open source vision

Nurturing the proliferation of Open Source Software
## Table of Contents

Executive Summary .................................................................................................................................................. ii
1 Introduction .......................................................................................................................................................... 1
  1.1 Challenges and opportunities ....................................................................................................................... 2
  1.2 The wider context ......................................................................................................................................... 3
  1.3 Potential impact, issues and mitigating them ............................................................................................... 4
2 Core strategic principles ...................................................................................................................................... 6
3 Current landscape ............................................................................................................................................... 7
  3.1 Government context ..................................................................................................................................... 7
  3.2 EU context .................................................................................................................................................... 9
4 Immediate considerations .................................................................................................................................... 11
  4.1 Desktop software ......................................................................................................................................... 11
  4.2 Possible implementation roadmap for desktop software ............................................................................. 13
  4.3 Back-office software ................................................................................................................................... 13
  4.4 Suggested implementation roadmap for back-office software ....................................................................... 15
5 Medium term objectives ...................................................................................................................................... 16
  5.1 OSS governance .......................................................................................................................................... 16
  5.2 Line of business software consideration and adoption ................................................................................ 17
  5.3 Private Runtime Environments .................................................................................................................... 17
  5.4 Public education ......................................................................................................................................... 17
  5.5 Research programmes ................................................................................................................................. 18
  5.6 Open Source User Group ............................................................................................................................. 19
  5.7 Open Source business model and licensing within the procurement framework ....................................... 19
  5.8 Open Source observatory and forge ............................................................................................................. 20
  5.9 Collaboration with EU, vendors and communities ........................................................................................ 20
6 Alignment to other ICT initiatives - Long term objectives ............................................................................. 21
  6.1 Decouple ICT systems and use adapters to abstract interaction between systems .................................... 21
  6.2 Identity management and directory services ............................................................................................... 22
  6.3 Location independent computing .................................................................................................................. 22
  6.4 Application virtualisation and streaming ..................................................................................................... 22
7 Summary of initiatives ......................................................................................................................................... 23
8 Conclusion ......................................................................................................................................................... 25

Appendix A References and definitions ................................................................................................................ 26
Appendix B GMICT Open Source Software Policy .................................................................................................. 30
Appendix C GMICT Open Source Software Directive .......................................................................................... 32

## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Desktop OSS currently in use within Government</td>
<td>8</td>
</tr>
<tr>
<td>Table 2</td>
<td>OSS technologies adopted within Government</td>
<td>9</td>
</tr>
<tr>
<td>Table 3</td>
<td>Member States’ OSS policies, OSOR policies, OSOR and Forge, and OSS competence centres</td>
<td>10</td>
</tr>
<tr>
<td>Table 4</td>
<td>Classes of office productivity usage scenarios</td>
<td>12</td>
</tr>
<tr>
<td>Table 5</td>
<td>Desktops within the Maltese Government Network</td>
<td>12</td>
</tr>
<tr>
<td>Table 6</td>
<td>Corporate desktop software and alternative OSS</td>
<td>13</td>
</tr>
<tr>
<td>Table 7</td>
<td>Roadmap for desktop software</td>
<td>13</td>
</tr>
<tr>
<td>Table 8</td>
<td>OSS opportunities</td>
<td>14</td>
</tr>
<tr>
<td>Table 9</td>
<td>Roadmap for back-office software</td>
<td>15</td>
</tr>
<tr>
<td>Table 10</td>
<td>Summary of initiatives</td>
<td>23</td>
</tr>
</tbody>
</table>
Executive Summary

Open Source Software (OSS) is believed to be a catalyst for software commoditization. Free Open Source Software (FOSS) has reached increased levels of maturity in terms of quality and reach and is actively being adopted as a baseline for mainstream solutions and an alternative to Proprietary Software (PS). Such increase in widespread application has been acknowledged worldwide. This topic has also been on the political agenda of the European Commission and a number of European Union (EU) Member States for a number of years now.

As OSS becomes progressively more popular, solutions based on Open Source business models are actively considered increasingly cost effective for adoption and operation in the corporate context as well. Basic findings from a concise stock taking exercise conducted during the first quarter of 2009 indicate that the Government of Malta employs some elements of OSS in various perspectives. This is neither appropriately evident nor considered to have reached the penetration and application level believed to be appropriate.

This white paper seeks to provide a set of high level principles intended to facilitate the accelerated, non-intrusive adoption of OSS within Government. It also seeks to introduce enablers intended to nurture innovative views in the procurement process of ICT solutions within Government which are based on openness and reusability and which are in turn based on a number of key technology principles that have been adopted within MITA.

Rather than any number of solid yet isolated efforts, ensuring a nationwide OSS ecosystem is considered as a critical success factor for this vision to achieve its objectives. Government needs and intends to encourage the consideration and uptake of OSS via a number of effective channels. Self sustaining OSS communities seldom emerge spontaneously. They require proactive effort to form and incubate. It is believed that as such, the local educational system can act as a major champion for nurturing concepts of openness in its wider sense, both from a citizen as well as a business standpoint.

Field research indicates that under various circumstances the educational curriculum is currently coupled with products rather than concepts. Shifting the focus on the latter will assist in bringing out the necessary culture change with respect to open source concepts at the grassroots. Higher education is also seen as a key instrument for the
conduct of a number of research and development initiatives facilitating the reach of OSS, as well as monitor and measure its impact in different societal strata.

Besides facilitating collaboration between OSS communities, the establishment of a national Open Source Observatory and Repository is seen as an opportunity for various stakeholders to participate and contribute in Government related software projects, including e-Government services. It is believed that such participation and contribution increases the potential to bring respective individuals and groups closer to the industry as well as to the communities involved in the delivery of OSS based solutions.

Generally speaking, the OSS development model is believed to bring a number of significant advantages in a number of contexts. Software companies adopting this approach tend to identify that this helps them increase their efficiency, become more competitive as well as reduce their time to market. From this perspective, public sector procurement practices need to be examined to ensure that OSS competes on a level playing field. OSS should not be given any preferential treatment but should be allowed to compete on its own merits and in context.

OSS also has the ability to drive significant discounts in respective procurement processes. Purely from an acquisition perspective, the cost benefits of adopting OSS may seem obvious since a large number of OSS solutions are available for ‘free’. It is also however imperative to contextualise this properly. Total cost of ownership is not related to acquisition, maintenance and support only - but involves a rather more intricate analysis of cost constituents including exit strategy cost - an issue which is believed to be prevalent within current cost biased acquisition strategies and which may create incorrect cost evaluations. OSS does offer a number of indirect benefits in this respect, amongst which is the access to source code and a general tendency towards adherence to open standards and interoperability principles. This is believed to provide the opportunity to mitigate a considerable number of the challenges highlighted, albeit such attributes are obviously not limited to OSS in any way, shape and form.

Increased and wider adoption of non-disruptive OSS is mostly a question of where and to what extent rather than if and when. Collaboration, one of the key pillars behind OSS, is one of the most effective competitive strategies available. It is an excellent accelerator for innovation and dissemination. In this respect, a number of quick win opportunities are believed to be available now - a number of which are identified and discussed within this text.

This text is organised as follows:
- Describes a number of core strategic principles that must govern the consideration and accelerated introduction of non-disruptive of OSS.
- Provides an overview of the current OSS landscape from a national as well as EU context.
- Provides a number of quick win considerations.
- Defines a number of medium term initiatives and related benefits, latched to a number of separate projects which can be used as catalysts for increasing the reach of OSS in general.
- Provides a summary of the initiatives discussed and concludes with the immediate way forward.

The appendices at the end of the document provide a number of closely linked policies and directives which reflect basic ground work which has already been done to kick start some of the initiatives described herewith.
1. Introduction

Open Source Software (OSS) has garnered large numbers of scrutinisers, critics, followers and adopters. Irrespective, a wide range of OSS is able to deliver high quality, feature rich solutions that address specific business needs. OSS is governed by a set of licensing terms adopting a popular set of attributes promoting a number of freedoms.

The most common licensing attributes which OSS adopts are defined within the Open Source Definition of the Open Source Initiative (OSI). The OSI open source definition calls for Open Source Software to:

- allow the redistribution of the solution and manuals, including the source code
- allow the solution to be modified in part or in full and be used in other solutions
- permit the integrity of the Author’s Source Code and prevent discrimination against persons, groups or fields of endeavour
- not be specific to a product
- allow for redistribution of the software through manual and automated processes without the need for additional licences
- not restrict other software that is distributed along with the licensed software
- be as technology neutral as possible regarding any individual technology or style of interface.

The Free Software Foundation on the other hand works on the basis that intellectual property restrictions hamper technical improvement and work against the good of the community, thus creating a set of characteristics for OSS as a matter of freedom. These characteristics make the phenomenon particularly attractive, are namely:

1. The freedom to run any program, for any purpose
2. The freedom to study how the program works, and change it to make it do what you wish. Access to the source code is a precondition for this freedom.
3. The freedom to redistribute copies so you can help your neighbour.
4. The freedom to distribute copies of your modified versions to others. By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this freedom.

Over the years, key software vendors as well as communities at large are increasingly adopting open source business models. These models are also able to take advantage of extended collaboration and skill diversity. The costs incurred during the respective
development stages are frequently associated with the delivery of ancillary services around such software rather than the actual software per se. The number of vendors providing value added solutions based on open source under commercial terms is also increasing – an approach referred to as Commercial Open Source.

