OSEE Training Framework – Public Draft

Working Draft

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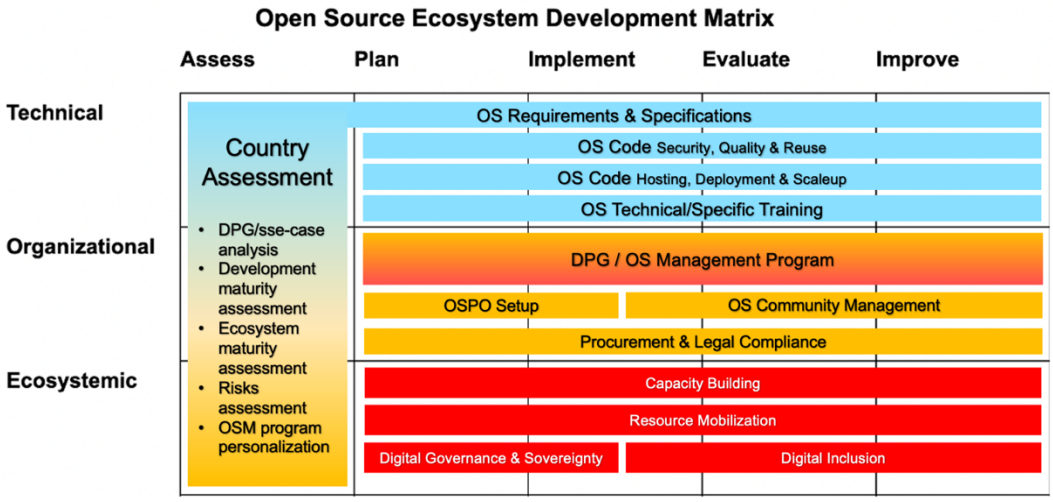
OVERVIEW



Open-source software (OSS) is increasingly recognized as a **transformative asset** within the **public sector**, offering numerous benefits that extend beyond mere cost savings. By promoting transparency, OSS allows public agencies to inspect and modify the source code, fostering accountability and trust among citizens. This openness can not only enhance security through community collaboration but also enable organizations to tailor solutions to meet specific regulatory and operational needs. Furthermore, OSS encourages flexibility and innovation, as public institutions can adapt software without being constrained by vendor lock-in, thereby maximizing their technological investments. As governments worldwide actively endorse open-source solutions, they are paving the way for improved public services that are more efficient, secure and aligned with democratic values.

Open-Source Ecosystem Enablement Framework aims to provide practical guidance to governments and institutions on using, sustaining and sharing open-source solutions and Digital Public Goods (DPGs). It is based on insights from a community of experts, analysis of successful open-source initiatives and documented best practices from different sectors and countries.

The framework is composed of three **general categories** that aim to address different aspects of open-source implementation in countries and institutions:

- **Organisational and Programmatic**
- **Ecosystemic and Societal**
- **Technical**

For each category, a set of **modules** provides practical guidance, recommendations and training materials to support stakeholders' efforts in meeting essential requirements and building their capacity for using Open-Source. Additionally, a series of **relevant reading material and components** are highlighted under each category to emphasize the importance of considering various factors when developing activities and policies to promote open-source adoption and ecosystem growth.

Organisational and Programmatic Category

Implementing open-source solutions and Digital Public Goods (DPGs) within government and institutional frameworks requires a well-structured approach to organizational and programmatic considerations. This category is crucial because it establishes foundational elements that support sustainable integration of open-source initiatives into public sector operations. Effective management programs, strategic planning and well-defined procurement and legal processes form the backbone of open-source adoption. These elements ensure that organizations are equipped with the necessary governance frameworks and operational competencies to navigate the complexities of implementing open-source solutions. Once these organizational and programmatic aspects are established, it becomes vital to consider broader ecosystemic and societal factors to ensure inclusivity, sustainability and community engagement.

OPEN-SOURCE PROGRAM OFFICE – A starting point

While deploying any open-source system / DPG, a country will have to set up an Open-Source Program Office (OSPO). Establishing an Open-Source Program Office (OSPO) is crucial for organizations aiming to effectively manage their open-source initiatives while maximizing benefits and minimizing risks. An OSPO serves as a centralized hub that coordinates open-source strategies, ensuring alignment with organizational goals and promoting best practices across departments. It plays a vital role in legal compliance, helping to navigate the complexities of open-source licenses and regulations, which is particularly important for public sector organizations that must adhere to strict transparency and accountability standards. Additionally, OSPO fosters collaboration between internal teams and external communities, enhancing innovation and resource sharing, while also advocating for a culture of open source within the organization. By streamlining processes, providing education and facilitating contributions to open-source projects, an OSPO not only drives strategic growth but also reinforces the organization's commitment to responsible technology use.

Table below lists various roles and user profiles which can exist in an OSPO along with their composition:

Roles	Profiles	Composition
Strategy	Government Ministers Chief Information Officer (CIO) Chief Security Information Officer (CISO)	1 CIO at Government level 1 CIO in each Ministry 1 CISO at Government level
Service Design / Requirement and Specifications	Service Designers	Resources who have rich experience of working in Govt can add value in Service Design
	UX/UI Designers	External Consultants can be onboarded here if required
Procurement	Digital Procurement Managers	Resources well-versed with procurement policies can be considered
Legal and Policy	Legal Policy Officer	Resources who have rich experience of working in policy making can add value here
	Data Protection Officer	External Consultants can be onboarded here if required
Community Management	Community Managers / Mobilisers	Resources who have rich experience in IEC (Information,

Roles	Profiles	Composition
		Education and Communication) campaigns can add value here
Capacity Building	Training and Development Specialists	Resources who have rich experience of working in Govt can add value here
	Knowledge & Content Development Officers	External Consultants can be onboarded here if required
Fundraising	Fundraising Team which can negotiate with Funders (Unilateral / Multilateral Agencies, Development Banks, Funding Agencies etc)	Fundraising Experts at Country Level
Performance and Monitoring	Monitoring & Evaluation Officer Performance Analyst	Internal

Open-Source Digital Transformation Program - Resource Requirements

Human Resources

The successful rollout of digital public goods requires a multidisciplinary team with a diverse set of skills and expertise to address the technical, organisational, and societal aspects of digital transformation. There are several key human resources that are important for the successful rollout of digital public goods in countries:

1. Digital Transformation Experts
    a. Individuals with expertise in digital technology, infrastructure, and service delivery
    b. They can help assess the country's digital readiness, identify key requirements, and develop the necessary digital strategies and roadmaps
2. Change Management Specialists
    a. Professionals skilled in managing organisational and cultural change
    b. They can navigate the challenges of transitioning to digital public services, ensuring user adoption and buy-in from various stakeholders
3. Cybersecurity Professional
    a. Experts in cybersecurity, data protection, and privacy.
    b. They can help design and implement robust security measures to protect digital public goods and ensure data privacy
4. Data Scientists and Analysts
    a. Individuals with expertise in data management, analytics, and visualisation
    b. They can help leverage data to drive decision-making, monitor performance, and continuously improve digital public goods
5. User Experience (UX) Designers
    a. Professionals who specialise in designing user-centric digital experiences

   b. They can help ensure that digital public goods are intuitive, accessible, and meet the needs of citizens
6. Digital Service Delivery Managers
   a. Individuals skilled in managing the end-to-end delivery of digital public services
   b. They can oversee the implementation, integration, and ongoing maintenance of digital public goods
7. Digital Literacy and Capacity Building Trainers
   a. Experts in digital literacy and capacity building
   b. They can help train civil servants, citizens, and other stakeholders on the effective use and adoption of digital public goods
8. Project Managers
   a. Professionals who can coordinate and oversee the implementation of digital public good initiatives
   b. They can ensure effective project planning, risk management, and stakeholder engagement
9. Policy and Regulatory Experts
   a. Individuals with expertise in digital governance, policy, and regulations
   b. They can help align digital public good initiatives with the country's legal and regulatory frameworks
10. Collaboration and Partnership Managers
   a. Professionals who can facilitate and manage multi-stakeholder collaborations and partnerships
   b. They can help coordinate efforts across government agencies, private sector, and civil society organisations
11. Volunteers
   a. Individuals from various backgrounds who donate their time and skills to support digital public good initiatives
   b. They can assist with tasks like user testing, data entry, content creation, translation, outreach, and community engagement
   c. Volunteers can come from different sectors, such as students, retirees, professionals, or technology enthusiasts
   d. They can help bridge resource gaps and foster community ownership of digital public goods.

Financial Resources

There are several potential funding sources that governments can explore for the rollout of digital public goods:

1. Government Budgets
   a. Dedicated allocations within national, state, or local government budgets for digital transformation and digital public good initiatives
   b. This can include funding from various ministries or departments related to technology, public services, or innovation
2. International Development Funding
   a. Grants, loans, or technical assistance from multilateral organisations, development banks, or international aid agencies
   b. Examples include the World Bank, International Monetary Fund (IMF) and regional development banks

3. Public-Private Partnerships (PPPs)
    a. Collaborative funding models where the government partners with private sector entities, such as technology companies, to co-invest in digital public good projects
    b. This can leverage the expertise and resources of the private sector
4. Innovation Funds and Challenges
    a. Competitive funding programs or challenges that encourage the development of innovative digital public goods
    b. These may be administered by government agencies, foundations, or international organisations
5. Digital Transformation Bonds or Loans
    a. Specialised financing instruments, such as bonds or loans, dedicated to funding digital infrastructure and public good initiatives
    b. These can attract investments from institutional investors or capital markets
6. Crowdfunding and Citizen Contributions
    a. Engaging citizens and the broader public to contribute funding, either through crowdfunding platforms or voluntary contributions, to support the development and maintenance of digital public goods
7. Philanthropic Grants and Foundations
    a. Funding from private foundations, charitable organisations, or individual philanthropists interested in supporting digital public good initiatives
8. International Collaborations and Partnerships
    a. Leveraging funding and resources from international organisations, development agencies, or foreign governments through bilateral or multilateral partnerships
9. Revenue Generating Models
    a. Exploring sustainable revenue streams, such as user fees or revenue sharing, to partially fund the operation and maintenance of digital public goods
10. Regional or National Digital Transformation Funds
    a. Establishing dedicated funds or investment vehicles at the regional or national level to finance digital transformation efforts, including digital public goods.

The optimal funding mix will depend on the country's fiscal situation, institutional capabilities, and the specific requirements of the digital public good initiatives. Governments may need to employ a combination of these funding sources to ensure the comprehensive and sustainable rollout of digital public goods.

