The study entails 574 services across 40 departments, out of which around 44% are already available online for use by citizens / other users. It is observed that these services are almost translated from their as-is state and no real transformation has been attempted. Importantly, inter-departmental interoperability (leading to connected Government) has been observed to be predominantly missing.

Over two-third of the A&N government services can be better delivered by effecting "**Digital Transformation**" through introduction of one or more essential capabilities wherever necessary, such as IT enablement, connected systems, multi-modal service delivery, refining service delivery charter, refining application forms, application of e-sign, and reducing service workflows.

This document attempts to propose a high-level Blueprint based on enterprise architecture practices for all-inclusive transformation in governance. This is a live document and needs to be updated periodically to reflect the changing needs of the departments and its services.

Shri Sahayaraj G

State Informatics Officer, Scientist-F, A&N Islands, National Informatics Centre

Ministry of Electronics & Information Technology

Acknowledgement

Contributors

Mentorship and Guidance

Shri Deepak Chandra Misra
Scientist G, Deputy Director General, National Informatics Centre
Ministry of Electronics and Information Technology

Smt. Seemantinee Sengupta
Scientist G, Deputy Director General, National Informatics Centre
Ministry of Electronics and Information Technology

Team

Shri Sahayaraj G
Scientist F, State Informatics Officer, Andaman & Nicobar Islands, National Informatics Centre
Ministry of Electronics and Information Technology

Dr. P Gayatri
Scientist F, Senior Technical Director, National Informatics Centre
Ministry of Electronics and Information Technology

Shri Gautam Gupta
Scientist F, Additional State Informatics Officer, National Informatics Centre
Ministry of Electronics and Information Technology

Smt. Vishakha Gorwade
Scientist E, National Informatics Centre
Ministry of Electronics and Information Technology

Shri Biswajit Saha
Consultant,
Ernst & Young LLP

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Document Overview

PURPOSE OF THE DOCUMENT

The purpose of a blueprint development is to express long-term intent, and not detailed design for implementation. This Blueprint has been prepared to act as the first step towards transforming Andaman & Nicobar Islands into "Digital" Islands and catapult it towards the realization of the Vision 2030 set by the administration. The document depicts the current ICT landscape, identifies the transformation opportunities, and underlines the challenges. It also presents a macro-level view of the blueprint in terms of the core building blocks and outlines the action items and approach to realise these building blocks.

The defined vision, guiding principles, and building blocks would enable the UT administration stakeholders to assess current enterprise architectures, develop target enterprise architectures, and formulate transition roadmaps towards a more interoperable and unified digital future. This document proposes to digital transform the identified departments and their services. An implementation roadmap for way forward has also been described.

TARGET AUDIENCE

The Blueprint is presented to the leadership and key decision-makers in the administration of the Andaman & Nicobar Islands. It is intended that the blueprint would trigger the administration to initiate the process of larger consultation with various departments and other stakeholders for the eco-systemic transformation in the Andaman & Nicobar Islands with focus of delivering services anytime and anywhere.

DOCUMENT STRUCTURE

The content in subsequent sections of the document is organized into various chapters as described below.

Chapter 1 provides an introduction to the document.

Chapter 2 provides a brief profile of the A&N Islands.

Chapter 3 highlights the current ICT landscape.

Chapter 4 provides the assessment of the current government services on various service attributes.

Chapter 5 describes the SDG alignment with the department vision, strategy and services.

Chapter 6 highlights the drivers for change.

Chapter 7 describes the transformation opportunities and challenges.

Chapter 8 describes the strategic intent of the Digital Islands including the vision and guiding principles.

Chapter 9 describes the Digital Islands Blueprint.

Chapter 10 highlights the key benefits and success criteria.

Chapter 11 proposes the way forward.

1 Introduction

Andaman and Nicobar Islands (ANI) plays a vital role being located strategically in the Indian Ocean and has immense potential in shaping the Indo-pacific policy. In the recent times, ANI has made remarkable progress and in order to further boost holistic development of the islands, the government had constituted Island Development Agency (IDA) in 2017[1]. Concept Development Plans and Detailed Master Plans have been prepared for identified islands with principles of sustainability, people's participation, eco-system preservation and determination of carrying capacity as the guiding principles. Access and connectivity to Information and Communication Technology (ICT) are crucial not just to the technologies themselves but also for fulfilling the development goals, supporting the social, economic, and cultural integration and growth in key sectors of the economy. In this direction, the submarine Optical Fibre Cable (OFC) of 2,300 KM was laid between Chennai and Port Blair and the services to a few islands were formally launched in 2020.[2] This infrastructure shall act as the foundational stone for digital transformation in A&N Islands, especially in improving online education, telemedicine, banking system, e-commerce and in boosting tourism.

Digitalization has transformed the world, aiding innovation, increasing productivity, connecting people and communities, and improving standards of living and opportunities. ICT has also proven to be a key prerequisite for greater competitiveness and economic and societal development, as well as an important instrument for bridging economic and social divides. Use of Information Systems and ICT has been a significant enabler in successful operationalisation of the programmes. For many people, today's increase in access to digital technologies brings more choice and greater convenience.

ANDAMAN AND NICOBAR ISLANDS IS A STRATEGIC ASSET OF INDIA IN THE INDIAN OCEAN WITH POTENTIAL TO SHAPE THE INDO-PACIFIC POLICIES

The digital-first emphasis brought to the forefront by the Digital India Programme, and the new approaches introduced by India Enterprise Architecture (IndEA) Framework – have accentuated the prospects to catalyse and energise whole sectors via digital platforms and infrastructures developed in whole-of-the-government focussed and ecosystem-oriented manner. A large number of e-Governance initiatives have been successfully rolled out in the last few years by ANI administration. With improvement in connectivity to the islands, there would be higher demand for accessing the services online, anytime and from anywhere. However, the department systems are mostly working in silos and providing compartmentalized services. There is a need to achieve interoperability of different systems, databases and registries to provide one-stop access to public services. There is also a strong need to define and adhere to common standards to enable data sharing across departments and deliver a seamless experience to the citizens.

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[1] https://pib.gov.in/PressReleseDetail.aspx?PRID=1496881 last retrieved on 09-Aug-2021
[2] https://pib.gov.in/PressReleasePage.aspx?PRID=1644712 last retrieved on 09-Aug-2021

2   Brief Profile of Andaman and Nicobar Islands

The Union Territory of Andaman and Nicobar Islands is a group of 572 picturesque islands, big and small,

inhabited, and uninhabited, lying in the South-Eastern part of the Bay of Bengal, cut off from the mainland by vast stretches of sea. There are 38 islands which are permanently inhabited.[3]

The territory's population projection based on Census 2011 is 4 lakhs (3.8 lakhs as per Census 2011) and 57.05% of the population expected to be rural-based.[4] The literacy rate was 86.63 as per Census 2011[5].

Port Blair is the capital town and acts as a gateway to Andaman & Nicobar Islands. The capital of Andaman & Nicobar Islands has one Airport, one major harbour and a number of other small harbours. Andaman is connected with the rest of the parts of India through sea and air routes only.

Figure 1: Territorial map of Andaman & Nicobar Islands

2.1   ADMINISTRATIVE STRUCTURE

The UT is divided into three Districts viz. South Andaman, North & Middle Andaman and Nicobar[6]. The administrative structure is as follows:

Table 1: Administrative Structure

No. of Districts	No. of Tehsils	No. of Blocks	No. of Urban Bodies
3	9	9	1
No. of Gram Panchayats	**No. of Villages**	**No. of Tribal Councils**	**No. of Tribal Village Council**
70	560	7	52

2.2   DEPARTMENTS AND SERVICES

The UT administration has several departments, providing a number of services. For the purpose of preparing the Digital Islands Blueprint, total 40 departments / govt. organizations and their 574 services have been considered. The Revenue department leads with 109 services followed by the Transport department and the Fisheries department with 54 and 39 services respectively.

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[3] https://www.andaman.gov.in/about last retrieved on 09-Aug-2021
[4] https://nhm.gov.in/New_Updates_2018/Report_Population_Projection_2019.pdf last retrieved on 09-Aug-2021
[5] https://censusindia.gov.in/2011census/dchb/3500_PART_A_DCHB_ANDAMAN%20&%20NICOBAR%20ISLANDS.pdf
last retrieved on 09-Aug-2021
[6] https://lgdirectory.gov.in/ last retrieved on 09-Aug-2021

3   Current ICT Landscape

At the outset it is important to take stock of the current ICT landscape in the Andaman & Nicobar Islands so as to develop a structured, phased plan which is implementable and aligned towards the needs of the UT.

(i)   **Andaman & Nicobar Data Centre (AN-DC)** : A & N Data Centre established in March 2013 for supporting e-Governance initiatives in A&N islands. The DC provides application services and infrastructure for efficient delivery of G2G, G2C and G2B services. SDC is operating from Dr. B.R. Ambedkar Institute of Technology (DBRAIT) campus, Dollygunj, Port Blair, operations & maintenance is being done by SOVTECH (Society under A & N Administration).

(ii)   **Network Connectivity:**

a.   **State-wide Area Network (SWAN) -** SWAN Project is implemented in A & N Islands under the guidance of Department of IT, A & N Administration. Total 17 SWAN PoPs are available in all inhabited Islands. The North and Middle Andaman, South Andaman and Nicobar districts have 5, 6 and 6 Points of Presence (PoPs) respectively. SHQ PoP is located in DBRAIT Campus, Port Blair. All nodes are connected through Leased Line / VSAT.

b.   **Telecom Connectivity** - The Government of India installed Submarine Optical link from the Mainland (Chennai) to Andaman & Nicobar islands to provide high speed internet connectivity. The services were launched on a major chunk of the islands from Chennai to Port Blair, Port Blair to Little Andaman and Port Blair to Swaraj Island. Mobile network connectivity is available from BSNL and Bharti Airtel. With the availability of fibre, private telecom players such as Bharti Airtel has launched its 4G mobile services in Port Blair and expanding to other islands[7].

(iii)   **Telecentres:** The objective of the Common Service Centres is to provide e-services in the locality of citizens, by creating the physical service delivery infrastructure for accessing various e-services. Currently, 84 CSCs are active covering rural and urban areas of the various islands. There are 21 CSCs in Port Blair, 18 in South Andaman (Rural), 3 in Little Andaman, 28 in North and Middle Andaman, 9 in Nicobar.

(iv)   **E-Services:** To enhance transparency in the governance process, and for seamless flow of information, ICT solutions have been developed for providing Government to Government, Government to Citizen, Government to Business and Government to Employee. Such solutions provide an clear visibility of the services consumed, ensures quick delivery of services and reduces paper-based transactions. Starting as MIS, these ICT systems have been enhanced to provide workflow-based capabilities in support of various schemes activities. The list of services is available in Annexure 1. A detailed analysis of the services have been provided in Chapter 3.

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[7] https://indianexpress.com/article/technology/tech-news-technology/airtel-first-mobile-operator-launch-services-andaman-nicobar-6551752/ last retrieved on 9-Aug-2021

4   Services Assessment

Based on extensive study and discussion with the various departments and NIC team at Andaman and Nicobar Islands, 40 Departments and Institutions have been identified and their service portfolio has been created. Total 574 services were shortlisted which are being provided to citizens, households, groups, communities, Self-help groups (SHGs), institutions etc. These services were then analysed on various parameters to gain insight and plan for their phased transformation. A service assessment framework has been created based on these parameters which is as follows:
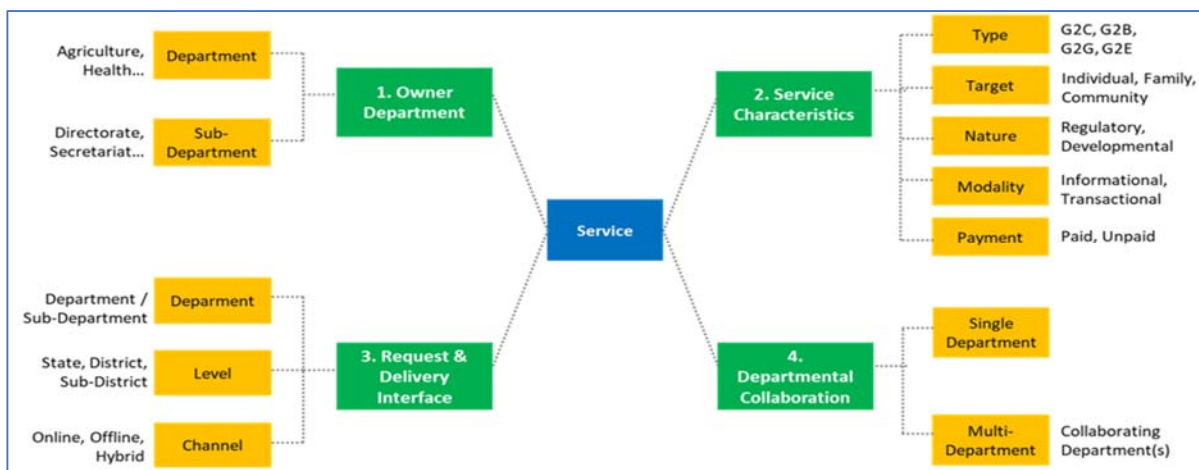
Figure 2: Service Assessment Framework

(i)   Services by Departments

Of the 574 services, the Revenue department leads with 109 services, followed by the Transport department with 54 services, Fisheries with 39 services and Agriculture with 34 services. There are 48% services which are offline, 8% are hybrid and 44% are online. 34 services are available for use on the ServicePlus platform of NIC that is provided in Annexure 2.
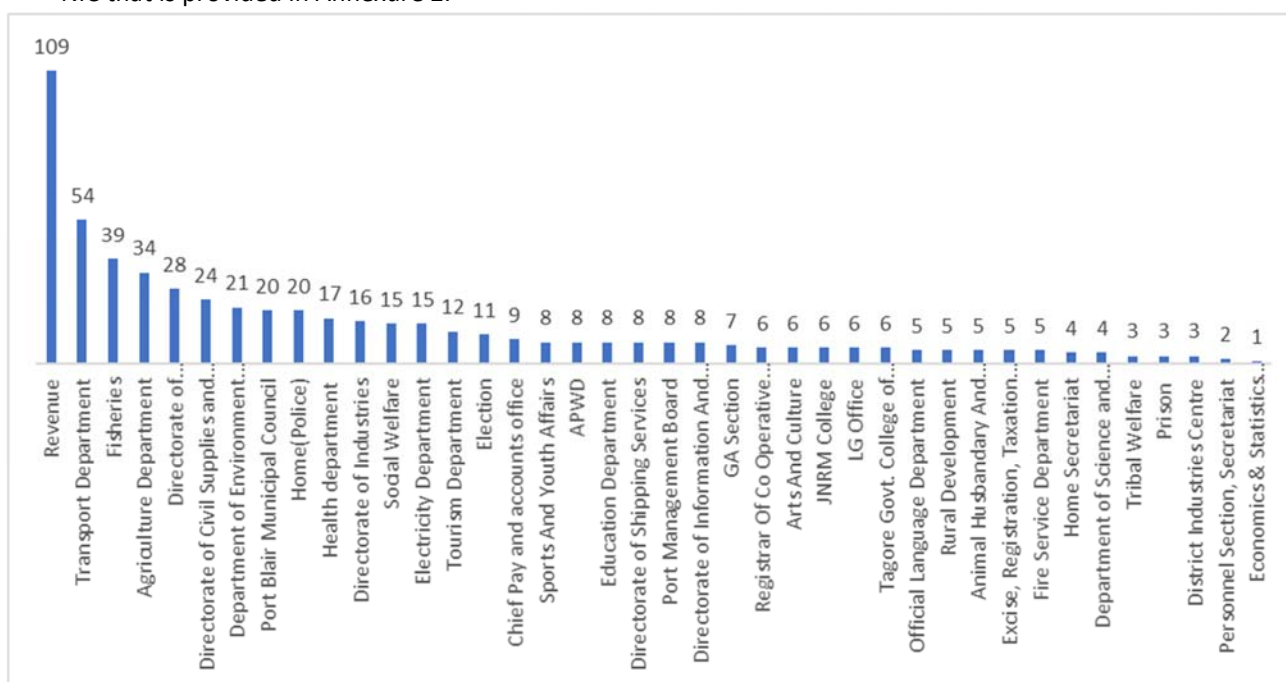
Figure 3: Department-wise count of services