Very often, the degree of application of OSS within an organisation is not fully comprehended. Increased availability of relevant intellectual property discovery tools are on the other hand identifying that numerous organisations employ more OSS, albeit not evidently, than originally thought. This tends to stem out from the use of, direct or otherwise, OSS components within proprietary counterparts by a number of large vendors.

As part of the Smart Island Strategy, the Government of Malta is also actively exploring further opportunities associated with the accelerated adoption of cost-effective and non-disruptive OSS within Government. It is consequently important to identify the immediate and long term benefits in this respect. The successful nurturing of a national OSS ecosystem, will facilitate the capitalization of such benefits. To this extent, this text tries to provide a number of key opportunities on how this can be effectively explored. This document highlights both immediate as well as potential long term benefits which are believed to be able to follow from the creation of a national OSS ecosystem, for Government. This ecosystem is intended to foster openness concept principles and lead to increased usage of OSS within Government ICT solutions.

The Government of Malta has over the past years procured a number of ICT solutions addressing its strategic business requirements. However, the application of specific products within particular projects and market specific skill sets has driven mainstream technology selection and adoption towards particular sets of technology stacks.

MITA has been actively monitoring the Open Source Software landscape for a number of years, with a number of pilot and proof-of-concept implementations. Some of these proof-of-concept projects include and are not limited to Client Relations Management (CRM) solution based on SugarCRM, Unified Communications (UC) solution based on Asterisk, OpenFire and Dimdim, and Collaboration solutions based on Plone. A successful pilot Plone project has also been implemented within MITA during the last couple of years. Additional research was carried out to consider the introduction of a number of line of business and corporate open source solutions such as OpenOffice, 7Zip, Gimp, Freemind, QuantumGIS and Firefox with varying degrees of success. A recent stock-take exercise conducted by MITA shows an increase in demand for alternate "line of business" (LOB) tools within Government, particularly those built on OSS technologies. It is believed that this can be attributed to two primary factors related to immediate needs. These factors are immediate acquisition cost and the flexibility of functionality that OSS software can provide for specific business needs.

However, the current limited degree of OSS awareness amongst Public Administration and within Education limits the potential for increased acceleration for the adoption of OSS considerably. A number of misconceptions related to OSS quality being low and that OSS is not locally supported seem to prevail. Although recently this perception has slightly changed and to a certain degree improved, there still is a considerable element of uncertainty towards the adoption of OSS. OSS is still not yet considered as a competitive candidate alongside proprietary software (PS). This is regrettably unfortunate because whilst acquisition cost savings are considered as key drivers for the consideration and adoption of OSS, OSS is actually transformative. It represents a shift that opens up a new perspective on the opportunity cost of pursuing the status quo.

Worldwide competition between what is proprietary and what is open is creating new business opportunities. A number of large proprietary software vendors are actively seeking new ways to embrace OSS, as well as to collaborate and contribute. Some find it difficult to embrace such concepts and a number of others struggle. Interoperability

1.1 Challenges and opportunities

An example of such tool available at http://www.openlogic.com/products/scanners.php

Creating an environment where OSS source code and object code are made available to the public to carry out modifications on the software, while increasing the awareness of OSS technologies and adequate supply for demand of the market.

Refer to GMICT Vocabulary Standard
is still a challenging topic; a number of OSS solutions developed by specific vendors still adopt / use proprietary technologies.

An OSS ecosystem should be put into practice via a planned and evolutionary, rather than revolutionary, approach. Non-disruptive OSS should meet the business requirements, and adopt Government’s operational and security principles in terms of scalability, promotion of desktop agnostic concepts, support and manageability. Adopting OSS without considering a number of key aspects including open standards, interoperability, user experience, security and operational sustainability (support, availability of software patches / updates etc) may lead to unnecessary dependencies both from a business as well as technology perspective.

Government needs to ensure that irrespective of the software and license model, it is not led towards the continued adoption and implementation (directly or otherwise) of proprietary and disjoint solutions which mandate a lot of investment to ensure interoperability (in its wider context) at a later stage. This is mitigated by attributing the required importance to long term ICT strategy.

Lock-in, is a result of the application and subsequent dependency on specific solutions, irrespective of whether they are open source or otherwise. The implications of proprietary implementations and vendor lock-in in general are well documented and their impact (technological or otherwise) varies accordingly, but unfortunately, the ever-present associated (direct or otherwise) costs are seldom, if ever, considered when looking at the real inclusive cost of solutions.

**1.2 The wider context**

It is imperative to make a clear distinction between open standards and open source. Whilst it is generally acknowledged that the latter (i.e. open source initiatives in general) tend to more readily and actively endorse, adopt and adhere to open standards, there is no warranty for such undertaking. Furthermore, commercial solutions which adopt and promote open standards exist in reasonable numbers.

Adopting solutions which are not based on open standards not only seriously stifles competition but also severely constrains flexibility in terms of ‘choice’ in the long run. This is due to the formation of a mesh of dependencies which tends to leave respective consumers at the mercy (due to the cost involved in the transition/consideration/option to/of other alternatives) of respective vendors.

The spill-over effect of proprietary solutions cannot be ignored, i.e. social impact costs that are not necessarily immediately observable, but which should still be directly attributed to the cost of proprietary solutions. These include the ‘cost’ and/or ‘impact’ which mandate (directly or otherwise) the citizen to adopt technologies which are not ‘free’, not necessarily the cheapest or most appropriate from the citizen’s perspective. This non-evident risk of unintentionally widening the ‘digital divide’ in particular areas, such as electronic Government service delivery (which may mandate specific products/versions on the citizen’s computing environment for their successful operation) should not be underestimated.

It is also crucial to ensure that any integration (in its wider context) of different solutions is approached and implemented using open standards. This is key to ensure that whilst the individual eco-systems sustained by such solutions (and the solution itself) can evolve at their own pace, any ‘linkages’/‘interconnections’ that exist between the different eco-systems themselves at any point in time, are not brittle and thus easily prone to break with discrete or direct changes, creating ‘fissures’ which are expensive to remedy.

The adoption and enforcement of open standards has been successfully proven to restrict vendor lock-in and increase flexibility, which is essential for Government as well as the wider public in general. The adoption of open standards also helps induce...
coherency within the public sector from an ICT perspective. By adopting open standards, the Government also ensures that public information and citizen interaction remains ‘free’ in their entirety and thus unhindered/uncontrolled/unaffected by patent, license, or other technical impediments, impairments and requirements. Other significant benefits include (but definitely not limited to) substantial cost reduction through increased competition, reduced total cost of ownership as well as ‘accelerate economic growth, efficiency and innovation’ (Lohr, 2005).

‘Free’ as in ‘freedom of choice’, rather than specifically in monetary terms is crucial in a modern free market. In order to ensure the enforcement of open standards as well as creating an ecosystem which allows for the consideration of unobtrusive introduction of alternative technologies, a number of important aspects must be considered appropriately.

The adoption and endorsement of openness concepts requires greater understanding and insight (therefore, potentially also expertise) of how solutions are ‘designed’, ‘developed’ or ‘selected’ in the case of procurement, as well as how they can effectively be interoperable. This will invariably inflate initial effort, time frames (and potentially cost) for the initial transition towards this approach by novice adopters. This is an acknowledged phenomenon and one which disappears by natural attrition over time as the principles and approaches are better apprehended and embraced. Furthermore, the acknowledged long term benefits associated with the adoption of open standards far outweigh such potential, initial impact.

Raising awareness is perhaps the foremost undertaking. The continued presentation at respective fora of the importance and advantages of open standards and open source is the first step towards the wider understanding and subsequent acceptance of both. The rate of initial acceptance influences the subsequent inertia for change or rather the additional adopter’s ability and willingness to embrace the principles surrounding open standards and open source. Ensuring that the necessary supporting structures (educational, commercial, private sector, public sector etc. etc.), and thrusts to support these initiatives are required to ensure the smooth transition towards this paradigm. Pressure from various representations can be expected and will portray divergent opinions, based on various perspectives, including obvious commercial interests.

Attributing significant preference towards open concepts is the next logical step headed for the adoption and adherence to open standards alongside open source. This is potentially the most difficult step given that in particular the local solution provisioning sector must be formally geared towards this approach. Respective industry, Government, education etc. etc. sectors must be mature and/or willing enough to cope with the different skills and demands that a different way of selection, solution design, development and implementation will bring.

A number of commercial vendors will naturally protect their financial interests at the expense of ensuring standardisation. There is a very fine line which can be argued as to what extent the adoption of openness will increase benefit when any decision is solely being considered in the immediate context. Furthermore, it is expected that incongruent opinions based on return on investment will arise when considering to what extent or whether it is reasonable to expect a potential slight reduction of functionality from product features (which have been acquired and paid for) to ensure adherence to openness. The cost of solutions, irrespective whether they are open source or otherwise, is however not merely based on the immediate and direct cost but rather on a number of additional aspects, including but not limited to:

- hardware costs (purchase + support + maintenance)
- direct software costs (purchase + support + maintenance)
- indirect software costs (e.g. license administration, recurring costs due to upgrades,
compatibility, volatility, lock-in, exit costs etc
- support resources costs
- downtime costs
- exit strategy costs

The transition towards adopting, endorsing and enforcement of openness is not a trivial task. With proper commitment however, the long term benefits are huge. What is at stake is flexibility, which is critical for Government.
2. Core strategic principles

The Government of Malta continues to invest significantly in a number of ICT solutions addressing its strategic business requirements. To further strive ensuring that maximum benefit and operational efficiency is derived from all technology investments\(^9\), a number of technology strategic principles are therefore in place to engage Government, vendors and suppliers towards providing solutions that follow this direction.

