

GOVERNMENT OF WEST BENGAL
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No. 590-Estt/ITE-20012/2/2020

Date: 28/12/2020

Subject: **West Bengal AI-ML Technology Promotion Guidelines, 2020.**

Ref: This Office Notification vide No 584-Estt/ITE-20012/2/2020 dated 28.12.2020.

The State Government in the Department of Information Technology & Electronics has issued Notification under reference to formulate 'West Bengal State Broadband Policy 2020' wherein the instant ORDER features as Annexure F.

ORDER

The Governor is pleased hereby to make the following guideline in order to support in the process of establishment of Artificial Intelligence and Machine Learning technology (AI-ML) ecosystem and further utilization of this technology and appropriate implementation within the State of West Bengal. Leveraging the abundance of data and the ever-increasing computing power, AI is impacting the way we work, the way we interact with the world, and the way we live our lives. The AI revolution is already upon us. It is expected to transform the global economy, and early adopters will have first-mover advantage. West Bengal is planning to tap this opportunity by bringing in a guideline that empowers the AI-ML industry to develop and enhance service delivery to the citizens exhibiting its use for societal advantage. Through this guideline, The Government of West Bengal (GoWB) would be able to leverage AI-ML technology for real-time governance to enable efficient and effective service delivery to the citizens.

1. Short title, extent, and commencement

- a) This guideline may be called the "**West Bengal AI-ML Technology Promotion Guidelines, 2020.**"
- b) It shall extend to the whole of the State of West Bengal
- c) It shall come into force with effect from the date of issue.

3. Preamble

We stand on the brink of a technological revolution that will essentially alter the way we live, work, and relate to one another. In its scope, scale, and complexity, the transformation due to Industrial Revolution 4.0 will be unlike anything humankind has experienced before. The advancement of technology has not only modified our approach towards traditional sectors like HealthCare, Agriculture, Mobility, Finance, Logistics but also has redefined the way we live and our daily activities. Standing at the core of the fourth industrial revolution is Artificial Intelligence (AI), which is becoming an integral part of every single facet of our lives. With a voluminous increase in data sources, the amount of digital data available with us, which could be used for AI-ML-based applications, are unprecedented. Keeping such progress in mind, the Government of West Bengal has prepared a guideline for building an ecosystem that promotes and encourages the usage of AI-ML technology for the larger public interest.

4. State's vision

The Government of West Bengal has been one of the frontrunners in adopting emerging technologies, and it notices the central role that Artificial Intelligence plays in building a conducive ecosystem for emerging technologies. Aligning with the vision to be a leader in emerging technologies, the Government of West Bengal, in collaboration with all the stakeholders like researchers, industrialists, start-ups, educational institutions, government departments, and other organizations, has ideated initiatives that will catalyze the adoption of Artificial Intelligence in West Bengal. The Government understands that collaborative efforts across the ecosystem can



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be helpful to solve some of the most challenging and biggest social problems prevailing using AI. To effectively solve these problems, the Government envisions creating a collaborative ecosystem that the researchers and experts could use for solving the most critical problems.

Overall, the State foresees to construct:

West Bengal as a leading state for Artificial Intelligence and encourage its adoption in Government service delivery.

An AI-ML ecosystem built on the sound and secure foundations of an encouraging policy guideline, robust infrastructure, human capital, research & development, and market access would encourage and enable better use of AI-ML technologies, which in turn would lead to the creation of employment possibilities and economic prosperity in the State.

5. Key Verticals

In an effort to position West Bengal as a global hub for AI and to achieve the above-discussed objectives, the Government consulted various stakeholders from industry, academia, civil society, start-ups, and other domain experts to come up with the State's strategy, which is summarized through the formulation of the following Verticals:

Key Vertical – I: Skilling and Education

The Government of West Bengal understands that since the AI-ML industry in the State is ready to take off, there will be a considerable talent demand in the immediate future. The talent pool is required to be developed through intensive training programmes, developing an educational curriculum, and investing in research. The Government plans to:

a. AI-focused upskilling

Introduce Data labelling, annotation, preparation, structuring, and cleansing tasks account for a significant amount of the time involved in most AI and machine-learning projects. The Government of West Bengal will leverage the existing upskilling avenues in the state and train budding talents for AI-ML roles. These programs will create a pipeline of job opportunities for tier-II cities.

