



## The Open-Source Mission for India

This editorial is based on [“It’s in India’s National Interest to Promote Open Source Software”](#) which was published in Livemint on 03/01/2022. It talks about the increased importance of Free and Open Source Softwares (FOSS) and its role in India’s technological development.

**For Prelims:** Free and Open Source Software, #FOSS4GOV Innovation Challenge, GovTech 3.0, Gig Economy.

**For Mains:** Scope of FOSS in India, Challenges Associated to Adoption of FOSS, Encouraging FOSS Ecosystem in India, Significance of FOSS in GovTech 3.0

One of the most awe-inspiring tech developments in the last 20 years has been the rapid growth of **Free and Open Source Software (FOSS)** worldwide.

Most digital experiences are powered by FOSS today, with more than **85% of India’s Internet running actively on FOSS**. Major institutions like the **courts, IRCTC, and the State Bank of India rely on FOSS** to scale operations and provide timely and efficient digital services to millions.

FOSS democratises technology and enables fast innovation by giving organisations access to a global pool of talent and the tools needed to develop secure, reliable and scalable software.

**It is in India’s national interest to promote free and open source software** as it will help in making India self-reliant in the field of science and technology.

### Free and Open Source Softwares

- **About FOSS:** A FOSS **doesn’t mean software is free of cost**. The term “free” indicates that the **software does not have constraints on copyrights**.
  - It means that source code of the software is **open for all and anyone is free to use, study and modify** the code.
  - It allows other people also to contribute to the development and improvement of the software like a community.
  - The FOSS may also be referred to as **Free/Libre Open Source Software (FLOSS)**.
  - Examples of FOSS include **MySQL, Firefox, Linux**, etc.
- **Significance of FOSS:** FOSS today presents an **alternative model to build digital technologies** for population scale.
  - Unlike proprietary software, everyone has the **freedom to edit, modify and reuse open-source code**.
  - This results in many benefits — **reduced costs, no vendor lock-in, the ability to customise for local context**, and greater innovation through wider collaboration.

- FOSS communities can examine the open-source code for **adherence to data privacy principles, help find bugs, and ensure transparency** and accountability.
- **India and FOSS:**
  - **Initial Attempts:** The earliest attempts by governments to promote open source have mostly involved **adopting Linux-based operating systems and open document formats.**
    - However, it failed because governments couldn't build better consumer products than corporations or open-source communities.
  - **Current Scenario of FOSS Developers:** Indian developers are major players in this ecosystem. According to **GitHub**, more than 7.2 million of its 73 million users in 2021 were from India, placing it **at third position behind China** (7.6 million) **and the US** (13.5 million).
    - But the Indian developer base is growing faster, close to 40% in 2020-21 compared to 16% in China and 22% in the US.
      - GitHub expects to see 10 million Indian developers on its platform by 2023.
    - Millions of Indian developers plugged into the global open-source ecosystem is a good sign and can be a **source of competitive advantage for India** in high-technology geopolitics.
  - **Related Initiative:** In April 2021, the Ministry of Electronics & IT (MeitY) announced the **#FOSS4GOV Innovation Challenge** to accelerate adoption of Free and Open Source Software (FOSS) in Government.
    - It will **harness the innovation potential of the FOSS community and start-ups** to solve critical issues in Government Technologies (GovTech).
    - It is a **key component of GovTech 3.0**, which is about building secure and inclusive Open Digital Ecosystems (ODEs).

## Challenges Associated

- **India Lacks in Domestic FOSS Innovations:** Despite a strong consumption, India lags behind the global landscape **in building sustainable home-grown FOSS innovations.**
  - The **lack of substantial FOSS contributions** from India has resulted in having a software ecosystem that lacks representation from India's diverse languages, cultural contexts, and lived experiences.
  - These factors **restrict scaling digital adoption for the majority** of first-time internet users.
- **Misconceptions Regarding FOSS:** "Free" in FOSS is perceived to be "free of cost" and hence **many think that the solutions based on FOSS are not good enough.**
  - For example, FOSS is **often mistaken to be less trustworthy and more vulnerable**, whereas it can actually create more trust between the government and citizens.
- **Lesser Accountability in FOSS:** Another important issue is that it can feel easier to deal with a proprietary software vendor who builds a bespoke software and can be held accountable for any failures.
  - In the case of FOSS, there **appears to be an absence of one clear "owner"**, which makes it **harder to identify who is responsible.**
- **Operational Insufficiencies:** The use of open-source components can **create a lot of additional work.**
  - One must keep track of what components are used, what version is the software and how they might interact with other components in use.
- **Intellectual Property Issues:** There are over 200 types of licenses that can be applied to open-source software.
  - Many of these licenses are incompatible with each other, meaning that **certain components cannot be used together since one has to comply with all terms** when using open-source software.
  - The more components are used, the more difficult it is to track and compare all of the license stipulations.

## Way Forward

- **FOSS in GovTech:** The first step is to incentivise the **uptake of FOSS in government.** The

government's policy on the adoption of open-source software requires all tech suppliers to submit bids with open source options.

- A policy framework will go a step further by **formally giving greater weightage to FOSS-specific metrics** in the evaluation criteria in RFPs (request for proposals), and **offering recognition to departments that deploy FOSS initiatives**, such as, a special category under the [Digital India Awards](#).
- **Open Source Technology in National Interests:** India must **maximize its independent technological power**. Indeed, open-source software is in India's national interest, given the unfolding economics and politics of the technology space.
  - Focusing on open-source projects is far more productive than attempting technological sovereignty by reinventing everything and insisting on localization.
  - It is a **reliable way to reduce dependence on transnational technology companies** (and the governments behind them).
- **Promoting Open-Source Economy:** India must now promote an open-source economy by pushing a number of policy levers to **create incentives for developers and firms to invest more** in building open-source software.
  - It should aim to **create globally-competitive developers** and firms that become important nodes in the tech ecosystem.
  - The [gig economy](#) will grow in the post-pandemic world and hence, it **shall be encouraged to contribute in this field**.
- **Role of Technology Institutions:** Engineering **colleges shall encourage their students to participate** in open-source projects.
  - Ensuring a healthy open-source ecosystem is in fact a matter of **social responsibility for a country with a big IT industry**.
  - If support for open-source projects is recognized as satisfying **Corporate Social Responsibility (CSR)** commitments, more developers will be drawn towards them.
    - It will reduce the chances of dependence on just a few individuals to hold up a crucial piece of the world's information infrastructure.
- **A FOSS Centre of Excellence:** A **credible institutional anchor** is needed to be a home for FOSS led innovation in India which can bring together FOSS champions and communities scattered across India.
  - **Kerala's International Centre for Free & Open Source Software (ICFOSS)** is one such institution that led to Kerala being a pioneering state in the adoption of FOSS.
  - A national **"FOSS Centre of Excellence"** can convene capital, resources and capacity-building support, creating the much-needed momentum to build world-class "made in India" FOSS products.

## Conclusion

India is at an inflection point in its journey towards greater adoption of FOSS in GovTech. With an IT workforce of more than four million employees and a software industry that is the envy of the world, India already has the required talent and what more is needed is a concerted push to harness the biggest promise that FOSS holds — the possibility of collaborative technological innovation.

### ***Drishti Mains Question***

Discuss the steps that India can take to transform itself into an Open-Source Economy.