

GOVERNMENT OF WEST BENGAL
DEPARTMENT OF INFORMATION TECHNOLOGY AND ELECTRONICS
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No. 589-Estt/ITE-20012/2/2020

Date: 28/12/2020

Subject: **West Bengal Blockchain 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 E.

ORDER

The Governor is pleased hereby to make the following guidelines to streamline and standardize the process of establishment of the Blockchain technology ecosystem and further utilisation of this technology and appropriate implementation within the State of West Bengal. Blockchain Technology is poised to play a significant role in e-Governance in the near future. It is expected to empower the Government to construct a secure, reliable, auditable, and efficient government workflows and procedures. These modernized workflows can support the Government to design citizen-centric applications that serve different verticals of governance, including data security and integrity, identity management and benefits, agriculture, healthcare, and subsidy distribution, among others. Blockchain will benefit the residents of West Bengal by delivering better and more secure governance and efficient service delivery. West Bengal is planning to tap this opportunity by bringing in a guideline that empowers the Blockchain 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 leverage Blockchain 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 Blockchain 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.

2. Preamble

This guideline proposes a strategy that will ensure that the Blockchain implementation in governance adheres to standards for development, design, and deployment to ensure a consistent architecture and adherence to security protocols. Additionally, the guideline recommends a State-wide **Blockchain Backbone** that could be used by different state Government Departments and public sector organizations for formulating and deploying e-Governance applications. This shall enable the Government Departments to deliver services to people securely and efficiently.

3. Goals & Objectives

- a. To make West Bengal a leader in Blockchain Technology.



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- b. Provide faster, efficient, secure, and transparent delivery of services to the people of West Bengal by building new e-Governance Blockchain applications and to enhance existing Governance workflows and processes with Blockchain Blockchain.
- c. Provide new opportunities to people of West Bengal and organizations of West Bengal help establish a thriving ecosystem comprising of Blockchain entrepreneurs and community developers.
- d. To promote and support the adoption and implementation of Blockchain Technology in the State of West Bengal across Government and industries.
- e. Government Blockchain implementations to ensure enhanced security, privacy, interoperability, and uniformity in technology stack across different government departments.
- f. To build a knowledgeable and self-sustaining Blockchain community to help the growth of Blockchain technology in the state of West Bengal.
- g. To develop a regulatory sandbox that can be utilized for building and deploying Blockchain applications.
- h. Building an oversight mechanism for ensuring successful rollout, adoption, and implementation of the Blockchain guideline of West Bengal
- i. To notify the Department of Information Technology & Electronics as the State Level Nodal Department and enlist organisation(s) under its ambit, by way of notification, as State Implementation Agency for all Blockchain applications.

4. Selection of Use Cases and Prioritization

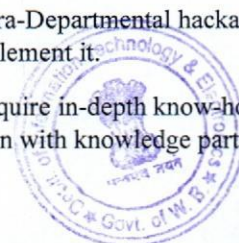
For the Blockchain Technology to be successfully adopted in West Bengal, the Government of West Bengal would choose and prioritize the use cases for Blockchain implementation.

- a. The Government would prioritize the domains of governance, where Blockchain will have a notable positive impact. Initially, the following areas would be taken up for blockchain Implementation.
- b. Data integrity and audit for government data and related documents, including inter and intra-organizational data and files and certificates, receipts, licenses, identification documents, blueprints, etc.
- c. Securing academic records, certificates, degrees, and diplomas and providing a secure and trusted workflow for verification of these records by authorities and other competent stakeholders.
- d. Securing West Bengal
- e. government websites and portals from cybersecurity threats and unauthorized modifications using Blockchain technology.
- f. Securing land registration transactions and enabling cross-departmental workflows for land mutation.
- g. Tracking agriculture produce and increasing profitability for farmers.
- h. Creating a reliable and secure healthcare platform that caters to all the residents of West Bengal.
- i. Blockchain-enabled platforms for seamless distribution of benefits to residents of West Bengal.

