Seven Year (2017-18 to 2023-24) Development Agenda and Three Year (2017-18 to 2019-20) Action Plan of Information Technology Department

Seven Year Strategic Plan (State Development Agenda, 2017-24)

A) Baselines and Targets:

S. No.	Indicators	Unit	Baseline (2016-17)	Target 2017-20	Target 2020-24	Target 2024-30
1	No. of e-service transactions per year through e-Service Gateway	Cumulative No. (in lacs)	4	25	60	100
2	Number of centres offering e-services & Internet access	Cumulative No.	2883	10000	20000	25000
3	No of VMs in State Data Centre	Cumultaive No.	105	300	1000	1500
4	Storage utilized in the DC	TB (Cumulative)	150	400	800	1200
5	% of Govt offices connected on OFC grid/ State WAN	Cumulative %	5	100	100	100
6	Number of households connected on OFC grid	CumulativeNo. (in lacs)	0.15	25	34	81
7	Number of educational institutions connected through broadband/ Knowledge Network & their ICT enablement	%	10	75	100	100
8	No. of Digitally Literate women in the state	Cumulative No. (in lacs)	0.6	6	20	40
9	No. of people made digitally literate	Cumulative No. (in lacs)	1	17	50	100
10	No. of youth trained in ICT for employability & employed	Cumulative No.	0	20000	50000	100000
11	Volume of transactions through e-Procurement per annum	Rs. in cr.	200	500	2500	5000

S. No.	Indicators	Unit	Baseline (2016-17)	Target 2017-20	Target 2020-24	Target 2024-30
12	IT power substitution by solar/ hybrid	Cumulative % substitu-tion	0	35	65	80
13	Volume of software/ IT ser-vice exports	USD (in million) cumulative	0.1	50	1000	5000
14	Make in Assam hardware	Rs. (in cr) cumulative	1	100	500	1000
15	Quality IT/ ITeS/ESDM built-up space created	sqm (in lacs) Cumulative	0	1.50	4.00	6.00
16	IOT penetration in public service delivery	No. of apps deployed cumulative	0	50	100	200

B) Assam Vision relating to IT Department:

The Vision of the IT Department is to "Empower Assam with ICT and Electronics as engines of growth and good governance".

The Department has adopted the following missions to achieve the vision:

1. To enable electronic delivery of services to the citizens in an easy, effective, transparent and inclusive manner
2. Develop ICT infrastructure in the State, so as to bring IT to the doorstep of citizens
3. To promote the inclusive and sustainable growth of Electronics, ICT and ITeS industries in the State
4. Equip human resources with ICT skills for rapid growth of IT sector

Matching the aspirations of the Department, the following SDG goals are relevant for the Department:

S. No	SDG Goal No.	SDG Goal Description	Target	Target
1	4	Quality Education	4 b)	By 2020 substantially expand and promote vocational training in Information & Communication Technology
2	5	Women-Gender Equality	5 b)	Enhance the use of enabling technology, in particular, Information & Communication Technology, to promote the empowerment of women

S. No	SDG Goal No.	SDG Goal Description	Target	Target
3	9	Industry Innovation & Infrastructure	9.5	Enhance Scientific research, upgrade the technological capabilities, encourage innovation and substantially increase the number of research and development workers and public and private research and development spending
4			9.5 a)	Facilitate sustainable and resilient infrastructure development through enhanced financial, technological and technical support
5			9.5 b)	Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities
6			9.5 c)	Significantly increase access to ICT and strive to provide universal & affordable access to the internet by 2020
7	12	Responsible Consumption & Production	12.8	By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature
8	16	16) Peace, Justice and strong institutions	16.8	Broaden and strengthen the participation of developing countries in the institutions of global governance
9			16.10	Ensure public access to information and protect fundamental freedom in accordance with national legislation and international agreements
10	17	17) Sustainability - Partnership for the goals	17.6	Enhance North-south, south-south, and triangular regional and international cooperation, access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular, at the United Nations level and through a global technology facilitation mechanism.
11			17.7	Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, as mutually agreed