These principles include abstraction, interoperability, loose coupling, cohesiveness and generality.

In this context, and where applicable, Government will give preference to solutions that exhibit concrete evidence of a number of key attributes that enable these principles. These attributes are identified in constituents that clearly reflect engineering patterns based on discrete yet highly interoperable elements. All inter-connectivity and information exchange (at hardware, network and software levels etc) between the solution constituents is to be built on the standards applicable in context. Software, Network and Hardware elements etc, as well as their intra-constituents should be independent of each other to the maximum extent possible.

Amongst others, Virtualisation and Open Standards are key enablers of the principles discussed herewith, as well as appropriate segregation at key layers of solution and component constituents. Specifically with respect to solution stacks (and irrespective whether the implementation is physical, virtual or otherwise) access to external (from respective sandboxed environments when in place) resources (including databases, directory services etc. etc) is to be governed by appropriate adaptation (‘adapters’) schemes. Adapters are logical segregators – these adapters vary in shape and form, ranging from in-house developed software, off-the shelf software or specialised devices / environments (including firewalls, VLAN’s) as well as specific commercial arrangements etc.

The desktop element is considered even more critical in terms of the application and adherence to these principles. In this respect and to the maximum extent possible, dependencies on specific hardware and software stacks and respective configurations should be avoided or appropriately mitigated.

\(^9\) Whether proprietary, open source based, or otherwise
3. Current landscape

3.1 Government context

The local scenario exhibits strong preference for particular technologies. This is undoubtedly influenced by having a population which is mostly exposed to particular sets of technologies, right from the very early stages of our educational system. This moulds our citizens, educators as well as the ICT industry in general, mindsets to unintentionally self-constrain themselves, to varying degrees, to the technologies they have been exposed to, with limited possibilities to consider alternatives. The influence is also due to the aggressive and strong vision, supported by industry leading products, applied by dominant market players.

Whilst the benefits of strategic alliances, beneficial agreements, and offering software at very competitive prices are not up for debate, one should also consider the repercussions of having a population, evident from the early stages of our educational system which is mostly (if not solely) conversant (and in many cases dependent on) with the technology(ies) of a singular or very limited sets of vendors. Case in point is the ECDL certification which forms part of the national curriculum for all public secondary students. The Department of Education has procured particular automated test and certification software that is exclusively dependant on specific technologies. Tentative recommendations for the consideration of alternative solution providers such as openICDL, were not successful. Although ECDL certification is also carried out within private schools, the degree of dependency on particular technologies is not to the same extent.

Such positioning is limiting the opportunity for the awareness of other similar technologies and their potential which may well in certain areas prove more appropriate and cost effective, both in the immediate as well as the longer term.

The general perception that OSS related activity and application in Malta is almost non existent prevails. An inclination towards associating OSS with some form of complex 'geeky' technology persists. The misconception is further amplified by the fact that service / training providers assume there is no interest in OSS; consumers on the other hand assume that there is no support for OSS. This scenario was confirmed recently by a request from Government of Malta for the provision of OSS related support. A number of services provided were not of the expected quality. The proposed service costs do not reflect OSS approaches but rather simply based on and reproduce traditional proprietary models. Local training provisioning related to OSS technologies is mostly limited to back-office software administration type of training. Other OSS solutions are primarily dependant on foreign training providers, usually provided by UK and US professionals.

A slight increase in the consideration for and application of OSS was registered during the last months of 2009. This increase was also consistent during the first 6 months of 2010. Approximately 20% of the total line of business software installation requests from respective CIO relate to OSS. There was also an increase in back office use of OSS technology, in particular those related to collaboration and network monitoring.

The following tables provide a list of Desktop OSS and other OSS technologies currently in use to varying degrees across Government as well as an indicative number of requests for new installations during the first six months of 2010.
**Table 1: Desktop OSS currently in use within Government**

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<th>Totals for 2009</th>
<th>New Requests for 2010</th>
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<td>7-Zip</td>
<td>731</td>
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<tr>
<td>Dia Portable</td>
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</tbody>
</table>
The European Commission has driven a number of OSS related projects. It is currently prompting the European Open Source Observatory and Repository (OSOR). The primary objective of the European OSOR is to help Public Administrations to develop solutions collaboratively, share best practices and promote re-use. It links all national OSORs, forges and provides access to over 1000 publicly funded OSS projects. These projects are capitalised upon the various public entities within European Member States and are distributed on the European OSOR as OSS.

The IDABC programme came to its end and has now been succeeded by the Interoperability Solutions for European Public Administrations (ISA) programme. Neelie Kroes, European Commission Vice-President for the Digital Agenda, expressed how the EU Commission intends to create a framework to ensure that member states mitigate issues related to technology lock-in by adopting appropriate best practices in the relevant technology consideration and adoption processes. The framework seeks to highlight the issues and challenges faced by citizens who are forced to employ particular technologies and products. The ISA programme is expected to capitalise on the investments carried out by IDABC with regards to OSOR, eu, especially within the eGovernment and cross border open collaboration. The ISA programme also approved funding for OSOR.eu for the coming three years.

A number of European Member States fund OSS Competence Centres to provide professional guidance to Public Administrations and SMEs towards the adoption of OSS. During the past year, a number of countries eagerly formalised the position to facilitate the adoption of OSS potentially triggered and accelerated by the global economic crisis. According to Kroes, “The top three countries for open source activity in the EU are France, Spain and Germany. And with such big countries in the lead, the momentum for open source is set to keep on growing.”

From a policy perspective, each European Member State has its own approach for driving the adoption of OSS within respective public administrations. Some countries discuss policy as a matter of legislation - others do not have any position at all. The following table provides an indication of the respective Members State position with respect to policy, OSOR and competency centres, compiled based on publicaly available information (http://cisis.org/publication/government-open-source-policies-0) and through collaboration with European National Forges.

<table>
<thead>
<tr>
<th>Software</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux (Redhat, CentOS, Fedora, Ubuntu, Suse)</td>
<td>Server Operating System (OS)</td>
</tr>
<tr>
<td>ZODB, MySQL, PostgreSQL</td>
<td>Database Management Systems</td>
</tr>
<tr>
<td>Zope, JBoss, Apache Tomcat</td>
<td>Application Servers</td>
</tr>
<tr>
<td>Plone</td>
<td>Collaborative Tools</td>
</tr>
<tr>
<td>FileZilla</td>
<td>File Transfer Tools</td>
</tr>
<tr>
<td>Zabbix</td>
<td>Server Monitoring</td>
</tr>
<tr>
<td>LineSurvey, Asset Management System and OTRS</td>
<td>Applications</td>
</tr>
<tr>
<td>Openfire</td>
<td>Instant Messaging Server</td>
</tr>
<tr>
<td>PHP, Python, ActivePerl</td>
<td>Development Technologies</td>
</tr>
<tr>
<td>LAMP/WAMP</td>
<td>OSS runtime stacks (web server/database/PHP)</td>
</tr>
</tbody>
</table>

3.2 EU context

The European Commission has driven a number of OSS related projects. It is currently prompting the European Open Source Observatory and Repository (OSOR). The primary objective of the European OSOR is to help Public Administrations to develop solutions collaboratively, share best practices and promote re-use. It links all national OSORs, forges and provides access to over 1000 publicly funded OSS projects. These projects are capitalised upon the various public entities within European Member States and are distributed on the European OSOR as OSS.

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Table 2: OSS Technologies adopted within Government

<table>
<thead>
<tr>
<th>Software</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux (Redhat, CentOS, Fedora, Ubuntu, Suse)</td>
<td>Server Operating System (OS)</td>
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<tr>
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<tr>
<td>Zope, JBoss, Apache Tomcat</td>
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<tr>
<td>Plone</td>
<td>Collaborative Tools</td>
</tr>
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<td>Openfire</td>
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</tr>
<tr>
<td>LAMP/WAMP</td>
<td>OSS runtime stacks (web server/database/PHP)</td>
</tr>
</tbody>
</table>

14 Open Ticket Request System is an Open Source Ticket Request System with numerous features for the management of customer calls and e-mails
15 Through the IDABC programme
### Table 3: Member States’ OSS policies, OSOR and Forges and OSS competence centres

