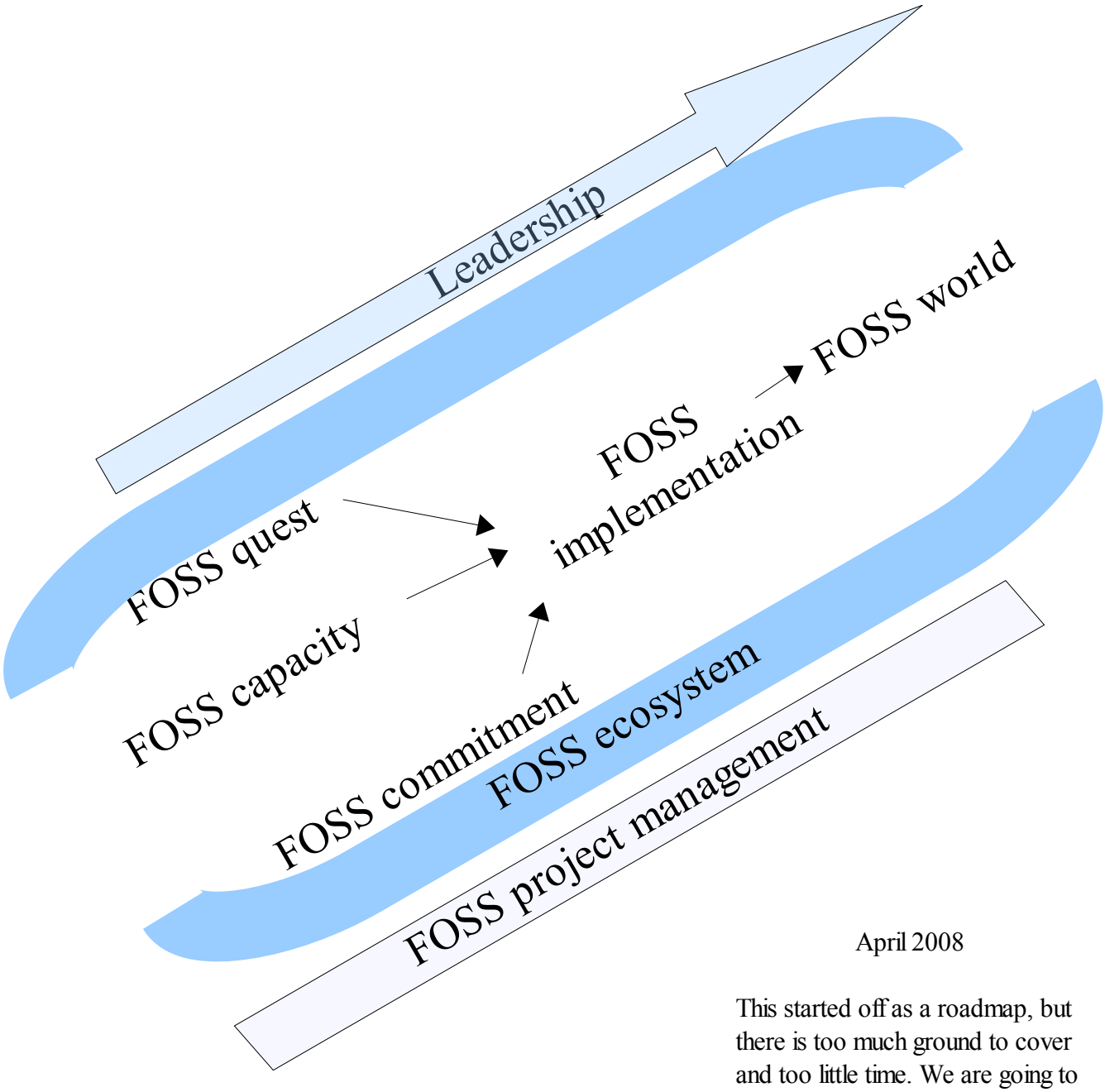
FLIGHT PLAN: FREE OPEN SOURCE SOFTWARE (FOSS) DEPLOYMENT IN THE SOUTH AFRICAN GOVERNMENT

Draft compiled by the SITA FOSS Programme



April 2008

This started off as a roadmap, but there is too much ground to cover and too little time. We are going to fly!

Government is challenged with the imperative of accelerating responses to many needs of its citizens. Universal access to information and communication technology is an important success factor to achieve this. In this Plan we describe how Government intends rolling out free open source software technology to promote such access.

Minister Geraldine Fraser-Moleketi

FOSS FLIGHT PLAN

EXECUTIVE SUMMARY

Background

FOSS strategy has to take into account divergent conditions in different government institutions. In some cases migration to FOSS can take place without extensive intervention by SITA. Elsewhere SITA and its service providers will need to be heavily involved.

Securing funding is not seen as the most important challenge, provided planning and submitting project proposals is managed professionally and timeously. More difficult will be building FOSS skills, compiling and implementing standards, effecting organisational development, ranging from government, to national to international organisations.

Risks to be addressed include political, business, human resources, legal and technological risks. The risk of not being able to build human resource commitment and skills in enterprises is arguably the most intricate to mitigate.

Vision

The vision that this strategy seeks to realise is a situation where -

- Using FOSS is the accepted practice in all spheres of government in South Africa;
- The FOSS ecosystem has developed to a point where it requires less effort for an organisation to use FOSS than PS;
- The South African government contributes FOSS to the global community;
- Citizens have comprehensive access to FOSS and give preference to using it.

Research, development, certification

Research and development initiatives will focus mainly on applied research in specific areas of application where impact can be significant. There are -

- Office productivity
- ECM
- GIS
- Education software (teaching and administration)
- Health
- SMMEs
- Local government
- Community services.

Skills development

Skills development initiatives will be launched in collaboration with partners such as SAMDI. Partner institutions are andicipated to provide training at a number of decentralised venues. Training will include -

- a module in general induction for public servants;
- normal user training
- super user training
- training for users not fully computer literate
- client briefings
- technical support staff training and certification.

The internship programme started in 2007 will also be repeated in subsequent years.

Funding

Funding decisions will be facilitated by cost:benefit analysis tools that will be customised for FOSS implementation projects.

National Treasury will be approached with a view to developing an approach whereby savings to be achieved by FOSS are used for migration to FOSS.

Change management and advocacy

Change management activities will be included in migration projects to ensure that stakeholders are taken through conditions of ignorance to knowledge, understanding, support, commitment, implementation and assimilation.

End users are regarded as the group needing the most elaborate change management process. Several measures are suggested for use in migrating institutions.

Introduction of multilingualism warrants special mention. Providing menus, spell checkers and other translation tools in all official languages is intended. Building open fonts which include all the diacritical signs required in these languages will also be commissioned.

