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i. Executive summary

The purpose of the OSEPA (Open Source software usage by European Public Administrations) project survey was to assess the level of Free and Open Source Software (FOSS) uptake and identify the factors affecting its usage among European public administrations. The survey was conducted through local online questionnaire versions in 20 countries over a period of 10 weeks (24/10/2011 – 31/12/2011) and resulted into a total of 1088 valid responses from 19 countries.¹ The majority of responses (64%) came from participants with a technical background and role in their organisation while about 1 out of 3 respondents (36%) had a non technical/administrative profile. Survey results are summed as follows.

FOSS awareness and experience

The great majority of survey participants (85,1%) are aware of FOSS. IT staff and managers have a higher FOSS awareness level (95%-97%) than administrative staff (67-69%). Central government bodies have a more positive experience with FOSS than local or regional authorities. Larger organisations are also more likely to have extended experience with FOSS compared to small-size public administrations. The majority of survey participants (62%) reported some FOSS migration experience. Most respondents state that their organisations either do not modify FOSS programs at all (51%) or only carry out minor code development (8%). Central government departments and organisation and regions seem to be more experienced with source code modifications compared to local administrations (cities, towns, provinces).

FOSS attitudes and policies

Survey results show IT staff is considered to have a more active and supportive attitude towards FOSS, compared to administrative, non-IT staff that is largely regarded as either reluctant or indifferent (up to 57%) to FOSS usage.

¹ No responses gathered in France.

The majority of public administrations (65%) has not adopted any official, FOSS-specific policy or strategy. The highest rate of FOSS policy adoption is to be found among central government organisations, followed by regions or territorial associations and cities, municipalities and provinces.

FOSS benefits and barriers

Factors most frequently identified as FOSS benefits based on overall level of agreement with predefined statements are:

- lower procurement cost (86%) and strategic independence from vendors (83%)
- community sharing (83%), code access and customisation (79%)
- performance (53%), security (55%) and support of public infrastructures (59%)

On a scale of 1 (lowest) to 5 (biggest), the highest rated barrier to FOSS usage is the organisational inertia (average:3.44), followed by the lack of technical expertise (average:3.35), training & support (average:3.23) and appropriate organisational culture (average:3.14).

FOSS use and integration

As also shown in previous surveys the OSEPA survey confirms that although proprietary applications have the largest usage share in both servers and clients, FOSS applications maintain a fair amount of use (more than 10%) in servers.

FOSS usage is higher in web servers (reaching almost 50%), content management (up to 45%), social software (25%) and intranet (32%) tools and applications. It is also fairly used in server operating systems (25%), testing environments (27%), databases (20%) and bug reporting (18.5%) tools. Exclusive use of FOSS is reported in content management tools (31%), intranet applications (23.5%) and web servers (19.7%).

1. INTRODUCTION

1.1. The OSEPA survey: questions and objectives

1.1.1. Overview

The purpose of the OSEPA project survey was to assess the level of Free and Open Source Software (FOSS) uptake and identify the factors affecting its usage among European public administrations.

More specifically the OSEPA survey intended to:

- assess the level of FOSS experience and readiness among European public administrations
- identify attitudes and experiences of elected representatives, IT managers and staff in European public administrations towards FOSS adoption
- investigate perceived benefits and barriers associated with FOSS use and adoption in public administrations
- investigate key technical, organisational or financial factors (both drivers and inhibitors) influencing the uptake and potential migration of European public administrations to FOSS
- assess the use of specific FOSS applications and packages and their integration in public IT infrastructures

The OSEPA (Open Source software usage by European Public Administrations) survey was conducted through an online questionnaire, adapted to local language versions where needed, reaching various public administrations (central government departments, local

and regional authorities) in 20 European countries. The OSEPA questionnaire aimed to collect both general and more detailed individual views and opinions on technical and non-technical aspects of FOSS and was therefore divided in the following sections:

- a) *Introduction / Organisation info*
- b) *FOSS non-technical*
- c) *FOSS technical*
- d) *Detailed view*

1.1.2. FOSS socio-organisational factors

The OSEPA survey explored administrative, socio-organisational and policy aspects of FOSS usage and adoption as addressed by the following main questions and sub-questions.

What is the current level of FOSS awareness and experience in the European public administrations?

- What are the differences related to the FOSS experience and awareness level among the surveyed organisations and respondents?
- Is the level of FOSS awareness and experience within European public administrations linked to organisational or staff profiles?
- To what level have European public administrations tested and assessed FOSS programs?

What are the attitudes to FOSS and current official FOSS policies in European public administrations?

- What are the attitudes of the non-IT staff in public organisations regarding FOSS uptake?
- What are the attitudes of the IT staff in public organisations regarding FOSS uptake?
- To what percentage have European public administrations officially adopted a strategy/ policy/ position regarding FOSS use and uptake?
- Is FOSS policy adoption by public administrations, linked to the organisational size or type?

What are the main perceived organisational benefits and barriers associated with FOSS usage among European public administrations?

- What are the main administrative, financial, organisational or strategic factors perceived as FOSS benefits within European public administrations?
- What are the main administrative, financial, organisational or strategic factors perceived as barriers to FOSS uptake / migration within European public administrations?
- Is there a relation between organisational or staff profiles and the main drivers or inhibitors affecting FOSS uptake in European public administrations?

1.1.3. FOSS technological factors

The OSEPA survey also aimed to identify the technical / technological factors that define - among others- the level of FOSS usage and affect willingness to migrate to possible FOSS solutions within European Public Administrations. These factors were investigated through a series of main questions that correspond to questionnaire sections or fields:

What is the IT/technical profile of participating respondents and surveyed organisations?

- *What is the surveyed organisation's current IT / technical profile?*
- *What is the respondent's IT / technical profile (IT manager, IT staff)?*
- *How many servers or clients are in operation in the organisation?*
- *Is there in-house IT support in the organisation?*

This section aims to identify the technical framework and current IT infrastructure of European Public Administrations. As shown in related surveys, establishing an organisation's profile on available IT resources is critical in understanding its performance and strategies on software use in general and free or open source software applications in particular.

What are the main perceived technical/ technological benefits and barriers associated with FOSS usage among European public administrations?

- What are the main technical or technological factors (e.g. security, performance, interoperability) perceived as FOSS benefits within European public administrations?
- What are the main technical or technological factors (e.g. security, performance, interoperability) perceived as barriers to FOSS uptake / migration within European public administrations?