<table>
<thead>
<tr>
<th></th>
<th>OSS Policy</th>
<th>OSOR and Forge</th>
<th>OSS Competence Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>√</td>
<td><a href="http://egovlabs.gv.at/">http://egovlabs.gv.at/</a></td>
<td>Digital Austria</td>
</tr>
<tr>
<td>Belgium</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>√</td>
<td></td>
<td>Legislation</td>
</tr>
<tr>
<td>Czech Republic</td>
<td></td>
<td></td>
<td>OSS Participation / consultancy from Czech OSS Alliance</td>
</tr>
<tr>
<td>Denmark</td>
<td>√</td>
<td><a href="http://www.e.gov.dk/">http://www.e.gov.dk/</a></td>
<td>IT-Technical Centre in the Ministry of Science, Technology and Innovation</td>
</tr>
<tr>
<td>Estonia</td>
<td>√</td>
<td>Planned to be hosted on Osor.eu[^18]</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td></td>
<td>Paper</td>
<td>Ministry of Culture and Communication</td>
</tr>
<tr>
<td>France</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>√</td>
<td>Ministry of the Interior National Parliament (Bundestag)</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>√</td>
<td><a href="http://www.osspa.cnipa.it">http://www.osspa.cnipa.it</a> [<a href="http://qualipso.dsc.pi.uninsub-">http://qualipso.dsc.pi.uninsub-</a> ria.it/flossitaly/]</td>
<td>CNIPA (National Centre for IT in Public Sector) Floss Italy / Legislation</td>
</tr>
<tr>
<td>Latvia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>√</td>
<td><a href="http://www.ictu.nl">http://www.ictu.nl</a></td>
<td>ICT Unit of the Ministry of the Interior &amp; Kingdom Relations Legislation</td>
</tr>
<tr>
<td>Norway</td>
<td></td>
<td><a href="http://www.friprog.no/">http://www.friprog.no/</a></td>
<td>Friprog (funded by Gov) Ministry of Government Administration and Reform</td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td></td>
<td>Intersectoral Commission for IT in Public Administration Ministry of Interior and Administration</td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td></td>
<td>Education</td>
</tr>
<tr>
<td>Romania</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>√</td>
<td></td>
<td>The Ministry of Transport, Posts and Telecommunications Slovak OpenSource Initiative</td>
</tr>
<tr>
<td>Slovenia</td>
<td>√</td>
<td><a href="http://www.coks.si">http://www.coks.si</a></td>
<td>COKS Ministry of Information Society</td>
</tr>
</tbody>
</table>


4. Immediate considerations

A short focused research exercise was carried out to explore and identify potential areas for the application of non-disruptive open source based software. This was intended to identify 'equivalent' software which can be considered alongside current counterparts in the shorter term. A summarised list of results is provided further on in Table 6 - List of Corporate Desktop Software and Alternative OSS.

The desktop environment or rather more specifically in this context the typical office automation element can be considered and employed as a showcase to demonstrate the benefits of OSS. Identifying and gauging the effectiveness, potential and repercussions of implementing an alternative office automation desktop, is therefore considered a key opportunity. In this context, an office automation desktop can be typically considered to consist of an operating system, a word processor / spreadsheet / email and internet browser capitalizing on the processing power of individual personal computers available at the users end.

The basic compatibility between office automation tools shows that the degree of compatibility\(^{20}\) between word processing counterparts, in terms of normal in line document content conversion, is considered adequate. Layout conversion is noted to be as less accurate. Similarly spreadsheet elements can also interoperate well at their basic level, given that no exotic features (including internal automations) are used. On the other hand, the web browsing experience should not be affected if websites implement and adhere to industry standards.

The email scenario within Government merits a distinctive approach due to a number of factors that include the limited availability of OSS client alternatives in the current corporate context and supporting operational framework. Webification\(^{21}\) of email services and provisioning is on the increase, and as such should be considered as a plausible option, in conjunction with the support of open standards. This is currently being actively considered under its respective strategic coverage and in a separate paper\(^{22}\).

4.1 Desktop software


\(^{21}\)Webification is refered to the process in making desktop and server applications accessible via web browsers.

\(^{22}\)TSG-BRP-Core_Desktop_Strategic_Directions.
Three different ‘classes’ of office productivity usage scenarios/roles have been considered for this specific exercise, as portrayed in the following table. The classes are presented in the context of typical use as well as the potential impact such a transition can have based on the perspectives, including but not limited to compatibility, functionality, installation, configuration, integration, training, support and document migration.

### Table 4: Classes of office productivity usage scenarios

<table>
<thead>
<tr>
<th>Usage Class / Impact</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>[3] Minimal usage / Little or no impact</td>
<td>Office suite used solely or mostly for viewing documents. Limited use for document creation. Does not form part of routine work and no real dependency exist.</td>
<td>Front office clerks. Simple administration roles. Specialised applications users such as data entry operators (where one spends most of the time interacting with specific information systems). No use of software with integration to current office productivity suite.</td>
</tr>
</tbody>
</table>

Key statistics based on 19,4182 desktops within the Maltese Government Network show that around 16,980 desktops are installed with the standard office automation and productivity suite. Formulating an assumption based on the principle of factor sparsity24 rationale (80% of users employ 20% of the office feature set), it can be assumed that [Class 2] and [Class 3] applications could constitute of 80% of the entire population of installations in discussion.

### Table 5: Desktops within the Maltese Government Network

<table>
<thead>
<tr>
<th>Basic Workings (80% / 20 %)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Office Users</td>
<td>16980</td>
</tr>
<tr>
<td>Class 1</td>
<td>3396</td>
</tr>
<tr>
<td>Class 2 and Class 3</td>
<td>13584</td>
</tr>
<tr>
<td>Class 2</td>
<td>10867</td>
</tr>
<tr>
<td>Class 3</td>
<td>2717</td>
</tr>
</tbody>
</table>

Basic considerations indicate between 2717 and 10867 of current office productivity software users could potentially make use of similar products.

Beside the office automation element, several additional open source based equivalents can be considered in this respect and which can be employed instead or alongside current equivalents.

21 Data set only includes installations which have the SMS agent installed and is only approximate. This includes Public sector and schools.

24 http://en.wikipedia.org/wiki/Pareto_principle
Albeit slightly less evident, a number of opportunities also exist in the context of back office software. MITA is however working more deliberately to create equal opportunities and freedom of choice, while continues to actively consider alternatives more readily in this aspect.

### 4.2 Possible implementation roadmap for Desktop software

The following roadmap provides an overview of the initiatives that can be considered for the immediate term.

#### Table 6: Corporate Desktop Software and Alternative OSS

<table>
<thead>
<tr>
<th>Software Class</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Browser</td>
<td>Mozilla Firefox, Google Chrome, SRWare Iron</td>
</tr>
<tr>
<td>Email client</td>
<td>Mozilla Thunderbird, Zimbra Desktop</td>
</tr>
<tr>
<td>(Yahoo)</td>
<td></td>
</tr>
<tr>
<td>Desktop Publishing</td>
<td>Scribus</td>
</tr>
<tr>
<td>Compression Tool</td>
<td>7Zip</td>
</tr>
<tr>
<td>Media Player</td>
<td>VLC, Media Player Classic, KMPlayer</td>
</tr>
<tr>
<td>PDF Reader</td>
<td>Sumatra PDF, PDF SAM,</td>
</tr>
<tr>
<td>Flash Player</td>
<td></td>
</tr>
<tr>
<td>Web Page Editor</td>
<td>Amaya, Aptana, KompoZer</td>
</tr>
<tr>
<td>Project Planning</td>
<td>OpenProj, Gantt Project, Open WorkBench Project</td>
</tr>
<tr>
<td>Diagramming</td>
<td>Dia, ArgoUML, OpenOffice Draw</td>
</tr>
</tbody>
</table>

#### Table 7: Roadmap for desktop software

<table>
<thead>
<tr>
<th>Q4 2010</th>
<th>Q1 2011</th>
<th>Q2 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Automation: - Carry out an evaluation on the potential installation of OpenOffice side by side with established Office Suite on Standard Desktops. - Install OpenOffice side by side with existing Office Suite within Public Primary Schools. - Include OpenOffice within Application Virtualisation prototype. - Collaborate with SDO within OPM to facilitate training for OpenOffice for 3000 Public Officers.</td>
<td>- Collaborate with SDO to identify a local OpenOffice training provider. - Collaborate with SDO in the provision of training on OpenOffice to a number (500) of [Class 3] Public Officers. - Collaborate with Education in the provision of training on OpenOffice teachers in Public Schools.</td>
<td>- Extend training on OpenOffice to more (500) of [Class 3] Public Officers. - Introduce the deployment of OpenOffice a number of (Class 3) Public Officers. - Collaborate with Department Education to increase awareness of alternative software within curriculum.</td>
</tr>
<tr>
<td>Other line of business Desktop Software: - Facilitate the introduction of alternate LOB software governed by OSS policy and directive. - Prototype distribution of 7Zip, Gimp, Freemind, QuantumGIS, and Firefox.</td>
<td>- Introduce a formal Line of Business process governed by appropriate Policies and Directives. - Establish a way to facilitate centralised management of OSS.</td>
<td></td>
</tr>
<tr>
<td>OS Desktop: - Facilitate the introduction of Alternate Operating System based requests for new desktops within Public Libraries and SATU (MJHA).</td>
<td></td>
<td>- Consider a prototype based on Alternate Desktop Operating System.</td>
</tr>
</tbody>
</table>
Furthermore, the initiative to divest line of business applications to third parties is seen as a potential way to reduce key cost drivers of a number of important software elements. These include relational database management systems, application servers, content management systems and typical commodity software. Thus, MITA will seek to increase the awareness of business owners to evaluate the potential of OSS, and where appropriate ensure the appropriate business requirements are included in respective procurement processes, in line with the National Procurement Legislation, explained in ‘Guideline on public procurement of Open Source Software’, drafted for the European Commission, European eGovernment Services within IDABC and revised in March 2010.

