



# **Consultancy Services for developing a National Open Source Policy and Strategy and Action Plan for Mauritius**

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## **Open Source Strategy for Mauritius**

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# **National Open Source Software Strategy for the Republic of Mauritius**

**“Open Mauritius, like you have never experienced IT  
before!”**

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## VISION

The future development of information society in the Republic of Mauritius shall be based on a shared and open knowledge-based society, open standards, technological neutrality and broadly available ICT to empower citizens and the private sector.

The Government of the Republic of Mauritius (Government of Mauritius / GoM) is clearly aware of the benefits and positive impacts of using and fostering the usage of OSS in the development of information society and human capital, in the development of prospective pillars of economy, specifically the ICT sector, and of the opportunities it provides in building an efficient eGovernment. OSS has to be used as leverage to achieve enhanced human capital, to increase the growth of a knowledge-based society, and to reduce the digital divide and software piracy rate.

The Government of Mauritius wants to create a cost-effective and connected eGovernment to increase their competitiveness, web presence and interoperability among systems, to reduce total cost of ownership of their ICT systems and to release, reuse, sustain and provide valuable public software created or paid for by the Government of Mauritius.

OSS is recognized as one of the key factors for the development of the knowledge-based economy and increased growth in the local ICT industry, and the enhancement of local ICT companies, universities and the public sector, by providing support to the released software and enhancing the integration of the OSS ecosystem in the Mauritian universities. OSS has to be demonstrated as a real opportunity for the private sector and, specifically, for SMEs.

The Government of Mauritius shall also foster all measures to design and create sustainable communities surrounding OSS and the growth of OSS user communities.

## PRINCIPLES OF IMPLEMENTATION OF OSS POLICY AND STRATEGY

The aim of GoM when preparing OSS documents is broader than just usage of OSS and possible replacement of proprietary SW. As in the case of many national OSS Policies, it's moving to foster open information society and as such, is non-exclusive, non-discriminatory and providing a common platform for collaboration and upgrade the current ICT usage with the new open concepts. As from the general principles stated in OSS Policy, we can conclude the guiding principles for implementing OSS Policy:

- purpose driven choice of best of breed, with intention to provide the best solutions from different models, technologies and solutions.
- least disruptive to operations, as implementation of OSS guidelines is a process of the evolution and not the revolution.
- co-existence with other legacy proprietary system and extend functionality and life span
- leveraging on existing facilities, hardware, communications, knowledge and expertise already present in ecosystem.
- not driven or controlled by any hardware and software vendor

The OSS policy, strategy and action plan have to be based on already created, approved national documents as well as documents that are adopted and are in the implementation phase.



## DEFINITIONS

The Open Source Software strategy is mainly engaged in OSS as the main subject, but the analysis and recommendations cannot avoid certain related and inherent concepts. Open Source Software, Open Standards, Open Content and Open Government are concepts that have different meanings and scope to different authors. To avoid any misunderstanding, we make reference to the four most commonly used definitions of terms, i.e. definitions that are used in this document:

- Open Source Software
- Open Standards
- Open Content
- Open Data

Due to the different meanings and content of the terms, for the purposes of this document, we have specified a reference definition that clearly defines the meaning of each term.

## OPEN SOURCE SOFTWARE

The concept of open source is increasingly being used in other, non-programming areas and generally represents the development and sharing models for intellectual work. For the purposes of this document, we use the narrower concept of open source as a software movement.

The open source movement is a broad-reaching movement of individuals who support the use of open source licences for some or all software. Open source software is made available for anybody to use or modify, as its source code is made available. Some open-source software is based on a share-alike principle, whereby users are free to pass on the software subject to the stipulation that any enhancements or changes are just as freely available to the public, while other open-source projects may be freely incorporated into any derivative work, open source or proprietary. Open source software promotes learning and understanding through the dissemination of understanding. The main difference between open source and traditional proprietary software is in user and property rights, the conditions of use imposed on the user by the software license, as opposed to differences in the programming code. With open source software, such as LibreOffice, users are granted the right to both the program's functionality and methodology. With proprietary software programs, such as Microsoft Office, users only have the rights to functionality. Examples of popular open source software products include Mozilla Firefox, Google Chromium, Android and LibreOffice. [1]

Open Source software (OSS) is computer software with its source code made available and licensed with a license in which the copyright holder provides the rights to study, change and distribute the software to anyone and for any purpose. Very often Open Source Software is developed in a public, collaborative manner and is the most prominent example of an open source collaborative development model. Strengths of OS movement and OSS are numerous, below are just some of the most important: [2]

### *Strengths of OSS*

- The collaborative nature of the open source community creates software that can offer customizability and, as a result, promotes the adoption of its products.
- The open source community promotes the creation of software that is not proprietary, resulting in lower costs.
- Individuals who have an intrinsic interest in code writing and software creation motivate the development of open source software within the community. This differs from proprietary software, the development of which is often motivated through potential monetary gains.
- An open source tool puts the system administrator in control of the level of risk assumed in deploying the tool.
- Open source provides flexibility not available in closed products. The hope is that individuals make improvements to an open tool and will offer those improvements to the original developer and community at large. The give-and-take of the gift economy benefits the entire community.
- Open source licenses and software can be combined with proprietary software. While open source was initially seen as a threat to corporations, some companies found ways to strengthen their proprietary code with open source code, re-releasing it as an improvement.
- In the event of market failure, programmers and innovators work together to make sure that the software still works.
- Globalization of ICT SW Market. [1]

### ***Definition of Open Source Software***

For the purpose of the National OSS Policy of Mauritius, the reference is the Annotated Open Source Software definition by Open Source Initiative, ver. 1.9. Annex A. Annotated version.

#### ***Introduction***

Open source doesn't just mean access to the source code. The distribution terms of open source software must comply with the following criteria:

#### ***Free Redistribution***

The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

#### ***Source Code***

The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a pre-processor or translator are not allowed.

***Derived Works***

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

***Integrity of The Author's Source Code***

The license may restrict source code from being distributed in modified form only if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

***No Discrimination Against Persons or Groups***

The license must not discriminate against any person or group of persons.

***No Discrimination Against Fields of Endeavor***

The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

***Distribution of License***

The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.

***License Must Not Be Specific to a Product***

The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.

***License Must Not Restrict Other Software***

The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open source software.

***License Must Be Technology-Neutral***

No provision of the license may be predicated on any individual technology or style of interface.

***Definition of Open Source licenses***

For purpose of National OSS Policy of Mauritius the reference is approved OSS licenses from Open Source Initiative Annex B. Approved OSS licenses

Open source licenses are licenses that comply with the Open Source Definition — in brief, they allow software to be freely used, modified, and shared. To be approved by the Open Source Initiative

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(also known as the OSI), a license must go through the Open Source Initiative's license review process.

The following OSI-approved licenses are popular, widely used, or have strong communities (as defined in the 2006 Proliferation Report):

- Apache License 2.0
- BSD 3-Clause "New" or "Revised" license
- BSD 2-Clause "Simplified" or "FreeBSD" license
- GNU General Public License (GPL)
- GNU Library or "Lesser" General Public License (LGPL)
- MIT license
- Mozilla Public License 2.0
- Common Development and Distribution License
- Eclipse Public License

## OPEN STANDARDS

An open standard is a standard that is publicly available and has various rights to use associated with it, and may also have various properties of how it was designed. There is no single definition and interpretations vary with usage.

The terms "open" and "standard" have a wide range of meanings associated with their usage. There are a number of definitions of open standards which emphasize different aspects of openness, including the resulting specification, the openness of the drafting process, and the ownership of rights in the standard. The term "standard" is sometimes restricted to technologies approved by formalized committees that are open to participation by all interested parties and operate on a consensus basis.

The definitions of the term "open standard" used by academics, the European Union and some of its member governments or parliaments such as Denmark, France, and Spain preclude open standards requiring fees for use, as do the New Zealand, South African and the Venezuelan governments. On the standard organisation side, the World Wide Web Consortium (W3C) ensures that its specifications can be implemented on a royalty-free basis.

Many definitions of the term "standard" permit patent holders to impose "reasonable and non-discriminatory licensing" royalty fees and other licensing terms on implementers and/or users of the standard. For example, the rules for standards published by the major internationally recognized standards bodies such as the IETF, ISO, IEC, and ITU-T permit their standards to contain specifications whose implementation will require payment of patent licensing fees. Among these organizations, only the IETF and ITU-T explicitly refer to their standards as "open standards," while the others refer only to producing "standards." The IETF and ITU-T use definitions of "open standard" that allow "reasonable and non-discriminatory" patent licensing fee requirements.

There are those in the open-source software community who hold that an "open standard" is only open if it can be freely adopted, implemented and extended. While open standards or architectures are considered non-proprietary in the sense that the standard is either un-owned or owned by a collective body it can still be publicly shared and not tightly guarded. The typical example of "open source" that has become a standard is the personal computer originated by IBM and now referred to as Wintel, the combination of the Microsoft operating system and Intel microprocessor. There are three others that are most widely accepted as "open" which include the GSM phones (adopted as a government standard), Open Group which promotes UNIX and the like, and the Internet Engineering Task Force (IETF) which created the first standards of SMTP and TCP/IP. Buyers tend to prefer open standards which they believe offer them cheaper products and more choice for access due to network effects and increased competition between vendors. [3]

### *Definition of Open standards requirements*

For the purpose of National OSS Policy of Mauritius the reference is the Open standards requirement for Software as defined by the Open Source Initiative.

#### **The Requirement**

An "open standard" must not prohibit conforming implementations in open source software.

#### **The Criteria**

To comply with the Open Standards Requirement, an "open standard" must satisfy the following criteria. If an "open standard" does not meet these criteria, it will be discriminating against open source developers.

*No Intentional Secrets:* The standard **MUST NOT** withhold any detail necessary for interoperable implementation. As flaws are inevitable, the standard **MUST** define a process for fixing flaws identified during implementation and interoperability testing and to incorporate said changes into a revised version or superseding version of the standard to be released under terms that do not violate the OSR.

*Availability:* The standard **MUST** be freely and publicly available (e.g., from a stable web site) under royalty-free terms at reasonable and non-discriminatory cost.

*Patents:* All patents essential to implementation of the standard **MUST**:

- be licensed under royalty-free terms for unrestricted use, or
- be covered by a promise of non-assertion when practiced by open source software

*No Agreements:* *There* **MUST NOT** be any requirement for execution of a license agreement, NDA, grant, click-through, or any other form of paperwork to deploy conforming implementations of the standard.

*No OSR-Incompatible Dependencies:* *Implementation* of the standard **MUST NOT** require any other technology that fails to meet the criteria of this Requirement.

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## *Open Standards - National Considerations*

From the national viewpoint, the usage of open standards by a government is even more important. In this information age, a government will need to use IT solutions to ensure that it has adequate and reliable information to enable it to govern the country effectively. It is vital that these IT implementations make use of standards that are open as far as possible. In cases where open standards are not available, the government may want to consider other standards that are freely available for usage and implementation. It should also take into consideration how open these standards are and whether they have the possibility of becoming open standards later.

All this can help ensure that there is less likelihood of its information systems being locked in later by any single technology or product. It is also in the interests of national security that open standards are followed to guard against the possibility of over-reliance on foreign technologies/products. Imagine the implications to a sovereign nation if the electronic records of its citizens are kept in databases that can be accessed readily only by proprietary software from a foreign vendor or the documents of the government are kept in a format that belongs to a vendor who thus has total control over its accessibility both now and in the future. [4]

### *e-Government Projects Specify Open Standards*

Many countries have started on e-government projects or initiatives, most of which have policies stating that, as far as possible, open IT standards and specifications are to be followed. Countries that have such policies include Norway, Denmark, the United Kingdom, the Netherlands, France, Brazil, Australia, New Zealand, and Malaysia.

The European Union's EIF, a framework to facilitate the interoperability of its member countries' e-government services, recommends the use of open standards for maximum interoperability.

In addition, more and more public sector agencies all over the world have adopted or are considering adopting policies that require open standards.

Another important national benefit is that open standards will make it easier and, in some cases, the only possible means for local companies to participate as major players in supplying services and solutions to the government. This is because the local companies usually lack the strength and resources of multinationals and may be strong only in certain areas or solutions. The government can leverage open standards to mix and match solutions from different suppliers in order to give the local suppliers a chance.

It is a reality in the IT world that the main language used and supported by all mainstream software is English and because of this it is sometimes difficult to produce electronic documents in another language. The availability of an open character coding standard, Unicode, designed to support the worldwide interchange, processing, and display of the written texts of diverse languages makes it feasible for the translation and localization of software and electronic office documents for nations or cultures whose language is not English. [4]

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## ***Particular Benefits of Open Standards***

Open standards are particularly beneficial to some IT activities or services. Some of these are examined in greater detail here.

### **File formats**

Modern information systems generate data (lots of it in many cases) that has to be stored in some form of electronic file formats for efficient storage, retrieval and exchange. If their specifications are not publicly known, only software and systems from the owner of these proprietary formats can readily access them. Also, the exchange of information is essential to the functioning of modern society. This exchange will be severely hampered if non-open file formats are utilized as products from one vendor may not be able to retrieve, access, or store the information from the products of another vendor properly. Since there is no guarantee that commercial products and the companies that produce them, will survive in the long run, there is a real danger that access to these records will be hampered by the fact, that there will be no appropriate tools for read them.

In some cases, while the format may be known, it may be the property of a particular party and this party may control the way the format evolves or is used. In such cases, users can have very little say or control over the format. Also it may be possible that the owner may not publish the format specifications at a later stage for a new version. So while compatible systems can be created that can access the files now, there is no guarantee of this when a newer version comes out. In addition, there have been cases where, when a proprietary format becomes popular and is widely used by the industry, the owner of the format starts to impose restrictions like charging a fee or royalty charges (if it is patented) for using the format at a later stage. The case of Microsoft attempting to charge flash drive makers and manufacturers of devices, such as digital cameras, a licensing fee for using its File Allocation Table or FAT file format is a good example of this.