S. No	SDG Goal No.	SDG Goal Description	Target	Target
12			17.8	Fully operationalize the technology bank and science, technology, innovation capacity building mechanisms for least developed countries by 2017 and enhance the use of enabling technology, in particular ICT
13			17.9	Enhance international Support for implementing effective and targeted capacity building in developing countries to support the national plans to implement all the sustainable development goals, including through north-south, south-south and triangular cooperation

In addition to the above goals and targets directly linked to the IT Department, the targets set by the Department will indirectly enable the achievement of the following goals:

S. No	SDG Goal NO.	SDG Description
1	1	End poverty in all its forms everywhere
2	2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
3	3	Ensure healthy lives and promote well-being for all at all ages
4	6	Ensure availability and sustainable management of water and sanitation for all
5	7	Ensure access to affordable, reliable, sustainable, and modern energy for all
6	8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

C) List of major issues facing department/ sector:

1. *Dependence on other Departments*: The IT Department does not provide any services. It is an enabler department. Its performance depends upon the performance of the line departments. IT department is dependent on other departments for rendering of their services through platform created by IT Department.

2. *Fund Constraint*: The department is required to provide state of the art and robust service delivery framework and strong ICT infrastructure, but currently, the Department has little funds at its disposal.
3. *Lack of adequate and qualified manpower*: The department requires highly skilled persons and manpower to deliver some of the very mission critical applications and services. However, the department is not able to attract best of talents due to lack of fund, lack of clear mandate from the Government etc.
4. *Lack of investment in IT:* The State lacks in adequate equity and private sector participation due to several geographical, circumstantial and communication bottlenecks.

D) Planning for resource requirement:

1. **Financial resources:** The financial requirement for executing the IT projects is Rs. 18700 cr for 2017-30. The breakup is as follows:

(Rs. in cr)

Details	Estimates till 2019-20 (INR Cr)	Estimates till 2023-24 (INR Cr)	Estimates till 2030 (INR Cr)	Total Financial Resource Requirement
Total Budget Requirement	4700.00	6000.00	8000.00	**18700.00**
Budget Available	800.00	700.00	1000.00	**2500.00**
Resource Gap	3900.00	5300.00	7000.00	**16200.00**

** The above financial resource requirement is inclusive of fund required for infrastructure, manpower, operation & maintenance, certifications etc. for the projects to be executed by the IT Department and the financial resources required for a SDG Tech PMU to monitor the SDG targets.*

The resource gap of Rs. 16200 cr is proposed to be met through the following sources:

a) Securing resources through external aid agencies like BRICS Bank, World Bank, ADB etc., with some contribution by the State Govt.
b) Through the Grants in Aid and Additional Central assistance from the Central Govt.
c) State Govt. schemes like CMSGUY, and Central Govt. schemes like NOFN etc.
d) 2-3% allocation from the respective plan allocation of the departments for IT projects
e) Some of the projects can be made self-sustainable, by charging the beneficiaries. A revenue model will be designed for such projects
f) Roping in the investment of PPP partners for certain projects
g) Bank Finance

A tentative fund planning for meeting the resource gap is proposed as follows:

(Rs. in cr.)

Details	Estimates for 2017-20 (INR Cr)	Estimates for 2020-24 (INR Cr)	Estimates for 2024-30 (INR Cr)	TOTAL
External Aid for Advanced IT projects	1300.00	1600.00	2000.00	4900.00
Line Department Budget Allocation (2-3%)	200.00	400.00	600.00	1200.00
Investment by PPP partners, crowd-funding, bank finance	1700.00	2100.00	2600.00	6400.00
CMSGUY & similar Missions of State and Centre	500.00	700.00	1000.00	2200.00
Project Internal Accruals	200.00	500.00	800.00	1500.00
TOTAL	**3900.00**	**5300.00**	**7000.00**	**16200.00**

2. **Human Resources:** To achieve the targets, the existing manpower pool has to be substantially augmented as follows:

a) Resource augmentation for conventional IT activities: Although the nodal agency of IT departments has manpower handling conventional IT activities, but for achieving the targets, the capacity must be augmented both in terms of increase in number of resources as well as skill development of existing resources. Trained manpower is required as follows:

- Hardware engineers
- Network engineers
- System and database administrators
- Programmers
- System Design Experts
- Program Managers

b) Specialized IT Resources: In addition to the conventional IT activities, the Department seeks to undertake projects which would require a large talent pool of resources having specialized skill and expertise in specific domains. Some of the specialized resources are as follows:

