

**SIXTH FRAMEWORK PROGRAMME
PRIORITY 2
INFORMATION SOCIETY TECHNOLOGIES**



FLOSSWORLD

**Free/Libre and Open Source Software: Worldwide
Impact Study**



D32: Track 3 International Report

eGovernment Study

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1. Introduction

This deliverable provides an overview of the methodology and samples of FLOSSWORLD Track 3 (eGovernment survey). The objectives of Track 3 are to reveal

- what policies and behaviour do governments around the world adopt towards FLOSS, open standards and interoperability?
- attitudes towards and usage of FLOSS and open standards/interoperability in public authorities at various levels in each target region

FLOSSWORLD Track 3 intends to benefit not only the understanding of the regional partners, but also EU researchers and policy makers who can place their own policies (and results from EU-focused studies – e.g. FLOSSPOLs e-government and skills development surveys) within a global context.

It must be emphasised that FLOSSWorld was not designed in order to provide a statistically representative account of FLOSS-related eGovernment aspects in the scrutinised regions, although in this report, based on the full sample of respondents, we strive to get as much insights in these issues as possible, in a methodologically sound way. FLOSSWORLD primarily aimed to strengthen Europe's leadership in international research in FLOSS and open standards, and to exploit research and policy complementarities to improve international cooperation, by building a global constituency of policymakers and researchers. FLOSSWorld thus contributes to enhancing Europe's leading role in research in the area of FLOSS and strongly embed Europe in a global network of researchers and policy makers, and the business, higher education and developer communities. Finally, another purpose of FLOSSWorld was to enhance the level of global awareness related to FLOSS development and industry, human capacity building, standards and interoperability and e-government issues in the geographical regions covered by the consortium. The project contributed significantly in establishing and /or supporting a stronger, sustainable research community in these regions. The requirements from the data quality regarding proper academic research were therefore of secondary importance. Testing if and under which conditions data can be gathered in these regions and how collaboration between European and local research partners in these regions can be organised was way more important than statistical representativeness. In order to measure the success of Track 3 the consortium defined a thresholds of 400 eGovernment institutions across the 8 countries covered by the consortium, regardless of whether or not the data that was collected was representative. It turned however out that the reluctance of government bodies, which could also be observed in European countries, e.g. in the FLOSSPOLs project, was however unexpectedly high in most of the 8 FLOSSWORLD countries. Although all partners undertook a lot of efforts in order to increase the response rate, including telephone calls to representatives of governments and using paper versions of the questionnaire in order to address the target group in a more personal way, asking for official support from ministries, and expanding the survey period until May 2007, the consortium could not achieve more than 306 responses. One reason for the comparably low response is survey fatigue because in some countries, such as Malaysia and South Africa, national research institutions have carried out similar surveys across the same target group shortly before the FLOSSWORLD survey was carried out. Table 1 illustrates the response per country.

Country	Frequency	Percent
ARG	48	15,7
BGR	11	3,6
BRA	26	8,5
CHN	25	8,2
CRO	50	16,3
IND	23	7,5
MYS	114	37,3
ZAF	9	2,9
Total	306	100,0

Table 1: Track 3 Survey - response per country

2. Design and Methodology

The FLOSSWorld project has been designed with a clearly defined work structure in mind, with two chronological phases and three functional tracks. The two chronological phases of the workplan are designed to reflect both the two structural phases of the thematic studies of Tracks 1 to 3, as well as the increasing levels of collaboration during the project lifetime.

Phase 1, “Design and implementation” focuses on the design and implementation of the studies, with workshops¹ bringing together researchers with representatives of business, education and policy communities. Phase 2, “Analysis and policy” focuses on the interpretation of survey results, further analysis and inputs to the policy development process. Workshops bring together researchers and policy makers, with strong representation from business as well as the education sector. Table 2 illustrates how Track 3 is structured along the two phases:

	Phase 1: Design, Implementation	Phase 2: Analysis, Policy
Track 3: study of government usage/attitudes to FLOSS and open standards/ interoperability	Plan analytical framework. Finalise design and methodology of survey and questionnaire (based on results of on-going FLOSSPOLS survey). Define representative sample for government respondents. Localise questionnaire. Conduct pre-testing of questionnaire. Conduct survey.	Interpret survey results. Determine extent of and reasons for/against use of FLOSS in govt. Compare by region and with Europe (FLOSSPOLS). Determine possible impact on policy.

Table 2: Design of Track 3

¹ The workshops held in the course of the FLOSSWORLD project are described in Deliverables D3, D4, and D33-D44.

The questionnaires for the empirical surveys were developed by the European partner (MERIT) while the local partners localised and adapted the surveys to the context of each target country – Argentina, Brazil, Bulgaria, China, Croatia, India, Malaysia and South Africa. Localisation involved three tasks:

1. translation of the questionnaire into local languages if and where appropriate (Bulgarian, Chinese, Spanish, Portuguese, etc...)
2. introduction of local terms to ensure international comparability – e.g. using local currencies in the questionnaire and localised scales when asking about income or expenditure levels
3. introduction of additional questions that are unique to each country's context (e.g. questions on the role of specific government organisations, businesses, HEIs or projects, which were carefully designed and positioned so that they did not reduce the international comparability of the rest of the questionnaire)

The surveys were conducted using a combination of web-based questionnaires, e-mail contacts and reminders, telephone and fax. The localised questionnaires were converted into an on-line form and hosted on a web server at UM.

The on-line questionnaires were accessible in two ways: *addressed access*, where unique web addresses were generated for each preselected respondent with identifying information pre-recorded; and *open access*, where respondents have been asked to provide contact information. Addressed access was used in particular when address lists for the respondents were available to the international partners, from which a sample could be drawn. Those respondents that were addressed personally were contacted by e-mail with a request to fill out the survey at the unique address created for them. This is the most reliable form of ensuring an authenticated representative sample of respondents. Open access was used when no respondents could be identified in advance or when the number of identifiable persons to survey was considered too low. For open access, the survey was publicised through mailing lists, online forums, or publicity to associations (of businesses, universities and governments, respectively).