All this shows that it is of utmost importance that electronic file formats should follow some specifications that are accessible to all interested parties and also be developed by processes that are open and easy for any party to participate. In other words, they should be implemented using open standards. It is vital in today's information-centric society that the data from which information is derived can be stored and exchanged following standards that are open so that no single party or even group can control the access to this data.

### **Office Applications**

This lack of complete compatibility between documents created using MS Office and the competing alternatives has prevented some users from using or migrating to the latter. This effectively results in a specific product/vendor lock-in.

This example illustrates that open and standardized file formats are needed to give users the flexibility and freedom to choose and use products from different vendors and to prevent them from being locked in to a specific product and/or vendor. The published OpenDocument standard from OASIS and ISO (ISO/IEC 26300) for office applications offers this. Currently, applications that support this open format include StarOffice, KOffice, IBM Works, AbiWord, LibreOffice and OpenOffice.org. Microsoft does not support this but instead it has come up with its own XML-based file formats for its

office suite. Again, while the MS Office XML schemas are publicly published and licensed for use royalty-free, they are owned by a single vendor (Microsoft) and hence are subject to the potential abuse discussed previously for non-open formats. In an attempt to allay fears over this and acceding to the requests of some of its biggest customers, the Microsoft Office XML file formats have been submitted to European Computer Manufacturers Association (ECMA) International for development as formal standard.

### **Internet Services and Applications**

The Internet is perhaps the best showcase of how when technologies are implemented using mainly open standards, there is almost universal accessibility, acceptance and benefits. Most networking infrastructure of the Internet is implemented based on open standards drawn up by IETF. In addition, many services and applications running now as well as being planned for the future are being implemented following open standards and recommendations from several bodies notably, IETF, W3C and OASIS. As a result, today, it is possible for one to access major services offered on the Internet using a multitude of environments ranging from commodity PCs, hand-held Personal Digital Assistants (PDAs) and mobile devices to proprietary set-top black boxes and TV sets. Without this adherence to open standards, the Internet would not be as ubiquitous as it is today. [4]

## **OPEN CONTENT**

Open content or OpenContent is a neologism coined by David Wiley in 1998 which describes a creative work that others can copy or modify. The term evokes open source software, which is a related concept in software.

When the term OpenContent was first used by Wiley, it described works licensed under the Open Content License (a non-free share-alike license, see 'Free content' below) and perhaps other works licensed under similar terms. It has since come to describe a broader class of content without conventional copyright restrictions. The openness of content can be assessed under the '5Rs Framework' based on the extent to which it can be reused, revised, remixed and redistributed by members of the public without violating copyright law. [5]

### ***Definition of Open Content by OpenContent.org***

For the purpose of National OSS Policy of Mauritius the reference is the Definition of Open Content by OpenContent.org

"Open content" is content that is licensed in a manner that provides users with the right to make more kinds of uses than those normally permitted under the law. These permissions are granted to users free of charge.

The primary permissions or usage rights open content is concerned with are expressed in the "5Rs Framework:"

**Retain**- the right to make, own, and control copies of the content (e.g., download, duplicate, store, and manage)



**Reuse-** the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video)

**Revise-** the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language)

**Remix-** the right to combine the original or revised content with other open content to create something new (e.g., incorporate the content into a mashup)

**Redistribute-** the right to share copies of the original content, your revisions, or your remixes with others (e.g., give a copy of the content to a friend)

Content is open to the extent that its license allows users to engage in the 5R activities. Content is less open to the extent that its license places restrictions (e.g., forbidding derivatives or prohibiting commercial use) or requirements (e.g., mandating that derivatives adopt a certain license or demanding attribution to the original author) on a user's ability to engage in the 5R activities.

### *Open educational resources*

Open Educational Resources (OERs) are teaching and learning materials that you may freely use and reuse, without charge. That means they have been authored or created by an individual or organization that chooses to retain few, if any, ownership rights. For some of these resources, that means you can download the resource and share it with colleagues and students. For others, it may be that you can download a resource, edit it in some way, and then re-post it as a remixed work. OERs often have a Creative Commons or GNU license that state specifically how the material may be used, reused, adapted, and shared.

#### ○ **The scope and nature of open educational resources**

The idea of open educational resources (OER) has numerous working definitions. Often cited is the William and Flora Hewlett Foundation which defines OER as: "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge". The Organization for Economic Co-operation and Development (OECD) defines OER as: "digitised materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning, and research. OER includes learning content, software tools to develop, use, and distribute content, and implementation resources such as open licences". (This is the definition cited by Wikipedia's sister project, Wikiversity.) By way of comparison, the Commonwealth of Learning has adopted the widest definition of Open Educational Resources (OER) as 'materials offered freely and openly to use and adapt for teaching, learning, development and research'. [6]

Given the diversity of users, creators and sponsors of open educational resources, it is not surprising to find a variety of use cases and requirements. For this reason, it may be as helpful to consider the differences between descriptions of open educational resources as it is to consider the descriptions themselves. One of several tensions in reaching a consensus description of OER (as found in the

above definitions) is whether there should be explicit emphasis placed on specific technologies. For example, a video can be openly licensed and freely used without being a streaming video. A book can be openly licensed and freely used without being an electronic document. This technologically driven tension is deeply bound up with the discourse of open-source licensing. For more, see Licensing and Types of OER later in this report.

There is also a tension between entities which find value in quantifying usage of OER and those which see such metrics as themselves being irrelevant to free and open resources. Those requiring metrics associated with OER are often those with economic investment in the technologies needed to access or provide electronic OER, those with economic interests potentially threatened by OER, or those requiring justification for the costs of implementing and maintaining the infrastructure or access to the freely available OER. While a semantic distinction can be made delineating the technologies used to access and host learning content from the content itself, these technologies are generally accepted as part of the collective of open educational resources. [6]

### ○ **Licensing and Types of OER**

Open educational resources often involve issues relating to intellectual property rights. Traditional educational materials, such as textbooks, are protected under conventional copyright terms. However, alternative and more flexible licensing options have become available as a result of the work of Creative Commons, an organisation that provides ready-made licensing agreements that are less restrictive than the "all rights reserved" terms of standard international copyright. These new options have become a "critical infrastructure service for the OER movement." Another license, typically used by developers of OER software, is the GNU General Public License from the free and open-source software (FOSS) community. Open licensing allows uses of the materials that would not be easily permitted under copyright alone

Types of open educational resources include: full courses, course materials, modules, learning objects, open textbooks, openly licensed (often streamed) videos, tests, software, and other tools, materials, or techniques used to support access to knowledge. OER may be freely and openly available static resources, dynamic resources which change over time in the course of having knowledge seekers interacting with and updating them (such as this Wikipedia article), or a course or module with a combination of these resources.

#### ○ **What are some examples of OER Materials?**

Full university courses, complete with readings, videos of lectures, homework assignments, and lecture notes.

Interactive mini-lessons and simulations about a specific topic, such as math or physics.

Adaptations of existing open work.

Electronic textbooks that are peer-reviewed and frequently updated.

Elementary school and high school (K-12) lesson plans, worksheets, and activities that are aligned with state standards.

#### ○ **Institutional Support**

UNESCO is taking a leading role in "making countries aware of the potential of OER." The organisation has instigated debate on how to apply OERs in practice and chaired vivid discussions on this matter through its International Institute of Educational Planning (IIEP). Believing that OERs can widen access to quality education, particularly when shared by many countries and higher education institutions, UNESCO also champions OERs as a means of promoting access, equity and quality in the spirit of the Universal Declaration of Human Rights. Recently, the 2012 Paris OER Declaration was approved during the 2012 OER World Congress held in UNESCO HQ. [6]

## OPEN DATA

Open data is the idea that certain data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. The goals of the open data movement are similar to those of other "Open" movements such as open source, open hardware, open content, and open access. The philosophy behind open data has been long established (for example in the Mertonian tradition of science), but the term "open data" itself is recent, gaining popularity with the rise of the Internet and World Wide Web and, especially, with the launch of open-data government initiatives such as Data.gov and Data.gov.uk.

### *Definition of Open Data by Opendefinition.org - version 1.1*

The term knowledge is taken to include:

- Content such as music, films, books
- Data be it scientific, historical, geographic or otherwise
- Government and other administrative information

Software is excluded despite its obvious centrality because it is already adequately addressed by previous work.

The term work will be used to denote the item or piece of knowledge which is being transferred.

The term package may also be used to denote a collection of works. Of course such a package may be considered a work in itself.

The term license refers to the legal license under which the work is made available. Where no license has been made this should be interpreted as referring to the resulting default legal conditions under which the work is available (for example copyright).

A work is open if its manner of distribution satisfies the following conditions:

The work shall be available as a whole and at no more than a reasonable reproduction cost, preferably downloading via the Internet without charge. The work must also be available in a convenient and modifiable form.

The license shall not restrict any party from selling or giving away the work either on its own or as part of a package made from works from many different sources. The license shall not require a royalty or other fee for such sale or distribution.

The license must allow for modifications and derivative works and must allow them to be distributed under the terms of the original work.

The work must be provided in such a form that there are no technological obstacles to the performance of the above activities. This can be achieved by the provision of the work in an open data format, i.e. one whose specification is publicly and freely available and which places no restrictions monetary or otherwise upon its use.

The license may require as a condition for redistribution and re-use the attribution of the contributors and creators to the work. If this condition is imposed it must not be onerous. For example if attribution is required a list of those requiring attribution should accompany the work.

The license may require as a condition for the work being distributed in modified form that the resulting work carry a different name or version number from the original work.

The license must not discriminate against any person or group of persons.

The license must not restrict anyone from making use of the work in a specific field of endeavor. For example, it may not restrict the work from being used in a business, or from being used for genetic research.

The rights attached to the work must apply to all to whom it is redistributed without the need for execution of an additional license by those parties.

The rights attached to the work must not depend on the work being part of a particular package. If the work is extracted from that package and used or distributed within the terms of the work's license, all parties to whom the work is redistributed should have the same rights as those that are granted in conjunction with the original package.

The license must not place restrictions on other works that are distributed along with the licensed work. For example, the license must not insist that all other works distributed on the same medium are open.

## STRATEGY FORMULATION AND PLANNING

### REFERENCE DOCUMENTS

In the process of planning and writing of the OSS Policy, Strategy and Action plan, we ensure their consistency with the policy and the regulatory framework following the recommendations, guidelines and propositions of the documents:

**National ICT Strategic Plan 2011 – 2014** which reviews and represents an ambitious five-year programme of action to bring the ICT sector to the forefront of the national economy and for Mauritius to be located as a globally recognised ICT hub. NICTSP 2011 – 2014 is reference document, base for numerous other ICT related initiatives, as well as for National OSS Policy, Strategy and Action Plan.

**Mauritius e-Government Strategy 2013 – 2017** which defines and proposes a more citizen and business centric approach to eGovernment as advocated by the NICTSP 2011 – 2014.

**National Broadband Policy 2012 – 2020** which sets out a strategic vision for a broadband Intelligent Mauritius, branded as “Towards i-Mauritius”, and establishes national goals regarding broadband while elaborating specific policies to achieve those goals within the overarching National ICT Strategic Plan (NICTSP) 2011 – 2014 context.

## OPEN MAURITIUS SCALE UP FRAMEWORK

The NICTSP 2007–2011 and following NICTSP 2011-2014, recommended five strategic thrusts for Mauritius to **SCALE** up (**S**upport, **C**atalyze, **A**ccelerate, **L**ead and **E**merge) its activities to realise its ambitious vision of becoming a regional ICT hub and regional gateway to Africa. This would require first that affordable and ubiquitous ICT services are developed domestically and that these can be leveraged for global competitiveness.

For the Five Strategic Thrust Areas from NICTSP, with their associated goals, we adjusted the goals for OSS documents:

- Undertake SUPPORT measures by initiating appropriate legal, institutional and infrastructural changes, investing in long-term educational fulfilment, fostering an “open culture” and building awareness of OSS, OS, OC and following these up with the effective monitoring and evaluation mechanisms.
- CATALYSE and coordinate economic activity in ICT sectors focused on OSS and OS, by promoting and encouraging uses of OSS business, development and sharing models within and across different sectors of socio-economic activity.
- ACCELERATE OSS, OS and OC adoption in society by fostering and building efficient and sustainable OSS ecosystem.
- Take up LEADERSHIP roles of GoM in processes of adoption and usage of OSS on national level and in the region through building OSS excellency and competency ICT hub, while at the same time identifying areas in which to become a regional leader.
- EMERGE as a global point of reference for a successful and sustained open information and knowledge based society, based on OSS activities and complement ICT industry growth with concepts of openness.

Initial local implementation of OSS Policy and emerging NOSECC must be continued with the regional and global initiatives. Based on experiences gained in the local scale, they have to be transformed to regional success as a pan-African OSS hub and competence centre and accompanied by a high profile regional OSS events.

We create an OSS approach to Five Strategic Thrust Areas on the baseline assessment of current state and strengths of existing, although unrelated and uncoordinated activities on the areas of OSS, OS and specially OC.