- Expert on big data analytics
- Data management, archival, data mining expert
- GIS experts
- Graphics & VFX designers
- Embedded systems programmers
- VLSI designers
- Cyber security experts

c) Consultants: To plan, monitor and evaluate the projects, guidance of the following consultants would be extremely crucial:

- Project Management Consultants
- Business process re-engineering Consultant
- Financial Consultant
- Legal Consultant
- Capacity Building & Change Management Consultant
- Social Media Consultant

d) Support Personnel: A retinue of support personnel will be required to provide support for service delivery, training etc. as follows:

- Trainers
- Data entry operators
- Kiosk operators
- Network personnel such as splicers, linemen, wireless access point handlers, tower experts etc.
- Content writers and editors
- Call centre agents

e) Department IT Resource Augmentation: In addition to the resources required in the IT Department, every department and district must be provided with IT resources for handholding, and transition to digital environment. Besides existing manpower of departments such as teachers, doctors, farmers, nurses, administrators, foresters, police, engineers and other professional would require continued training and skills upgradation in use of various hardware, software and services, and would require training and exposure in even using the common ICT infrastructure to be provided by the IT department. In absence of such a training and capacity building initiatives, the change from non-IT to IT platforms would not be smooth, and may actually hamper output and productivity.

f) Resource for IT Industry: The human resource requirement from the IT department perspective has another dimension i.e. creating human resource for the industries, especially creating employable human resource base in large numbers so that the industries and service providers can take full advantage of the available talent pool and come forward to invest in the State.

The details of the resources required and the expected salary outflow is detailed in Annexure I.

The salary component for the various categories of professional to be employed is as follows:

Details	2017-20	2020-24	2024-30	Total Salary
Salary & Wage Component	159.00	299.00	518.00	977.00

The total estimated cost incurred on salary and wage component for 2017-30 amounting to Rs.977 cr. forms about 5% of the total financial resource requirement projected for 2017-30 of Rs. 18700 cr. The salary and wage component is included in the projected financial resource requirement.

3. **Infrastructure requirement:** The infrastructure requirement for achievement of targets is as follows:

a) Core IT Infrastructure:

i. Connectivity Infrastructure:

- A robust Gigabit Network which would be the backbone to connect the entire State digitally
- International Internet Gateway
- Citizen centric last mile delivery networks over wireless, OFC and PLC
- Points of Presence (PoPs), towers, Radios etc.
- CPE, Set-top boxes, Head-ends

- IP Telephony Xchange
- Media Switches
- Authentication systems
- Responsive Network for Disaster Management

ii. Data Repository & Security

- State Data Center
- Public Data Center
- DR sites
- Digital repositories
- Business Continuity Planning
- Cloud Infrastructure
- Data Storage, Archival and Retrieval
- Big Data Analytics

iii. Delivery Outlets & Citizen Support Infrastructure:

- E-Service delivery outlets for delivering G2C, G2B and G2E services
- Facilitation centres
- 24x7 online delivery channels and portals
- Digital Lockers

iv. Service Delivery Gateway & Systems

- Server & Storage
- Payment gateways, SMS gateways, Internet gateways etc.
- e-Tendering & e-Auctions
- MSDG, NSDG
- Blockchain and Digital Currency
- Digital Signatures
- Blind Signatures

b) IT Support Infrastructure:

i. Call centres for citizens and project partners
ii. Infrastructure for digital and electronic signatures
iii. Email and communication systems
iv. Video conferencing
v. Training Infrastructure
vi. Knowledge Management Portals & Dashboards
   - learning management systems
   - content management systems
   - customer relation management systems
vii. Identity management systems
viii. Business Process Management (BPM)
ix. BPO systems IP Telephony, IPTV
x. surveillance systems
xi. IPv6 networks

c) Advanced IT Infrastructure:

i. Super computing infrastructure
ii. Artificial Intelligence Infrastructure
iii. Clean Room
iv. Geo-Spatial Infrastructure & Systems & Mapping of resources
v. Greening of Infrastructure