Addressed access execution involved repeated reminders. These were mainly sent by email, but in some countries (Malaysia, Bulgaria) it turned out that phone calls to the addressed respondents were more efficient.

Most of the local partners also used paper versions of the questionnaire that were sent to government bodies in order to increase the response rate.

Based on UM's previous experience (e.g. in the FLOSSPOLs governments survey) the questionnaire was designed in a way that the issues of FLOSS and open standards/interoperability complement each other in a single coherent questionnaire. The coverage in terms of content included:

- Software equipment: what kind of software is used, share of FLOSS, reasons for purchasing decisions and strategy, sources where software is purchased
- Practical aspects: size of purchasing budget, supply and maintenance aspects, practical aspects of software (does it meet the requirements? assessment of usability and interoperability etc.), evaluation of costs of purchasing and maintenance (TCO), general assessment of the functioning of the IT system administrated by the IT managers
- IT managers' knowledge of FLOSS / open standards: Knowledge of differences between and discussions about open and closed source software / standards, familiarity with programs and standards available on the marketplace, evaluation of advantages and disadvantages of proprietary and non-proprietary software and of open and closed standards,

perception of libre software diffusion in recent years and estimation of future trends, used information sources

- Attitude towards / affiliation with FLOSS community, own FLOSS development and participation in the community
- Assessment of need for open standards / FLOSS (expected degree of potential improvements)
- Personal features of IT managers, like age, time being on the job, educational background

3. FLOSS Usage

Overall the share of FLOSS users among government bodies in the 8 countries covered by the FLOSSWORLD consortium is 65% (Figure 1).

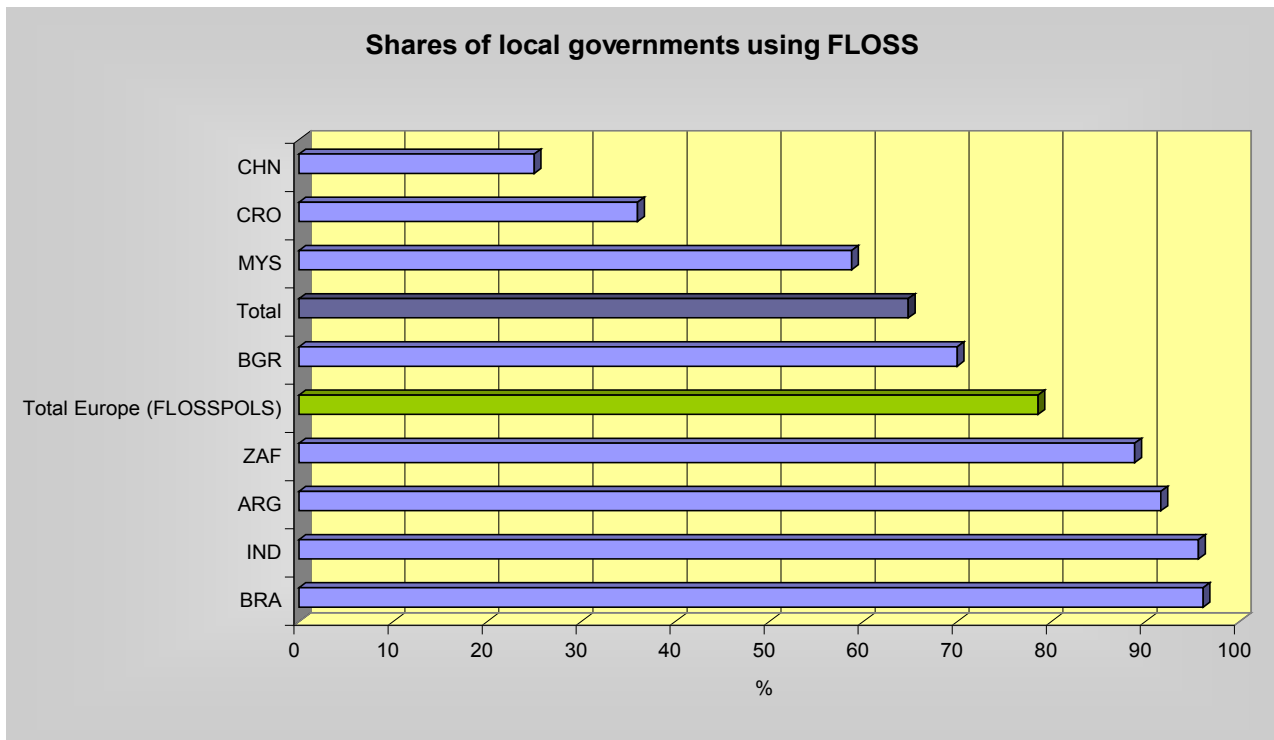


Figure 1: Share of FLOSS using government bodies in FLOSSWORLD countries and Europe

There are additional 15% who indicated FLOSS usage in one of the questions on which software systems are used in their organisation, which we consider to be unaware users of FLOSS (i.e. they do not know that some software they use is FLOSS). However, since these users consider themselves to be non-users and gave their answers to our questions based on this assumption we consider them as “non-users” throughout the analysis in the following.²

The low shares in Croatia seem to be due to the fact that the government made contracts with software vendors that commit itself to mainly purchasing proprietary software. In China the low response can be explained by a lack of awareness of the software that is used in government institutions, which may lead to a higher usage of proprietary software and unawareness of the actual

² In contrast to the way how we dealt with this group in the FLOSSPOL survey, where the members of this group showed an answering behaviour that was significantly different from the non-users. In the FLOSSWORLD survey this group resembles the non-users in some respects and the users in other respects.

usage of FLOSS. The case of Malaysia is particularly important because due to the extraordinarily high response rate of government institutions in this country the low user ratio is the main cause for the low overall share of FLOSS users in the FLOSSWORLD eGovernment survey. We know however that the reason for this low user ratio is survey fatigue especially of those government bodies that are active in the field of FLOSS, because the Malaysian government carried out a survey on such institutions shortly before the FLOSSWORLD survey was executed.