- Is there a relation between the IT/technical profile of survey participants or organisations to the main technical/technological drivers or inhibitors affecting FOSS uptake in European public administrations?
- What are the main technical issues, concerns, or difficulties regarding FOSS migration and adoption as perceived by IT / technical staff in European Public Administrations?
- What are the main advantages, fields of technical improvement and expected benefits regarding a potential FOSS migration as perceived by IT / technical staff in European Public Administrations?

What is the extent of FOSS integration within currently in-use software systems and applications in European Public Administrations?:

- What is approximately the distribution of proprietary / FOSS applications running on servers and clients in public organisations?
- What are the most used proprietary / FOSS operating systems running on servers and clients in public organisations?
- What are the most used free / open-source software application packages in public organisations?

1.2. Survey sample and respondent groups

The OSEPA survey was conducted through local online questionnaire versions in 20 countries over a period of 10 weeks (24/10/2011 – 31/12/2011) gathering a total of 1507 – both full and incomplete – responses from 19 countries.² Data consolidation resulted into a total of 1088 valid responses that were processed and analysed.

² No responses were gathered in France.

1.2.1. Respondent groups

Total 1088 valid responses were consequently divided into four respondent sub-groups (a:FOSS-aware,b:not aware of FOSS,c:technical, d:technical-detailed view) based on the questionnaire structure and the sections in which the participants could opt for discontinuing the survey:

Q16: Are you aware of what is Free/Open Source Software (FOSS)? (If answer is no survey ends)

Q34: If your role is technical we ask you please to answer further questions. Do you wish to continue?

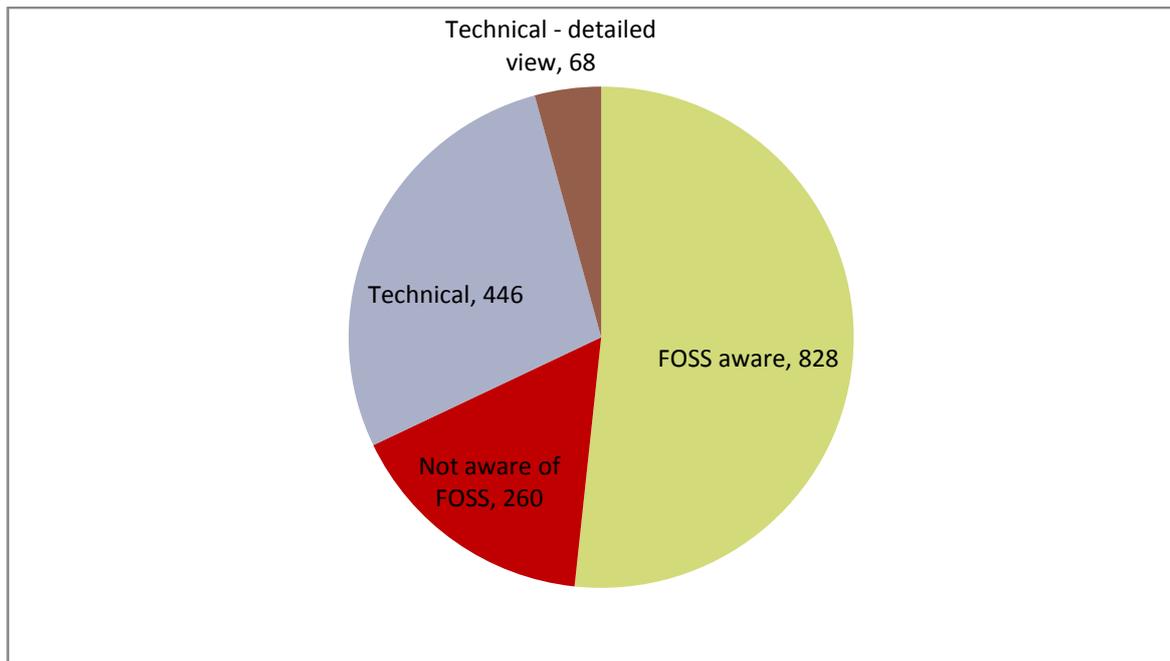
Q39: Please choose how you wish to define the technical profile of your organization (general view, detailed view, I wish to end here)

This categorization resulted into a distribution of responses as shown in Table 1 and Figure 1.

Table 1. Number of responses by respondent group

Respondent group	No of responses
FOSS aware	828
Not aware of FOSS	260
Technical profile	446
Technical profile: detailed view	68
Total valid responses	1088

Figure 1. Number of responses by respondent group



All measured values, percentages and data results presented in this report have been calculated based either on the total of valid responses or the sub-totals respondent groups as specified above, depending on questionnaire field and section.

1.2.2. Responses by country, organisation type and respondent profile

The OSEPA survey gathered 1088 valid responses from 19 countries.³ As shown in Table 2 and Figure 2, the Italian national survey gathered the highest number of responses (523) reaching up to almost half (48.1%) of the OSEPA survey sample. It is therefore clear that the OSEPA survey largely focuses on Italy with increased representation from Poland (12%), and Spain (5,3%). 6 countries are represented with rates ranging from 0,6% (Portugal) to 4,5 %

³ No responses were gathered in France.

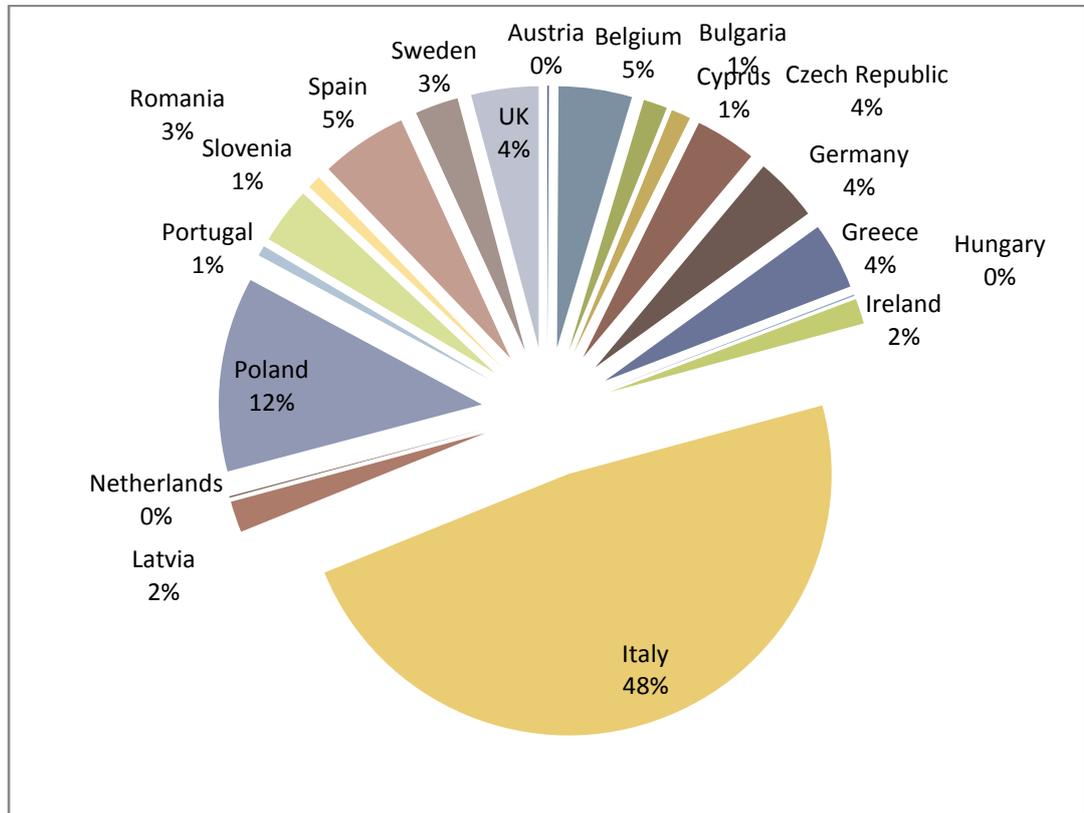
(Belgium). Finally, in 3 countries (Austria, Hungary, Netherlands) there is insufficient data (1 response/0,1%) and therefore any analysis or interpretation on a national basis is not feasible.⁴