An advocacy programme, consisting of arranging own events, presentations at others' events, visiting programs, maintaining a website, recording case studies (with success stories and lessons learnt) and hard copy publications has been launched. Three or more own events p.a. are envisaged, complemented by participation in events arranged by others.

Migration

SITA's internal migration is intended to serve as an example which other institutions may be able to follow. Migration of government institutions will be initiated via a readiness audit after which a migration strategy will be drafted by the service provider. SITA will propose that the solution developed by SITA be incorporated in the institution's own strategy.

SITA's focus was initially on national government departments. It is now being extended to provincial departments as well. Preliminary engagement of bigger municipalities has also commenced.

Preparations to get more deeply involved in Thusong Centres, education institutions are in progress. A Thusong mock-up is planned for SITA premises. That will be followed by piloting at approximately 5 centres, after which extensive rollout will be planned. Processes to initiate a dedicated education project will commence in the near future.

SITA itself opted for the Ubuntu distribution as its standard. The guideline given to government institutions will be not to adopt one of less popular distributions, but to use either Ubuntu, Red Hat or Suse Linux.

Umbrella organisations

A complete FOSS “ecosystem” will be developed over time. One element will be establishment of centres of expertise where investigations and development work will take place. Training, information and consulting services will be available. Although the intention will initially be to serve government, the service will also be extended to non-government sectors. The view is that these centres should over time be substantially financially independent.

South Africa will also initiate and support efforts to create or strengthen international bodies. The strenght of the proprietary software monopolies justify the consideration of government strategies to neutralise their influence.

Ecosystem

In addition to the above, the ecosystem will consist of adequate standards and regulatory frameworks.

Special care will be taken to involve government leadership in FOSS initiatives, ensuring that they remain effective in the role they play.

Way forward

Detailed action plans with resource requirements will be completed after sufficient progress with acceptance or amendment of the above proposals.

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1 Purpose

This document describes government's strategy for facilitating greater utilisation of free open source software (FOSS) in government.

2 Where from? - Setting the scene

2.1 Background

2.1.1 International perspective

Internationally several governments and organizations are embracing FOSS. The FOSS development model seems to be working for many applications. Yet many organisations are not yet crossing the barriers from PS to FOSS. The continued global use of software provided by companies from the developed world in monopolistic or oligopolistic market situations leads to a form of economic imperialism. PS providers have recognised the threat of FOSS to their markets and are devising counterstrategies, such as free/cheap software to schools and threats of litigation against FOSS users for alleged intellectual property rights violations. Propaganda for PS is at times biased and misleading. Where special pricing is not available, PS remains beyond the reach of many in the developing world. In some countries FOSS adoption is driven by specific government institutions (often local governments) without an overarching national policy. South Africa is an example of a country where government took the step of officially endorsing FOSS for government as a whole, as well as declaring its intention to promote its use in other sectors. This can be an important stimulus in any country. Many European governments have turned to open document formats, so that they can truly own the data that they generate rather than have it owned by proprietary developers. The open document format (ODF) and portable document format (PDF) are now internationally recognised open standards. SITA needs to support government's migration to these formats.

2.1.2 Recent history in South Africa

By 2003 FOSS had developed to such a level that Cabinet, having received proposals from the National Advisory Council on Innovation and the Government IT Officers Council, resolved that government should move towards its utilisation. In the initial phase the approach was to create greater knowledge and understanding and of increasing knowledge, understanding. Actual usage was still voluntary. The 2007 Cabinet decision implied that, unless FOSS alternatives were not available or were distinctly inferior, government institutions should adopt them. This strategy aims to assist government institutions to conform. The implementation of the strategy is driven by a FOSS Programme Office, overseen by a steering committee consisting of the Directors-General of the Departments of Public Service and Administration (DPSA), Science and Technology (DST), Communication (DoC), Education (DoE) and Trade and Industry (DTI), as well as the Chief Executive Officers of the CSIR and SITA.

2.1.3 FOSS adoption

Government institutions in several countries, such as Germany, Malayia and Brazil, to name but a few, have in recent years migrated to FOSS. In South Africa pockets of successful FOSS adoption can also be found in some institutions. Several more have already started and are now in various stages of migration. Some of these are the

Departments of Arts and Culture, Science and Technology, Limpopo Department of Health and the PNC on ISAD. In many other countries the migration is driven by the individual institutiens (government departments, municipalities) that actually migrate(d). South Africa is one of a few (probably the only one in Africa) where government as a whole, under leadership of Cabinet and te Minister responsible gor government ICT, now follow a strategy of migrating to FOSS.

2.1.4 Value of FOSS

2.1.4.1 Overview

The key advantages of FOSS can be summarised as - Freedom to amend and/or redistribute the software. Ability to switch supplier/service provider. Security resulting from openness. Greater reliability. Learning opportunities available to programmers from open source code. Cost benefits resulting from free redistribution. Several more detailed discussions are available in the literature, amongst others in the 2003 government strategy document that can still be found at www.oss.gov.za.

2.1.4.2 Economic

Total cost of ownership (TCO) of systems running on FOSS has been widely demonstrated to be lower for FOSS than for PS. Open source code allow the creation of local, even in-house, support and development capacity to satisfy Government's ICT needs. It will also contribute significantly to ICT skills development for the local economy, thus stimulating the local software industry.

2.1.4.3 Monetary

FOSS helps to maximise the value of the ICT budgets for the local economy through saving billions of Rands in licence costs paid to companies abroad. (Expenditure on retraining and redeveloping systems for FOSS often do not constitute additional expenditure, rather replacement of expenditure that would have been necessary anyway when the inevitable systems upgrade happened for PS systems.)

2.1.4.4 Political

Implementing FOSS will enhance SITA's reputation/prestige as an organisation that displays technological leadership. It will contribute to fighting economic imperialism through avoidance of potential lock-in and gaining wider choice.

2.1.4.5 Social

Proprietary software adds costs that make it difficult to the already burdened citizens of developing countries to enter into the digital information economy. FOSS makes it possible to reduce the costs of entering. Proprietary companies, furthermore, in order to protect what they see as their livelihood, do not allow changes to their products. The ability to change the product to suit local needs is important in order to reduce digital barriers for citizens to enter. Maintenance and local customization for PS has to be done outside the country. Cultural sensitivities and preferences cannot be easily introduced in the products since they are developed elsewhere.

2.1.4.6 Security

Since the source is closed, PS users are expected to place their trust in the proprietary

company. They have to accept the following: • The PS company will stay in existence in the long term, ensuring that the means to read files produced with their software will remain available. • The PS developer will be willing to share its source with the user in the future even if relations break down. • The PS has not put any back-doors on the software that will compromise its security. • The PS has no links with the security apparatus of other countries. • The PS has not been compromised already by others; and if such compromises do occur the government will be warned and assisted in rectifying the problem. When one installs PS the company does not accept liability for any of the above conditions.

