



ABSTRACT

Information Technology and Digital Services Department – Formulation of Tamil Nadu Artificial Intelligence Mission Document and according administrative sanction for a sum of Rs.13.93 Crore for implementing the Tamil Nadu Artificial Intelligence Mission - Orders – Issued.

INFORMATION TECHNOLOGY AND DIGITAL SERVICES (C1) DEPARTMENT

G.O.(Ms).No.25

Dated: 09.10.2024

சூரேதி, ஸ்டாசி-23

திருவள்ளூர் ஆண்டு-2055.

Read:

From the Director of e-Governance & Chief Executive Officer, Tamil Nadu e-Governance Agency e-office file No. F-59/A1/DeG/2024, dated:26.02.2024.

ORDER:

During the Budget Session 2023-24 of the Tamil Nadu Legislative Assembly, the Hon'ble Minister for Information Technology and Digital Services has made the following announcement.

தமிழ்நாடு செயற்கை நுண்ணறிவு அமைப்பு (Tamil Nadu AI Mission)

ஆளுகையை எளிதாக்குதலில் செயற்கை நுண்ணறிவு / கீயந்திரக் கற்றலின் ஆற்றலைப் பயன்படுத்தவதற்காக, தமிழ்நாடு மின் ஆளுமை முகமையானது (TNeGA), தமிழ்நாடு தொழில்நுட்ப மையத்துடன் (iTNT Hub) இணைந்து "தமிழ்நாடு செயற்கை நுண்ணறிவு அமைப்பு" (Tamil Nadu AI Mission) ஒன்றை, தமிழ்நாடு புதுமை முயற்சிகள் நிதி (TANII) (செயற்கை நுண்ணறிவுக்காக ஏற்கெனவே ஒப்பளிக்கப்பட்டது) மற்றும் தமிழ்நாடு மின் ஆளுமை முகமையின் சொந்த நிதியிலிருந்து உருவாக்கும். இந்த அமைப்பு, தொழில் நிறுவனங்கள், கல்வி நிறுவனங்கள் மற்றும் தொடக்கநிலை நிறுவனங்களுடன் இணைந்து, மின் ஆளுமைத் திறன்களை மேம்படுத்துதல், புதுமைகளை ஊக்குவித்தல் மற்றும் பொருத்தமான கொள்கைகளை உருவாக்குதல் ஆகியவற்றில் கவனம் செலுத்தும்.

2. During the Budget Speech for the year 2024-25 of the Tamil Nadu Legislative Assembly held on 19.02.2024, the Hon'ble Minister for Finance and Human Resource Management has made the following announcement:-

"113. உலக அளவில் அண்மைக்காலத்தில் பெரும் தாக்கத்தை ஏற்படுத்தியுள்ள புதிய தொழில்நுட்பமான செயற்கை நுண்ணறிவு (Artificial Intelligence) குறித்தும், அது தமிழ்ச் சமூகத்தின் பல்வேறு தரப்பிலும் ஏற்படுத்தக்கூடிய தாக்கங்கள் குறித்தும் இந்த அரசு கவனமுடன் ஆய்வுசெய்து வருகிறது. கல்வி, வேலைவாய்ப்பு, தொழில்துறை, ஆராய்ச்சி மற்றும் மருத்துவத் துறைகளில் செயற்கை நுண்ணறிவைப் பயன்படுத்துவதன் வாய்ப்புகள் குறித்த ஆக்கபூர்வமான வழிகாட்டுதல்களையும், இப்புதிய தொழில்நுட்பத்தின் பயன்பாட்டினை வழிநடத்திடத் தேவைப்படும் வரையறைகளைத் தெளிவாக வகுத்திடவும், மாண்புமிகு முதலமைச்சர் அவர்களின் தலைமையில் "தமிழ்நாடு செயற்கை நுண்ணறிவு இயக்கம்" (Tamil Nadu Artificial Intelligence Mission) ஒன்று ஏற்படுத்தப்படும். தமிழ்நாட்டின் தலைசிறந்த கல்வி நிறுவனங்களின் பேராசிரியர்கள், மின்னணு தொழில் நிறுவனங்களின் நிர்வாகிகள் மற்றும் துறை வல்லுநர்கள் இந்த அமைப்பில் இடம் பெற்றிருப்பர்".

3. Pursuant to the above announcements, the Director of e-Governance and Chief Executive Officer, Tamil Nadu e-Governance Agency, in his letter read above, has sent a "Tamil Nadu Artificial Intelligence Mission" document and requested the Government to approve it and sanction a sum of Rs.13.93 Crore towards its implementation. The key objectives and salient features of the "Tamil Nadu Artificial Intelligence Mission" document are as follows:-

- To promote research and innovation in Artificial Intelligence Technologies.
- Skill Development – Training and Capacity building in the areas of AI technologies.
- Engage in partnerships and collaborations to share best practices, knowledge, and resources in the field of AI.
- Identify use cases / problem areas in Governance (Service Delivery improvements, Data Driven decision making, healthcare, Security and public safety) which can be solved through AI technologies.
- Work on sample use cases and provide AI based solution through the implementing agencies.
- Establish the basic backbone / infrastructure facilities towards compute / storage capacities for the researchers and startups to implement their ideas.
- Share Government data for implementing the AI ideas -as needed ensuring compliance to data protection and data sharing acts, on force.
- Establish guidelines and regulations – through adoption of Indian and Global practices / advisories to ensure the ethical and responsible development and use of AI technologies. This includes addressing issues such as bias, transparency, accountability, and privacy concerns.

4. The Tamil Nadu e-Governance Agency, will act as the implementing agency of the Tamil Nadu Artificial Intelligence Mission. Other organizations that are also part of the Department of Information Technology and Digital Services such as iTNT, ICT Academy, Electronics Corporation of Tamil Nadu Limited, will be the stakeholders and act as supporting organizations of Tamil Nadu Artificial Intelligence Mission implementation. TNAIM shall focus on the use of AI tools and technologies in the following areas by facilitating the availability of adoptable AI based solutions or developing AI based applications that benefit these areas and the connected eco-system.

1. Predictive Policy Making
2. Government Adoption
3. Capacity Building
4. Skill and Education
5. Community Collaboration
6. Engaging Start-ups
7. Innovation
8. Providing Infrastructure for compute and storage

5. TNeGA will implement the TNAIM, in its initial phase during the first 2 years. The total budgetary required to implement TNAIM for 2 years, will be Rs.13.93 Crore. The cost breakup details for the total budgetary estimate is as follows:-

S. No	Component	Description	Sub description	Budget Estimate (INR)	Responsible Agency	Source of Funding
1	A	Infrastructure	Technology Infra	2,54,00,000	iTNT (procurement through ELCOT)	iTNT
			Physical Infra	66,00,000		
2	B	Human Resources	Existing AI/ML	73,20,000	TNeGA	GoTN
			New PMU	1,20,00,000		
3	C	Software development with Industry	-	8,00,00,000	TNeGA	GoTN*

		Engagement				
4	D	Mission Promotion	Conference (1 no)	25,00,000	TNeGA	ELCOT
			Workshops (2 nos)	15,00,000		
			Hackathon – Industry innovation challenges	15,00,000	ITNT	ITNT
			Capacity Building – Lectures and Training programs	25,00,000	ICT	ICT
Total						
(Rupees Thirteen crore ninety three lakh twenty thousand only)				13,93,20,000/-		

*The software development cost will be on reimbursement basis. In-house development and/or procurement for individual projects will be made after approval by the Governing Council of Tamil Nadu e-Governance Agency for which the initial funding will be met from Electronics Corporation of Tamil Nadu Limited, and upon completion of the project, the costs will be reimbursed by Government to ELCOT.

6. The Government, after careful examination, hereby accord approval to the Tamil Nadu Artificial Intelligence Mission Document and administrative sanction for a sum of Rs.13.93 Crore, to the Director of e-Governance and Chief Executive Officer, Tamil Nadu e-Governance Agency, towards implementing the Tamil Nadu Artificial Intelligence Mission as detailed in para 5 above.

7. A detailed booklet containing the Tamil Nadu Artificial Intelligence Mission document is annexed to this order.

8. The Director of e-Governance/ Tamil Nadu e-Governance Agency is directed to take necessary action towards implementation of Tamil Nadu Artificial Intelligence Mission and send periodical progress Report to Government.

8. This order issues with the concurrence of Finance (Industries) Department, vide its U.O. No.F-59/AI/DeG/2024, dated 07.10.2024

(BY ORDER OF THE GOVERNOR)

**KUMAR JAYANT
ADDITIONAL CHIEF SECRETARY TO GOVERNMENT**

To

All Departments of Secretariat, Chennai – 600 009.

All Heads of Department.

All District Collectors/District magistrates.

The Director of e-Governance & Chief Executive Officer,
Tamil Nadu e-Governance Agency, Chennai-600002.

All HODs of Information Technology and
Digital Services Department.

The Accountant General, Chennai-600 018.

The Pay and Accounts Officer (South), Chennai- 600 035.

The Pay and Accounts Officer, Secretariat, Chennai - 600 009.

The Resident Audit Officer, Chennai-600 009.

The Finance (Industries/Salaries) Department, Secretariat, Chennai-600 009.