(ii)   Service Analysis

Based on Service type
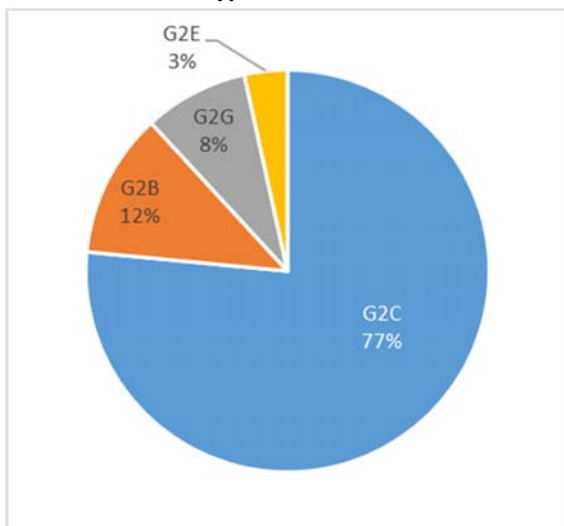
Figure 4: Service analysis based on service types

Based on Service Target

Figure 5: Service analysis based on service target

77% of the services are citizen-centric services and including services to business it increases to 89% of the total services. Therefore, it is implied that most of the services are citizen centric and they should be the focus of the transformation.

75% of the services are targeted towards the individuals / citizens. The other target groups are Institutions and Communities which comprise around 19% of the services.

Based on Service Nature
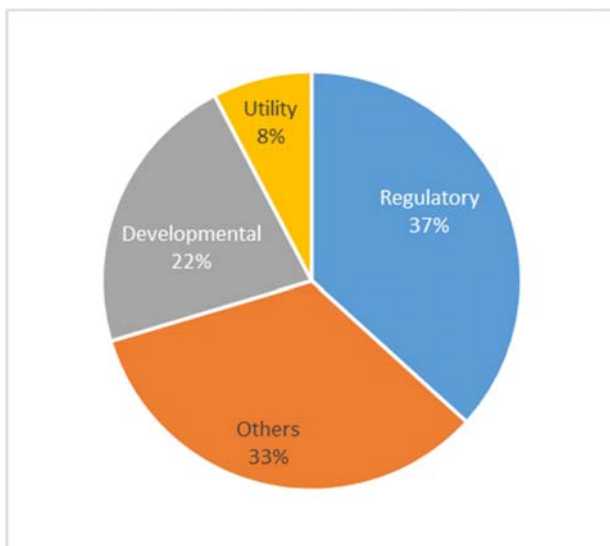
Figure 6: Service analysis based on service nature

Levy of Fee

Figure 7: Service classification based on levy of fee

It implies that based on the nature of the services, majority of the services (37%) are regulatory and almost one-fourth of the services are developmental in nature.

Fee is levied on 46% of the services. It implies that there is involvement of payment through modes such as cash deposit or demand draft etc. It also implies that there may be need to integrate payment gateway for convenience of users.

Ease of Accessibility

It is observed that services to citizens and businesses are largely delivered by Departments at the District and State level.

Majority (60.45%) of the services can only be requested from the concerned office at A&N Islands Headquarter i.e. Port Blair. This can be cause of hardship for people who stay in remote islands and would need to travel for hours to the concerned government office physically for submitting the application form or receiving the service. There is no other mechanism even for tracking the status of the application.
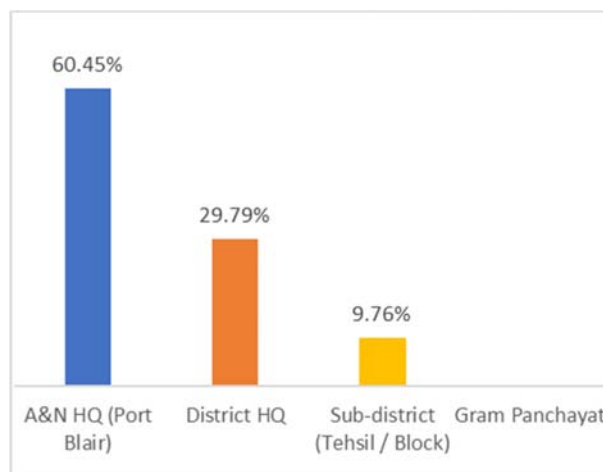
Figure 8: Service analysis based on service delivery interface levels

Multi-department Collaboration
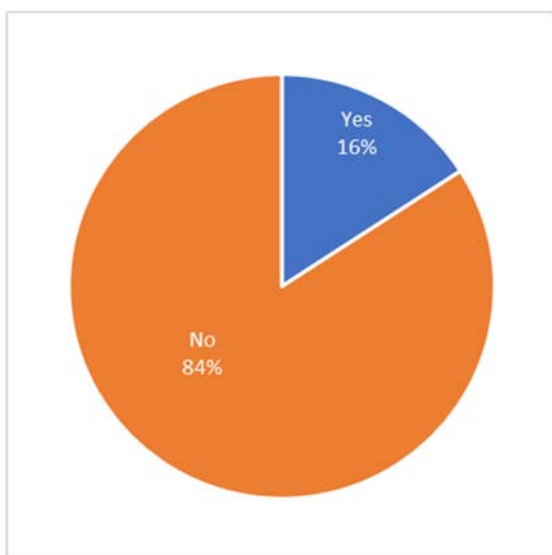
Figure 9: Services involving multi-department collaboration

Most of the services (84%) are provided solely by the concerned department. However, around 16% of the services involves multiple department for example, for issuance of passport, there is need for Police verification. In such cases, there may be significant delay without workflow defined digitally for collaboration and the IT systems.

Integrated Digital Services
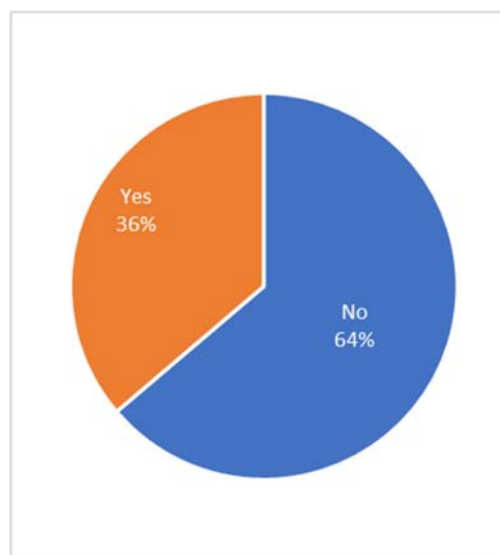
Figure 10: Services which are integrated digital services

Around 36% of the services are end-to-end. However, 64% of the services are not end-to-end automated and there is tremendous opportunity to carry out automation through integrated workflow, after carrying out business process reengineering should be to remove the redundant steps, if any.

(iii)   Service Digitalization Opportunities

It is evident that there is tremendous opportunity for service digitalization for the target users viz. citizen, business, government, or its employees. It can be inferred from the following graph that 48% of the citizen-centric services are still offline, more than 60% of the government to government and government to employee are still conducted in offline mode. If these services (comprising more than 50% of the services in respective 'Service Type') are transformed into digitally-enabled services, it can save time, efforts and also result in financial savings for all the stakeholders.
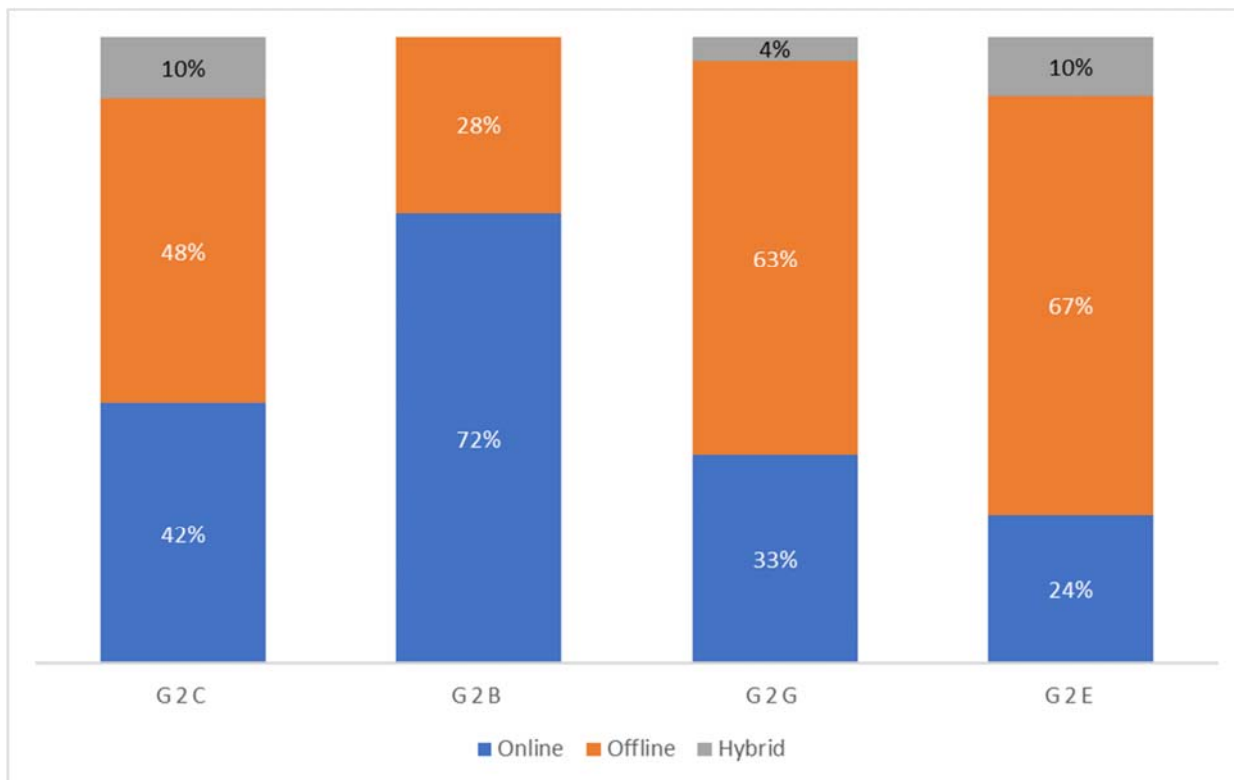
Figure 11: Service digitalization opportunities in various service types

The preceding analyses raise a noteworthy aspect, that along with the proliferation of connectivity in the various islands, it is also equally important to make maximum services digital and available online so that people can get faster delivery of services and save their time and expenses. Further, real benefit of digitalization can be reaped when the departmental silos are removed and there is complete interoperability and boundaryless flow of information.

5 SDG Alignment

India is one of the signatories to the resolution on **Sustainable Development Goals (SDGs)**. The SDGs are the blueprint for achieving a better and sustainable future for all and was adopted by the United Nations (UN) General Assembly consisting of 17 Sustainable Development Goals and associated 169 targets and came into force with effect from 1st January, 2016.

Under the guidance of NITI Aayog, the States and Union Territories (UTs) are the key implementers and they have continued to make gains on various SDG targets. Localisation of SDGs in terms of adopting, planning, implementing, and monitoring them from national to local

Figure 12: Sustainable Development Goals (source: un.org)

levels is critical in successfully implementing the 2030 Agenda. As per NITI Aayog's Report "SDG India Index & Dashboard 2020-21", the Andaman & Nicobar Islands has a composite score of 67 (on a scale of 100) in 2020 gaining from the previous composite score of 61 in 2019 and just above the national average of 66 in 2020.[8]

A summary of the performance (as per the above mentioned report) on various goals have been reproduced in the Annexure 3. It is important that the SDGs, their targets and indicators are linked to the concerned departments for focussed implementation of the programmes. This in turn has to be linked to the services' availaibility and functional performance of the digital platforms and tools designed / developed for such schemes.

Figure 13: Dimensions of development of SDGs

The Key Performance Indicators of the schemes / programmes have to be infused and adopted inherently in the IT systems so as to attain the desired targets in a time-bound manner. An indicative mapping of the SDGs with the related departments has been depicted in Annexure 4.

In the workshop conducted with the departments on 25th and 26th Novermber, 2021, a number of exercises were conducted to map the department

Figure 14: SDG and Vision 2030 alignment with Department Services

services with the department's vision & strategies, and to map the SDGs. Out of the 574 service, 237 services

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[8] https://www.niti.gov.in/writereaddata/files/SDG_3.0_Final_04.03.2021_Web_Spreads.pdf last retrieved on 13-Aug-2021

were mapped with the related SDGs. The following graph represents the maximum number of SDGs that are being impacted department-wise for these 237 services.
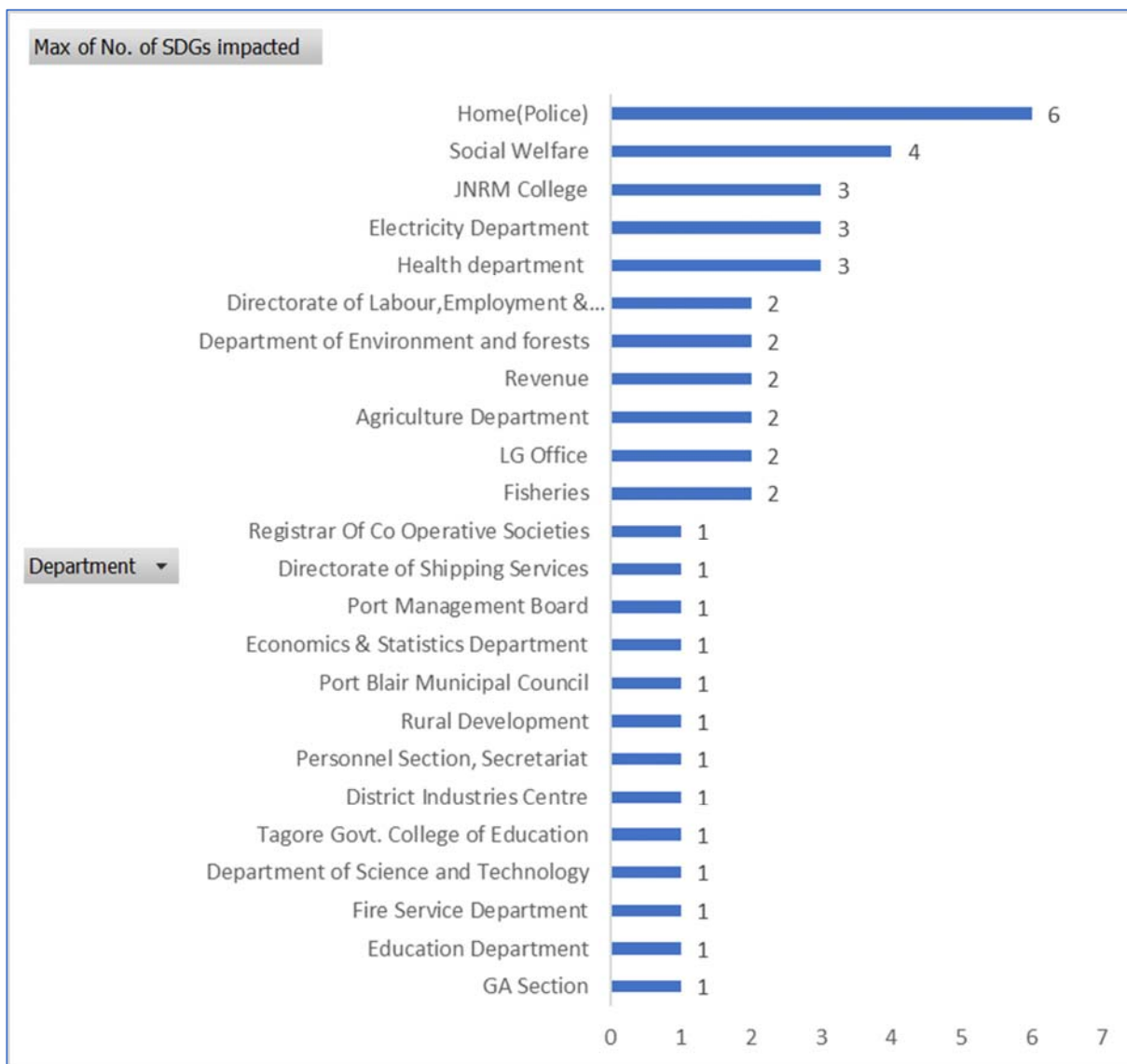
Figure 15: Indicative No. of SDGs directly linked to Services of Selected Departments

The above graph reflects the number of SDGs which are impacted due to the vision, strategies and aligned services of the respective departments.

