

# **(Penultimate) Final DRAFT POLICY on the use of Free and Open Source Software within the Public Sector in Guyana**

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**This version of the policy document includes the feedback which was received during the consultation period and the validation forum. This document has been submitted to the eGov Agency for further refinement before the final adoption. This version of the document is shared for information purposes.**

# 1. Purpose of Policy

The Government of Guyana recognises that the appropriate use of Free and Open Source Software (FOSS) has the potential to enhance the business value of Information and Communication Technologies (ICT) used in the delivery of government services. This policy is aligned with the objective of transforming the delivery of ICT based Government services to citizens to achieve Governments overall vision for eGovernment of equitable digital citizenship

The purpose of this policy is to state the direction for the public sector so as to leverage the potential benefits of the adoption of FOSS . A strategic plan will be devised to implement parts of this policy.

**(This document is the final output of consultations with stakeholders. It is named as Final draft since it has to be submitted for approval before it can be viewed as Final)**

## Justification

The Government has noted that there are potential benefits to the adoption of FOSS in some sectors, and that the adoption of FOSS is limited by several challenges.

The 2006 National ICT Strategy of Guyana made reference to the use of open source software.

In 2013, UNESCO concluded a study “*The Free and Open Source Software, Open Data, and Open Standards in the Caribbean: Situation Review and Recommendations*”<sup>1</sup>. The study involved 17 Caribbean countries, including Guyana.

The authors of the report noted that “The right to have access to, and to be able to modify, a programme’s source code confers a number of benefits on users, including flexibility, modifiability, and more efficient use of computing resources. However, countries can also realize considerable benefits when FOSS is adopted, including increased cost savings, innovation, and empowerment of their citizens, along with reduced piracy and improved intelligence security

The report “*Open Source Software in Government: Challenges and Opportunities*”<sup>2</sup> produced by the United States Department of Homeland Security in 2013 recognises that “OSS can provide advantages in developing and updating software-based capabilities, anticipating new threats, responding to continuously changing requirements, and supporting software reliability and security efforts.”

A 2015 report from ECLAC “*Report Of The Expert Group Meeting On Regional Approaches To*

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1 Woodall, Lora; Marius, Michele : *The Free and Open Source Software, Open Data, and Open Standards in the Caribbean: Situation Review and Recommendations*, UNESCO, 2014 , available at <http://www.unesco.org/new/en/communication-and-information/intergovernmental-programmes/information-for-all-programme-ifap/other-ifap-documents/publication-series/free-and-open-source-software-open-data-and-open-standards-in-the-caribbean-situation-review-and-recommendations/>

2 Wheeler, David; Dunn, Tom : *Open Source Software in Government: Challenges and Opportunities* , Department of Homeland Security : Science and Technology, August 2013  
[http://www.dhs.gov/sites/default/files/publications/Open%20Source%20Software%20in%20Government%20%E2%80%93%20Challenges%20and%20Opportunities\\_Final.pdf](http://www.dhs.gov/sites/default/files/publications/Open%20Source%20Software%20in%20Government%20%E2%80%93%20Challenges%20and%20Opportunities_Final.pdf)

*E-Government Applications Development In The Caribbean*”<sup>3</sup> noted that St Vincent and the Grenadines had opted for an open source Health records system as way of lowering costs.<sup>4</sup>

The potential benefits to the public sector in Guyana are therefore :-

- independence from specific vendors for system sustainability
- cost savings on acquisition of software
- flexibility to modify software
- ability to redistribute software to other agencies
- development of local ICT sector , stimulating innovation and increasing demand for skills
- increasing the availability of IT solutions across the public sector
- adherence to open standards, opportunities for greater interoperability
- increased compliance with different software licensing regimens

There are concerns about Free and Open Source Software and stakeholders have identified the following :-

- Steep learning curve and limited documentation for some products
- Uncertain viability of some vendors, providers – how long will updates be provided?
- Support is unstructured for some products
- Skills are not available to review some source code
- Some FOSS products also have poor security features
- FOSS projects will require intense attention to change management where end users are most productive using proprietary software

The Government recognises that Free and Open Source solutions will not be appropriate to all situations. This policy does NOT intend to override existing strategies for acquisition of software.