## ANALYSIS OF CURRENT BASELINE

During the review of the current situation and practices, we met major stakeholders and got an insight into the different areas and uses of OSS, OS and OC. Depending on their role and characteristics, they were divided into the six typical loose groups which represent the key factors of development and activities in the proposed OSS ecosystem. The Baseline and current situation were analysed, a target situation was set and criteria measures were given. Based on the experience of other countries in the creating and implementing OSS policies and strategies, and on the previous experience in preparing similar projects, we have prepared and formed the basic guidelines and the recommendations for each group:

- *governmental organizations' and organizations' detected role in OSS ecosystem is similar to governmental organization (GOV),*
- *educational organizations on primary and secondary level (EDU),*
- *universities, higher and tertiary education (universities and tertiary),*
- *the private sector (private)*
- *ICT sector, including sector ICT companies already offering OSS related services or solutions (ICT and OSS ICT)*
- *OSS communities (OSS Comm)*

Although belonging to different types, we can define some key features of current baseline situation:

- Although the ICT industry is focused on the system integration and on to the close cooperation with the global providers of proprietary solutions, there are several smaller companies that base business success on the exploitation of OSS models, and largely understand the business potential of OSS.
- In the research and higher education sector there are a couple of teams, where the educational process is based on OSS tools and are quite efficient in using OSS, OS and OC
- Awareness of open content is present in the education system with an emphasis on sharing and dissemination of free content
- OSS, OS, OC baseline in Mauritius is very fragmented and there is virtually no exchange of information
- There is no coordinating body or initiatives, nor a common collaboration platform
- The emphasis is almost exclusively on low cost of ownership, although the use of OSS is noticeable, especially in the common areas, such as internet presence platform, communication platform,
- Reflection on the use of OSS as a lever for the development of innovative solutions and services is negligible
- ICT learning on primary and secondary level is vendor and format dependent, which limits the prospect for open education and concepts oriented learning

- In the primary/secondary education and the higher education system there are a few activities for the producing free content for different areas, but they are unrelated
- In the tertiary education system there is no official syllabus content addressing OSS, OS and OC. Learning and using the example of OSS tools is more dependent on the initiatives of individual teachers, as on the result of a systematic approach
- Despite the general sympathy of the Government of Mauritius for OSS and OS, some projects switched from open source to proprietary solutions, which are probably the result of uncoordinated activity or lack of knowledge



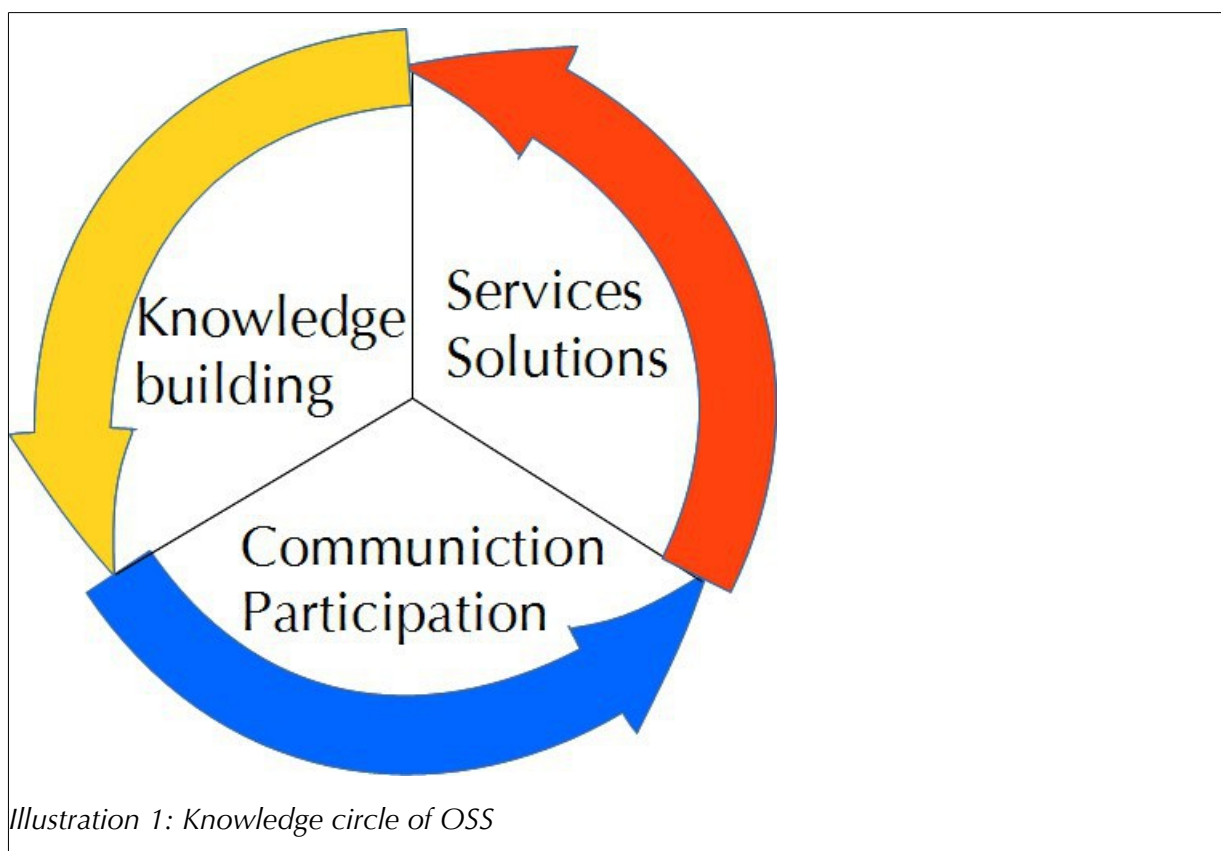
## THE CONCEPTS OF THE STRATEGY DESIGN

### Knowledge circle of OSS.

OSS, OS, OC and OD are all about knowledge and ideas, the only valid major added value recognized by the market forces.

### Knowledge building

The knowledge building term describe what a community of learners needs to accomplish in order to create knowledge. The term addresses the need to educate people for the knowledge age society, in which knowledge and innovation are pervasive. The aim is to build, manage and share all levels of knowledge related to OSS, OS, OC and OD.



### Encouraging and facilitating communication and participation

Existing discrete points of knowledge and experience must be linked to a common communication platform, both physical and virtual. To be connected, expanded and upgraded with new type of OSS, OS, OC and OD knowledge.

### Encouraging of new services and/or solutions inspired by OSS, OS, OC and OD

Knowledge sharing and building results in new concepts of user experience and business ideas, that are the essential basis for new services and products based on the concept of openness. Evaluation and implementation services are complementary to training and support offers and are the basis for

building new unique products and services. Experiences from that process have to be built back to knowledge building fundamentals.

## STRATEGY GOALS AND OBJECTIVES

An overview of the current situation has shown the strengths and weaknesses of the existing ecosystem stakeholders active on the field of OSS.

Pros:

- on level of government organizations and agencies a usage of OSS is noticeable
- in the research and higher education sector there are a couple of teams, where the educational process is based on OSS tools and are quite efficient in using OSS, OS and OC
- awareness of open content is present in the education system with an emphasis on sharing and dissemination of free content
- the use of OSS is noticeable, especially in the common areas, such as internet presence platform, communication platform,
- there are several smaller ICT companies, that base business success on the exploitation of OSS models, and largely understand the business potential of OSS.
- in the primary/secondary education and higher education system activities for the producing free content for different areas are present

Cons:

- OSS, OS, OC baseline in Mauritius is very fragmented and there is virtually no exchange of information
- the ICT industry is focused on the system integration and on to the close cooperation with the global providers of proprietary solutions,
- there is no coordinating body or initiatives, neither common collaboration platform
- the emphasis in using OSS is almost exclusively on low cost of ownership,
- reflection on the use of OSS as a lever for the development of innovative solutions and services is negligible
- ICT learning on primary and secondary level is vendor and format dependent, which limits the prospect for open education and concepts oriented learning.
- in the tertiary education system there is no official syllabus content addressing OSS, OS and OC.
- learning and using the example of OSS tools is more dependent on the initiatives of individual teachers, as on the result of a systematic approach.

All cons have a common denominator, which indicates a lack of knowledge and experience in the field of OSS. GoM needs to accelerate particularly the creation, management and sharing of knowledge and experience from different areas of OSS among all stakeholders in society.

The Strategy has to use existing Pros and has to address four main pillars:

- OSS enabled education system on all levels,

- OSS based research activities in universities and tertiary education,
- Common place for all OSS, OS, OC activities and
- Common collaboration and technology platform.

## STAKEHOLDERS LANDSCAPE AND TYPICAL GROUPS

Depending on their role and characteristics, they were divided into six typical groups. The baseline and current situation were analyzed, the target situation was set and criteria measures were given. Based on the experience of other countries in the creating and implementing OSS policies and strategies, and on previous experience in preparing similar projects, we have prepared and formed the basic guidelines and recommendations for each group.

- ***Governmental organizations' and organizations' detected role in OSS ecosystem is similar to governmental organizations (GOV)***, which include various relevant ministries, agencies, para-state organizations, some state owned enterprises and other government agencies that are responsible for the planning, monitoring and implementation of various national ICT policies and projects or users of IT solutions in the public administration.
- ***Educational organizations on primary and secondary level (EDU)***, which includes the relevant ministries, agencies and other state institutions responsible for the preparation and training at primary and secondary schools.
- ***Universities, higher and tertiary education (universities and tertiary)***, which includes the relevant ministries, public and private universities, other research organizations, and other government institutions responsible for planning, monitoring and implementation of educational activities in the higher education.
- ***The private sector (Private)***, which includes private companies, as well as some state-owned enterprises, as users of ICT and users of the services provided by the government.
- ***ICT sector, including ICT companies already offering OSS related services or solutions (ICT and OSS ICT)***
- ***OSS communities (OSS Comm)***, including non-governmental organizations and informal groups that are engaged in developing, supporting, promoting or linking users only OSS, OS and OC.

### GOV

The role of GoM in the field of ICT is twofold and important for the development and promotion of the use of OSS in the country.

GoM is a major user of ICT technologies and with its policy of using ICT has a significant impact on use of public funds for ICT and most importantly, serves as an example to other stakeholders in society. OSS and OS represent an opportunity for the GoM to reduce the cost of licenses (saving public resources), or investment saved in the development of new services or improve existing ones.

GoM has a significant impact on the process of choosing and using ICT solutions used by all other stakeholders in society. Thus, the use of certain proprietary data formats, such as office productivity suite, forcing businesses and individuals to purchase appropriate licensed software. Or by the developing of web services that run only on a single web browser or operating system, forcing

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citizens and businesses to use a technologically inferior browser or operating system. Savings in GoM can multiply the savings of the private sector, if they use the same direction.

The key role of the GoM is to be a policy-maker, take a leadership role, and be a pacemaker/supporter of changes in the use of OSS. This crucial role of the GoM has already been taken by the decision to create OSS policies and strategy documents. Open concepts in the field of software and content are highly independent of the large global providers, which is a prerequisite for their success, but also a weakness. OSS, OS and OC have a chronic lack of adequate PR support and public image, which global companies have cleverly built to form an image of superiority, often with average products and services.

Therefore, the GoM has to be a leader in the full respect and implementation of harmonized technical, legal, organizational and technical measures on areas of OSS, OS and OC.

There is sole responsibility on GoM to ensure that all data collected and processed by public funds, is Open Data, thus available to the public for further processing and the development of new innovative value-added services. OD is not a lever to control the GoM, but to upgrade properly anonymised data with the new value.

### **Enterprise Agreement with Microsoft Ltd**

A contract for an amount of Rs 223 million had been signed on 27 June 2008 between the Ministry of Finance & Economic Empowerment on behalf of Government and Microsoft Ltd. for the provision of Microsoft Office Licences while the Ministry of Information and Communication Technology was entrusted with the implementation thereof.

In 2011, three years after the signature of the Microsoft Enterprise Agreement, Ministries and Departments were still not making optimal use of the licences issued and limited benefits have been derived from them.

Additionally, several components of the licences procured were not compatible with the existing software in use in the Ministries and Departments and therefore could not be utilised. [7]

If this is translated to a term of 5 years, it would mean around Rs 45 million per year for some, but not all, desktop, office and server licenses. At least the majority of them could be switched to OSS solutions, like in other countries.

### **A summary of the current situation.**

During the interviews several organizations involved in governmental ICT policies, strategies, planning, managing and implementing ICT technologies have been detected.

Awareness of OSS models and the desire for change among all stakeholders is high. Experience in the use of OSS is often limited and mainly focused on simple solutions, which save money. Organizations often cooperate with each other and share experiences and policies in the field of ICT, but are limited in the field of OSS. Many of them see an inadequate procurement system and a lack of knowledge about the planning and implementation of OSS solutions, especially in the field of education and customer support as a main obstacle in better utilization of OSS.

Despite the general sympathy of the Government of Mauritius for OSS and OS, there is still a great attachment to existing vendors, some projects switched from open source to proprietary solutions, which is probably the result of uncoordinated activity or lack of knowledge.

That's the case with a renewed government portal for e-Government services which were switched from an OSS solution to a proprietary solution for a sum of Rs 50 Millions [8][9]. In the experience of other countries, such as the USA, government internet presence portals and G2C or G2B are one of the most suitable solutions that can be implemented in the OSS with significant savings.

*Disclaimer:* The list of identified potential stakeholders was made on the basis of a review of the current situation and only serves as an example of the approach and beginning of the process of stakeholder engagement. The list is by no means exhaustive. In the further steps it is necessary to identify all stakeholders who are able and willing to participate in joint activities and include them in projects.

#### *NCB - National Computer Board*

The National Computer Board (NCB) was set up in 1988 by the National Computer Board Act (Act No.43) to promote the development of Information and Communication Technologies (ICT) in Mauritius. It is a para-state body administered by a Board of Directors and operates under the aegis of the Ministry of Information and Communication Technology. The vision of NCB is to be the key enabler in transforming Mauritius into a Cyber island and the regional ICT hub.

NCB is also the initiator of GoM's planned step in the direction of OSS and as such is willing and able to implement the OSS Policy, OSS Strategy and OSS Action plan in terms of initiating, coordinating and measuring impact of stakeholders activities. NCB is also a key stakeholder in establishing and managing competence centre, specifically National Open Source Excellence and Competence Centre as proposed in further chapters.

NCB has also GDC under their organizational structure in which open OSS Open Cloud infrastructure should be established and managed.

