Government of India
Ministry of Communications & Information Technology
Department of Information Technology

Policy on Open Standards for e-Governance

Effective Date   : This Policy is effective from the date of notification

Preamble

Government of India (GoI) aims to make all Government services accessible to the common man in his locality and ensure efficiency, transparency & reliability of such services at affordable costs; in addition to this, GoI endeavours to provide services to all other stakeholders like public agencies and their employees and business communities. To meet this objective, there is a need to cooperate, collaborate and integrate information across different departments. Government systems characterized by islands of legacy systems using heterogeneous platforms and technologies and spread across diverse geographical locations, in varying state of automation, make this task very challenging.

There is a need to identify Open Standards for the consistent, standardized and reliable implementation of e-Governance solutions which meet laid down objectives of the Policy. While selecting Open Standards due consideration will be given to functional and technical requirements and maturity of the standard.

The "Policy on Open Standards for e-Governance" (here after referred to as "Policy") provides a set of guidelines for identifying such Open Standards.

1.   Objective

The Policy provides a framework for the selection of Standards to facilitate interoperability between systems developed by multiple agencies. It provides organizations the flexibility to select different hardware and software for implementing cost-effective e-Governance solutions. It, therefore, promotes technology choice, and avoids vendor lock-in. It aims for reliable long-term accessibility to public documents and information in Indian context.

2.   Definitions

Refer Annexure – I

3.   Applicability

The Open Standards for e-governance will be adopted /evolved based on this Policy

3.1   They shall be applicable at interface and data archival level of all systems used for e-Governance.

3.2   They shall be applicable to all prospective e-Governance systems including businesses (G2G, G2B, G2E and G2C) from the date they come into effect.

3.3   In case of legacy and existing systems :

      3.3.1   It will be the responsibility of the application owner to ensure that interfaces of legacy and existing systems adhere to Open Standards when interacting with other systems.

      3.3.2   New versions of the legacy and existing systems shall adhere to the Open Standards.

4.   Policy Statement

GoI shall adopt Single and Royalty-Free (RF) Open Standard progressively for a "specific purpose with in a domain" (herein after referred to as "Area"), to meet the laid down objectives of the Policy.

The Open Standard shall have the following characteristics:

4.1   Mandatory Characteristics

An Identified Standard will qualify as an "Open Standard", if it meets the following criteria:

4.1.1 Specification document of the Identified Standard shall be available with or without a nominal fee.

4.1.2 The Patent claims necessary to implement the Identified Standard shall be made available on a Royalty-Free basis for the life time of the Standard.

4.1.3 Identified Standard shall be adopted and maintained by a not-for-profit organization, wherein all stakeholders can opt to participate in a transparent, collaborative and consensual manner.

4.1.4 Identified Standard shall be recursively open as far as possible.

4.1.5 Identified Standard shall have technology-neutral specification.

4.1.6 Identified Standard shall be capable of localization support, where applicable, for all Indian official Languages for all applicable domains.

4.2 Desirable Characteristics

In case multiple Standards get qualified as Open Standards then the selection of a Single Open Standard shall be endeavoured by further narrowing down based on maximal desirable characteristics given below.

4.2.1 Open Standard having multiple implementations from different agencies.

4.2.2 Open Standard widely used in India for which technical expertise and support exists in India.

4.2.3 Open Standard that has Extensions and / or Subsets meeting mandatory characteristics of section 4.1.

4.3 Non-availability of Open Standard which meets all Mandatory Characteristics

In cases, where a standard for an Area meeting all the mandatory characteristics of the Policy is not available, an alternate standard may be temporarily adopted (here after referred to as Interim Standard). This Interim standard shall be identified by relaxing the mandatory characteristics in the order given below until the standard becomes eligible. Due consideration will be given to functional and technical requirements and maturity of the standard.

a) First the characteristic 4.1.2 shall be relaxed to consider standards with Fair, Reasonable and Non Discriminatory terms and conditions (FRAND) or Reasonable and Non Discriminatory terms and conditions (RAND) and with no royalty payment.

b) Second the characteristic 4.1.3 shall be relaxed.

c) Next, the characteristic 4.1.2 shall be relaxed completely to allow Standards with RAND/FRAND terms with royalty payments.

d) Subsequently the other characteristics shall be relaxed one by one, on a case to case basis.