Table 2. Number of responses by country

Country	No of responses	%
Austria	1	0,1%
Belgium	49	4,5%
Bulgaria	16	1,5%
Cyprus	13	1,2%
Czech Republic	41	3,8%
Germany	43	4,0%
Greece	45	4,1%
Hungary	1	0,1%
Ireland	17	1,6%
Italy	523	48,1%
Latvia	21	1,9%
Netherlands	1	0,1%
Poland	131	12,0%
Portugal	7	0,6%
Romania	38	3,5%
Slovenia	9	0,8%
Spain	58	5,3%
Sweden	29	2,7%
UK	45	4,1%
TOTAL	1088	100,0%

⁴Data from these countries has been omitted, in statistical analysis by national profile, where applicable. No responses were gathered in France.

Figure 2. Percentage of responses by participating country

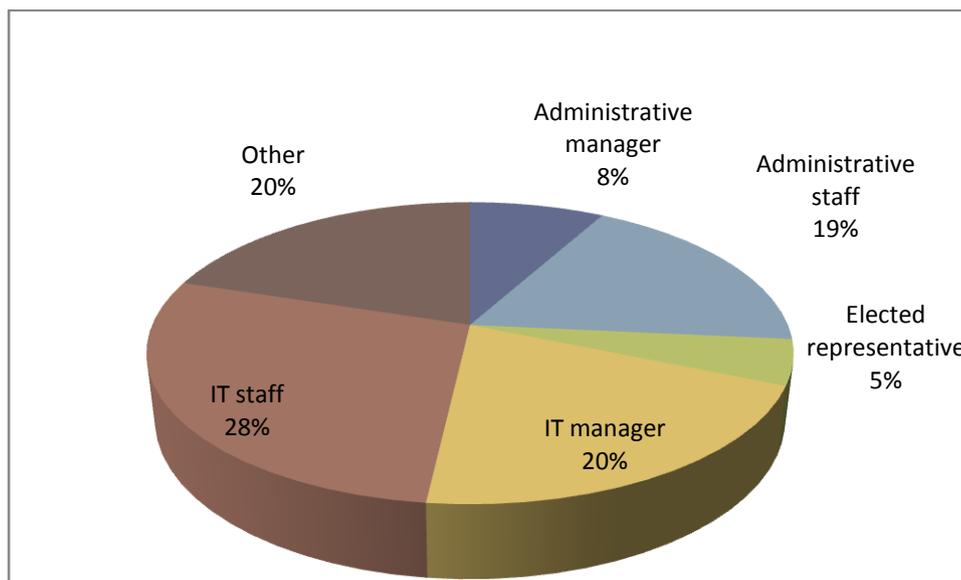


Respondents are grouped in six groups based on their role in the organisation they are working for (administrative manager, administrative staff, elected representative, IT manager, IT staff, other). Technical staff represents almost a 49% of the total respondents. In particular, IT staff and IT managers account for the 28% and 21% of total responses respectively. Administrative staff represent 18,5% of the sample while administrative managers account for the 8% of responses. Elected representatives represent a 5% of respondents. 20% of responses comes from respondents stating “other” as their role in their organisation.

Table 3. Role in public administration

Role in organisation	No of responses	%
Administrative manager	85	8,0%
Administrative staff	195	18,5%
Elected representative	51	4,8%
IT manager	216	20,5%
IT staff	297	28,1%
Other	212	20,1%
Total	1056	100%

Figure 3. Percentage of total responses by respondent's role in public administration

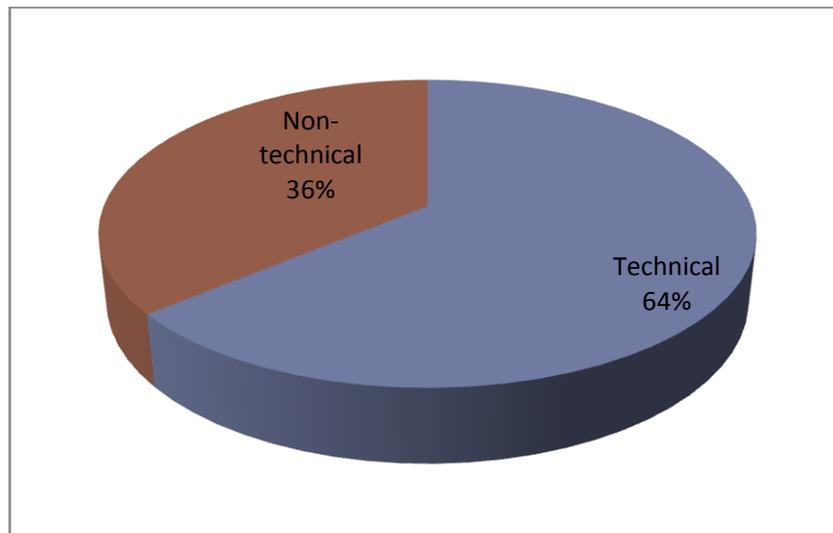


The majority of responses (64%) comes from participants with a technical background and role in the organisation they are working for, while about 1 out of 3 respondents (36%) has a non technical profile.