## **2. Definitions of terms used in the policy document**

### **Free & Open Source Software (FOSS)**

The term Free & Open Source Software is recognised as a combination of two different philosophies of software development and deployment. The philosophies are articulated by the Free Software Movement (<http://www.fsf.org/>) and by the Open Source Initiative <http://opensource.org/> respectively.

Free Software (<http://www.fsf.org/>) has these freedoms :-

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<sup>3</sup> <http://repositorio.cepal.org/handle/11362/38375>

<sup>4</sup> [http://www.health.gov.vc/health/index.php?option=com\\_content&view=article&id=81&Itemid=124](http://www.health.gov.vc/health/index.php?option=com_content&view=article&id=81&Itemid=124)

- The freedom to run a program, for any purpose;
- The freedom to study how a program works and adapt it to a person's needs. Access to the source code is a precondition for this;
- The freedom to redistribute copies so that you can help your neighbour; and
- The freedom to improve a program and release your improvements to the public, so that the whole community benefits. Access to the source code is a precondition for this

*Open Source Software* (defined by the Open Source Initiative at <http://opensource.org/> ) refers to software with licenses which satisfy the following requirements :-

- Free redistribution of the software
- Source code is available
- Derived works must be covered by a similar license
- Integrity of author's code must be preserved
- No discrimination against users
- No discrimination against fields of endeavour
- Distribution of license
- License must be technology-neutral
- License must not be specific to a product
- License must not restrict other software

*For the purposes of this policy, Free & Open Source Software (FOSS) will refer to software which is distributed with either Free or Open Source licenses.*

## **Proprietary Software**

Proprietary Software refers to software and related solutions which are distributed with licenses which restrict use and redistribution to agreed users and purposes. Some proprietary software could be available free of cost.

### 3. Scope of Policy

This policy covers the use of software in the public sector. The public sector consists of Ministries and related budget agencies. There are some autonomous and semi-autonomous agencies which procure and acquire software through procedures related to international co-operation agreements or other mechanisms.

The policy was drafted after consultation with staff from the following agencies :-

Ministry of the Presidency	eGov Agency - Ministry of Public
Ministry of Finance	Telecommunications
Ministry of Foreign Affairs	Ministry of Citizenship
Ministry of Public Security	Ministry of Natural Resources
Ministry of Public Infrastructure	Guyana Forestry Commission
Ministry of Public Health	Guyana Lands & Surveys Commission
Ministry of Agriculture	Guyana Geology and Mines Commission
Ministry of Communities	Guyana Police Force
Ministry of Business	Guyana Defence Force
Ministry of Legal Affairs	Guyana Revenue Authority
Ministry of Education	Bank of Guyana
Ministry of Social Protection	
Office of the Prime Minister	

With the exception of the staff from two agencies, the staff who were interviewed are responsible for maintaining and managing Information Systems within their agencies. The staff who were interviewed fulfilled one or more of the following roles within their agency. Some titles are different but refer to similar functions) :-

- Head, Management Information Systems
- Systems Development Co-ordinator
- Systems Development Officer
- IT Support Technician
- IT Administrator

The GIS specialists from the Ministry of Natural Resources and the Guyana Lands & Surveys Commission were also interviewed.

Two agencies identified end users of technology to be interviewed for the policy.

There was a range of perspectives based on the experiences with implementing and/or managing IT and FOSS based solutions within the agencies.

Insights were also sought from other users of FOSS in the public sector. These include the IT Subject Specialist at NCERD, Ministry of Education and one lecturer from the New Amsterdam Technical Institute.

This policy is available as a resource for other sectors which are interested in FOSS.

## 4. FOSS use in the public sector

This policy has been prepared after consideration of the existing knowledge and use of Free and Open Source Software in the public sector. The use of Free and Open Source software varies across the agencies. The use is characterised by :-

- knowledge of FOSS products and solutions
- skills and capacities within the IT and MIS departments which are impacted by
  - ability to hire skills which are not readily available in the market
  - ability to retain skills
- strategic decision to outsource provision of IT services
  - Tangible vendor support is a key so that liabilities can be established
- ability to integrate FOSS products with existing Enterprise systems
- reduction in costs associated with comparable proprietary software products
- legacy of solutions which were acquired through multilateral and bilateral donor support and which are based on proprietary products
- willingness of management to direct and support change

Some agencies have FOSS products in use for server administration. In most cases, the maintenance is outsourced to the vendors of the systems. Other agencies are interested in using FOSS at the desktop user end so as to reduce costs associated with procuring software licenses for comparable products e.g. for word processing. Many agencies have websites which are built using FOSS tools.