#### *NOSECC - National Open Source Excellence and Competence centre*

All activities at the national level in relation to OSS, take place within the Ministry of Information and Communication Technology, specifically NCB. NCB is para-state body operating under the aegis of the Ministry of Information and Communication Technology. NCB has a wealth of experience in the preparation and implementation of various policies and strategies. Implementation of OSS Policy and OSS Strategy requires special skills and experiences and some additional technological and project knowledge, to which officials must be adequately prepared, informed, and trained. So it is advisable to set up a separate working body or an independent organization under the aegis of NCB to ensure staff continuity and development of the necessary local knowledge and experience. Also adequate empowerment has to be delegated to coordinate all stakeholders and implement OSS Policy.

The establishment of National Open Source Excellence and Competence Centre (NOSECC) is recommended and a merger of all OSS related activities at one point, which we describe in more detail later.

#### *CIB - Central Informatics Bureau*

The Central Informatics Bureau operates under the aegis of the Ministry of Information and Communication Technology. Its main function is to promote e-Governance through the provision of project management, consultancy and advisory services to Ministries and Departments for the successful implementation of e-government projects and on ICT matters.

- Proposed role and activities
  - implementation of OSS policies
  - procurement process review/renew
  - create and publish OSS technologies/Solutions/service GOV plan for short /Medium term
- Proposed Work Groups
  - OSS tech
  - OS Procurement
  - Smart OSS

#### *CISD - Central Information Systems Division*

The Central Information Systems Division (CISD), formerly known as the Data Processing Division (DPD), was created in 1971. It operates under the aegis of Ministry of Information and Communication Technology and is mainly concerned with the operational aspects of ICT projects. CISD has 2 main sections namely the Technical section (Analyst cadre) and the Operations section (Technical Support and Data Entry cadre).

- Proposed role and activities
  - create knowledge base for used solutions (Howtos, FAQ, docs) - with support of NOSECC
  - train support stuff
  - user of knowledge base
- Proposed Work Groups
  - OSS tech
  - OSS Content

#### *SIL*

State Informatics Limited (SIL) is a Mauritian company that was founded in 1989. Since then, SIL has thrived on the highly competitive local and international markets of integrated solutions, to become a leading Information and Communication Technologies (ICT) service provider in Mauritius and among the major ICT companies in the African region, serving government and private organisations alike.

SIL is aware of importance and potential of OSS in general and specially in the government sector. They have some experience developing new solutions and services based on OSS technologies. They are ready and able to devote more resources in close cooperation with the Government in OSS research and development processes.



- Proposed role and activities

  - research on field of OSS implementation knowledge with government

  - collaborate in university OSS lab

  - OSS pilot projects

- Proposed Work Groups

  - OSS tech

  - OS Procurement

  - Smart OSS

## EDU

Students acquainted with the basic characteristics of the use of ICT is an important condition for promoting and developing the use of OSS at all levels of the education system through regular educational content. It is therefore important that syllabuses include general knowledge, give basic information about the types of software licenses, include the basics of OSS, OS, OC and prepare students for an independent and sovereign use of ICT technologies. No specific tools should be prescribed for learning the content. Awareness of the characteristics of various development and usage models enables students to understand the ICT concepts and not just functionality. To become innovative users of different technologies and not only craft trained operators of tools. The main aim is to train the student to use a generic word processor or spreadsheet and not just a specific product and to ensure they are informed about their rights and restrictions when using different software.

The first step in supplementing the learning process is of course an overview of the current curriculum and to ensure adequate training for the teachers on the topic and methods of teaching OSS.

At the same time, it is important that they comply with the recommendations of open learning materials in creating content, as an efficient way to use taxpayers' money (without duplicate work) and make content freely available also outside the curriculum for alternative forms of (self-) education.

### **A summary of the current situation.**

Awareness of OSS models is present at all levels, though not particularly deep. Organizations are aware of the importance of ICT skills in the learning process, as well as that learning content should be accessible to all users. The use of OSS in the learning process is often dependent on the knowledge and motivation of the individual teacher. Syllabuses in the field of ICT are not sufficiently coordinated and sometimes markedly present an approach of learning specific tools and not concepts (Learning MS Word and MS Excel). Many of them see a lack of systematic approach to OSS and lack of education and users support as a main obstacle in better utilization of OSS.

*Disclaimer:* The list of identified potential stakeholders were made on the basis of a review of the current situation and only serves as an example of the approach and beginning of the process of

stakeholder engagement. The list is by no means exhaustive. In the further steps it is necessary to identify all stakeholders who are able and willing to participate in joint activities and include them in projects.

#### *MEHR - Ministry of Education and Human Resources*

##### Vision of the Ministry

A Quality Education for all and a Human Resource Development base to transform Mauritius into an intelligent nation state in the vanguard of global progress and innovation.

##### Mission of the Ministry

To develop a culture of achievement and excellence by promoting an efficient and effective education and training system that is inclusive and integrated, comprehensive and holistic.

To foster innovation and to generate new knowledge for the socio-economic and sustainable development of the nation.

To ensure learning opportunities accessible to all, provide learners with values and skills to further their personal growth, enhance their critical and exploratory thinking and encourage them to innovate and to adapt to changes in an increasingly globalised environment.

- Proposed role and activities

- coordination of syllabus review on different levels

- coordination of creating OSS, OS content

- Proposed work groups

- OSS Edu

- OSS Content

#### MIE - Mauritius Institute for Education

The Mauritius Institute of Education (MIE) is a Parastate body, working under the aegis of the Ministry of Education and Human Resources. Set up in 1973 with the prime objective of modernizing the education sector and endowing it with a professional teaching workforce, the MIE provides training for the pre-primary, primary and secondary sectors of education, targeting all cadres, including teaching and management. The training provided is in line with state of the art pedagogical practices and the constant benchmarking of courses offered according to international standards ensures that the qualifications delivered by the MIE are recognized around the world.

MIE is also responsible for Research and Curriculum Development. It is the body in charge of developing the curriculum, textbook writing and evaluation.

- Proposed role and activities

- produce create OSS, OS content and syllabus for prim/sec

- use the OSS Open Cloud

- Proposed Work Groups

- OSS Content

- OSS Edu

## **TERTIARY AND UNIVERSITIES**

OSS is not only a free software that provides an alternative to proprietary products and free use, but rather the concept of development, collaboration, deployment and distribution of existing software solutions. The aim of higher education institutions, in particular this applies to the technical direction of ICT, is such a program that provides a universal, standardized and broad knowledge. Such knowledge enables a higher level of innovation and conceptual approach to solving engineering problems. Cooperation and sharing content, knowledge and results of the work, should be characteristic of the academic approach, and should therefore be close to universities and a natural ally.

Concepts of OSS, OS and OC are an opportunity for higher education, to develop their programs in line with these objectives, following the ideals of an open and independent academic platform.

This is particularly important for all programs of informatics and computer science. According to a study on the needs of the ICT sector, Mauritius is suffering from the shortage of a skilled ICT labour force. Most of the promising talents are absorbed by large companies or leave the country to work abroad because they do not find relevant challenges at home. At the same time the government wants, in line with the e-strategy, to develop and restructure the local ICT industry from predominantly BPO-oriented to a service oriented software industry with high added value, which may successfully export its own products and services to region.

The way to more advanced, more innovative, and vibrant local ICT industry is through an improved education system. It should develop innovative and qualified students that can apply their knowledge in any technological and business environment. A suggested ICT academy is a possibility that will solve one problem and ensure staffing for the BPO sector, but in the long term wouldn't be able to foster growth in other EDU areas.

OSS and OS represent a necessary and largely sufficient condition for the study of computer and information science, since they allow free availability of the latest technologies and solutions compliant with open standards. Not only through technology, but also through opportunities to cooperate in global collaboration platforms and get access to the core knowledge on the use, development and upgrading of these solutions.

Students should learn the concepts of ICT on OSS and OS cases because they can easily apply them in any solution. At the same time, OSS enables students to join the global OSS development groups in time of study, first as users, testers, especially users of knowledge, and later as developers to develop their skills and gain experience.

Such experiences also significantly raise the employability of graduates. More and more global companies appreciate the skills and experience of team-development or deployment solutions rather

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than formal education. Such knowledge and experiences are also a necessary condition for the promotion of a local start-up industry and development of local innovative ICT products.

At the same time, it is important that they comply with the recommendations of open learning materials in creating content, as an efficient way to use taxpayers' money (without duplicate work) and make content freely available also outside the curriculum for alternative forms of (self-) education.

In order to successfully fulfil the vision of OSS, GoM has to foster and develop the local scientific research activities in this field. Coordinated collaboration between the universities, the private sector and the GoM should enable innovation and development and create a sufficient capacity building process and personnel to support the planned activities.

### **A summary of the current situation.**

Awareness of OSS models is present at all levels, though not particularly deep. Organizations are aware of the importance of ICT skills in the learning process, as well as that learning content should be accessible to all users. The use of OSS in the learning process is often dependent on the knowledge and motivation of the individual teacher. Syllabuses in the field of ICT are not sufficiently coordinated and sometimes markedly present an approach of learning specific tools and not concepts (specific enterprise tools). Many of them see a lack of systematic approach to OSS and lack of education and users support as a main obstacle in better utilization of OSS. OSS as a field of research is almost imperceptible. Extensive research and experience in development, business models and ecosystems does not exist.

*Disclaimer:* The list of identified potential stakeholders was made on the basis of a review of the current situation and only serves as an example of the approach and beginning of the process of stakeholder engagement. The list is by no means exhaustive. In the further steps it is necessary to identify all stakeholders who are able and willing to participate in joint activities and include them in projects.

#### *UoM - University of Mauritius*

The core mission of the University is the creation and dissemination of knowledge and understanding for the citizens of Mauritius and the international community.

The University of Mauritius aspires to be a leading international university, bridging knowledge across continents through excellence and intellectual creativity.

UoM is large and mature organization, so executives are clearly aware of the importance of the concepts of openness of knowledge, learning and collaboration between stakeholders in OSS

Within the organization, we found two important centres for proposed OSS ecosystem:

CITS - Centre for Information Technologies and Systems

CPDL - Centre for Professional Development and Lifelong Learning

- Proposed role and activities

- OSS lab as hands on experience lab for students and teachers

use the OSS cloud

OSS, OS content

content for OSS lab

use different OSS solutions SaaS

○ Proposed Work Groups

OSS Content

OSS tech

OSS Edu

Smart OSS

#### *MITD - Mauritius Institute for Training and development*

Parastate organization for Mauritius provides a directory, courses offered, resource centre, newsletters, and details about the National Apprenticeship Scheme

○ Proposed role and activities

train trainers

students

train for LPI, PHP, ECDL certification

use the OSS cloud

○ Proposed Work Groups

OSS Content

OSS Edu

#### *TEC - Tertiary Education Commission*

The Tertiary Education Commission has as objectives to promote, plan, develop and coordinate post-secondary education in Mauritius and to implement an overarching regulatory framework to achieve high international quality. It also has the responsibility to allocate government funds to the Tertiary Education Institutions under its purview and to ensure accountability and optimum use of resources.

○ Proposed role and activities

coordination of content creation

approve content

use the OSS cloud

○ Proposed Work Groups

OSS Content

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## OSS Edu

*MTESRT - Ministry of Tertiary Education, Science, Research & Technology*

### VISION

### MISSION

Expand the Tertiary Education sector to increase access, further enhance Quality, and promote Research, Science and Technology to increase our competitiveness.

- Proposed Work Groups

OSS Content

OSS tech

OSS Edu

Smart OSS

*AUF - Agence universitaire de la Francophonie*

The Agence universitaire de la Francophonie (AUF) is present on all continents, with more than 427 agents in 67 offices attached to new offices. Since 1989, this association of universities is an operator of institutional Francophonie. A partner of higher education and research institutions who have chosen French as the language of instruction, it offers several cooperation programs including support research and teaching in French.

Francophone Digital Campus Reduit is located within the grounds of the University of Mauritius, FDC is part of the Agence universitaire de la Francophonie. It provides students, teachers and researchers a local service dedicated to scientific and technical information: consultation or query databases necessary for their work; control of primary documents (scientific papers and theses); lending books; and production and distribution of content on the global network. The visitors can order up to 20 free French documents per year. The AUF funds only articles in French, up to 22%. Paid access to desktop services (Internet / printing) is also available. IFDC promotes free software such as Linux and Open Office.

- Proposed role and activities
  - certification LPIC
  - additional Cert programs
  - use the OSS cloud
    - create content
- Proposed Work Groups
- OSS Content

*OUM - Open University of Mauritius*

The Open University of Mauritius (OU) was established on 12 July 2012 according to the Open University of Mauritius ACT 2010. The Mauritius College of the Air, which was established in 1971, has integrated the Open University of Mauritius in July 2012. The Open University aims at delivering quality education to learners who are unable to be physically present on campus. With flexible study options, its prospective learners can study from home, work, or anywhere in the world, at a time that suits them and their lifestyle. Even if the OU is not a residential university, they greet learners at the Induction session, and organise tutorial sessions where learners meet tutors. The vision of the Open University of Mauritius is to be among the leading open universities recognized worldwide for providing high-quality education and training.

- Proposed role and activities

- produce OSS, OS content and syllabus for uni/tert

- use the OSS cloud

- OSS, OS content

- platform for their activities (web, forum, doc, forge)

- Proposed Work Groups

- OSS Content

- OSS Edu

- Smart OSS

#### *UTM - University of Technology, Mauritius*

The University of Technology, Mauritius (commonly known as UTM) is a public university in Mauritius. The main campus lies in La Tour Koenig, Pointe aux Sables within the district of Port Louis. It was founded following the GoM approval of the setting up of the University of Technology, Mauritius in January 2000 and the proclamation of the The University of Technology, Mauritius Act on 21 June 2000. The UTM is the latest of the two universities present in Mauritius.