4.4 Non-availability of Standards which meets functional requirements

In cases, where no standard is available for an Area meeting the essential functional requirements, GoI shall adopt the most appropriate option, in the following order of preference, as an Interim Standard. Due

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consideration will be given to functional and technical requirements and maturity.

- o Specifications as per mature Open source reference implementation(s), where applicable.
- o Published proprietary specifications as per mature implementation(s).
- o Development of a new standard by the Designated Body.

5. **Exceptions for Selecting One or More Additional Open Standard in an Area**

GoI shall endeavour to adopt Single and Royalty-Free (RF) Open Standard for an Area. However, in view of the sufficient technical justification and in the wider public interest, additional Open Standard(s) in the same Area may be considered by GoI based on the recommendations of the Designated Body. Such standard shall be compatible and bi-directionally interoperable with the already existing selected Open Standard.

6. **Review of the Policy**
The Government has the right to revise the Policy as and when required.

7. **Point of Contact**
All queries or comments related to this Policy shall be directed to JS (e-Governance), DIT (jsegov@mit.gov.in) and DG(NIC) (dg@nic.in)

8. **Implementation Manual**
Manual on the Implementation of Policy on Open Standards for e-Governance" can be referred for implementation of this Policy through guidelines, FAQ and rationale.

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Annexure – I

1. **Data Archival** Data Archival is the long-term storage of data which is less frequently used or no longer in active use; the archived data should be retrievable for subsequent usage/reference whenever it is needed.

2. **Designated Body** An agency appointed by GOI to (i) consider and recommend the selection of additional Open Standard in an Area (ii) give recommendations if multiple Open Standards are available in an Area with equal score on desirable characteristic and (iii) to review Interim Standards to check if it qualifies for adoption as Open Standards or for replacement with alternate Open Standards in that Area (iii) initiate action for formulation of Interim Standard in a situation where no standards are available to meet functional requirements for an Area.

3. **Domain** A sub-category under an Information Technology field is Domain; specific purpose with in a "Domain" is known as "Area". For example, "Document type for Web publishing content" is one Area under the "Presentation" domain.

4. **e-Governance** A procedural approach in which the Government and its citizens, businesses, and other arms of government are able to transact all their activities or at least majority of activities using Information and Communication Technology tools.

5. **Essential Claims** All claims in a patent that are necessary for implementation of the Recommendation

6. **FRAND/RAND An ab**breviation for (Fair) Reasonable And Non-Discriminatory, is a phrase that defines a basic set of minimal terms that a patent holder is obliged to offer (such as granting a license that is world-wide, non-exclusive, perpetual, reasonable, and non-discriminatory, etc.) and leaves all other non-specified terms to negotiations between the patent holder and the implementer seeking a license

7. **Functional Requirement** A function is described as a set of inputs, the behavior, and outputs in a specific Area. A functional requirement describes the functionality that the system is expected to execute; it may be calculations, technical details, data manipulation, processing, any other specific functionality supposed to be accomplished in the specific Area. For example, "Loss-less compression raster image" is an Area under "Presentation Domain" whose Functional Requirement is an image format with compression but without any loss of quality while doing repeated editing. Whereas "Lossy compression raster image" is another Area under "Presentation Domain", whose Functional Requirement is an image format with high compression and small size by compromising on quality

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8. **G2B** A set of services exchanged between government and the business community.

9. **G2C** A set of services exchanged between government and the citizen.

10. **G2E** A set of services exchanged between government and government employees.

11. **G2G** A set of services exchanged between government agencies.