2.1.4.7 Science & technology

Because of the wider range of contributors to software development, rhe quality of the software produced is often superior. FOSS lowers the entry barriers for research and development by creating an enabling space unconstrained by policy and legal requirements that discriminate against modification and scope of application.

2.1.5 Concepts

2.1.5.1 OSS, FOSS and FLOSS

The term "open source software" that was the most popular in the earlier stages of development was expanded later to emphasise the impotance of freedom, hence "free open source software". To distinguish the two types of freedom, some later used the term "free/libre open source software", highlighting the fact that the software was available free of charge on the one hand, and that one was free to change the programs on the other.

2.1.5.2 FOSS, open standards and open content

FOSS gets most attention in this document. The measures dealing with propagation of open standards concentrate most on implementing the open document format. The Minimum Interoperability Standards are referred to in the text, but its revision is currently the responsibility of the GITOC Standing Committee for Architecture. More detailed coverage of open standards may be considered for future versions of the Roadmap. Open content is not covered here. The PNC on ISAD is known to pay some attention to it.

2.2 Situation analysis

2.2.1 Introduction

The current situation informs the selection of the strategic thrusts discussed from Sections 2 onwards. In summary, government has given a clear mandate, there is a significant divergence in the readiness of different institutions for adopting FOSS, there is insufficient capacity, commitment varies, and particular risks need to be considered.

2.2.2 Mandate

The Cabinet Decision of February 2007 specified 10 actions which form the basis of FOSS strategy:

1. Disseminate information within Government.
2. Initiate trial use and development.

3, Establish a global position and maintain strategic partnerships.

4. Consult with partners and stakeholders.

5. Establish and execute a supporting research programme.

6. Consolidate support capacity.

7. Include FOSS/OC utilisation in short and medium-term plans.

8. Level playing fields.

9. Develop and execute a supporting communications strategy.

10. Establish and nurture a legislative environment that supports the development and use of FOSS/OC as envisaged in this policy.

2.2.3 Divergence

Not all areas in government are at the same level of readiness to convert to FOSS.

2.2.3.1 Skills level

2.2.3.1.1 Users

The level of computer literacy among users vary significantly. Although computer literacy is a basic requirement for office jobs in government, it is often not properly measured during recruitment. So far a common yardstick for measuring it has not been implemented. This will impact negatively on the success of using for example office productivity FOSS. The risk exists that failure to perform may incorrectly be blamed on FOSS when in reality it results from suboptimal usage of FOSS caused by lack of computer literacy. As prerequisite for FOSS implementation, broader computer literacy programmes should be implemented.

2.2.3.1.2 Management

Often an effective approach to implementing FOSS is to do it top down. When managers use FOSS, it is easier to encourage/pressurise other employees to do the same. Some public service managers, however, did not have the opportunity to become computer literate before entering the management echelon. Faced with huge responsibilities and very busy schedules, they are in no position to catch up. The top down approach can therefore not be applied without making exceptions. The top down approach will therefore not be implementable without risk, but the actual number of computer illiterate managers may be small enough to justify this approach anyway.

2.2.3.2 Understanding and commitment

At the political level there is substantial commitment to introducing FOSS. At lower levels there is a mixture, ranging from antagonism, scepticism, apathy to support and enthusiastic commitment. Those who are committed should be given as much support as possible to progress along this road to FOSS. Active advocacy initiatives must at the same time build knowledge, understanding and commitment among the rest.

2.2.3.2.1 Institutional levels of readiness for migrating to FOSS

These levels vary significantly. A few institutions have made significant progress and have plans in position to move further. In institutions whereit is not happening, it is in some cases possibly attributable to lack of commitment, but often also due to the

pressure of other work in conditions of undercapacity.

2.2.3.3 Infrastructure

If anything, FOSS can perform better on equipment and other infrastructure that do not meet modern performance criteria. The most important impediment may lie in inability to install FOSS rapidly in such circumstances, before having to procure new equipment needed to keep PS upgrades running.

2.2.4 Capacity

2.2.4.1 Funding

The overall picture in government is that its institutions lack the capacity to spend all the money allocated to them. The expectation is therefore that, although it may require some hunting around and motivating for expenditiure, it should be possible to find sufficient funding.

2.2.4.2 Skills

Current perceptions derive mainly from anecdotal evidence, but the weight of the evidence leads to the conclusion that the skills shortage is appreciable.

2.2.4.3 Standards and procedures

A CIO workshop of 20 February 2008 highlighted the need for standards and procedures in various forms as a serious need. The need to review the MIOS document has been recognised and is expected to receive attention in 2008. Participation by government in standards formulation activities by Standards South Africa falls short of requirements in some committees.

2.2.4.4 Organisational

The economic strength and monopolistic/oligopolistic position of many of the software companies necessitate some response from government. The absence of organisational structures is an important shortcoming.

2.2.5 Risk

2.2.5.1 Political

The Minister of Public Service and Administration currently has a keen interest in FOSS and is anxious for it to succeed. Cabinet's adoption of the policy signifies widespread support. This is likely to continue until the next election, after which a new minister may or may not be appointed. FOSS can be reasonably certain of political support for several months to come, which it must fully utilise to become well established. Political figures are subject to intensive lobbying and marketing by proprietary software interests, but one can assume that they will not to be taken in by the irrational arguments that are sometimes put forward.

2.2.5.2 Business risk

2.2.5.2.1 Processes

Business processes affected by each piece of software to be migrated will be examined during the envisaged audit to identify risks that may be involved when migration takes place.

2.2.5.2.2 Financial

Using software without reasonable guarantees of support can result in significant financial demands if rescue operations become necessary. Sources of support need to be assured before migration takes place.

2.2.5.2.3 Human resources

2.2.5.2.3.1 Lack of commitment

This can lead, not only to a drop in the uncommitted individual's own productivity, but also to his/her negative remarks affecting the attitude of other staff members. Expecting FOSS to be a failure can make it a failure. Users may take the "what's in it for me" stance, remaining uncommitted regardless of how FOSS benefits the company or the country. This will be combated with thorough change management actions that include effective briefings, on-going positive communication, high quality support and continuous monitoring.

2.2.5.2.3.2 Lack of skills

Lack of skills can have different causes, such as –

- Insufficient training and experience of the FOSS being used;
- General lack of computer literacy;
- Lack of familiarity with ICT systems;
- Lack of understanding of the business systems and procedures involved.

It is often convenient to blame problems stemming from the last three on FOSS, which could generate significant antagonism. The training stratey needs to be sufficiently comprehensive to eliminate all these causes. Action required is fourfold: 1. Provide basic computer literacy training for those who need it;

2. Provide sufficient user training in FOSS;

3. Ensure that adequate support is available;

4. Analyse causes of reported faults continuously, publicise the results and act on them. A likely outcome is that a small percentage will be caused by weaknesses in FOSS. Those that are will be acted upon quickly to avoid recurrence.