UTM has a specialized mission with a technology focus. It applies traditional and beyond traditional approaches to teaching, training, research and consultancy. The university has been founded with the aim to play a key role in the economic and social development of Mauritius through the development of programmes of direct relevance to the country's needs, for example in areas like technology, sustainable development science, and public sector policy and management. UTM is a member of the Association of Commonwealth Universities and is listed in the Commonwealth Universities Handbook and in the International Handbook of Universities. UTM is also a member of the Southern African Regional Universities Association (SARUA) - A network of public universities in the SADC region.

- Proposed role and activities

- produce OSS, OS content and syllabus for uni/tert

- use the OSS cloud

- put OSS, OS content
  - OSS, OS content
  - platform for their activities (web, forum, doc, forge)
  - Proposed WGroups
- OSS Content
- OSS tech
- OSS Edu
- Smart OSS

## OSS COMMUNITIES

The phenomenon of OSS is characterized by a high degree of visionary and voluntary work, so these communities can be an important source of advocacy of OSS, OS and OC and a platform for broad information society activity. At the same time, they are a good source of technological and technical skills, and an important factor in connecting local users in the global network.

### **A summary of the current situation.**

OSS activities are noticeable on various levels. There are several formal and informal groups of users and developers of OSS, which are well organized and carry out more or less regular activities. Due to the limited human and financial resources and limited cooperation with global communities, their operation is limited mainly to the organization of societies' meetings and various promotional events.

*Disclaimer:* The list of identified potential stakeholders was made on the basis of a review of the current situation and only serves as an example of the approach and beginning of the process of stakeholder engagement. The list is by no means exhaustive. In the further steps it is necessary to identify all stakeholders who are able and willing to participate in joint activities and include them in projects.

### *LuGM - Linux user Group of Mauritius*

The Linux User Group of Mauritius is one of the few Linux User Groups in the Republic of Mauritius, quite possibly the only active one. It is registered with the Registrar of Associations under the name "Linux User Group Meta" since 2009. They all share a common interest, Linux, GNU and Free Software. The LUGM is open to all those in Mauritius who are curious about Linux, users of Linux (new or seasoned) and lovers of free software/open source in general.

Its mission is to:

- Educate anyone wanting to become familiar with Linux
- Support individuals or businesses having Linux-related problems
- Organise regular meetings between all LUGM members and share views, opinions, experiences and have a good time.
- Proposed role and activities



- 
- produce OSS, OS general content
  - support (non-operational - tech/project)
  - conf organisation
  - use the OSS cloud
    - put OSS, OS content
    - OSS, OS content
    - platform for their activities (web, forum, doc, forge)
  - Proposed WGroups
  - OSS Content
  - OSS tech
  - OSS Edu
  - OS Procurement
  - Smart OSS

#### *AFRINIC*

- Proposed role and activities
- support tech
- Proposed WGroups
- OSS tech
- Smart OSS

#### **PRIVATE**

The private sector is the largest end-user target group that can take advantage of the use of OSS, OS and OC.

#### **A summary of the current situation.**

Among private organizations - companies, there is a basic understanding of the concepts OSS, OS and tools that are available. However, knowledge is limited to the basic popular desktop tools and standard server solutions for email, web servers, and the like. Knowledge and experience in the use of OSS in enterprise environments where you can replace costly proprietary solutions, is almost non-existent.

The vast majority of users express clear interest in OSS and want to know and try out several options, but is limited by the lack of their own knowledge, and in particular the lack of provision of services in the design and use of OSS solutions.

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*Disclaimer:* The list of identified potential stakeholders was made on the basis of a review of the current situation and only serves as an example of the approach and beginning of the process of stakeholder engagement. The list is by no means exhaustive. In the further steps it is necessary to identify all stakeholders who are able and willing to participate in joint activities and include them in projects.

## **ICT AND OSS ICT SECTOR**

The Mauritius ICT sector has developed considerably, but is focused on a few key areas, especially in the field of Business Process Outsourcing (BPO) and Call Centres (CC). The ICT solution providers are the key for the development of OSS and OS related local industry. A large part consists of system integrators that sell primarily hardware and licensed software, and adapt well-established global solutions for the local market. The second group are software development companies that develop their own solutions, again with the help of proprietary technologies, but usually with greater added value and clearer development vision. Desired and important for this study are companies that offer consulting, planning, implementation and maintenance services for solutions based on OSS and OS. Its products are already being developed on the basis of business and development OSS models. These businesses are the foundation of the development of OSS related professional services, and can use suitably qualified professionals from universities to develop local support, which is a necessary condition for the implementation of OSS policies.

### **A summary of the current situation.**

A group of larger ICT companies, which represents the majority of the economic potential of the ICT sector, consisting mainly of system integrators and partners, global providers, represented a relatively conservative attitude towards the use of OSS. Due to their commercial links with principals - proprietary solution providers and their business models, they feel OSS as a threat to their market position and we can expect at least passive, if not active opposition to all proposed changes. Despite the fact that there is a small probability of active role, these group have to be informed and encouraged.

More important is the group of companies, who do not account for such economic power, but are familiar with development and business models, OSS and partially used OSS technologies and solutions in the development of their products and design services. These companies may substantially contribute to the creation of an ecosystem, because they see the changes as an opportunity. At the same time, they are a potential partner in the design requirements and recommendations of government users.

*Disclaimer:* The list of identified potential stakeholders was made on the basis of a review of the current situation and only serves as an example of the approach and beginning of the process of stakeholder engagement. The list is by no means exhaustive. In the further steps it is necessary to identify all stakeholders who are able and willing to participate in joint activities and include them in projects.

## **OSS OPEN ECOSYSTEM**

To realize the OSS vision of the government, it's necessary to encourage an ambitious and dynamic OSS ecosystem, which will involve all stakeholders together, will integrate all of the existed knowledge, experience, ideas and enable development of the new ideas, ways of cooperation and will be of mutual benefit to all stakeholders. All stakeholders should be part of the ecosystem and to see the ecosystem as opportunity for realisation of their visions and missions.

## **WHAT IS ICT ECOSYSTEM**

For purpose of National OSS Policy and Strategy of Mauritius we reference the term as defined by [Harvard Law School – 2005]:

An ICT ecosystem encompasses the policies, strategies, processes, information, technologies, applications and stakeholders that together make up a technology environment for a country, government or an enterprise. Most importantly, an ICT ecosystem includes people - diverse individuals who create, buy, sell, regulate, manage and use technology. An ICT ecosystem is defined as open when it is capable of incorporating and sustaining interoperability, collaborative development and transparency. Increasing these capacities helps create flexible, service oriented ICT applications that can be taken apart and recombined to meet changing needs more efficiently and effectively.

## FOUR STRATEGY PILLARS

The development and implementation of OSS Policy and OSS Strategy should be based on four pillars which are necessary for growth of an active OSS ecosystem.

- OSS enabled education system on all levels
- OSS based research activities on universities and tertiary education
- Common place for all OSS, OS, OC and OD activities
- Common collaboration platform and technology platform

### OSS ENABLED EDUCATION SYSTEM ON ALL LEVELS

OSS enabled education system as described in goals for EDU stakeholder group.

### OSS BASED RESEARCH ACTIVITIES ON UNIVERSITIES AND TERTIARY EDUCATION

OSS based research activities on universities and tertiary education as described in goals for University and Tertiary stakeholder group.

### COMMON PLACE FOR ALL OSS, OS, OC AND OD ACTIVITIES

Modern social communities use internet infrastructure as a platform and tend to collaborate on virtual platforms. But considering the scale of Mauritius and fragmented baseline, the different types and attitudes of stakeholders, physically collaboration and meetings have to be fostered and encouraged. A common office/meeting, research facilities would highly accelerate community dynamics of the whole ecosystem.

#### **Open Space - place to integrate all OSS related activities and collaborations.**

An office space where NOSECC administrative/office HQ, located near major stakeholders (university campus or Ebene CyberCity). Activities or initiatives to be launched or included, but not limited to:

- NOSECC office, organizational and other coordinating tasks
- meeting place for work groups, communities
- innovation centre
- a fablab network
- OSS related and other start-ups incubator
- a co-working network
- a university open lab
- OSS specific trainings
- Etc.

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## COMMON COLLABORATION PLATFORM AND TECHNOLOGY PLATFORM

One of the weaknesses of the current OSS baseline in Mauritius is also the lack of communication and collaboration across OSS ecosystems. Although somehow active, groups of users are not connected, not even virtually. Collaboration with the global OSS ecosystem is weak and based on personal reference and activity. Access to the global ecosystem and source of OSS is limited due to high cost of international bandwidth and local broadband availability.

Availability and speed of local and international broadband connections is one of the obstacles to faster development of the OSS ecosystem.

Therefore, the government should consider measures to reduce barriers for greater competition on international connections, which is already implemented through some other government strategies and greater availability of local broadband connections. Particularly beneficial would be the implementation of broadband backbone interconnection of all university and tertiary institutions - a sort of academic broadband network. Such a network would facilitate hosting of OSS content at the national level and allow access of a large number of students and researchers to OSS content and OSS tools.

GoM already has an existing datacenter and should in that context facilitate and establish a common technology platform in the form of OSS Open Cloud, to support OSS activities, pilot some technologies and gain "hands - on" experiences with OSS technologies.

Open Cloud should be based on Open Source Cloud and virtualization technologies and solutions and use commodity HW.

Proposed functionality:

- hosting web sites for all OSS ecosystem activities
- hosting collaboration platform: forums, forge, mailing lists
- Document repository - knowledge base (HowTos, User Manual, Best Practices, FAQ, docs, best practices, templates)
- SW repository content
- hosting educational content (moodle cluster) EDU curriculum and teacher training
- OSS specific IaaS, PaaS and SaaS offer for Gov and stakeholders
- platform for all smart initiatives
- hosting OSS mirrors
- donating their resources to OSS projects

## SHARED GOALS

### GOAL 0.1 NOSECC

The creation of National Open Source Excellence and Competence Centre represents a major goal in creating sustainable and centralised, government driven process of OSS Policy implementation.

- **Objective 0.1.1** Direction in the development and use of OSS, OS, OC

- Current situation

Mauritius creates OSS Policy, Strategy and Action Plan

OSS baseline is fragmented and weak

guidelines, directions have to be given and controlled

- Targets

Target 0.1.1.1 Clear vision, guidelines for direction and time frame for further steps based on documents

procedure for measuring: documents and guidelines

- Activities

Activity 0.1.1.1 Create directions, guidelines in development and use of OSS, OS, OC

- **Objective 0.1.2** Awareness on OSS, OS, OC

- Current situation

There is no awareness on opportunities and specifics in general in specific public

EDU system is not OSS aware

ICT sector is not aware of business and development opportunities

- Targets

Target 0.1.2.1 great awareness of general public and specific stakeholders group

- Activities

Activity 0.1.2.1 Open Summit of Mauritius

Activity 0.1.2.2 Create and coordinate work of work groups

- OSS Content: OSS, OS, OC content creation (for students, teachers, tertiary, etc)
- OSS tech: GOV technologies/solution selection (DMS, Web application stack, mobile platform, e-gov platform)
- OSS Edu: Edu system review
- OS Procurement: procurement system review and renew

- Smart OSS: oss tech review for SmartX (energy, City, Health, mobile)
- **Objective 0.1.3** Informations, expertise to support Policy implementation
  - Current situation

there are no or little know-how, expertise

expertise in Policy implementations form other ICT sectors

Specific expertise have to be based on consulting approach and based on global knowledge

- Targets

Target 0.1.3.1 Expertise to support policy implementation

procedure for measuring: local expertise in NOSECC and ICT

- Activities

Activity 0.1.3.2 Know-how and knowledge of Pol simple development

- Learning and training from available resources (EU)
- Consultancy services to gain implementation expertise
- Visiting global summits with OSS in GOV content
- joining global network of FLOSS C
- **Objective 0.1.4** Contribute to the development of local OSS expertise
  - Current situation

Existing local expertise is rare and fragmented

no expertise on business models

- Targets

Target 0.1.4.1 expertise to foster local OSS expertise

procedure for measuring: level of local OSS expertise

- Activities

Activity 0.1.4.1 Know-how and OSS expertise knowledge

- Learning and training from available resources (EU)
- Consultancy services to gain implementation expertise
- Visiting global summits with OSS in GOV content
- joining global network of FLOSSCC
- **Objective 0.1.5** Coordination between stakeholders and work groups
  - Current situation

Mauritius creates OSS Policy, Strategy and Action Plan

OSS ecosystem non-existent and fragmented

a lot of good OSS, OS, OC initiative, but totally non related

no info exchange

no collaboration between stakeholders and groups

- Targets

Target 0.1.5.1 coherent, unified and focused activities

procedure for measuring: vivid central point of coordination for activities

- Activities

Activity 0.1.5.1 Coordination between OSS stakeholders

- Organizing Work Groups
- supporting and leading their work
- motivating stakeholders to participate



## GOALS FOR SPECIFIC ENTITIES

### GOV

#### *Goal 1.1 To create a cost-effective and connected eGovernment*

- **Objective 1.1.1** Procurement tech neutral, focused on innovation, sustainability and OS

- Current situation

Not technology neutral

Include specific vendor/product request

Procurement system for ICT is inadequate, based on procurement of goods

Global practice fair competition requests for tech neutrality

Stakeholder are complaining that such practice ruin their development

- Targets

Target 1.1.1.1 Public procurement technology neutral and in favour to OS

procedure for measuring: all tenders have to be monitored and logged in %

Target 1.1.1.2 monitoring system of OS compliance

procedure for measuring: List of OS compliant SW in GOV

Target 1.1.3.2 Create procurement system specific for ICT

Measuring: new procurement system for ICT focusing on functionality, innovations, sustainability, partnership with local ICT industry

- Activities

Activity 1.1.1.1 to review, create and extend procurement system

not to include specific vendors

to impose OS and OSS

to be ICT specific

Activity 1.1.1.2 to establish and monitor OS compliance

- to have overview about OS compliance
- **Objective 1.1.2** Reduced total cost of ownership