6 Drivers for Change

With the Andaman and Nicobar Islands getting connected with the mainland through the submarine cable and communication getting revolutionized, there is renewed thrust on the eco-systemic transformation of the union territory. Such transformations would be led by the government and an enabling environment would be created for faster and easier access to plethora of services. There has been a patient wait in the islands to be provided with infrastructure and facilities at par with the rest of the country so that there can be holistic development in the islands. ICT is an important enabler for the steady integration of technologies such as cloud and mobile into the everyday lives of individuals, families, communities, businesses, and governments. The assessment of the services in previous section highlighted that there are ample scope for transformation which can be summarized as drivers, most significant of which are as follows:

(i)   **Changing aspirations:** The islands' population's aspire to have equitable access and avail government services quickly, from anywhere and anytime. With the boom in several sectors in other parts of the country, the islanders are also looking for development including personal, social, and economic growth. The islanders equally aspire to be an integral part of the growth story and secure themselves and their future generations.

(ii)   **Increased focus on the Islands:** The government intends to tap the potential of the islands and develop them into attractive tourist destinations while maintaining the ecological balance. With the islands poised to join the mainland after the rollout of submarine cable and communication improving, economic growth is expected to usher.

(iii)   **Strengthening of governance:**. There is an palpable urge to streamline government operations and improve intra and inter-departmental coordination, discard redundant procedures and help decision makers identify meaningful and actionable information that can transform data into insight leading to effective planning and action.

(iv)   **Progress towards SDGs:** There is increasing focus on advancing progress towards achievement of SDGs. Central and State level governments have begun the process of SDGs implementation. There is a urgent need to take SDGs to the grassroot-level with involvement of local administration.

(v)   **Increasing digital capabilities:** Digitally-enabled services are simplifying citizens' experience and as a result of which new public governance approaches are needed. The rapid proliferation of technologies is also changing expectations on governments' ability to deliver public value.

This chapter established a comprehensive context for transformation in governance and service delivery and highlighted the key drivers. Subsequent chapter develop on these drivers to identify major governance opportunities and establish the vision for digital interventions.

7 Transformation Opportunity

This chapter describes the massive **scope for improvement** in Andaman and Nicobar Islands to transform into 'Digital Islands'. It emphasises how availability of digital infrastructure and services can catalyse the islands' ecosystem towards **proactive, unified, and integrated delivery of benefits and public services** to propel ease of living, boost effectiveness of development initiatives and drive progress towards SDGs. To meet these aspirations, there is much needed opportunity to leapfrog in the way public services are delivered in the islands. There is an excellent opportunity in them to drive excellence in governance.

7.1 GOVERNANCE OPPORTUNITY

Public governance is now transcending from citizen-centric approach to citizen-driven approach. While the former entails the government to anticipate citizens' and business's needs and design the programmes and schemes, the latter envisages that citizens and businesses determine their own needs and address them in partnership with the government. Some of the key opportunities are as follows:

Figure 16: Governance opportunities

1. **Whole of Government:** *Single entity to interact with*

   a. Delivery of more consistent and cohesive services to the citizens
   b. Integrated, accountable, outcome-driven government

2. **Personalized Services:** *New level of personalization*

   a. Personalized services to the individuals from engagement to service delivery
   b. Promotion of cashless, faceless and paperless transactions for the individual

3. **Service-less Services:** *Proactive approach to service delivery by anticipation of needs*

   a. Experiences that anticipate citizen needs and satisfy them before citizen takes action
   b. Automated verification, minimum intervention required from the individual and proactive service fulfilment

4. **Certificate-less Government:** *Reducing the burden of governance on the citizen*

   a. Delivery of documents to citizen's digital locker account
   b. Electronic and verifiable output minimizing need for paper and interfacing with officials

5. **Ubiquitous access:** *Anytime, anywhere access to services*

    a. Services can be requested anytime through multiple channels such as Web, Mobile, CSCs, Kiosks
    b. Depending on the kind of outputs, services can be obtained from / delivered anywhere

6. **Expand citizen engagement:** *Shared decision-making and collaboration*

    a. Use of electronic channels to help bring citizens closer to the government
    b. Empowering people through information and institutionalize a culture of Open Government

7. **Single Interface:** *Need not go to multiple doors*

    a. Establish common systems across programmes (e.g. for registration, payments, grievances)
    b. Eliminate duplicate and ghost beneficiaries through unique digital identity

8. **Streamlined Processes:** *Eliminate unnecessary steps*

    a. Identify high value services and remove redundant steps through government process reengineering
    b. Remove unnecessary and repetitive documentation (e.g. one-time registration for all services)

9. **Assured Service Level:**

    a. Define the service levels to deliver services in a time bound manner
    b. Improved efficiency within Governments and ensure faster delivery of services through end-to-end automation

10. **Real-time monitoring and governance:**

    a. Establish systems to track progress of the development programmes on real-time basis
    b. Close monitoring and continuous feedback are necessary to ensure proper functioning of e-Governance projects

7.2 CHALLENGES

While the potential of governance opportunity highlighted in the last section is very significant, several gaps exist that must be mitigated and addressed to realize the possibilities.

Category	Key Challenges
Information and Communication Technology	I. **Inadequate infrastructure** such as computers / desktops, connectivity at various levels of Departments especially at Sub level Offices. II. **Lack of connectivity backbone** across all outlets of eGovernance service delivery III. **Lack of standards** for data collection, record keeping is manual in many departments which may lead to data inconsistency, duplication, data corruption and lack of data security. Every department has its own data collection, management and coding systems aligned to their specific requirements, which lends the data unusable by other departments. IV. **Lack of Information availability** such as availability of scheme guidelines, GOs, plans, beneficiaries list etc. in digitized form makes information sharing difficult across the departments.

Category	Key Challenges
	V. Several schemes are operational but each **databases working in silos** resulting massive duplication of effort in data management. VI. Beneficiary **data quality is inconsistent** across departments, absence of data storage and data exchange protocols leading to threat to data privacy VII. Citizen Information is spread across the schemes due to **absence of common identity** it is difficult to Enabling Data Exchange framework. Though more than 4.07 lakhs Aadhaar numbers have been generated (till August 2021), its seeding / usage as common identifier across programmes have been limited. VIII. **Lack of Data driven governance & decision making**. It is difficult to adopt new technology with existing business set up
Capacity	I. **Lack of skilled resources** - the existing IT assets are being used mostly for typing purpose or remain unused in most cases, due to absence of dedicated and technically skilled manpower at the Head office/ Sub offices. II. **Lack of Digital Literacy** – there is need to improve digital literacy to empower citizens to bring them onboard a digital ecosystem.
Service Delivery	I. **Redundant and obsolete policies and procedures** which are hurdles in efficient delivery of electronic Governance II. **Delay in service delivery**: Need of easy and quick access to services was distinctly ascertained as a citizen need III. **Low reach of service delivery:** Citizens need to travel long distances to district to avail services. IV. **Lack of Awareness:** There is low awareness among citizens and regarding government schemes & services. Citizens are not fully aware of their entitlements and the responsibilities of the Departments towards them. V. **Lack of a grievance handling system** at the Sub offices/ rural areas that would enable the citizen to get a status update of query / grievance would enable better citizen satisfaction VI. **Usage of IT systems** for service delivery requires significant improvement.
Sub-Office Functions	I. **Manual transactions**: all Sub-offices carry out the functions manually, on paper. Thus it becomes difficult to maintain the records after a certain point of time. This leads to delay in the processes of Planning, Implementation, Monitoring and Accounting II. **Lack of Awareness:** The officials are largely unaware of their roles and responsibilities towards citizens as well as other government agencies.

7.3 TRANSFORMING THE CITIZEN EXPERIENCE

Current experience of a family visiting a tourist location in Andaman & Nicobar Islands:
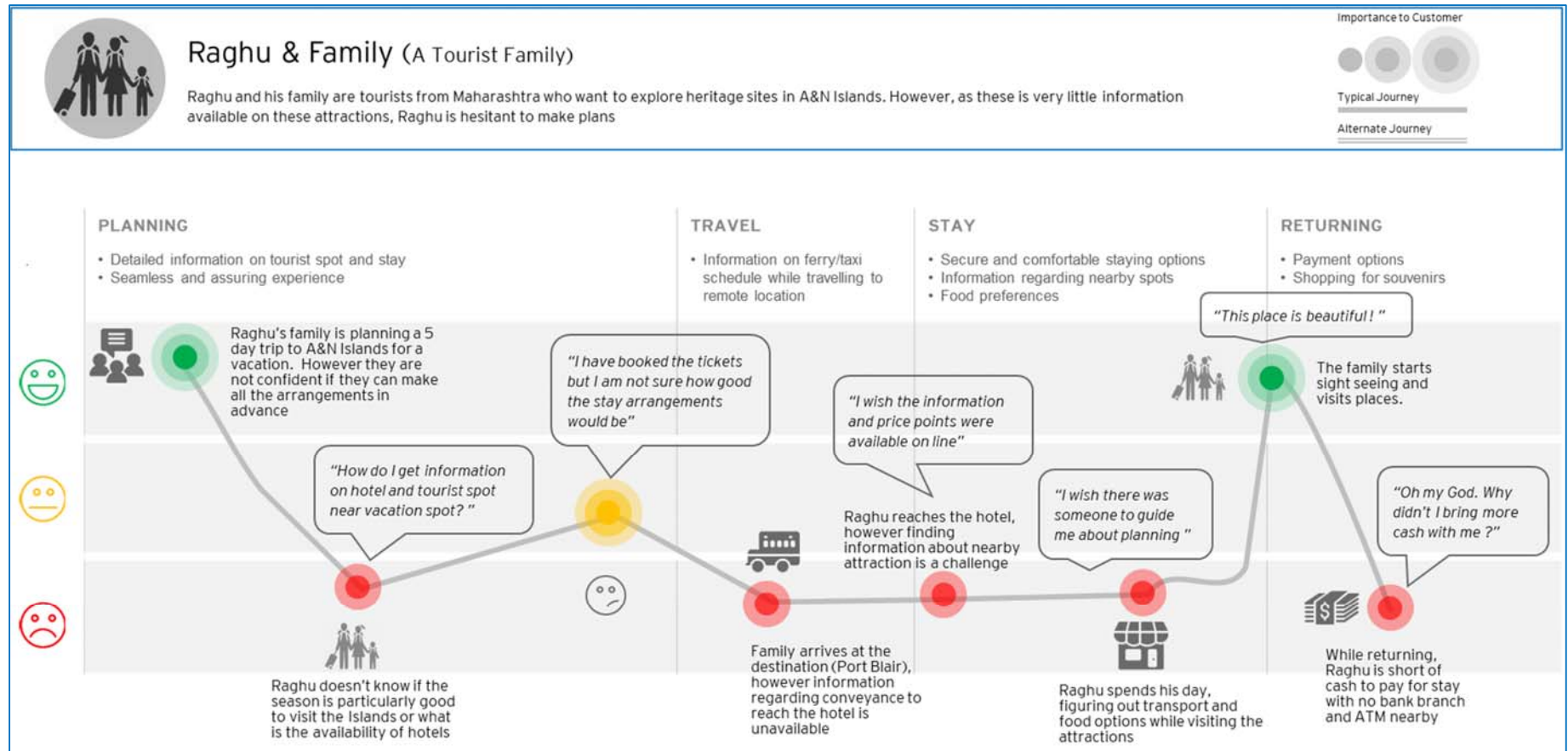