Table 4. Technical – non-technical profile

Technical/non technical	Respondents	%
Yes	446	63,9%
No	252	36,1%

Figure 4. Responses by technical – non-technicalrespondent profile

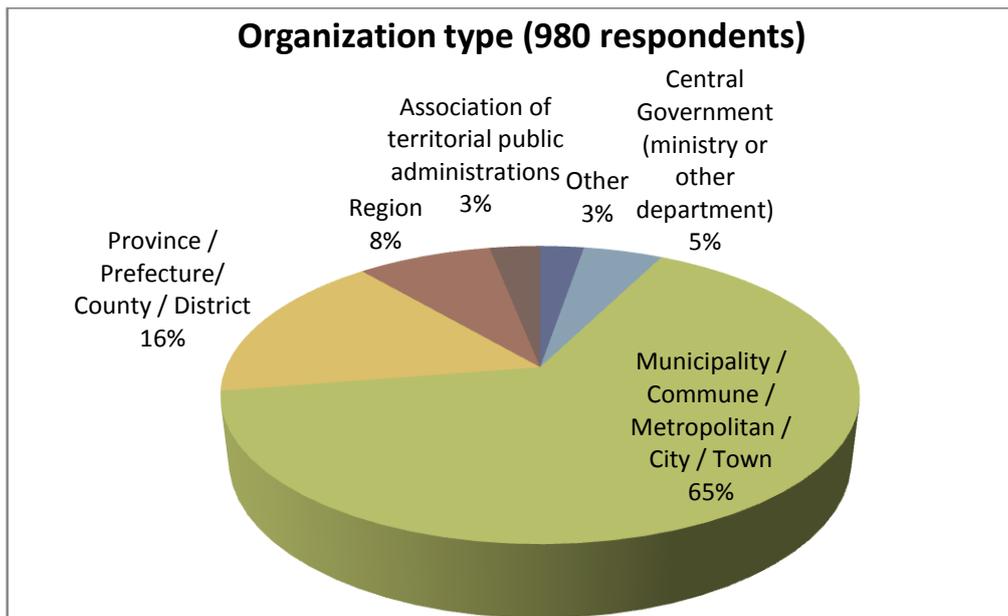


Respondents are also grouped based on the type of the organisation they work in. The majority of respondents (65%) represent local authorities and public administrations (Municipalities, Communes, City councils, Town council, etc.). Following, 16% of respondents are employed in territorial organisations, namely Provinces, Prefectures, Counties, Districts, etc. About 8% of the respondents regional authorities and about 5% works for the central government departments. Last, a small percentage of about 3% works in associations of territorial public administrations.

Table 5. Responses by organisation type

Organization type	No of responses	%
Association of territorial public administrations	26	2,7%
Central Government (ministry or other department)	47	4,8%
Municipality / Commune / Metropolitan / City / Town	637	65,0%
Province / Prefecture/ County / District	160	16,3%
Region	80	8,2%
Other	30	3,1%
TOTAL	980	100

Figure 5. Responses by organisation type

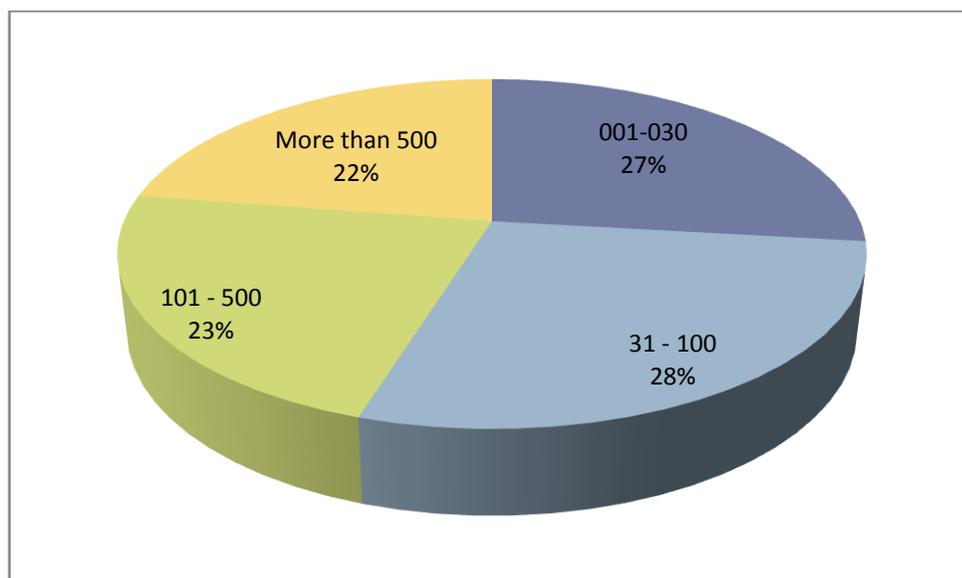


There is a rather balanced distribution of respondents based on organisation size. 22,5% of respondents work in organisations with more than 500 employees and 22,6% is employed in organisations with 101-500 employees. Small organisations (1-30 employees) represent 27% of responses while mid-size organisations (31-100) account for the 28% of total responses.

Table 6. Responses by organisation size (number of employees)

Number of employees	No of responses	%
1-30	262	26,8%
31 - 100	273	28,0%
101 - 500	221	22,6%
> 500	220	22,5%

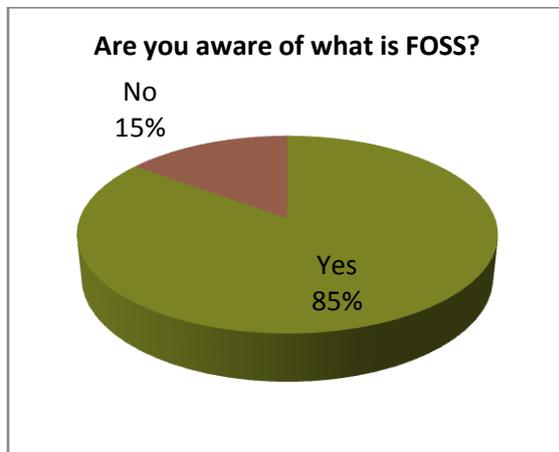
Figure 6. Responses by organisation size (number of employees)



2. KEY FINDINGS

2.1. FOSS awareness and experience

The great majority of survey participants (85,1%) are aware of FOSS. As expected, IT managers and IT staff are the two groups with the highest rate of FOSS awareness (95%-97%). Administrative staff are less familiar with FOSS (67-69%).