- Current situation

Technology foundation mainly from big vendors

Costly licenses scheme

Costly maintenance

Global practice toward OS and multiple technologies

OS as foundation to lower integration costs

- Targets

Target 1.1.2.1 To rely on OSS or cost effective technologies based on OS

procedure for measuring: % of all or newly procured ICT systems based on OS and/or OSS

Target 1.1.2.2 Build competitive local OSS based service offer

procedure for measuring: quality and quantity of services offered by local ICT

- Activities

Activity 1.1.2.1 Through OSECC build local OSS offer

- **Objective 1.1.3** Increased interoperability among systems

- Current situation

Technology foundation mainly from big vendors

Interoperability provided by technology monopoly

Major barriers when using OSS and OS

Global practice toward creating interoperability frameworks

OS as foundation to interoperability

- Targets

Target 1.3.2.1 To create interoperability framework based on OS

procedure for measuring: existence of an interoperability framework

Target 1.3.2.2 All IT systems in compliance with IOF

procedure for measuring: % of all IT system in compliance with IOF

- Activities

Activity 1.3.2.1 Create and approve IOF

Activity 1.3.2.2 to establish and monitor compliance with IOF

- to have overview about IOF compliance

- **Objective 1.1.4** Freedom of choice of software usage

- Current situation

Prevalent used solutions dictating other users choice

No specific guidelines choosing SW

No knowledge and support about choosing SW

A few options to choose

Freedom of choice is one of the imperatives of free information society

- Targets

Target 1.1.4.1 Public procurement technology neutral and in favour to OS

procedure for measuring: all tenders have to be monitored and logged in %

Target 1.1.4.2 Knowledge and support how to choose OS and OSS based

procedure for measuring: Existing support channel

Target 1.1.4.3 Public guidelines on choosing SW and technologies and OS

Measuring: new procurement system for ICT focusing on functionality, innovations, sustainability, partnership with local ICT industry

- Activities

Activity 1.1.1.1 to review, create and extend procurement system

- not to include specific vendors
- to impose OS and OSS
- to be ICT specific

Activity 1.1.4.1 create knowledge and support how to choose OS and OSS based IS

Activity 1.1.4.2 create public guidelines on choosing SW and technologies and OS

- **Objective 1.1.5** Usage of OSS, OS wherever it's possible

- Current situation

Bind to current vendors with technology and compatibility issues

OSS usage low to very low

Not in mission critical system

Global practice toward usage of OSS and OS

Stakeholder need support in terms of consulting, training

- Targets

Target 1.1.5.1 Usage of OSS where ever possible

procedure for measuring: % of IS based on OSS (budget, users)

Target 1.1.5.2 Evaluate an OSS option in every project/tender/specks

procedure for measuring: % of tenders/projects/specks with OSS evaluation

Target 1.1.5.3 Knowledge and support hub

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#### Target 1.1.5.4 Action plan for OSS GOV usage on desktops

- Activities

Activity 1.1.5.1 Create guidelines on how to evaluate OSS

Activity 1.1.5.2 To create repository of recommended OSS per field

Activity 1.1.5.3 To create knowledge and support hub

Activity 1.1.5.4 To create Action plan to use OSS based desktop

- baseline assessment
- technology used - restrictions?
- propose reference desktop environment
- Pilot in some org
- **Objective 1.1.6** To gain how-to and experiences using OSS as a platform for e-gov projects

- Current situation

No or very little know how about using OSS in critical GOV systems

OSS usage low to very low

Not in mission critical system

Global practice toward usage of OSS and OS in many e-gov initiative

Many isolated small projects without knowledge/how-to exchange

- Targets

Target 1.1.6.1 Create knowledge and how-to running OSS in enterprise

procedure for measuring: quality and quantity of structured knowledge

number of trained and/or certified professionals

Target 1.1.6.2 Create common OSS cloud platform for pilots/projects

procedure for measuring: existing Open Cloud Platform

- Activities

Activity 1.1.6.1 Create architecture and technologies for Open Cloud Platform

Activity 1.1.6.2 Create Open Cloud platform

- pilot projects
- SaaS pilot and production offer
- production projects (Open Data, Big Data, mobile, Smart energy, smart city)

Activity 1.1.5.3 to create knowledge and support hub

---

## **Goal 1.2 OSS ecosystem with included all major stakeholders**

- **Objective 1.2.1** Common event platform

- Current situation

Currently there is no major platform connecting ALL stakeholders

Some small events or general public oriented - LUGM events, INFOTECH

Importance of national event for exchange ideas, cases, offer, etc

Gglobal, well established OSS events

- Targets

Target 1.2.1.1 Open Summit of Mauritius

procedure for measuring: national yearly Open Summit of Mauritius

- Activities

Activity 1.2.1.1 to organize Open Summit of Mauritius

- **Objective 1.2.2** Common knowledge platform

- Current situation

There is no OSS knowledge portal in Mauritius

Small communities with fragmented infos, forums, portals

Importance of national event for exchange ideas, cases, offer, etc

- knowledge sharing
- forums
- repositories (documents, SW)
- Distant learning platform for OSS content

Global focus on national OSS competence centres

- Targets

Target 1.2.2.1 National OSS knowledge platform

procedure for measuring: national OSS knowledge platform

Target 1.2.2.2 Create reference OSS contents

procedure for measuring: quantity and quality of OSS content

- Activities

Activity 1.2.2.1 to Create national OSS knowledge platform

- forums for solutions, tools, communities

- 
- document repository
  - info portals
  - howtos
  - guidelines, policies

#### Activity 1.2.2.2 to Create reference OSS content

- moderated forums
- national guidelines, policies, manuals
- moderated SW repository
- howtos
- Open Content syllabus
  - LibreOffice
  - Linux/Ubuntu
  - Open Source
  - Open Standards
  - Open Content
  - Open Licenses
- **Objective 1.2.3** Open Cloud platform

- Current situation

There is no central OSS GOV infrastructure in use or fragmented servers for different tasks.

Importance of national Open Cloud infrastructure in terms of supporting OSECC activities: OSS platform to host different OSS solutions, hands-on experiences for users, platform to do proof of concepts for larger projects. Global focus on public infrastructure as enabler of development and innovation.

Stakeholders clearly express need for central infrastructure to host collaboration platforms (forums, forge, knowledge base, and content (Moodle, web sites)

- Targets

#### Target 1.2.3.1 National Open Cloud infrastructure

procedure for measuring: national Open Cloud

#### Target 1.2.3.2 Technology framework for:

- web presence
- e-gov G2C web services
- e-gov G2B web services

- document process management
- e-health
- Open Data
- Big Data
- Smart Cities
- Smart Grid
- project management
  - Activities

#### Activity 1.2.3.1 to Create national Open Cloud - via OSECC

- based on commodity Intel HW
- with enterprise features (HA, redundant, SAN)
- fully horizontally elastic
- build on OSS stack - OS, hypervisor, cloud management

### ***Goal 1.3 Developed and OSS enabled ICT sector***

- Objective 1.3.1 Promotion of OSS models in ICT private sector
  - Current situation

ICT sector is not aware of opportunities of OSS

ICT is not aware of specific innovative business and development models

BPO and offshore development focused ICT with lower added value

Threats of moving CC to cheaper labour locations

Need for business models with higher value

- Targets

Target 3.2.1.1 Well informed and OSS empowered ICT

procedure for measuring: number of ICT based on OSS business and/or development model

Target 3.2.1.2 ICT companies active in OSECC activities

procedure for measuring: number of ICT active in OSECC activities

- Activities

Activity 3.2.1.1 invite and encourage ICT in OSECC activities

- Objective 1.3.2 ICT comp bidding for tenders with OSS
  - Current situation

No OSS bidding on public tenders

## Procurement system against OSS - specks to commercial SW

Fear of GOV users of OSS

ICT not aware of opportunities

- Targets

Target 3.2.1.1 Well informed and OSS empowered ICT

procedure for measuring: num of ICT based on OSS business and/or development model

Target 3.2.1.2 ICT companies active in OSECC activities

procedure for measuring: num of ICT active in OSECC activities

Target 3.2.2.1 ICT companies bidding on tenders with OSS solution

procedure for measuring: num of ICT companies bidding on tenders with OSS solution

Target 3.2.2.2 awareness of ICT managers of OSS solutions

procedure for measuring: number of ICT managers trained in OSS

- Activities

Activity 3.2.1.1 invite and encourage ICT in OSECC activities

Activity 3.2.2.1 invite ICT to bid with OSS

Activity 3.2.2.2 Train ICT managers in OSS

## EDU

### *Goal 2.1 Technology neutral, OS based and OSS aware EDU system*

- **Objective 2.1.1** Technology neutral and vendor independent Syllabus

- Current situation

Syllabus are not tech neutral

Often specific tools are required

Often specific solutions is used as synonym

global trend Teach the technology and principles not the tool

- Targets

Target 2.1.1.1 Tech neutral and vendor independent Syllabus

procedure for measuring: % of vendor dependent syllabus

- Activities

Activity 2.1.1.1 review the syllabus on all levels

- **Objective 2.1.2** Principles of OSS, OS, OC basics added in Syllabus



- Current situation

No systematic approach to teach OSS, OS, OC

Depends on teachers

- Targets

Target 2.1.2.1 OSS, OS, OC contents added to syllabus according to level

- to create additional syllabus content
  - OSS development and business model
  - Open Standards / Open Content
  - licenses (SW and content)
- to promote ICT certifications at all levels
- to create general OSS training Open Content
  - All teachers
    - OSS definition and examples
    - Open Content & licenses
    - typical replacement tools, usage of desktop, office, browser, other edu tools?)
  - ICT teachers
    - OSS development and business model
    - Open Standards / Open Content
    - licenses (SW and content)
    - typical replacement tools, usage of desktop, office, browser, other educational tools?)
- to review and extend syllabus to be technology neutrality
- to promote and require certification for ICT students
- to evaluate and propose some OSS specific syllabus
- procedure for measuring: % syllabus with OSS
  - Activities

Activity 2.1.2.1 to add OSS, OS, OC contents syllabus according to level

- **Objective 2.1.3** Trained/cert teachers/students in OSS, OS, OC
  - Current situation

Teachers are generally not trained in OSS basics

Depends on teachers interest

Global trend to OS, neutrality in syllabus

To teach the technology principles, not the tools

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- Targets

Target 2.3.2.1 ICT teachers trained in OSS, bus/dev models, OS, licences, etc.

procedure for measuring: % ICT teachers trained

Target 2.3.2.2 teachers trained in OSS, licences, OC, etc

procedure for measuring: % teachers trained

- Activities

Activity 2.3.2.1 create syllabus for teacher training

global trend OS, neutrality, OSS have to be included

Activity 2.3.2.2 teacher training program

## TERTIARY AND UNIVERSITIES

### *Goal 3.1 OSS, OS, OC based research ICT activities*

- **Objective 3.1.1** Promotion of OSS tools as general research platform

- Current situation

Researchers use a lot of specific proprietary tools, which is also available in OSS

There is no awareness of OSS as viable source of research tools

- Targets

Target 3.1.1.1 Researchers at Universities use OSS tools

Statistics, technical tools, visualization, programming

procedure for measuring: % of researcher using OSS

- Activities

Activity 3.1.1.1 Promotion of OSS ICT in research

Include research community into the NOSECC activities

- **Objective 3.1.2** Research and students work on OSS, OS, OC

- Current situation

No research on OSS field

Depends on teachers - some teaching on OSS tools

To teach concepts, you have to use generic OS tools

- Targets

Target 3.1.2.1 Projects based on OSS, scientific papers, diplomas, articles related to OSS

Technical and non-technical:

OSS tools in business practise (CRM, ERP, DM, BPM, BPN, etc)

OSS tools in CW architecture practise

Study of sociological impact of OSS

Business, development models

SW maturity model, matrix

- procedure for measuring: % of documents, projects with OSS

- Activities

Activity 3.1.2.1 Promotion of ICT related activity and support

With ideas about topics

Attend global events

## PRIVATE

### *Goal 4.1 Implementation of an Open Government strategy*

- **Objective 4.1.1** Increase governmental openness

- Current situation

E-gov projects going on

Open Data initiative under study

- Targets

Target 4.1.1.1 Build an open government initiative ecosystem

Target 4.1.1.2 Build a data lab ecosystem

Target 4.1.1.3 Provided updated governmental information systems

Target 4.1.1.4 Provide an adapted platform

Target 4.1.1.5 Start-up smart energy projects

Target 4.1.1.6 Start-up smarcities projects

Target 4.1.1.7 start-up open concepts projects

- Activities

Activity 4.1.1.1 Set up an Open Government hub

Activity 4.1.1.2 Set up a data lab

Activity 4.1.1.3 Review all governmental information systems

Activity 4.1.1.4 Build an adapted platform for open government

Activity 4.1.1.5 Start-up a smart open energy initiative

Activity 4.1.1.6 Start-up an open smart cities initiative

Activity 4.1.1.7 Support innovative projects based on open concepts

## OSS COMMUNITIES

### *Goal 5.1 Integrated and active OSS communities*

- **Objective 5.1.1** Support and create national OSS communities linked to international communities

- Current situation

One active OSS community

Several disseminate open geeks and fellows

- Targets

Target 5.1.1.1 having a community room

Target 5.1.1.2 have a dynamic fablab

Target 5.1.1.3 having a national recognition

- Activities

Build a common place at the innovation centre

Activity 5.1.1.1 Manage the innovation centre's fablab

Activity 5.1.1.2 Take part of events, workshops and conferences

## ICT AND OSS ICT SECTOR

### *Goal 6.1 OSS enabled ICT sector*

- **Objective 6.1.1** Inform and educate ICT sector about OSS as a leverage to add value to their business

- Current situation

Local ICT sector is oriented toward proprietary solutions, as a tool to service offer

Depends heavily on the use of proprietary technologies and solutions

Not aware about opportunities and offer of OSS solutions

- Targets

- Target 6.1.1.1 ICT sector uses and are aware of possibilities of OSS

- Activities

Activity 6.1.1.1 Promotion of OSS possibilities and activities within ICT sector

- **Objective 6.1.2** Activate local ICT sector which offer ICT solutions and services to private and government as a partner in OSS ecosystem

- Current situation

Local ICT sector is oriented toward proprietary solutions

Depends heavily on the use of proprietary technologies and solutions

There is no or little offer of services and solution based on OSS

Lack of support service is the biggest concern of majority of potential OSS users

- Targets

Target 6.1.2.1 ICT sector collaboration in OSS activities

Target 6.1.2.2 Local offer of OSS related services (consultancy, support, implementation, training)

- Activities

Activity 6.1.2.1 Recognize OSS focused companies and give them an active role in NOSECC

Activity 6.1.2.2 regularly publicize the government plans and needs for OSS related services and solutions

## ORGANIZATIONAL STRUCTURE

### NOSECC - NATIONAL OPEN SOURCE EXCELLENCE AND COMPETENCE CENTRE

NOSECC = National Open Source Excellence and Competence Centre of Mauritius – represents a main lever for the sustainable and centralised, government driven process of OSS policy implementation.