2.2.5.2.4 Lack *of* leadership

See discussion under "Change Management".

2.2.5.2.5 An *inappropriate* culture

See discussion under "Change Management".

2.2.5.3 Legal

FOSS licenses vary from one another in important ways. Some require reciprocation of derived works back to the community. Failure by SITA to do so, by design or oversight, will therefore be a breach of licensing conditions . Business case templates will be examined to determine if a suitable subheading will force project staff to ascertain that such breaches are avoided. Training programmes (existing and new) will emphasise the existence of this risk. All IT investments face risk in their implementation. The better these risks are understood before deciding to precede, the better the chances for success. Assess the risks facing an IT investment proposal by -

- identifying risks,
- characterising risks, and
- prioritising risks.

2.2.5.4 Technological

2.2.5.4.1 Installing unauthorised software

"IT organizations ... must not allow open source to slip into the enterprise "under the radar," uncontrolled and unmanaged as they have often done in the past. Uncontrolled proliferation of any corporate asset (software or not, open source or not) will yield unacceptable levels of technical and legal risks for enterprises" . SITA therefore needs to retain its current policy of (through password protection or otherwise) not allowing users to install software without intervention by the IT support unit. IT support staff must be given clear directives as to permissible software. Procedures to be followed if a user requests installation of unauthorised software must be reinforced.

2.2.5.4.2 Installing immature software

Before installation investigation will be done to ensure that no software will be installed without evidence that it is sufficiently mature, so that the probability of software failure is low.

2.2.5.4.3 Using software with insufficient support

Research needs to be done to determine the size of the community around the relevant piece of software, how active it is and how quick it responds to enquiries of requests for assistance. If it is suspected that the support is not sufficient, SITA will assess whether it is feasible to create capacity for support and further development of the software. A critical factor will be the extent (number of users and frequency) of usage. If usage is expected to be low and non-availability will not have a significant impact, IT support functions will be justified in stating that, if the user insists on installation, the software and the particular work station will not be supported.

2.2.5.4.4 Software maintenance burden

The possibility exists that FOSS packages may prolifierate and diversify to an extent that support becomes an unmanageable burden. The process of approving software for installation will therefore be meticulously applied.

3 Where to? A FOSS world

Everybody will use FOSS at least some of the time. Most will use FOSS most of the time. Some will use FOSS all the time.

3.1 Vision & mission

3.1.1 Vision

A situation where -

- Using FOSS is the accepted practice in all spheres of government in South Africa;
- The FOSS ecosystem has developed to a point where it requires less effort for an organisation to use FOSS than PS;
- The South African government contributes FOSS to the global community;
- Citizens have comprehensive access to FOSS and give preference to using it.

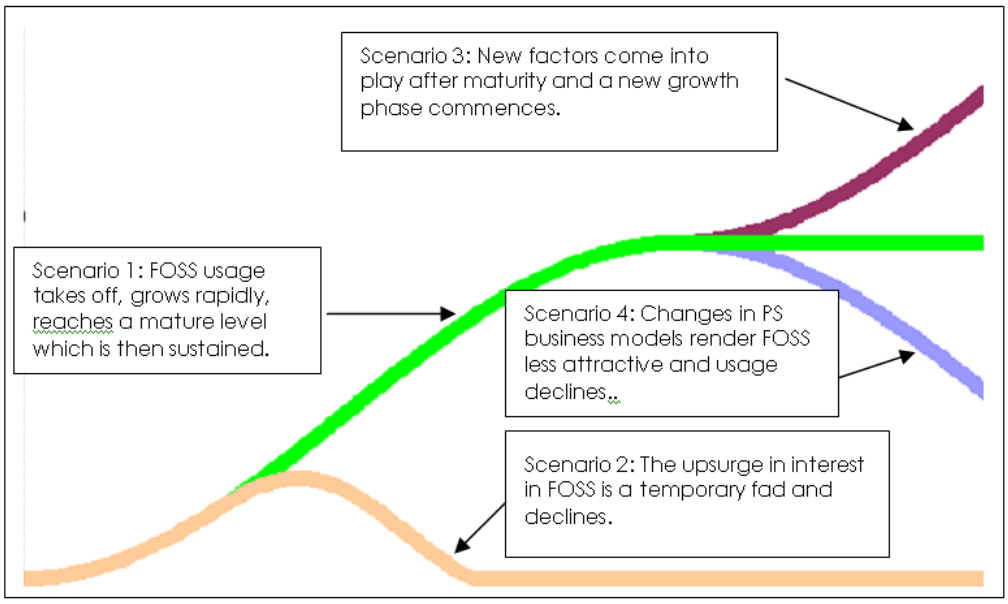
3.1.2 Mission

Ensure a sustained trend towards using and developing FOSS in government.

3.1.3 Long term prospects

Figure 1 shows the most probable future scenarios for FOSS. The aim of this roadmap must initially be to prevent Scenario 2 from occurring. FOSS should take off and reach a level of maturity in a few years. A subsequent decline (Scenario 4) may then follow. This strategy should however prevent it from happening for the wrong reasons. It could turn out that such a decline becomes acceptable because PS business models have become more accommodating, monopolies have been broken and economic imperialism has declined. If not, this roadmap should lay the groundwork for at least realising Scenario 1. Scenario 3 becomes possible due to the ever widening application of ICT. As the technology develops, FOSS should keep pace, being the model used for new applications.

Figure 1: FOSS scenarios



4 FOSS Quest

4.1 Research and development categories

Research activities can be categorized as basic research, applied research or development. Basic research can in turn be subdivided in undirected ("blue skies") research and directed basic research. For the time being this roadmap will deal only with applied research and development. Academic and other research institutions are to some extent involved in basic research that relate to FOSS, but involvement in that sphere is currently not regarded as a priority for government's FOSS migration initiative.

4.2 R&D Needs

A preliminary list of focus areas would be –

- Office productivity
- ECM
- GIS
- Education software (teaching and administration)
- Health
- SMMEs
- Local government
- Community services.

4.3 Criteria for selecting FOSS packages[1]

When investigating a FOSS package for possible use, the following criteria will guide the exercise:

- Is there an active development community?
- Are there developers who are paid to contribute?
- Is there an on-going documentation effort?
- If there is a proprietary competitor, does the FOSS alternative do at least one thing better?
- Are the licence terms clear and compatible by other licences?
- Can support be obtained?
- Is the adoption rate stable or growing?

5 FOSS capacity

5.1 Skills development

5.1.1 Management

SAMDI will be requested to incorporate content in their management training which will generate the necessary knowledge and understanding to lead their units through migration.