Sweden and Ireland achieve the highest rate in FOSS awareness (100%) followed by the UK, Spain, Slovenia, Portugal, Latvia, Italy, Greece, Germany, Czech Republic, Bulgaria, and Belgium with percentages ranging from 75% - 95%.

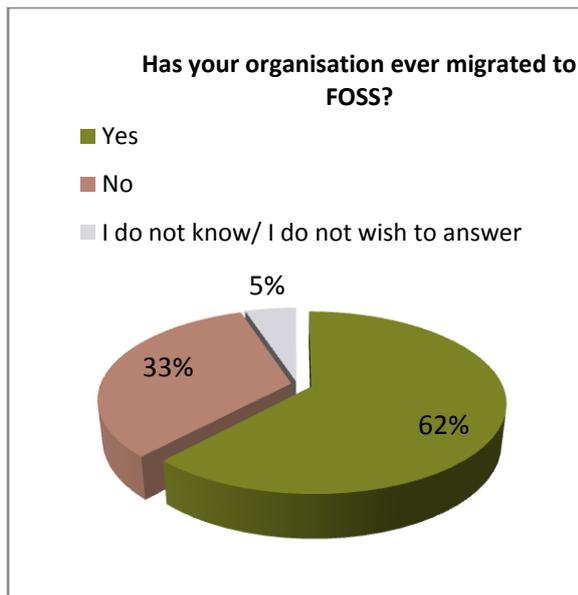
Lower rates are reported for Poland and Cyprus (57.1% and 54.5% respectively).

Central government bodies seem to have a more positive experience with FOSS (positive results up to 53%) than local or regional authorities (35% - 38% positive results).

Larger organisations are also more likely to have extended experience with FOSS compared to small-size public administrations.

Respondents from public organisations with in-house IT support seem to have a slightly more positive experience with open source (41% of total reporting positive results). On the other hand, organisations lacking a dedicated IT security manager tend to have a less positive experience with FOSS (35%) and a slightly higher rate of no FOSS experience at all (22%).

The majority of the OSEPA survey respondents (62%) stated that their organisation has some FOSS migration experience while a 33% reported no migration to FOSS in their organisation.



Organisations employing a dedicated IT security manager have a significantly higher rate (68.5%) in FOSS migration experience compared to administrations with no dedicated, in-house IT support (52%).

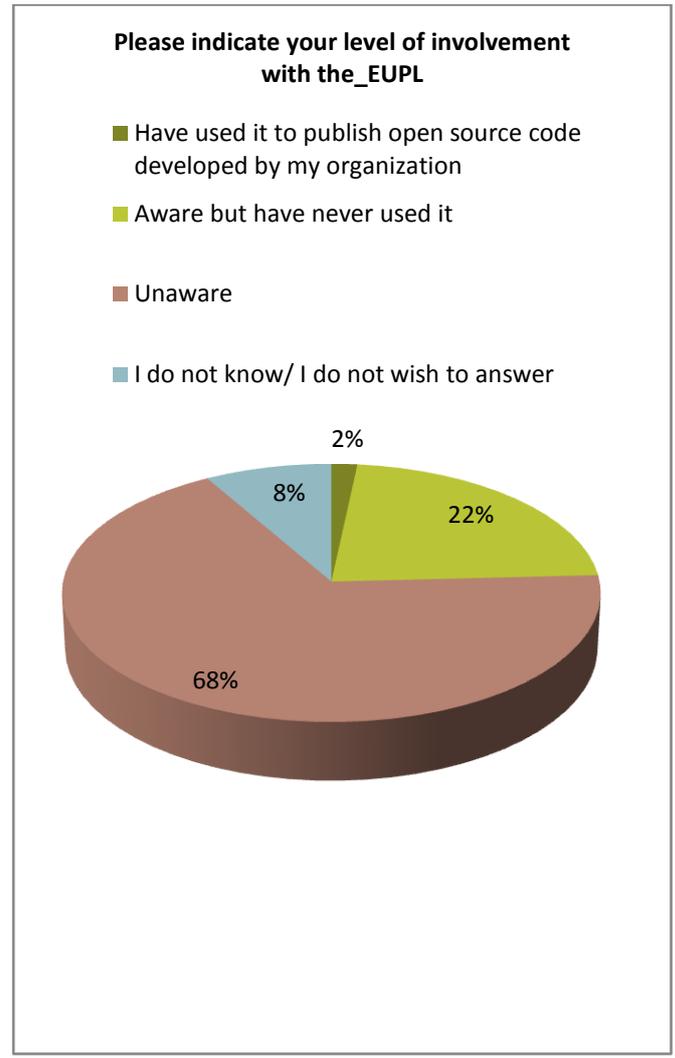
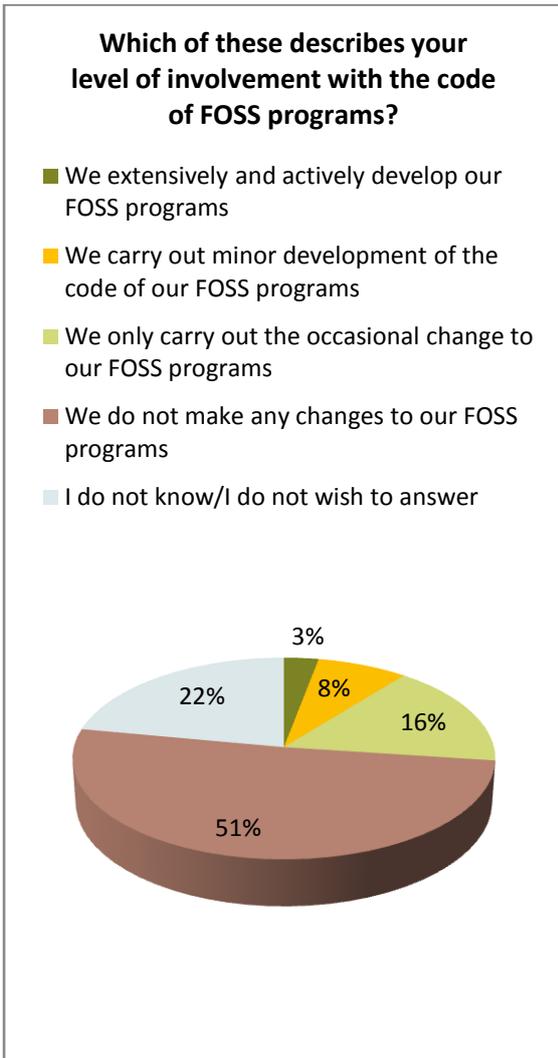
FOSS migration experience is closely linked to the technical or non-technical profile of respondents. The great majority of IT managers and IT staff (65% to 70%) had some experience with migration to

FOSS in their organisation. The rate is significantly lower for administrative staff and elected representatives (35% to 55%).