Figure 17: Typical experience of a tourist

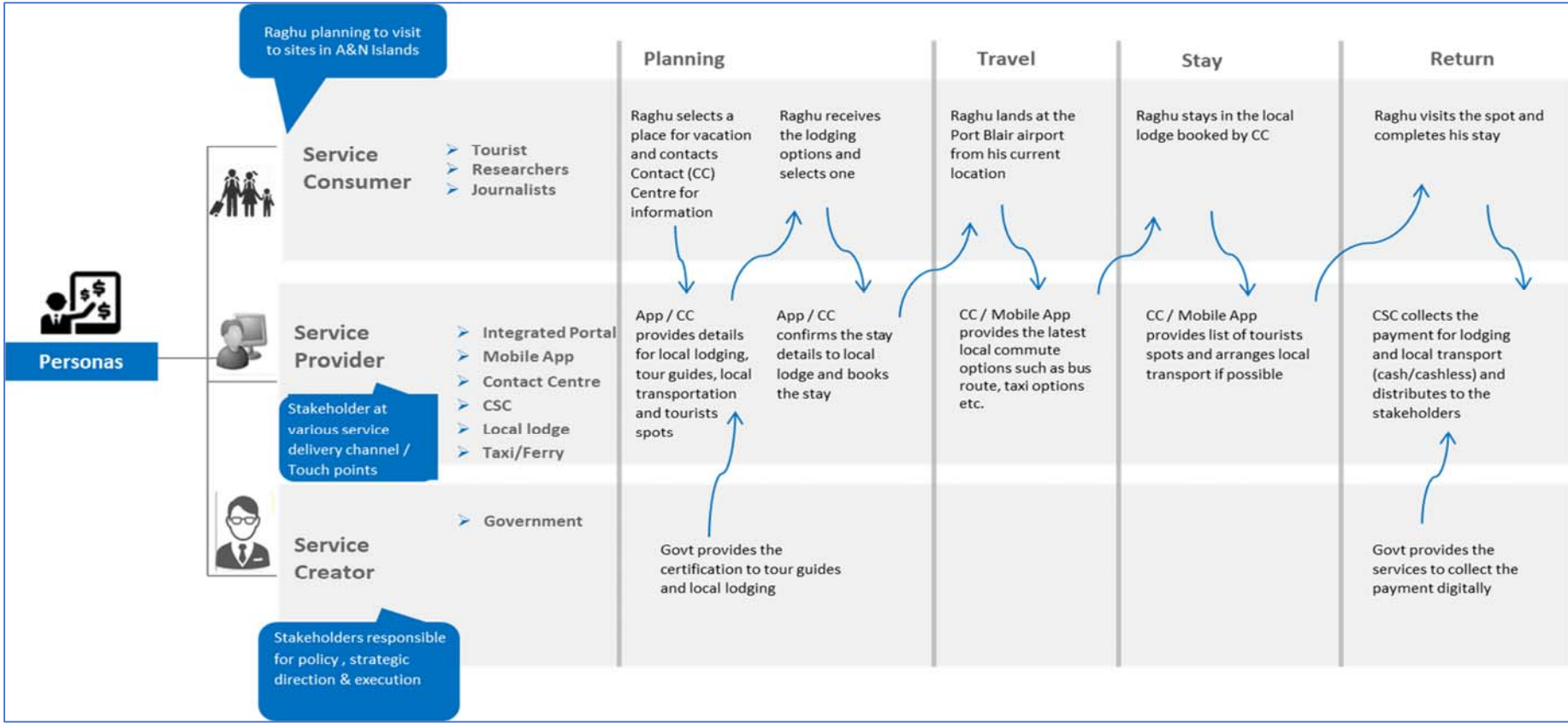**Transformed tourist experience in Andaman & Nicobar Islands:**

Figure 18: Transformed experience of a tourist

8 Digital Islands - Strategic Intent

Andaman & Nicobar Islands have been lagging on several aspects due to its geographic isolation from the mainland, remoteness and spread of the fragmented islands. However, there is a thriving population which must get equal access to facilities in education, skills development, employment, healthcare, social security, food security, housing, infrastructure, communication and so on. Sustained growth and development are critical to the overall growth and inclusive development in Andaman & Nicobar Islands. A citizen-centric approach to unified delivery of benefits and public services would usher benefits for the residents, visitors, business investors and government. In this era of rapidly evolving technology systems, it is increasingly important to leverage technology to deliver services. International organizations such as the United Nations and the World Bank study and advocate the use of the Internet for better governance. e-Government is not simply a matter of giving government officials computers or automating old practices. e-Government utilizes technology to accomplish reform by fostering transparency, eliminating distance and other divides, and empowering people to participate in the processes that affect their lives. More specifically, e-Government refers to the use of information technology to enable and improve the efficiency with which government services are provided to citizens, employees, businesses, and other agencies. The most mature stage of e-Governance is the *Connected Presence* which means offering completely integrated public service delivery through integrated channels. It is characterized by integration of systems vertically – local systems linked to higher level systems within similar government functions – and horizontally – systems integrated across different functions providing a real one stop shop for citizens. In this stage the government transforms itself into a connected entity that appears as a single entity to the citizens accessing public services.

The Digital India Program and various other initiatives has led to the next transition in nation's eGovernment journey – towards a stage that will be characterized by a connected government, delivering personalized public services in a citizen centric manner. The focus is shifting from delivering e-Services to ensuring delivery of outcomes that are identified in the strategic plans of the government. Similar experience has to be developed and expected for the people of Andaman & Nicobar Islands. In order to fast-track the transition from traditional governance to e-governance under Digital India across various citizen services, a large number of these initiatives made public services delivery efficient, it has to some extent led to "one citizen – multiple governments" view. However, the digitization of services in local ecosystem of departments has led to creation of various siloed solutions accessible through independent channels. Departments are not able to interoperate, re-use investments and provide a seamless and unified experience to Citizen.

Hence, there is a realization for the adoption of a more holistic and integrated approach in the entire model of governance, often termed as '***Whole of government***'. It denotes public service agencies working across portfolio boundaries to achieve a shared goal and an integrated government response to particular issues. The rationale for W-O-G approach is to eliminate 'silos', or departments working in isolation from one another, and achieve a seamless government.

8.1 VISION

Increasingly, it is expected that services are fast and frictionless, available anywhere, anytime across mobile, online, and physical channels, and personalized to our needs and preferences. There is a range of technologies that government can harness to improve performance, and those technologies are proliferating. They include digital interfaces for citizens through mobile and social media, automation of routine tasks such as processing of forms, advanced analytics (with or without big data), and artificial intelligence. However, analysis of technology-enabled transformations by the most advanced companies and

governments has led to counterintuitive conclusions: it is not technology per se that drives their success, but rather the customer or citizen-centric approaches that these organizations deploy. These innovations ensure that transformation efforts respond to the most pressing needs of citizens, actively incorporate their ideas, and are designed genuinely from their perspective.

Till recently governments have focused on touch points—the individual transactions through which citizens interact with the government agencies. However, citizens may be satisfied with individual touch points but still unhappy with the overall experience. *One Citizen – One Government* vision means it is absolutely essential to place the citizen at the centre of the government service delivery. It implies that the government services are designed as citizen-centric, and the interaction with the government is based on who needs the service and what is needed and not based on how the government is organized. Governments should view services through the eyes of the citizen, which entails considering the entire journey, from the time the person identifies his or her goal until it is completed.

VISION STATEMENT of ANDAMAN & NICOBAR ISLANDS BLUEPRINT

Smart Islands: Ensuring delivery of Services Online anytime, anywhere through transformative digital solutions

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The elements of the vision statement are further detailed below.

Table 2: Overview of Core Vision Elements

Vision Element	Overview
Smart	Being "Smart" is not just about changing to digital interfaces in traditional infrastructure or streamlining the government operations. It is also about using technology and data purposefully to make better decisions, economic and social development and deliver a better quality of life. Comprehensive, real-time data gives government departments and organizations the ability to pre-empt events before they happen, understand how demand patterns are changing, respond with faster and lower-cost solution, provide services proactively and keep government focussed on critical issues and not let operational challenges distract attention.
Ensure	It is through a set of pre-defined service levels that it can be ensured that the services are available to the concerned on-demand and in the way it is envisaged.
Anytime, Anywhere	It implies the ubiquitous nature of the services; their availability from anywhere and anytime
Transformative	A common framework of specifications, tools and protocols that enable different systems, organisations and to connect with and leverage off the strength of each other.

Digital Solutions	A set of unbundled services available via open interfaces that can be used by the actors in the ecosystem to build and innovate solutions.

8.2   GUIDING PRINCIPLES

An ecosystem oriented digital infrastructure cannot be built, nor can it evolve on a prescriptive approach. Given this, a set of Principles – rather than specifications - have been recommended. The UT Administration has to play the role of facilitators, enablers and advocates of these Principles to speed up the adoption of the Blueprint.
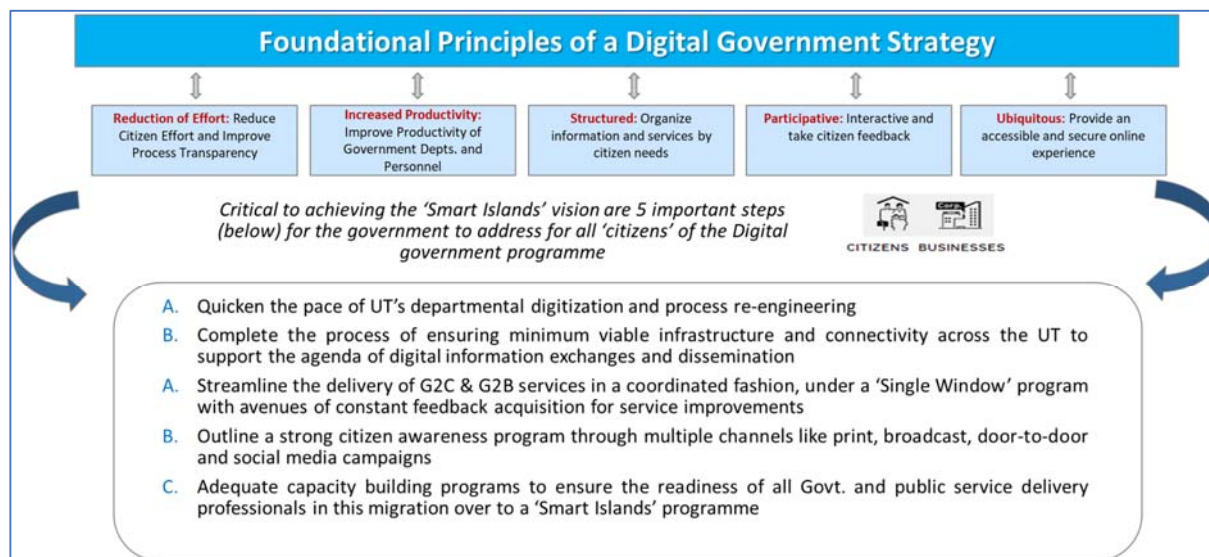
Figure 19: Foundational principles of Andaman and Nicobar 'Digital' Islands

Detailed Architecture Principles, primarily based on IndEA, and other reference Enterprise Architecture frameworks, have been suggested in Annexure 5.

9 Andaman & Nicobar Digital Islands Blueprint

The blueprint is envisaged to bring a holistic view across the Islands' ecosystem and enable rapid rollout of integrated services for the citizen, families, businesses, communities through a one-stop gateway.

9.1 BLUEPRINT OVERVIEW

The Blueprint identifies the **Essential Set of Macro-Level Building Blocks**; it comprises five distinct layers of building blocks: **ICT Infrastructure layer, Common Functions and Digital Platforms, Core Registries, Digital Platforms & Enablers, Digital Services & Channels.**
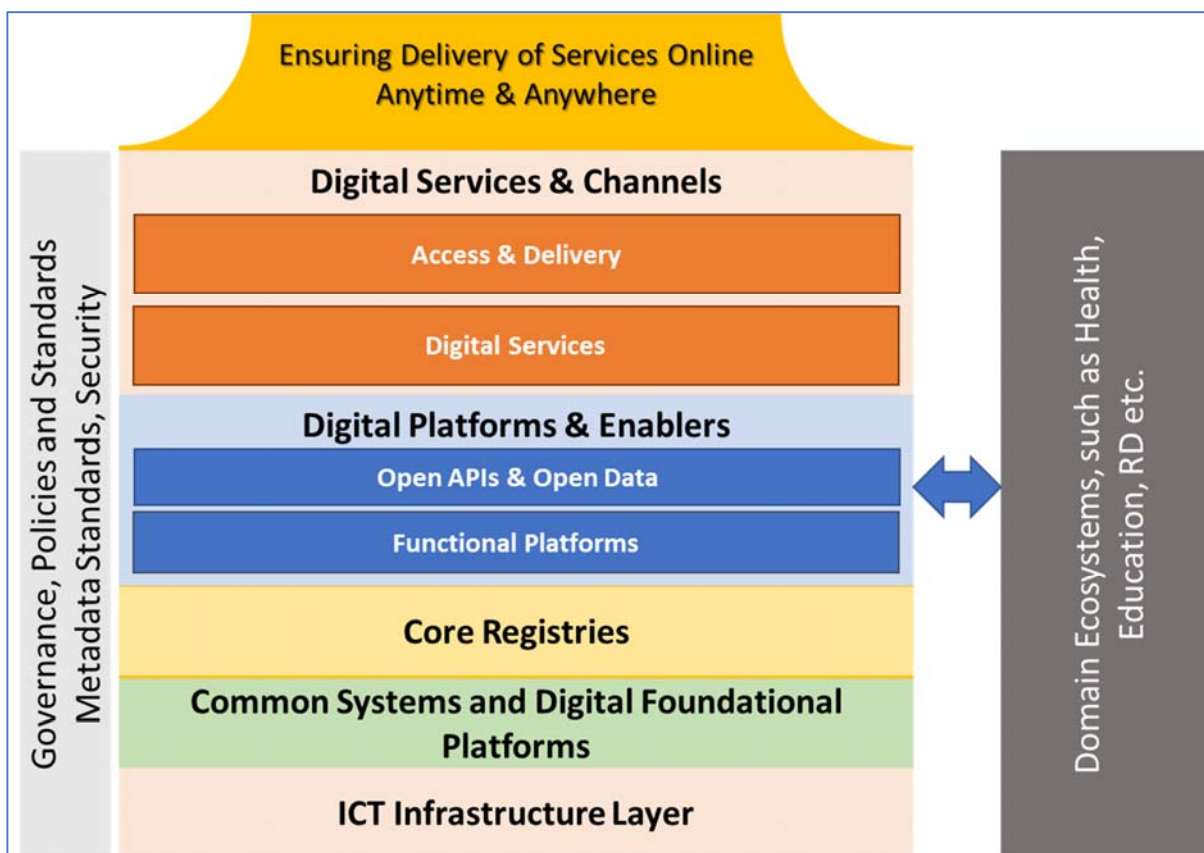
Figure 20: Blueprint overview