A further recent study shows that Plone can be used as a mainstream collaboration tool within Government especially in the eGovernment context. The adoption of OSS based Content Management Systems, including Plone, in the eGovernment context manifests a number of potential benefits including the accelerated rate of deployment for specific eGovernment services as well as cost benefits on a longer term. Furthermore, eGovernment initiatives should be employed to nurture the concepts of Open source-based business models for the procurement and maintenance of Government software in general.

MITA intends to carry out an evaluation to identify an OSS based database management system (possibly comparing MySQL and PostgreSQL) for corporate use. MySQL has been used in a number of prototypes that include SugarCRM, OpenFire and Koha Library Management System. MySQL is also being used in production with a number of other internal systems.

In the context of desktop communication, OpenFire has been identified as a potential Instant Messaging solution for small office (Lan based) implementations. OpenFire has been used by the Government of Malta for a number of years to facilitate the running of the Social Policy Information Network. OpenFire adopts and strongly endorses a number of Open Standards, which makes it an ideal candidate to be used in conjunction with other implementations within Government. Its open standard basis makes it relatively easy to integrate with, federate or alternatively be replaced by a centralised Unified Communications framework when this is available.

### Table 8: OSS opportunities

<table>
<thead>
<tr>
<th>Principal</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Operating System</td>
<td>RedHAT, Suse</td>
</tr>
<tr>
<td>Database Management System</td>
<td>MySQL, PostgreSQL</td>
</tr>
<tr>
<td>Portal / Collaboration</td>
<td>Plone, Joomla</td>
</tr>
<tr>
<td>Operational tools</td>
<td>Zabbix</td>
</tr>
<tr>
<td>Application frameworks</td>
<td>Java</td>
</tr>
<tr>
<td>Development Tools</td>
<td>Eclipse, Netbeans</td>
</tr>
<tr>
<td>Middleware</td>
<td>Mule</td>
</tr>
<tr>
<td>Communications</td>
<td>OpenFire / Asterisk</td>
</tr>
</tbody>
</table>

---


26 Instant Messaging is a term used for PC-to-PC text and voice messaging. More recently Video Messaging is also being used for visual PC-to-PC communications. This does not include Video Conferencing that refers to the one to one, and one to many, visual online meetings.
### 4.4 Suggested implementation roadmap for back-office software

<table>
<thead>
<tr>
<th></th>
<th>Q4 2010</th>
<th>Q1 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collaboration</strong></td>
<td>- Facilitate the increase adoption of Plone for mainstream collaboration.</td>
<td>- Carry out Plone training for established Plone end-users (MITA, MFIN, OPM)</td>
</tr>
<tr>
<td></td>
<td>- Evaluate the potential application of OSS CMS within eGovernment.</td>
<td></td>
</tr>
<tr>
<td><strong>Middleware</strong></td>
<td>- Evaluate the potential application of OSS Middleware within myAlerts and other centralised business processes</td>
<td></td>
</tr>
<tr>
<td><strong>Content Management System</strong></td>
<td>- Evaluate the potential application of Plone within eGovernment.</td>
<td>- Evaluate the potential application of open source-like business model for the procurement, development and maintenance of eGovernment solutions.</td>
</tr>
<tr>
<td><strong>Hosting</strong></td>
<td>- Facilitate the introduction of segregated environments for eGovernment.</td>
<td>- To create an awareness program about the adoption of business specific OSS solutions, through the appropriate channels.</td>
</tr>
<tr>
<td></td>
<td>- Formalise guidelines for the identification of business requirements within the procurements of public tenders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Update hosting related GMICT policies and directives.</td>
<td></td>
</tr>
<tr>
<td><strong>Databases</strong></td>
<td>- Carry out an evaluation of an alternative database management System to be used within Government of Malta.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- To identify and carry out training for the potential alternate database management system for database administrators.</td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>- To facilitate the adoption of OpenFire for secure LAN-based (small office) communications.</td>
<td></td>
</tr>
</tbody>
</table>
5. Medium term objectives

A number of medium term objectives need to be established to further capitalise on OSS based opportunities. The following sections provide an overview of these objectives as well as identify key benefits and associated deliverables.

5.1 OSS Governance

Open Source Governance is required to control and regulate the use of OSS within Government. The governance aspect will require the following to function effectively.

- A list of OSS used within Government;
- A GMiCT policy about the use of cost-effective and non-disruptive OSS;
- Tools to determine code provenance (IPR Tools);
- Training for all Public Officers irrespective whether they are users, promoters or contributors of OSS;
- A GMiCT policy with strong emphasis for contributing to various Open Source communities, from which the Government of Malta benefits;
- A GMiCT policy that favours re-usable software through the adoption of Open Source Business Models.

Benefits

- OSS Governance will minimise relevant legal risks attributed to the licensing techniques of OSS.
- GMiCT Policy to set clear vision of the Strategic Objectives.

During 2010 MITA will:
- Establish an OSS Policy and Directive.
- Ensure that the current Software processes can handle OSS software and modify process where required.

During 2011 MITA will:
- Establish a process to release selected bespoke Government Software as Open Source under EUPL.
- Establish a service to facilitate the awareness of already procured OSS within the Government of Malta.
MITA intends to facilitate the process of selecting desktop (client) oriented Line of Business (LOB) applications, whilst empowering the CIO through the provision of the required flexibility to be more selective in the choice of software that addresses specific business needs. This should provide the Government with more appropriate solutions from a business context required for the day to day operations of Public Officers.

It is envisaged that this process will see an increase in the use of OSS desktop applications in areas of general office automation including project management tools, graphics manipulation tools, media authoring tools etc. etc. MITA should target that by end 2010, 30% of new LOB software installations will be based on OSS.

MITA will setup an evaluation process whereby specific OSS may be evaluated for a wider consideration at Enterprise level. MITA will also seek ways to minimize some of the potential operational burden of OSS by leveraging application virtualisation and other technologies. In this regard MITA intends to implement an application virtualisation prototype to include OpenOffice, 7Zip, Gimp, Freemind, QuantumGIS and Firefox. This process will seek to minimise the license costs for new Line of Business software by 50%.

### Benefits
- Provide more effective tools to the end user.
- Contain the increased licensing costs.

During 2010 MITA will:
- Setup an OSOR intranet with a list of OSS products for reference to CIOs
- Ensure that the Line of Business places OSS and PS on a level playing field.

During 2011 MITA will:
- Include a number of OSS packages within the corporate software list.
- Establish a software procurement policy.

The Private Runtime Environment (PRE) principles were instituted to enable the support and maintenance aspects of ICT solutions to be provided by respective suppliers. Suppliers have the controlled opportunity to utilise technologies other then the ones currently supported by MITA and as such MITA’s skill set will no longer act as a barrier towards the introduction of OSS solutions.

It is anticipated that with increased PRE governed implementations, the licensing costs for Systems Software will be reduce as suppliers will adopt cost-effective OSS solutions in order to reduce costs and become increasingly competitive.

### Benefits
- Reduce skill costs to support more technologies.
- OSS solution providers are more selective on their solutions, such as solutions built on LAMP stacks.
- Facilitates the adoption of open technologies for eGovernment Solutions.

In 2010 MITA will:
- Start to provide segregated environments adopting PRE principles.
- Increase the usage of collaborative environments based on Plone.
- Align the eGovernment Hosting Policy and related policies.

In 2011 MITA will:
- Identify open source CMS for e-Government purposes.
- Consider the adoption of Open Source business models for eGovernment solutions.

In order for Open Source to be pitched at a level playing field requires a cultural change towards openness, which will in turn result in the necessary skills and increased business opportunities. Public Education at all levels should therefore cater for respective Open
Source awareness. An increased awareness of OSS will influence the local technology market. Public Post Secondary (including MCAST) and Tertiary education already makes use and, to a limited extent, adopt Open Source technologies. The University of Malta, together with other educational institutions and Government agencies should serve as catalysts for the introduction of new OSS opportunities through appropriate educational programmes. A potential enabling programme can be the creation of national localised Open Source Software to address specific needs of the society, such as an Educational and SME Linux based distribution. The Government may consider subsidising or partially funding such programmes. This will also promote Malta as an OSS contributor and widen collaboration with other Universities and European entities. It is also expected that new business opportunities are identified through the source code availability of OSS.

During 2010 MITA will:
- Collaborate with Education and provide guidelines on OSS.
- Guide Education to deploy OSS software on Public Primary Schools desktops.
- Collaborate with Education to seek the provision of training for teachers on identified OSS.
- Identify programmes to promote the use of OSS within Education

During 2011 MITA will:
- Seek to allocate resource to aid the implementation of specific OSS implementations within Education.
- Guide Education to deploy OSS software on Public Secondary Schools desktops.
- Collaborate with Education to reduce technology dependencies with Public Schools desktops.
- Collaborate with Education to reduce product specific dependencies from National Curriculum.
- Collaborate with University of Malta and other Public post secondary educational entities to create localised OSS
- Introduce an award at Embed27 for the use of OSS in class by children.
- Include OSS as a theme in the ICT Summer Club28 we are devising for Secondary School children. (subject to EU funding)

MITA will encourage the increase in research activities related to OSS technologies. Potential participants for research in OSS can be the Government, University of Malta and also private entities. Research programmes should consider seeking collaboration with other European entities by subscribing to initiatives within and similar to the Seventh Framework Programme FP729. Current OSS related research within the EU’s FP7 programme includes and is not limited to Quality of OSS, Social Impact of OSS, generic initiatives based on OSS technologies such as OSS and Internet of Things, improving service engineering through OSS approaches and adoption of Open source business models on a wider context.