The majority of respondents state that their organisations either do not change FOSS programs at all (51%) or only carry out minor code development (8%). A 16.5% reports just occasional changes to FOSS applications while only a limited 3% has engaged in extensive code development and modification.

Central government departments and organisation and regions seem to be more experienced with source code modifications compared to local administrations (cities, towns, provinces) that tend not to change FOSS programs at all (52% - 57%).

Central or national agencies and associations, based on available resources, seem to be in a better position to carry out occasional or extensive FOSS development in contrast to local administrations that tend to use FOSS programs unmodified.



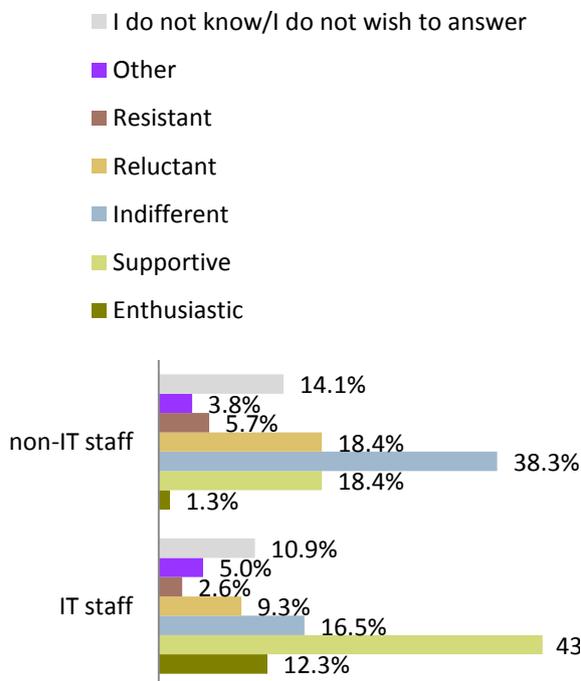
Most of respondents are either unaware (68%) or have never used (22%) the European Union Public Licence. Only a 2% have used EUPL to publish open source code developed by their organisation.

2.2. FOSS attitudes and policies

Survey results show that IT staff is considered to have a more active and supportive attitude towards FOSS, compared to administrative, non-IT staff that is largely regarded as either reluctant or indifferent (up to 57%) to FOSS usage. Non-IT staff also seems to be regarded as more resistant to FOSS usage (5,7%) compared to IT staff (2,6%).

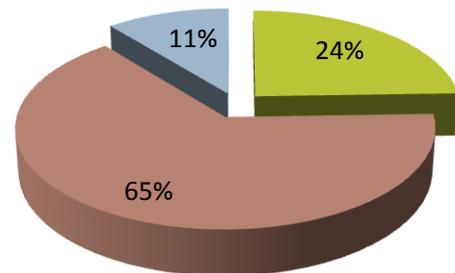
The highest rate of FOSS policy adoption is to be found among central government organisations, followed by regions or territorial associations and cities, municipalities and provinces.

Perceived FOSS attitude: IT and non-IT staff



Is there any strategy/policy/official position adopted by your organisation regarding FOSS?

- Yes
- No
- I do not know/ I do not wish to answer



The majority of public administrations (65%) has not adopted any official, FOSS-specific policy or strategy.

2.3. FOSS benefits and barriers

The main perceived FOSS benefits are:

- lower procurement cost (86%) and strategic independence from vendors (83%)
- community sharing (83%), code access and customisation (79%)
- performance (53%), security (55%) and support of public infrastructures (59%)

IT staff seems to be more sceptical than administrative staff regarding FOSS strengths in terms of its ease of use, reliability and integration into existing infrastructures. IT staff focuses on access to code, software customisation and community support as being the major benefits of FOSS.⁵

All respondent groups highlight lower costs, customisation, community support and vendor independence as the main FOSS strengths. On the other hand, they

⁵ For detailed analysis and presentation of data see Section 3: "Data & results".

identify the lack of FOSS-skilled staff as a weakness.

The highest rated factor identified as a barrier to FOSS usage is the organisational inertia, followed by the lack of technical expertise, training, support and appropriate organisational culture. Compatibility and productivity issues along with a lack of a critical mass on the demand side are also identified as significant barriers to the use of open source software. Respondents seem to identify two major critical elements that hinder the use and uptake of FOSS in public administrations. These two elements could be summed up as: a) lack of familiarity and organisational culture b) lack of training and technical support (both in-house and external).

2.4. FOSS applications use and integration

Previous surveys (e.g. FLOSSPOLs) indicate that while there is a large number of unaware FOSS users, FOSS applications in public organisations remain limited to server-side development in IT departments.

The OSEPA survey confirms that although proprietary applications have the largest usage share in both servers in clients, FOSS applications maintain a fair amount

of use (more than 10%) in servers, even not in exclusive mode.

When it comes to FOSS/proprietary software distribution by software type it is clear that FOSS usage is higher in web servers (reaching almost 50%), content management (up to 45%), social software (25%) and intranet (32%) tools and applications. It is also in server operating systems (25%), testing environments (27%), databases (20%) and bug reporting (18.5%) tools. Exclusive use of FOSS is reported in content management tools (31%), intranet applications (23.5%) and web servers (19.7%).

It is clear that widely supported, well-known and commonly used open source application packages such as

OpenOffice/LibreOffice, Thunderbird, Mozilla Firefox, Gimp, VLC media player are more frequently used as default applications by public administration staff. In addition, IT staff in public administrations also uses certain, advanced FOSS tools as default applications for database management and system/server administration such as Apache, MySQL, phpmyAdmin.

3. DATA & RESULTS

3.1. FOSS awareness in public administrations

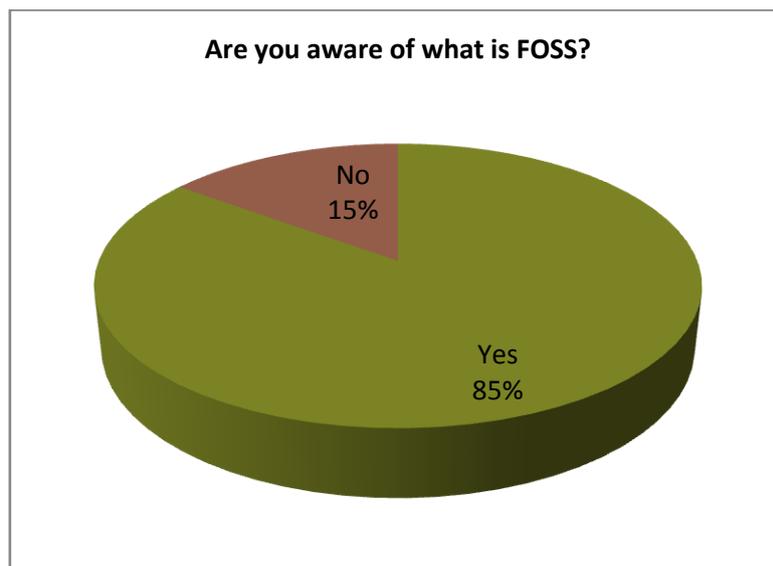
FOSS awareness

The great majority of survey participants (85,1%) responded positively on whether they are aware of FOSS. There is still, however, a 14,9% that stated they are not aware of what Free and Open Source Software is.