The platforms and systems would also interact with domain ecosystems and applications and support interoperability and inter-domain flow of information. The following diagram depicts a detailed view of the layers and the building blocks contained in it.
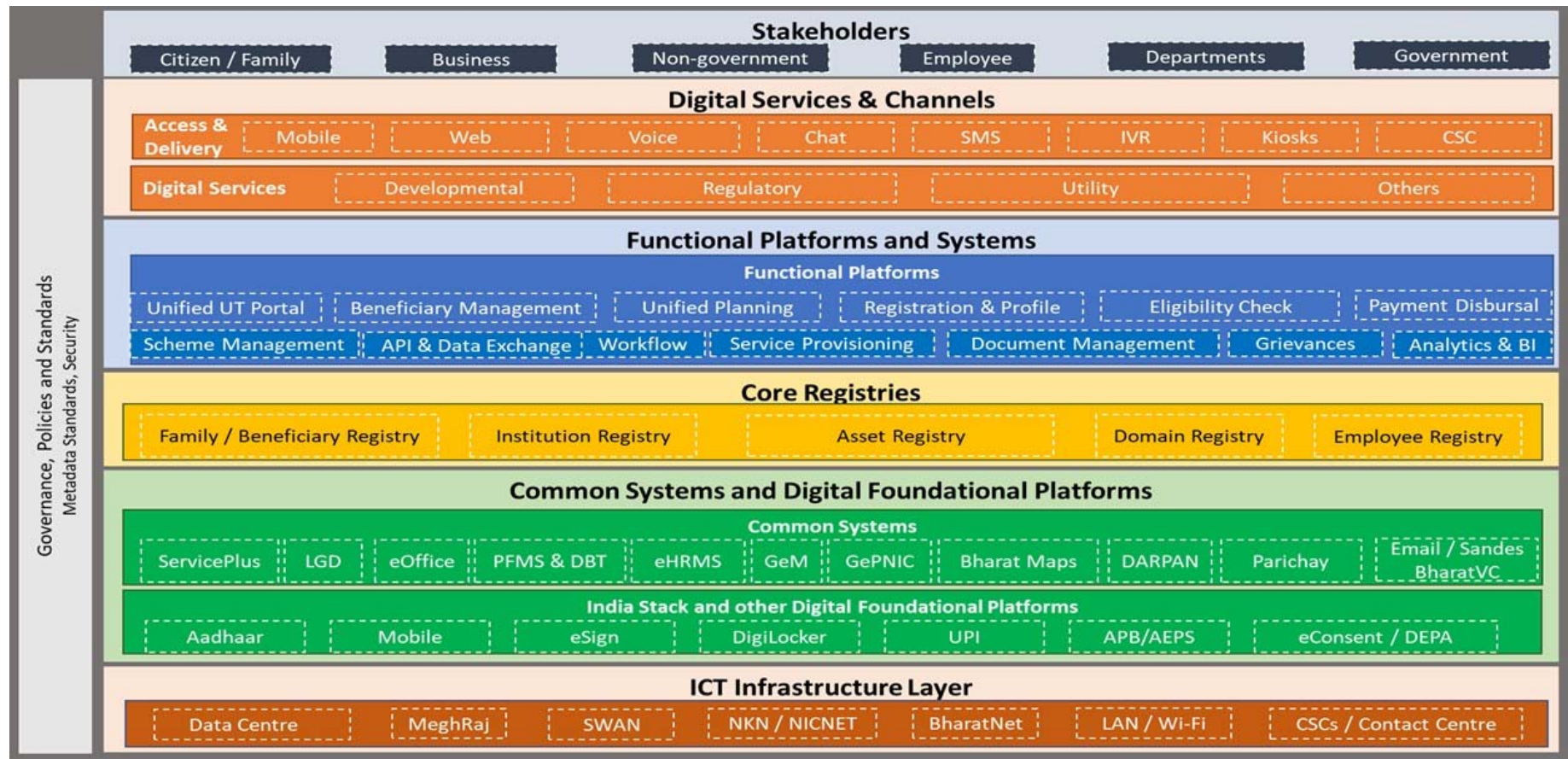
Figure 21: Blueprint Layers and Building Blocks

9.2 DIGITAL SERVICES AND CHANNELS LAYER

9.2.1 Digital Services

The digital services shall mirror the services being offered by the various departments. These digital services should adopt the **Digital Service Standard (DSS)** which is the national standard to ensure uniformity, consistency, comprehensiveness and excellence in definition, realization, measurement and governance of digital services. Each of the digital service shall have the following characteristics:

- Adherence to assured service levels
- Digital, accessible and inclusive
- Seamlessly accessible over multiple channels
- Use capabilities of foundational building blocks
- Standards based
- Designed for scale

For transformation, the Digital Services delivered by this Blueprint would have to demonstrate eight fundamental attributes viz personalised, paperless, cashless, presence-less, frictionless, proactive, perceptive and pervasive. These are discussed in detail in Annexure 6.

The Blueprint would act as the digital backbone by providing necessary capabilities for ideation, design, deployment and operation of Digital Services that demonstrate the described essential attributes.

Figure 22: Fundamental attributes of digital services

9.2.2 Access and Delivery Channels

The services shall be made seamlessly accessible over key access and service delivery points that would be required by the beneficiaries and other actors of the ecosystem.

➢ Given the prospects of a greater proliferation of telecom network in the A&N Islands in the near future, all the digital services are to be designed to be delivered through Smartphones adopting the **Mobile First Principle**. The Smartphones should be the preferred medium / channel for dissemination of appropriate content, information, alerts and updates, government functionaries and others involved.

➢ Specific efforts shall be made to launch most of the services through the **Common Service Centres** and the network of CSCs may be further scaled up to provide greater accessibility.

➢ **Voice-based services** using appropriate tools customized to work in spoken Indian Languages can also be leveraged.

➢ Various options can be made available via **IVR, missed calls, SMS** to help users take actions, get information, etc without having to physically visit offices, fill forms, etc.

➢ **Interactive chatbots** shall be encouraged for responding to frequent queries, get access to information, and conduct transactions.

➢ In addition to access and delivery for humans, this building block would also provide capabilities for **enable system – to – system access and delivery** of services through by supporting **API gateway and Open Data Portals**.

9.3 FUNCTIONAL PLATFORMS AND SYSTEMS LAYER

Each building block shall provide a standalone, useful, reusable and implementable capability in support of the services and have the following characteristics:

- Cross-functional across the value chain by design
- Applicable to multiple use cases in several schemes / programmes
- Interoperable with other building blocks
- Use shared digital infrastructure (to the extent feasible)
- Standards-based
- Designed for scale

This block will provide a common set of key functionalities that will create a unifying digital backbone to allow proactive, responsive and converged delivery of services and benefits to the respective stakeholders.

Macro-level building blocks of Functional Platforms and System layer are as follows:

(i) **Unified UT Portal** would be the single-stop portal or gateway for all services. This would be providing seamless interoperability and exchange of data across different departments. Unified UT Portal is envisaged to act as the primary interface for all e-Governance initiatives and services across all departments. A requester will be able to fill and submit the application electronically and will also be able to track the status of the application.

(ii) **Beneficiary Management** will support in beneficiaries to be created / mapped / removed from the programmes based on eligibility criteria for each programme / schemes / departments. This would leverage the various electronic registries to aid in the beneficiary lifecycle management.

(iii) **Unified Planning & Management** will provide provides core functional services to help the departments prepare annual / half-yearly / quarterly / monthly plans. Resource Planning would be supported so that it enables dynamic allocation of resources to fulfil the beneficiary plans.

(iv) **Registration and Profile Management** will empower the beneficiaries to seamlessly register, including proactively, across multiple schemes and manage their profiles.

(v) **Eligibility Check** and would allow individual to check eligibility and would provide citizens an unified view into the various benefits that have been provided to them.

(vi) **Payment Disbursal & Tracking** would allow beneficiaries to manage preference for receiving payments and track status of payments.

(vii) **Scheme Management System** would automate the process for utilization of various schemes provided by government for various departments. It would take care of the activities related to the schemes provided by the government. The major responsibility is to take care of the proper utilization of different schemes in a transparent way.

(viii) **APIs and Data Exchange Framework** will provide the services to define, deploy and manage APIs to allow reuse of capabilities and data provided and managed by various business and technology centric components. The data exchange framework has different services at its different layers. Presentation layer is the first layer that provides interaction service with the system. The second layer, secure access, constitutes the secure access and data exchange service which mainly captures, provides privilege, and identifies users who are accessing the system.

(ix) **Workflow Management** will provide longitudinal tracking of services, often across multiple service categories, departments and locations and help to optimize business processes by specifying the rules that govern the execution of a sequence of activities and the exchange of associated information to orchestrate the process flow from initiation to completion

(x) **Service Provisioning** would aid in end-to-end provisioning and fulfilment of the digital services. The user journey would be created and managed through this.

(xi) **Document Management System** would help in organising the govt. records and information, manage access and electronic content regardless of how it was created and where it resides; streamline and automate their archival and retrieval processes; and share information across departments.

(xii) **Grievance Redressal solution** will provide a digital interface to capture, process and resolve feedback, complaints and appeals across several programmes.

(xiii) **Analytics & Business Intelligence** would provide the services that allow data to be harnessed to address implementation gaps, detect overlaps, offer personalised services, target the right beneficiaries, prevent and detect frauds through use of emerging technologies like big data and AI/ML. Further, the role-based analytics dashboards shall be provided at every administrative level which would enable closer, proactive monitoring and timely action. Predictive analytics can also help in identifying the future needs of the citizens, planning, targeted implementation for faster and better outreach and enhanced benefits realisation.

9.4 CORE REGISTRIES

Core Electronic Registry is the registry of the master data which works as a single source of truth and is available with in domain and across domain for integration by other applications/platforms. The objective is to avoid duplication and ensure quality and consistency of this master data. The standard definition of this data and its consistent application and sharing with-in and across the departments is the key to delivery of high-quality integrated services.

These registries will be designed to be easily accessible through "registry-as-a-service with open APIs".

➢ **Family Registry** will collect individual and household level data on the socio-economic conditions of potential development beneficiaries, and support functions of outreach, registration and overarching assessment of needs and conditions across schemes.

➢ **Beneficiary Registry** provides a consolidated overview of 'who receives what' benefits to support coordination, planning and integrated monitoring. It will support program implementation by enabling assessment of overlaps, gaps and duplications across multiple programmes.

➢ **Institution Registry** provides a details of the various institutions such as financial, heath care, academic institutions etc.

➢ **Asset Registry** will provide comprehensive information about the assets and infrastructure that are created and maintained by the UT Administration under the various schemes and programmes.

➢ **Domain Registry** will have domain-specific data of the related domains such as land, agriculture, fisheries, animal husbandry, ports etc.

➢ **Master Codes** are pre-assigned codes to data elements, so that the data entered into a system can be reliably read, sorted, indexed, retrieved, communicated and shared between systems. Master Codes will be maintained for Administrative Units (using LGD), Household Types, Scheme Types,

Benefits types/categories, Languages, Location etc. These master codes must be maintained in a single source digitally and made available via APIs for other blocks and applications to use.

9.5 COMMON SYSTEMS AND DIGITAL FOUNDATIONAL PLATFORMS LAYER

Existing systems and infrastructure would be reused to the extent feasible. These include common use systems and digital platforms and infrastructure established by the government.

9.5.1 Common Systems

Following common systems shall be used by:

- **Local Government Directory (LGD):** LGD generates unique code for each local government body and facilitates maintenance of directory with events such as newly formed panchayats/local bodies, re-organization in panchayats, conversion from Rural to Urban area.

- **ServicePlus:** ServicePlus is a metadata-based e-Service delivery framework for delivering electronic-services to citizens. It facilitates data flow with the existing government systems and tools like DigiLocker, e-wallet, eTaal, e-Sign, Aadhaar etc.

- **Public Finance Management System (PFMS):** PFMS is a web-based online software application developed and implemented by the Office of Controller General of Accounts. It facilitates sound management of public finances by establishing an efficient fund flow system as well as a payment cum accounting network.

- **Direct Benefit Transfer (DBT):** DBT provides the mechanism of transferring subsidies directly to the people through their bank accounts.

- **Sandes:** It is an open source based indigenous instant messaging platform to facilitate instant messaging communication in Government organisations. It supports end-to-end encrypted messaging and encrypted backup and encrypted OTP service. It can be integrated with other Government communications systems for sending encrypted messages and is integrated with NIC email, Digilocker and eOffice.

- **Tejas:** It is a powerful tool for data preparation and analytics visualization with capability to integrate all data types. This tool was developed using open source technologies and bringing together the best business intelligence features. It can be integrated with BharatMaps (State & district level maps) and Sandes.

- **Electronic Human Resources Management Systems (e-HRMS):** e-HRMS is a standard ICT solution for the Government sector. It provides a product-based solution to the State/Central Government organisations for better management of personnel through electronic service record.

- **eOffice:** eOffice is a cloud-enabled system that aims to support governance by ushering in more effective and transparent inter and intra-government processes. The open architecture on which eOffice has been built, makes it a reusable framework and a standard reusable product amenable to replication across the governments, at the central, state and district levels.

- **CollabFiles:** This application offers a "State-of-the-art, Shareable, Secure, Reliable and Scalable Web-based platform to provide a Suite of Office Services viz., Documentation, Spreadsheet, Project Management services, so as to facilitate Government Enterprises of India to function more efficiently"

- **Government e-Marketplace (GeM):** GeM is an online platform for public procurement. GeM is a contactless, paperless and cashless online marketplace that provides all modes of procurement, viz., direct purchase, e-bidding, bidding with reverse e-auction and direct reverse auction.

- **Government eProcurement System of NIC (GePNIC):** is an online solution to conduct all stages of a procurement process. GePNIC converts tedious procurement process into an economical, transparent and more secure system. Today, many Government organizations and public sector units have adopted GePNIC.

- **Lok Samvaad:** It is a micro blogging platform which aids to promote networking of ideas, topics and thought leadership; extends the outreach of the Government in an unprecedented manner to serve the common man and encourage citizens' participation to share their thoughts and ideas on day to day issues of local and national importance.

- **Geographic Information System (GIS) / BHARATMAPS:** BHARATMAPS is a multi-layer GIS platform which depicts core foundation data as "NICMAPS", an integrated base map service using 1:50,000 scale reference data from Survey of India, Indian Space Research Organisation, Forest Survey of India, Registrar General of India and so on. The platform provides access to GIS data as a service to various projects at central and state level.

- **DARPAN:** It is a dashboard for Analytical Review of Government schemes and Projects Across Nation, transform complex government data into compelling visuals. It gives the technical administration a tool, which is needed to deliver real-time, dynamic project monitoring without coding or programming through web services.

- **Parichay:** It is a single sign-on application designed to integrate services under a single authentication domain. It is a centralized session and user authentication service in which one set of login credentials can be used to access multiple applications. The service authenticates user one on one designated platform, enabling the user to use a plethora of services without having to log in and logout each time.

- **Security and access services** will provide ICT administrators the ability to centrally configure and manage user and group access permissions to network resources, services, databases, applications, and user devices.

- **Govt. Email / Sandes / BharatVC:** These are the common communication tools available for use by the government departments and organisations.

9.5.2 *India Stack and Other Foundational Digital Platforms*

India Stack is a set of digital public goods which collectively make it easier for innovators to introduce digital services in India across a range of sectors. India Stack has four essential layers:

- **Presence-less layer** – enabled by Aadhaar

- **Paper-less layer** – enabled by e-Sign, DigiLocker and Aadhaar eKYC

- **Cashless layer** – enabled by UPI, APB and AEPS

- **Consent layer** – enabled by e-Consent Framework and DEPA

- Common India Stack (Aadhaar, UPI, DBT, DigiLocker, eSign etc.) would be leveraged to provide the services to the actors by providing **API bridges and utilities** within this block.

9.6   ICT INFRASTRUCTURE

This block provides various shared technology services that can be used across all other blocks to enable reuse, scale, security, and avoidance of duplicated efforts. The services provided by this building block would be generalized and non-functional and technology-oriented in nature.

Services provided by this macro-level building block are as follows:

> **DC:** Data Centre houses the ICT infrastructure – servers, storage, network and, security devices to consolidate services and applications and provide efficient electronic delivery of G2G, G2C and G2B services.

> **MeghRaj:** It enables the government agencies to utilise and harness the benefits of Cloud Computing. It offers services in variety of service models like Platform as a Service (PaaS), Infrastructure as a Service (IaaS) and Software as a Services (SaaS). IaaS provides basic virtual compute infrastructure resources like CPU, Memory, Disk Storage, whereas PaaS provides pre-installed web and database servers to publish and run web application without worrying about server setup.

> **SWAN:** It is envisaged as the converged backbone network for data, voice and video communications throughout a State/UT.

> **NICNET:** NICNET, the pan India communication network for exclusive use of government today connects government offices across the length and breadth of India using terrestrial, RF & VSAT technologies.

> **BharatNet:** BharatNet is a telecom infrastructure composed of the National Optical Fibre Network to provide a minimum of 100 Mbit/s broadband connectivity to all gram panchayats in the country. The last mile connectivity is through 2 to 5 Wi-Fi hotspots per gram panchayat with a minimum of one Wi-Fi hotspot per village.