## Benefits

- Supports the creation of an OSS eco-system.
- Establish networking opportunities with University of Malta.

## 5.5 Research programmes

Benefits

- Nurtures openness concepts.
- Creates awareness of OSS technologies, with a potential social and economical impact on the citizen. Further research on this impact should be closely monitored to avoid negative impacts.
- Increase research opportunities.
- Establish Malta’s position within the context of the OSS communities.

During 2010 MITA will:
- Supports the creation of an OSS eco-system.
- Potential EU funding for OSS related research.

1) Is an award given to teachers and students in schools to celebrate the adoption of technology within education.
2) An education programme for students at secondary level that will be organised in summer to teach innovative ICT skills.
5.6 Open Source User Group

The success of OSS within Government requires a solid understanding of Open Source Business Models, Operational Impact, Open Source Licenses and other perspectives. MITA has just established an internal user group, the Government of Malta Open Source End User Group, with the key objective of acting as an information resource for OSS related matters within Government. The Government of Malta Open Source End User Group will promote the use of cost-effective and non-disruptive OSS. The User Group is made up of a representative from each Ministry, CIO or delegate, and assisted by the participation of a number of OSS related professionals (from the private and public sector).

User Group members will aid in the dissemination of OSS related information and presentations of skills transfer. The user group is sought to contribute to the running of the National OSOR and Forge.

**Benefits**

- Increase appropriate awareness of OSS within Government.
- Act as an incubator for different stakeholders towards a national OSS eco-system.
- Increase in the adoption of OSS-like business models within procurement of ICT in line with National Procurement Legislation.
- Contribute to a National OSOR and Forge.

5.7 Open Source business model and licensing within the procurement framework

MITA will provide guidelines that facilitate identification / procurement of ICT solutions that may be distributed as Open Source, under the European Union Public License (EUPL)\(^3\). The EUPL is published by the European Commission through the IDABC programme, and is available in all the EU official languages. It considers the diversities of individual laws within EU Member States and provides downstream compatibility with most OSS licenses.

MITA will seek to provide workspaces for projects that are procured by the Government and distributed under EUPL. The workspaces, will adopt Open Source models to provide contribution, maintenance and enhancement of the source code. Areas that are seen beneficial for such adoption are eGovernment, divestment of in-house built applications, customisation of procured solutions and adapters.

**Benefits**

- Encourage collaboration of Public Administration and OSS communities in the development of Open Source Software.
- Enable re-use of procured software. Re-use opportunities can be extended to a pan-European level context and beyond.
- Potential reduction in licensing and procurement costs which can possibly compensate for any increased outsourcing support cost such as within segregated environments.
- Potential reduction on maintenance costs in the longer term.
- Increase transparency in the procurements process of ICT solution at source level.

\(^3\)http://ec.europa.eu/idabc/eupl
During 2010 MITA will:
- Evaluate ways to encourage re-use of public software.
- Carry out research on Open Source Business Models.
- Analyse the opportunities of distribution public software as Open Source under the European Union Public License.

During 2011 MITA will:
- Provide guidelines towards the adoption of Open Source Software requirements in procurement.
- Establish guidelines for the creation of OSS projects and OSS communities on the National Forge.
- Procure reference re-useable software implementations and release as OSS
  - E.g. reference consumers (in popular languages e.g. .NET and Java) to integrate with Government’s identity repository.

During 2012 MITA will:
- Drive OSS communities to develop selected public software on the National OSOR and Forge.

MITA will seek ways to further increase the awareness of appropriate OSS within Government by establishing a number of information sharing and collaborative tools for Public Administration. These are also intended to benefit the Government of Malta Open Source User Group and OSS communities in general. The Open Source Observatory and Forge are intended to enable such sharing and collaboration. It is expected that both the OSOR and Forge will also attract academic interest resulting in further participation. Whilst technical participation is the most common in a forge environment, as openness interests’ starts to increase it tends to attract participants from other perspectives.

5.8 Open Source observatory and forge

5.9 Collaboration with EU, vendors and communities

Benefits
- Establishment of OSOR as a key driver for appropriate OSS awareness within Government.
- Establishment of Forge as a primary source for Government (Public) software that is distributed as Open Source.
- Enable collaboration between entities with different skill sets.
- Encourage collaboration between Public Administration and OSS communities in the development of Open Source Software.
- Enable wider re-use of procured software. Re-use opportunities can be extended to a pan-European level context and beyond.
- Increased nurturing of an OSS eco-system.
- Provides a way for the measurement of OSS proliferation within Government.

During 2010 MITA will:
- Run an OSOR ‘Intranet’ platform, built on OSS.
- Carry out research on tools to establish a national OSOR and Forge.

During 2011 MITA will:
- Establish a National OSOR.
- Distribute public software as OSS.
- Adopt community principles for the maintenance of OSS Government software.
- Promote the takeup of the National OSOR. Collaborate and Federate with http://osor.eu and other European National Forges.

MITA will establish further links through technical and diplomatic channels to share experience and participate with the best of breed in European OSS, with the aim of further re-dimensionalising Malta’s technological boundaries. In this regard, MITA will keep a close watch on the European Commission’s ISA programme and associated initiatives, with particular attention to OSOR.eu. Increased collaboration with other European National Forges is expected during the coming three years in view of the increased cross-border collaboration between European Member States with respect to the digital Agenda.
MITA will also seek to increase OSS participation at European Level, through participation and exposure during major, related events.

MITA will also seek to setup strategic alliances with OSS vendors and communities to increase OSS awareness through education programmes and professional skills transfer, with a major focus on the local communities.

MITA will actively explore the possibility for organising a local annual OSS Conference with the participation of different stakeholders, including European Commission representatives, OSS Vendors and OSS Communities. MITA may consider encouraging the local market / vendors to organise such an event.

**Benefits**

- Establish Malta’s position as an OSS Contributor.
- Increased OSS skills.
- The increase possibilities for re-use of Maltese software at an international level would potentially create further potential opportunities to the local OSS communities and vendors.
- Establish a ranking on OSS and collaborative matters within European Commission.

**During 2010 MITA will:**
- Seek to increase participation in key OSS events.
- Establish wider networking with European National Forges.
- Collaborate and participate at European Commission related events.
- Identify the first OSS vendors for Vertical Strategic Alliances negotiations

**During 2011 MITA will:**
- Establish a number of OSS strategic partners
- Carry out a study on the readiness of the local industry to adopt OSS, and identify the benefits and costs of OSS for SMEs and larger organisations.
- Research and evaluate the possibility to organise a local national OSS conference.

**During 2012 MITA will:**
- Establish way to organise, or drive the organisation, of the first local national OSS conference.

### 6. Alignment to other ICT Initiatives - Long term objectives

The following MITA initiatives are seen to positively contribute towards the adoption of cost-effective OSS within Government.

The de-coupling of ICT components is fundamental for the creation of level playing field within Government. Principles of adaptation and adapters are mandated for application within segregated environments such as those governed by the PRE principles.

MITA will identify a list of Shared and Common Services and is to provide the required adapters to be used for interoperability purposes.

**Benefits**

- Provides managed and streamlined interoperability opportunities to a wider range of ICT solutions.
- Reduce technology dependencies and creates wider opportunities for varied technology stacks.
- Provides better SLAs, security and risk management amongst others.
MITA will provide Identity Management Services embracing the adapter concepts that allows for token based federated authentication where appropriate. Through this approach, MITA will seek to abstract desktop services from authentication and identity provision, to the maximum extent possible. This will ensure and avoid technology dependencies.

**Benefits**
- Provides more flexibility in the choice of desktops and mobile devices accessing core systems.
- Provides interoperability opportunities to a wider range of ICT solutions.

**6.3 Location independent computing**

With the increased drive towards mobility, new client form factors, varying operating environment requirements and contextually similar challenges, MITA will seek to decrease technology dependencies on traditional desktop configurations. Webification and Virtualisation are two drivers towards a more desktop agnostic ICT approach.

**Benefits**
- Facilitate the evolution towards increasingly desktop agnostic solutions with less dependency on technology and configuration whilst increasing mobility, such as and not limited to OSS desktops and OSS mobile devices.

**6.4 Application virtualisation and streaming**

MITA will evaluate application virtualisation and desktop streaming technologies as a way to provide desktop environments as a managed service. Such technologies should provide virtual resource allocation on the desktops and therefore minimise the complexities of executing different applications on the same device. MITA will seek to exploit this possibility to increase the distribution of cost-effective and non-disruptive OSS at an enterprise level.

**Benefits**
- Reduces dependencies on desktop technologies.
- Increased penetration of non-disruptive OSS.
## 7. Summary of initiatives

The following table provides an aggregated concise list of the initiatives described earlier in Section 05.