d) IoT and Compute Infrastructure

i. UAV- low and High endurance fleets
ii. Optical, Thermal, IR, MSS, HSS sensor systems
iii. Climate Sensor systems and AWS
iv. IoT and Embedded systems
v. High Performance Computing
vi. Decision Support System

e) IT/ ITeS/ ESDM developed Space:

i. IT Parks & Hi-Tech City
ii. Bio Photonics Infrastructure
iii. Electronic Systems Design & Manufacturing Hub (ESDM)
iv. Quality Control Lab for certification of electronics/ IT products/ software
v. Precision Measurement & Microscopy Infrastructure
vi. Integrated Optics Lab
vii. Innovation Centre & Test Facility

f) Departmental Infrastructure: In addition to the above, each of the departments of the Government of Assam shall require their own IT infrastructure on the above lines. The magnitude of the investment by a department would depend upon the size, scatter and geographic spread, remoteness of sites and criticality of being available 24x7, and requirement of being fully online. The peripheral networks and systems of the various departments must be designed in such a way that integration with the core infrastructure and systems is seamless. Some departmental infrastructure is as follows

- Hardware, storage
- last-mile networks and local area networks
- Content generation and management
- Enabling services on IT platforms.

g) Maintenance: One of the most crucial component of all infrastructure is the maintenance so that the systems designed work and operate with minimal breakdown and the Service Level Agreements (SLA) are met. An essential part of maintenance is managing end of life equipment and services, and planned replacement with backward compatibility with (now) the legacy systems. Therefore, planning is not only required for one time installation and commissioning, but also for maintenance, and a Codal Life policy for phasing out and replacement strategy for the future while allowing minimal or no disruption in the systems and services.

E) Platform for Citizen Centric Services:

1. **Current Status:**

a) *Citizen Centric Service Delivery projects including e-District*.: To enable timely, efficient and effective service delivery, IT Department has already initiated e-District project, where 46 e-services can be availed by the citizens through multiple channels- online, off-line through CSC or Public Facilitation centers.
b) *State Service Delivery Gateway (SSDG)*: All e-District services flow through a single gateway i.e the SSDG.

2. **Prospective Strategy:**

a) Assam Digital Services Delivery Gateway is planned to be an aggregator of all services electronically transacted for Government, Businesses, Employees and Citizens, in the State. It will also cover transactions which are fully digitized as well as partially digitized. Integration of all gateways that are necessary for electronic transactions like multiple payment gateway, multiple SMS and mail gateway, and MSDG and NSDG to name a few.
b) More services shall be included on the e-District platform by undertaking backend computerization of departments providing services
c) Open access to Govt. data through integrated portal with advanced search feature to index content from other government portals
d) Citizen Engagement through information access, participation and consultation in decision making through social media and online tools
e) Digital Database to be created for services so as to make them amenable for delivery over the counter
f) Inter-operability & integration of databases and seamless migration of data across different domains (G2B, G2C, G2E, G2G) will be ensured
g) More e-service delivery outlets to be opened
h) GPR shall be done for maximum services to enable service delivery over the counter or within a fixed timeframe where physical verification is required
i) GPR to be done for enabling mobile delivery of services, wherever feasible
j) Cashless transactions to be carried out for electronic delivery of services, including treasury transactions
k) Transaction tracking system to generate information about the status of service delivery, through multiple channels- online, through SMS
l) Electronic Service Delivery Rules (ESD Rules) to be enunciated whereby Departments will facilitate electronic service delivery

F) IT Platform for Monitoring & Maintenance:

1. **Current Status:**

a) A dashboard for monitoring the real-time service delivery status for e-district
b) A Network Management Software (NMS) for monitoring the ASWAN network
c) CSC Online Monitoring Tool and Online Dashboard provides MIS on the uptime status of CSCs and other performance metrics of CSCs
d) Surveys of beneficiaries trained under Digital Literacy Program
e) e-Taal, which is a dashboard providing real time view of e-transactions taking place under various e-governance applications in the State.