Infrastructural Resources

The key infrastructural resources needed for the rollout of digital public goods in countries include:

1. Connectivity Infrastructure
    a. High-speed internet access, including fixed broadband and mobile broadband networks, reaching all parts of the country
    b. Robust telecommunications infrastructure, such as fibre optic cables, cell towers, and satellite systems
2. Data Centres and Cloud Computing

   a. Reliable and secure data centres, either government-owned or leveraging private sector cloud computing services
   b. Scalable cloud infrastructure to host and deliver digital public goods
   c. Cloud credits and subscription-based access to cloud services
3. Digital Identification Systems
   a. Secure and interoperable digital identification platforms, such as national ID systems or digital authentication frameworks
   b. These enable secure access and personalised delivery of digital public goods
4. Shared Digital Platforms
   a. Common digital platforms and APIs that enable the development and integration of digital public goods across different government agencies and services
   b. Appropriate software licensing and platform access for government agencies and users
5. Cybersecurity and Data Protection Infrastructure
   a. Robust cybersecurity measures, including firewalls, intrusion detection systems, and security operations centres
   b. Infrastructure for data encryption, secure data storage, and privacy-preserving technologies
   c. Cybersecurity software, tools, and licences
6. Interoperability and Integration Frameworks
   a. Standards, protocols, and technical frameworks that enable seamless integration and interoperability between different digital public goods and legacy systems
   b. Licensing for interoperability and integration tools and middleware
7. Digital Service Delivery Channels
   a. Multi-channel infrastructure for delivering digital public goods, such as web portals, mobile applications, and kiosks
   b. Ensuring accessibility and inclusivity for citizens with diverse digital literacy levels
   c. Software licences and user access rights for digital service delivery platforms
8. Geographic Information Systems (GIS)
   a. Geospatial data infrastructure and GIS platforms to enable location-based services and data-driven decision-making
   b. GIS software licences and cloud-based GIS services
9. Digital Payment Systems
   a. Secure and efficient digital payment infrastructure, including e-wallets, digital banking, and interoperable payment gateways
   b. Enabling seamless financial transactions for digital public goods
   c. Payment processing licences and merchant accounts
10. Data Management and Analytics Infrastructure
   a. Data management platforms, data lakes, and analytics tools to capture, store, and derive insights from the data generated by digital public goods
   b. Software licences and cloud-based data management and analytics services.

The inclusion of licensing and cloud credits as part of the infrastructural resources ensures that governments have the necessary access, rights, and scalable computing resources to effectively deploy and maintain digital public goods

Institutional Resources

Creating systems and frameworks that are conducive to innovation is equally crucial. Institutional resources for rolling out digital public goods in countries typically involve a combination of government initiatives, multilateral organisations, civil society groups, and private sector collaborations. Here are some key institutional resources:

1. Policy Frameworks
    a. National Digital Strategies / Policies
    b. Open Data Policies
    c. Policies promoting open source software and open standards
    d. eGovernment / Digital Transformation Policies
    e. ICT / Broadband Policies
2. Strategies and Action Plans
    a. National Open Data Strategies
    b. Open Source Software Adoption Strategies
    c. Digital Public Goods Implementation Roadmaps
    d. eGovernment / Digital Government Strategies
3. Institutional Mechanisms
    a. Dedicated government agencies / units for digital transformation, open data, and digital public goods
    b. Inter-agency coordination bodies or task forces
    c. Public-Private Partnership (PPP) frameworks
4. Capacity Building and Community Support
    a. Training programs for government officials, developers, and users
    b. Knowledge sharing platforms and communities of practice
    c. Hackathons, innovation challenges, and co-creation events
    d. Technical assistance and advisory services
5. Funding and Investment
    a. Government budgets and funding programs for digital public goods initiatives
    b. Donor funding and support from multilateral organisations
    c. Incentive schemes and innovation funds
6. Standards and Interoperability
    a. Adoption of open standards and technical specifications
    b. Interoperability frameworks and data exchange protocols
    c. Certifications and compliance mechanisms
7. Monitoring and Evaluation
    a. Frameworks for measuring the impact and adoption of digital public goods
    b. Performance indicators and metrics
    c. Feedback and grievance redressal mechanisms
8. Multi-stakeholder Collaboration
    a. Public-private partnerships and collaboration models
    b. Civil society engagement and participation mechanisms
    c. Regional and international cooperation networks
9. Knowledge Sharing Platforms
    a. Establishing knowledge sharing platforms that allow for pooling of expertise and best practices in digital solutions

STRATEGY

Scope and purpose

At the organisational level, an open-source software strategy defines business model(s), ethos, approaches, purposes and risk mitigation tactics for either adoption or build / release of OSS tools, applications and packages. While there are many existing guides on OSS strategies, section below attempts to highlight topics that are unique or especially relevant to those in low and middle-income countries (LMICs). The last sub-section on Training Materials links to other OSS strategy guides.

An OSS strategy can cover any or all the below:

- Identification of use-cases - How OSS can solve for an organisation's needs i.e. to fill gaps not met with existing tools
- Business model(s) to fund development / adoption of OSS - grant funding, institutional funding, SaaS, customer support for custom builds or add-on services, government contracts or other revenue streams to ensure financial sustainability
- Internal management and engagement - source governance, staff feedback, cross-team or cross-functional checks, executive / organisation leader engagement
- (External) Community management and engagement - external contribution governance, connecting with customer / consumer base, feedback triage and response
- Legal Compliance and Risk Management – clear understanding of open-source licenses and compliance requirements

Business Model Spotlight: DHIS2

DHIS2 is one of the well-known digital public goods (DPG). DHIS2 receives institutional funding from several governments and organisations to build and release its core software and optional add-on features. This in turn has spurred an ecosystem of companies throughout sub-Saharan Africa and South Asia who generate revenue by helping governments and nonprofits implement and customise their DHIS2 instance.

Target Audience

The target audience for this module typically includes:

Type of Company or Organisation	Target Audience
Large governmental org	Organisational leaders or managers working in a similar function as an open-source programme office (OSPO) **OR** who have the budgetary, personnel or other authority to create an OSPO.
Small governmental org	Business manager or maintainer of an OSS tools **OR** who are considering using, building or releasing OSS

Type of Company or Organisation	Target Audience
Large enterprise	Organisational leaders or managers working in a similar function as an open-source programme office (OSPO) **OR** who have the budgetary, personnel or other authority to create an OSPO.
Small or medium enterprise	Organisational leaders or managers working in a similar function as an open-source programme office (OSPO).
Informal community or individual	Business manager or maintainer **OR** who are considering using, building or releasing OSS.

Acquired Competencies

In this module the trainee can acquire following competencies:

Competencies	Description
Analysing Labour Costs versus Licencing Costs	Public sector stakeholders need to develop an ability to accurately assess and compare the costs associated with labour (e.g. development, maintenance and support) versus costs of using proprietary software licences. This includes understanding Total Cost of Ownership (TCO), evaluating the long-term savings from using open-source software and the potential hidden costs of both options. While performing this analysis in LMICs where labour is relatively cheap it seems there could be significant cost advantages of using, building or releasing OSS instead of procuring proprietary licences for the same purpose. Therefore, a strategy advocating for OSS that is unique to LMICs is to cost out labour versus licences to demonstrate potential savings.
Capacity Building	It is crucial to build internal expertise in managing, deploying and developing open-source software. This includes training staff on the specific tools and technologies used, fostering a culture of continuous learning, and understanding the open-source community dynamics. Capacity building should also involve developing skills in software development, systems integration, and IT management.

Competencies	Description
	Research has shown that investing in OSS directly results in investing in local labour capacity, whereas investing in licence procurement diverts that money to an external company or organisation. This can be especially advantageous in LMICs, where hiring opportunities with large tech companies are limited.
Platform and tool selection	Stakeholders must be equipped to evaluate and choose the appropriate open-source platforms and tools that align with the organisation's strategic goals. This involves conducting a needs assessment, understanding compatibility and interoperability, evaluating community support, and considering the sustainability and security of the open-source solutions.
Software contribution governance	Establishing and managing governance structures for contributing to open-source projects is essential. This includes understanding the legal implications of contributing code, managing intellectual property rights, and ensuring compliance with open-source licences. Stakeholders also need to develop processes for internal code review, contribution approval, and community engagement.
Security and risk management	Stakeholders need to develop a deep understanding of the security risks associated with open-source software, including potential vulnerabilities and how to mitigate them. This involves implementing best practices for secure software development, conducting regular security audits, and staying informed about updates and patches from the open-source community.
Change management	Successfully integrating open-source solutions requires effective change management strategies. Stakeholders should be able to plan and execute the transition from proprietary to open-source systems, addressing resistance to change, communicating benefits, and ensuring that the workforce is adequately prepared for new workflows and processes.

Dependencies and Overlaps

- Legal or policy requirements, including laws of the country in which your organisation is based or operates
- Organisational priorities including what your organisational leadership, board of directors, staff and customers / beneficiaries expect
- Available capacity in the form of trained and skilled resources, infrastructure, connectivity etc
- Organisational gaps that can be bettered with an OSS strategy, including staff collaboration, staff skills, data maturity, and overall software development capacity

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Organisational and Programmatic > Digital Public Services Management Program	Maturity Assessment	Transformations | United Nations Development Programme Digital Maturity Assessment – Lao PDR 5 Levels Of Digital Government Maturity E-Government Maturity Model for Sustainable E-Government Services from the Perspective of Developing Countries	Strategy / management	Content freely available, need to provide attributions
Organisational and Programmatic > Strategy	Digital Strategy and Roadmap	Digital India Harnessing Digital - The Digital Ireland Framework e-Estonia Data and Digital Government Strategy Gobierno de México		Content freely available, need to provide attributions

REQUIREMENTS AND SPECIFICATIONS

Scope and Purpose

Requirements and specifications act as the foundation for designing, developing and delivering any high-quality product to meet the end user's needs and expectations. Clearly defined requirements ensure that the systems meets specific needs of government agencies, facilitating effective service delivery and operational efficiency.

Standards and specifications necessary for effective adoption, management and contribution to open-source initiatives for a country focus on:

- Selecting appropriate open-source licences based on requirements
- Adhering to technical standards
- Ensuring compliance with security and privacy regulations
- Documenting contributions comprehensively
- Actively engaging with the open-source community
- Establishing robust training and capacity- building initiatives
- Implementing mechanisms for continuous evaluation and improvement

Target Audience

The target audience for this module typically includes:

Role	Responsibility
Developers and Engineers	They require detailed technical specifications to guide the implementation of features and functionalities within the project.
Project Managers	They need a clear understanding of the project's requirements and specifications to effectively plan and coordinate development efforts, allocate resources, and track progress.
Product Owners and Stakeholders	Product owners and stakeholders, including clients, sponsors, and end users, need to understand the product requirements and specifications to ensure that it meets their needs and expectations.
Quality Assurance Team	They rely on requirements and specifications to design test cases, validate software functionality, and ensure that the product meets quality standards.
Technical Writers	They use requirements and specifications to create user manuals, API documentation, and other technical documentation that helps users understand and use the product

	effectively.
Open-source Community	Members of the open-source community who contribute to or use the project benefit from clear requirements and specifications, as it guides them on how to contribute to the project and understand its capabilities.
System Integrators	System integrators go through the requirements and specifications to customise the solution.
Third-Party Developers	They need to understand the specifications to integrate with other systems or extend their functionality.

Acquired Competencies

In this module the trainee can acquire following competencies:

Competencies	Description
Licensing Selection Based on Requirements	Stakeholders need to develop the ability to choose the most appropriate open-source licences that align with the project's specific requirements. This includes understanding different open-source licences (e.g., GPL, Apache, MIT) and their implications on software usage, modification, distribution, and integration with other software. Legal expertise in software licensing is essential for this competency.
Adhering to Technical standards	It is crucial to ensure that open-source solutions adhere to established technical standards, both industry-wide and specific to the public sector. Stakeholders must be able to identify relevant standards (e.g., ISO, W3C, IEEE) and ensure that selected software meets these standards for interoperability, scalability, and sustainability. This also includes understanding the importance of open standards in software development.
Compliance with Security and Privacy Regulations	Public sector stakeholders must ensure that open-source software complies with all applicable security and privacy regulations. This involves a thorough understanding of relevant laws and frameworks, such as GDPR, FISMA, and NIST standards. Skills in risk assessment, secure software development, and data protection are critical to maintaining compliance and safeguarding sensitive information.