Table 7. FOSS awareness

FOSS awareness	No of responses	%
Yes	828	85,1%
No	145	14,9%

Figure 7. Percentage of FOSS awareness



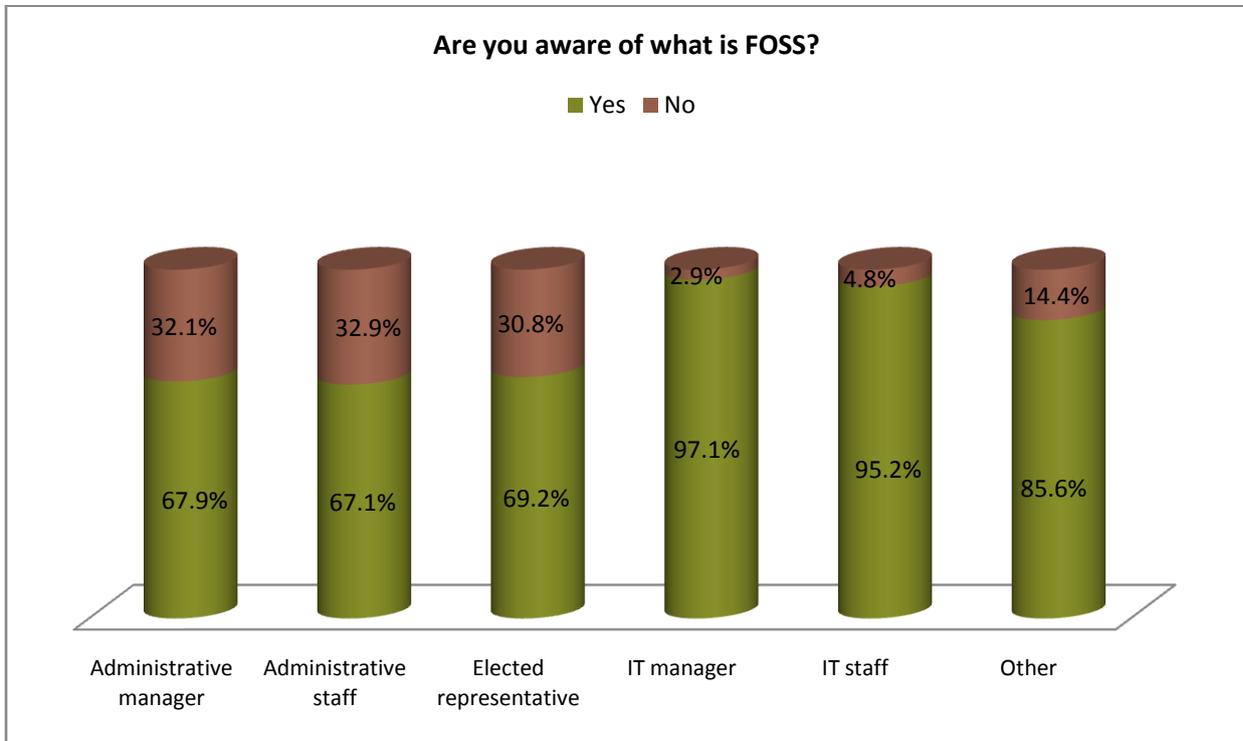
FOSS awareness by respondent profile

Figure 8 below depicts FOSS awareness based on the role and profile of respondents in their public organisation. As expected, considering their technical role and responsibilities, IT managers and IT staff are the two groups with the highest score on FOSS awareness (97.1% and 95.2% respectively). On the contrary, individuals holding a non-technical profile in their organisation are less familiar with FOSS. More specifically, 31% of the elected representatives, 32% of the administrative managers and 33% of the administrative staff are not aware of FOSS.

Table 8 . FOSS awareness by respondent profile(role in organisation)

Role in organisation / FOSS awareness	Yes	%	No	%
<i>Administrative manager</i>	53	67.9%	25	32.1%
<i>Administrative staff</i>	112	67.1%	55	32.9%
<i>Elected representative</i>	27	69.2%	12	30.8%
<i>IT manager</i>	202	97.1%	6	2.9%
<i>IT staff</i>	257	95.2%	13	4.8%
<i>Other</i>	160	85.6%	27	14.4%

Figure 8 . FOSS awareness by respondent profile(role in organisation)