5. Capacity Building & Awareness

Senior executives and officials of the Government through Department of IT&E being the Nodal Department will be made to be aware of blockchain technology usage and have an in-depth understanding of the opportunity it provides to improve their existing workflows and procedures and build new services. At the same time, there is an acute need to know the risks and suitable mitigations for utilizing this technology and the security protocols that need to be in place to leverage it successfully. The guideline proposes the following initiatives –

- 1. Cross department and cross Industry blockchain Workshops** - in collaboration with Blockchain stakeholders designed at decoding the technology for different executives and making it relevant to mitigate challenges.
- 2. Short term events**– Workshops, Webinars, Panel Discussions, Bootcamps, and Intra-Departmental hackathons aimed at state government departments comprehending the technology and how the officials can implement it.
- 3. Long term events** – Professional courses intended for Government officials who require in-depth know-how of Blockchain for policymaking and creating frameworks for Public Welfare Schemes in collaboration with knowledge partners.



6. Development of Blockchain Ecosystem

A forum for the development of the Blockchain ecosystem will be established under the aegis of the Department of IT&E to encourage partnerships between start-ups, industry, and academia and build a mature Blockchain ecosystem. The forum should focus on the following –

1. Providing a forum for the exchange of ideas for making West Bengal a Global Leader in Blockchain Technology.
2. Creating a cross-industry platform for leveraging Blockchain technology by connecting start-ups and Blockchain practitioners with different industry verticals and government departments
3. Formulating a high-level plan for evolving West Bengal Blockchain infrastructure with the focus on enabling the start-ups, private sector, and academia.

7. West Bengal State wide Blockchain Backbone

The guideline shall empower the Dept of IT&E to establish a Blockchain infrastructure (network) for the state of West Bengal. This infrastructure would work as a single source of truth for all government procedures and related data. This Blockchain Infrastructure would be used by the State of West Bengal for enhancing governance and for encouraging the adoption of Blockchain within the State. The following are some of the design recommendations for this network.

1. This infrastructure would act as a hybrid blockchain platform hosted in the West Bengal State Data Center (WBSDC), or on cloud or on-premise (as required) and would include participation from concerned stakeholders. It shall be utilized for developing better G2C (Government to Citizen) and G2G (Government to Government) workflows and applications that will enrich the lives of the citizens of West Bengal.
2. The mentioned Blockchain stack shall have a modular architecture comprising of modular components that can be utilized to build applications and workflows, significantly decreasing the time required for go-to-market and cost for development of applications.
3. The platform shall be able to create and deploy blockchain applications for all concerned government departments and public sector enterprises of West Bengal. This would ensure a better public service delivery mechanism to be in place.
4. The said infrastructure would operate in a BaaS (Blockchain-as-a-Service) mode. The Government would assist stakeholders who choose to forgo hosting a Blockchain Backbone node. These stakeholders would use the Application Programming Interface (API) to create a connection with the Blockchain Network and build applications. This shall help decrease their overhead and enable diverse players to promptly get onboarded on the platform and commence using it. The Government may charge users for accessing and submitting transactions to the network.
5. To secure the accuracy and sanctity of data captured, any data added to the infrastructure needs to be cleansed, de-duplicated, and processed before submitting it to the Blockchain Infrastructure.
6. The platform would have a modular and open architecture that would provide moderated access to stakeholders and interoperate with other Blockchain networks if need be.

Over a period, the said platform would evolve as a trust anchor for all Government departments interacting with the citizens.

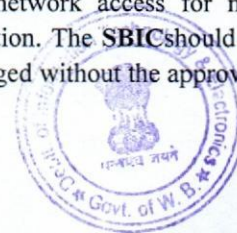
8. Implementation framework

Following is the high-level strategy the guideline will employ to achieve the end goals and objectives

- 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 Blockchain 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 Blockchain based initiatives until otherwise directed.
- c) The SIA shall with prior approval of the Department of IT&E establish a State Blockchain Implementation Committee (SBIC) for executing blockchain initiatives in the State. This wing would provide technical advisory/ implementation support for use case selection and prioritization for Blockchain activities and provide end-to-end support to implement the Blockchain use cases in various departments/organisations of the State Government.