Competencies	Description
Comprehensive Documentation of Contributions	Documenting contributions to open-source projects in a comprehensive and standardised manner is essential. Stakeholders should develop skills in writing clear, detailed documentation that includes code changes, rationale, implementation details, and testing results. This documentation is vital for maintaining transparency, facilitating collaboration, and ensuring that contributions are easily understood and maintained over time.
Active Engagement with the Open-Source Community	Effective integration of open-source solutions requires active and ongoing engagement with the open-source community. Stakeholders should build skills in community participation, including contributing to discussions, submitting patches, reporting bugs, and collaborating on project roadmaps. This engagement helps ensure that public sector needs are considered in the development of open-source software.
Training and Capacity Initiatives	Establishing and maintaining robust training programs and capacity-building initiatives is essential for successful open-source adoption. This includes developing training curricula for staff, organising workshops, and providing ongoing support to ensure that all team members are proficient in using and contributing to open-source projects. Capacity-building should focus on both technical skills and understanding the open-source ecosystem.
Continuous Evaluation & improvement mechanisms	Implementing mechanisms for the continuous evaluation and improvement of open-source solutions is vital. Stakeholders should develop the ability to monitor software performance, assess user feedback, and conduct regular audits to identify areas for enhancement. This includes setting up processes for software updates, patch management, and performance benchmarking, ensuring that the solutions remain effective and up to date.

Dependencies and Overlaps

1. Community Management - Requirements & Specifications are generally built based on inputs from the community. Community can ensure that diverse voices are heard and:
    a. Requirements reflect needs and priorities of the community
    b. Specifications are reviewed and validated by the community for completeness, clarity, and relevance
2. Capacity Building

a. Clear and precise documentation with version control is vital for onboarding new team members in open-source projects
b. It acts as a comprehensive resource for understanding project features and empowers team members to contribute effectively

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Organisational and Programmatic > Requirement and Specifications	Reference Architecture	ServiceNow Digital Government Interoperability Platform Reference Architecture	Service Design	Content freely available, need to provide attributions
Organisational and Programmatic > Requirement and Specifications	Service Catalogue	Government Services Catalogue Service Catalogue Creating a list of services		Content freely available, need to provide attributions
Organisational and Programmatic > Requirement and Specifications	Service Prioritisation	Adopt-govstack/service-prioritization		
Organisational and Programmatic > Requirement and Specifications	Requirement Documentation	Building great open source documentation Documentation as an Open Source Practice | DigitalOcean How to write effective documentation for your open source project	Service Design	Content freely available, need to provide attributions
Organisational and Programmatic > Requirement and Specifications	Specifications	Standard for Public Code Key Insights from "The European Public Sector Open Source Opportunity"	Service Design	Content freely available, need to provide attributions

OSEE Framework	Activities	Training Content	User Group	Licensing
Organisational and Programmatic > Requirement and Specifications	Validation and Verification	Verifying open source software	Service Design	Content freely available, need to provide attributions

PROCUREMENT AND LEGAL

Scope and Purpose

Procurement describes the process of acquiring a service once a need has been identified. Procurement includes the processes of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of and payment for the property or services and, where relevant, the ongoing management of a contract and consideration of options related to the contract. Value for money is the core principle governing public procurement and is supported by the underpinning principles of efficiency and effectiveness, competition, accountability and transparency, ethics and industry development. Open-source software results in long term efficiencies by preventing lock-in and vendor dependency. It also procedurally enforces transparency and relatedly accountability.

This document describes legal and procedural aspects of acquiring open-source software or building open-source software for government service delivery. The scope of this document is specifically on procurement of **open-source software** in the public sector and should be read along existing resources on best practices in public procurement.

Target Audience

The target audience for this module typically includes:

Role	Role and Benefits
Project or Product Managers	Conceptualising or designing a project while ensuring what they are going to use, or build is within the boundaries of laws of the country **Benefits:** Enhanced understanding of legal boundaries and opportunities within the context of open-source software
Legal and Policy Professionals	Advise on what is legally possible to use in a project and also harmonise regulation to align with the goals of open-source software development **Benefits**: Improved ability to advise on legal aspects of open-source adoption and harmonise regulations with open-source development goals
Procurement Managers	Plan procurement of open-source technical solutions and components being delivered such as software, IT networks, operating systems and hardware solutions **Benefits:** Enhanced knowledge of open-

Role	Role and Benefits
	source technical solutions and the procurement processes required to implement them effectively.
Accounting Team	Manage and maintain budgets, costs etc for delivery of Open-source projects **Benefits:** Increased capacity to manage financial aspects of open-source projects, including budgeting, cost analysis, and financial reporting.

CONSIDERATIONS

Procurement Software:
The procurement process itself can be carried out using an open-source software such as OpenProcurement.

Licence Related:
A licence governs how software is used and distributed. An open-source licence has the same legal weight as the terms of use or terms and conditions of proprietary software. Violation of open-source licence terms can result in lawsuits. Hence, project teams must carefully consider the licences of existing open-source software they use in their work, as well as the licence under which they release their software.

When using more than one open-source service, one should check that licences of the different providers are compatible, i.e. that they can be combined in one product and distributed together.

Compliance with Data Privacy Laws:
Open-Source software should be compatible with the data privacy laws of the country, if one exists. The service might also be subject to data privacy regulations of other jurisdictions. For example, the European GDPR extends to European citizens all over the world, regardless of country of residency

Acquired Competencies

In this module the trainee can acquire the following competencies:

Competency	Description
Value-for-money assessment	**Understanding Total Cost of Ownership (TCO):** While one of the key advantages of most open-source solutions is that they do not have an upfront licensing cost, public sector stakeholders need the ability to evaluate not just the initial cost but also

Competency	Description
	ongoing costs (maintenance, updates, support, etc.) associated with setting up and customising open-source solutions.
Capacity to Run/Integrate Open-Source in Public Procurement	**Understanding Open-Source Licensing:** Stakeholders should be well-versed in various open-source licenses, their implications, and compliance requirements. **Procurement Process Integration:** Skills to integrate open-source options into standard public procurement processes, including how to structure requests for proposals (RFPs) that accommodate open-source solutions. **Vendor Evaluation:** Capability to evaluate vendors based on their ability to support open-source technologies and adherence to open-source principles.
Capacity to Recognize and Address Legal Challenges	**IP and Legal Compliance:** Ability to identify and manage intellectual property (IP) rights issues related to open-source software, ensuring compliance with relevant legal frameworks. **Contractual Considerations:** Skills to draft and negotiate contracts that address open-source use, including clauses on warranties, liabilities, and support. **Data Privacy and Security:** Understanding the implications of open-source solutions for data privacy and security in the public sector.

Dependencies and Overlaps

- Capacity Building: There will be need for capacity building on knowledge of open-source projects and open-source licensing
- Ecosystemic: Auditors, Funders and other actors who are part of typical procurement processes will also have to be onboarded in key concepts
- Requirements and specifications: Key requirements will drive most of the procurement decisions thus making them crucial

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Organisational and Programmatic > Procurement and Legal	Policy, Contractual Obligations, Transparency and Accountability	New Open Source law in Switzerland | Joinup Open Source in the Public Sector (Germany/Europe)- some spotlights	Procurement and Legal	Content freely available, need to provide attributions
Organisational and Programmatic > Procurement and Legal	Licensing Compliance, Source Code Disclosure, Intellectual Property Considerations, Regulatory Compliance, Risk Management	Public Sector and Open Source		Content freely available, need to provide attributions

COMMUNITY MANAGEMENT

Scope and Purpose

Community management in the context of open source within the public sector involves a strategic approach to fostering collaboration, engagement and sustainability among contributors and stakeholders. This is particularly crucial as governments increasingly adopt open-source solutions to enhance transparency, efficiency and innovation.

Effective community management in the public sector should follow several best practices:

1. **Inclusivity:** Open-source projects should strive to be welcoming to diverse participants. This involves creating an inclusive environment where all voices are heard and valued
2. **Clear Communication Norms**: Establishing norms for communication helps maintain clarity in interactions among community members, which is essential for collaboration
3. **Mentorship Programs**: Implementing mentorship initiatives can help onboard new contributors by connecting them with experienced members who can guide them through the project's intricacies
4. **Metrics for Success**: Regularly assessing community health through metrics can help identify areas for improvement and ensure that the community remains vibrant and engaged

Despite its benefits, managing an open-source community in the public sector comes with challenges:

1. **Resource Constraints:** Limited funding and staffing can hinder the ability to maintain active engagement within the community
2. **Balancing Interests:** Community managers often face dilemmas when aligning the interests of various stakeholders, which may not always coincide with organizational goals
3. **Sustaining Engagement:** Keeping community members motivated over time requires ongoing effort and innovative engagement strategies to prevent stagnation

The first thing any Open-Source community should focus on is to establish a solid foundation across below principles:

- Goal and values of the community
- Role definition and clarity
- Effective communication channels
- Continuous learning and Adaptation

Community Onboarding should be periodically conducted to cover following aspects:

- Open-Source Documentation
- Open-Source Design
- Open-Source Data Science
- Open-Source Marketing and Funding
- Open-Source Programs and Specialized Projects

Because the community is likely to be dispersed geographically, it can be hosted in an enabling environment such as:

Small / Informal Community	Large / Formal Community
WhatsApp	Slack
Telegram	Zulip

As the community grows bigger and larger, there can be consideration to expand to other regions to aid global collaboration and also bring new perspectives to the table.

Target Audience

This module is destined for community managers, project managers, communication departments etc

Role in Community	Description:
Software Engineers	A diverse audience in terms of gender, geography, seniority, and occupational status along with Community Managers who actively maintain or contribute to open-source software should be included. Community can be hosted in a university, with the end goal of spreading across to get the right audience and bringing together industry experts, in forming a bigger community and hosting conversations about the challenges and potential solutions to specific issues in the open-source space for each community member.
Data Analysts	
Program Managers	
Technical Writers	
Product Designers	
Developer Advocates	
Students	

Why a university?
Most students who are doing something in tech are either revolving around being a software engineer, a product designer, a technical writer, or even a program manager who is also running a community or two in the same university. We can also leverage existing communities in the school to get a wider audience and grow our open-source community

Acquired competencies:

In this module, the trainee will acquire the following competencies:

Competency	Description
Identify, build and grow the open-source community	This will involve understanding how to set up and grow an open-source community. This entails understanding who the audience is, how to attract them and how to keep them interested over time.
Managing open-source community over a project lifetime	This competency ensures that the community stays active. It entails establishing rules, resolving conflict, and keeping members engaged and motivated

Adoption of Tools	This will be about selecting and using the right tool to support the community operations. These can include community collaboration platforms, automation tools, communication tools, contribution / content management tools etc

Dependencies and Overlaps

1. Strategy: Community Management will have to be a consideration from start considering use of open source in public sector will require an active community
2. Requirements and Specifications: These will play a key role in ensuring Community can contributions effectively

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Organisational and Programmatic > Community Management	Understanding Community Development Principles Stakeholder Engagement Strategy	Training on Community Development | Devimpact Institute	Strategy / management (Community Management)	Paid Course
	Project Management for Community Development	PMP Certification for Project Managers in the Public Sector - Red Learning		Paid Course
	Benefits of Community Management Training for Public Sector Project Managers	New online course on effective community management is a simple guide for councillors and public | United Nations Development Programme		Content freely available, need to provide attributions

Reading / Reference Content

Organisational and Programmatic Category > Strategy

1. 3 ways every company can get started with an open-source software strategy - The GitHub Blog
2. How to launch an open source project
3. How to Develop an Open Source Strategy
4. Open source software strategy - European Commission
5. Setting an Open Source Strategy
6. Why You Need an Open Source Software Strategy | BCG
7. Open Source Guides

Organisational and Programmatic Category > Procurement and Legal

1. 2 Description | bb-consent
2. Responsible Data Management training pack - Oxfam Policy & Practice
3. Summary of Data Responsibility and Protection Principles for Clusters
4. Responsible Data Management
5. OpenProcurement
6. The Free-Libre / Open Source Software (FLOSS) License Slide
7. The General Data Protection Regulation and Open Source Software Communities
8. Free and open source software and technology for sustainable development /

Ecosystemic and Societal Category

After addressing organizational and programmatic components, broader ecosystemic and societal impacts of open-source and DPG initiatives should be considered. This category emphasizes the importance of fostering an inclusive and supportive environment that enables open-source solutions to thrive within society. Digital inclusion, resource mobilization, capacity building and considerations around digital governance and sovereignty play a crucial role in ensuring that the benefits of open-source initiatives are equitably distributed. By addressing these aspects, governments and institutions can create the necessary conditions for widespread adoption and support, allowing open-source solutions to not only be implemented but also to contribute positively to social development and digital empowerment.