<table>
<thead>
<tr>
<th>Initiatives / Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSS Governance</td>
<td>- Establish an OSS Policy and Directive.</td>
<td>- Establish a process to release selected bespoke Government Software as Open Source under EUPL.</td>
<td>- Establish a service to facilitate the awareness of already procured OSS within the Government of Malta.</td>
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<tr>
<td></td>
<td>- Ensure that the current Software processes can handle OSS software and modify process where required.</td>
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<tr>
<td></td>
<td>- Establish a process to release selected bespoke Government Software as Open Source under EUPL.</td>
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<tr>
<td>Line of Business</td>
<td>- Setup an OSOR intranet with a list of OSS products for reference to CIOs</td>
<td>- Include a number of OSS packages within the corporate software list.</td>
<td>- Establish a software procurement policy.</td>
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<td></td>
<td>- Ensure that the Line of Business places OSS and PS on a level playing field.</td>
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<tr>
<td></td>
<td>- Include a number of OSS packages within the corporate software list.</td>
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<tr>
<td>Private Runtime Environments</td>
<td>- Start to provide segregated environments adopting PRE principles.</td>
<td>- Identify open source CMS for e-Government purposes.</td>
<td>- Consider the adoption of Open Source business models for eGovernment solutions.</td>
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<tr>
<td></td>
<td>- Increase the usage of collaborative environments based on Plone.</td>
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<tr>
<td></td>
<td>- Align the eGovernment Hosting Policy and related policies.</td>
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<tr>
<td>Public Education</td>
<td>- Collaborate with Education and provide guidelines on OSS</td>
<td>- Seek to allocate resource to aid the implementation of specific OSS implementations within Education.</td>
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<tr>
<td></td>
<td>- Guide Education to deploy OSS software on Public Primary Schools desktops.</td>
<td>- Guide Education to deploy OSS software on Public Secondary Schools desktops.</td>
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<tr>
<td></td>
<td>- Collaborate with Education to seek the provision of training for teachers on identified OSS.</td>
<td>- Collaborate with Education to reduce technology dependencies with Public Schools desktops.</td>
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<tr>
<td></td>
<td>- Identify programmes to promote the use of OSS within Education</td>
<td>- Collaborate with Education to reduce product specific dependencies from National Curriculum.</td>
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<td></td>
<td></td>
<td>- Plan and Drive an awareness campaign with parents</td>
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<td></td>
<td></td>
<td>- Collaborate with University of Malta and other Public post secondary educational entities to create localised OSS</td>
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<td></td>
<td>- Introduce an award at Embed(^{31}) for the use of OSS in class by children.</td>
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<td></td>
<td></td>
<td>- Include OSS as a theme in the ICT Summer Club(^{32}) we are devising for Secondary School children. (subject to EU funding)</td>
<td></td>
</tr>
<tr>
<td>Research Programmes</td>
<td>- Establish networking opportunities with University of Malta.</td>
<td>- Collaborate with University of Malta and local OSS communities to encourage participation within research programmes.</td>
<td></td>
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</tbody>
</table>

\(^{31}\) Is an award given to teachers and students in schools to celebrate the adoption of technology within education.

\(^{32}\) An education programme for students at secondary level that will be organised in summer to teach innovative ICT skills (subject to EU funding).
<table>
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<th>2011</th>
<th>2012</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>- Provide collaboration tools to the Government of Malta Open Source End User Group.</td>
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<tr>
<td>Open Source Procurement Frameworks</td>
<td>- Evaluate ways to encourage re-use of public software.</td>
<td>- Provide guidelines towards the adoption of Open Source requirements in procurement.</td>
<td>- Drive OSS communities to develop selected public software.</td>
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<tr>
<td></td>
<td>- Analyse the opportunities of distribution public software as Open Source under EUPL.</td>
<td>- Establish guidelines for the creation of OSS projects and OSS communities.</td>
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<tr>
<td></td>
<td></td>
<td>- Procure re-useable software implementations and release as OSS.</td>
<td></td>
</tr>
<tr>
<td>National OSOR and Forge</td>
<td>- Run an OSOR Intranet, built on OSS.</td>
<td>- Establish a National OSOR.</td>
<td>- Drive OSS communities to develop selected public software.</td>
</tr>
<tr>
<td></td>
<td>- Carry out research on tools to establish a national OSOR and Forge.</td>
<td>- Distribute public software as OSS.</td>
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<td></td>
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<td>- Adopt community principles for the maintenance of OSS Government software.</td>
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<tr>
<td></td>
<td></td>
<td>- Ensure the take-up of the National OSOR.</td>
<td></td>
</tr>
<tr>
<td>Collaboration with EU, Vendors and Communities</td>
<td>- Seek to increase participation in key OSS events.</td>
<td>- Identify a number of OSS strategic partners.</td>
<td>- Establish way to organise, or drive the organisation, of the first local national OSS conference.</td>
</tr>
<tr>
<td></td>
<td>- Increase networking opportunities with European National Forges.</td>
<td>- Research and evaluate the possibility to organise a local national OSS conference.</td>
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<tr>
<td></td>
<td>- Collaborate and participate at European Commission related events.</td>
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<td></td>
<td>- Identify the first OSS vendors for VSAs negotiations</td>
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</tbody>
</table>
8. Conclusion

This white paper is intended to act as an initial catalyst for the increased consideration and non-intrusive adoption of open source software. It establishes a number of key principles as well as sets a number of immediate and long term objectives intended to take the application of open source software within Government to the next phase. It is not aimed to regulate the adoption of OSS within Government which is governed by the Open Source Software Policy and related Directive attached as appendices.
Appendix A - References and Definitions

1. References


2. Definitions

European Union Public Licence (EUPL)
The EUPL is the first European Free/Open Source Software (F/OSS) licence. It has been created on the initiative of the European Commission. It is now approved by the European Commission in 22 linguistic versions and can be used by anyone for software distribution. This licence is the only General Public Licence available in Maltese Language.

Forge
This is a website, portal or otherwise where specific software is made available for downloads. This is more common for OSS since there is no need for the consumer to pay for the software. The forge may include both the binary of the software as well as the source code. Modern forges include a number of tools, such as forums, communities, error reporting, download monitoring and documentation.

Free Software
Free Software is software in line with the Free Software Definition of the Free Software Foundation. This definition define four types of freedoms:

- The freedom to run the program, for any purpose (freedom 0).
- The freedom to study how the program works, and change it to make it do what you wish (freedom 1). Access to the source code is a precondition for this.
- The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to distribute copies of your modified versions to others (freedom 3). By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

Free Software Foundation (FSF)
A non-profit organisation with a worldwide mission to promote computer user freedom and to defend the rights of all free software users.

Free/Libre Open Source Software (FLOSS), (FOSS)
is a term used for Open Source Software that is distributed under a General Public Licence. Such software provides the source code without any financial obligation.

Freeware
Computer software that is available for use at no cost or for an optional fee. Unless distributed under a General Public Licence, Freeware does not provide the Source Code and is not classified as OSS.

General Public Licence (GPL)
Any license that provides the user certain specific freedoms is a Free Software licence.

The most widespread such licence is the GNU General Public Licence, or GNU GPL for short. This can be further shortened to ‘GPL’, when it is understood that the GNU GPL is the one intended.

GNU General Public Licence (GNU GPL)
The GPL was created by Richard Stallman to enforce the principles of free software. Where most software licences restrict the rights of the user (eg to make copies), the GPL protects the rights of the user. Stallman calls this idea copyleft.

Internationalisation
This refers to the design and development of a product, application or document content that enables easy localisation for target audiences that vary in culture, region, or language. In this regard, internationalisation should be independent of the core application code and therefore does not require a consumer to re-build a software application to achieve localisation.

Linux
An Open Source Operating System. A Linux distribution is usually packaged with a number of Open Source Software such as Media Tools, Office Tools, Server Tools and Games.
### Government of Malta

#### Open Source End User Group (MOSUEG)

A User group made up of representative members from each Government Ministry and potentially participants from Public Administration, solution and training providers, educational institutions, and other professionals.

The user group as a major champion, contributor and driver for the adoption of Open Source related concepts and technologies in Government.

The user group identifies and considers potential ways on making Government software available to the software development community via beneficial source based licensing terms.

### National Forge

A forge that contains Open Source Software that is used by the Government, Local Councils, Municipalities and other Government entities. The software may be used worldwide.

### Open

Open and Openness in ICT are used to define a cluster that has a free access policy. In this regard, free does not always mean free in monetary value but directly freedom to access and makes use of the specific cluster. Such clusters can be software, hardware and data.

### Open Data

A philosophy and practice requiring that certain data are freely available to everyone, without restrictions from copyright and patents.

### Open Source

Open Source are products that is provided by a wide number of entities that adopt an Open Source Business Model. Open Source is not only available as software but may be found in a wider context in every business domain. Examples are Open Source Software, Open Law, Open Source Hardware and Open Data.

### Open Source Business Model

A business model building upon the paradigm of community based workforce in producing Open Source products. Adopters rely on shifting the commercial value away from the actual product, generating revenue from subsidiary services like systems integration, product support (training) and documentation.

In ICT such entities produce Open Source Software.

### Open Source Hardware

A term that refers to computer and electronic hardware that is designed in the same fashion as Open Source Software.

### Open Source Initiative (OSI)

A non profit organization dedicated to promoting Open Source Software.

### Open Source Software (OSS)

Software for which the underlying programming code is available to the users so that they may read it, make changes to it, and build new versions of the software incorporating their changes.

According to OSI, Open source doesn’t just mean access to the source code.