The current use of FOSS provides a baseline to do a SWOT analysis. A SWOT analysis for this policy is in Table 1

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• There is interest and concern about FOSS and other alternative licensing models</li> <li>• Some agencies have developed expertise in different products</li> <li>• The policy direction is expected to catalyse implementation of some FOSS based projects</li> <li>• There are implementations of pilot FOSS projects which could be developed and deployed across the public sector</li> <li>• Increased interest and demand for ICT based services and applications eg GIS type applications</li> <li>• Standardised training could be available through the Bertram Collins College of the Public Service and the Centre for Excellence in IT</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of awareness of FOSS at level of senior management</li> <li>• FOSS implementation not project driven</li> <li>• Lack of skills to manage FOSS based projects in many agencies</li> <li>• Inadequate attention to change management</li> <li>• Many desktop users have invested in training in particular types of software. The additional training and support would be extensive</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• The Ministry of Public Telecommunications is mandated to stimulate ICT innovation in the country. There will be opportunities for private sector involvement</li> <li>• There is grassroots interest in Guyana in FOSS and the local private sector is using FOSS to deliver products.</li> <li>• There is growing interest in the sustained development of FOSS products eg Microsoft joining the Linux Foundation, the UNESCO FOSS Portal and the FAO Geoportal )</li> </ul>	<ul style="list-style-type: none"> <li>• Need to foster culture of innovation and curiosity to provide a range of IT services</li> <li>• Payment for IT skills in public sector is not competitive with private sector.</li> <li>• FOSS vendor sources and support are not often tangible or established.</li> <li>• Inter-agency collaboration has to be resourced</li> </ul>

Table 1 : SWOT Analysis of FOSS use in the public sector

## 5. Principles

These principles have been derived as priorities based on the experience within the public sector and summarised in the SWOT analysis. The principles are therefore formed around the following :-

- concerns about compliance with software licenses, and raising awareness about these licenses and options
- strategic consideration of FOSS products and permission to consider these products
- researching and developing solutions efficiently, and deploying solutions across agencies so as to share in costs, and complementing skills at different levels,
- ensuring adequate attention to change management

### **Principle 1 : Public sector agencies must be compliant with all software licenses**

All public sector agencies must be compliant with software licenses regardless of the type of software licensing which is being adopted. Agencies must keep track of licenses and ensure that all users are aware of the licenses for the different software they are using.

### **Principle 2 : Public sector agencies should consider Free and Open Source Software products when procuring software, wherever practicable.**

Agencies should consider FOSS products when considering IT solutions. Requests for proposals should include statements which encourage bidders to identify FOSS products in their solutions. Agencies will be expected to consider all solutions fairly and equitably and evaluate on the basis of the total cost of ownership, support, security, scalability, functionality, coherence with user requirements, manageability and sustainability.

### **Principle 3 : The Government of Guyana will invest in research and development projects which provide FOSS solutions for public sector agencies, wherever practicable.**

The Government will encourage agencies to propose solutions and to encourage collaboration across agencies to identify FOSS based solutions to improve Government services. Public sector agencies will be encouraged to share solutions which they have adopted. The Government will also collaborate with the wider IT community to enable the use of free and open source software and to motivate the development of skills and knowledge in the country. Each solution will include a model for implementation, including for change management and training.

Principle 4 : The Government of Guyana will support training and education initiatives which will increase the capacity of citizens to consider FOSS products

The Government recognises that IT literacy training in many sectors has been dominated by focus on use of particular products. The Government will encourage the development of skills based training so that citizens could easily adapt to different kinds of software as the situation demands. There are a range of approaches to training ranging from classroom type training to opportunities for trainee-directed learning. There will be strategic collaboration with the Ministry of Education, the University of Guyana and other educational institutions.

## **6. Policy Implications**

### **6.1 Policy Implementation**

The implementation of this policy will be vested in the eGovernment Agency, Ministry of Public Telecommunications with the mandate of the Government.