Overall, 64% of the respondents would find it useful to increase the share of FLOSS in their organisation³. This wish was comparably strongly pronounced in South Africa (88%) and India (78%). 16% of the respondents said they were experimenting with FLOSS when the survey was executed and that they will decide on an expansion of FLOSS in their organisation later. Only 8% said they would not find it useful to increase the share of FLOSS in their organisation, which applies especially to Croatia (13%), South Africa (13%) and China (12%). Two thirds of those who find an increase of the share of FLOSS in their institution useful would prefer to replace some proprietary components by FLOSS, 30% wish to replace all proprietary software components (4% didn't know). The wish to replace all proprietary software by FLOSS was most pronounced in Brazil (61%), South Africa (57%), Argentina (47%) and India (44%). By nature, the wish to replace proprietary software components by FLOSS is strongly correlated with the usage of FLOSS, i.e. those who dispose of practical FLOSS experience tend stronger towards an expansion of FLOSS in their organisation than non-users: 72% of the users but only 49% of the non-users wish to increase the share of FLOSS in their organisation. Still, the fact that half of the non-users wish to have more FLOSS is quite impressive and shows that there is still a big potential for FLOSS to grow not only in those organisations where it is already applied.

Only a few government institutions in Malaysia, Croatia, and especially in India use FLOSS as standard software on their desktops (Table 3). One fifth of the respondents, though, reports that they have at least some desktops in their organisation that only use FLOSS. This is mainly true for India and Brazil. The vast majority of the organisations that responded to the survey have however mixed systems on the majority of their desktops. Only 10% say that they do not use FLOSS at all on their desktops.

The same pattern could be observed with regard to FLOSS on the servers, though the share of non-users can almost be neglected in this respect. Thus, using FLOSS on desktops as well as on servers is standard in eGovernment institutions across the FLOSSWORLD countries.⁴

3 The FLOSSPOLIS survey revealed a respective share of 51% for Europe. The difference can be explained by a time effect, since the FLOSSPOLIS survey was carried out two years before the FLOSSWORLD survey and the awareness of FLOSS has increased in the meantime.

4 It should be noted that the figures for Europe, deriving from the FLOSSPOLIS survey, cannot be compared directly to the FLOSSWORLD figures because the questions in the questionnaire were different (we asked a more detailed question in FLOSSWORLD).

FLOSS on desktops	ARG	BGR	BRA	CHN	CRO	IND	MYS	ZAF	Total	Total Europe (FLOSSPOLs)
All our desktops use only FLOSS					5,6	13,6	4,5		3,6	1,5
All our desktops use some FLOSS	22,7		36,0	16,7	11,1	13,6	7,5	25,0	16,2	16,4
Some desktops use only FLOSS	25,0		44,0		11,1	54,5	7,5	25,0	21,8	
Some desktops use some FLOSS	45,5	85,7	52,0	33,3	61,1	45,5	25,4	62,5	42,6	
On the desktops we do not use FLOSS at all	9,1		8,0	16,7	5,6	4,5	14,9		9,6	

FLOSS on servers	ARG	BGR	BRA	CHN	CRO	IND	MYS	ZAF	Total	Total Europe (FLOSSPOLs)
All our servers use only FLOSS	18,2		4,0		5,6	22,7	9,0		10,7	4,0
All our servers use some FLOSS	15,9		28,0		27,8	4,5	4,5		11,7	40,8
Some servers use only FLOSS	47,7	42,9	68,0	33,3	16,7	40,9	44,8	37,5	44,7	
Some servers use some FLOSS	36,4	57,1	56,0	33,3	22,2	27,3	40,3	50,0	39,1	
On the servers we do not use FLOSS at all	2,3				5,6	4,5	3,0		2,5	

FLOSSPOLs: Additional 20,2% of respondents reported experimenting with FLOSS in pilots.

Table 3: Extent of FLOSS usage in government institutions

The question which software systems are used in the respondents' organisations confirmed the dominant position of Microsoft in the markets for operating systems, desktop applications, and Internet browsers (Figure 2). The most important FLOSS systems are MySQL/PostgreSQL, Mozilla/Firefox, and GNU/Linux, followed by Apache and PHP. OpenOffice.org. is used by only one third of the respondents.

Based on the set of software systems used in Figure 2, two groups of software users can be distinguished: The first group consists of heavy FLOSS users and is made up by India, Argentina, and South Africa. The second groups consists of countries in which government bodies show a strong use of FLOSS as well as of proprietary software. This group is built by Brazil, Bulgaria, and Malaysia. Croatia and China cannot be allocated to one of these groups because each country shows a unique pattern of software usage: Governments in Croatia are heavy users of proprietary software, while governments in China neither show above average shares in FLOSS usage nor in proprietary software usage.⁵

⁵ By and large, the same patterns (predominance of proprietary software, similar country patterns) could be observed with regard to the basic operating systems in the government institutions.