> **Common Service Centres:** CSCs are the access points for delivery of essential public utility services, social welfare schemes, healthcare, financial, education and agriculture services, apart from host of G2C services.

> **Contact Centre:** This would be the point of contact for all queries and resolution with relation to the services being provided by the government.

9.7   GOVERNANCE, POLICIES & STANDARDS

Governance, Strategic Control, Compliance to Policies and Standards would be one of the key verticals that cut across all the Blueprint layers and building blocks. It envisages the evolution of an entire ecosystem in the administration of Andaman & Nicobar Islands to provide a wide range of services to the stakeholders in a digitally enabled manner. Such seamless and boundaryless interoperability is possible only if all the building blocks and the digital systems are built using the defined standards which are openly licensed, accessible, and usable by the whole ecosystem. This building block will provide the minimum viable standards required for ensuring interoperability within the ecosystem. Some of the primary areas in which standards would be defined are as follows:

> **Metadata Standards:** Metadata standards are the requirements which are intended to establish a common understanding of the meaning or semantics of the data, to ensure correct and proper use and interpretation of the data by its owners and users. The adoption of Data Standards for use across e-Governance systems will enable easier, efficient exchange and processing of data. It will also remove ambiguities and inconsistencies in the use of data.

- **Interoperability:** Standards related to exchange of government data. The policy can also emphasize the criticality of Open Standards so as to avoid vendor lock-in and to ensure seamless integration of disparate applications, products and systems developed/deployed by different organizations and vendors.

- **Domain standards** wherever notified by the government should be used.

- **Application design and development:** Standards related to design and development of applications.

- **Privacy & Security:** Standards related to data privacy (through access control) and Security of data at-rest and at-motion. Also, aspects such as data immutability and non-repudiation with audit trail.

- Compliance to Guidelines for Indian Government Websites (**GIGW) standards**.

- Compliance to **Accessibility standards and guidelines**.

10 Benefits and Key Success Criteria

10.1 ENVISAGED KEY BENEFITS

There are several benefits to the Whole-of-Government and whole-of-eGovernment approach towards smart governance. Some of the key benefits of digital transformation of services rollout are encapsulated as follows:

Table 3: Envisaged Key Benefits

Social Impact	Economic Impact
• Better access to services, quicker delivery of 574+ services to public • More responsive government • Better implementation of development agenda • Wider reach and Easier access of schemes and services • Better connect between government and citizen	• More realistic policies, projects, and schemes • Better service and beneficiary targeting • Reduced cost of service delivery • Reduced expenditure and fund leakage • Improved Return on Investments for public expenditure

10.2 KEY SUCCESS CRITERIA

In order to evaluate the success criteria of the EA implementation programme, some of the indicative criteria are suggested as follows:

Customer Satisfaction
► Service completion in line with defined Turnaround Time with Ease of Use of the System
► Ease of Access and Overall quality of service delivery
► Timely Issue resolution and Grievance addressal
► Service availability through multiple modes (Web/CSCs/Smart & Feature Mobile)

Cost Effectiveness
► Direct & Indirect costs associated with the service disbursement for all key Stakeholders
► Time, cost and efforts saving for government officials and recipient
► Alleviation of Process leakages/fraud
► Reduction of duplication of efforts such as data entry, verification etc.

Service Efficiency
► Turnaround Time for service access, processing and disbursement
► Waiting time for citizens in the entire process
► % service completion and failure rates, processing concurrency
► Speed of system and manpower response in service completion

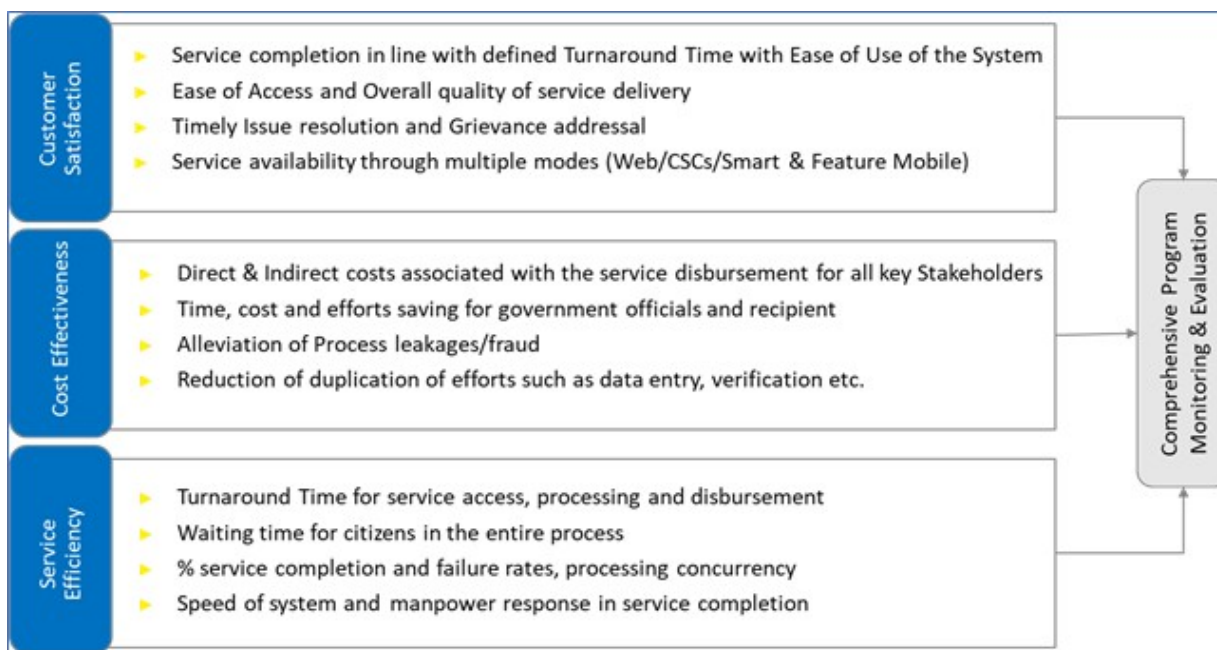**Comprehensive Program Monitoring & Evaluation**

Figure 23: Key Success Criteria

11 Way Forward

The Blueprint gives a composite, coherent understanding of whole-of-the-government and whole-of-e-government approach. 574 services have been planned to be rolled out in a phased and timely manner. This document provides the building blocks and approach towards their implementation. The Blueprint is adequate for digitally transforming the G2C, G2B, G2G and G2E services online for better public service delivery. NIC has already rolled out 34 services through the ServicePlus platform and the remaining services are expected to be rolled out in a phased manner as proposed.

11.1 DEPARTMENT PRIORITIZATION FOR IMPLEMENTATION AND ROLLOUT OF SERVICES

An indicative prioritization has been done based on the significance and the impact that would be created through the services which would be implemented and rolled out. A multiple wave approach has been proposed i.e. the implementation would be done in four (4) waves. Further consultation can be held with the respective departments to align with their requirements. The ICT infrastructures highlighted in Section 9.6 would form the backbone for the entire programme and they are the pre-requisites for service delivery. Scaling them up has to be taken up on priority. In terms of implementation and rollout, the following waves (sequentially progressive) have been proposed:

Table 4: Department Prioritization for implementation and rollout

Sl. No.	Wave	Department / Directorate	Department and Target Population[9]
1	**1st Wave** – **154 services** **(7 Departments)**	Agriculture	To benefit over 21,000 farmers
2		Animal Husbandry & Veterinary Services	To cater to around 500 farms / dairies / clinics
3		Fisheries	To cater to over 7,000 fishermen / fish farmers etc.
4		Health	With over 150 hospitals, these services would impact the lives of majority of the population.
5		Industries	It would impact over 40,000 workers and 10,000 commercial establishments.
6		Labour, Employment & Industrial Training	To cater to the local labours and migrants
7		Social Welfare	To cater to more than 23,000 beneficiaries
8	**2nd Wave** – **168 services** **(11 Departments)**	Transport Department	
9		Directorate of Shipping Services	
10		Rural Development	Around 12,500 MGNREGA workers would be covered.

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[9] http://andssw1.and.nic.in/ecostat/2020/glance.php as last retrieved on 08-Sep-2021

Sl. No.	Wave	Department / Directorate	Department and Target Population[9]
11		Electricity Department	Electricity department covers around 1.2 lakh consumers.
12		Directorate of Civil Supplies and consumer affairs	Civil Supplies covers more than 1 lakh families.
13		Home (Police)	
14		LG Office	
15		Tribal Welfare	Six tribal communities with a population of around 35,000 are being supported by Tribal Welfare department.
16		Department of Environment and forests	
17		JNRM College	
18		Tagore Govt. College of Education	
19	**3rd Wave** – **143 services** **(21 Departments)**	Home Secretariat	
20		Port Management Board	
21		Chief Pay and accounts office	
22		GA Section	
23		Fire Service Department	
24		Sports And Youth Affairs	
25		Arts And Culture	
26		Tourism Department	
27		Directorate of Information And Publicity	
28		Election	
29		Education Department	
30		Prison	
31		Economics & Statistics Department	
32		Official Language Department	
33		Port Blair Municipal Council	
34		Registrar Of Co Operative Societies	

Sl. No.	Wave	Department / Directorate	Department and Target Population[9]
35		Personnel Section, Secretariat	
36		Department of Science and Technology	
37		District Industries Centre	
38		APWD	
39		Excise, Registration, Taxation And Stamps	
40	**4th Wave** – **109 services**	Revenue	

11.2 IMPLEMENTATION APPROACH

The tenets discussed in the Blueprint would serve as guidance towards rolling out the digital services as envisaged for the A&N Administration. Therefore, the following approach needs to be adopted:

A. **Implementation and Rollout of Identified Services (574 services)** – The implementation and rollout of the services would be carried out through the ServicePlus platform as per the prioritization elaborated in Section 11.1. Once the digital platforms and services are ready, they would be initially piloted in selected departments to check its readiness and performance. The phased rollout has to be complemented with necessary GO's and change management & capacity building exercises so that there is rapid adoption and higher utilization.

B. **Development of Enterprise Architecture** – Enterprise Architecture following the IndEA framework can be developed department-wise to achieve complete **Business Process Re-engineering**, **Elimination, Simplification, Optimization, End-to-end Workflow Automation, Self-Service and Integration.** To perform these activities, a set of specialized, experienced Enterprise Architects would need to be engaged by the Administration who would closely work with the stakeholders in identifying the gaps and create target architectures. The Administration or respective department may consider to take up EA which would require greater efforts and investments, at an appropriate stage.

11.3 TIMELINES

The scope, breadth (number of departments / sectors) and depth (finer detailing and business process reengineering) are the key factors which would determine the timelines for preparation of the enterprise architecture. The timelines have been spread out due to challenges which have been listed earlier and it is expected that the pre-requisites such as ICT infrastructures, resources, digitized data would become available within this timeline. Accordingly, the following timeline has been suggested:

Table 5: Gantt Chart showing the timelines

Activities	Year 1				Year 2			
Implementation Wave 1 (Priority Departments)	■	■						
Implementation Governance	■	■						
Change Management	■	■						
Implementation Wave 2			■	■				

Activities	Year 1				Year 2			
Implementation Governance			■	■				
Change Management			■	■				
Implementation Wave 3					■	■		
Implementation Governance					■	■		
Change Management					■	■		
Implementation Wave 4							■	■
Implementation Governance							■	■
Change Management							■	■
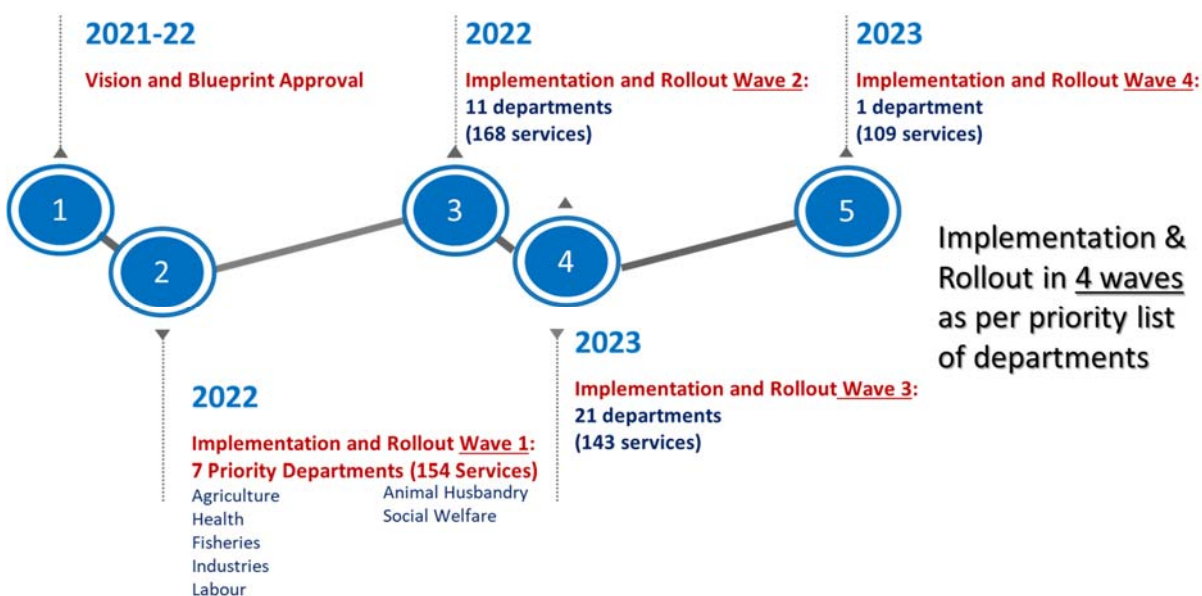
Figure 24: Implementation timelines

11.4 GOVERNANCE FRAMEWORK

In order to drive, manage and approve the progress of the digital transformation and govern the entire programmes, there has to be concerted efforts from the leadership. Therefore, the following governance framework is proposed:

Table 6: Governance Framework

Committee	Key Roles & Responsibilities	Chairperson	Proposed Members
Architecture Apex Board	• Vision and strategic direction • Policy decisions • Allocation of Funds	Hon'ble Lieutenant Governor, Andaman & Nicobar Islands	• Chief Secretary • Director General, NIC • Principal Secretary, Finance • Principal Secretary, Planning • Secretary, Information Technology

Committee	Key Roles & Responsibilities	Chairperson	Proposed Members
			• Representative from MHA • Representative from MeitY • Member of Parliament, Andaman & Nicobar Islands
Empowered Committee	• Guidance and direction • Period review of progress • Ensuring participation and support from various levels of government • Conflict resolution	Chief Secretary	• Principal Secretaries and Secretaries of all departments • Sr. Deputy Director General, NIC • SIO, NIC
Executive Committee	• Undertake project activities on a day-to-day basis • Ensure quality & timely completion of project activities • Review of artifacts and deliverables	Secretary, IT Department	• Department Heads • Directors of Directorates / Organizations • Sr. Technical Director, NIC • ASIO, NIC

11.5 EXPECTATIONS FROM THE GOVERNMENT

Enterprise Architecture for government is a rigorous exercise and there has to be persistent drive from the administration. Following are the key expectations from the government:

(a) In-principle approval of Blueprint and go-ahead
(b) Allocation of dedicated funds for digital transformation and services rollout
(c) Training of the department personnel on Service Definer Guide (SDG) in order to capture services specific details information including application form, process-flow, work-flow player, integration with other systems (if any)
(d) Constitution of 'Digital Islands' Governance & Programme Committees to monitor implementation and periodic update of this document
(e) Timely review and approval of the deliverables
(f) Strengthening of ICT infrastructure
(g) Issuance of GO's in accordance with the rollout plan
(h) Change Management and Capacity Building exercise
(i) IEC campaigns for creating mass awareness of the transformations

In this regard, it is essential to reiterate that the principles and building blocks envisaged in the Blueprint support a paradigm shift in ethos within the government. Therefore, the Blueprint offers guidance for a shared understanding to harness the technological change and digital opportunities in a long-term perspective to create public value, ensure greater transparency, improve efficiency and garner public trust. The Vision 2030 of the administration can be progressively achieved with focussed interventions on the SDG indicators & targets and bringing in holistic transformation in the services linked to the various programmes and schemes.