CAPACITY BUILDING

Scope and Purpose

According to IBM and Red Hat, “Open source has become a movement and a way of working that reaches beyond software production. The open-source movement uses values and decentralised production model of open-source software to find new ways to solve problems in their communities and industries.” Additionally, the values of open source are peer-review, transparency, reliability, flexibility, lower cost, no vendor lock-in and open collaboration.

Any country which aspires to effectively implement an open-source policy and strategy needs to have a strong open-source ecosystem consisting of people, policies & strategies, processes, knowledge, technologies & solutions and all stakeholders including civil society. This ecosystem is generally within the government, the private sector, academia, open-source communities and society at large.

It is imperative that the country adopts a coherent Capacity Building strategy for these various categories of people in open-source-related skills and knowledge. Training courses can be technical in nature, but it is also important to focus on the legal aspects of adopting open-source solutions, the organisational framework to maximise success and all other types of educational activities.

An open-source capacity building initiative caters for people with no prior knowledge of open-source but also caters to re-skill and up-skill those with prior skills and knowledge.

The main objective of capacity building would be to ensure that a critical mass of knowledgeable and skilled people exist within the country to contribute to creating and maintaining a strong open-source ecosystem.

While it is possible to implement open-source solutions from scratch (i.e. by developing an open-source software), it is more effective to reuse existing open-source solutions (Digital Public Goods / DPG) which are proven. This also enables capacity development for handling these solutions. Various repositories of proven open-source solutions exist e.g. the Digital Public Goods Alliance (a UN-endorsed multi-stakeholder initiative with objective to "unlock the potential of open-source technologies for a more equitable world") and GovStack (with objective to "lead the world in establishing the global toolkit for the digitalization of public sector infrastructure"). These two repositories are linked as "GovStack is part of the Digital Public Goods Alliance Roadmap, supporting governments to have capacity to deploy, maintain and evolve DPGs for digital public infrastructure, and the development of a vibrant digital ecosystem".

When trying to deploy an existing proven open-source solutions within a country, Governments tend to face multiple issues. These include:

- A lack of technology professionals such as systems analysts, system designers and systems implementers. These profiles are scarce in many low-to-middle-income countries and, if they are available, tend to work in private structures (making them expensive to recruit in government). In some countries, not enough skilled technology professionals are available to constitute an ecosystem which is strong enough not only to support the implementation but also maintain DPGs. Sometimes, small prototypes

are developed but these can rarely be scaled and secured when needed. Additionally, existing training institutions, including universities, might not be providing appropriate courses to prepare the workforce to have the required skills.

- A lack of awareness of the benefits of DPGs exists in government especially at the level of decision makers. Technology decisions which may impact service delivery over many years might be done without consultation with end users, domain experts and technology experts, resulting in systems which are “easy” to procure (as this entails buying hardware, commercial software and maintenance services from well-known suppliers) but which rarely prove to be beneficial for users.
- A lack of regulations when it comes to procure products and services from an open-source ecosystem, compared to procurement activities when dealing with commercial companies. In some cases, existing regulations and practices will need to be changed. In some low-to-middle-income countries, a new legal framework will need to be established.
- A lack of understanding of the ethical aspects of computing such as data protection and privacy, citizen security and safety. Many technologically advanced countries have comprehensive regulations to protect their technology infrastructure and citizen data, but this might not yet be the case in some low-to-middle-income countries. Furthermore, online services tend to require datasets to work, and open-data can be very valuable.
- And, at the level of governance, a lack of best practices on how multiple agencies can collaborate to adopt existing DPGs and create new DPGs. In some cases, agencies operate at a level which limit their effectiveness for nationwide projects. For example, an agency operating under the aegis of a particular ministry may not have sufficient power to properly engage with other ministries which are higher in the hierarchy.

This framework therefore is trying to address these issues by providing for:

- A holistic approach to create an ecosystem strong enough to support DPGs in the country: training institutions and universities might need to upgrade their courses, open source communities need to be created or supported if they already exist (such as user groups, forums, etc.), governments need to recruit more technology professionals and, probably, recruit from abroad if the required people are not available locally but with a short/medium-term plan to develop local capacity, etc.
- Decision makers and procurement officials in government need to be sensitised on the benefits and innovative aspects of DPGs. In some cases, procurement processes will have to be enhanced. The important notion of copyright and of licensing costs need to be properly understood but it is also important that people be aware of infrastructure costs and the need for support during implementation and maintenance. In other words, governments will need to be comfortable in managing the risks of adopting DPGs, especially in many low-to-middle-income countries which do not have a lot of experience in technology projects.
- In some countries, new data protection, cybersecurity and cybercrime regulations might be required. Additional regulations to promote open-data at the level of government might also be needed. Mobile and web app developers, for example, would welcome data from the government (properly secured, sanitised and licensed) to create valuable technology solutions for citizens. This is one good way to bridge the digital divide. Additionally, with the emergence of technologies such as automation and artificial intelligence, ethics has gained in importance. Citizen participation in these

decisions might be encouraged by creating the appropriate forums for government and citizens to exchange views and opinions.

- Finally, concerning governance, the roles, responsibilities and reach of each collaborating Ministry or Agency need to be clearly defined as per best practices. It is also important to plan how the initiative and its governance structure will evolve over time

For the maximum effectiveness of Capacity building, different kinds of training can be envisioned, from purely technical skills such as Linux and programming, to more organisational training such as requirements gathering and the specification of software. Legal training can also be envisioned and may range from the licensing aspects of open-source software and digital public goods to procurement aspects, intellectual property ownership and privacy issues.

Target Audience

Role	Description
Technology Professionals (Systems Analysts, Designers, Implementers)	Capacity-building initiatives will focus on equipping these professionals with the necessary skills to implement, maintain, and scale open-source solutions within government sectors. This includes specialised training programs and certifications.
Decision Makers (Government Officials, Policy Makers)	Training for decision-makers will aim to provide insights into the strategic advantages of open-source solutions, successful case studies, and methodologies for incorporating user and expert consultations into decision-making processes.
Procurement Officers	Workshops and training sessions will be designed to familiarise procurement officers with the legal frameworks and regulatory changes needed to facilitate open-source procurement, including how to evaluate and select open-source vendors.
Legal and Regulatory Experts	Training for legal and regulatory experts will cover international standards and practices in data protection, privacy laws, and the development of regulations to safeguard technology infrastructure and citizen data in the context of open-source solutions.
Academic and Training Institutions	Engagements with academic institutions will

Role	Description
	focus on integrating open-source technology training into their curricula, creating certification programs, and fostering collaboration between academia, government, and the private sector.
Governance Bodies and Collaborative Agencies	Capacity-building for governance bodies will include training on governance models, collaborative frameworks, and strategies for fostering inter-agency cooperation to effectively adopt and sustain DPGs across multiple government ministries and departments.

Acquired Competencies

Competencies	Description
Leveraging Partnerships for Resource Mobilization	Participants will gain the ability to build and sustain strategic partnerships with key stakeholders such as private sector companies, NGOs, and academic institutions. These partnerships can help secure non-monetary resources, such as technical expertise, research collaboration, and infrastructure support, which are crucial for the development and maintenance of open-source initiatives.
Strategic Funding	Participants will develop the skills to identify, secure, and manage funding from diverse sources, including government budgets, international donors, public-private partnerships, and grants. This competency includes learning how to develop compelling project proposals and value cases for open-source initiatives, articulating their long-term benefits in terms of cost-efficiency, innovation, and sustainability.
Human Resource Planning and Allocation	This competency will equip learners with the knowledge to plan for and allocate the right human capital, including developers, project managers, and technical experts, to ensure the successful rollout and sustainability of open-source projects. It includes strategies for recruiting, training, and retaining talent in both government and external settings, ensuring that the project has the skills it needs to thrive.

Competencies	Description
Mobilizing In-Kind Contributions and Technical Expertise	Learners will acquire the competency to mobilize non-financial resources, such as technical expertise, software licenses, cloud credits, and access to specialized tools or data sets. They will also learn how to engage volunteers and foster community-driven contributions, which are often critical to the success of open-source initiatives, particularly in government settings where budgets may be constrained.
Maximizing Open-Source Resource Networks	Learners will acquire the ability to tap into global open-source resource networks to support their projects. This includes understanding how to leverage the global developer community, open-source foundations, and specialized platforms for additional resources like mentorship, software tools, and peer support. This competency is vital in helping governments scale their initiatives by utilizing existing open-source ecosystems.

Dependencies and Overlap

Module	Description
Community Management	The initial group of people to train might be identified from existing open-source communities, even if such communities are small. Furthermore, trainees might be the ones who help further develop the ecosystem and make it stronger and more resilient.
Digital Inclusion	Trained people can themselves become trainers in the long run and help increasing the level of digital literacy of the whole population at the grassroots level.
Requirement and Specifications	Existing staff will be trained in topics such as open-source requirement gathering and the specification of open-source solutions.
Procurement and Legal	Existing staff in procurement processes will be trained in topics such as open-source procurement practices and on adapting existing regulations.
Digital Governance and Sovereignty	A major objective of Capacity building is to ensure that a country is capable of developing and maintaining its own open-

Module	Description
	source infrastructure and, thereby, increase its resilience and sovereignty.
Strategy	Capacity building, with its focus on creating a strong ecosystem of problem solvers using open-source solutions, is an important strategic component for any country.

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Ecosystem and Societal > Capacity Building	Capacity Building	Building the Foundations: Strengthening Technical Capacity for Digital Public Infrastructure in Government – Artha Global UN/DESA Policy Brief #117: Building the capacities of public servants to implement the 2030 Agenda | Department of Economic and Social Affairs Open source in government: creating the conditions for success	Capacity Building	Content freely available, need to provide attributions
	Monitoring and Evaluation	Ten Steps to a Results-Based Monitoring and Evaluation System Monitoring and evaluation of open government strategies | Government at a Glance 2017 | OECD iLibrary Monitoring and Evaluation in the Development Sector - KPMG International Monitoring and Evaluation in Health Sector | NIHFW	Monitoring and Evaluation	

OSEE Framework	Activities	Training Content	User Group	Licensing
		Fundamentals of Monitoring, Evaluation and Learning		

DIGITAL INCLUSION

Scope and Purpose

Digital inclusion refers to the efforts and strategies aimed at ensuring equitable access to and effective use of digital technologies for all individuals and communities. This concept encompasses various elements necessary for full participation in modern society, particularly in social, economic, and educational contexts. It is based on a human first, multi stakeholder and whole-of-society approach, that seeks to eliminate structural and social inequalities with a view to advance the well-being of all members of society.