b. AI Start-up Internship Program

The state will partner with incubators/accelerators across the country to offer college students the opportunities to work with AI-ML based start-ups, and receive college credits on successful completion of the internship. The program would also consist of a Hackathon - to foster greater innovation, applied learning, and peer learning.

c. Govt. officials' training

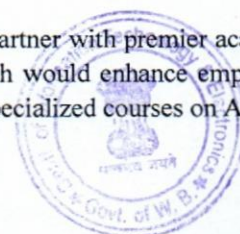
Senior Officers of the Government and its Agencies need to be fully familiar with the possibilities offered by AI, its potential for misuse, and the actions that need to be taken to ensure Safe and Ethical Application of AI based solutions for delivering citizen services. The Government would organize AI awareness sessions, workshops, and live demonstrations of AI applications for officers. All the Government employees would be encouraged to undergo short-term orientation/awareness sessions leveraging digital media and mobile technologies for the widest possible reach.

d. AI Talent Alignment

AI-focused curriculum and faculty development programs would be developed based on inputs given by AI product companies to bridge the skill-gap in the job market. These courses would be delivered across the State in partnership with skilling partners

e. Partnership with premier Tech Institutes

AI job market seeks candidates with focused professional skill sets. The state would partner with premier academic institutions to offer micro-credentials - low cost and short duration specialization courses - which would enhance employability of West Bengal's IT talent pool. Collaborate with premier technological universities to create specialized courses on AI-ML tech.



* All Skilling and Education endeavours mentioned in this section would be carried out under the aegis of DIT&E, GoWB

Key Vertical – II: Promoting Research and Innovation

Research acts as a core for any ecosystem to advance in Artificial Intelligence. With the technology in a constantly evolving stage, researchers play an even more important role in establishing large scale AI-based projects in the State. To ensure the advancement of research and innovation in this domain, the State will support the following:

- a. The State will collaborate with corporates to commence the research fellowship that would sponsor researchers in AI-ML technology.
- b. The State will collaborate with global start-ups/companies and encourage such companies to start their operations in the State. Innovation, research, and prototype development shall be promoted in innovative solutions in AI-ML tech.
- c. The Government will facilitate the partnership of select industry players to set-up incubators or accelerators to promote innovation in AI-ML technology. West Bengal will support select incubators and accelerators with specific packages/support, depending on the product/solution's strategic value.
- d. The Government will fund research programmes in AI-ML technology by setting up research positions in premier institutes and provide funding to research scholars working in the AI-ML technology domain.
- e. In partnership with the industry and academia, the Government will organize an annual academic conference for all AI-ML researchers in the State to showcase their work. For researchers in West Bengal who get recognition for AI-ML-tech-based research at several critical international platforms, it will be facilitated.

* All Research and Innovation promoting endeavours mentioned in this section would be carried out under the aegis of DIT&E, GoWB

Key Vertical – III: Government facilitations

In order to promote the Information Technology (IT) and Electronics sectors, the Government has already come up with dedicated policies. To further boost the AI- ML industry, the Government shall extend the following incentives to the AI-ML tech. organizations

- a. **Provision of AI -ML data storage, analysis, and application hosting facilities in West Bengal State Data Centre** – The AI of today is heavily dependent on the collection, usage, and processing of data. Hence, to benefit select organizations working in the domain of AI-ML technology, the State Government would provide facilities to store data, execute analytical computations, and host mission-critical applications and systems in the State Data Centre at a nominal fee.
- b. **Access to anonymized Public transactional data to aid AI-ML based Proof of Concepts (PoCs):** The State Government, through its public transactional data-sharing platform, would provide access to the anonymized public transactional data to AI-ML tech organisations in order to support them in conducting Proof of Concepts (PoCs), providing analytical solutions, etc. In the process of collecting useful datasets, the Government will collaborate with, Research institutions, Industries, corporate bodies, and Entrepreneurs for collating datasets that can be shared with a wider pool of innovators. The private sector will be encouraged to collaborate with the Government to share the data. A proper data protection mechanism would be put in place to ensure that only authorized users have access to the requested data. Relevant mandates provisioned under the Data Protection Bill, 2019, GoI, would be strictly followed.
- c. **Support in talent searching, recruitment, and training:** The State Government would help the AI-ML tech companies in searching and selecting the right talents from the skill-registry platform of Government, i.e., Karmobhumi



(<https://karmobhumi.nltr.org>) and/or market as well as helping them to get trained into specific aspects of AI-ML technology. Domain-led skill-building programmes for definite requirements would be undertaken.