Open Source Software is distribute under a General Public License that shall:
- allow the free redistribution of the solution and manuals, including the source code
- allow the solution to be modified in part or in full and be used in other solutions
- permit the integrity of the Author’s Source Code and prevent discrimination against persons, groups or fields of endeavour
- not be specific to a product
- allow for redistribution of the software through manual and automated processes without the need for additional licences
- not restrict other software that is distributed along with the licensed software
- be as technology neutral as possible regarding any individual technology or style of interface.

The EUPL and GNU GPL are deemed to conform.

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**Open Source Software Policy**

A set of guidelines, terms and conditions that is published as part of the Government of Malta ICT Policies (GMICT Policies) at http://ictpolicies.intra.gov.mt

**Open Source Observatory and Repository (OSOR)**

A website, portal or otherwise where information and guidelines about Open Source Software is made available. An OSOR may also include a forge. Such portals are OSOR.eu and OSOR Intranet.

**OSOR.eu**

The Government Open Source Observatory and Repository that is accessible over the Government of Malta Network. The address of this Intranet is http://osor.intra.gov.mt.

**OSOR.eu Intranet**

The European Union Open Source Observatory and Repository and is accessible on the internet at http://osor.eu.

**GNU Free Document Licence (PDL)**

A copyleft licence for product manuals and documentation designed by the Free Software Foundation.

**Proprietary Software (PS) / Closed Sources**

Similar to GPL, the licence gives readers the rights to copy, redistribute, and modify a work and requires all copies and derivatives to be available under the same license.

Also referred to as closed source, is referred to computer software which is usually neither OSS nor Freeware, traditionally governed by extensive terms and conditions. Large number of PS is copyrighted.

Further definitions may be found in the GMICT Vocabulary standard document that is available at http://ictpolicies.gov.mt/docs/GMICT_S_0003_Vocabulary.pdf
Appendix B - GMICT Open Source Software Policy

Government of Malta

Reference: GMICT P 0097:2010
Version: 1.0
Effective: 1 June 2010

Open Source Software Policy

This document is part of the GMICT Policy Framework
http://ictpolicies.gov.mt

Purpose
This Policy seeks to encourage the adoption of cost-effective and non-disruptive Open Source Software (OSS) throughout Government. It also seeks to maximise re-use of procured software by enabling the distribution of Government solutions as OSS under the European Union Public Licence (EUPL), where appropriate.

Scope and Applicability
This Policy covers the procurement of Open Source Software and the adoption of related Open Source Business Models throughout the Public Sector to facilitate re-use of Government procured software.

Policy
1. Government shall actively consider and pursue the adoption of Open Source Software (OSS) that is cost-effective and non-disruptive. All direct and indirect costs, including total cost of ownership, support, exit and transitions costs, will be taken into consideration when calculating the cost-effectiveness of OSS. Non-disruptive OSS should meet the business requirements, and adopt Government’s operational and security principles in terms of scalability, promotion of desktop agnostic concepts, support and manageability.

2. Government expects that solution providers consider, in part or in full, the use of OSS to minimise long term costs and provide flexibility.

3. Where applicable, Government shall seek to promote the adoption of an appropriate Open Source Business Model that enables the software code to be distributed on an open source basis.

4. Government shall accept Open Source licences that are in line with the Open Source Definition (OSD) of the Open Source Initiative (OSI) and that are already approved by OSI. The EUPL, GNU GPL, FreeBSD licences are deemed to conform to the OSD. The Government shall accept the latest version and up to one previous version of the open source licences. The licence shall:
   - allow the free redistribution of the solution and manuals, including the source code
   - allow the solution to be modified in part or in full and be used in other solutions
   - permit the integrity of the Author’s Source
   - not be specific to a product
   - allow for redistribution of the software through manual and automated processes without the need for additional licences
   - not restrict other software that is distributed along with the licensed software
   - be as technology neutral as possible regarding any individual technology or style interface.

Deviations from GMICT Policy
Instances where it may not be technically possible or cost-effective to comply with a particular GMICT Policy requirement shall be reported to Government’s ICT Compliance function. This is done in order to evaluate the security, architectural, operational and other risks anticipated to result from the deviation, to identify additional compensating controls required to mitigate these risks and to formally acknowledge any residual risk and assign appropriate responsibility. In such instances, a request for exemption shall be forwarded to the ICT Compliance function for assessment in line with the Exemptions and Waivers Policy and Directive (GMICT P 0048). This also applies to deviations from best practices adopted by the Agent on behalf of Government.

Breaches of GMICT Policy shall be brought to the attention of ICT Compliance function in order to determine appropriate corrective action and potential internal control improvements.

http://www.opensource.org/docs/osd
http://www.osor.eu/eupl
http://www.fsf.org/licensing/licenses/gpl.html
http://www.freebsd.org/copyright/freebsd-license.html
**Related Documents**

<table>
<thead>
<tr>
<th>Name</th>
<th>Reference</th>
<th>Location</th>
</tr>
</thead>
</table>

**Issuing Authority**

This document has been issued with the authority of the Malta Information Technology Agency.

**Contact Information**


Any suggestions, queries or requests for clarification regarding Government ICT Policies, Directives and Standards may be forwarded to ictpolicies@gov.mt.
Appendix C - GMICT Open Source Software Directive

Government of Malta

Reference: GMICT D 0097:2010
Version: 2.0
Effective: 10 August 2010

Open Source Software Directive

This document is part of the GMICT Policy Framework
http://ictpolicies.gov.mt

Purpose
The objective of this directive is to guide the implementation of cost-effective and non-disruptive Open Source Software (OSS) throughout Government. It also seeks to maximise re-use of procured software by enabling the distribution of Government solutions as OSS under the European Union Public Licence (EUPL), where appropriate.

Scope and Applicability
This Directive covers the procurement of Open Source Software, including the adoption of the related Open Source Business Models throughout the Public Sector to facilitate re-use of such Government procured software.

1 Directive

1.1 Procurement of OSS
1. Government shall procure any OSS in line with the Public Contracts Regulations.
2. Government shall not exclude solutions that are in part, or in full, built on OSS technologies.
3. In the case of Free Software, Government shall accept to consider such software that is in line with the Free Software Definition\(^\text{37}\) of the Free Software Foundation. The definition describes four essential dimensions that include freedom to run program, freedom to study how the program works, freedom to redistribute, and freedom to distribute copies of your modified versions to others. This clause excludes patches, updates and upgrades of acquired commercial software.
4. Government shall only consider OSS that is available in the English language together with other European languages via Internationalisation. Source code and inline comments should ideally be in the English language.
5. Government shall take into account the possibility of capitalising on investments carried out by the EU Member States on OSS published on OSOR.eu
6. The legal risks and responsibilities associated with an OSS License shall be assumed by the respective Ministry, Department or other Entity within Government.
7. OSS solutions implemented within Government shall be registered under the Government OSOR Intranet\(^\text{38}\). OSS packages and OSS distributions shall be registered in whole.

1.2 Re-Use of Government Software
1. Government shall seek to facilitate distribution of OSS Government solutions under the European Union Public License.
2. Whenever Government needs to procure software, it shall first take into account OSS solutions that are already well established within the Government of Malta and that provide same or similar functions. The respective Ministry, Department or other Entity within Government shall provide adequate reasons to justify the lack of such re-use whenever requested and where applicable.

\(^\text{38}\) The OSOR Intranet is at http://osor.intra.gov.mt.
2 Roles and Responsibilities

<table>
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<th>Roles</th>
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| Ministry, Department or other Entity within Government | - Responsible to procure in line with the Public Contracts Regulations.  
- Assume the risks and responsibilities of the OSS licenses. |
| CIO                                             | - Register of OSS under the Government OSOR Intranet.  
- Seek the services of the Government of Malta Open Source End User Group.  
- Seek support for OSS software through third parties.  
- Seek to facilitate the adoption of Open Source business models.  
- Seek to consider publishing bespoke Government software applications under the European Union Public License (EUPL).  
- Consider publishing OSS Government Solutions on http://osor.eu |

3 Deviations from GMICT Policy

Instances where it may not be technically possible or cost-effective to comply with a particular GMICT Policy requirement shall be reported to Government's ICT Compliance function. This is done in order to evaluate the security, architectural, operational and other risks anticipated to result from the deviation, to identify additional compensating controls required to mitigate these risks and to formally acknowledge any residual risk and assign appropriate responsibility. In such instances, a request for exemption shall be forwarded to the ICT Compliance function for assessment in line with the Exemptions and Waivers Policy and Directive (GMICT P 0048). This also applies to deviations from best practices adopted by the Agent on behalf of Government. Breaches of GMICT Policy shall be brought to the attention of ICT Compliance function in order to determine appropriate corrective action and potential internal control improvements.

4 Related Documents

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<thead>
<tr>
<th>Name</th>
<th>Reference</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>Open Source Software Policy</td>
<td>GMICT P 0097</td>
<td><a href="http://ictpolicies.gov.mt">http://ictpolicies.gov.mt</a></td>
</tr>
</tbody>
</table>

5 Issuing Authority

This document has been issued with the authority of the Malta Information Technology Agency.

6 Contact Information


Any suggestions, queries or requests for clarification regarding Government ICT Policies, Directives and Standards may be forwarded to ictpolicies@gov.mt.