From the perspective of this framework, creating digital ecosystems that are inclusive for all - including women, elderly, individuals with disabilities and those in low-connectivity areas or with varying literacy levels - requires broad societal collaboration and intentional design.

According to the United Nations, Digital inclusion is defined as “equitable, meaningful, and safe access to use, lead, and design of digital technologies, services, and associated opportunities for everyone, everywhere”. UNDP further defines inclusive digital transformation as a thoughtfully designed and implemented change process that puts people at the centre of digital transformation to leave no one behind. It aims to build a more responsive, agile, transparent and accessible society that has four main characteristics: a) It addresses the needs of the most poor and vulnerable, including those not connected b) Mitigates the tendency of digital transformation to exacerbate existing inequalities c) Empowers underrepresented groups to take part in a meaningful way and d) Protects people from the adverse effects of digital technologies

To achieve digital inclusion, it is important to measure the extent to which digital projects or ecosystems are inclusive and to identify areas that require intervention. There exists an established criteria and tools for monitoring and evaluating the opportunity and barriers. The assessment criteria are aligned to the Sustainable Development Goals (SDGs) and the role of digital tools to accelerate the achievement of outcomes. Of particular interest is the role of digital public goods (DPGs) - open-source software, open data, open AI models, open standards and open content - in achieving inclusion through the SDGs. This framework seeks to deploy open-source tools to build inclusive digital ecosystems by addressing developing countries' needs and contributing to the advancement of the Sustainable Development Goals (SDGs). The deployment includes knowledge, skills, tools, content, platforms and community spaces for access to health, education and other digitally enabled services without discrimination.

At a country level, the general digital inclusion process begins with country assessments or analysis to identify opportunities and barriers to achieving an inclusive digital ecosystem. The baseline identified through the assessment will be later used in monitoring and evaluation of the strategy, policy, regulations, infrastructure and other interventions towards an inclusive digital ecosystem. The evaluation tools and interventions should regularly enable the inclusion of vulnerable persons including = elderly, those hindered by disability, poverty, rural and urban dwellers, migrants, refugees, youth, women and children. The need for continuous evaluation has resulted in the development of UNDP's Digital Readiness Assessments, GenderMag, SDG Impact Assessment Toolkits and Digital Inclusion Evaluation Toolkits, among other tools. There is a need for the deliberate application of these tools to open-source software initiatives.

Target Audience

This module is intended for all policy makers, regulators, open-source solutions designers, code contributors, community volunteers and project implementation teams. It is relevant to all other developers and users.

Role	Description
Community Leaders	The training should provide community leaders with the skills and knowledge to identify local digital inclusion barriers, mobilise resources, and engage community members in digital initiatives, ensuring broader participation and impact.
Vulnerable Groups Representatives	Empowered to participate in the development and implementation of digital inclusion strategies. They should learn how to engage in policy discussions and advocate for their needs in digital inclusion initiatives, ensuring that their perspectives are included in the decision-making process.
Policy Makers	Policy makers within governments should enhance their understanding of how to develop inclusive digital policies and strategies aligned with SDGs.
Non-Governmental Organisations (NGOs)	NGOs should understand and utilise digital tools and frameworks to support marginalised groups, ensuring that their initiatives align with and contribute to national digital inclusion strategies and the SDGs.
Civil Society Organizations (CSOs)	CSOs should gain insights into the use of digital inclusion evaluation tools and how to advocate for inclusive digital policies and practices that support vulnerable groups with leveraging open source for their needs.
Educational Institutions	Educational institutions will learn how to incorporate digital inclusion strategies into their programs, ensuring that students and community members are equipped with the skills and knowledge needed to participate in and benefit from the digital economy.

Acquired Competencies

Competencies	Description
Conducting Digital Inclusion Assessments	Participants will acquire the ability to perform comprehensive digital inclusion assessments at a country level to identify opportunities and barriers within the digital ecosystem. This competency includes understanding how to use tools such as the UNDP Digital Readiness Assessment and SDG Impact Assessment Toolkit to evaluate factors like infrastructure, access, and policy. The focus will be on assessing the inclusion of vulnerable populations, such as marginalized groups, rural communities, and people with disabilities.
Strategy and Policy Development for Digital Inclusion	Participants will learn to design, develop, and implement digital inclusion strategies and policies that align with national goals and international standards. This competency involves understanding how to craft strategies that foster equitable access to digital services and infrastructure for all, particularly marginalized groups. They will also learn how to ensure that policies are inclusive, sustainable, and able to adapt to evolving technological trends.
Designing Inclusive Open-Source Software Solutions	This competency focuses on equipping participants with the skills to design and promote open-source software initiatives that prioritize inclusivity. Learners will explore how to use open-source platforms to address barriers faced by vulnerable populations and how to apply tools to ensure that software solutions meet the diverse needs of all users.
Developing Multidisciplinary Approaches for Digital Inclusion	This competency involves understanding how to integrate diverse disciplines such as information and communication technology (ICT), public policy, law, and social sciences in developing holistic digital inclusion solutions. Participants will learn how to leverage cross-sectoral knowledge to address complex digital inclusion challenges in a comprehensive and effective manner.

Dependencies and Overlaps

This module addresses cross cutting issues of digital inclusion, and all is relevant to aspects of open-source projects ranging from Technical or design approaches to Organisational issues such as strategy and procurement to Eco-systemic issues of resource mobilisation and capacity building. It therefore overlaps with all other modules.

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Ecosystem and Societal > Digital Inclusion	Digital Inclusion - Accessibility	DIGITAL INCLUSION IN A DYNAMIC WORLD	Service Design	Content freely available, need to provide attributions
Ecosystem and Societal > Digital Inclusion	Digital Inclusion - Relevance and Digital Skills	Full article: Strengthening digital inclusion through e-government: cohesive ICT training programs to intensify digital competency	Service Design	Content freely available, need to provide attributions

DIGITAL GOVERNANCE AND SOVEREIGNTY

Scope and purpose

Sovereignty of a state in digital, cyber, space rests on the same foundations as the territorial sovereignty of a state: exercising supreme control over data and digital goods in public interests.

Civil rights and economic gains historically have been central to the definition of digital sovereignty, thus ensuring the democratic governance values drive the decisions concerning what data and technology to govern, who should govern what and who is responsible for the oversight.

Nowadays, there is an urgent call for expanding the scope of the digital sovereignty concept to reflect the degree of divergence among countries worldwide on the definition of digital sovereignty linked to the variability across governance models and secondly, to include countries with non-European governance models. In fact, “as of 2022, the organisation Varieties of Democracy (V-Dem) classified approximately 88 of the world's countries as autocracies, home to 70% of the world's population” (source: worldpopulationreview.com). High diversity across countries national agendas, e.g. citizens empowerment *versus* national security *versus* economic gains, have already resulted in complex, and often perceived as hard-to-sustain, international data and technology transfer agreements as well as fragmented, patchy, data protection.

According to Linux Foundation: “As a driver of digital sovereignty, OSS empowers governments to reduce dependencies, maintain control over processes, and foster a sustainable and inclusive digital infrastructure.”

Open source software holds unique potential to achieve true agility between stakeholders influencing the decisions on the national critical digital infrastructure (e.g. privatisation, control by national security, etc) and on the national data flow. Data protection and stability and traceability of the country's flow of data (e.g. organisational, consumer, health data) can gain significantly from the open-source infrastructure. OS architectures lay new foundations for consistent and streamlined national and international regulatory frameworks and oversight on data and technology transfer/trade, so that to empower citizens, focus on national priorities and ensure productive and transparent private-public cooperation.

The purpose of this module is to summarise the governance mechanisms which could be implemented or enhanced by the open-source software solutions and describe how those may ensure the state’s sovereignty in the digital space.

Target Audience

Role	Description
Policy Makers	Training will cover the development and implementation of policies that support digital sovereignty, the role of open-source software

Role	Description
	in national security, and best practices for governance mechanisms that ensure state control over digital infrastructure.
National Cybersecurity Council	The module will provide insights into how open-source technologies can be integrated into national security frameworks, improving risk assessment, crisis response, and the overall security posture of the state in the digital realm.
State Departments of Technology / Innovation and / or Commerce	The module will address how these departments can leverage open-source technologies to foster innovation, create conducive regulatory environments, and develop partnerships that support the state's digital sovereignty goals.
National Security Council	This training will focus on the adoption of open-source cybersecurity tools, frameworks for national cybersecurity strategies, and methods to enhance collaboration between different cybersecurity stakeholders to protect national digital sovereignty.
Government IT Departments	Training for IT departments could focus on technical skills for implementing and maintaining open-source software, ensuring secure operations, and contributing to the state's digital sovereignty through robust IT practices.
Academic and Research Institutions	Engagements will cover the theoretical and practical aspects of digital sovereignty, encouraging academic institutions to participate in research that supports the development and implementation of open-source solutions for national benefit.
Civil Society Organizations (CSOs)	Training will equip CSOs with the knowledge to advocate for digital sovereignty, collaborate with government and private sectors, and support the adoption of open-source solutions to enhance national digital governance.

Acquired Competencies

Competencies	Description
Digital Sovereignty and Policy Formulation	Stakeholders should develop the ability to draft and refine policies that align with the principles of digital sovereignty, balancing national priorities with the realities of global data flows and technological advancements. This competency requires an understanding of how open-source software can provide governments control over their critical infrastructure and how governance models can vary across countries. Participants should also be able to identify key policy gaps related to sovereignty and propose policies that ensure a country's control over its digital goods and data while engaging with international frameworks.
Oversight and Accountability in Open-Source Digital Governance	Participants should be equipped with skills to establish robust oversight mechanisms for open-source digital systems, ensuring transparency, accountability, and democratic governance values. This involves understanding who governs what within an open-source infrastructure, the roles of different stakeholders (government, private sector, civil society), and implementing effective checks and balances to oversee these processes. The emphasis will be on promoting governance models that support sovereignty while ensuring alignment with international standards and citizen empowerment.
Legal and Regulatory Frameworks for Sovereign Open-Source Software	Stakeholders will develop the ability to create or refine legal and regulatory frameworks that govern the use of open-source software within the context of national sovereignty. This includes examining existing regulations, determining necessary changes to protect digital sovereignty, and addressing challenges that arise from global and national data exchanges. The competency will emphasize building consistent, transparent legal structures that can integrate with international agreements while protecting national interests.
International Cooperation and Digital Sovereignty	This competency involves mastering the ability to navigate international data transfer agreements and collaboration efforts while safeguarding national sovereignty. Stakeholders will learn how to engage with international bodies, adapt open-source solutions to different governance models, and contribute to global digital frameworks that balance national interests with

Competencies	Description
	global cooperation. This includes the ability to critically assess the impact of international agreements on a nation's digital ecosystem and propose solutions that ensure continued control over data and technology flows.
Public-Private Partnerships and National Digital Ecosystems	Participants will learn how to establish effective public-private partnerships (PPPs) to foster the development of open-source digital ecosystems. This competency emphasizes the role of PPPs in building digital infrastructure that aligns with national interests, ensuring that private sector involvement in open-source projects supports public objectives such as transparency, accountability, and data control. The focus will be on encouraging sustainable collaboration models that respect sovereignty while enabling innovation and growth in the digital economy.