* All Government facilitation and related endeavours mentioned in this section would be carried out under the aegis of DIT&E, GoWB

6. Use Case Selection and Prioritization

For AI-ML Technology to be successfully adopted in West Bengal, the Government would select and prioritize the use cases for AI-ML implementation. The Government would prioritize the domains of governance, where AI-ML will have a significant positive impact. Initially, the following areas would be taken up for AI-ML Implementation.

Agriculture: Precision agriculture uses AI technology to aid in detecting diseases in plants, pests, and poor plant nutrition on farms. This helps to prevent over-application of herbicides and excessive toxins that find their way in our food. With the help of AI, farmers can currently analyze a variety of things in real-time, such as weather conditions, temperature, water usage or soil conditions collected from their farm to take better informed decisions. Farmers can also assisted with AI to build seasonal forecasting models to improve agricultural accuracy and increase productivity. These applications can augment the income-generating capabilities of local farmers of rural West Bengal, thereby enhancing their families' and communities' quality of life, while also increasing the State's domestic production, food security, and self-sustainability.

Healthcare: Supporting diagnosis by detecting various variations in patient data, early detection of potential pandemics, AI-based platform mapping diseases to accelerate the discovery and development of breakthrough medicines, are few of the potential applications of AI-ML to focus upon. Through these use cases, AI is transforming the healthcare industry while promoting healthy lives and ensuring access to affordable quality care for all.

Urban Development: AI is able to proactively identify infrastructure problems. AI-based pavement modeling software predicts how long a road treatment will last with a high degree of accuracy, and its bridge deterioration predictions are based on a hundred different factors. In addition to improving safety AI solutions can also provide real-time energy consumption information and use that data to adjust energy supply based on the demand, saving precious energy resources.

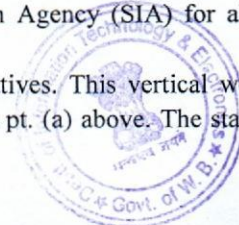
Transportation: AI has the potential to make traffic more efficient, ease traffic congestion, free driver's time, make parking easier, and encourage car- and ridesharing. As AI helps to keep road traffic flowing, it can also reduce fuel consumption caused by vehicles idling when stationary and improve air quality and urban planning. Accelerating the transition to safer, cleaner, and more inclusive transportation systems, optimizing the delivery of goods, and ensuring access to mobility for everyone

Travel and Tourism: The travel and tourism domain is set to derive significant benefits from the widespread use of AI-enabled chatbots. Advanced AI algorithms are powering chatbots with increased efficiencies, enabling them to provide more accurate responses to customer queries. Many large travel organizations are turning to AI companies to build their own AI-based mobile apps for improving the traveler experience.

7. Implementation Framework

Following is the implementation strategy to achieve the end goals and objectives of the policy:

- a) On behalf of the Government of West Bengal, the **Department of Information Technology & Electronics (DoIT&E)** shall be designated as the **nodal department**. A designated officer nominated by the DoIT&E shall act as the nodal officer for the entire gamut of activities involving clearance, setting up, implementation of AI-ML technology in the public interest.
- b) West Bengal Electronics Industrial Development Corporation Ltd. (WBEIDCL) or any other agency under the aegis of the Department as may duly be notified shall act as the State Implementation Agency (SIA) for all AI-ML based initiatives until otherwise directed.
- c) The SIA would establish a dedicated vertical to carry out AI-ML based initiatives. This vertical would execute its activities in sync with the nominated nodal officer of DoIT&E, as mentioned in pt. (a) above. The staffing of the said



vertical would be done through onboarding of current employees post training/capacity building, recruitment of full-time/ part time/ contractual employees, and/or engaging consultant as Subject Matter Experts (SMEs) in the domain of AI-ML Technology.