2. **ICT intervention for SDG Monitoring:**

For monitoring the SDG targets and evaluation of projects on a continuous basis to determine the efficacy, reach and effectiveness of the project, the following will be adopted/ developed:

a) ***Setting Monitoring Indicators***: Using performance indicators, indices and targets to measure progress. Some of the indices or performance indicators that can be used are:
   i. Continuous monitoring of Assam's ranking under e-Taal will enable taking timely action so that Assam stays at the top of the chart for e-transactions.
   ii. Monitoring of overall status of e-Governance in State: Indices similar to the following will be developed for the State:
      - **E-Government Development Index**: UN has developed an index to measure development in three areas- online services, telecommunication infrastructure and human capacity, which ranks the UN member countries.
      - **The Digital Economy & Society Index (DESI)**: The DESI developed by European Commission is structured around 5 dimensions: Connectivity, Human Capital, Use of internet, integration of digital technology, digital public services
      - **Measurement & Evaluation Tool for e-Government Readiness (METER)** developed by UN- DESA is an online interactive tool to assist governments and decision makers at any level in developing, monitoring, refining and improving the context within which information and communication technologies are used to transform government. The parameters for METER are commitment, legal, vision and policy, organization, and technology.
      - The State would be ranked on similar indices and comparison can be made at different points of time or comparison can be done for different districts.
      - **Digital Skill Index**: To determine how well the citizens are equipped for a digital economy, digital skill index can be used. The measure can be done through surveys conducted by third party agencies. Ranking of different population segments on this index will ensure attention is paid to key segments that need urgent action.

b) ***Monitoring Tools:*** Some of the tools that can be used are:
   i. Data gathering through surveys, questionnaires, extant reports, observations, etc
   ii. Data analysis using tools like Big Data Analytics, fusion table, KNIME, search operators, GIS etc
   iii. Transparency and open availability of data relating to progress in target achievement and open budget for SDGs.

c) ***M&E Team***: A dedicated team of professionals equipped with ICT tools for project monitoring and evaluation is projected in the Financial Requirement section.

d) ***IT and Technology Management Stack for SDG Implementation*:**

It is proposed to have a Technology PMU for managing the technology stack for the SDG cutting across the departments. The Technology PMU as the core of the SDG implementation shall operate under the aegis of the IT Department. This PMU would be part of the main PMU which would be providing core support to the SDG Secretariat. This team will be manned by technology domain experts and supported by IT experts with adequate hardware and software backbone and state of the art communication network.

Some of the suggested technologies for adoption by the departments are:

   i. Bitcoin/ Blockchain

ii. 3D Printing (Housing, Construction, industry, manufacturing etc.)
iii. Low carbon construction materials
iv. Off the Grid (OTG) housing
v. Renewable energy (Solar/ Wind/ Geo-thermal/ Hybrid)
vi. IOT, sensor systems and embedded technology
vii. Artificial Intelligence, Big Data Analytics, Virtual Reality
viii. UAV & Airborne resource mapping
ix. Sector specific technology stack
x. Call centers, social media and voice technologies
xi. Use of Space and Geo-Spatial Technologies
xii. Life cycle Approach (Cradle to Cradle/ Cradle to Grave)

Three Year Action Plan (2017-18 to 2019-20)

A) Introduction:
The three-year action plan is based on the seven-year strategic agenda described at the beginning of the document. While the seven-year agenda is from the year 2017-24 the three-year agenda is a subset of the seven-year agenda. The three-year period is taken from 2017 -20.

B) Baseline (2016), medium term target (2020):
The baseline and the major indicators for the medium term are presented in first section of the strategic agenda at the beginning. Provided the resource gaps are met, the targets given are achievable.

C) Assessment of existing programs and rationalization of schemes and programs:
The existing programmes of the IT department are listed below, and items classified as per the SDG goals applicable to the Department. The budget estimates for the 2016-17 have also been provided. It is seen that several of the programmes meet the various SDG targets. However, certain schemes cannot be assigned to any SDG target. Also, some schemes which may help in meeting the SDG targets have no funds allotted in the financial year 2016-17.