Annexure 1: List of Major IT projects in Andaman & Nicobar Islands

Sl. No.	Department	Name of the Project	Developed by
1	A & N Administration	Jeevan Pramaan	NIC
2		Recruitment Portal	NIC
3		LG HelpDesk & CS HelpDesk	NIC
4		e-Procurement and eAuction	NIC
5		Promise (Project Monitoring Application)	NIC
6		eGranthalaya	NIC
7		National Scholarship Portal(NSP)	NIC
8	A & N Police	IVFRT	NIC
9		CCTNS	NIC
10		e-Forensic (ICJS)	NIC
11		Quarter Allotment	NIC
12	Agriculture	PM Kisan Samman Nidhi	NIC
13		AGMARKNET	NIC
14		Soil Health Management System	NIC
15		Minor Irrigation	NIC
16	Animal Husbandry	NADRS	NIC
17	APWD	Water Tap Connection	NIC
18		Road Cutting Permission	NIC
19	DC Office	Arms License Info System	NIC
20	Civil Services (IAS,IPS,IFS,CHS)	SPARROW	NIC
21	Consumer Commissions	CONFONET	NIC
22	Court	eCourt	NIC
23	DC Office	File Monitoring System	NIC
24	Education	e-Counselling	NIC
25	Electricity	Electric Meter Connection	NIC
26	Fire Service	Clearance Certificate	NIC
27	Fisheries	RealCraft	NIC
28		Adventure Sport Fishing Permit	NIC
29	Forest	eSMART	NIC
30	Health	e-Hospital (Not all Modules)	NIC
31		Clinical Establishment Registration	NIC
32		Mother & Child Tracking System (MCTS)	NIC
33	Industries	eBasic	NIC
34		Incentives & Subsidies	NIC
35	Information Publicity	Portal for Management of Activities of IP Department	NIC
36		Film Shooting Permit	NIC
37	Labour	Registration of Shops and establishments	NIC
38		Online service Portal for Labour	NIC
39	Pay & Accounts	PFMS	NIC

Sl. No.	Department	Name of the Project	Developed by
40	Port Blair Municipal Council	eNagarsewa -eMunicipality solution	NIC
41	Jail	e-Prison	NIC
42	Revenue	Land Records (RoR)	NIC
43		NGDRS	NIC
44		Bhunaksha	NIC
45		Islander Card Management System	NIC
46	Rural Development	MGNREGA	NIC
47		NRLM (National Rural Livelihood Mission)	NIC
48	Social Welfare	Track Child 3.0	NIC
49		National Social Assistance Programme	NIC
50		ICDS (Integrated Child Welfare System)	NIC
51	Transport	Vahan Sarathi	NIC
52		Bus Ticketing	NIC
53	Waqf Board	WAMSI	NIC
54	Civil Supplies & consumer Affairs	ePDS	HCL
55		Aadhaar Enrollment	Other
56		FPS License Issuance System	HCL
57	Education	e-Counselling	IT Department.
58		Transfer & posting of Teachers	IT Deptt
59	Electricity	Billing and Payment	IT Deptt
60	Shipping	Ticketing Software	CRIS, Delhi
61	Social Welfare	Old Age Pension (DBT)	IT Deptt
62		Widow Pension (DBT)	IT Deptt
63		Disability Allowance (DBT)	IT Deptt
64		Destitute Allowance (DBT)	IT Deptt
65	A & N Administration	Quarter Allotment	IT Deptt
66	Revenue	e-District	IT Deptt

Annexure 2: List of Services Launched through the ServicePlus Platform

DBT-33   Non DBT-1   Total 34

Agriculture

1. Soil Conservation Work and Strengthening of Soil test Laboratory

2. Development of Minor Irrigation

3. Assistance to farmers under High Yielding Programme

4. Assistance to Farmers For Promotion Of Horticulture Crops and High Value Agriculture

5. Animal Husbandry and Veterinary Services

6. Imparting one month training on Poultry, Piggery, Goat Farming with Stipend/ without Stipend

7. Providing one month Training on Dairy Farming with Stipend/Without Stipend

8. Training of Part Time Volunteer for Artificial Insemination and Castration with Stipend/without stipend

Education Department

9. Reimbursement of cash in lieu of school uniform

10. Reimbursement of School Stationary Kits

11. Hostel Reimbursement of cash in lieu of Mess bill/Stipend

12. Hostel Stipend for College students of Andaman and Nicobar Islands

13. Scholarship to the students pursuing higher education in mainland in the form of mess bill reimbursement

Environment and Forest (Non-DBT)

14. Distribution of Seedlings/Saplings of Forestry Plants under the Department of Environment and Forests to General Public (Non-DBT)

Fisheries Department

15. Subsidy for construction or purchase of New mechanized or motorized boats

16. Providing compensation towards loss of fishing implements due to natural calamity

17. Subsidy for Supply of Fishing Inputs EFR

18. Registration for Transport of Fish and Fishery Products

19. Registration for Transport of Fish and Fishery Products from Mainland

20. Financial Assistance for Purchase of Life Saving/Fire Fighting Appliances/ Navigational Equipment/Communication Equipment

Health Services

21. Ayushman Bharat Pradhan Mantri Jan Arogya Yojana

Industries

22. Entrepreneurship Development and Skill up-gradation

Labour, Employment and Training

23. Skill Development Financial Benefit

24. Maternity Financial Benefit

25. Funeral Financial Assistance

26. Death Financial Benefit

27. Disability Financial Assistance
28. Medical Financial Assistance
29. Marriage Financial Assistance
30. Pension Financial Assistance
31. Registration of Construction Workers in AN BOCWWB
32. Educational Financial Assistance
33. Stipend to ITI Trainees
34. Scholarship to Eligible Hostel inmates- ITI

Annexure 3: SDG Performance and Ranking

Goal	Details	Goal	Details	Goal	Details
1 NO POVERTY	Score is 71 in 2020 improving from 48 in 2019. Ranked 5th amongst the UTs.	6 CLEAN WATER AND SANITATION	Score is 87 in 2020 improving from 85 in 2019. Ranked 6th amongst the UTs.	11 SUSTAINABLE CITIES AND COMMUNITIES	Score is 85 in 2020 improving from 47 in 2019. Ranked 3rd amongst the UTs.
2 ZERO HUNGER	Score is 45 in 2020 improving from 38 in 2019. Ranked 7th amongst the UTs.	7 AFFORDABLE AND CLEAN ENERGY	Score is 100 in 2020 improving from 73 in 2019. Ranked 1st amongst the UTs.	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Score is 73 in 2020 improving from 69 in 2019. Ranked 4th amongst the UTs.
3 GOOD HEALTH AND WELL-BEING	Score is 68 in 2020 improving from 65 in 2019. Ranked 8th amongst the UTs.	8 DECENT WORK AND ECONOMIC GROWTH	Score is 59 in 2020 improving from 55 in 2019. Ranked 5th amongst the UTs.	13 CLIMATE ACTION	Score is 77 in 2020 improving from 72 in 2019. Ranked 1st amongst the UTs.
4 QUALITY EDUCATION	Score is 57 in 2020 falling from 61 in 2019. Ranked 5th amongst the UTs.	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Score is 23 in 2020 improving from 13 in 2019. Ranked 8th amongst the UTs.	15 LIFE ON LAND	Score is 72 in 2020 falling from 85 in 2019. Ranked 3rd amongst the UTs.
5 GENDER EQUALITY	Score is 68 in 2020 improving from 48 in 2019. Ranked 1st amongst the UTs.	10 REDUCED INEQUALITIES	Score is 67 in 2020 falling from 94 in 2019. Ranked 4th amongst the UTs.	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Score is 46 in 2020 falling from 65 in 2019. Ranked 8th amongst the UTs.

Achiever	Performer	Front Runner	Aspirant

Annexure 4: Mapping of SDG with Departments

Based on NITI Aayog's mapping framework, the Andaman and Nicobar Island Administration has aligned the SDGs and targets with its current policies and programmes.

Table 7: Mapping of SDG with Departments

	National Indicators and Corresponding Targets
Goal 1: End poverty in all its forms everywhere **Nodal Department:** Rural Development **Other related Departments / Agencies:** Port Blair Municipal Council, Tribal Welfare	• Population below poverty line (10.96%) • Head count ratio as per the Multidimensional Poverty Index (13.95%) • Households covered by health scheme/insurance (100%) • MGNREGA - Employment provided against demanded (98.95%) • Beneficiaries under PMMVY (100%) • Households living in katcha houses (0%)
Goal 2: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture **Nodal Department:** Civil Supplies **Other related Departments / Agencies:** Agriculture, Fisheries, Social Welfare	• Beneficiaries under NFSA (100%) • Children under 5 years who are underweight (1.9%) • Children under 5 years who are stunted (6%) • Pregnant women (15-49 years) who are anaemic (25.2%) • Adolescents (10–19 years) who are anaemic (14.2%) • Rice and wheat produced annually (5322.08 Kg/Ha) (2019 - rice, wheat and coarse cereals) • GVA (constant prices) in agriculture (1.22 Lakhs/worker)

		National Indicators and Corresponding Targets
3 GOOD HEALTH AND WELL-BEING	**Goal 3: Ensure healthy lives and promote wellbeing for all at all ages** **Nodal Department:** Health **Other related Departments / Agencies:** Transport, Environment & Forest, Social Welfare	• Maternal Mortality Ratio (70 per 1,00,000 live births) • Under 5 mortality rate (25 per 1,000 live births) • Children (9-11 months) fully immunized (100%) • Notification rate of Tuberculosis (242 per 1,00,000 population) • HIV incidence (0 per 1,000 uninfected population) • Suicide rate (3.5 per 1,00,000 population) • Death rate due to road accidents (5.81 per 1,00,000 population) • Institutional deliveries out of the total deliveries reported (100%) • Monthly per capita out-of-pocket expenditure on health (7.83%) • Physicians, nurses and midwives (45 per 10,000 population)
4 QUALITY EDUCATION	**Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all** **Nodal Department:** Education **Other related Departments / Agencies:** Rural Development, District Child Protection Unit	• Adjusted Net Enrolment Ratio (ANER) in elementary education (class 1-8) - 100 • Average annual dropout rate at secondary level (class 9-10) – 8.8% • Gross Enrolment Ratio (GER) in higher secondary (class 11-12) – 100 • Class 8 students achieving minimum proficiency level in language and maths (100%) • GER in higher education (18-23 years) - 50 • Persons with disability (>15 years) having completed secondary education (100%) • GPI for higher education (18-23 years) - 1 • Persons (>15 years) who are literate (100%) • Schools with access to electricity, drinking water (100%) • Trained teachers at secondary level (class 9-10) - 100% • Pupil Teacher Ratio at secondary level (class 9-10) - 30

	National Indicators and Corresponding Targets
Goal 5: Achieve gender equality and empower all women and girls **Nodal Department:** Rural Development **Other related Departments / Agencies:** Labour, Employment & Training, Election, Police, Health, Revenue	• Crimes against women 0 per 1,00,000 female population • Sex ratio at birth (950) • Average wage/salary received (Female to male) - 1 • Cruelty/physical violence by husband/his relatives (0 per 1,00,000 women) • Elected women in state legislative assembly (50%) • Female to male LFPR (15-59 years) - 1 • Women in managerial positions in listed companies (245 per 1,000 persons) • Demand for family planning satisfied by modern methods (15-49 years) – 100% • Operational land holding gender wise (50%)
Goal 6: Ensure Availability and Sustainable Management of Water and Sanitation for All **Nodal Department:** Rural Development, Port Blair Municipal Council **Other related Departments / Agencies:** Education, Environment & Forests, Industries	• Rural population getting drinking water within premises through PWS (100%) • Rural population having improved source of drinking water (100%) • SBM(G) - Individual household toilets constructed against target (100%) • SBM(G) - Districts verified to be ODF (100%) • Schools with separate toilet facility for girls (100%) • Industries complying with CPCB wastewater treatment norms (100%) • Ground water withdrawal against availability (70%) • Blocks/mandals/taluka over-exploited (0%)
Goal 7: Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All **Nodal Department:** Electricity **Other related Departments / Agencies:** Civil Supplies	• Households electrified (100%) • LPG+PNG connections against number of households(100%)

	National Indicators and Corresponding Targets
Goal 8: Promote Sustained, Inclusive and Sustainable Economic Growth, Full and Productive Employment and Decent Work for All **Nodal Department:** Labour **Other related Departments / Agencies:** Tourism, Rural Development, Industries, Fisheries, Shipping	• Annual growth rate of GDP (constant prices) per capita – 7% • EODB | 2020 Feedback score | 2019 Implementation score - 50 • Unemployment rate (%) | 2020 (15-59 years) | 2019 (15+ years) - 3 • Labour Force Participation Rate (LFPR) (%) (15-59 years) LFPR (%) | 2020 (15-59 years) | 2019 – 68.3% • Regular wage/salaried employees in non-agriculture sector without social security benefits (0%) • Households covered with a bank account against target (PMJDY) – 100% • Functioning branches of commercial banks per 1,00,000 population – 31.26 • ATMs per 1,00,000 population – 42.65 • Women account holders in PMJDY (50%)
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation **Nodal Department:** Industries **Other related Departments / Agencies:** Rural Development, Information Technology, Shipping, Tourism	• PMGSY - Habitations connected 2020 - Cumulative progress 2019 - FY 2018-19 progress (100%) • GVA in manufacturing to total GVA (current prices) (25%) • Manufacturing employment as a percentage of total employment (20%) • Innovation score as per the India Innovation Index (100) • Score as per Logistics Ease Across Different States (LEADS) report (5) • Mobile connections – 100 per 100 persons • Internet subscribers – 100 per 100 population