Copy to:

The Chief Minister's Office, Secretariat, Chennai-600 009.

The Senior Personal Assistant to Hon'ble Minister for
Finance & Human Resource Management,
Secretariat, Chennai – 600 009.

The Senior Personal Assistant to Hon'ble Minister for
Information Technology and Digital Services,
Secretariat, Chennai-600 009.

The Private Secretary to Chief Secretary to Government,
Secretariat, Chennai-600 009.

The Senior Private Secretary to Principal Secretary to Government,
Finance Department, Secretariat, Chennai-600 009.

✓ The Content Creator (MS)/Moderator (MS)/Nodal Officer (MS),
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Secretariat, Chennai-600 009 (with a request to host the G.O. in the
Government website).
Stock file/Spare copy.

// Forwarded / By Order //

Jagadani
15/10/24
SECTION OFFICER
15/10/24



**COMMISSIONERATE OF e-GOVERNANCE
TAMIL NADU e-GOVERNANCE AGENCY**
INFORMATION TECHNOLOGY DEPARTMENT, GOVERNMENT OF TAMIL NADU



TN AI MISSION

Proposal for Tamil Nadu Artificial Intelligence Mission



Proposal By

Tamil Nadu e-Governance Agency

In Association with

ELCOT, iTNT Hub and ICT Academy

OCTOBER 9, 2024

Tamil Nadu e-Governance agency
Chennai - 60002



TN AI Mission

Table of Contents

- 1. Artificial Intelligence3
- 2. Artificial Intelligence in India5
- 3. Tamil Nadu AI Mission7
- 4. Implementing Agency10
 - 4.1. Focus Areas of TNAIM Implementation10
 - 4.1.1. Predictive Policy Making11
 - 4.1.2. Government Adoption13
 - 4.1.3. Capacity Building13
 - 4.1.4. Skill and Education15
 - 4.1.5. Community Collaboration.....17
 - 4.1.6. Engaging Start-ups18
 - 4.1.7. Innovation19
 - 4.2. Stakeholder Benefits20
- 5. Components of TNAIM Implementation22
 - 5.1. Implementation Plan22
 - 5.2. Timelines23
 - 5.3. Use Cases23
 - 5.4. Proof of Concepts27
 - 5.4.1. AI Areas for PoC development27
 - 5.4.2. Proof of Concept plan28
 - 5.5. Human Resources28
 - 5.5.1. TNeGA's in-house AI team29
 - 5.5.2. Project Management Unit (PMU)29
 - 5.5.3. Software development with industry engagement for Complex or Long-term AI applications30
 - 5.6. Infrastructure31
 - 5.6.1. AI Infrastructure31
 - 5.6.2. Technological Infrastructure32
 - 5.6.3. Physical Infrastructure34



TN AI Mission Proposal



With a favourable and robust environment that the State Government has already created, it has become imperative for the State to start its own dedicated AI mission.



3. Tamil Nadu AI Mission

Announcement

The Honourable Minister for Information Technology and Digital Services announced the "Tamil Nadu AI Mission" in Tamil Nadu Assembly during the year 2023-24 stating

"In order to leverage the power of Artificial Intelligence / Machine Learning in simplifying Governance, Tamil Nadu AI Mission will be launched by TNeGA in Partnership with iTNT Hub with TANIL Funds (Already sanctioned for AI) and TNeGA own funds. The mission will focus on enhancing the e-Governance capabilities, promoting innovation and framing appropriate policies through engagements with Industry, Academia and Start-Ups."

Also, Honourable Minister for Finance and Human Resource Management has made the following announcement in the Budget Speech 2024-2025 on 19.02.2024 on the floor of the Tamil Nadu Legislative Assembly:-

"113. The Government is carefully analyzing the recent developments in the field of Artificial Intelligence (AI) and their implication across various sections of the Tamil society. Under the guidance of the Hon'ble Chief Minister, the 'Tamil Nadu Artificial Intelligence Mission' will be established to develop guidelines for constructively leveraging AI in education, employment, industry, research and medicine and to establish clear protocols for its utilization. This mission will involve professors from leading educational institutions in Tamil Nadu, executives from the electronics industry and experts in the field".

Follow up Action

With reference to the above announcements, The Tamil Nadu Artificial Intelligence Mission (hereinafter referred as 'TNAIM') will be established. The TNAIM will be established under the Chairmanship of Hon'ble Chief Minister of Tamil Nadu. The Mission will also have members from leading academic institutions, professional experts from the AI sector and leading personalities from the connected industry. Artificial Intelligence (AI) has become a top priority on policy agendas worldwide, as it has the power to foster innovation, generate employment opportunities, and contribute to the growth of the



TN AI Mission Proposal



country. AI technologies is having rising attention across the globe on economic development, nation's safety, cyber security, and data based economic & social progress.

TNAIM strategy will focus on research and developing technological solutions for the problems in the governance, thereby fostering effective governance leading to social and economic development. The underlying philosophy of the proposed TNAIM will be "Social Good by Design". The objective of the mission will be to position the State as one of the leading AI hubs in next five years. To achieve this, the mission will provide a platform to various stakeholders including Government, Academia, User Enterprises, Innovators, and Investors to connect, collaborate for their own interest.

TNAIM ensures a precise and cohesive strategy to bridge the gaps in the existing AI ecosystem viz-a-viz Compute infrastructure, Data, AI financing, Research and Innovation, targeted Skilling, and institutional capacity for Data to maximize the potential of AI to advance the Tamil Nadu progress. TNAIM will be a kinetic enabler of Tamil Nadu's digital economy and make Governance smarter and more data led.

Tamil Nadu AI Mission is being envisaged with a focus on key areas with an intent to provide maximum benefits to citizens and other stakeholders in the State, leveraging AI. These areas have specific objectives and the action points around these initiatives will be undertaken in collaboration with ecosystem partners such as TNeGA, iTNT, and ICT Academy.

Objectives

The key Objectives defined under TN AI Mission are as below:

1. To promote research and innovation in AI Technologies.
2. Skill Development - Training and Capacity building in the areas of AI technologies
3. Engage in partnerships and collaborations to share best practices, knowledge, and resources in the field of AI.
4. Identify use cases / problem areas in Governance (Service Delivery improvements, Data Driven decision making, healthcare, Security and public safety) which can be solved through AI technologies.
5. Work on sample use cases and provide AI based solution through the implementing agencies.
6. Establish the basic backbone / infrastructure facilities towards compute / storage capacities for the researchers and startups to implement their ideas.



TN AI Mission Proposal



7. Share Government data for implementing the AI ideas – as needed ensuring compliance to data protection and data sharing acts, on force.
8. Establish guidelines and regulations – through adoption of Indian and Global practices / advisories to ensure the ethical and responsible development and use of AI technologies. This includes addressing issues such as bias, transparency, accountability, and privacy concerns.

Information Technology and Digital Services Department through its constituent organisations shall spearhead the AI Mission program to achieve the objectives, defined. All its component agencies shall be stakeholders of this program. All stakeholders will work together on concept design and solution development in area of Artificial Intelligence.

The activities of Tamil Nadu Artificial Intelligence Mission shall be reviewed periodically by the Honourable Chief Minister and provide necessary advice and guidance for its implementation for the benefit of the State.



4. Implementing Agency

The Tamil Nadu e-Governance Agency (TNeGA), an autonomous Society created in 2007, will act as the implementing agency of the TNAIM. The TNeGA is also a nodal agency for all e-Governance initiatives, under TN Societies Registration Act.

Other organizations that are also part of the Department of Information Technology and Digital Services such as iTNT, ICT Academy, ELCOT will be the stakeholders and act as supporting organizations of TNAIM implementation. The broad roles performed by each of the stakeholder are given, below

4.1. Focus Areas of TNAIM Implementation

TNAIM shall focus on the use of AI tools and technologies in the following areas by facilitating the availability of adoptable AI based solutions or developing AI based applications that benefit these areas and the connected eco-system.

1. Predictive Policy Making
2. Government Adoption
3. Capacity Building
4. Skill and Education
5. Community Collaboration
6. Engaging Start-ups
7. Innovation
8. Providing Infrastructure for compute and storage

S.No	Focus Areas	Responsible Agency
1	Predictive Policy Making	TNeGA
2	Government Adoption	
3	Capacity Building	ICT Academy
4	Skill and Education	
5	Engaging Start-ups	iTNT, TNeGA
6	Community Collaboration	
7	Innovation and Industry Engagement	
8	Compute Infrastructure	ELCOT

In the further sections, TNAIM details the actions of responsible agencies in each of the focus areas listed above. The list of application focus areas are listed below. These are generic which will be reviewed and specific cases will be identified for implementation and adoption as part of TNAIM.



4.1.1. Predictive Policy Making

AI enables hyper localized and hyper personalized e-services for the citizens to achieve efficient service delivery and enable better policy making & proactive governance. This will be possible by understanding the large datasets from various sources and analysed to predict the right solutions using AI technologies. Thus, AI facilitates to predict the right policies for driving and accelerating growth.