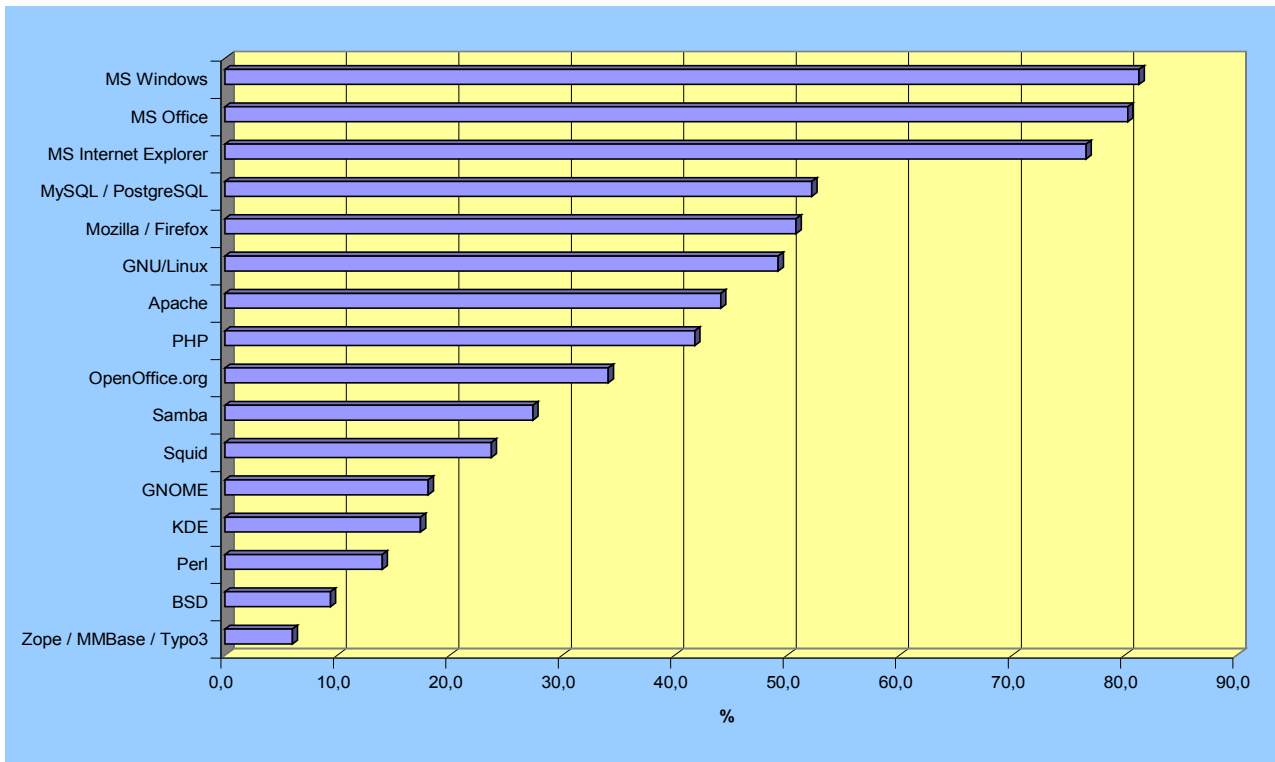


Figure 2: Usage of selected software systems by government bodies

17% of the respondents have directly contributed to a FLOSS project, another 8% have contracted somebody else (i.e. a company or a developer or team of developers) to contribute to a FLOSS project. Roughly one quarter (23%) owns software that might be interesting to be shared with other organisations under a FLOSS license. This means that almost half of the government organisations in our sample are already or have the opportunity to become very easily more than pure FLOSS users (i.e. FLOSS distributors).

4. Attitudes towards FLOSS

Probably the most fundamental characteristic of FLOSS is that the source code can be studied and modified, which provides users with software skills the opportunity to adapt software to their personal needs and preferences and to fix bugs. Two thirds of the respondents say that it would be a substantial improvement for their IT Department to have the freedom to study or modify the source code of the software they use. Interestingly, this is uttered not only by FLOSS users (of which 73% would welcome this opportunity), but also by 56% of the non-users of FLOSS.

However, whether or not a government organisation uses FLOSS depends not so much on its actual usefulness and adaptability but on the awareness of the users of a combination of different advantages and disadvantages that can be attributed to FLOSS - regardless of whether or not this attribution is justified. We therefore offered the respondents a set of 8 statements on pros and cons of FLOSS and asked them to evaluate them on a scale ranging from “I strongly agree” to “I strongly disagree”. Table shows the average evaluation (mean value on the scale) of each of these statements per country.

FLOSS advantages	ARG	BGR	BRA	CHN	CRO	IND	MYS	ZAF	Total	Total Europe (FLOSSPOLs)
Open source software is easier to use than proprietary software	0,23	0,50	-0,35	-0,12	-0,41	0,45	0,78	0,63	0,29	0,57
Open source software is easier to customise than proprietary software.	1,09	0,10	0,88	-0,08	0,41	0,91	1,00	1,75	0,80	1,00
Open source software is more reliable than proprietary software	0,74	0,70	0,27	0,24	-0,22	0,38	0,93	1,25	0,55	0,72
Open source software can very easily be combined with proprietary software within the same IT system.	1,11	0,50	0,77	0,20	0,63	0,82	0,88	1,50	0,81	0,97

FLOSS disadvantages	ARG	BGR	BRA	CHN	CRO	IND	MYS	ZAF	Total	Total Europe (FLOSSPOLs)
If Open Source software would only provide access to the source code, but would not be cheaper than proprietary software, my organisation would not use it!	0,36	0,70	0,65	0,08	0,33	0,55	1,06	0,00	0,63	1,22
It is too hard for my organisation to find companies that provide technical support for open source software.	0,64	0,70	0,27	0,52	0,10	0,23	0,54	0,38	0,44	0,87
Migrating to open source software makes sense only if other organisations like mine do it first.	0,09	0,10	-1,08	0,32	0,67	0,59	0,34	-1,00	0,20	0,76
Training people in my organisation to use open source software will be too expensive and / or take too much time.	0,35	0,10	-0,42	0,36	0,49	-0,36	0,46	-0,50	0,26	0,80

Values are means of following scale: -2 = I strongly disagree, -1 = I disagree, 0 = no opinion, 1 = I agree, 2 = I strongly agree

Table 4: Pros and cons of FLOSS - evaluation by country

There are mainly two positive statements that found support by the majority of the respondents: FLOSS is considered to be easier to use and to customise than proprietary software. Argentinian, Malaysian and South African respondents strongly emphasised pros of FLOSS, whereas Brazil, China and Croatia show a more careful evaluation of the pros. Most notably, respondents from these countries tend to disagree with the statement that FLOSS is easier to use than proprietary software.