Sl. No.	Description of the Schemes	Demand Estimate for 2016-17	SDG Goal Addressed
1	Information Communication Technology for Colleges of Assam.	1000	4(b)
2	IT Policy Implementation	20,00,000	5(b), 9.5b, 12.8
3	State Service Delivery Gateway (SSDG)	2,00,00,000	9.5a, 12.8, 16.10
	(Capital Total)	**2,20,01,000**	
4	National E Governance Action Plan (NEGAP)	24,49,11,000	
5	Promotion of Information Technology	54,12,000	12.8
6	Organisation of Workshops / Seminars /Roadshow	1,00,00,000	12.8, 16.10
7	Mukhya Mantrir Tathya Prajukti Prashikshan Aru Niyog Achoni	1000	4(b), 5(b)
8	Assam State Wide Area Network(ASWAN)	2,30,00,000	9.5a, 9.5c
9	Construction of Building for State Data Center	0	9.5a
10	Assam Online Portal	60,00,000	12.8
11	Establishment of IT Park	1,00,00,000	9.5a
12	Augmentation of SWAN PoP building	0	9.5c
13	Assam Knowledge Network	0	9.5, 9.5c
14	Assam Rural Livelihood ICT Framework	0	9.5c
15	Governance and Planning for Rural Assam Geospatial Infrastructure	0	9.5
16	International Internet Gateway, Guwahati & Public Data Centre	0	9.5c
17	Assam Knowledge Cloud	0	9.5

18	Strengthening of Common Service Centres (CSC)	0	9.5c, 12.8
19	Rural BPO Centres	0	4(b), 5(b)
20	IT Skill Development of Women	1000	5(b)
21	IT Skill Development of Socially and Economically Weaker sections	2,00,00,000	4(b)
22	IT Skill Development of Farmers and Artisans	0	4(b)
23	IT Skill Assessment	0	4(b)
24	Public Service Information Systems	0	16.10
25	e-Districts	2,56,00,000	12.8, 16.10
26	GIS based Resource Mapping	0	9.5
27	ESDM Cluster Development	0	9.5a
28	e Waste Project	0	9.5b
29	Research and Development in IT	0	9.5
30	Promotion of Free and Open Source Software (FOSS)	0	9.5, 9.5b
31	Strengthening and Capacity Building of AEDC Ltd. and Amtron (India) Informatics Ltd.	1000	
32	CM Portal	60,00,000	16.10
33	Development of Infrastructure facility for installation of Stratosphere Troposphere (S.T) Radar for N.E. at Guwahati University	1,50,00,000	9.5
34	IT infrastructure support and services for State Data Centre	20,00,000	9.5 a
35	Assam State Public Service Reforms for Enhanced Service Delivery(ASPSRED) EAP (World Bank)	0	17.9, 16.10
36	Assam State Public Service Reforms for Enhanced Service Delivery(ASPSRED) State Component	0	17.9, 16.10
37	e Procurement Initiative	49,82,000	
38	Establishment of Cyber Tower	0	4b, 5b
39	Innovation Fund for Information Communication Technology and Electronics	1000	9.5b
40	Data Digitization of Government Department	0	12.8
41	Horizontal Connectivity of Government Offices	0	12.8
42	Establishment of Directorate of Electronics & Information Technology	0	
43	Government resource planning solution GPRS for govt. departments	0	12.8
	(Revenue Total)	**37,29,09,000**	
	Capital + Revenue	**39,49,10,000**	

D) Programs and Schemes in Three Year Action Plan:

The programmes and schemes of the IT Department as exist today, when analyzed in the light of the SDGs, seem to be somewhat aligned with the required SDG in the ICT sector. However, in order to fully meet the target 4.b, 5.b, 9.5, 9.5a, 9.5b, 9.5c, 12.8, 16.8, 16.10, 17.6, 17.7, 17.8, 17.9 new schemes need to be initiated from 2017-18. A combined list of existing as well as new programs and schemes is given below with tentative allocation till 2019-20.