AI will help to build a framework for predictive and prescriptive governance, aimed at assisting policymakers in making informed and evidence-based decisions by providing them with critical, actionable insights, and in making governance a seamless process. The end beneficiaries are the public, as life becomes much easier for them with Government services reaching their doorsteps without any explicit efforts from their side.

Predictive policy making using Artificial Intelligence (AI) has the potential to enhance governance by enabling more informed, efficient, and targeted decision-making. TNeGA shall find best use cases and develop Proof of Concept in the following application areas of predictive policy making.

a) Data-Driven Decision Making

- To analyse vast amounts of data to identify patterns, trends, and correlations. Governments can use predictive analytics to inform policy decisions based on data insights, enabling more evidence-based and effective governance.

b) Early Warning Systems

- To Implement AI-powered early warning systems to identify potential issues before they escalate. This could include predicting disease outbreaks, natural disasters, or economic downturns, allowing Governments to take proactive measures.

c) Resource Optimization

- To use AI algorithms to optimize resource allocation and budget planning. Predictive models can help Governments allocate resources more efficiently by anticipating areas with higher demand or potential risks.

d) Policy Impact Assessment

- AI can assess the potential impact of proposed policies by simulating their effects on various factors. This allows policymakers to make informed decisions by understanding the likely outcomes and consequences of different policy options.

e) Citizen Service Anticipation

- Predictive analytics can be used to anticipate citizen needs for public services. For example, it can help in forecasting healthcare demands, traffic patterns, or



educational requirements, allowing Governments to better plan and allocate resources.

f) Fraud Detection and Prevention

- Implement AI-based systems to detect and prevent fraud in public programs. Predictive models can analyse data patterns to identify anomalies and potential fraudulent activities, ensuring the integrity of Government services.

g) Crisis Management and Response

- AI-powered systems can predict and model responses to various crisis scenarios, such as natural disasters or public health emergencies. This allows for more effective and coordinated crisis management and response efforts.

h) Customized Public Services

- Use predictive analytics to tailor public services to individual citizen needs. By analyzing historical data, Governments can anticipate the preferences and requirements of citizens, providing more personalized and efficient services.

i) Policy Iteration and Learning

- Implement AI systems that continuously learn from data and feedback. This iterative process enables Governments to adapt policies over time based on real-world outcomes and changing conditions.

j) Environmental Monitoring and Sustainability

- AI can be employed for predicting and monitoring environmental changes. This includes predicting air and water quality, climate patterns, and biodiversity trends, allowing for more effective environmental policies and sustainability measures.

k) Public Safety and Security

- Use AI to predict and prevent crime by analysing historical crime data and identifying patterns. Predictive policing can help law enforcement allocate resources to areas with higher risks, enhancing public safety.

l) Dynamic Policy Adjustments

- AI enables Governments to make dynamic and real-time adjustments to policies based on changing circumstances. This agility ensures that policies remain relevant and effective in the face of evolving challenges.

m) Citizen Feedback Analysis

- Employ sentiment analysis and feedback systems to gauge public opinion on policies. This data can be used to assess the effectiveness of policies, understand citizen sentiment, and adjust accordingly.



n) Transparent Decision-Making

- Ensure transparency in decision-making by providing explanations for AI-driven predictions and recommendations. This helps build trust among citizens and stakeholders, fostering a transparent and accountable governance system.

4.1.2. Government Adoption

TNAIM shall focus on to create awareness, sensitize and encourage adoption of ready-to-deploy AI solutions in Government departments by identifying use cases pertaining to the department. Government adoption of Artificial Intelligence (AI) involves the integration of AI technologies into public services, policymaking processes, and administrative functions. TNeGA shall work on the following actions to facilitate effective and responsible Government adoption of AI.

a) Strategic Vision and Leadership

- To develop a clear and comprehensive AI strategy that aligns with Government priorities. Assign leadership roles and responsibilities to ensure coordinated implementation across different departments.

b) Interagency Coordination

- To establish mechanisms for interagency collaboration to share resources, expertise, and best practices related to AI adoption. This can prevent duplication of efforts and ensure a unified approach.

c) Pilot Projects

- To initiate small-scale pilot projects to test and evaluate AI applications before full-scale implementation. Pilots allow Governments to assess the feasibility, effectiveness, and potential challenges of AI adoption in specific use cases.

d) AI in Service Delivery

- To explore AI applications in improving public services, such as healthcare, education, transportation, and public safety. Implement AI-driven solutions to enhance efficiency, reduce costs, and improve the overall citizen experience.

4.1.3. Capacity Building

Capacity building for Government in Artificial Intelligence (AI) involves equipping public sector organizations with the necessary knowledge, skills, and resources to understand, adopt, and regulate AI technologies effectively. ICT Academy shall work on the following actions in addressing the capacity-building needs for AI in policymaking.



TN AI Mission Proposal



a) Training Programs

- To develop comprehensive training programs for Government officials at various levels. These programs should cover the basics of AI, its applications, and implications for policy development and implementation.

b) AI Literacy Initiatives

- To implement AI literacy initiatives to enhance the understanding of AI concepts among Government employees. This includes providing resources, workshops, and online courses to familiarize them with AI technologies.

c) Collaboration with Educational Institutions

- To collaborate with universities and research institutions to establish specialized AI training programs for Government officials. These programs can offer in-depth knowledge tailored to the specific needs of the public sector.

d) AI Centres of Excellence

- To support AI Centres of Excellence in capacity building serve as hubs for AI expertise. These centres can facilitate knowledge-sharing, research, and collaboration on AI-related projects.

e) Partnerships with Industry and Academia

- To foster partnerships with industry experts and academic institutions to provide Government officials with exposure to real-world AI applications and best practices. Collaboration with the private sector can help bridge the gap between theory and practical implementation.

f) Strategic Recruitment and Talent Acquisition

- To support in recruitment and hiring professionals with AI expertise to strengthen the Government's internal capabilities. This may include data scientists, AI researchers, and policy analysts with a background in AI.

g) Internship and Fellowship Programs

- To support in internship and fellowship programs that allow Government employees to gain hands-on experience in AI-related projects. Collaborate with AI companies and research institutions to facilitate these opportunities.

h) Continuous Learning Platforms

- To establish continuous learning platforms that enable Government officials to stay updated on the latest developments in AI. This can include webinars, conferences, and access to online resources.



- i) Cross-Agency Collaboration
 - To encourage collaboration and knowledge-sharing between different Government agencies. This helps avoid duplication of efforts and ensures that AI knowledge is disseminated across various departments.
- j) Ethical AI Training
 - To integrate training on ethical considerations in AI development and deployment. Government officials should be well-versed in the ethical implications of AI technologies to guide policymaking in a responsible manner.
- k) Policy and Regulatory Training
 - To provide specialized training on AI policy development and regulatory frameworks. This includes understanding the legal and ethical dimensions of AI, as well as ensuring compliance with relevant standards.
- l) Data Governance and Security Training
 - To offer training programs focused on data governance, security, and privacy. Government officials dealing with AI applications need to understand the importance of secure and ethical data handling.
- m) Public-Private Collaboration Workshops
 - To organize workshops that bring together Government officials, industry representatives, and AI experts to discuss challenges, opportunities, and collaborative initiatives. This facilitates a broader understanding of AI's role in the public sector.
- n) Incentive Programs
 - To create incentive programs that recognize and reward Government agencies for successful AI implementations. This encourages proactive engagement and innovation in the adoption of AI technologies.
- o) Monitoring and Evaluation Mechanisms
 - To establish mechanisms for monitoring and evaluating the effectiveness of capacity-building initiatives. Regular assessments ensure that the training programs align with evolving AI trends and Government needs.

4.1.4. Skill and Education

Governments play a crucial role in shaping policies that address the skill and education needs in Artificial Intelligence (AI). Developing comprehensive and forward-thinking policies can help ensure that the workforce is adequately prepared for the challenges and opportunities presented by AI.



TN AI Mission Proposal



ICT Academy shall work on the following actions for facilitating the spread of AI knowledge and AI Skills to larger community of people. It will also conduct various programs and provide advisory support for the formation of new age education policies on Artificial intelligence.

a) Curriculum Integration

Primary and Secondary Education: To incorporate basic concepts of AI into the primary and secondary school curriculum to familiarize students with the principles of AI and computational thinking.

Higher Education: To collaborate with universities and educational institutions to develop AI-focused degree programs and courses. Encourage the integration of AI concepts into existing computer science and engineering curriculum.

b) Vocational Training and Certification

- To establish vocational training programs that provide practical, hands-on AI skills for individuals seeking to enter the workforce quickly.
- To encourage the development of industry-recognized certifications to validate AI skills, making it easier for employers to identify qualified candidates.

c) Public-Private Partnerships

- To foster collaboration between the Government, private sector, and educational institutions to ensure that AI education programs align with industry needs.
- To support initiatives that connect students with industry professionals through internships, mentorship programs, and collaborative research projects.

d) Lifelong Learning Programs

- To promote continuous learning by supporting initiatives that offer AI training and upskilling opportunities for professionals already in the workforce.
- To create tax incentives or subsidies for businesses that invest in training their employees in AI-related skills.

e) Diversity and Inclusion Initiatives

- To implement policies that promote diversity and inclusion in AI education and workforce. Encourage the participation of underrepresented groups, including women and minorities.
- To establish scholarship programs and mentorship initiatives to support diversity in AI education and careers.

f) Ethical and Responsible AI Guidelines

- To develop guidelines and standards for the ethical and responsible development and use of AI technologies. Integrate these principles into AI education to foster a culture of responsible AI practice.