1 Based on criteria proposed by the New Zealand Ministry of Justice.

5.1.2 Technical support

5.1.2.1 Establishing permanent training facilities

Initially it will be recommended to institutions that they provide technical support staff with literature and copies of FOSS that can be installed and tried out on their own work stations. This will create a basic awareness of FOSS. The FPO was given an estimate of 600 000 desktops being in use in government. A target is set to have one Linux-certified technician per 100 desktops available, i.e. 6 000 technicians. If a loss of 10% (through resignations, promotions, transfers out of the ICT environment, etc) is assumed, a sustained training need for 600 new technicians p.a. will result. If 40% of these proceed to more advanced training, such as network or database administration, training for 240 trainees p.a. will be needed. This demand will be reduced by recruitment of some fully trained technicians from outside the public service and by others obtaining qualifications through self-study. Fewer trainees will therefore present. Scheduling difficulties will result in an estimated uptake of 60% of training spaces in classroom-based courses. Despite factors reducing the demand, it is judged that planning should nevertheless be based on the figures of 600 and 240. It is further assumed that an employee can only be sent to courses for 3 weeks (15 working days) per annum. If class sizes are set at 20 students, and training is presented for 40 weeks (200 working days) per year, the demand to present training is as follows:

a. Students p.a. 840
b. Work days training/student 15
c. Person-days training (a x b) 12600
d. No of days p.a. on which training is presented 200
e. Persons in training per day (c/d) 63

2 - 3 training centres should be created across the country where 20 – 30 seats are available for training government ICT technical staff in ICT. These can form part of the centres of expertise proposed as part of the FOSS ecosystem. It will also be merged with SAMDI's strategy to work through partners to provide the training that they envisage.

5.1.2.2 Procuring training services

It is foreseen that in forthcoming months there will be an increased demand for end user training. The feasibility of a transversal tender will be investigated. Training to be provided could range from 1-hour briefings on topics such as OpenOffice for users who are already computer literate, one day sessions for less literate individuals, specialised one day sessions for superusers and sessions of upto a week to train trainers for migrating institutions.

5.1.3 Internships and learnerships

To address the backlog of FOSS skills, the special internship programme started in 2007 will be repeated with increased numbers of participants for three years. The supply and demand situation will then be reviewed before determining further upscaling.

5.1.4 Users

5.1.4.1 Induction

SAMDI will be requested to include FOSS training in the induction programmes that they are developing for all government employees.

5.1.4.2 Normal users

By normal users is meant those that are sufficiently fluent in using the prominent office productivity tools such as word processing, email, calendaring, and internet. The transition to FOSS equivalents can, if necessary, be accomplished without a specific training intervention. It will however be accomplished faster if training is provided. Service providers assisting institutions with migration can normally offer the training service. SITA does not intend presenting classroom courses for this group. Computer-based training packages are available that serve the dual purpose of being a 1:1 training instrument as well as an on-line help resource that can be utilised.

5.1.4.3 Superusers

Superusers will tend to use PS e functions. Migration will take more effort and require more assistance. Expert support will have to be made available to assist them with implementing sophisticated features, the migration of which is not readily apparent. Approximately 1 in 10 users should be trained as Superusers.

5.1.4.4 Users not fully computer literate

Such users form a potential force for failure of migration. Speculation is often heard that in institutions where migration failed, it did so because users were not computer-literate and when they failed to grasp the FOSS, the software was blamed rather than the incompetent, untrained users. Institutions will therefore be encouraged to put their users through diagnostic tests before migration. Users whose grasp of computers is found to be substandard, can then undergo special computer literacy training.

5.1.5 Clients

Briefings on aspects of FOSS that affect members of the public who interact with government will be published on the internet, as well as in brochures and guides used by them to effect the interaction. Individuals manning the normal helplines will be fully briefed about FOSS and where to turn to for further support.

5.1.6 Responsibility

In some cases institutions that migrate will themselves take responsibility for training. They will present courses, contract training service providers, enroll employees on correspondence/ self study training and utilize training that SAMDI and SITA can provide.

5.2 Funding models

5.2.1 Cost: benefit analysis model

The financial benefits of migrating to FOSS are still challenged by some and will probably always be. Guidelines on how to analyse costs and benefits will be developed

and publicized. Although it is expected that such analyses will demonstrate that migration will lead to long run savings, there may be cases with an opposite outcome. The relevant guideline document will therefore also stress some other benefits, such as that payments largely go to local companies, thus effecting considerable foreign exchange savings.

5.2.2 Funding model principles

Initially SITA will make a contribution towards the first phase of migration of institutions by paying for a readiness audit. Should calculations show that the migration leads to long term cost savings, National Treasury will be engaged in order to develop a mechanism whereby part of the savings is made available to fund further development and rollout of FOSS>. This arrangement is in some ways analogous to the funding model for public private partnerships. Its operation should be managed jointly by National Treasury and the DPSA, with assistance from SITA if required.

5.2.3 Developing and implementing the model

A task team consisting of representatives from National Treasury, DPSA, SITA and the GITOC OSS Work Group should pursue the development, approval and implementation of the model.

6 Expanding FOSS commitment

6.1 Introduction

Change management includes a range of activities, probably starting before and ending after any other activities in the project. Change management will address changes affecting the people, the processes and the technology. A readiness audit can be used as a basis to finalise the following information in respect of migration: What change is anticipated; When will occur; Whom will it impact and how; Which systems will it impact and how; What interventions can be initiated to manage the effects; and How these interventions can be implemented. If it is visible to users that these issues are addressed, the probability that they will be comfortable with the changes, and will be willing to support them is high.

6.2 States of readiness for change

People and organizations have to be taken through a number of states to ensure successful change:

1. The initial state is one of being unaware of the need or opportunity that makes change desirable. In the institution there may be are sections of the worker population that are in this state. A simple communiqué can take care of this.

2. Many people in the institution may be in some way aware of the impending FOSS implementation, but do not have full knowledge. Ordinary users can be made knowledgeable through briefing sessions, detailed information on the intranet and CBT on the software that they will use.

3. Knowledge does not always convert automatically to understanding and understanding in turn not always to commitment. Space must be created for discussion and question/answer sessions, both at meeting and through electronic communication.

4. Concerns of technical support staff may be too deep to be dealt with in this way. Occasions may have to be provided where they can be addressed by experts that have already been through migration and can testify to the kind of advantages (reliability,

simplified maintenance and troubleshooting, etc) that FOSS can offer.

5. Once there is commitment, preparation for implementation can follow. Action steps can be scheduled to install software, amend business systems, minimize risk. Training commences. The institution's project team needs to ensure that this is done in sufficient detail and that the plans are communicated to all.

6. Implementation then follows. Implementation support teams must be available, prepared and committed to ensure that as implementation progresses any delays and stoppages are dealt with quickly and effectively.

7. Actual usage then reveals opportunities for adaptation that improves functionality. The call centres/help desks should be prepared to process reported needs effectively and efficiently.