S. No.	Projects	Estimates for 2017-20 (INR Cr)
1	Assam Digital Services Delivery Gateway & Infrastructure	25.00
2	Public Service Delivery & Information Systems & e-District	75.00
3	e-Service delivery outlets	140.00
4	Legacy Data Conversion, archival & storage Scheme	30.00
5	State Data Center	75.00
6	Public Data Centre & Cyber Security	45.00
7	Gigabit State OFC Networks & WAN	750.00
8	International Internet Gateway, Guwahati	115.00
9	Internet Bandwidth	450.00
10	ICT for Colleges	130.00
11	Broadband Connectivity in Secondary Schools & Digital Library	90.00
12	Student Unique ID & Digital locker from class IV till Univeristy	40.00
13	Digital Literacy	40.00
14	CMs Special IT Skills Program	100.00
15	Finishing Schools, Foreign languages, Professional IT Academies & Ex-change Programs	40.00
16	Research and Development in IT/ ESDM, greening of IT Infrastructure	425.00
17	HPC & AI	75.00
18	Startup Programs & Accelerators	30.00
19	IT Industry promotion & development	1640.00
20	IOT Development & AWS	110.00
21	Geo-Spatial Infrastructure & Systems & Mapping of resources	35.00
22	Digital Content & Multimedia	75.00
23	IEC & Outreach Programs	10.00
24	Promotion of Free and Open Source Software (FOSS)	5.00
25	Implementation of e-Gov & IT Standards, Enablers & quality testing	10.00
26	Awards, Recognition, fellowships and chairs on ICT & ESDM	5.00
27	Human Resource Development	15.00
28	Establishment of Directorate of Electronics & Information Technology	10.00
29	Equity Participation & Share Capital	100.00
Total Budget Requirement for IT Department		**4690.00**
30	SDG Tech PMU	10.00

TOTAL Budget Requirement	4700.00

E) Immediate changes in policies, organizational framework, partnerships and introduction of innovation environment necessary:

The immediate changes in policies, organizational framework, partnerships and introduction of innovation environment are briefly given below:

1. *Promulgation of Policies/ Rules*:
   a) New IT policy
   b) Hardware policy
   c) e-governance policy
   d) Core infrastructure & usage policy
   e) Electronic Service Delivery Rules
   f) SoPs and Protocols
   g) Adoption of Environment friendly and low carbon technologies

2. *Setting up of new entities*:
   a) IT Directorate
   b) Subsidiaries of AMTRON
      i. Fibrenet & Broadband
      ii. Service Delivery
      iii. Infrastructure
      iv. Consultancy
   c) SPV

3. *Strategic Alliance*:
   a) Industry tie-up with companies like Intel, Oracle, other industry pioneers for providing skill development on industry standard products
   b) Alliance with startup accelerators, Venture capitalists
   c) Strategic tie up with national and international R&D institutions, laboratories, test houses, certifying agencies, standards organisations, industry associations, professional consortia etc.
   d) Building up knowledge pool of resource base of research scholars, scientists and domain experts, national and international institutions of repute
   e) Overseas partnership with technology partners and private sector for innovation and product and services development

F) Strategy for achievement of mission:

1. Mission 1: To enable electronic delivery of services to the citizens in an easy, effective, transparent and inclusive manner

   a) Identification of services and mapping the services with respective stakeholders
   b) BPR and e-enablement of departments to enable electronic service delivery
   c) Make digitization plan for the State and departments encompassing decision on the type of records to be digitized, duration, meta data to be captured, means of storage and retrieval, including microfilming
   d) Develop last mile entrepreneurs for provisioning of consumer services

e) Make all government information open to public-open data initiative
f) Portals/Websites to be made available in local languages
g) Gateways like SMS and Mail to be utilized to assess customer satisfaction and ascertaining QoS (Quality of Service).

2. Mission 2: Develop ICT infrastructure in the State, so as to bring IT to the doorstep of citizens

a) Develop a comprehensive roadmap for providing robust and reliable connectivity through the most feasible means for achieving the targets
b) Mandatory allocation of 2-3% by Departments towards IT
c) Develop plan in coordination with various agencies like Power utility, ISPs, other telecom operators to provide connectivity
d) Adopt Open standards, e-Gov standards, frameworks, protocols and SOPs
e) Standard Operating Procedure and Service Level Agreement for day to day management, maintenance and security of infrastructure
f) Ensure fail proof, mission critical model, for storage and retrieval of data
g) Develop business continuity model to ensure security and continuity of services in uninterrupted manner
h) Develop a sustainability model for core infrastructure

3. Mission 3: To promote the inclusive and sustainable growth of Electronics, ICT and ITeS industries in the State

a) Set up startups, incubation centers and accelerators
b) Provision for angel fund, venture capital for encouraging industry & startups
c) Set up Innovation Fund for ICT & ESDM
d) Enable an ecosystem for development of Public Private Partnerships
e) Incentivize Research & Development for product design and aesthetics
f) Create a hub and spoke model for developing franchisee and ancillary units
g) Institute awards in innovation
h) Create special vehicles for exports promotion, IT investment and network services
i) Nurture and promote “Make in Assam” and “Brand Assam”
j) Provide world class test labs and research infrastructure for the industry