	National Indicators and Corresponding Targets
Goal 10: Reduce inequalities within and amongst countries **Nodal Department:** Rural Development **Other related Departments / Agencies:** Election, Police	• Population in the lowest two wealth quintiles (4.67%) • Elected women in the State/UT (%) (Lok Sabha elections) – 50% • Seats held by women in PRIs (%) – 33% • SC/ST seats in State Legislative Assembly • Labour Force Participation Rate - Transgender to male - 1 • Crimes against SCs (per 1,00,000 SC population) - 0 • Crimes against STs (per 1,00,000 ST population) - 0
Goal 11: Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable **Nodal Department:** Rural Development, Port Blair Municipal Council **Other related Departments / Agencies:** Transport, Shipping, Environment & Forests	• Urban households living in katcha houses (0%) • Deaths due to road accidents in urban areas per 1,00,000 population (7.05) • SBM(U) - wards with 100% door to door waste collection (100%) • SBM(U) - Individual household toilets constructed against target (100%) • SBM(U) - MSW processed to total MSW generated (100%) • SBM(U) - wards with 100% source segregation (100%) • Installed sewage treatment capacity to sewage generated (100%) • Urban households with drainage facility (100%)
Goal 12: Ensure Sustainable Consumption and Production Patterns **Nodal Department:** Electricity, Port Blair Municipal Council **Other related Departments / Agencies:** Environment & Forests, Rural Development	• Per capita fossil fuel consumption (64.1 kg.) • Usage of nitrogenous fertilizer out of total N,P,K (57%) • Hazardous waste generated per 1,000 population (Tonnes/ Annum) – 4.04 • Hazardous waste recycled/utilized to waste generated 2019 - Schedule IV hazardous waste - 100% • Plastic waste generated per 1,000 population (Tonnes/Annum) – 1.27 • BMW treated to total BMW generated (100%) • Grid interactive bio power per 10 lakh population (MW) – 21.81

	National Indicators and Corresponding Targets

Goal 13: Take Urgent Action to Combat Climate Change and its Impacts

Nodal Department: Environment & Forests

Other related Departments / Agencies: Science & Technology, Disaster Management

- Lives lost due to extreme weather events (0 per 1 crore population)
- Disaster preparedness score as per Disaster Resilience Index - 50
- Share of renewable in total energy mix (including allocated Shares) – 40%
- CO_2 saved from LED bulbs per 1,000 population (103.22 Tonnes)
- DALY rate attributable to air pollution (1442 per 1,00,000 population)

Goal 15: Protect, restore and promote sustainable use of territorial ecosystem, sustainably manage forest, combat desertification and halt and reverse land degradation and halt biodiversity loss

Nodal Department: Environment & Forests

Other related Departments / Agencies: Agriculture, Tribal Welfare

- Forest cover (33%)
- Tree cover (33%)
- Area covered under afforestation schemes (2.74%)
- Degraded land over total land area (5.46%)
- Increase in area of desertification (0%)
- Wildlife crime cases | 2020 - per mha of protected area | 2019 - absolute number of cases – 0

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build accountable and inclusive institutions at all levels

Nodal Department: Police

- Murders per 1,00,000 population - 1
- Cognizable crimes against children per 1,00,000 population - 0
- Victims of human trafficking per 10 lakh population - 0
- Missing children per 1,00,000 child population - 0
- Courts per 1,00,000 population – 4.25

National Indicators and Corresponding Targets
Other related Departments / Agencies: Health, Department of Economics & Statistics   • Cases under PCA and related IPC per 10 lakh population – 0.19   • Births registered (100%)   • Population covered under Aadhaar (100%)

Annexure 5: Architecture Principles

Organizational Principles	**1. Primacy of Principles** These principles of information management apply to all organizations within the Government. **2. Maximize benefit to the Government as a whole** All decisions relating to information management are made to provide maximum benefit to the Government ecosystem as a whole. Applications and components should be shared across organizational boundaries. **3. Information Management is Everybody's Business** All organizations (departments) in the Government participate in information management decisions needed to accomplish business objectives, and implement such decisions with full commitment, devoting the right and adequate resources. **4. Common Use of Applications** Development of applications used across the Government is preferred over the development of similar or duplicative applications, which are only specific to a particular department or organization.
Data Principles	**1. Data Managed as Asset and Shared with Ecosystem** Data is an asset that has a specific and measurable value to the ecosystem and is managed accordingly. Data is shared across the ecosystem, subject to rights and privileges, so as to prevent duplicative sets of data by different agencies. Data Sharing is subject to conformance with the principles of Security & Privacy. Access to data ensures high-quality analytics, proactive service delivery, shorter cycles for system improvement (e.g., updates to scheme guidelines can be made efficiently) and, most importantly, high responsiveness to user needs. **2. Data Trustee** Each data element has a trustee accountable for data quality. As the degree of data sharing grows and departments rely upon common information, it becomes essential that only the data trustee makes decisions about the content of data and authorizes its modification. Information should be captured electronically once and immediately validated as close to the source as possible. Quality control measures must be implemented to ensure the integrity of the data. **3. Common Vocabulary and Data Definitions** Data is defined consistently throughout Government, and the definitions are understandable and available to all users. Metadata and

Data Standards (MDDS) within each domain as notified / mandated by the government (www.egovstandards.in) has to be used.

4. Transparency and Accountability through Open Data
Public Open Data is made available via APIs and as open datasets for transparency. Systems are data-driven and uses data generated for reporting and analysis.

5. Privacy and Security by Design
Managing security and privacy of data is important and thus is critical. Every access request is fully authenticated, authorized, and encrypted before granting access (both internal and external). Sensitive data about individuals is encrypted at rest. Mechanisms for user consent, using the MeitY Electronic Consent Framework, is implemented to enable applications to share data about users in a safe manner. Finally, all data access is through API calls to ensure centralised management of security controls. Direct access is prohibited for internal modules and use of APIs is mandated.

Application Principles

1. Technology Independence
Applications are independent of specific technology choices and therefore can operate on a variety of technology platforms. Application Design to be open standards-based and developed using secure coding standards and practices.

2. Single Source of Truth
All core registries and master databases of are built as single source of truth on different aspects and backed by strong data governance.

3. Ease of Use
Applications are easy to use. The underlying technology is transparent to users, so they can concentrate on tasks at hand. Standards on Usability (such as ISO 9241-11:2018) should be adhered to while developing applications. Conformance to the Guidelines on Universal Electronic Accessibility by MeitY shall be ensured.

4. Change Control
There must be a Change Control Board to approve and monitor the changes that are done to the software, if any. All Change Request documents must be approved before implementation and Unit Testing and System Integration Testing must be done at pre-implementation stage.

5. Events-Driven and Unbundled as Microservices
There is a clear separation of concerns for data storage, software services and APIs. Components are event-driven, and independently

replaceable and extensible. Instead of focusing purely on monolithic "solutions", underlying digital blocks are unbundled and built as microservices offered via API's to allow diverse solutioning by the ecosystem.

6. Sharing and Reusability
All commonly used Applications are abstracted to be built once and deployed across the Whole-of-Government through reuse and sharing. Sharing & Reusability shall be subject to conformance with the principles of Security & Privacy.

7. Resilience
Application must not have any single point of failure. There must be a graceful degradation of services in case of any failure. The applications must comply by the Recovery Point Objective and Recovery Time Objective as stipulated in the Cloud DC & DR requirements.

8. Scalable
The application should be able scale elastically to handle the increase or decrease in workload. The Application must support horizontal and vertical scaling of Servers, compute, storage, network, etc. The Application must support load balancing and routing. All applications must be able to handle volume of Y-o-Y growth for the life of the application.

9. Performance-driven
The Application must comply by Service Response Time as required by the Application and stipulated in the SLAs. All Applications must support the Availability SLAs as mentioned for each application. The system must meet the stipulated RTOs and RPOs. The applications must be efficient in error handling. It must also provide detailed logs to enable efficient de-bugging and issue resolution. A repository of 'Known Issues' must be made available to the System Administrator.

10. Secure
All applications as hosted or deployed must adhere to Standard Secure Coding Practices as stipulated by GIGW Standards.

11. Standards and Compliance
The applications must comply by ISO/IEC 25010:2011 Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — System and software quality models, GIGW standards and other stipulated standards. All Software documentation including but not limited to Requirement Gathering, BRS, FRS, Gap Analysis, Design, Testing Use Cases, User Guides, etc. must be

maintained with proper Version Control and Access Rights. Software Traceability Matrix must be maintained.

12. Reuse of Existing Systems and Digital Capabilities
Existing systems, infrastructure and digital capabilities are reused. Common and domain-specific building blocks made available at the National level are leveraged to the extent feasible.

Technology Principles

1. Alignment to IndEA
The design of the building blocks of Andaman and Nicobar Island's Enterprise Architecture adopts and conforms to IndEA by default. When appropriate, the Agile IndEA Framework can be adopted, which combines the Vision of IndEA with the Speed of Agile methodologies of development.

2. Requirements-Based Change
Only in response to process/service needs are changes to applications and technology made.

3. Control Technical Diversity
Technological diversity is controlled to minimize the non-trivial cost of maintaining expertise in and connectivity between multiple processing environments. Policies, standards and procedures that govern acquisition of technology must be tied directly to this principle.

4. Interoperability through Open APIs and Open Standards
Software and hardware should conform to defined standards that promote interoperability for data, applications, and technology. Interoperability is essential to be able to catalyse the ecosystem and interact with multiple systems. The components of the systems are loosely coupled using open interfaces (APIs) and built using open standards, absent dependence on specific platforms or software frameworks.

Application Integration Principles

1. Primacy of User Experience
All service interactions are designed with citizens at the core, by providing integrated multi-channel.

2. Elimination of Digital Divide
Digital public services are available to citizens and users belonging to all groups, and there are no differences and discrimination based on location (rural / remote versus urban), access to technological infrastructure, and physical abilities.

3. Multilingualism
Services are delivered in language/s that are preferred by the consumer.

Information Security Principles	**1. Secure by Design** Security has to be built into all stages and all aspects of architecture development. Security concerns extend to all the IT activities of the enterprise. **2. Access Control** Role Based Access Control should be adopted for access to the infra, application, service, database, and other resources. Multi-Factor Authentication should be used. Principle of Least Privilege Access should be adopted. Administrative Access/ Control should be distributed and any changes/action executed by Administrators and other users should be logged. **3. Risk Assessment** Periodic Audit and Risk Assessment should be done to do the overall assessment of the systems.

Annexure 6: Digital Services

Digital Services are the primary transformational construct of this Blueprint that will guide use of digital technologies for creating valuable outcomes for the stakeholders of the Islands. The construct of digital services is critical because governments and other public or private organizations interact with citizens and other entities through those services.

For transformation, the Digital Services delivered by this Blueprint would have to demonstrate eight fundamental attributes. These are depicted and described below.

To be transformational, Digital Services need to be personalised, paperless, cashless, presence-less, frictionless, proactive, perceptive and pervasive.
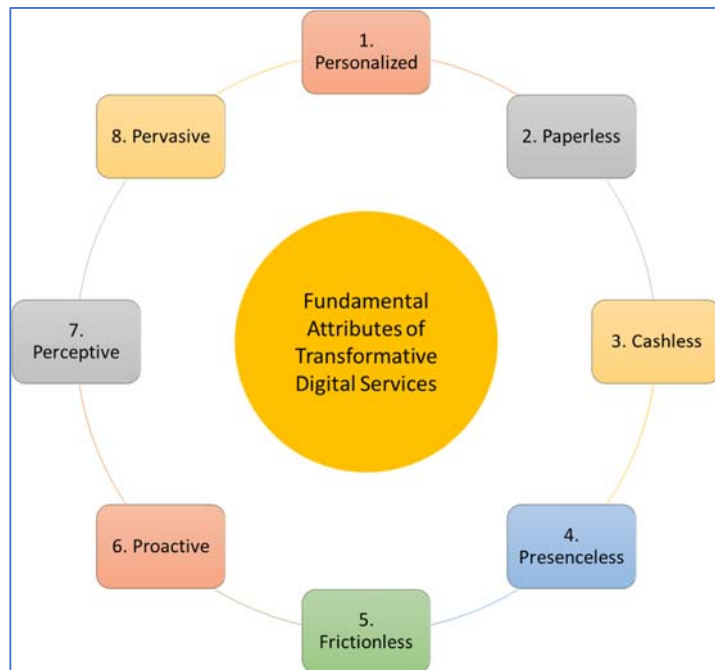
Figure 25: Digital Service Attributes

1. **Personalized:** Personalized services are designed and delivered to suit the specific requirements of those who consume them. Personalization is generally achieved by giving citizens a great experience that augurs to their needs and expectations in terms of location, time, user experience, delivery channel, transparency, accountability and target audience.

2. **Paperless:** Paperless services are programmed by adopting widespread automation. Paperless services are a consequence of extensive business process reengineering and significant fundamental rethinking.

3. **Cashless:** Cashless services are a key aspect of the digital economy. Cashless transactions for services that have monetary dimensions in a cashless economy require an integrated ecosystem of regulators, financial institutions, banks, payment mechanisms to work in tandem that is trust-based.

4. **Presence-less:** Presence-less services are cases where the role of human intervention and discretion is minimized (or even eliminated) and services re-engineered to be rule-based and data-driven covering the entire service lifecycle, from trigger to fulfilment. Services are designed in a way that support automation and intelligent processing of already available information to reflect the purpose of meeting the needs of different stakeholders yet maintaining a people-first policy.

5. **Frictionless:** Frictionless services are designed and delivered end-to-end. This means that citizens are not exposed to all the internal coordination and exchange of information that takes place between different ministries and departments, but what they receive is an

integrated experience. Frictionless (or seamless) services are enabled by a boundaryless flow of information.

6. **Proactive:** Proactive services in a paradigm shift flip the service delivery model from the "pull" approach of traditional e-government-whereby the citizen must first know, decide, and seek out government services-towards a "push" model, whereby government proactively and seamlessly delivers just-in-time information and services to citizens based on their needs, circumstance, personal preferences, life events, and location. In other words, instead of citizens approaching the government to seek services, it is the government that reaches out to the people by anticipating their needs and intervening at the right time in the right way.

7. **Perceptive:** Perceptive services are when service providers have specific actionable insights about service consumers (citizens) in ways that are ordinarily not visible, and thereby providing the ability to predict and deliver. Linking data sources and breaking down information silos lead to better perceptiveness. Moreover, greater perceptiveness results in a higher likelihood of proactive services.

8. **Pervasive:** Pervasive services occur when services cover all or at the least most of the development goals that are relevant in the context of the scope of the organization being considered. Pervasiveness is critical as it provides greater scope to understand and factor in the inter and intra service dependencies required to minimize "service silos". Covering more goals also provides the ability to cover more citizens (inclusiveness) and spread widely (coverage); i.e. both vertical and horizontal ubiquity achieved through widespread adoption of platforms.

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Abbreviations

Abbreviations	Expansion
A&N	Andaman and Nicobar
AEPS	Aadhaar Enabled Payment System
AI/ML	Artificial Intelligence / Machine Language
APB	Aadhaar Payments Bridge
API	Application Programming Interface
BPR	Business Process Reengineering
CSC	Common Services Centre
DBT	Direct Benefit Transfer
DC	Data Centre
DEPA	Data Empowerment and Protection Architecture
DSS	Digital Service Standards
DBRAIT	Dr B.R. Ambedkar Institute of Technology, Port Blair
EA	Enterprise Architecture
G2B	Government to Business
G2C	Govt to Citizen
G2E	Govt to Employee
G2G	Government to Government
ICT	Internet and Communication Technology
IDA	Island Development Agency
IndEA	India Enterprise Architecture
IT	Information Technology
IVR	Interactive Voice Response
NIC	National Informatics Centre
NICNET	NIC Network
OFC	Optical Fibre Cable
SDG	Sustainable Development Goals
SIO	State Informatics Officer
SOVTECH	Society for Promotion of Vocational and Technical Education
SWAN	State-wide Area Network

Abbreviations	Expansion
TOGAF	The Open Group Open Architecture Framework
UPI	Unified Payments Interface
VSAT	Very Small Aperture Terminal

Ministry of Electronics and Information Technology
Government of India