OSS is introducing radically different business and development models. The key difference is that there is no central monopoly business interest, which is responsible for building the entire ecosystem of support, knowledge, experience, education and legal framework. As a solution for rapid and coordinated creation of the OSS ecosystems, many countries have opted for the creation of national competence centres that coordinate or take over the design and management of ecosystems. They are also the main facilitator of stakeholders' collaboration. This is especially important because of the "national interest" in the use of OSS, which is usually not recognized by free market mechanisms.

OSS centres are grouped in the FLOSS CC Network, which defines that Competence Centres should:

- be a meeting point for FLOSS users, developers, students, educators, researchers, and other enthusiasts both at the individual and institutional levels;
- stay up-to-date with FLOSS technology, market, and trends;
- provide and extend trust in FLOSS methods, tools, and solutions;
- act as a neutral player within FLOSS matters, trends, and studies;
- develop, maintain, and publish their work under a free/open license; and
- explore new innovation and collaboration opportunities by using FLOSS

In summary, by sharing a common ethics and culture of collaboration, Competence Centres promote synergies among educational institutions, industry, government, and communities. They help the dissemination and application of knowledge on open standards and technologies, and promote the development of ICT in a way that benefits the entire human society. Furthermore, Competence Centres aim to remain aware of important trends in FLOSS technologies and encourage their use in industry, government, research, and the general population. There are different models in the organizational and stakeholder structure, depending on the level of maturity and experiences of the stakeholders.

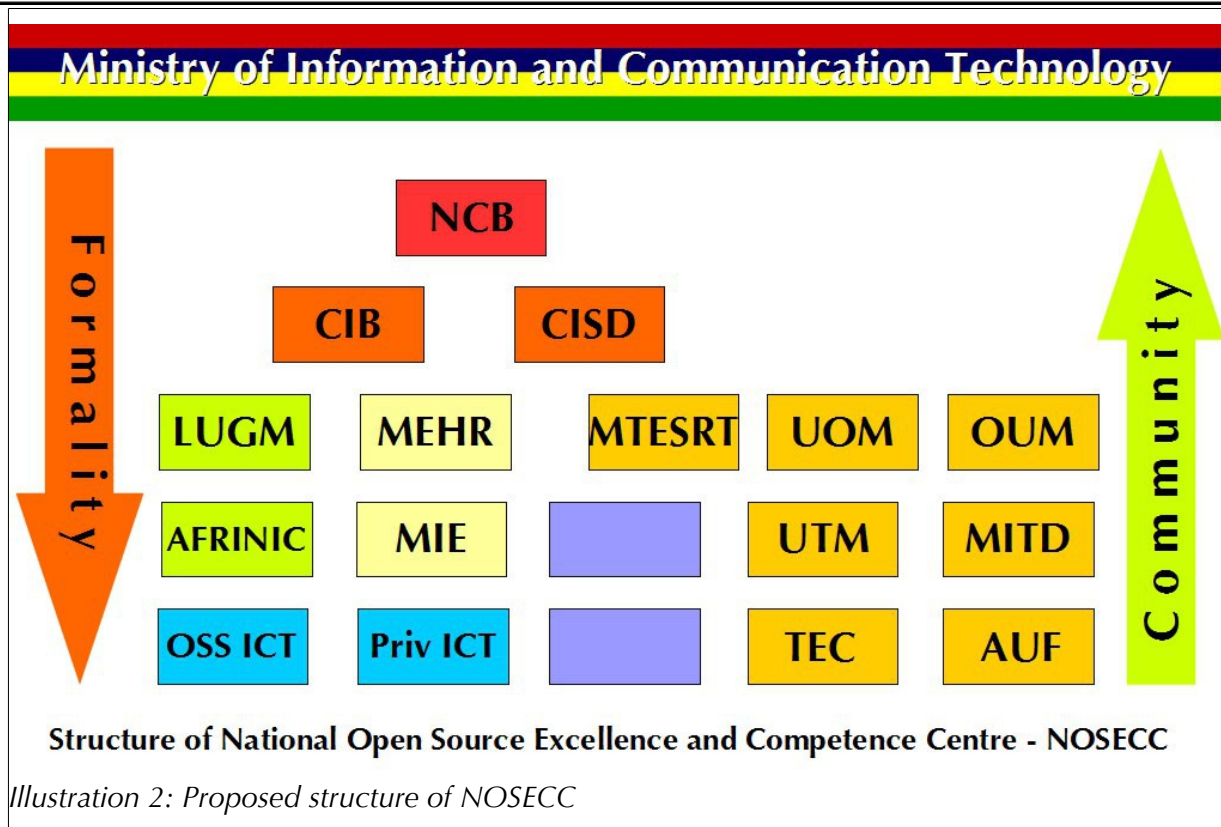
### SOME PARTICULARITIES OF THE LOCAL OSS ENVIRONMENT IN MAURITIUS

Mauritius' OSS baseline is very fragmented and unrelated, with little exchange of information or knowledge, and without coordination. However, there are considerable individual groups that deal with the use and/or promotion of OSS, OS or OC and achieve good results. We do not see any existing, non-government stakeholder which is able and willing to coordinate and lead OSS activities

in Mauritius. All activities at the national level in relation to OSS, take place within the Ministry of Information and Communication Technology, specifically NCB. NCB is para-state body operating Under the aegis of the Ministry of Information and Communication Technology. NCB has a wealth of experience in the preparation and implementation of various policies and strategies. The Implementation of OSS Policy and OSS Strategy requires special skills and experiences and some additional technological and project knowledge, to which officials must be adequately prepared, informed. and trained. So it is advisable to set up a separate working body or an independent organization under the aegis of NCB to ensure staff continuity and development of the necessary local knowledge and experience.

Therefore a proposed NOSECC should be an independent para-state body, government centric, government founded and GoM has to be a primary active stakeholder. Besides being an organizational and virtual collaboration platform, it should be located in separate a physical place in which all activities can be carried out.

A Government centric approach requires some attention to function effectively. Indeed, government itself represents a structured and formalized way of working and that is contrary to the principle of a soft and collaborative ecosystem, which includes a large number of different partners. In particular, it is contrary to the meritocracy of informal OSS community. Governmental authority has no formal impact on the majority of stakeholders and cannot be directly guided their work. Therefore, the government authority only has to encourage cooperation between stakeholders, provide ICT and location infrastructure and provide guidelines for the development. It is important that the authority shall establish terms and conditions for the functioning of the ecosystem, representing an equal platform for all stakeholders. The proposed environment must represent an opportunity for stakeholders to fulfil their mission and interests. The Government centric approach has plenty of advantages, as it can quickly and efficiently enforce certain guidelines, but this approach also has some details that need special attention. A Governmental authority has no formal impact on the majority of stakeholders, and cannot directly guide their work. Therefore, the government authority can only encourage cooperation between stakeholders and provides guidelines development.



## PROPOSED ROLE AND ACTIVITIES

NOSECC represents primarily a coordinating framework for all stakeholders and a guidance in the direction of the OSS Policy, so their roles and activities may be different and numerous. The following list outlines some, but not all of them:

- coordination between stakeholders
- implementing OSS policy, OSS strategy, OSS action plan
- main contact in GOV for OSS issues (regulation, strategies, execution)
- create and publish OSS technologies/Solutions/service government plan for short / medium term
- support government users in choosing, planning and using OSS
- to influence and collaborate in procurement system changes
- assist in preparing RfPs and tenders for ICT procurement
- Open Summit Mauritius organisation/coordination
- creating sub documents
  - guidelines
  - standards
  - interoperability framework
- SW/technologies select process
- SW repository editorial



- Office, desktop OS
- document management
- CMS
- database
- OpenData platform
- project management
- Cloud SaaS offer
- various technologies
- knowledge base editorial (select, adapt, create)
  - HowTos
  - User Manual
  - Best Practices
- maintain knowledge base (FAQ, docs, best practices, templates)
- forum/forge/collaboration content administration
- form an EDU curriculum and teacher training
- training of ICT stuff in government
- develop or parametrize of OSS based solutions
- evaluate maturity of OSS solutions
- to maintain open cloud platform

## **COMMON PLACE FOR OSS ACTIVITIES**

As proposed, a space for NOSECC is not only office space for the administrative part, but also the physical space for meeting and cooperation of all stakeholders, so we named it Open Space - place to integrate all OSS related activities and collaborations.

Open Space should be an office space where NOSECC administrative/office HQ is located, and should be located near major stakeholders. It should be an all-inclusive space inspiring people to innovate and collaborate on an open paradigm. It is suggested to be placed in some high tech environment with adequate space and infrastructure (for example the university campus or Ebene CiberCity)

Activities or initiatives to be launched include but are not limited to:

- NOSECC office, organizational and other coordinating tasks
- meeting place for work groups, communities
- innovation centre
- a fablab network

- OSS related and other start-ups incubator
- a co-working network
- a university open lab
- OSS specific trainings
- Etc.

## **OPEN SUMMIT MAURITIUS**

Mauritius does not have a major annual event in the field of ICT, which would also include presentations of research and user experience level. Proposed yearly OSS based event is an opportunity to establish OSS, OS and OC as the main research and user topics of the local ICT and research community and presents the opportunity for media promotion of OSS activities to other stakeholders in society.

- Goals of Open Summit
  - Promotion OSS, OS, OC, OD
  - focus on national and regional (African) activities
  - regional pan-African OSS event
  - exchange experiences, cases, information
  - common platform for services/solutions offer/demand
  - place to know each other, discuss, collaborate
  - yearly event to track progress of OSS activities in Mauritius and region
- Proposed structure
  - Keynotes about OSS visions/strategies (invited speakers)
  - OSECC activities presentations Presentation for all activities - Open place activities,
  - Pan African section
  - GOV initiative presentation
  - Case studies of OSS usage
  - presentations OSS service/solutions offer
  - presentations of training/certification offers
  - round tables
  - OSS communities events
  - expo stands of companies / GOV / OSECC

## **OSS TECHNOLOGY AREAS**

NOSECC should be active and have to explore and evaluate OSS solutions for different usage:

- web presence
- e-gov G2C web services
- e-gov G2B web services
- document process management
- e-health
- Open Data
- Big Data
- Smart Cities
- Smart Grid
- project management

## WORKING GROUPS

NOSECC as a formal coordinator of sustainable and centralised, government driven process of OSS policy implementation should foster collaboration of stakeholders

Working groups are formal collaboration bodies with representatives from key stakeholders and promote virtual collaboration with monthly meetings. Working groups should be coordinated by NOSECC, could be led by other key stakeholders.

Working groups are a way to organize processes and to include formal stakeholders. They are a common place for exchange of ideas and information.

## OSS TECHNOLOGIES

- evaluating, piloting and choosing different OSS technologies, platforms, solution, for using in GOV or public sector
- ideas, defining POC, pilot and production projects
- open cloud infrastructure, application stacks, security
- open data, big data, open government, e-government
- mobile
- discuss, propose OS

Proposed invited stakeholders: CISD, CIB, SIL, AfriNIC, LuGM, private ISS ICT

## OS PROCUREMENT

- reviewing procurement system
- proposing IT specific changes based on OS

Proposed invited stakeholders: Procurement Commission, CIB, SIL, Private OSS ICT

## SMARTOSS

- evaluating, piloting and choosing different OSS technologies, platforms, solution for Smart\* Initiatives
- SmartEnergy, SmartCities, IoT,
- other project based on tourism, fishery
- ideas, defining POC, pilot and production projects

## OSS CONTENT

- coordinating, evaluating, producing, OSS related content for OSS (recommended, repo) – howtos, user manuals, templates,
- coordinating, evaluating, producing educational OSS, OS and OER content

Proposed invited stakeholder: MEHR, MIE, UOM, MITD, AUF, UTM, OUM, TEC.

## OSS EDU

- coordinating review of syllabus
- propose new OSS, OS specific syllabus content
- distant, online, e-learning

Proposed invited stakeholder: MEHR, MIE, UOM, MITD, UTM, TEC.

## PROPOSED INITIATIVES

A formal and structured approach to activities and initiatives was given in separate chapter. Initiatives are loosely classified into four categories.

### LEGAL FRAMEWORK

An OSS friendly and transparent legal framework with a procurement framework is a very high priority in the short term and a prerequisite for the implementation of OSS Policy.

Frameworks for different technologies and standards have to follow in the medium term. ICT OSS guidelines will ease wide usage of OSS in all government.

The Legal framework has to include some related issues, like compliance of different open source licence schemes for software (GPL, eo) and content (cc) with local laws.

### TECHNICAL INFRASTRUCTURE

Implementation of OSS Policy requires strong technical support for activities of the ecosystem and capacity building, as well as providing a robust platform for collaboration and technology proofing and piloting.