4. Mission 4: Equip human resources with ICT skills for rapid growth of IT sector

a) Develop Capacity Building & Change Management Plan and resource augmentation strategy
b) Create a pool of master trainers based on realistic training need assessment and analysis through regular TOT programs
c) Restructure academic program for science in schools & colleges for continuous skill enhancement
d) Content creation for science & technology education in vernacular languages
e) Develop and promote ICT (OCR, Speech to text, text to speech etc) in local languages and dialects
f) Develop Vocational skills & training curriculum
g) Adopt best practices of service delivery through continuous process of evaluation and localization
h) Groom and guide educated youth for making them industry ready using finishing schools, language labs, personality development and soft skills training, employability tests, aptitude tests
i) Promote professional proficiency by setting up technology specific academies and schools such as CISCO, RedHAT, Oracle, Microsoft, VLSI, VFX etc

j) Empower women, differently abled and economically weaker sections of population for accessing and using ICT tools for bridging the multi perspective digital divide.
k) Develop national and international exchange programs with institutes of repute, bilateral knowledge transfer and case studies.
l) Develop and deploy an effective, dynamic and engaging IEC and outreach program

G) Medium Term Resources Framework 2016-17 to 2019-20:

The medium-term resource framework for the IT Department is modest but ambitious given the poor resource and budget allocation to the Department. The department plans to spend more than 5000 cr during this period for creating requisite infrastructure, governance systems and human resource within the government and outside. This is proposed to be met largely from external funding agencies such as the World Bank and BRICS Bank, and involvement of PPP partners.

H) Review:

The action plan, schemes and strategies shall be reviewed periodically as mentioned in the first section of the document, so that modifications, changes and scaling up can be done as appropriate on a yearly basis.

Annexure I- Manpower Requirement Planning

S. No	Details	Cumulative No.				Salary (Rs in cr.)			
		2017-20	2020-24	2024-30	Salary p.a. first year	2017-20	2020-24	2024-30	Total Salary
1	GIS Expert	10	15	15	1200000	3.78	8.98	14.00	26.76
2	Data Mining, warehousing, big data analytics expert	25	30	30	1440000	11.35	21.55	33.59	66.49
3	Programmers	30	35	40	960000	9.08	16.76	29.86	55.70
4	Graphic & VFX Designers	20	25	25	1200000	7.57	14.97	23.33	45.86
5	System design Experts	15	20	25	1200000	5.67	11.97	23.33	40.97
6	Project Management Consultants	20	25	30	1200000	7.57	14.97	27.99	50.52
7	Program Managers	20	25	30	1440000	9.08	17.96	33.59	60.63
8	Financial Consultant/ Legal Consultant	10	15	15	1200000	3.78	8.98	14.00	26.76
9	BPR Expert/ Change management Expert	15	15	15	960000	4.54	7.18	11.20	22.92
10	VLSI Designers	10	10	10	1800000	5.67	8.98	14.00	28.65
11	Embedded System Programmers	10	10	10	1440000	4.54	7.18	11.20	22.92
12	Hardware & Network Engineers	30	35	40	960000	9.08	16.76	29.86	55.70
13	System Administrator	25	30	35	960000	7.57	14.37	26.12	48.06
14	Database administrator	25	30	35	1200000	9.46	17.96	32.66	60.08
15	Cyber Security Expert	25	30	35	1200000	9.46	17.96	32.66	60.08
16	Content Writer	20	25	30	960000	6.05	11.97	22.39	40.42
17	Social Media Expert	20	25	30	840000	5.30	10.48	19.59	35.37
18	System Assistants	350	380	400	180000	19.86	34.13	55.98	109.97
19	Call Centre Agents	100	150	200	180000	5.67	13.47	27.99	47.14
20	District/ Department Technical Resources	150	150	150	300000	14.19	22.45	34.99	71.63
	TOTAL					**159.00**	**299.00**	**518.00**	**977.00**