8. Lastly assimilation happens, when the changed manner of doing things become second nature and part of normal operations. The project team(s) can wind down. An appropriate monitoring and evaluation mechanism must remain in place to assess whether performance is satisfactory and, if not, ensure that corrective action is taken.

6.3 Checklist matrix

Each of the cells in the matrix below represents an area for which the need for change management activities should be considered. An x can be entered to show the estimated state (or range of states) in which each target group finds itself. Entries below are by way of example.

		Change management target group			
		Political leadership	Organisational leaders	Technical staff	Users
States of change	Unaware				x
	Know		x	x	x
	Understand and commit		x	x	
	Prepare				
	Implement	x			
	Adapt				
	Assimilate				

6.4 Various stages of change

People and organizations have to be taken through a number of states to ensure successful change:

1. The initial state is one of being unaware of the need or opportunity that makes change desirable. In SITA there are remnants of the worker population that are in this state. A simple communiqué can take care of this.
2. Most people in SITA are in some way aware of the impending FOSS implementation, but do not have full knowledge. Ordinary users can be made knowledgeable through briefing sessions, detailed information on the intranet and CBT on the software that they will use.
3. Knowledge does not always convert automatically to understanding and understanding in turn not always to commitment. Space will be created for discussion and question/answer sessions, both at meeting and through electronic communication. Concerns of technical support staff may be too deep to be dealt with in this way. Occasions will be scheduled where they can be addressed by experts that have already been through migration and can testify to the kind of

advantages (reliability, uncomplicated maintenance, etc) that FOSS can offer

4. Once there is commitment, preparation for implementation can follow. Action steps can be scheduled to install software, amend business systems, minimize risk. Training commences. The SITA project team needs to ensure that this is done in sufficient detail and that the plans are communicated to all.
5. Implementation then follows. Implementation support teams must be available, prepared and committed to ensure that as implementation progresses any delays and stoppages are dealt with quickly and effectively.
6. Actual usage then reveals opportunities for adaptation that improves functionality. The call centres/help desks will be prepared to process reported needs effectively and efficiently.
7. Lastly assimilation happens, when the changed manner of doing things become second nature and part of normal operations. The project team(s) can wind down.

An appropriate monitoring and evaluation mechanism must remain in place to assess whether performance is satisfactory and if not, ensure that corrective action is taken. Government institutions, and segments within those institutions, find themselves at diferent stages of the process of change towards FOSS implementation. In addition to an overarching change manaement process, similar processes are to be included in each migration subproject to be launched.

6.5 Change management actions required for each target group

6.5.1 Technical staff

Many government installations already use some FOSS back end software. Its effectiveness in terms of functionality and reliability will thus have been demonstrated to a significant portion of government's technical support staff. It is believed that seeing software like Linux in action will demonstrate its reliability and elegance sufficiently to secure their buy-in in the migration process. Communication with sites where FOSS is in operation should be established. The training opportunities discussed elsewhere are expected to suffice to render support staff able and ready for the migration exercise. The CEO message mentioned in Section 4.4.1 can be examined with the intention of issuing a supplementary message for technical staff if deemed necessary.

6.5.2 Users

6.5.2.1 Pre-migration publicity

Insert suitable information about FOSS in general and how it will be dealt with in the institution on the intranet. Decide whether this should be supplemented with printed material and/or email messages. A message from the Accounting Officer (DG or other): The message should not be distributed under a name such as "corporate communications", but will come from the Accounting Officer (AO) in person. It should briefly outline this strategy and refer readers to more detail about FOSS that can be found on the intranet.

6.5.2.2 Continuous information dissemination

New information on the migration should periodically be disseminated via postings on the intranet, email messages and printed newsletters. The AO should send out a selection of the email messages under his own name.

6.5.2.3 Call centre/help desk

Care should be taken that the institution's call centre/help desk is fully prepared to respond to calls for assistance on FOSS. They should be made as effective, efficient and friendly as possible. A special telephone channel for FOSS enquiries may be considered, which will be the first option for callers. (E.g. "Press 1 for help with open source software") Call centre operators as well as remote support technicians should be trained so that they can deal with most user queries directly, telephonically.

6.5.2.4 Integrate ECM with FOSS desktop rollout

Enterprise content management will simplify document management in several ways, such as improved document tracking and workflow automation. The impact of FOSS will be increased if it is complemented with ECM implementation. A link between ECM and FOSS implementation will be established.

6.5.2.5 Training

On line: CBT training and an expanded on-line help function can be installed. This should be sufficient for experienced users of office productivity PS Classroom: Employees without extensive experience of PS office productivity software may benefit from live courses. Such courses offered by commercial service providers may meet the need. The need should however be assessed after initial introduction of the software and if necessary in-house courses can be arranged. 1-1 mentoring: The institution can request quotations for the services of experts who can assist users during the initial stages of using the software. This can be a combination of remote (telephonic or email) support and face to face "show how" sessions for groups or individuals.

6.5.2.6 Specialised Linux distributions

It is not inordinately complex to create a Linux distribution (distro) any more. Institutions may wish to consider creating such a distro, either for the institution s a whole or for sections that will use a specialised set of applications.

6.5.2.7 DVDs

DVD with software: When a user's work station is migrated to FOSS the installed software can also be made available to him/her on a choice of a CD set or DVD for installation at home and/or to redistribute to friends and family. DVD with GoOpen TV series. The set of two DVDs can be made available at say tuck shops, cafeterias or other suitable outlets at a minimal price.

6.5.2.8 Satchel (appropriate colour scheme) with goodies

Attractive satchels with FOSS related content can be made available to employees when they first migrate, The bag's colour scheme could resemble that used by the selected Linux distro and bear applicable logo's and slogans. The contents could include the above CD/DVD as well as a branded pen, mousepad, writing pad, promotional pamphlet, desktop calendar and FOSS user guide.

6.5.2.9 User communities

Within the institution 2. Within Government 3. Within South Africa As different components of the institution's ICT system are migrated, email circulars could be issued

to invite users with a special interest in the affected software or systems to join user communities. This will give them access to electronic conversations and information on the specific component. Initially these communities can be restricted to the institution, but as appropriate they can be broadened to the whole of government and South Africa.

6.5.2.10 Guide on Intranet

The Intranet can be populated with helpful information for FOSS users, such as user guides, useful tips, FAQs, contact details for getting assistance.

6.5.2.11 Multilingualism

An appreciable amount of work is already under way to make FOSS available in all South Africa's official languages. The institution should implement the available facilities and also support projects that develop them further. Projects could include - a. Enhancing fonts to include diacritical signs used in South Africa b. Developing spellcheckers for South African languages c. Translating menus and help function d. Enabling real time translation

6.5.2.12 Functionality

FOSS users will have the advantage that they can easily open and produce records using open standards, such as ODF and PDF. It should be highlighted in briefing material that these formats are now becoming compulsory in government and that, by using FOSS, users will automatically be complying. FOSS software such as OpenOffice.Org can, in addition to its native formats, also open records produced using proprietary formats such as .doc and .xls.