The Ministry will co-ordinate an inter-agency working group which will be responsible for initiating and supervising a strategic plan to promote the use of FOSS in the public sector. The members of this group will be determined by Cabinet. Initially, the oversight of the policy would be vested in the IT Leadership Management Committee until the FOSS Technical Working Group is convened.

There will be collaboration with the ICT Human Resources and Capacity Development TWG, and the eServices and Software Application Architecture Technical working groups.



There could be more than one group/community of interest working on different aspects of the policy and strategic plan.

The policy and the strategic plan will be reviewed on an annual basis.

Agencies who wish to opt out of the policy, especially in specific circumstances, will indicate their justification to the working group for the record. All agencies are expected to adhere to Principle 1.

## 6.2 Public Sector Management

This policy is aligned with the Government's strategy to improve government services to citizens and to also enable the ICT sector. The managers, decision makers, end users and providers of IT services to the public sector have a role to play in ensuring that this policy is successful. Change management processes will be designed and implemented with the involvement of all those who would be impacted by specific changes to accommodate compliance with the policy.

Inter-agency collaboration would have to be structured so that all participants benefit from the collaboration and that the collaboration could be efficient and deliver results which would stimulate further actions.

## 6.3 Cost

The evaluation criteria of potential IT solutions varies across the different agencies and relate to the specific circumstances of each agency and the need for the solution. FOSS based solutions should be compared equitably with proprietary solutions.

This proposal for criteria for Total Cost of Ownership (TCO) is adapted from a model presented in *"Total cost of ownership of open source software: a report for the UK Cabinet Office supported by OpenForum Europe. (2011) UK Cabinet Office, London, UK, by Maha Shaikh and Tony Cornford,*

These cost categories are not exclusive to FOSS based solutions and could be used for evaluating IT solutions when no other list of criteria exist. Cost categories could be added or removed as necessary. These costs are described in Table 2

Cost Category	
Search	Cost of up-front evaluation study Cost of up-front proof of concept implementation
Acquisition	Cost of Software Cost of Customisation for agency needs Cost of Integration (to current platform)
Integration	Cost of Migration (data and users) Cost of Training Cost of Process and Best Practice change
Use	Cost of Support services - in house, including Cost of Replacing skills Cost of Support services – contracted (or from primary or secondary vendor)

	Cost of Maintenance and Upgrades Software scaling (for change in number of users or transaction volumes)
Retire	Exit costs (in relation to hardware and software) Exit costs (in relation to changeover, re-training)

Table 2 – Total Cost of Ownership

Guyana's Legal & Policy Framework for Public Procurement (2009) provides criteria for Value for Money and Whole Life Costs. Some of the factors relevant to software are quoted here for reference and consideration in the Total Cost of Ownership model.

#### **Status of Firms Involved**

- Financial viability
- Design capability
- Production capacity
- Quality Assurance status and track record
- Cost Management arrangements and track record
- Delivery Record

#### **Immediate Cost of Acquisition**

- Initial price
- Firmness of price
- Basis for agreeing prices on associated or follow-on orders
- Differences in cost escalation formula
- Foreign exchange risks and costs
- Payment terms
- Cost of financing interim payments
- Financial guarantee requirements
- Duties and taxes
- Credit terms
- Transport costs
- Installation costs
- Discounting factors
- Warranties and technical guarantees
- Product liability arrangements
- Scope for, and cost of, accelerating or delaying procurement
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#### **Delivery**

Conformity with requirement

Reliability of offer

Operational and financial effects of earlier/later delivery

Cost and trade offs with stockholding costs at various locations

Liquidation of damages

#### **Operating Costs**

- Running costs

- Costs of spares
- Servicing and maintenance costs
- Storage and other support costs

#### **Product Support**

- Availability and quality of after-sales service
- Ease of legal recourse to supplier

#### **Replacement Arrangements**

- Receipts from or costs of eventual disposal
- Commitment to particular replacement equipment
- Replacement time frame

#### **Strategic and Structural**

- Safeguarding of vital sources of supply
- Length of the supply chain and its vulnerability to disruption
- Offset considerations
- Effect of procurement on price, availability and competition for future supplies, including supplies for other public purchasers.

6.4 Communication  
Effective communication protocols would have to be established among all the persons impacted by this policy. These protocols would have to adhere to the Public Service Rules & Regulations . Effective communication is a critical aspect of change management

## **7. Thematic areas for a five year strategic plan**

The actualisation of this policy will be partly realised through the implementation of a five year strategic plan. The SWOT analysis of FOSS use in the public sector suggests thematic areas to be included in the strategic plan.