The start of the adequately planned and gradual process of building the Open Cloud platform is a short term high priority for the internet presence of all NOSECC activities and to enable collaboration of whole ecosystem. In the medium to long term an Open Cloud platform is very important for the "hands on" OSS experience of the stakeholders. The required additional functionality may be added later.

The Open Cloud platform has to provide some basic infrastructure for knowledge management, educational, collaboration and support processes. It should start quickly within the government data centre, as separate infrastructure, but has to evolve with the needs of ecosystem.

### ORGANIZATIONAL FRAMEWORK

As a fragmented OSS baseline and lack of potential leader/promoter are among the biggest obstacles in developing a sustainable and efficient ecosystem, the main organizational initiatives have to be initiated, coordinated and measured by the GoM.

Emerging NOSECC has to be formed and organizational and decision making empowered with high priority, at the beginning at least as working groups of dedicated officials inside NCB, but further expansion in terms of dedicated office space and of staff reinforcement should follow soon. NOSECC represents the organizational and coordination vehicle for almost all activities in OSS Policy implementation.

The shortage of knowledge and experiences in OSS implementation has to be addressed with training of NOSECC staff and their participation in global OSS activities (Conferences, events, networks) as well as adequate consultancy support.

## EDUCATIONAL INITIATIVES

For sustainability of the OSS ecosystem and staffing, the related knowledge, experiences and capacity building of high qualified OSS related staff is necessary.

Short-term demand can be met by existing staff or hiring outside experts, but in the medium and long term long run an adequate domestic educational system has to be formed. Thus revision and expansion of current syllabus is an essential step toward OSS aware education system and high priority in short term, but followed with upgraded syllabuses.

## ANNEX A. THE OPEN SOURCE DEFINITION (ANNOTATED)

Source: <http://opensource.org/osd-annotated>

Version

1.9

The indented, italicized sections below appear as annotations to the Open Source Definition (OSD) and are not a part of the OSD. A plain version of the OSD without annotations can be found [here](#).

### **Introduction**

Open source doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria:

#### **1. Free Redistribution**

The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

***Rationale:** By constraining the license to require free redistribution, we eliminate the temptation for licensors to throw away many long-term gains to make short-term gains. If we didn't do this, there would be lots of pressure for cooperators to defect.*

#### **2. Source Code**

The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed.

***Rationale:** We require access to un-obfuscated source code because you can't evolve programs without modifying them. Since our purpose is to make evolution easy, we require that modification be made easy.*

#### **3. Derived Works**

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

***Rationale:** The mere ability to read source isn't enough to support independent peer review and rapid evolutionary selection. For rapid evolution to happen, people need to be able to experiment with and redistribute modifications.*

#### **4. Integrity of The Author's Source Code**

The license may restrict source-code from being distributed in modified form only if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program



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at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

**Rationale:** *Encouraging lots of improvement is a good thing, but users have a right to know who is responsible for the software they are using. Authors and maintainers have reciprocal right to know what they're being asked to support and protect their reputations.*

*Accordingly, an open-source license must guarantee that source be readily available, but may require that it be distributed as pristine base sources plus patches. In this way, "unofficial" changes can be made available but readily distinguished from the base source.*

#### 5. No Discrimination Against Persons or Groups

The license must not discriminate against any person or group of persons.

**Rationale:** *In order to get the maximum benefit from the process, the maximum diversity of persons and groups should be equally eligible to contribute to open sources. Therefore we forbid any open-source license from locking anybody out of the process.*

*Some countries, including the United States, have export restrictions for certain types of software. An OSD-conformant license may warn licensees of applicable restrictions and remind them that they are obliged to obey the law; however, it may not incorporate such restrictions itself.*

#### 6. No Discrimination Against Fields of Endeavor

The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

**Rationale:** *The major intention of this clause is to prohibit license traps that prevent open source from being used commercially. We want commercial users to join our community, not feel excluded from it.*

#### 7. Distribution of License

The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.

**Rationale:** *This clause is intended to forbid closing up software by indirect means such as requiring a non-disclosure agreement.*

#### 8. License Must Not Be Specific to a Product

The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.

**Rationale:** *This clause forecloses yet another class of license traps.*

#### 9. License Must Not Restrict Other Software

The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software.

**Rationale:** *Distributors of open-source software have the right to make their own choices about their own software.*

*Yes, the GPL v2 and v3 are conformant with this requirement. Software linked with GPLed libraries only inherits the GPL if it forms a single work, not any software with which they are merely distributed.*

#### 10. License Must Be Technology-Neutral

No provision of the license may be predicated on any individual technology or style of interface.

**Rationale:** *This provision is aimed specifically at licenses which require an explicit gesture of assent in order to establish a contract between licensor and licensee. Provisions mandating so-called "click-wrap" may conflict with important methods of software distribution such as FTP download, CD-ROM anthologies, and web mirroring; such provisions may also hinder code re-use. Conformant licenses must allow for the possibility that **(a)** redistribution of the software will take place over non-Web channels that do not support click-wrapping of the download, and that **(b)** the covered code (or re-used portions of covered code) may run in a non-GUI environment that cannot support popup dialogues.*

## ANNEX B. APPROVED OSI LICENSES

The following licenses have been approved by the OSI via the License Review Process.

Academic Free License 3.0 (AFL-3.0)

Affero GNU Public License: See "GNU Affero General Public License 3.0 (AGPL-3.0)"

Adaptive Public License (APL-1.0)

Apache License 2.0 (Apache-2.0)

Apple Public Source License (APSL-2.0)

Artistic license 2.0 (Artistic-2.0)

Attribution Assurance Licenses (AAL)

BSD 3-Clause "New" or "Revised" License (BSD-3-Clause)

BSD 2-Clause "Simplified" or "FreeBSD" License (BSD-2-Clause)

Boost Software License (BSL-1.0)

CeCILL License 2.1 (CECILL-2.1)

Computer Associates Trusted Open Source License 1.1 (CATOSL-1.1)

Common Development and Distribution License 1.0 (CDDL-1.0)

Common Public Attribution License 1.0 (CPAL-1.0)

CUA Office Public License Version 1.0 (CUA-OPL-1.0) EU

DataGrid Software License (EUDatagrid)

Eclipse Public License 1.0 (EPL-1.0)

Educational Community License, Version 2.0 (ECL-2.0)

Eiffel Forum License V2.0 (EFL-2.0)

Entessa Public License (Entessa)

European Union Public License, Version 1.1 (EUPL-1.1) (links to every language's version on their site)

Fair License (Fair)

Framework License (Framework-1.0)

GNU Affero General Public License v3 (AGPL-3.0)

GNU General Public License version 2.0 (GPL-2.0)

GNU General Public License version 3.0 (GPL-3.0)

GNU Library or "Lesser" General Public License version 2.1 (LGPL-2.1)

GNU Library or "Lesser" General Public License version 3.0 (LGPL-3.0)

Historical Permission Notice and Disclaimer (HPND)

IBM Public License 1.0 (IPL-1.0)

IPA Font License (IPA)

ISC License (ISC)

LaTeX Project Public License 1.3c (LPPL-1.3c)  
Lucent Public License Version 1.02 (LPL-1.02)  
MirOS Licence (MirOS)  
Microsoft Public License (MS-PL)  
Microsoft Reciprocal License (MS-RL)  
MIT license (MIT) Motosoto License (Motosoto)  
Mozilla Public License 2.0 (MPL-2.0)  
Multics License (Multics)  
NASA Open Source Agreement 1.3 (NASA-1.3)  
NTP License (NTP)  
Naumen Public License (Naumen)  
Nethack General Public License (NGPL)  
Nokia Open Source License (Nokia)  
Non-Profit Open Software License 3.0 (NPOSL-3.0)  
OCLC Research Public License 2.0 (OCLC-2.0)  
Open Font License 1.1 (OFL-1.1)  
Open Group Test Suite License (OGTSL)  
Open Software License 3.0 (OSL-3.0)  
PHP License 3.0 (PHP-3.0)  
The PostgreSQL License (PostgreSQL)  
Python License (Python-2.0) (overall Python license)  
CNRI Python license (CNRI-Python) (CNRI portion of Python License)  
Q Public License (QPL-1.0)  
RealNetworks Public Source License V1.0 (RPSL-1.0)  
Reciprocal Public License 1.5 (RPL-1.5)  
Ricoh Source Code Public License (RSCPL)  
Simple Public License 2.0 (SimPL-2.0)  
Sleepycat License (Sleepycat)  
Sun Public License 1.0 (SPL-1.0)  
Sybase Open Watcom Public License 1.0 (Watcom-1.0)  
University of Illinois/NCSA Open Source License (NCSA)  
Vovida Software License v. 1.0 (VSL-1.0)  
W3C License (W3C)  
wxWindows Library License (WXwindows)  
X.Net License (Xnet)  
Zope Public License 2.0 (ZPL-2.0)

zlib/libpng license (Zlib)

## ANNEX C. DEFINITION OF OPEN DATA BY OPENDEFINITION.ORG ANNOTATED

The term knowledge is taken to include:

- Content such as music, films, books
- Data be it scientific, historical, geographic or otherwise
- Government and other administrative information

Software is excluded despite its obvious centrality because it is already adequately addressed by previous work.

The term work will be used to denote the item or piece of knowledge which is being transferred.

The term package may also be used to denote a collection of works. Of course such a package may be considered a work in itself.

The term license refers to the legal license under which the work is made available. Where no license has been made this should be interpreted as referring to the resulting default legal conditions under which the work is available (for example copyright).

### **The Definition**

A work is open if its manner of distribution satisfies the following conditions:

#### **1. Access**

The work shall be available as a whole and at no more than a reasonable reproduction cost, preferably downloading via the Internet without charge. The work must also be available in a convenient and modifiable form.

*Comment: This can be summarized as ‘social’ openness – not only are you allowed to get the work but you can get it. ‘As a whole’ prevents the limitation of access by indirect means, for example by only allowing access to a few items of a database at a time (material should be available in bulk as necessary). Convenient and modifiable means that material should be machine readable (rather than, for example, just human readable).*

#### **2. Redistribution**

The license shall not restrict any party from selling or giving away the work either on its own or as part of a package made from works from many different sources. The license shall not require a royalty or other fee for such sale or distribution.

#### **3. Reuse**

The license must allow for modifications and derivative works and must allow them to be distributed under the terms of the original work.

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*Comment: Note that this clause does not prevent the use of 'viral' or share-alike licenses that require redistribution of modifications under the same terms as the original.*

#### **4. Absence of Technological Restriction**

The work must be provided in such a form that there are no technological obstacles to the performance of the above activities. This can be achieved by the provision of the work in an open data format, i.e. one whose specification is publicly and freely available and which places no restrictions monetary or otherwise upon its use.

#### **5. Attribution**

The license may require as a condition for redistribution and re-use the attribution of the contributors and creators to the work. If this condition is imposed it must not be onerous. For example if attribution is required a list of those requiring attribution should accompany the work.

#### **6. Integrity**

The license may require as a condition for the work being distributed in modified form that the resulting work carry a different name or version number from the original work.

#### **7. No Discrimination Against Persons or Groups**

The license must not discriminate against any person or group of persons.

*Comment: In order to get the maximum benefit from the process, the maximum diversity of persons and groups should be equally eligible to contribute to open knowledge. Therefore we forbid any open-knowledge license from locking anybody out of the process.*

*Comment: this is taken directly from item 5 of the OSD.*

#### **8. No Discrimination Against Fields of Endeavor**

The license must not restrict anyone from making use of the work in a specific field of endeavor. For example, it may not restrict the work from being used in a business, or from being used for genetic research.

*Comment: The major intention of this clause is to prohibit license traps that prevent open material from being used commercially. We want commercial users to join our community, not feel excluded from it.*

*Comment: this is taken directly from item 6 of the OSD.*

#### **9. Distribution of License**

The rights attached to the work must apply to all to whom it is redistributed without the need for execution of an additional license by those parties.

*Comment: This clause is intended to forbid closing up knowledge by indirect means such as requiring a non-disclosure agreement.*

*Comment: this is taken directly from item 7 of the OSD.*

#### **10. License Must Not Be Specific to a Package**

The rights attached to the work must not depend on the work being part of a particular package. If the work is extracted from that package and used or distributed within the terms of the work's license, all parties to whom the work is redistributed should have the same rights as those that are granted in conjunction with the original package.

*Comment: this is taken directly from item 8 of the OSD.*

#### **11. License Must Not Restrict the Distribution of Other Works**

The license must not place restrictions on other works that are distributed along with the licensed work. For example, the license must not insist that all other works distributed on the same medium are open.

*Comment: Distributors of open knowledge have the right to make their own choices. Note that 'share-alike' licenses are conformant since those provisions only apply if the whole forms a single work.*

*Comment: this is taken directly from item 9 of the OSD*



## LIST OF ABBREVIATIONS

MICT	Ministry of Information and Communication Technology
OSECC	Open Source Excellence and Competence Centre
OSS	Open Source Software
OS	Open Standards
OC	Open Content
GOC	Government Online Centre
GoM	Government of Mauritius
NCB	National Computer Board
CIB	Central Informatics Bureau
CISD	Central Information Systems Division
SIL	State Informatics Ltd
MEHR	Ministry of Education and Human Resources
MIE	Mauritius Institute for Education
UoM	University of Mauritius
MITD	Mauritius Institute for Training and development
TEC	Tertiary Education Commission
MTESRT	Ministry of Tertiary Education, Science, Research & Technology
AUF	Agence universitaire de la Francophonie
OUM	Open University of Mauritius
UTM	University of Technology, Mauritius
LUGM	Linux User Group of Mauritius
AFRINIC	African Regional Registry for Internet Number Resources

## REFERENCES

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All other data and information were obtained during interviews with representatives of the stakeholders or other participants in the meetings.

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