- d) The SBIC would carry out the following tasks to ensure standardisation, security, privacy, and maturity of Blockchain applications to be undertaken by the State Government as a whole and each of its wings, in particular.
- Envision a high-level design for establishing a common Blockchain Network for e-Governance Blockchain projects in West Bengal.
 - Audit and formulate a list of suggested Blockchain Platform(s) that would be used for various application development. This list shall be reviewed on a yearly basis.
 - Use case selection and prioritization for BlockchainBlockchain in e-Governance.
 - Formulating standards and guidelines for designing, developing, and deploying Blockchain applications for e-Governance and subsequently implementing them.
 - Preparing a plan for Blockchain capacity building within West Bengal for Government Executives and Officers.
 - Encouraging industry-wide adoption by encouraging cross-industry and cross-academia collaborations through a Forum for Blockchain Ecosystem Development.
 - Building a regulatory sandbox for blockchain applications.
 - Designing an oversight mechanism for implementing the Blockchain Guideline
- e) The SBIC would chart out a **Standard Operating Procedure (SOP)** for evaluating and approving requests submitted for network creation and application development. They would also create a plan for periodically auditing these applications and networks.
- f) The SBIC would work on designing and developing an interoperability protocol to enable other blockchain networks to integrate with the Blockchain Backbone and make it available to the stakeholders who need it.
- g) The SBIC would periodically regulate applications deployed on the Blockchain Backbone. Sector-specific experts should be appointed to the SBIC who would lead network creation and network governance decisions for their respective sectors.
- h) Following guidelines should be followed by all Departments including organisations under their administrative control and aegis, while implementing Blockchain solutions.
- All Blockchain network formation requests for government departments and public sector entities need to be submitted to the SBIC for approval and sign-off. Requests will be evaluated based on the impact and value-proposition of the network and the intended application(s). The SBIC will oversee the compliance of all networks subject to this guideline and approve the creation of any such network. The same process is to be followed for dismantling and retiring a network.
 - Organizations willing to build applications on the Blockchain Backbone need to submit their request, including application features and technical details such as application process flow and low-level architecture to the SBIC who will review the requests and approve the requests on a case-to-case basis.
 - Organizations would only work with Blockchain platforms that have been extensively peer-reviewed and have been approved to be used in production by the SBIC. Underlying cryptographic algorithms used should not have security loopholes that can be exploited by malicious actors.
 - All applications deployed in production on the Blockchain Backbone need to follow standards prescribed by the SBIC.
 - In the event that citizen private data is shared on a Blockchain, all stakeholders involved in building the application are responsible for ensuring that the applications have suitable access controls, consent seeking mechanisms, and security measures in place to prevent any leak of confidential data and unauthorized access. Organizations should work towards implementing privacy-preserving mechanisms such as zero-knowledge proof workflows so that citizen's identity and data are secure.
 - The consensus/ordering mechanism used for operating the Blockchain networks should be in line with guidelines issued by the SBIC.
 - Networks should have clearly defined rules for participation, participant roles, and access control. It should have rules for node custodians, identity management (issuing and revoking keys), network access for non-node custodian participants, etc. These rules should accompany the request for network creation. The SBIC should be notified in case participants are added to / removed from the network. No rules should be changed without the approval of the SBIC.



- Any blockchain infrastructure should have clearly defined network governance framework and clear rules for on-boarding and off-boarding participants, hosting nodes, blacklisting and debarring participants and nodes, deploying software and security patches, updating and backward compatibility of smart contracts, transactions submission, and approval, consensus on ledger data, arbitration workflow (in case of disputes or disagreements) archiving data, etc. These should be submitted to the **SBIC** while submitting the request for network creation or for application development on the Blockchain Backbone. In case of any changes, the **SBIC** 'sapproval must be sought.
- Blockchain implementation should clearly list the different categories of nodes, including validating nodes. The updated node directory with the list of participants and their node details should be shared with the **SBIC** periodically.
- Organizations should mandatorily implement a secure process for storing and retrieving keys used to access and submit transactions to the Blockchain network.
- All blockchain networks and applications should be interoperable and compatible with the West Bengal Blockchain Backbone to allow easy integration.
- All applications deployed in production need to ensure that they are not in violation of any National Laws or State Laws of West Bengal. This applies to funding and revenue generation mechanisms and any other guidelines published by the **SBIC**.
- Complete confidentiality should be maintained with regards to the architecture and components of the application, network, and Blockchain Backbone, especially in cases where publicly disclosing certain information might lead to compromising the security of the network or any dependent applications.
- 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.

By order of the Governor,

Sd/-

Principal Secretary to the
Government of West Bengal.

No. 589-Estt/ITE-20012/2/2020

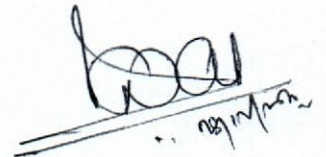
Date: 28/12/2020

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