12. **Interim Standard** A standard temporarily adopted as per the process defined in any one of the sections "Non-availability of Open Standard which meets all Mandatory Characteristics" and "Non-availability of Standards which meets functional requirements" of the Policy on Open Standards.

    The Interim Standards would be reviewed regularly by Designated body to check if any of the Interim Standard (i) qualifies to be adopted as an Open Standard or (ii) Any other Standard has been identified as an Open Standard to replace this Interim standard in the Area.

13. **Identified Standard** A standard which meets maximal essential functional requirements for an Area of e-Governance systems.

14. **Interface** A boundary across which two independent systems meet and act on or communicate with each other.

15. **Legacy System** An old method, technology, computer system, or application program that continues to be used, typically because it still functions for the users' needs, even though newer technology or more efficient methods of performing a task are now available.

16. **Maturity** A Standard is considered mature if different implementations, proprietary/open, are available widely adopted and have been stable for some time

17. **New version of Legacy System** The legacy system which has undergone a major version change due to re-engineering like functional changes, architectural changes, technology changes , change in storage mechanism, design implementation changes.

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18. **Not-for-profit** Not-for-profit organisations include major internationally recognized Standards bodies such as the IETF, ISO, IEC, W3C, OASIS including any agency recognized or designated by the GoI as such for the purpose of Open Standards.

19. **Open Standard** A standard which meets all mandatory characteristics laid down in the Policy.

20. **Royalty** A stream of payments for use of a certain type of asset/technology, most typically an Intellectual Property Right (IPR).

21. **Royalty-Free (RF)** A Royalty Free (RF) Standard is a Standard whose license is not conditioned on any payment of royalties, fees and other monetary considerations on its use in an implementation. The RF License is also subject to the following conditions:

    a. It shall be available worldwide on non-exclusive basis for the life time of the standard.
    b. It shall extend to all Essential Claims owned or controlled by the participating patent holders (i.e., those developing the standard).
    c. It could be conditioned on a grant of a reciprocal RF license.
    d. It shall not impose any further conditions or restrictions on the use of any technology, intellectual property rights, or other restrictions on behaviour of the licensee, but may include reasonable, customary terms like relating to operation or maintenance of the license relationship such as the following: choice of law and dispute resolution.

22. **Specifications document** A document that consists of a set of concise statements of requirements for a system.

23. **Standard** A specification, method, process or practice for a system that is both widely used and accepted or is sanctioned by a Standards Organization.

24. **System** A group of interacting, interrelated, or interdependent elements forming a complex whole. Information System is a combination of people, hardware**,** software, communication devices, network and data resources that processes (can be storing, retrieving, transforming information) data and information for a specific purpose**.**

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Manual on the Implementation of Policy on Open Standards for e-Governance

Effective Date : The Manual is effective from the date of its notification

1.   Purpose

This manual on the "Procedure for Implementation of Policy on Open Standards for e-Governance" (hereinafter referred to as "Manual") is intended to provide details on the following topics of "Policy on Open Standards for e-Governance"(hereinafter referred to as "Policy").

- Policy Implementation Mechanism
- Guidelines for Selecting Open Standards as per the Policy
- Rationale and Framework for the Policy

This manual should be read along with the Policy

2.   Definitions

Refer to Annexure – I

3.   FAQs

Refer to Annexure – II

4.   Policy Implementation Mechanism

4.1   Government of India (GoI) shall identify and prioritize the domains to be considered for standardization from time to time based on the request from the stakeholders including industry.

4.2   The Principles of the Policy, for identifying a Standard for a "specific purpose with in a domain" (hereinafter referred to as "Area") will be applied as given below:

> 4.2.1. First, the Expert committee will check the Identified Standard against the Mandatory Characteristics (Policy, Section 4.1)

> 4.2.2. In case step 4.2.1 does not result in identification of Single Standard, then the Standard which meets the maximal Desirable Characteristics (Policy, Section 4.2) shall be preferred.