- To consider creating regulatory frameworks that address ethical considerations in AI, ensuring the responsible deployment of AI systems.

4.1.5. Community Collaboration

Community collaboration in the context of Artificial Intelligence (AI) involves fostering engagement, inclusivity, and transparency among various stakeholders, including the public, academia, industry, and Government. Governments can play a crucial role in facilitating and supporting collaborative efforts in AI. iTNT shall work on the following actions for community collaboration to foster inclusive and sustainable growth.

a) Open and Transparent Communication

- To implement policies that promote open and transparent communication about AI initiatives, projects, and policies. Provide clear and accessible information to the public to build trust and understanding.

b) Public Consultation and Engagement

- To establish mechanisms for industry and academic consultation on AI-related issues, including the development and deployment of AI technologies. Gather input from diverse communities to ensure a wide range of perspectives are considered.

c) Community Education Programs

- To support and collaborate with ICT Academy in educational programs that increase public awareness and understanding of AI. Provide resources and initiatives that empower communities to actively engage in discussions about AI technologies.

d) Inclusive AI Development

- To encourage AI developers and researchers to consider the diverse needs and perspectives of different communities. Promote inclusivity in the design and deployment of AI technologies to avoid biases and ensure fair representation.

e) Local Innovation Hubs

- To provide support in local innovation hubs or community centres that provide resources and support for AI-related projects. These hubs can serve as focal points for collaboration between community members, startups, and researchers.

f) Civic Technology Platforms

- To support the development of civic technology platforms that enable communities to actively participate in decision-making processes related to AI. These platforms can facilitate collaboration, information sharing, and feedback mechanisms.



4.1.6. Engaging Start-ups

Fostering startup engagement in Artificial Intelligence (AI) is essential for driving innovation, economic growth, and job creation. Governments can play a pivotal role in creating policies that support and incentivize AI startups. iTNT shall work on the following actions to encourage the start-up organizations in AI field for effective collaboration with the Government agencies who can provide datasets that will help these organizations to find out solutions for various problems in the society.

a) Government Procurement from Startups

- To support in formulation of policies that enable Government agencies to procure AI solutions from startups. Establishing mechanisms for startups to compete in Government procurement processes can drive market opportunities.

b) Access to Data

- To facilitate access to non-sensitive Government data for AI startups. Government datasets can be valuable for training AI models and validating algorithms, fostering innovation in the startup ecosystem.

c) International Collaboration

- To promote international collaboration by connecting AI startups with global networks, investors, and markets. Facilitate participation in international events and forums to enhance visibility and opportunities for startups.

d) IP Protection and Patent Assistance

- To provide support for intellectual property protection and offer assistance with the patenting process for AI startups. Clear IP policies can encourage startups to invest in research and development.

e) Diversity and Inclusion Initiatives

- To implement initiatives that promote diversity and inclusion within the AI startup ecosystem. Encourage the participation of underrepresented groups and support initiatives that foster inclusivity.

f) Continuous Feedback Mechanisms

- To support in establishing mechanisms for startups to provide feedback on Government policies. Regular feedback loops ensure that policies remain responsive to the evolving needs of the AI startup community.



g) Network Building

- To facilitate networking events, conferences, and industry forums that bring together AI startups, investors, and industry leaders. Building a strong network can enhance collaboration and knowledge sharing.

4.1.7. Innovation

Government play a pivotal role in fostering innovation in Artificial Intelligence (AI) by creating policies that encourage research, development, and the responsible deployment of AI technologies. ITNT shall work on the following actions to foster innovations in the academia, industry and Government.

a) Regulatory Sandbox Approach

- To implement a regulatory sandbox approach that allows for experimentation with AI technologies under controlled conditions. This can facilitate innovation while ensuring regulatory oversight.

b) Public-Private Partnerships

- To foster collaboration between the public and private sectors to leverage expertise, resources, and data for AI innovation.
- To encourage collaborations between Government agencies, industry players, and research institutions to address complex challenges and promote innovation.

c) Intellectual Property Protection

- To support in strengthen intellectual property protection laws to encourage innovation by providing legal frameworks that safeguard the rights of AI inventors and innovators.
- To streamline patent processes and consider the unique challenges associated with patenting AI-related inventions.

d) Facilitating Technology Transfer

- To develop mechanisms to facilitate the transfer of technology from research institutions to the private sector. This can involve creating platforms for collaboration, licensing agreements, and technology transfer offices.
- To encourage the commercialization of research outcomes to bring AI innovations to the market.

e) Standards and Interoperability

- To promote the development of industry standards for AI to ensure interoperability and facilitate the integration of AI technologies across different systems and applications.



TN AI Mission Proposal



- To participate in international events to establish common standards for AI, fostering global collaboration and innovation.
- f) Public Procurement for Innovation
 - To use public procurement as a tool to drive innovation by favouring AI solutions that are cutting-edge, efficient, and aligned with Government objectives.
 - To support in creation of procurement policies that encourage competition and participation from innovative AI companies, including startups and small businesses.
- g) Ethical and Responsible Innovation Guidelines
 - To develop and communicate guidelines for ethical and responsible AI innovation. Encourage businesses and researchers to consider the societal impacts of their innovations and prioritize responsible development.
- h) Data Governance and Privacy Policies
 - To support in implementation of clear data governance and privacy policies to instil confidence in consumers and businesses regarding the responsible use of data in AI innovation.
 - To address concerns related to data security and privacy, ensuring that innovation does not compromise ethical standards.

4.2. Stakeholder Benefits

To visualize the successful TNAIM reach, a cohort comprising the Government, public, private entities, academia, investors, society must contribute support together and each one ideally become stakeholders.

The mission in its charter intends to provide every stakeholder a set of benefits for their contribution in developing the AI ecosystem in Tamil Nadu. The charter also focuses on areas which impact stakeholders. The stakeholders will either be contributors or beneficiaries or both for the focus areas.

Table 1 – Stakeholder Benefits

1. Government

- Position Tamil Nadu as a global AI destination.
- Develop solutions for societal impact.
- Facilitate job creation.
- Promote skill development.

2. User Enterprises

- Drive AI adoption through
 - Co-innovation
 - Creation of knowledge assets
 - Compute infrastructure
 - Evangelization of best practices



3. Startups & Innovators

- Provide and enable access to
 - Mentorship.
 - Use cases (Government/Industry)
 - Technology and related infrastructure
 - Investors and investment opportunities.
- Promote IP creation.

5. Investors

- Connect Startups
- Enable knowledge sharing on new technology trends.

4. Academia

- Promote research in AI.
- Enable digital workforce.
- Provide access to industry forums.
- Help commercialize solutions.

6. Society

- Enable provision of efficient citizen services



5. Components of TNAIM Implementation

Artificial Intelligence can be applied to all the fields, as outlined in the earlier sections. TNAIM shall focus to simplify the governance, accelerate e-Governance outreach among citizens, adopt AI solutions in all the public entities, build an intellectual society, foster research and innovation, construct policies that will help the Government to develop an advanced society in Tamil Nadu. The strategy will be to synergize the data from all the fields by establishing a co-operation across departments, create technology expert groups, identify Use Cases through collaborative workshops or conferences and build AI applications as Proof of Concepts for broader acceptance.

5.1. Implementation Plan

TNeGA shall primarily focus on implementing TNAIM in the areas of Governance decisions, policy making, capacity building and industry promotions. TNeGA will interact with Government departments to identify the use cases where the application of AI technologies can make an impact and outline a plan to develop AI applications as Proof of Concepts and build full scale applications for operational utilisation within next 2 years. The below set of activities will be established as part of TNAIM:

1. Identify the use cases.
 - Use cases are categorised as simple and complex in major areas of AI technologies viz., Computer vision (CV), Machine Learning / deep learning for data driven analytics, Natural Language processing (NLP).
2. Establish a small AI development team, inhouse.
 - This inhouse team shall be used for developing AI tools / applications as Proof of concept.
 - Also, this team shall help in attending to ad hoc or quick turnaround applications that may be needed by the Government.
 - The major / long term applications shall get developed in association with the industries / startups or by engaging with Academic or Research Institutes.
 - This team shall also act as a QC or Review / acceptance team for the applications developed by industries or other departments.
3. Develop PoC for identified use cases with the inhouse AI team.
4. Develop the simple applications and ad hoc requirements with the inhouse team.
5. Develop long term and complex applications through the industry.
6. Engage with the academic and industry by conducting workshops and conferences.



TN AI Mission Proposal



7. Conduct participative workshops with the Government departments / agencies to identify use cases.
8. Shall create programs and hackathons to harness innovations from the industry and community participation.
9. Create partnerships with industries, institutes of excellence in promoting research and development in niche areas.
10. Involve with the department in adoption of AI tools / applications in policy making.
11. Establish Infrastructure for development and operationalisation of AI applications.
12. Form policies, framework, regulatory guidelines on AI implementation in Tamil Nadu, specifically Government adoption.