Regarding the cons, only for Malaysian respondents FLOSS is used rather because it is cheap than because it is useful. Malaysian respondents also fear the cost and time efforts aligned with training people to use FLOSS. Croatians are obviously reluctant towards FLOSS because they fear that they would become isolated when they migrate to FLOSS and others do not (“first mover problem”) and they also fear training cost. Bulgarian and Argentinian respondents fear that they would not find technical support when their organisations would migrate towards FLOSS. Indian respondents also fear the first mover problem.⁶

Overall, these observations imply that governments tend to use FLOSS mainly because it appears to be easier to use and to customise, whereas the fears that may prevent governments from using FLOSS are more diffuse.

5. eGovernment and FLOSS

FLOSS in government is not only a relevant issue for technical and economic aspects of IT equipment and administration. Since FLOSS is strongly related to open standards and usually helps to increase interoperability it provides also a valuable means for fundamental eGovernment objectives, such as ease of access to government services or ease of data exchange between public administrations. Indeed, 84% (100% in Brazil and Bulgaria) of the government representatives that participated in the survey think citizens should be able to access all governments services regardless of the software platform that they use. Only China (60%) and Malaysia (75%) showed comparably

⁶ Further analysis revealed that the first mover problem is strongly correlated with the fear of a lack of technical support.

low shares of respondents in this regard. This opportunity is however actually implemented in only 68% of the respondents' organisations. India (85%), Brazil (81) and Bulgaria (75%) show the strongest degree of implementation of this opportunity, whereas China (53%) and Croatia (41%) show the lowest degree of implementation.

Due to the fact that almost all respondents think that citizens should be able to access all governments services regardless of the software platform that they use there is no statistically significant correlation between this conviction and FLOSS usage or non-usage. However, we found a significant difference between FLOSS users and non-users with regard to the actual implementation of this opportunity in government organisations: 79% of the FLOSS-using organisations have implemented the opportunity of platform independent access to services, but only 61% of the non-users.⁷

88% (but only 52% of the Chinese respondents) think governments should be able to exchange data with other government organisations regardless of the software platform that they use. This opinion is most emphasised in Argentina, Bulgaria and Brazil. An actual implementation of this opportunity is however reported only from 55% of the respondents, notably in Brazil (72%) and Malaysia (71%) but hardly in Bulgaria (11%) and Croatia (25%).

Again, there is no correlation between FLOSS usage and non-usage on the one hand and the opinion that governments should be able to exchange data with other government organisations regardless of the software platform that they use, while the actual implementation of this opportunity in government organisations differs significantly between FLOSS users and non users: 69% of the FLOSS users have this opportunity implemented, but only 53% of the non-users.

The question whether the usage of FLOSS results in a stronger implementation of platform independent access for citizens and data exchange between public administrations or whether the implementation of this opportunity leads to an increased use of FLOSS cannot be answered. It is however evident that the realisation of these eGovernment goals appears closely related to the use of FLOSS.

6. FLOSS Policies

We evaluate FLOSS policies within government organisations through examining their purchasing strategies and software-related decision-making, and factors like vendor dependency and budget or personnel constraints.

Whether an organisation purchases software usually with the hardware or separated from it gives some indication of the “software awareness” of this organisation. Taking into account that usually software that is sold together with the hardware is proprietary standard software the underlying hypothesis is thereby that organisations that tend to purchase their software with the hardware do not care as much about specific software needs of their organisation as organisations that purchase software separated from the hardware. One third of the respondents purchases software together with the hardware, 28 separated from it, and another 31% do both to the same degree (6% don't know). However, there is no statistically significant correlation between the kind of software and hardware purchases and FLOSS usage.

⁷ $p < .05$; Contingency Coefficient: .186

In contrast to the majority of European governments, which preferred to have software that is compatible with other software from different producers (= interoperable software), three quarters of the governments that took part in the FLOSSWORLD survey prefer to have software that is compatible with the software they already use in their organisation (= compatible software). Given this large share it is obvious that there is no significant difference in this respect between FLOSS users and non-users.

In 70% of the organisations represented in our sample the most important person when decisions on software purchases are made is the IT manager (in most cases the person who participated in the survey). Given this low variation in decision-making across the governments in our sample it is just natural that there is no significant correlation to FLOSS usage or non-usage.

Also in complete contrast to findings from the FLOSSPOLs survey on European governments is that more than 90% of the FLOSSWORLD survey respondents say they do not feel too dependent on their software vendors. This may have several reasons. First of all, this finding could result from the fact that vendors more or less provide the governments with the software they need without limiting them in their choice when they decide to use FLOSS, too. Another reason could be that in countries where a contract binds the government organisations to buy proprietary software the governments may feel limited in their freedom to choose software but they may not relate this to their software vendors. In countries like China the software that is used and purchased cannot be identified clearly enough by the means of the questionnaire we used.

While the FLOSSPOLs survey showed for European governments that FLOSS usage increase with increasing need to customise software after it is purchased the FLOSSWORLD respondents do not differ significantly with regard to customisation needs. 80% say they have to customise software never or seldom. The same applies to the need for external maintenance, which we assumed to have a positive impact on the use of FLOSS because it is an expensive service for which money (and probably time) could be saved if the source code was accessible to the IT department personnel. Given the high interest in access to the source code (as described above) this assumption appears reasonable, but again the sample is too homogeneous to reveal significant differences in FLOSS usage between those who have to use external maintenance services often and those who use such services never or seldom. The latter applies to 77% of the sample.

The average share of licence fees in the overall IT budget is the same for FLOSS users as for non-users (26%) and has therefore no impact on the extent of FLOSS use. Though there is a significant correlation between the *individual perception* of the share of license fees as “too low”, “reasonable” or “too high” and FLOSS usage, the direction of this interrelation is not straight in the way that those who perceive this share as low or reasonable show small shares of FLOSS usage and those who perceive the share of license fees as too high show high shares of FLOSS users. Rather than that the share of those who find the share of license fees reasonable increases considerable within the FLOSS users (37%, compared to 22% within the non-users), and the share of those who do not know how to assess the share of license fees is almost twice as high within the non-users as within the FLOSS users (47%, compared to 25% in the FLOSS users).