> 4.2.3. In case step 4.2.2 results in multiple Open Standards (with equal number of Desirable Characteristics), then these Standards shall be referred to Designated Body for further

evaluation. This body shall evaluate these competing Standards based on the functional and technical requirements and maturity of the standards to select a Single Open Standard.

4.2.4. If multiple competing Standards are still available, then the Apex Body on e-Governance Standards shall take the final decision to arrive at a single Open Standard.

4.3   In case of non-availability of an Open Standard for an Area, the Expert Committee for that Area shall appropriately apply Sections 4.3 and Section 4.4 of the Policy, and recommend suitable Interim Standard to be adopted for that Area. The Interim Standards would be reviewed regularly by Designated body to check if any of the Interim Standards (i) qualifies to be adopted as an Open Standard or (ii) Any other Standard has been identified as an Open Standard to replace this Interim standard in that Area.

4.4   Exceptions for selecting one or more additional Open Standard in an Area shall be applied by the Designated Body as per Section 5 of the Policy document.

4.5   GoI shall publish updated list of selected Open Standards along with recommendations, if any, for progressive adoption of the selected Open Standards by the stakeholders including industry.

4.6   GoI would establish suitable mechanism which would inter alia undertake activities like monitoring, testing, compliance and comparison of technical merits of competing Standards, developing Open extensions and enhancements as needed for e-Governance and other related activities.

4.7   All future Request for Proposals (RFPs) of e-Governance projects shall include the guidelines for ensuring compliance to Open Standards as per this Policy.

5.   Rationale and Framework for the Policy
    (Refer Annexure – III)

6.   Review of the Manual
    The Government has the right to review the Manual as and when required.

7.   Point of Contact
    All queries or comments related to this Manual should be directed to JS (e-Governance), DIT (jsegov@mit.gov.in) and DG(NIC) (dg@nic.in)

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Annexure – I
Definitions

A-I-1) **Apex Body:** A competent authority for Approval of Standards.

A-I-2) **Expert Committee:** A   committee   setup by GoI under the institutional mechanism of the Standards to formulate   Standards in an identified priority area by following laid down procedure in accordance with Policy on Open Standards for e-Governance and recommending that standard for ratification

A-I-3) **Extensions:** Additional new-specifications added to the existing standardized-specifications in order to extend the capabilities of the existing functionalities.

A-I-4) **Interoperable:** The ability to exchange and use information among multiple systems.

A-I-5) **Open Source**: Open Source programs are software programs whose licenses permit users the freedom to run the program for any purpose, to study and modify the program, and to freely redistribute copies of the original or modified program

A-I-6) **Patent:** A patent is a set of exclusive rights given by a Government of a country to a patent applicant in which the patent holder is granted the right to prevent others from making, using, selling, offering to sell or importing the invention for a specific period of time. Patents are usually granted for inventions that are considered to be non-trivial, new and novel. Patent grants are territorial in nature in that patents applied for and granted in one country are not automatically recognized in another country.

A-I-7) **Vendor lock-in** or just lock-in, is the situation in which customers are dependent on a single manufacturer or supplier for some product (i.e., a good or service), or products, and cannot move to another vendor without substantial costs and/or inconvenience. This dependency is typically a result of Standards that are controlled by the vendor (i.e., manufacturer or supplier). It can grant the vendor some extent of monopoly power and can thus be much more profitable than would be the absence of such dependency. The term is commonly used in the computer industry to refer to the situation that can occur due to a lack of compatibility between different hardware, operating systems or file Standards. Such incompatibility can be intentional or unintentional.

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Annexure -II
Frequently asked Questions (FAQs)

A-II-1) Who is the audience for the Policy on Open Standards?

The DIT Designated Body / agencies responsible for standardization / adoption of Standards must apply this Policy to check the openness of each standard identified for the respective domain. All projects under e-Governance (G2C, G2E, G2G, G2B) shall adhere to this Policy. However other projects (B2B and B2C) are also encouraged to adhere to this Policy.

A-II-2) Whether the legacy system shall be modified to give Open interface for inter-operating with other systems?