5.2. Timelines

TNeGA will implement the TNAIM as its initial phase during the first two years. The applications areas are identified and limited to the proposed timelines. All the activities of TNAIM shall be coordinated through a dedicated Project Management Unit (PMU).

The below table summarizes the major implementation activities involved in TNAIM that are discussed in detail in the following sections.

Section	Title	Implementation Plan summary
5.1	Use Cases	To Identify potential use cases for AI Proof of Concept development
5.2	Proof of Concept	To develop applications as Proof of Concepts for the use cases
5.3	Human Resources	To hire human resources for software development
5.4	Infrastructure	To Procure infrastructure for hosting the software application
5.5	Promotions	To Promote TNAIM across the State through various programmes

5.3. Use Cases

TNeGA identified use cases in 4 fields of Artificial Intelligence namely Natural Language Processing (NLP), Computer Vision (CV), Time Series Analysis, Rule Engine which are as follows. The identified use cases are listed in the below table.



TN AI Mission Proposal

S.No	Category	Challenge Level	Use Case Name	Use Case description
1	NLP	Simple	Rule Based chatbot	A rule-based chatbot is a type of conversational agent that operates on a set of predefined rules. Unlike machine learning-based chatbots that learn from data and user interactions, rule-based chatbots follow a deterministic approach
2	NLP	Complex	Conversation chatbot	A conversational AI chatbot is an artificial intelligence (AI) application designed to engage in natural language conversations with users. It uses various technologies, including natural language processing (NLP), natural language understanding (NLU), and dialogue management, to understand and respond to user inputs in a way that simulates human-like conversation. Conversational AI chatbots are employed across various platforms, including websites, messaging apps, and voice interfaces, to assist users, answer questions, provide information, and perform tasks. This application will be utilised for Agricultural AI App development purposes.
3	NLP	Complex	Voice based (input) conversational chatbot	A voice-based AI conversational chatbot is an artificial intelligence application that engages in natural language conversations with users using spoken language as the primary mode of communication. These chatbots are designed to understand and respond to voice commands or queries, allowing users to interact with the system using speech rather than text. Voice-based conversational chatbots leverage technologies such as Automatic Speech Recognition (ASR), Natural Language Processing (NLP), and Text-to-Speech (TTS) to facilitate communication.
4	NLP	Simple	Phonetic Name Matching	AI Phonetic Name Matching is a technology that involves using artificial intelligence (AI) algorithms to match or compare names based on their phonetic similarity rather than their exact spelling. The goal is to identify and link names that sound similar, even if



TN AI Mission Proposal



S.No	Category	Challenge level	Use Case Name	Use Case description
				they are spelled differently. This approach is particularly useful in applications where accurate name matching is critical, such as in identity verification, customer databases, fraud detection, and data deduplication
5	CV	Complex	Pest Detection Feature Extraction from Images	AI pest detection from images involves the use of artificial intelligence (AI) and computer vision techniques to identify and classify pests or diseases in agricultural crops or other environments by analysing images. This technology helps farmers and agronomists monitor the health of crops, detect early signs of infestations or diseases, and take timely preventive measures. The goal is to enable more efficient and targeted pest management, ultimately improving crop yield and reducing the need for chemical interventions.
6	CV	Complex	Vehicle Count from Image data	AI vehicles count data from images involves using artificial intelligence (AI) and computer vision techniques to analyse images and accurately count the number of vehicles present in a given scene. This technology is commonly used for traffic management, parking management, urban planning, and various applications related to transportation and smart cities.
7	CV	Simple	Detecting Change of land yield or empty (satellite images)	AI land usage detection refers to the application of artificial intelligence (AI) technologies and techniques to analyse and optimize the use of land for various purposes. This involves leveraging AI to understand, predict, and make decisions related to land use planning, urban development, environmental conservation, agriculture, and other domains. The goal is to enhance the efficiency, sustainability, and overall management of land resources.
8	Time series Analysis	Complex	Electricity Demand Forecasting	AI electricity demand forecasting involves using artificial intelligence (AI) and machine learning techniques to predict future electricity consumption based on historical



TN AI Mission Proposal



S.No	Category	Challenge level	Use Case Name	Use Case description
				data, weather patterns, economic factors, and other relevant variables. The goal is to provide accurate and timely forecasts of electricity demand, enabling energy providers, grid operators, and policymakers to plan and manage the production, distribution, and consumption of electricity more efficiently.
9	Time series Analysis	Complex	Predicting the demand and supply of ground water.	AI prediction of demand and supply of groundwater involves using artificial intelligence (AI) and machine learning techniques to forecast the future dynamics of groundwater availability and usage. This is particularly important for sustainable water resource management in areas where groundwater is a significant source of freshwater. The goal is to predict the demand for groundwater, understand supply variations, and assist in making informed decisions for effective water resource planning and management.
10	Time series Analysis	Complex	Crime Record Analysis	AI crime record analysis involves the use of artificial intelligence (AI) and machine learning techniques to analyse and interpret crime-related data, including criminal records, incident reports, and other relevant information. The goal is to extract meaningful insights, patterns, and trends from large volumes of data, aiding law enforcement agencies, criminal justice professionals, and policymakers in making informed decisions, preventing crimes, and enhancing public safety.
11	Data Analysis	Complex	PDS Transaction Analysis	AI-based Public Distribution System (PDS) analysis involves leveraging artificial intelligence (AI) and data analytics to analyse and optimize the functioning of public distribution systems. Public distribution systems are Government-led initiatives that aim to distribute essential commodities, such as food grains, at subsidized rates to eligible beneficiaries. The goal of AI-based analysis



S.No	Category	Challenge level	Use Case Name	Use Case description
				in this context is to improve the efficiency, transparency, and effectiveness of these distribution systems.
12	Rule Engine	Complex	Identifying beneficiaries for planning new projects (SFDB)	AI prediction of beneficiaries from a State Family Database (SFDB) involves using artificial intelligence (AI) and machine learning techniques to analyse existing Government datasets and predict individuals who are likely to benefit from specific Government programs or services. The goal is to enhance the targeting and delivery of assistance to eligible individuals, improve resource allocation, and ensure that Government initiatives reach those who need them most.

5.4. Proof of Concepts

Proof of Concept (PoC) in the context of artificial intelligence (AI) refers to a demonstration or prototype that illustrates the feasibility and potential of a specific AI application or solution. Developing a PoC is an important step in the AI development process, allowing stakeholders to assess the viability of a concept before committing to full-scale implementation.

PoC involves Objectives and Scope identification, data collection and preparation, Algorithm and Model selection, Model training and evaluation, User Interface (UI) or Interaction design, Scalability and Performance Testing and Integration with existing systems.

5.4.1. AI Areas for PoC development

The following are the four AI technological areas in which TNeGA will focus to develop PoCs for the use cases.

Natural Language Processing (NLP) -NLP is a crucial subfield of artificial intelligence (AI) that focuses on the interaction between computers and human language. NLP enables machines to understand, interpret, and generate human language in a way that is both meaningful and contextually relevant. The goal is to bridge the gap between human communication and computer understanding.



Computer Vision (CV) - Computer vision is a fundamental component of artificial intelligence (AI) that enables machines to interpret and understand visual information from the world. The primary goal of computer vision is to replicate and enhance human vision capabilities through the use of computational models and algorithms.

Time Series Analysis - Time series analysis is a specialized field within artificial intelligence (AI) and statistics that focuses on the study of data points collected, recorded, or observed over a sequential or temporal period. In time series analysis, the goal is to understand the underlying patterns, trends, and behaviours within the data and make predictions or decisions.

Rule Engine - A rule engine in the context of artificial intelligence (AI) refers to a component or system that is designed to process and apply a set of rules or logic to make decisions or perform automated actions. Rule-based systems are a form of symbolic AI, where explicit rules define how the system should behave in different situations. The rules are typically created by human experts or domain specialists.

5.4.2. Proof of Concept plan

The Use cases will be developed as Proof of Concept (PoC).

Simple use cases shall be attempted for implementation in the first year and the Complex use cases in the second year.

Simple PoCs shall be developed by TNeGA and Start-ups or Research institutions shall be involved for development of Complex Use Cases.

Proof of Concepts will be developed as full-fledged AI applications upon successful acceptance of PoCs.

5.5. **Human Resources**

Proof of Concepts and simple applications shall be developed by TNeGA inhouse AI team.

The execution plan detailed as follows:

TNeGA will deploy its in-house AI/ML technical software development team for developing the Proof of Concepts. The in-house AI/ML development team can develop simple AI PoC's. For Complex AI PoC's, TNeGA is set to get the industry support by engaging qualified AI start-ups or organizations that had prior history of successfully developed solutions using AI technologies. The Request for Proposals (RFP) and technical



TNAI Mission Proposal



documents required shall be prepared and evaluated by the inhouse AI team in coordination with the TNAIM Project Management Unit (PMU).

5.5.1. TNeGA's in-house AI team

TNeGA's in-house AI/ML development team was hired under HR allocated funds (vide G.O.(Ms)No.10, IT & DS (B1) Dept, dated 10.03.2023) for AI/ML projects. To execute TNAIM plan, the existing in-house AI/ML team shall get transferred and scaled up, as needed. TNeGA will use the TNAIM funds for supporting the manpower in AI/ML technical software development team.