Dependencies and Overlaps

Module	Description
Strategy	an OSS strategy of an organisation would be created within the context of the country's approach to attain digital sovereignty, protect its digital and data assets and empower citizens.
Procurement and legal	Analysis of legal landscape, the standardisation of procurement procedures and further audits lay the foundation for coherent and transparent data and digital goods oversight. Not only ensuring that national citizens stay in control of their data, but also that national interests are at the centre in the cross-border technology and data transfer.
Requirement and specifications	Regulatory and compliance part of requirements and specifications would provide the ultimate link in continuous alignment with translation of governance norms into the technical processes and infrastructure design.
Digital inclusion	Digital inclusion is a practical endpoint for monitoring and evaluation of the progress

	towards digital sovereignty. For instance, failures in digital governance due to either gaps in digital/data oversight or policy shortcomings, may manifest in increased digital divide.
Capacity building	Building up OSS expertise within national multi-stakeholder policy making bodies with long-term focus on national civil interest is imperative for OSS-based implementation of digital governance and exercising digital sovereignty.

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Ecosystem and Societal > Digital Governance and Sovereignty	Digital Governance and Sovereignty	DPI-660: Digital Governance and Leadership in the Public Sector Data Sovereignty Seminar #2: Digital sovereignty in the new era of Internet Governance | BSoG Digital Governance and Sovereignty in a Fractured World: Competing States and Circulating Norms (DIGISOV) - Center for Internet and Society Digital Government Senior Leaders' Programme – Welcome to NeGD |	Strategy / Management	Paid Programs from various Govt / Academic sources

RESOURCE MOBILISATION

Scope and Purpose

Resource mobilisation is the process of enabling a project to have the necessary resources for rollout, maintenance, optimization and sustainability. In the realm of open-source initiatives, this can encompass a wide range of resources, including funding, human capital, technical expertise, and supportive infrastructure. Robust resource mobilisation is key to the long-term stability and effectiveness of any open-source project, especially when being deployed within the complexities of a government setting.

Open-source projects are the foundation of technological innovation. Historically, they've been the bedrock upon which countless software applications, frameworks, and platforms have emerged, driving progress across various industries. In recent years, governments around the world have started to recognize the potential of open-source technologies, not only in terms of cost savings but also as a means of fostering innovation. However, the success of these projects hinges on an often-overlooked aspect—effective resource mobilisation

This module aims to provide and in-depth overview on how to mobilise and secure resources such as (but not limited to) funds, human resources, licences, tools, cloud credits required for successful and sustainable open-source project rollouts.

Target Audience

Role	Description
Procurement Officers in Government Agencies	Procurement officers can gain the knowledge and skills to identify, evaluate, and procure robust, secure, and customizable open-source solutions (OSS) that meet the needs of their agencies while adhering to relevant regulations and policies.
Donor Agencies	Donor agencies can gain insights into the potential impact of their financial contributions, learn how to support OSS projects through one-time or recurring donations, and better understand the importance of funding open-source initiatives to drive digital transformation and innovation.
International Development Institutions	Teams at international development institutions can build capacity to spearhead and coordinate international efforts to develop, implement, and sustain OSS projects, fostering collaboration and resource-sharing among countries and organisations.
Billing Managers in Open-Source	Billing managers can learn best practices for

Role	Description
Communities	managing finances within OSS communities, ensuring that resources are allocated efficiently and sustainably to support ongoing development and maintenance of open-source technologies.
Fundraisers in Technology Innovation Agencies	Fundraisers can learn new techniques and approaches to secure funding from forward-thinking companies and individuals dedicated to driving digital transformation within public services through open-source solutions.
Budgetary Policy Makers	Budgetary policy makers can gain a comprehensive understanding of the benefits and challenges of OSS adoption, enabling them to develop and implement policies that support the integration of open-source software into government operations and ensure adequate budget allocation for OSS projects.

By identifying and engaging these varied stakeholders, the resource mobilisation strategy can tap into a wide range of financial, material, and social capital to sustain and expand the impact of OSS rollouts.

Acquired Competencies

What is Resource Mobilisation

Resource mobilisation is the process of enabling a project to have the necessary resources for rollout, maintenance, optimization and sustainability. In the realm of open source initiatives, this can encompass a wide range of resources, including funding, human capital, technical expertise, and supportive infrastructure. Robust resource mobilisation is key to the long-term stability and effectiveness of any open source project, especially when being deployed within the complexities of a government setting.

Resource Mobilization Strategies

Partnering with Tech Giants

The private sector, particularly technology powerhouses, have financial muscle along with innovative prowess to uplift government projects. By aligning with corporate social responsibility mandates, governments can access cutting-edge tools and resources without bearing the heavy cost.

Such partnerships can also ensure the following:

- **Access to Cutting-edge Resources**: Tech giants can offer cloud services, software tools, and expertise that can significantly leverage the development and scalability of the
- **Visibility and Credibility**: Collaborating with established companies enhances the project's reputation, drawing in further interest and investment.

Public-Private Partnerships

Public-Private Partnerships (PPPs) have long been hailed as a means to combat underfunding while simultaneously fostering a collaborative spirit between the public and private sectors. The model remains relevant today, particularly in digital initiatives where expertise is as invaluable as the investment.

Things to consider when partnering with private sectors:

When considering a partnership with a private sector tech company for digital public goods, there are several key factors to consider:

1. Mission and objectives Alignment
    a. Shared vision: Ensure that the company's mission, values, and objectives are well-aligned with the public good you are trying to achieve. This alignment is crucial to ensuring a successful and productive partnership
    b. Discuss and agree on the specific goals and outcomes you hope to achieve through the partnership. Clearly define the expected deliverables, timelines, and success metrics
    c. Understand the company's motivations and incentives for partnering. Ensure that their interests are not solely driven by profit or commercial gain, but also by a genuine commitment to the public good
    d. Complementary strengths: What expertise and resources can the company bring to the table? How do they complement your government's strengths and address weaknesses?
2. Agreeable Project Terms
    a. Negotiate the terms of the partnership, including the financial and resource commitments from both parties, as well as the respective roles and responsibilities
    b. Establish clear and transparent governance structures, decision-making processes, and communication channels to ensure effective collaboration
    c. Agree on intellectual property (IP) rights and data ownership, ensuring that the public good and its users' interests are protected
    d. Consider the sustainability of the partnership, including plans for long-term funding and maintenance of the digital public good
    e. What are the financial terms of the partnership? How will ongoing maintenance and support be funded?
3. Exit Plans
    a. Develop a clear exit plan that outlines the conditions and process for terminating the partnership, should it become necessary
    b. Ensure that the digital public good can continue to be maintained and developed even after the partnership ends, without significant disruption to its users
    c. Establish a plan for the transfer of knowledge, data, and resources to ensure the sustainability of the digital public good in the long term

    d. Consider the potential impact on the users and stakeholders of the digital public good in the event of a partnership termination, and plan accordingly
4. Stakeholder Engagement
    a. Engage with key stakeholders, including the intended beneficiaries of the digital public good, to understand their needs, concerns, and expectations
    b. Ensure that the partnership aligns with the broader ecosystem of digital public goods and initiatives, and that it complements rather than competes with existing efforts
    c. Maintain transparency and regular communication with stakeholders throughout the partnership to build trust and address any concerns that may arise
5. Monitoring and Evaluation
    a. Establish robust monitoring and evaluation frameworks to track the performance and impact of the partnership over time
    b. Regularly review and assess the partnership's progress, making adjustments as needed to ensure that the desired outcomes are being achieved
    c. Capture and share lessons learned and best practices to inform future partnerships and the broader digital public goods ecosystem

By carefully considering these factors, you can increase the likelihood of a successful and impactful partnership with a private sector tech company for digital public goods, while ensuring the long-term sustainability and public good orientation of the initiative.

Community Outreach

Here are some effective strategies to mobilise resources through community outreach for the rollout of digital public goods in countries:

1. Crowdfunding Campaigns
    a. Leverage crowdfunding platforms to raise funds from the community for specific digital public good initiatives
    b. Create compelling campaigns highlighting the benefits and impact, and offer incentives or rewards for contributors
    c. Promote through community networks, social media, and local influencers
2. Community Challenges and Hackathons
    a. Organise community challenges or hackathons focused on developing solutions or prototypes for digital public goods
    b. Offer prizes or recognition to incentivize participation and tap into the collective knowledge and skills of the community
    c. Engage with local tech communities, universities, and innovation hubs to attract talent and resources
3. Community Skill-Sharing and Volunteer Programs
    a. Establish skill-sharing and volunteer programs where community members can contribute their time, expertise, and labour to support the implementation of digital public goods
    b. Identify specific areas where volunteer contributions can be valuable, such as user testing, content creation, translation, or community training
    c. Provide recognition, incentives, and a positive volunteer experience to encourage long-term engagement
4. Community-Led Resource Mapping

    a. Facilitate community-led resource mapping exercises to identify local assets, infrastructure, and resources that can be leveraged for digital public good initiatives
    b. This can include identifying existing community centres, Wi-Fi hotspots, or underutilised facilities that can be repurposed or shared
5. Public-Private-Community Partnerships
    a. Foster partnerships between the government, private sector organisations, and community groups to pool resources and co-invest in digital public good initiatives
    b. Engage local businesses, NGOs, and community organisations to contribute funding, in-kind support, or shared resources
6. Community Ownership Models
    a. Explore models that enable community ownership and management of digital public goods, such as community-owned infrastructure or community-led maintenance programs
    b. This sense of ownership can encourage resource contributions and long-term sustainability from the community
7. Community Innovation Funds
    a. Establish community innovation funds where community members can contribute financial resources or in-kind support for piloting and scaling innovative digital public good solutions
    b. Ensure transparent governance and community involvement in decision-making processes for fund allocation
8. Digital Skills Training and Capacity Building
    a. Offer digital skills training and capacity-building programs to empower community members with the knowledge and skills needed to contribute to and support digital public goods
    b. Partner with local educational institutions, community centres, or online learning platforms for delivery
9. Community Data Collection and Mapping
    a. Engage community members in data collection and mapping efforts to build local datasets and knowledge repositories that can inform the design and implementation of digital public goods
    b. Leverage local expertise, crowdsourcing techniques, and participatory mapping tools
10. Community Feedback and Co-Creation
    a. Implement mechanisms for continuous community feedback and co-creation throughout the development and rollout of digital public goods

This collaborative approach can foster a sense of ownership, identify resource gaps, and mobilise community support and contributions.