Yes. The legacy system should be able to interoperate interface level with other systems. The other systems should not be modified to give non-open-standard-interface for inter-operating with legacy systems.

A-II-3) Will any standard, with patent and free from IPR related encumbrance, be considered as Open Standard?

Yes. The standard with patents can be considered as Open standard if adheres to mandatory characteristics of the Policy.

A-II-4) How long the Open Standard should be supported by Solution Provider?

The Open Standard should be supported until the end-user interest ceases rather than when implementer/Solution Provider business interest declines.

A-II-5) Should the future version of the selected Open Standard have backward compatibility?

While upgrading to a new version of the selected Open Standard for an Area, the new version should ensure backward compatibility to the maximum extent for interoperability. The new version should be considered for adoption if it is superior to the earlier version.

An Open Standard is considered to be superior to another Open Standard in the same Area, if it is having better   proven characteristics like technical and functional efficiency, stability, quality, maturity, proliferation and performance.

A-II-6) Explain the term "Technology Neutral Specifications".

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Technology neutral specifications are platform independent, where platform can be Operating System/Hardware/Data transmission devices, etc.

A-II-7) How can a single Open standard improve the technology choices?

Here "Choice" implies freedom to select the appropriate implementation of the single selected Open Standard from the available multiple implementations of the standard.

A-II-8) If extensions are made to a standard without publishing it, how does this affect the main/primary standard?

Open Standard from a not-for-profit organization allows creation of Open Extensions and/or Open Subsets. If some stakeholders create extensions / subsets without publishing, then these extensions / subsets shall not be recommended for use in e-Governance applications by Designated Body. However, the main/primary standard can still be considered without these extensions / subsets.

A-II-9) What is meant by the phrase "Identified Standard should be recursively Open"?

The mandatory characteristics are applicable recursively to the normative references of the Identified Standard i.e. standards which are essential for the implementation of the Standard of a particular version of the Standard.

A-II-10) Explain the term "Adopted" with reference to the Standard.

Not all Standards are developed by the Standards Body. A Standard could be adopted by bringing together related industries and communities of users, government, vendors, industry and other Standards body. The Standards body articulates requirements, evaluates the existing Standards, identifies the gaps, reorganizes overlaps, fills gaps, publishes guidelines and promotes interoperability.

Annexure – III

Rationale and Framework for the Policy

A-III-1 Technical Standards are used to establish uniform engineering or technical criteria, methods, processes and practices. To ensure interoperability of e-Governance solutions developed by multiple agencies for various Government departments, it is essential that these solutions conform to established Technical Standards.

A-III-2 For many domains, there are multiple competing Technical Standards that have evolved for various reasons. These Standards also often get reviewed, revised and updated. For any e-Governance application to simultaneously support multiple Technical Standards is a very complex task. A naive approach would require a quadratic number of en-converters/de-converters- one for every pair of available Standards.

A-III-3 Each of these would also require frequent modification and maintenance whenever there are any updates/modifications in any of the Standards. Supporting any new Standard would also require considerable development effort and substantial man power. All this will lead to unstable and unreliable systems, defeating the purpose of standardization for e-Governance.

A-III-4 The naive approach is neither desirable, nor necessary. The usual way out is for each application to be based on a single Standard to which other choices can be bi-directionally converted and/or interfaced. A judicious choice of this single Standard is very critical. Ideally it should be a well established, unencumbered, Open Standard, adopted and maintained in a collaborative and transparent manner by all stake holders. This will ensure maximum choice and a level playing field for all technical innovations which only need to ensure complete conformance with the single selected Open Standard.

A-III-5 This Policy has been designed to meet these objectives. This Policy recognizes that for some Areas, there may not be any Standard which meet all the mandatory characteristics of Openness. Here, the GoI shall use the procedure outlined in Policy for this purpose.

A-III-6 This Policy also recognizes that in some rare cases, for pressing national needs, , GoI may require the use of additional Standards for certain domains. GoI shall use the procedure outlined in Policy for this purpose.