Structure of AI/ML Software development team

Table 1

S.No	List of Positions	Experience	No.of positions	Salary Limit
1	Solution Architect	18+ Years as Solution Architect	1	INR 3,00,000/-
2	Senior Developer	10+ Years in Software development	2	INR 1,75,000/-
3	Developer	6+ Years in Software development	2	INR 75,000/-
4	Junior Developer	3+ Years in Software development	3	INR 50,000/-

Broader fund support for all HR personnel will be approved separately and the differential payment on salary component will be given under TNAIM Budget.

5.5.2. Project Management Unit (PMU)

The role of technical software development team is limited to developing Proof of Concepts or applications and maintaining the live applications. To develop a PoC or an application requires great amount of interaction and co-ordination with the Government departments to collect the data and to process, analyse, to structure for inputting into the software applications. These tasks will be handled by a separate team called Project Management Unit (PMU).

A fresh PMU team will be established for the purpose of executing TNAIM.

The PMU team will be hired using the TNAIM funds. The PMU team will be led by a product management cum Solution Architect and a group of Analysts shall report to Solution Architect. The core activities of PMU team include co-ordination with the department, data gathering, validating or reviewing the progress, engaging with the departments and industries. PMU team will also review and finalise the focus areas of



TN AI Mission Proposal



AI implementation and advise the Government / TNeGA, the implementing agency. For carrying out this a fresh team will be established as per the structure, given below.

Structure of AI/ML PMU team

Table 2

S.No	List of Positions	Experience	No.of positions	Salary Limit
1	AI Product Manager	15+ Years as Solution Architect	1	INR 3,00,000/-
2	Data Analyst	10+ Years in Software development	1	INR 1,25,000/-
3	Business Analyst	6+ Years in Software development	1	INR 75,000/-

5.5.3. Software development with industry engagement for Complex or Long-term AI applications

For developing complex PoC's and modifications or enhancements to Live applications, TNeGA shall outsource the activities to eligible industry start-ups or Organizations. As the AI technology is also new, the skilled resources availability in the job market is less. Therefore, TNeGA shall engage with the qualified Start-ups or Research Institutions in the industry to execute complex PoCs or applications.

For this engagement, the Request for Proposals (RFP) will be floated through Tender(QCBS) mode and the L1 Bidder will be qualified based on the technical strength and L1 bid value. A prior history of successful AI projects implementation and the volume of the project will be the key factors in technical evaluation of the bidders. The entire tender process will be executed as per the regulations given in the Tamil Nadu Transparency in Tenders Act, 1998.

The software development plan with the industry support for TNAIM is given below. As part of TNAIM implementation, TNeGA shall establish a AI framework wherein standard governance tools shall be developed which can be reused for all / more than one agencies with or without customisation. In the span of 2 years, TNeGA shall engage Start-ups or Research Organization for the execution of 4 projects which are listed below.



Table 1

S.No	List of Outsourced Software Projects	AI Technology Area
1	Simple Use Case AI PoC or Application	NLP
2	Simple Use Case AI PoC or Application	CV
3	Complex Use Case AI PoC or Application	NLP
4	Complex Use Case AI PoC or Application	CV

5.6. Infrastructure

The list of infrastructures such as software and hardware identified for execution of TN AIM are detailed in this section.

5.6.1. AI Infrastructure

AI compute infrastructure plays a crucial role in the advancement and deployment of artificial intelligence (AI) technologies worldwide. It encompasses the hardware, software, and cloud resources necessary to support AI workloads efficiently. The availability of robust and scalable AI compute infrastructure is vital for enabling complex AI computations, such as training deep learning models and running AI algorithms in real-time. There has been a huge acceleration in the AI infrastructure over the last few years driven largely by the rise of GPUs and cloud scale infrastructure. Specialized hardware and software stacks are being built to support training and inference of large language models or LLMs.

High performance processors, Graphics Processing Units (GPUs), Application Specific Integrated Circuit (ASIC), AI chips, and software frameworks are critical infrastructures for AI applications.

In addition to on-premises installations, the hardware is available through cloud service providers (CSPs) like Amazon Web Services, Microsoft Azure, and Google Cloud Platform. These CSPs enable users to access scalable AI compute resources on-demand, reducing the need for extensive infrastructure investments and facilitating widespread adoption of AI technologies.

A strong technological infrastructure is required for implementation of the TN AIM. The following section details the infrastructure requirements namely technological and physical infrastructure.



5.6.2. Technological Infrastructure

AI applications requires collection and maintenance of large number of various datasets of citizens, Government departments, institutions, industries and so on. The technological infrastructure must be capable of supporting to faster data access, retrieval, and analysis. In this context, the following hardware and software infrastructure will be established for the TNAIM.

Table 1:

S.No	Technological Infrastructure List	No. of. Units
1	GPU Server	2 Nos
2	SAN Storages – 100TB	1 No
3	Data Analytics software	1 No

Data Analytics Software Features:

- Data Integration capability to connect and integrate with various data sources, including databases, spreadsheets, and external APIs.
- Data Cleaning and Transformation tools for cleaning and transforming raw data into a usable format, handling missing values, and ensuring data quality.
- Data Exploration and Visualization graphical representations and visualization tools to explore data patterns, trends, and insights.
- Descriptive Statistics summary statistics and metrics to describe the main features of a dataset, such as mean, median, standard deviation, etc.
- Predictive Analytics Algorithms and models for predicting future trends or outcomes based on historical data.
- Machine Learning Integration with machine learning algorithms for more advanced predictive analytics and pattern recognition.
- Dashboard and Reporting customizable dashboards and reporting tools to present key insights and performance metrics in a visually appealing way.
- Data Security features to ensure the security and privacy of sensitive data, including encryption, access controls, and compliance with data protection regulations.
- Collaboration and Sharing tools for collaboration among team members, sharing of insights, and collaborative analysis.
- Scalability ability to handle large volumes of data and scale with the growing needs of the organization.



TN AI Mission Proposal



- Real-time Analytics Support for real-time data processing and analytics for timely decision-making.
- Data Governance Features to manage and enforce data policies, standards, and compliance.
- Data Mining Techniques for discovering patterns and knowledge from large datasets.
- Customization and Extensibility, the ability to customize and extend the functionality of the software to meet specific business needs.
- Data Export and Integration with Other Tools Options to export data to different formats and integrate with other tools and platforms.
- Data Query and SQL Support Tools for querying and extracting data using SQL, making it easier for users familiar with SQL to interact with the software.
- Data Cataloguing and Metadata Management Features for organizing and managing metadata, making it easier to understand and utilize the available data.

Table 2:

S.No	Technological Infrastructure Specification	No. of Units
1	GPU Server <u>Product Description</u> Intel Xeon-Platinum 32-core Processor X 2, 64GB RAM X 4, 1TB SATA 6G 7.2K SFF HDD X 5, NVIDIA H100 80GB PCIe Accelerator, 32 Gbps dual port HBA card, cooling kit, redundant power supply, 3 years Warranty	2 Nos
2	SAN Storage <u>Product Description</u> 2-way Storage Base , 2N Controller, 3.84TB SAS SFF FE SSD X12 Nos, 2.4TB SAS 10K SFF FE HDD X48 Nos, 32Gb 4p FC HBA X2 Nos, LC_LC OM4 2f 5m Cbl X2 Nos, Data Encryption , 3 years onsite 24/7, 4 hrs response Support	1 No
3	Data Analytics software MySQL Enterprise Edition <u>Features of Enterprise Edition:</u> Advanced Security Features, Enterprise Authentication, Enterprise Firewall, Enterprise Monitor, Query Analyzer, Enterprise Backup, Enterprise High Availability, 24*7 Oracle Premier Support, Workbench Centralized auditing, Enterprise scalability and knowledge base access.	1 No

- The developed applications will be hosted in the High-End GPU Servers.



- Cloud infrastructure will be utilised for hosting the cloud-based applications procurement.

TNeGA will co-ordinate with ELCOT for the procurement and implementation of hardwares, establishment of compute and storage infrastructure. The established infrastructure should be made accessible to researchers and innovators and startups for development and hosting. In case of difficulties in providing the flexible access to the established infrastructure in ELCOT for the startup and students, the infrastructure may be housed in TNeGA / iTNT's mini data centre facility.

5.6.3 Physical Infrastructure

Tamil Nadu AI Mission will have physical 'laboratories' for innovators, enterprises, and academicians to connect and work on concept design and solution development in cutting-edge area of AI. The minimum area requirement of the physical location is 3,000 square feet. The physical location will be set-up, at iTNT's premises. 10 no's of CPU / Laptops with Computer accessories and Printers shall be established as part of the physical infrastructure needs.

The staff required to manage the lab (2 nos of System Administrator) and one Lab incharge, a qualified and experienced AI/ML staff for operational support needs shall be established by iTNT. The cost for the manpower shall be borne by iTNT from the existing available funds. Necessary modifications to the existing DPR can be carried out.

5.7. Promotions

The promotional activities identified for TNAIM objectives across the State are detailed in this section.