- d) The mentioned vertical would **provide technical advisory/ implementation support for need assessment, use case selection, and prioritization for AI-ML activities** and support to implement the AI-ML use cases in various departments of government. The fees for SIA for executing such activities to be decided by the State Government in the Dept. of IT&E with concurrence from Finance Department and concerned Department / entity.
- e) The State Government in the Department of IT&E i.e., the nodal Department, shall constitute the **State Empowered Committee on AI-ML and Data Science (SECAMD)** by way of notification comprising, among others, the following:
- Additional Chief Secretary/ Principal Secretary/ Secretary of Department of Information Technology & Electronics as **Chairperson**
 - Additional Secretary/Joint Secretary of Department of Information Technology & Electronics as **Member Secretary**
 - Managing Director, West Bengal Electronics Industrial Development Corporation Ltd. (WBEIDCL) as **Member**
 - Representative from Department of Industry, Commerce and Enterprises as **Member**
 - Representative from Departments of P&AR and eGovernance/Health/Transport/Agriculture and any other use-case Department, as **Member**
 - Representative from Directorate of Micro, Small and Medium Enterprises as **Member**
 - Chief Executive Officer (CEO), Webel Technology Ltd. (WTL) as **Member**
 - Managing Director, West Bengal Industrial Development Corporation Ltd. (WBIDC) as **Member**
 - Managing Director, West Bengal Industrial Infrastructure Development Corporation Ltd. (WBIIDC) as **Member**
 - Representative from the Confederation of Indian Industry (CII) as **Member**
 - Representatives from academic Institutes of National Importance (e.g., IIT, IIM, ISI, IIIT, IIST, NIT etc.) and other premier academic institutes as **Invitee Members**
 - Representatives from prominent start-ups working in the AI-ML domain from each of the use case sectors as **Invitee Members**
 - Representatives from State Government Departments from each of the use case sector as **Invitee Members**
 - Any other State Government official the Committee may deem fit for specific purpose for a particular period may be co-opted from time to time as **Invitee Member**.
 - Head of Project Management Unit (PMU) of the Department of IT&E as **Member**

The State Government in the Department of IT&E shall review and reconstitute the aforementioned committee as and when required.

- f) The SIA shall, with prior approval of the Department of IT&E establish a dedicated vertical within their organisation by way of building internal capacity and/or recruit from the market and/or engaging external Subject Matter Expert(s) as Consultant(s) while the SIA would act as the secretariat for the **SECAMD**.
- g) The **SECAMD** would carry out need assessment and evaluation of requests submitted by State Government Departments for implementation of AI-ML technology in different spheres of e-Governance. They would also create a plan for periodically auditing these implementations / applications.
- h) The **SECAMD** would provide technical advisory/ implementation support for use case selection and prioritization for AI-ML activities and formulate framework for implementation of the AI-ML use cases in various departments/organisations of the State Government.
- i) The **SECAMD** would carry out the following tasks to ensure standardisation, security, and usefulness of AI-ML applications to be undertaken by the State Government as a whole and each of its Departments, in particular.
- Use case selection and prioritization for AI-ML and Data Analytics in e-Governance.
 - Formulation of framework for aiding the implementation of AI-ML& Data Analytics applications
 - Creation of standards and guidelines for designing, developing, and deploying AI-ML& Data Analytics applications for e-Governance and subsequently implementing them.



- Preparing a plan for AI-ML and Data Science capacity building within West Bengal for Government Executives and Officers.
- Identification of industry need in AI-ML and Data Science domain in professionals.
- Creation and recommending 'Industry-ready course curricula in AI-ML and Data Science' for roll-out.
- Encouraging industry-wide adoption by encouraging cross-industry and cross-academia collaborations through an Online Forum for AI-ML and Data Analytics Ecosystem Development.
- Building a regulatory sandbox for AI-ML applications.
- Designing an oversight mechanism for implementing the AI-ML and Data Analytics Guideline for smooth integration of AI-ML intervention in Government applications.

j) Following guidelines should be followed by all Departments, including organisations under their administrative control and aegis, while implementing AI-ML solutions.

- All AI-ML network formation applications for state government departments need to be submitted to the **SECAMD** for approval and sign-off. Requests will be evaluated based on the technical feasibility, value proposition and social impact and the intended AI-ML application(s).
- Departments willing to build applications on AI-ML technology need to submit their request, including features of the application and technical details to the **SECAMD**, who will evaluate the requests and approve the requests on a case-to-case basis.
- In the event that citizen private data is shared on an AI-ML, all stakeholders involved in developing the application are responsible for ensuring that the applications have proper access controls, consent seeking mechanisms, and security measures in place to prevent any leakage of confidential data and unauthorized access. Even after receiving consent, all data have to be fully anonymised first and then shared with the application in all cases. Under any circumstances, Personally Identifiable Information (PII) must not be shared over any application other than where the data principal has shared on one's own volition.
- It is essential that applications follow a mobile-first strategy, wherever feasible, to ensure greater inclusivity. Applications and workflows should provide support for feature phones as well as smartphones through mobile apps, SMS, IVRS, and other inclusive communication channels.