61% see a need for reducing the expenditure for license fees in their organisations within the next two years. This applies to 71% of the FLOSS users but only to 43% of the non-users, which might imply that the use of FLOSS may be depending on the perception of a cost pressure – though this cost pressure remains diffuse, given the fact that budgets and the share of license fees and even the individual perception of this share do not differ between these two groups. A need for cost reduction is particularly expressed by Brazilian, Argentinian, and Malaysian governments.

Finally, size of the organisations and the IT departments differ significantly between FLOSS users and non-users: On average, FLOSS using governments have 189 persons in the IT department that have to administer 731 laptops and PCs and 33.3 servers. Governments not using FLOSS are considerably smaller. They have, on average, 12.2 persons in the IT department that has to administer 230.5 laptops and PCs and 14.2 servers.

7. Conclusion

Overall the FLOSSWORLD government survey (Track 3) could show that collaboration between EU partners and local partners in developing countries can sustainably be established and results in significant academic research results. A reservation that must be made is that the expected threshold of 400 respondents could not be achieved. In this respect, further attempts to survey governments in countries outside Europe should take into consideration that achieving a useful response rate may require more time and efforts than in EU Member States. Extending the survey period and trying to get support from superior government organisation together with personal ways of contacting the target group (telephone calls, letters) turned out to be very effective in Malaysia and India, though these methods did not work in China and South Africa.

A second reservation that must be made is that even after localising the questionnaires carefully it happened that some results from the Chinese survey remain difficult to interpret. While this is surely due – at least partially – to the relative small size of the Chinese sample this observation may however suggest for further research to either extend the scope of pre-tests or to add a number of extra questions that may better suit the perceptions and experiences of the target groups in these countries in order to avoid such difficulties.

Regarding the practical outcome of the FLOSSWORLD government survey it must be emphasised that it revealed the same share of FLOSS usage (80%, including unaware usage) as in European governments. Also similar to Europe, FLOSS is usually not a standard application on desktops and servers, proprietary software predominates the markets for software in both regions. Finally, another thing both regions (Europe and the FLOSSWORLD region) have in common is that there is evidently a great potential for FLOSS to grow, within organisations that use already FLOSS as well as in non-user organisations. Particularly interesting in this regard is the high share (approximately 50%) of government organisations that are already or could easily become FLOSS distributors. This share seems to be higher in the FLOSSWORLD countries than in Europe.

There is also a number of fundamental differences between government organisations in developing countries and in Europe. First of all, software policies, as far as they could be pursued by the means of an (online) survey play an important role for the usage of FLOSS in European governments, but in developing countries basic cornerstones of such policies (need for customisation or maintenance, IT budgets, share of license fees in IT budgets) do not differ (like in Europe) and therefore these factors have no impact on FLOSS usage. The only “objective” factor that seems to play a role for FLOSS usage in the FLOSSWORLD countries is size of the government organisation. But more than these objective factors the use of FLOSS in these countries seems to be driven by fears and hopes aligned with FLOSS, whereby ease of use and customisation provide the main hopes (and thus drivers) while the fears appear to remain diffuse and diverse across the different countries.

Finally, FLOSSWORLD Track 3 could show that FLOSS has a positive impact on fundamental eGovernment goals, such as platform independent access for citizens to services and platform

independent exchange of data between public administrations.

Annex A1: Questionnaire

organisation :	Provincial Govt of the Western Cape
name :	
position :	Directors ICT Policy and Strategy
email :	
country :	ZAF

1 / 23. Do you use open source software systems in your organisation?

yes

no

1a / 23. To which degree is your organisation using open source software? (Note: multiple answers are possible)

All our desktops use only FLOSS

All our desktops use some FLOSS

Some desktops use only FLOSS

Some desktops use some FLOSS

On the desktops we do not use FLOSS at all

All our servers use only FLOSS

All our servers use some FLOSS

Some servers use only FLOSS

Some servers use some FLOSS

On the servers we do not use FLOSS at all

1b / 23. Which if any of the following software systems do you use in your organisation?

Apache

BSD

GNOME

GNU/Linux distributions, such as Ubuntu, Debian, Redhat, SuSe, Mandriva,

KDE

Mozilla / Firefox

MS Internet Explorer

MS Office

MS Windows

MySQL / PostgreSQL

OpenOffice.org

Perl

PHP

Samba

1c / 23. Has your organisation ever contributed to a FLOSS project (e.g. by contributing source code) or contracted somebody else to contribute to a FLOSS project?

- no
 - yes, we contributed directly
 - yes, we contracted somebody else to contribute
 - I don't know
-

2 / 23. Does your organisation own software that might be interesting to be shared with other organisations under a FLOSS license?

- yes
 - no
 - I don't know
-

3 / 23. Do you think citizens should be able to access all governments services regardless of the software platform that they use?

- yes
 - no
 - I don't know
-

3a / 23. If answer is yes: Is this opportunity implemented in your organisation, i.e. can citizens access your organisation's services regardless of the software platform that they use?

- yes
 - no
 - I don't know
-

4 / 23. Do you think governments should be able to exchange data with other government organisations regardless of the software platform that they use?

- yes
 - no
 - I don't know
-

4a / 23. If answer is yes: Is this opportunity implemented in your organisation, i.e. can your organisation's data be exchanged with other government organisations regardless of the software platform that they use?

yes

no

I don't know

5 / 23. Which operating systems are the basis of your IT infrastructure?

BEOS

BSD

GNU / Linux

MacOS

NETWARE

SOLARIS

UNIX

Windows 2000

Windows NT

Windows XP

something else, please specify:

I don't know

6 / 23. Would you find it useful to increase the share of open source software in your organisation?

no

yes

At the moment we are experimenting with FLOSS in pilots, after these pilots are completed we will decide whether or not we extend the usage of FLOSS

I don't know

6a / 23. In the long run, would you prefer to replace some proprietary software components by open source software or all proprietary software components by open source software?

to replace SOME components

to replace ALL components

I don't know

7 / 23. What do you think: Would it be a substantial improvement for your IT Department to have the freedom to study or modify the source code of the software you use?

yes

no

I don't know

8 / 23. Please indicate how much you agree or disagree with the following statements.