It is planned to propagate the TNAIM to the citizen's through various outreach initiatives as the AI has diverse applications across various sectors and industries including Healthcare, Finance, Manufacturing, Transportation, Retail, Education, Agriculture, Energy and Utilities, e-Governance, Media and entertainment, Sports, Judiciary, Real estate, Construction, Hospitality and Tourism, Rapid automation. The emergence of new AI-based tools and technologies have had a significant cross-sectoral impact on skilling.

The World Economic Forum predicts AI to create over 97 million new jobs by 2025. This underscores the significant role AI is envisaged to play in shaping the future of work, with AI-related jobs and skill sets spanning across various industries and sectors.



TNeGA, with support from ICT and iTNT Hub, will facilitate the community forums for integrating industry experts to collectively identify the new areas that AI can transform, to improve the existing AI technological areas and AI models, and shall use the opportunity to collect AI use cases that will help TNeGA to develop, improve AI applications with an intent of effective Governance, collaboration, and the AI knowledge base.

5.7.1. Conducting a Conference in Artificial Intelligence

An International Conference on the Artificial Intelligence will be conducted. Start-ups, Researchers, Innovators, AI Experts, Academicians, Deep-tech experts, Bureaucrats, student community from all the industries across the Nation and International level will be invited to participate and share knowledge on the current AI trends, use cases which will help the entire technological fraternity get benefitted from this conference.

TNeGA will conduct the Conferences in collaboration with ICT Academy and iTNT Hub.

This Conference will help Government in AI Knowledge dissemination, capacity building, Awareness and Education, Policy formulation, showcasing use cases, Networking and Collaboration, Fostering Innovation, Public-Private partnerships, Ethical AI discussions, Global collaboration and Talent Attraction.

This conference will help TNeGA to connect with industry experts and enable it to prepare and update AI policies time to time.

5.7.2. Conducting Workshops

TNeGA shall plan to conduct 2 workshops to collaborate with the Government and Industries. TNeGA will conduct the workshops along with iTNT Hub.

The objective of the workshop are as follows:

- To explain the benefits of AI and demonstration of AI tools for some of the key governance process.
- To foster collaboration among participants to collectively generate AI use case ideas.
- To leverage the diverse expertise within the group.

The 1st workshop will be conducted with Government departments for a span of 5 days.

The 2nd workshop will be conducted with Industries for a span of 2 days.



Workshop allows identifying real world challenges, stakeholder engagement, holistic understanding of AI Potential, Customized solutions for Governance, encouraging creativity and innovation, practical hands-on experience, building AI literacy, community building, strategic planning for AI adoption, Enhanced decision making, aligning AI with Government Objectives, ensuring ethical considerations, prioritizing Use Cases, feedback mechanism and preparation for future challenges.

These workshops will help to propagate the TNAIM to larger communities and the outcome of the workshops is to prioritize the use cases to build AI applications for effective Governance, innovation, and collaboration.

These workshops will help TNeGA, iTNT Hub and ICT Academy to get a whole-lot of use cases that are needed for various departmental functions/governance. The preliminary use cases identified by TNeGA can be reviewed and reprioritised based on the list of use cases identified as part of the workshop / conference. Smaller PoC and simple applications shall get developed with the inhouse team and the complex or large scale implementation use-cases shall get developed from the industry partners – within the provisioned budget – not limiting to the number of use-cases to be developed.

For unique cases wherein solutions need to be arrived through innovation and research, the problem statements shall posted with the iTNT and ICT Academy associated institutes / startups and industry. Sample data, compute facility and given problem statement can help the community to provide exact or near-to-use solution. Such solutions can be adopted by the respective agencies.

Funding for further customisation or enhancement to the derived solution can be supported by the respective user departments.

5.7.3. Conducting Hackathon's

Hackathons will be conducted to promote or harness innovation potential amongst industry, individuals, and institutions at various levels. Hackathons shall be conducted for the students and industry partners and Prize Money will be distributed. For conducting Hackathons and prize money distribution, industry partners will be associated. iTNT Hub / ICT Academy will conduct Hackathon's using their respective funds.



5.8. Stakeholder Roles and Responsibilities

The summary of roles and responsibilities of primary stakeholders are explained, below.

S.No	Name	Roles	Remarks
1	Tamil Nadu e-Governance Agency	<ol style="list-style-type: none"> 1. AI Development Team establishment and Development of AI related applications – PoC and Simple use cases – as per departmental needs 2. Establishment of PMU and its operational management 3. Development of Applications – through outsourcing and Industry / academic engagement 4. Conduct Conference (1 nos) and workshop (2 nos) 	<p>Main Implementing Agency for TNAIM</p> <p>Funds to be supported by GoTN</p>
2	iTNT Hub	<ol style="list-style-type: none"> 1. Responsible for initiation of innovation activity by engaging with industry, startups and Research Institutes 2. Establishment of computing facility – funding in association with ELCOT 3. Establishment of AI lab for the innovators and startups 4. Conducting Hackathon in association with ICT Academy and TNeGA 	<p>Shall use funds already allotted for iTNT Hub</p>
3	ICT Academy	<ol style="list-style-type: none"> 1. Responsible for Capacity Building 2. Associate with Academic Institutes in promoting training and education in areas related to AI / ML and Data Analytics 3. Organise Lectures and conduct webinars 	<p>Shall utilise its own funds</p>



TN AI Mission Proposal



6. Budget

The following budget will be provided for implementing the TNAIM during the first two years, i.e. Initial Phase. The budget comprises of Infrastructure budget estimation which is Component A, Human resource budget estimation which is Component B, Software development with Industry engagement budget estimation which is Component C and Promotional events budget estimation which is Component D.

The Overall budget summary is given below and the detailed break-up of the budget succeeds the below table.

S.No	Description	Budget	Funding Source
1	Infrastructure budget (A)	INR 3.2 Crores	iTNT
2	Human Resource budget (B)	INR 1.93 Crores	From GoTN
3	Software development with Industry engagement budget (C)	INR 8 Crores	
4	Promotional Events budget (D)	INR 0.8 Crores	From ELCOT, iTNT and ICT Academy
	Total budget required (Sum of A+B+C+D)	INR 13.93 Crores	

In the further sections, the detailed estimation is shown.

6.1. Infrastructure budget estimation (Component A)

With reference to the technological infrastructure requirements detailed in the section 5.4.2, the following Infrastructure will be provided.

S.No	List of Technological Infrastructure	No.of.items	Budget
1	GPU Servers	2	INR 80,00,000/-
2	SAN Storages – 100TB	1	INR 1,00,00,000/-
3	Data Analytics Software	1	INR 35,00,000/-
	Total		INR 2,15,00,000/-
	GST 18%		INR 38,70,000/-
	Total Technological Infrastructure budget		INR 2,53,70,000/-



TN AI Mission Proposal



With reference to the physical infrastructure requirements detailed in the section 5.6.3, the following budget will be provided. As part of the establishment of the computing laboratory, the minimal manpower like 2 system administrators and one technical expert to support and supervise the AI activities being carried out in the lab shall be established by iTNT. The existing funds available shall be used. Necessary changes to the existing DPR shall be adopted for utilising the funds.

S.No	List of Physical Infrastructures	Period of Operation	Budget
1	Office Establishment	2 Years	INR 66 Lakhs (Lumpsum)
2	Procurement of Computers and Accessories		
3	Operation Cost		

Total Infrastructure Budget (Component A)

S.No	Name of the Infrastructure	Budget
1	Technological Infrastructure budget	INR 2.54 Crores
2	Physical Infrastructure budget	INR 66 Lakhs
	Total Infrastructure budget estimation – (Component A)	INR 3.2 Crores

The total budget proposed for infrastructure set up is INR 3.2 Crores. This budget shall be provided from the funds already allocated with iTNT.

6.2. Human Resource budget (Component B)

TNAIM requires skilled human resources to execute the objectives of the mission. With reference to the human resource requirements detailed in the section 5.5, the following human resource budget will be provided.

- For PMU Positions, the TNAIM fund will be used to hire the resources. It is a freshly established team.



TNAI Mission Proposal



S. No	Name of the Position	Salary per Month	No.of. Resources	Net Monthly Expenditure
	Project Monitoring Unit(PMU)			
1	AI Product Manager	INR 3,00,000/-	1	INR 3,00,000/-
2	Data Analyst	INR 1,25,000/-	1	INR 1,25,000/-
3	Business Analyst	INR 75,000/-	1	INR 75,000/-
				INR 5,00,000/-

The proposed Initial Phase Duration is 2 Years.

- For Technical Positions, the existing AI team funds in TNeGA will be utilised. The TNAIM fund will be used for salary increments proposed for the technical position vacancies, if any. The AI/ML team structure is mentioned in the Table 1 at Section 5.5.1. The salary increments for the existing AI/ML team operating under the allocated funds in this proposal will be carried out.
- As part of TNAIM, only the incremental salary difference over and above the basic HR support provided by the Government will be given.
 - Total Budget under the existing HR approval (A) – Rs 77,40,000 per Annum
 - Total Budget under TNAIM on salary for the AI/ML resources (B) – Rs. 1,14,00,000 per Annum
 - Differential amount for AI/ML resources to be covered under TNAIM (C = A- B) – Rs. 36,60,000 per Annum
 - Total Budget required for AI/ML resources under TNAIM for the 2 yrs implementation period - Rs. 73,20,000

Total Human Resource budget (Component B)

S.No	Name of the team	Project duration	Budget Required
1	AI/ML PMU Team	24 Months	INR 1,20,00,000/-
2	AI/ML Technical Team (differential salary amount)	24 Months	INR 73,20,000/-
	Total budget for Hiring resources – (Component B)		INR 1,93,20,000/-



The total budget proposed for hiring human resources is INR 1.93 Crores. The funds requirement for TNeGA should be supported by the Government.