### **a) Raise awareness**

The policy will be shared with decision makers in the public sector. The benefits and challenges of using FOSS in the public sector will be shared. Managers and end-users will be asked to be involved in the planning for change management and the adoption of solutions. This is especially important in those agencies which see the need for adoption of FOSS tools for desktop users. The suggested activities include :-

- presentations and orientation sessions with public sector leaders and managers
- demonstrations of best practices and implementations
- provision of training and other support resources

## **b) Develop and propagate best practice solutions**

The potential exists to nurture the work which has been done to find solutions to different needs across the public sector. There are solutions which could be identified , developed and deployed to agencies which face similar challenges.

There are some agencies which have begun work on different solutions to leverage the benefits of FOSS. These include :-

- Desktop applications, productivity, word processing
- Human Resource Management Information Systems
- Geographic Information Systems
- Document Management/Content Management/Information Management
- Network Administration, Operating systems, Server administration

The inter-agency working group would be responsible for identifying solutions

## **c) Build a knowledge ecosystem**

The use of Free and Open Source Software is most beneficial in an environment in which knowledge is developed and shared. The suggested activities include :-

- building a government portal for FOSS resources
- establishing communities of interest around specific areas of FOSS implementation
- identification of skill sets and training resources
- collaboration with training and teaching agencies to identify skills and to identify opportunities to use the skills

Training and education will be critical. The collaborations with the Ministry of Education, the University of Education and other tertiary and educational institutions will be established to ensure technology neutral approaches, or all encompassing approaches to IT skills education and assessments.

## **d) Encourage innovation**

Free and Open Source software provides an opportunity to develop solutions at different levels of Government. The suggested activities include :-

- Creating inter-agency teams to promote the development of new solutions. The cost and time of development and deployment would be key criteria
- Creating partnerships with the University of Guyana, the technical institutes and other training

and educational institutions to develop projects and to provide opportunities for interns

- Creating public/private partnerships with the the local IT community, the local IT private sector,
- Accessing knowledge from interested members of the diaspora
- Sourcing funding to support the development of solutions

## **8. Reporting on this policy**

The eGovernment Agency , Ministry of Public Telecommunications will be responsible for reporting annually on the policy. Public sector agencies through the inter-agency will contribute to the report.

The reporting of the policy could include the following :-

- Adoption of FOSS solutions
- Progress with projects
- Benefits which have been recognised, and associated challenges to the adoption of FOSS

The implementation of the policy has the potential to contribute to the body of knowledge on the use of Free and Open Source Software in Guyana and the Caribbean. The reporting on the policy could be considered a useful activity in the knowledge production.

End of Document

December 2016

# Annex 1 Adoption of Open Standards for data exchange

The ITU defines Open Standards thus :-

"Open Standards" are standards made available to the general public and are developed (or approved) and maintained via a collaborative and consensus driven process. "Open Standards" facilitate interoperability and data exchange among different products or services and are intended for widespread adoption."

The Open Geospatial Consortium (OGC) has a more detailed definition. Open Standards are standards that are:

1. Freely and publicly available – They are available free of charge and unencumbered by patents and other intellectual property.
2. Non-discriminatory – They are available to anyone, any organization, anytime, anywhere with no restrictions.
3. No license fees – There are no charges at any time for their use.
4. Vendor neutral – They are vendor neutral in terms of their content and implementation concept and do not favor any vendor over another.
5. Data neutral – The standards are independent of any data storage model or format.
6. Defined, documented, and approved, by a formal member driven consensus The consensus group remains in charge of changes and no single entity controls the standard.

(Source: <https://gira.geoplatform.gov/gira/sbi/standards-view-open-standards-vs-open-source/>)

The enabling of Open Government and data sharing requires that there are standards used to ensure interoperability between software systems and in the data managed in the public sector.

The Government is interested in ensuring that the implementation of systems across the public sector will include consideration of the formats for data sharing and exchange.

The Government encourages agencies to ensure that their information systems generate data which can be shared in formats which conform to open standards. The data should be accessible by different users including users who do not have access to proprietary software or the specific software which generated the data.