Open source software is easier to use than proprietary software	I strongly agree I agree no opinion I disagree I strongly disagree
Open source software is easier to customise than proprietary software.	I strongly agree I agree no opinion I disagree I strongly disagree
Open source software is more reliable than proprietary software	I strongly agree I agree no opinion I disagree I strongly disagree
Open source software can very easily be combined with proprietary software within the same IT system.	I strongly agree I agree no opinion I disagree I strongly disagree
If Open Source software would only provide access to the source code, but would not be cheaper than proprietary software, my organisation would not use it!	I strongly agree I agree no opinion I disagree I strongly disagree
It is too hard for my organisation to find companies that provide technical support for open source software.	I strongly agree I agree no opinion I disagree I strongly disagree
Migrating to open source software makes sense only if other organisations like mine do it first.	I strongly agree I agree no opinion I disagree I strongly disagree
Training people in my organisation to use open source software will be too expensive and / or take too much time.	I strongly agree I agree no opinion I disagree I strongly disagree

9 / 23. In general, how do you buy your software?

- together with the hardware
 - separately from the hardware
 - both to the same degree
 - I don't know
-

10 / 23. In general, when you buy new software, what is more important for you?

- That the new software is compatible with software I already use
 - That the new software is compatible with software from different producers
 - I don't know
-

11 / 23. Who is (are) most important for decisions on software purchases in your organisation? Please choose not more than two answers and rank them by a '1' for most important and a '2' for second most important.

- IT Manager (yourself) / Head of IT department
- users
- financial department
- other management
- external consultants
- higher level government organisations
 - Please specify:
 - associations of municipal government organisations (e.g. of cities)
 - regional government
 - associations of regional government organisations
 - central government
 - supranational organisations

- others
 - Please specify
-

12 / 23. How many vendors do you mostly rely on to buy software for your organisation?

- number of vendors
 - I don't know
-

13 / 23. Would you say that your organisation is too dependent on your vendors?

- yes

- no
 - I don't know
-

14 / 23. How often do you have to customise software after you have bought and implemented it in your IT system?

- never
 - sometimes
 - regularly
 - often
 - very often
 - I don't know
-

15 / 53. How often do you use external suppliers for software maintenance?

- never
 - sometimes
 - regularly
 - often
 - very often
 - I don't know
-

16 / 23. Roughly speaking, how large is the IT budget of your organisation in 2005? Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

- I don't know
-

17 / 23. What approximately is the percentage of the share of licence fees for software in your ICT budget?

percentage (numbers):

- I don't know
-

18 / 23. What do you think: Is this share of license fees...

- too low
- reasonable
- too high
- I don't know

19 / 23. Do you see a need for reducing the expenditure for license fees in your organisation within the next two years?

- yes
 - no
 - I don't know
-

20 / 23. How many people work in your IT department?

number of people

- I don't know
-

21 / 23. Approximately, how many PCs (including Laptops) do you have in your organisation?

number of PCs

- I don't know
-

22 / 23. Approximately, how many Servers do you have in your organisation?

number of servers

- I don't know
-

23 / 23. Would you be interested in being informed about the results of our survey?

- yes
- no

Annex A2: Guidelines for Localising the Track 1 Questionnaire

FLOSSWORLD Guidelines for the Governments Survey

The following guideline provides a stepwise instruction for the preparation and execution of the governments survey. It refers to the analytical framework paper and to the revised version of the respective global questionnaire.

- **Check the revised global questionnaire** carefully with regard to understandability of the wording, order of the questions, and completeness of aspects that are surveyed again. Inform MERIT and URJC about changes you want to make and errors.
- **Localise the questionnaire.** As described in the analytical framework paper, localisation means to translate the complete questionnaire into your language, to introduce local terms to ensure international comparability (e.g. using local currencies in the questionnaire and localised scales when asking about income or expenditure levels, but do also localise the FLOSS terminology that we use (e.g. FLOSS, F/OSS, Libre Software, Free Software, Open Source Software, or any other term that you think would be best to use in the region you survey) and the educational degrees and professions) and to add questions that are unique to each country's context. **At the end of this text a separate short list is provided for the questionnaire of the question numbers and points that MUST be localised by ALL FLOSSWORLD PARTNERS.**
- **Prepare the circulation of the questionnaire** (start in parallel to localisation): Figure out how you want the questionnaire to be circulated, this may be dependent on the availability of contact information for government organisations in your country. You can either use databases that contain such information, search the Internet for such organisations and associations of such organisations, use address books, yellow pages, etc. At any rate it would be good if you know a person in the organisations you want to survey who is able to answer our questions (usually the head of the IT department) and to whom we can send the questionnaire. Our experience in Europe is that eliciting such information through phone calls is an extremely hard and time-consuming business. Nevertheless, having a personal contact usually helps considerably to raise the response rate, and you can explain the purpose of the survey and ask for the preferences of the respondents regarding the kind of questionnaire (online, letter, fax). Make as soon as possible a list of all the organisations you want to contact, together with contact information (name of the organisation, name of the contact person, email address(es), and any other information that is

relevant for contacting this organisation) and information about their level (local-regional-central, association of government organisations, etc. - whatever you find useful) and the way how they should be contacted (email, letter, fax, phone, maybe even face to face). Send all these information to MERIT. If you find out that circulating the questionnaire by letter or fax or face to face would be better, you have to collect contact information (telephone or fax numbers or locations / dates for possible face to face interactions) of the persons you want to survey. These lists must be sent to MERIT, too. *Note: The advantage of an online version is that it can be very easily distributed and responded. If you rely on other channels for distributing the questionnaire (i.e. telephone, fax, face to face) you will have to organise the distribution of the questionnaire yourself.*