l) Department of IT&E was directed vide the cabinet note dated 20th July 2016, to identify, prepare, formulate and finalize course curricula on the domain of Data Science and facilitate its rolling out across the State. In this regard, the **SECAMD**, under the aegis of Department of IT&E, would provide recommendations to state-wide academic/educational institutions on Data Science Curricula based on industry insights, market demands, and current skill needs.

By order of the Governor,
Sd/-

Principal Secretary to the
Government of West Bengal.

No. 590/1(97)-Estt/ITE-20012/2/2020

Date: 28/12/2020

Copy forwarded for kind information and necessary action to :-

- The Secretary to the Government of India, Department of Telecommunications, Sanchar Bhawan, New Delhi 110001.
- The Secretary to the Government of India, Ministry of Electronics & Information Technology, 6, CGO Complex, New Delhi-110003.
- The Additional Chief Secretary / Principal Secretary/ Secretary, Department(all).



- The Managing Director, WBEIDC Ltd, Block – EP & GP, Sector-V, Salt Lake, Kolkata-700 091.
- The Dy Director General, Telecom Enforcement Resources & Monitoring (TERM) Cell, West Bengal, 82, Ballygunj Place, 2nd Floor, Kolkata-700 019.
- The Dy. Director General, Telecom Enforcement Resource & Monitoring Cell, Kolkata Licensed Service Area, QA Bhawan, ,Block –EP&GP, Sector-V, Salt Lake, Kolkata-700 091.
- The Chief General Manager, BSNL, West Bengal Telecom, 1, Council House Street, Kolkata-700 001.
- The Chief General Manager, BSNL, Calcutta Telephones,34, BBD Bag (South), Kolkata -700001.
- The District Magistrate, District(all),West Bengal.
- The OSD to the Chief Secretary, Govt. of West Bengal.
- The PS to the Hon'ble MIC(IT&E Department),GoWB.
- The Sr. PS to the Principal Secretary to the Govt. of West Bengal, IT&E department.
- The Advisor, Telecom Regulatory Authority of India, Kolkata Regional Office, Bharat Bhawan, 1st Floor, 3, C.R. Avenue, Kolkata 700072.
- The Director General, COAI, Sector 2, 14, Bhai Vir Singh Marg, Sector 4, Gole Market, New Delhi, Delhi 110001.
- The Chief Executive Officer, Webel Technology Limited, BP-5,Sector-V, Salt Lake, Kolkata-700091.
- The Head(Operation), Tata Tele Services Ltd, PS-Srijan Tech Park, DN-52,12th Floor, Sector-V, Salt Lake, Kolkata-700 091.
- The Chief Operating Officer, Vodafone Idea Limited, 8, Major Arterial Road, Tower-C, DLF IT Park, 15th & 16th Floor, New Town, Kolkata-700 156.
- The Nodal Officer, Bharti Airtel Ltd, Infinity Building, 7th Floor, Sector-V, Salt Lake Electronics Complex, Kolkata-700 091.
- The Assistant Manager-Legal, Tower Vision India Pvt Limited, Signet Tower, DN-2,Unit No 1101, 11th Floor, Sector-V, Salt Lake, Kolkata-91.
- The Manager-Regulatory, Reliance JIO Infocomm Ltd, Ecospace, Business Park, 3B,4th Floor, Rajarhat, Kolkata-700 156.
- The Advisor, Indus Towers Ltd, Godrej Waterside, 8th Floor, Tower-I, Unit-801,Plot No-5, Block- DP,Sector-V, Salt Lake, Kolkata-91.
- The Head, American Tower Corporation India, 145, Rash Behari Avenue, 4th Floor, Kolkata-700 029.
- The Director General, TAIPA, 2nd & 3rd Floor, 7, Bhai Veer Singh Marg, Gole Market, New Delhi-110 001.
- The Circle Head, Aircel, 3rd Floor, Globsyn Crystal Building, Plot-11 & 12, Block- EP&GP, Sector-V, Salt Lake, Kolkata-700 091.



Joint Secretary to the
Government of West Bengal
Information Technology & Electronics Department