6.5.2.13 More sophisticated templates

The institution may be using templates, published on the intranet or elsewhere for completing forms and developing documents such as ministerial submissions. Rather than simply converting them to ODF, a process of improving them through for example introducing more tick boxes, flexible windows on forms, drop-down options from which to choose, etc. can be undertaken. Thus FOSS templates will be more user friendly than the PS equivalents.

6.5.2.14 Variety of application software

The variety of free FOSS programmes available on a typical distribution like Ubuntu is sure to make an impression on users. FOSS newsletters can from time to time highlight selected programmes and their uses, stimulating interest.

6.5.3 Political leadership

Cabinet has approved an implementation strategy and has allocated responsibility for its implementation. The role of the Minister and Cabinet now is to study reports given to them so that they can judge how well implementation is progressing and whether any direction isneeded to accelerate the process, or to start the adaptation phase. See "Political Risk" for further discussion.

6.5.4 Organisational leaders

There may be areas where they will have reservations, largely caused by a lack of

information about the proposed strategy. The information dissemination covered elsewhere in this document will largely address this condition. Senior and middle management will nevertheless be requested to put FOSS migration on the agendas of all management teams for discussion at their meetings.

6.6 Advocacy

For the next few years this will be a critical activity. It is proposed to arrange at least three FOSS workshops per year and participate in atleast three more organised by other parties. The FOSS website will be improved and expanded. Selected material from the website will be published in hard copy. Media releases will be issued both to announce our own activities and to respond to developments elsewhere. Visit programmes will be introduced, consisting of visits to key figures accross the South African government and inviting such figures locally and from abroad to visit venues or events of interest. Where appropriate radio and TV coverage wil be solicited.

7 FOSS implementation

7.1 FOSS risk mitigation

Risk factors discusses in the “Situation Analysis” section will be examined for each initiative. Appropriate risk mitigation measures will be incorporated in the planning.

7.2 Institutional migration

7.2.1 Audits

A readiness audit can be used as a basis to finalise the following information in respect of migration: What change is anticipated; When will occur; Whom will it impact and how; Which systems will it impact and how; What interventions can be initiated to manage the effects; and How these interventions can be implemented. SITA will subcontract service providers to do such audits in government institutions and encourage as many of them as appropriate to undertake them. A typical exercise will consist of three phases: 1. Gather information on all IT systems, software, equipment, staff etc in the institution. 2. Install FOSS alternatives for PS on a small scale to confirm its functionality and usability. 3. Propose a migration strategy for the institution.

7.2.2 Change management

The CIO and ICT support departments (department responsible for maintaining IT systems) MUST OWN the conversion process. Successful migration will depend on their implementation, which in turn depends on their buy-in. Without it, they will passively or actively derail the process. The change management actions discussed under "FOSS commitment" are critical.

7.2.3 Options for stratifying migration

7.2.3.1 Desktops/back end

In many organisations it is preferable to commence migration at the back end. There is a wide range of proven software, the number of people involved is small, especially because ordinary users normally may not even be aware of the migration.

7.2.3.2 Application by application

This can be done if a hybrid platform can be put in place, as envisaged in SITA. Migration

7.2.3.3 Site by site

This will work in institutions with sites that use systems that do no tinterface heavily with other sites. It is not likely to have wide application in government.

7.2.4 Monitoring and evaluation

See "Contract Management"

7.2.5 Departments

SITA will focus on national government departments initially, then moving to provincial governments and lastly to local governments. The aim is that by March 2010 all national and provincial departments will have a solid migration strategy and will have taken the first steps towards migration. The PNC configuration to be given as an option for smaller organisations. They were able to migrate to FOSS 100% due to the absence of any need to continue using PS.

SITA has developed a configuration that will allow FOSS to be implemented while retaining access to PS for those applications that cannot be migrated immediately.

The manner in which SITA will implement its configuration is as follows:

PHASE I

This phase will entail the rollout of Front Office which will have the following deliverables:

To implement an awareness campaign regarding FOSS and the benefits thereof to SITA

Set up terminal access for “proprietary” applications not compatible with FOSS.

Implement FOSS for the front end (PC) environment

Address change management issues.

Skills transfer, both technical and end user.

Address any challenges faced to ensure successful rollout of FOSS

PHASE II

This phase will be pursued after the successful implementation of Phase I ensuring seamless migration to OSS platform. The deliverable of this phase will be:

Implement centralized FOSS email solution

Centralize User Data Storage

The migration of current directory services to OSS directory services

BCP document to compiled to form part of SITA DRP

The Ubuntu Linux distribution will be implemented. See **Annexure A** for the motivation.

SITA will initially capacitate itself to support the Ubuntu distribution. Other institutions may have circumstances that render Red Hat or the Suse Enterprise Linux Distribution (SLED) more suitable. Institutions will however be strongly advised not to implement any of the many other distributions that are available.

When Linux usage in government stablilises, the feasibility of SITA issuing a customised GOVSA distribution for the South African government will be investigated.

7.2.5.1 Desktop

7.2.5.1.1 Operating system first?

The FOSS software proposed here for common desktop applications are platform-independent. They can therefore be implemented before or after converting desktops to the Linux operating system.

FOSS equivalents for PS are:

Office productivity (word processing, spreadsheets, presentations, database, drawing): OpenOffice.org

Browser: Firefox

Groupware: Zimbra

Media player: VLC Media Player

Project planning: Open Workbench

Mindmaps: Freemind

(For more options see http://wiki.linuxquestions.org/wiki/Linux_software_equivalent_to_Windows_software)

7.2.6 Local government

While the flight plan currently focuses on national and provincial government, it is expected that the proposed centres of expertise proposed elsewhere in this document will amongst others be utilised by local government to assist with their migration.

7.2.7 Thusong centres

A proof of concept will be undertaken on SITA premises. This will involve testing of different combinations of equipment and software. Once conclusions have been reached about the most appropriate configuration, filed tests will be done at a centre in or close to Tshwane. The next challenge will be to install FOSS at five centres, probably to be selected from centres in Limpopo and Northwest provinces. Initial indications are that the ICT infrastructure can be designed in such a way that it will be simple enough to support using non-ICT individuals attached to the centre, backed up by remote support.

7.2.8 Libraries

A process to identify a FOSS solution forpublic sector libraries is in progress. SITA is in the process of replacing PALS (Public Access Library System). The RFI has been issued to industry to determine if there is a possible FOSS system available.

7.2.9 SITA Migration

SITA's internal migration is an integral part of this strategy in that SITA will serve as the proving ground for an architecture that can be replicated in other government institutions. The proposed configurations for medium to large government departments included in this document have been designed and tested in SITA. The proposed configuration will migrate all desktops to Ubuntu Linux. Part of the back end will remain in the Windows environment. Users of applications that cannot be migrated to Linux will

have access to this environment to continue using their existing applications.