- **Create different versions of an introductory email or letter/fax** in order to announce the survey and explain its purpose to the government organisations or, if applicable, contact persons in these organisations. This will be done by MERIT and coordinated with you. *You will have to localise the introductory letter and send it back to MERIT.*
- **Send the localised questionnaire to MERIT.** The localised questionnaires will be converted into on-line form and hosted on a web server at UM (in cases where connectivity is an issue, questionnaires can be hosted on local web servers arranged by the international partners). The on-line questionnaires will be accessible in two ways: addressed access, where unique web addresses will be generated for each pre-selected respondent with identifying information pre-recorded; and open access, where respondents may be asked to provide contact information. *The governments survey is intended to use addressed access, but if you see a possibility to get the questionnaire and the introductory letter circulated within the governments organisations of your country in a self-organised way we can also provide open access.* If you want to use letters or faxes, MERIT will create a database that you can access online and in which you can fill in the responses you get.
- **Pre-test preparation and execution:** Select a limited number of developers (usually, 5 respondents suffice for this purpose), for instance IT managers of government organisations on different administrative levels in the area where you live, and let them fill in the questionnaire. If possible, you should try to talk to a couple of the pre-test respondents directly about the questionnaire, this provides you with much deeper insights in how the questionnaire works and how the targeted group of respondents might react than indirect communication. For the pre-test

we will need some additional questions on the items listed below. These questions must also be sent to MERIT in order to include them in the pre-test version of the questionnaire. Answers to the pretest must be treated as normal responses and therefore be submitted to MERIT, if appropriate they will get integrated in the final survey dataset. Extra items the respondents should comment on in the pre-test are:

- understandability of the questions,
 - questions that appear difficult or impossible to answer,
 - questions they did not want to answer,
 - questions (or terms) they find unclear or annoying,
 - the time they needed to complete the questionnaire (in an online version we can monitor this ourselves) and whether or not they find it too time-consuming (ask for the concrete question at which they got the feeling the questionnaire is too long),
 - their general impression of the survey and the questionnaire
 - further comments
-
- **Analysis of the pre-test:**Particular attention will be given to any local differences in understanding or answering the localised versions of the questionnaire.
 - **Revision of the questionnaire**(if necessary), including localisation of the new elements and revision of the online version.
 - **Distribution of the final version of the questionnaire together with the introductory letter**to the persons in the address lists that have been collected during step 3. This will be done by MERIT. Depending on which way of distributing the questionnaire you chose the questionnaire will either be sent by email to the persons that you have specified in personalised address lists, providing addressed access to the online questionnaire. If you found a way to distribute the questionnaire in government organisations in a self-controlled way open access to the questionnaire will also be provided. In this case the respondents will have to specify the name of their organisation and some other relevant information that otherwise would have been collected in step 3. (Note: A combination of addressed and open access to the questionnaire is generally possible). In case of addressed access, MERIT will attribute each personal record with a personal password that will be used in the introductory email to allow respondents to access their personal version of the online questionnaire (i.e. nobody else will be able to see what they reply). If you prefer to distribute the questionnaire by fax or by letter these paper versions must be distributed

by you and the completed questionnaires must be returned to you, too. In case of letter questionnaires we recommend strongly to use pre-paid response envelopes with your address, as this eases the respondents to reply and raises the response rate.

- **Data collection:**

- For online survey with addressed access to the online questionnaire: Respondents will access the online questionnaire and authenticate by entering their personal password, then they will complete the questionnaire. The responses will automatically be transferred into a password-protected database that can be accessed by you online. After a specified period of time (i.e. one week after distributing the questionnaire), those who did not reply will get a reminder by email. We usually send 3-4 email reminders and then make a final reminder phone call before we close the survey.
- For online survey with open access to the online questionnaire: Respondents will fill out the questionnaires directly on the website, the responses will automatically be transferred into a password-protected database that can be accessed by you online. Reminders cannot be used because we have no contact information.
- For letter or fax survey: The respondents will send you back the completed questionnaires. You will have to access the password-protected database that is provided online by MERIT and to enter the responses manually in this database. You will also be responsible for sending reminder letters and faxes. At any rate, you should calculate a longer survey period for letter and fax surveys than for the online survey (at least double the time).
- For face to face interviews / meetings: Either use a computer to have the interviewee fill out the questionnaire online, or fill out a paper version of the questionnaire which you will then provide in electronic form to MERIT as with the letter survey described above. Since you meet the respondent personally there's no need for reminders.

- **Non-response analysis:** Not all of the contacts you have collected for the lists will reply. The crucial question for the validity of our results is whether our respondents differ significantly from our respondents in one or more respects. If this is the case our sample would be biased towards this or these characteristics, for instance towards FLOSS users. In order to estimate whether such (a) bias(es) exist(s) we have to conduct a non-response analysis. This means that

we have to contact the non-respondents (or a sub-sample of them) again after the survey is closed and to ask them a couple (2-4) of relevant questions that allow comparing the non respondents and the respondents with regard to characteristics that are important for the survey. For instance, FLOSS usage, size of the organisation, and level of the organisation could be such important criteria. The small questionnaire for the non-response analysis will be created in collaboration of all consortium partners, the execution of the non-response survey will fall into the responsibility of the local partners. The results of the non-response survey must be sent to MERIT and will be analysed and compared there.

- **Shortlist of question numbers and points in the questionnaire that must be localised by all local partners:**

- FLOSS terminology (i.e. FLOSS, F/OSS, Open Source Software, etc.), see for instance question 1
- Question 1b: list of software systems
- Question 8: different meaning of license fees for purchase decisions in different countries
- Question 9: different meaning of compatibility and interoperability in different countries
- Question 10: different meaning of license fees for purchase decisions in different countries
- Question 15: currency
- Question 16: different meaning of license fees for budgets in different countries
- Question 17: different meaning of license fees for budgets in different countries