6.3. Software development with industry engagement budget (Component C)

Complex Applications shall be engaged with industry support for software development through Tender process. As the AI technology, associated tools and resources are costlier in the market, the outsourcing activities incurs hefty costs to TNeGA. The following estimation is applicable for outsourcing activities in TNAlM for software development.

With reference to the Software development requirements detailed in the section 5.5.3, the following budget estimation is proposed by TNeGA.

Software development with industry engagement budget – (Component C):

S.No	List of Software Projects	Budget
1	Simple Use Case in NLP	INR 1,00,00,000/-
2	Simple Use Case in CV	INR 2,00,00,000/-
3	Complex Use Case in NLP	INR 2,00,00,000/-
4	Complex Use Case in CV	INR 3,00,00,000/-
	Total Software development with industry engagement budget – (Component C)	INR 8,00,00,000/-

The total budget proposed for software development with industry engagement is INR 8 Crores. The funds requirement for TNeGA should be supported by the Government.

6.4. TNAIM Promotion's budget (Component D)

TNeGA estimated the event budget as given below.

S.No	Event List	No.of.events	Budget
1	Conference	1	INR 25,00,000/-
2	Workshops	2	INR 15,00,000/-
3	Hackathon	2	INR 40,00,000/-
	Total budget for promotional activities (Component D)		INR 80,00,000/-



TN AI Mission Proposal



iTNT and ICT Academy funds shall be utilised for conducting the Hackathons. Conference and workshops will be conducted by TNeGA with the funding support from Government.

The total budget proposed for event budget is INR 0.8 Crores.

6.5. Total budget for TNAIM

Summation of Components A,B,C and D arrives the total budget which is given below.

S.No	Description	Budget
1	Infrastructure budget - (Component A)	INR 3.20 Crores
2	Human Resource budget - (Component B)	INR 1.93 Crores
3	Software development with Industry engagement budget - (Component C)	INR 8.00 Crores
4	Promotional Events budget - (Component D)	INR 0.80 Crores
	Total budget required (Sum of A+B+C+D)	INR 13.93 Crores

The total budget required for 2 years to implement TNAIM across the Tamil Nadu will be 13.93 Crores(say 14 Crores).

6.6. Inter-Organizational budget distribution

S.No	Component	Description	Sub description	Budget Estimate(INR)	Responsible Agency	Source of Funding
1	A	Infrastructure	Technology Infra	2,54,00,000	iTNT (procurement through ELCOT)	iTNT
			Physical Infra	66,00,000		
2	B	Human Resources	Existing AI/ML	73,20,000	TNeGA	GoTN
			New PMU	1,20,00,000		
3	C	Software development with Industry Engagement	-	8,00,00,000	TNeGA	GoTN*
4	D	Mission Promotion	Conference (1 no)	25,00,000	TNeGA	ELCOT
			Workshops (2 nos)	15,00,000		



TNAI Mission Proposal



			Hackathon - Industry innovation challenges	15,00,000	ITNT	ITNT
			Capacity Building - Lectures and Training programs	25,00,000	ICT	ICT

*The software development cost will be on reimbursement basis. In-house development and/or procurement for individual projects will be made after approval by the Governing Council of TNeGA for which the initial funding will be met from ELCOT and Upon completion of the project, the costs will be reimbursed by Government to ELCOT.



7. Summary

TNAIM objectives shall reach larger communities that in turn strongly transform the State towards Research and Innovation in Artificial intelligence, Government departments to take up measures to improve performance in Governance by the adoption of AI technologies, policymakers to prepare policies that deliver value and satisfaction to the citizens, industries to accelerate more collaboration with the Government entities and lastly the citizens feel the benefit of convenience and accessibility to Government services, time savings, Cost savings, transparency, reduced bureaucracy, improved service quality, empowerment, inclusivity and enhanced civic pride.

In the light of above,

- ❖ The Initial Phase of TNAIM during 2 years will be implemented with the support of stakeholder agencies – TNeGA, iTNT, ICT Academy, ELCOT.
The implementation plan is listed in the section from 5.1 to 5.5.
- ❖ Identified key areas for adopting AI technologies such as Predictive policy making, Government adoption, Capacity building, Skill and Education, Community Collaboration, Start-up engagement and Innovation in which the competence of ICT Academy and iTNT shall be utilised in their functional areas.
The key areas are listed in the section 4.1.
- ❖ TNeGA shall discover suitable use cases by working in conjunction with the Government departments and larger communities for implementing AI technologies. This collaboration shall be facilitated by ICT Academy and iTNT. The use cases will developed as Proof of Concepts and the successful Proof of Concepts will be developed as AI Applications by TNeGA. The probable use cases are listed in the section 5.3.
- ❖ TNeGA shall establish a fresh Project Management Unit (PMU) with 3 resources(refer section 5.5.2) for collaborating with the Government departments for data gathering, data processing, data analysis and data maintenance which are key for developing Proof of Concepts and AI applications. These resources will be dedicatedly working for TNAIM for the period of 2 years.
- ❖ The existing AI/ML team of TNeGA shall be merged under TNAIM and shall continue to develop the solutions using AI tools. The human resources budget for establishment of the fresh PMU team and support for enhanced salary of AI/ML team is estimated to be INR 1,93,20,000/- for 2 years – towards salary expenditure. Refer section 6.2 for Human Resources budget estimation.



TN AI Mission Proposal



- ❖ TNeGA shall implement necessary infrastructure for hosting the developed Proof of Concepts and AI applications by initiating a fresh procurement of infrastructure listed in Section 5.6. The Infrastructure budget is estimated to be INR 3,20,00,000/- in which INR 2,54,00,000/- is required for procuring technological infrastructure and INR 66,00,000/- is required for establishing Physical Infrastructure. The funds of INR 3,20,00,000/- required for the establishment of AI infrastructure shall be supported by iTNT from its existing funds. Refer section 6.1 for the infrastructure budget estimation. The procurement and maintenance of Infrastructure shall be carried out through ELCOT. The manpower required for operating the AI Lab in iTNT shall be established with the funds of iTNT.
- ❖ TNeGA shall engage with Research Organizations, Start-up organizations for developing AI applications and complex Proof of Concepts. One of the key focus of TNAIM is to collaborate with the above organizations and build the capacities of AI organizations and AI Start-ups, academia in the State. TNeGA shall develop software Proof of Concepts, software applications by working with these organizations and shall establish a AI based software framework which can have standard and reusable tools/functions which can be adopted in more-than-one or all agencies.
- ❖ The software development with the start-up and research collaboration is estimated to be INR 8,00,00,000. Government of Tamil Nadu will sanction INR 8,00,00,000/-. Refer section 5.5.3. for details of collaboration and section 6.3. for details of budget estimation.
- ❖ TNeGA shall conduct conference, workshops and Hackathon with the support of ecosystem partners such as ELCOT, ICT Academy and iTNT for the promotions of TNAIM to large level. The details of Conference, Workshops and Hackathon is listed in the section 5.7.1, 5.7.2, 5.7.3. TNeGA estimated a budget of INR 80,00,000/- for TNAIM promotions.
- ❖ As part of Workshops/Conferences, new use-cases required by the departments can be reviewed and prioritised. As many applications within the approved budgets can be developed and made available to departments.
- ❖ Additional use cases that are proposed by the departments can get developed from industry / academia and the necessary financial support shall be given by the respective user agencies. iTNT and ICT academies association can be leveraged by the departments in identifying suitable agencies with a solution closer to the needs. All agency engagement shall however be as per TN's Transparency and Procurement Act.



TN AI Mission Proposal



- ❖ Refer Section 6.6, for the details of inter-organizational budget distribution for the TNAIM implementation and the source of funding.
- ❖ Total budget of INR 13.93 Crore is estimated for the implementation of TNAIM for 2 years in which INR 9,93,20,000/- for TNeGA shall be provided by Government of Tamil Nadu . INR 40,00,000, INR 3,35,00,000 and INR 25,00,000 will be utilised from the funds of ELCOT, iTNT and ICT Academy respectively.
- ❖ The Government departments shall provide full support and cooperation for the implementation of program – by participation in workshops, defining use cases, support with Governmental data, review of developed application and utilising the developed solutions.
- ❖ The overall activities of TNAIM implementation shall be guided by the Hon'ble Chief Minister and the Members of the Mission through periodical review and appraisal on activities carried out.
- ❖ The activities listed in the implementation plan is for 2 years.

KUMAR JAYANT
Additional Chief Secretary to Government

//True Copy//

Jayant
Section Officer 15/10/24
6/10/24