7.2.10 Education

FOSS skills development can be severely delayed by an education system that persists in using and teaching PS. FOSS success stories exist in South Africa and abroad. The conditions at individual schools are however widely divergent and it will need careful strategising to achieve universal rollout to them all. Projects will be established to address this under these headings: Computer science curricula Computer based training in all other subjects. Management and administration systems. ICT infrastructure in schools.

7.3 Case studies

Migration exercises in government will be recorded as case studies, highlighting lessons learn, and published on the FOSS website.

8 FOSS ecosystem

8.1 Institutions

8.1.1 Centres of expertise

8.1.1.1 Role

The aim will be to create centres where would be users of FOSS can turn to for information and advice on the relative suitability of specific FOSS packages, how to implement them and what further development may be necessary. The centres may have the information readily available, or may else be able to do research to locate and evaluate available FOSS. Such centres will then be able to be contracted to do the development work. An investigation needs to be launched to develop a suitable model. Analogies to be studied include the technology stations established by the department of science and technology as part of their innovation strategy and the centres of excellence forming part of their R&D strategy. These centres may be attached to academic institutions or science councils. Their responsibilities may include functions such as training, auditing, monitoring and evaluation. A funding model that will be considered will be to make government funding available on a sliding scale, initially to meet the bulk of the requirements, then reducing it annually as the centre is able to grow other sources of income.

8.1.1.2 Software to be supported

Centres of expertise are to be established to specialise in support, development and research regarding selected software clusters. SITA is to publish a Request for Information, inviting institutions from the academic, NGO, research and business sectors to submit proposals on accepting responsibility for establishing such sectors.

- Office productivity
- Electronic content management
- GIS
- Education
- Health

- SMMEs
- Local government, Metro's
- Local government, medium-small
- Community services

8.1.2 Other institutions

Historically FOSS developed through the enthusiasm and dedication of countless individuals and groups. Because of the economic power of big software providers, governments and intergovernmental organisations, notably the European Union are beginning to enter the scene. National, regional and international bodies can play an important role in optimising software development, fund allocation to development projects, coordinating projects, information exchange, skills development, etc. FOSSFA should be complemented by national and wider international bodies. South Africa should consult with other governments to determine if there is support for such initiatives.

8.2 Vending

Certain important segments of the software marketplace are occupied by monopolies, disadvantaging not only FOSS solutions but also other PS solutions. An investigation will be launched to determine if effective instruments to counter this situation can be introduced.

8.3 Policies, standards, legislation

8.3.1 Open document format

Local expertise needs to be developed further. Career paths and training opportunities for ODF specialists will be designed.

8.3.2 STANSA participation

Government participation in STANSA technical committees is currently uncoordinated. A mechanism to promote adequate participation in all relevant committees, as well as information exchange and coordination between representatives will be developed.

8.3.3 MIOS

MIOS revision is the responsibility of the GITOC Architecture Standing Committee. SITA will cooperate with the GITOC OSS Work Group to make the necessary inputs regarding open standards in the revision process.

8.3.4 Legislation

Past deliberations have led to the conclusion that legislation would not be the appropriate manner of promoting FOSS. This position is upheld in this plan.

9 FOSS leadership

Effective leadership is a critical success factor for an initiative such as this. It is important that leadership is kept informed, involved and committed. This will be done by regular reports/briefings managed by the FOSS Programme Office's Advocacy function, supplemented by visiting programmes. (See also the discussion under Risk Mitigation.)

10 FOSS planning & control

10.1 Project planning

Worldwide the pattern is for the majority of business IT projects to fail. The South African governemnt is no exception. Proper project management, whereby carefully designed methodologies are used to plan, organise, execute and control projects thoroughly are now widely used to minimise the risk of failure. The methodologies used in SITA will be applied to FOSS projects as well. Amongst others it will provide clarity on exactly what is to be achieved as well as what variables will be used to monitor progress.

10.2 Monitoring by the Auditor General

The AG already monitors ICT utilisation in government institutions. He will be engaged to include specific monitoring of compliance with FOSS policy.

10.3 Plans and resource requirements

(This section to be developed further once substantial agreement on the proposed actions has been reached.)

10.3.1 Action plans

10.3.1.1 Planning procedures

The SITA FOSS Programme Officw will coordinate FOSS development and implementation plans. A planning and reporting procedure will be formalised to enable quality reporting to the SITA executive, SITA Board, DG Steering Committee, GITO Council, Minister of Public Service and Administration, ISAD Cluster.

10.3.1.2 Plans

To follow.

10.3.2 Budget

To follow.

10.3.2.1 Budgeting procedures

10.3.2.2 Budgets

10.3.3 Human resources

To follow.

10.3.3.1 Human resource planning

10.3.3.2 Human resources management

10.3.4 Institutional responsibilities

To follow.

10.3.4.1 PNC

10.3.4.2 Government departments

10.3.4.3 Proposed national body
10.3.4.4 FOSSFA
10.3.4.5 Proposed international (global) body

ANNEXURE A: REASONS FOR STANDARDISING ON UBUNTU LINUX

Ubuntu has access to 24,000 packages which can be loaded onto the system over the internet for free.

The patch/package management system is already built into the system.

Ubuntu has 130 highly skilled full time developers worldwide.

Ubuntu has one of the largest community contributor bases, with contributors submitting packages, code fixes, documentation and grass roots marketing.

Although Ubuntu is fairly young, it utilises Debian GNU/Linux at its core, Debian has been around since the mid 1990s and has its own large community.

Ubuntu contributes all of its modifications and updates back to the Debian community as well as up stream projects that it utilises, such as OpenOffice and Gnome.

Since the first release of Ubuntu, it has been the most search Linux distribution on Google and has always been at the top in terms of downloads reported on Linux community portals, such as Distowatch.com

Ubuntu itself comes with no background business model and has an extensive professional support and partner base. This means that the actual cost of the software is zero. Organisations only need to pay for support and professional services from any number of companies, if they lack the skills internally. This also means that there is no support provider lock in.

Ubuntu has a new release every six months with standard releases being supported for 18 months and LTS (Long Term Support) releases enjoying support for 5 years on the server and 3 years on the desktop.

Upgrades are free, there is no subscription fee applicable.

Support can also be obtained for free through the extensive, web based forums, live IRC chat, and user contributed documentation. Commercial support can also be obtained if need be.

Ubuntu is certified and shipped from factory, by Sun, Dell and Acer.

Ubuntu has certification for commercial applications such as IBM's DB2.

Ubuntu training and professional certification of choice is the LPI (Linux Professional Institute) set of certifications. The LPI certificates are non-partisan, allowing for an organisation to switch to any other Linux distribution, without having to re-train their staff.