Resource Mobilisation considerations by funding levels

No or Low funding

When you have no or very low funding for digital public goods, there are several key resource mobilisation considerations to keep in mind:

1. Leveraging In-Kind Contributions

   a. Focus on securing in-kind contributions, such as volunteer time, equipment/hardware donations, free or discounted software/services, and expertise from community members and partners
   b. This can help you stretch limited financial resources and build a sustainable foundation for the project
2. Crowdsourcing and Micro funding:
   a. Explore crowdsourcing platforms or micro funding approaches to tap into small, individual contributions from a large number of supporters
   b. This can help generate some initial funding to cover essential expenses, while also building a community of engaged supporters
3. Partnerships and Collaborative Efforts
   a. Identify and cultivate partnerships with other organisations, community groups, or government entities that share your mission and vision
   b. Collaborate on joint initiatives, resource sharing, or co-development to leverage each other's strengths and reduce the burden on any single entity
4. Volunteer Recruitment and Management
   a. Actively recruit and manage a dedicated team of volunteers who can contribute their time, skills, and networks to the digital public goods project
   b. Provide clear guidance, training, and recognition to ensure volunteers stay engaged and motivated
5. Leveraging Open-Source and Free Resources
   a. Maximise the use of open-source software, tools, and resources to minimise costs and dependencies on proprietary solutions
   b. Explore free or low-cost hosting, storage, and infrastructure services that can support the digital public goods
6. Phased Development and Prioritization
   a. Break down the development of the digital public goods into smaller, more manageable phases that can be achieved with limited resources
   b. Prioritise the most essential features and functionalities that provide the greatest value to the target community
7. Grant and Funding Opportunities
   a. Research and apply for grants, fellowships, or funding opportunities specifically designed to support digital public goods and open-source initiatives
   b. Keep an eye out for relevant calls for proposals or funding programs that align with your project's goals and objectives
8. Advocacy and Awareness-Building
   a. Invest in building awareness, advocating for the importance of digital public goods, and engaging with policymakers and influential stakeholders
   b. This can help create an enabling environment and potentially unlock future funding or resource opportunities
9. Community Engagement and Ownership
   a. Actively engage with the target community to foster a sense of ownership and investment in the digital public goods
   b. Encourage community members to contribute their time, skills, and resources to the project, which can help sustain it over the long term
10. Exploring Diverse Revenue Streams

   a. Investigate alternative revenue models, such as sponsorships, in-app purchases, or premium features, that can generate some income to support the digital public goods
   b. However, be mindful of maintaining the public good nature of the project and ensuring accessibility for all.

By strategically leveraging these resource mobilisation considerations, even with limited or no initial funding, you can build a solid foundation for your digital public goods project and gradually scale up your efforts as you gain more support and resources from the community and various stakeholders.

Partial Funding
When there is only partial funding for digital public goods from governments, there are several key resource mobilisation considerations to keep in mind:

1. Prioritise and Phase Development
   a. Carefully prioritise the most critical features and functionalities of the digital public goods based on the government's funding constraints and the community's needs
   b. Develop the digital public goods in manageable phases, focusing on the highest-impact components first and building upon them incrementally as more resources become available
2. Leverage Co-Funding and Partnerships
   a. Explore opportunities to co-fund the digital public goods development with other government agencies, local authorities, or even private sector partners who share a vested interest in the project
   b. Collaborate on joint initiatives, resource sharing, or co-development to spread the financial burden and tap into a broader pool of resources
3. Crowdsourcing and Community Engagement
   a. Engage the community actively in the development and ongoing improvement of the digital public goods
   b. Crowdsource ideas, feedback, and even financial contributions from community members, local organisations, and other stakeholders to supplement the government's funding
   c. This can help build a sense of ownership and investment in the project
4. Advocate for Increased Funding
   a. Continuously advocate for increased government funding for the digital public goods, highlighting their strategic importance, the return on investment, and the potential for broader societal impact
   b. Leverage data, user testimonials, and success stories to make a compelling case for increased and sustained funding
5. Explore sustainable Revenue Models
   a. Investigate alternative revenue models, such as premium features, data-driven services, or even licensing the technology to other government agencies or private entities
   b. However, ensure that these revenue models do not compromise the core principles of the digital public goods, such as accessibility and equitable distribution of benefits
6. Optimise Resource Utilisation

   a. Carefully manage and optimise the use of available resources, leveraging open-source technologies, cloud-based services, and cost-effective solutions to stretch the limited funding as much as possible
   b. Continuously review and refine the project's budget and resource allocation to ensure maximum efficiency
7. Attract and Retain Talent
   a. Develop strategies to attract and retain skilled professionals, such as offering competitive compensation, flexible work arrangements, or opportunities for professional development
   b. Leverage government employee benefits, training programs, or partnerships with educational institutions to build a dedicated and capable team
8. Establish Governance Accountability
   a. Implement robust governance structures, financial controls, and transparent reporting mechanisms to ensure the responsible and effective use of the limited funding
   b. This can help build trust with the government, the community, and other stakeholders, making it easier to secure additional resources in the future
9. Leverage International and Multilateral Funding
   a. Explore funding opportunities from international development organisations, multilateral agencies, or global initiatives that support the development of digital public goods
   b. Align the digital public goods with the priorities and objectives of these funding sources to increase the chances of securing additional resources
10. Cultivate a Supportive Ecosystem
   a. Engage with other government agencies, civil society organisations, and private sector entities to build a supportive ecosystem around the digital public goods
   b. This can lead to resource-sharing, knowledge exchange, and potential collaborations that can amplify the impact of the limited funding.

By strategically addressing these resource mobilisation considerations, governments can maximise the impact of their partial funding for digital public goods, while laying the groundwork for long-term sustainability and growth

Fully funded
When there is sufficient funding for digital public goods at the country level, there are several key resources mobilisation considerations to keep in mind:

1. Comprehensive Planning and Budgeting
   a. Develop a comprehensive, long-term strategic plan that outlines the goals, priorities, and resource requirements for the digital public goods initiative
   b. Ensure that the budgeting process is thorough, transparent, and aligned with the strategic plan to enable efficient resource allocation
2. Diversifying Funding Sources
   a. Explore a mix of funding sources, such as government budgets, international development aid, public-private partnerships, and innovative financing mechanisms
   b. This can help create a more sustainable and resilient funding model, reducing reliance on a single source of funding

3. Talent Attraction and Retention
    a. Invest in building a talented and multidisciplinary team to drive the development, deployment, and maintenance of the digital public goods
    b. Offer competitive compensation, professional development opportunities, and a supportive work environment to attract and retain top-quality talent
4. Infrastructure and Technological Investments
    a. Allocate sufficient resources to develop robust and scalable technological infrastructure, including hardware, software, data centres, and connectivity solutions
    b. Ensure that the digital public goods are built on a solid technological foundation that can support long-term growth and user demands
5. Capacity Building and Training
    a. Invest in capacity-building initiatives to train government officials, civil society organisations, and local communities on the effective use and maintenance of digital public goods
    b. This can help ensure the sustainability of the project and maximise the impact of the available resources
6. Monitoring, Evaluation, and Continuous Improvement
    a. Establish comprehensive monitoring and evaluation frameworks to track the performance, usage, and impact of the digital public goods
    b. Use the insights gained to continuously improve the products, services, and resource allocation strategies, ensuring the optimal use of available funds
7. Governance and Institutional Strengthening
    a. Develop robust governance structures, policies, and processes to ensure the effective and transparent management of the digital public goods
    b. Strengthen institutional capacity and coordination mechanisms across relevant government agencies and stakeholders
8. Ecosystem Development and Partnerships
    a. Foster a conducive ecosystem by engaging with a wide range of stakeholders, including private sector, civil society, academia, and international organisations
    b. Cultivate strategic partnerships to leverage complementary resources, expertise, and networks, amplifying the impact of the digital public goods
9. Advocacy and Knowledge Sharing
    a. Invest in advocacy efforts to raise awareness, showcase the benefits, and secure continued political and public support for the digital public goods
    b. Participate in knowledge-sharing platforms, conferences, and communities to exchange best practices, lessons learned, and innovations with other countries and stakeholders
10. Sustainability and Scalability Planning
    a. Develop comprehensive strategies for the long-term sustainability and scalability of the digital public goods, ensuring that they can adapt to evolving needs and continue to provide value over time
    b. Consider factors such as financial sustainability, technological resilience, and institutional capacity-building to future-proof the initiative.

By addressing these resource mobilisation considerations, countries with sufficient funding can strategically deploy and manage their resources to maximise the impact and long-term sustainability of their digital public goods initiatives.

Resource mobilisation considerations by Ownership

Owned by Government

When digital public good projects are owned by the government, there are several key resource mobilisation considerations to keep in mind:

1. Alignment with Government Priorities
    a. Ensure that the digital public goods project is closely aligned with the government's strategic priorities, policies, and development plans
    b. This alignment can help secure sustained funding and support from the government's budget and decision-makers
2. Institutional Arrangements and governance:
    a. Establish clear institutional arrangements, roles, and responsibilities for the development, deployment, and management of the digital public goods
    b. Implement robust governance structures, with appropriate oversight, accountability mechanisms, and decision-making processes
3. Stakeholder Engagement and Partnerships
    a. Actively engage with a wide range of stakeholders, including other government agencies, civil society organisations, the private sector, and international partners
    b. Cultivate partnerships to leverage complementary resources, expertise, and networks, and to ensure the digital public goods meet the needs of diverse users
4. Budgeting and Financial Management
    a. Establish comprehensive budgeting and financial management processes to ensure the efficient and transparent allocation of resources
    b. Explore innovative financing mechanisms, such as public-private partnerships, blended finance, or revenue-generating models, to supplement government funding
5. Talent Attraction and Capacity Building
    a. Develop strategies to attract, retain, and develop the necessary technical and managerial expertise within the government to oversee the digital public goods project
    b. Invest in capacity-building initiatives to equip government officials with the skills and knowledge to effectively manage and maintain the digital public goods
6. Scalability and Sustainability
    a. Design the digital public goods with scalability and sustainability in mind, ensuring that they can adapt to growing user demands and evolving needs over time
    b. Incorporate strategies for technological resilience, continuous improvement, and long-term financial planning to ensure the sustained availability and impact of the digital public goods
7. Monitoring, Evaluation, and Continuous Improvement
    a. Establish robust monitoring and evaluation frameworks to track the performance, usage, and impact of the digital public goods
    b. Use the insights gained to continuously improve the products, services, and resource allocation strategies, ensuring the optimal use of available funds
8. Legal and Regulatory Frameworks
    a. Ensure that the legal and regulatory environment supports the development, deployment, and use of the digital public goods

    b. Address any legal or policy barriers that may hinder the effective mobilisation and utilisation of resources
9. Advocacy and Public Awareness
    a. Invest in advocating for the importance and benefits of the digital public goods, both within the government and with the general public
    b. Raise awareness and garner support to maintain political will and secure sustained funding and resources
10. International Cooperation and Knowledge Sharing
    a. Engage with international organisations, development partners, and other countries to share knowledge, best practices, and lessons learned
    b. Explore opportunities for collaborative initiatives, resource sharing, and joint funding mechanisms to leverage global expertise and resources.

By addressing these resource mobilisation considerations, government-owned digital public good projects can effectively mobilise and manage resources to ensure the long-term sustainability, scalability, and impact of these critical initiatives.

Owned by an organisation
When a digital public goods rollout project is owned by a private organisation, there are some additional considerations for resource mobilisation:

1. Business model and revenue streams
    a. Private organisations often need to develop sustainable business models and revenue streams to support digital public goods initiatives
    b. Explore monetization strategies such as subscription models, usage-based pricing, or value-added services, while ensuring accessibility and affordability for target beneficiaries
2. Corporate social responsibility (CSR) and impact investing
    a. Leverage CSR initiatives and impact investing opportunities to secure funding or support from corporations and investors interested in social or developmental impact
    b. Allocate resources for impact measurement, reporting, and communication to demonstrate the value and impact of digital public goods initiatives
3. Public-Private partnership (PPPs)
    a. Pursue PPP models, where private organisations collaborate with governments or international organisations to co-finance and co-implement digital public goods projects
    b. Budget for partnership development, contract negotiation, and ongoing coordination efforts
4. Intellectual property (IP) management
    a. Develop clear IP strategies and allocate resources for legal and licensing considerations, particularly if the digital public goods involve proprietary technologies or solutions
    b. Explore open-source models, creative commons licensing, or technology transfer mechanisms to balance IP protection and public accessibility
5. Marketing and customer acquisition
    a. Allocate resources for marketing campaigns, user acquisition strategies, and customer support services to drive adoption and ensure effective utilisation of digital public goods

   b. Leverage existing customer bases, ecosystems, or distribution channels within the private organisation's domain
6. Scalability and infrastructure
   a. Private organisations may need to invest in scalable infrastructure, cloud services, or hosting solutions to support the widespread deployment and usage of digital public goods
   b. Budget for infrastructure assessments, capacity planning, and ongoing maintenance and upgrades
7. Talent acquisition and retention
   a. Secure resources for attracting and retaining skilled talent in areas such as product development, user experience design, data analytics, and technical support
   b. Offer competitive compensation packages, professional development opportunities, and incentives to build and sustain high-performing teams
8. Agility and Innovation
   a. Allocate resources for continuous innovation, research and development, and experimentation to iteratively improve and adapt digital public goods to evolving user needs and technological advancements
   b. Foster a culture of agility, rapid prototyping, and data-driven decision-making within the organisation.

While private organisations may have access to different funding sources and revenue models, they still need to balance financial sustainability with social impact objectives. Effective resource mobilisation involves diversifying funding streams, forming strategic partnerships, and continuously demonstrating the value and impact of digital public goods initiatives to various stakeholders.

Informally Owned by an Organization

When a digital public goods rollout project is informally owned or driven by an organisation, there are some unique resource mobilisation considerations:

1. Legitimacy and credibility
   a. Informal organisations may lack formal legal status or recognition, which can pose challenges in securing funding from traditional sources like governments, donors, or investors
   b. Allocate resources to build credibility, establish a strong track record, and demonstrate the organisation's capability and commitment to delivering on the digital public goods initiative
2. Governance and accountability
   a. Develop a robust governance structure, with clearly defined roles, responsibilities, and decision-making processes, to instil confidence in stakeholders and potential funders
   b. Implement transparent financial management practices, regular audits, and reporting mechanisms to ensure accountability and responsible use of mobilised resources
3. Community engagement and grassroots support
   a. Informal organisations often rely heavily on community support, volunteers, and local networks

   b. Allocate resources for community outreach, awareness campaigns, and capacity-building initiatives to foster buy-in, ownership, and sustained engagement from local communities
4. Partnership building
   a. Explore partnerships with established organisations, academic institutions, or private sector entities that can provide legitimacy, technical expertise, or co-financing opportunities
   b. Allocate resources for partnership development, collaboration agreements, and ongoing coordination efforts
5. Crowdfunding and alternative financing
   a. Leverage crowdfunding platforms, social impact bonds, or other alternative financing mechanisms to raise funds from diverse sources, including individual donors, philanthropy, or impact investors
   b. Budget for crowdfunding campaign development, marketing, and reward/incentive management
6. In-kind contributions and resource pooling
   a. Identify opportunities to mobilise in-kind resources, such as donated equipment, volunteer labour, or shared infrastructure, to supplement financial resources
   b. Explore resource-pooling arrangements with other organisations or initiatives working towards similar goals
7. Advocacy and policy influence
   a. Allocate resources for advocacy efforts, policy analysis, and stakeholder engagement to create an enabling environment for digital public goods adoption and sustainability
   b. Build relationships with policymakers, regulators, and influential stakeholders to gain support and remove potential barriers
8. Monitoring, evaluation, and continuous improvements
   a. Implement rigorous monitoring and evaluation frameworks to measure the impact, identify challenges, and continuously improve the digital public goods initiative
   b. Use data-driven insights to demonstrate the value proposition, attract further support, and refine resource allocation strategies.

While informal organisations may face challenges in securing traditional funding sources, they can leverage their grassroots connections, community-driven approach, and agility to mobilise resources creatively. Building trust, demonstrating impact, and forming strategic partnerships are crucial for sustaining digital public goods initiatives over the long term

Resource Mobilisation considerations by Governance structure

Resource mobilisation considerations for digital public goods rollouts can vary based on the governance structure, whether it is external, internal, or informal. Here are some key considerations for each governance scenario:

1. Conduct a needs assessment and gap analysis
   a. Identify the specific digital public goods required for various sectors (e.g., health, education, agriculture, etc.)
   b. Assess the existing digital infrastructure, systems, and capabilities within the government.

    c. Determine the gaps and requirements for successful implementation of digital public goods
2. Estimate implementation costs
    a. Hardware and infrastructure costs (servers, networks, data centres, etc.)
    b. Software and licensing costs for digital public goods and related applications
    c. Integration and customization costs to adapt digital public goods to local contexts
    d. Training and capacity building costs for government staff and end-users
    e. Costs for data digitization, migration, and management
    f. Costs for pilot projects or phased rollouts
3. Calculate ongoing operational and maintenance costs
    a. Hosting and cloud services costs
    b. Software updates, upgrades, and support costs
    c. Technical support and helpdesk costs
    d. Internet and connectivity costs
    e. Costs for monitoring, evaluation, and continuous improvement
4. Consider human resource costs
    a. Salaries and benefits for dedicated project teams, technical staff, and support personnel
    b. Costs for external consultants or experts, if needed
5. Factor in contingency and risk mitigation costs
    a. Buffer for unforeseen expenses, delays, or changes in scope
    b. Costs for risk mitigation strategies (e.g., cybersecurity, data backup, disaster recovery)
6. Explore potential funding sources
    a. Allocations from relevant government ministries or departments
    b. Contributions from international organisations, donors, or development partners
    c. Public-private partnerships or private sector investments
    d. Opportunities for cost-sharing or co-financing with other governments or entities
7. Develop a multi-year budget plan:
    a. Break down the costs into annual or multi-year phases, considering the phased implementation approach
    b. Account for inflation, currency fluctuations, and potential cost escalations
8. Engage stakeholders and seek approvals
    a. Consult with relevant government agencies, ministries, and stakeholders
    b. Obtain necessary approvals and secure funding commitments
9. Monitor and adjust
    a. Regularly review and update the budget based on actual expenditures, changes in requirements, or external factors
    b. Incorporate lessons learned and best practices from ongoing implementations.

It's crucial to involve subject matter experts, financial analysts, and stakeholders from various domains (technical, legal, procurement, etc.) to ensure accurate and comprehensive budgeting. Additionally, aligning the budgeting process with the government's overall digital transformation strategy and national development goals is essential for effective resource mobilisation.

Contingency management guidelines

Contingency management for resource mobilisation is crucial to ensure the successful rollout and long-term sustainability of digital public goods initiatives in countries. Here are some guidelines for effective contingency management:

1. Risk identification and Assessment:
    a. Conduct a comprehensive risk assessment to identify potential risks that could impact resource mobilisation efforts, such as funding shortfalls, changes in political priorities, economic instability, or natural disasters
    b. Prioritise risks based on their likelihood and potential impact on the project
2. Contingency planning
    a. Develop contingency plans to address identified risks and outline specific actions to be taken in response to various scenarios
    b. Plans should cover alternative funding sources, resource reallocation strategies, project scope adjustments, and fallback options
3. Financial Contingency Reserves
    a. Allocate a dedicated financial contingency reserve within the project budget to address unforeseen expenses or funding gaps
    b. Establish clear guidelines for accessing and replenishing the contingency reserve, ensuring transparency and accountability
4. Resource Diversification
    a. Diversify funding sources by engaging with multiple stakeholders, including governments, international organisations, private sector entities, and philanthropic organisations
    b. Explore alternative financing mechanisms, such as crowdfunding, impact investing, or public-private partnerships
5. Stakeholder Engagement and Communication
    a. Maintain open communication channels with key stakeholders, including funders, partners, and beneficiaries, to manage expectations and address concerns regarding resource availability
    b. Develop a clear communication plan to inform stakeholders about contingency measures and ensure transparency
6. Adaptive Project Management
    a. Implement an adaptive project management approach that allows for flexibility and agility in decision-making and resource allocation
    b. Regularly review and adjust project plans, timelines, and resource requirements based on changing conditions or resource availability
7. Resource Pooling and Partnerships
    a. Explore resource-sharing arrangements or partnerships with other organisations, governments, or private sector entities to mitigate the impact of resource losses
    b. Participate in regional or global networks focused on digital public goods to facilitate knowledge exchange and resource collaboration
8. Capacity Building and Knowledge transfer
    a. Invest in comprehensive capacity-building programs and knowledge transfer initiatives to develop a pool of skilled personnel who can step in if there is resource attrition
    b. Document processes, procedures, and best practices to ensure continuity and institutional memory

9. Monitoring and Evaluation
    a. Implement robust monitoring and evaluation mechanisms to track resource utilisation, identify potential risks, and make informed decisions for resource reallocation or contingency activation
    b. Regularly review and update contingency plans based on lessons learned and changing project requirements
10. Exist strategies and Sustainability Planning
    a. Develop exit strategies and sustainability plans that outline how digital public goods will be transitioned to local ownership or alternative funding sources if resources become unavailable
    b. Ensure knowledge transfer and capacity building for local stakeholders to maintain and sustain the digital public goods.

By proactively implementing these contingency management guidelines, countries and organisations can enhance the resilience of their resource mobilisation efforts, mitigate risks, and ensure the continuity and sustainability of digital public goods initiatives, even in the face of resource constraints or unexpected challenges.

Dependencies and overlaps

This module overlaps with the Capacity Building category. See the Capacity Building category for more details on technical and human resource mobilisation aspects

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Ecosystem and Societal > Resource Mobilisation	Resource Mobilisation / Funding	Summary of Resource Mobilization e-Course PARTNERSHIPS AND RESOURCE MOBILIZATION FOR DEVELOPMENT PROFESSIONALS Partnerships, Financing and Resource Mobilization for Sustainable Development | UNSSC | United Nations System Staff College	Fundraising	Paid Courses from UN Ecosystem

Reading / Reference Content

1. Guidelines for creating sustainable open source communities | Interoperable Europe Portal
2. Monitoring and evaluation of open government strategies | Government at a Glance 2017 | OECD iLibrary
3. Key Insights from "The European Public Sector Open Source Opportunity"
4. How Cities can benefit from the Use of Open Source Technology? | United Nations Development Programme
5. 5. National Cybersecurity Strategy Good Practice - NCS guide

Technical Category

Once organizational frameworks and societal support mechanisms are in place, the technical aspects of implementing open-source solutions become a key focus. This category covers the practical requirements for successfully deploying and sustaining open-source technologies, including interoperability standards, technical infrastructure, software development, and data management. By addressing the technical considerations, governments and institutions can ensure that open-source solutions are robust, secure, and adaptable to changing needs. Moreover, attention to technical details supports the long-term sustainability of digital public goods and their ability to be continuously improved and adapted through open-source principles. The technical category, therefore, represents the final but crucial step in building a comprehensive, end-to-end approach to implementing and sustaining open-source solutions.

[Technical category to be completed]

Examples of Training Materials

OSEE Framework	Activities	Training Content	User Group	Licensing
Technical > Technology Basics	Fundamentals of Open Source	Fundamentals of Open Source IT and Cloud Computing (LFS200) Tools for Managing Open Source Programs Open Source Management Fundamentals - FOSSA Building an Open Source Program Office (OSPO) - FOSSA How to create an open source program office Introduction to Open Source for Nonprofits and Social Sector Organizations Report: Public Sector Open Source Program Offices - Archetypes for how to Grow (Common) Institutional Capabilities - Virtual Home of Johan Linåker	Strategy / Management	Open Source

Reading / Reference Content

- Open cloud infrastructure
- Data lifecycle
- Data quality
- Encryption
- Data hosting
- Anonymization
- Privacy
- Security
- DevOps
- Sandbox / demo environments
- Analytics
- Code quality
- Code re-use
- Staff upskilling
- Documentation and user manuals
- Implementation
- Maintenance
- Change management