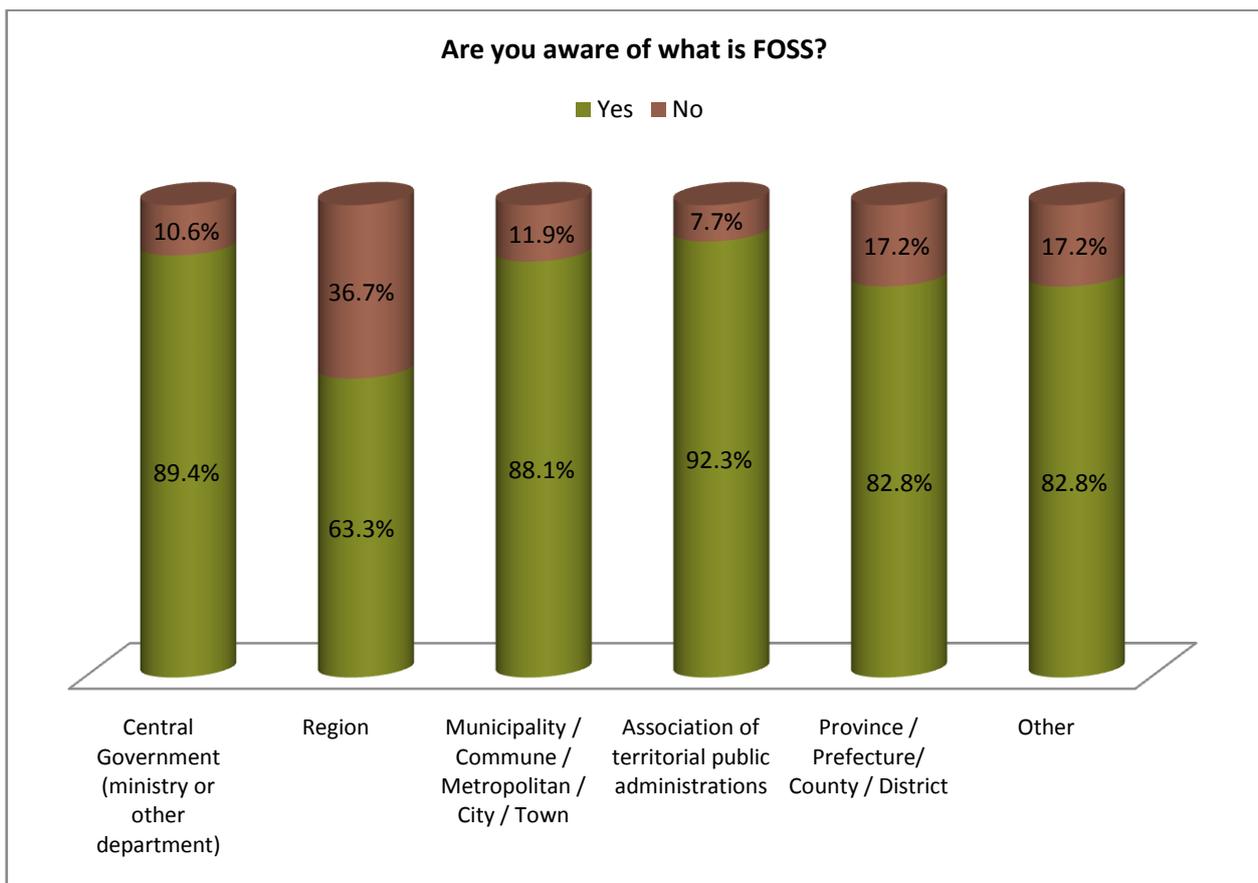
FOSS awareness and organisation type

Respondents working in regional administrations score a slightly lower rate on FOSS awareness. However, no major differences on FOSS awareness occur, depending on the type/profile of public administrations. Most public administration staff and representatives (percentages ranging from 83% to 92%) are familiar with FOSS. It is clear that FOSS awareness of public administration staff does not seem to be linked to the type or profile of public organisations.

Table 9. FOSS awareness and organisation type

Organization type / FOSS awareness	Yes	No
<i>Central Government (ministry or other department)</i>	89,4%	10,6%
<i>Region</i>	63,3%	36,7%
<i>Municipality / Commune / Metropolitan / City / Town</i>	88,1%	11,9%
<i>Association of territorial public administrations</i>	92,3%	7,7%
<i>Province / Prefecture/ County / District</i>	82,8%	17,2%
<i>Other</i>	82,8%	17,2%

Figure 9. FOSS awareness and organisation type



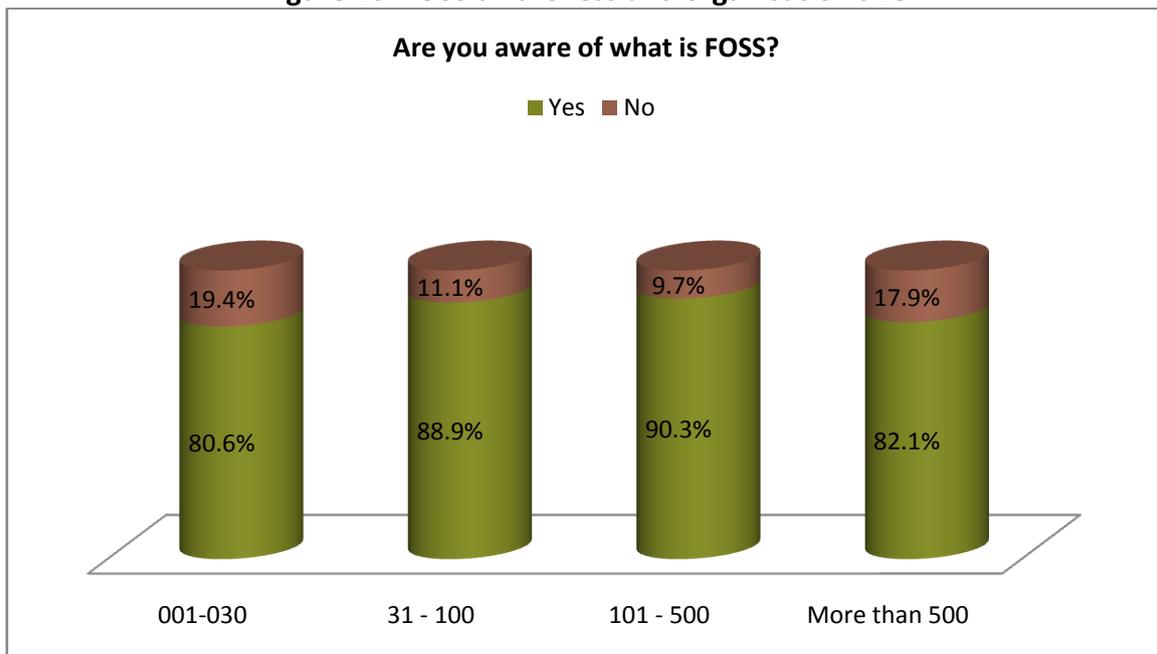
FOSS awareness and organisation size

Table 10. FOSS awareness and organisation size

Number of employees / FOSS awareness	Yes	No
001-030	80,6%	19,4%
31 - 100	88,9%	11,1%
101 - 500	90,3%	9,7%
More than 500	82,1%	17,9%

Employees in mid-size public organisations seem to be slightly more familiar with FOSS (89%-90%) compared to small-size and large-size organisations (80% to 82%). Similarly to organisation type, however, organisation size does not seem to be a significant differentiating factor in FOSS awareness with the great majority of respondents (more than 80% in all cases) stating that they are familiar with FOSS.

Figure 10. FOSS awareness and organisation size



FOSS awareness by country

In the Figure 11 below, results per country are presented on FOSS awareness of the respondents. It is apparent that the countries whose public servants are more aware on FOSS are in Sweden and in Ireland where all respondents state that they are aware of FOSS. The majority of the respondents in the UK, Spain, Slovenia, Portugal, Latvia, Italy, Greece, Germany, Czech Republic, Bulgaria, and in Belgium are aware of FOSS with percentages ranging from 75% - 95%. On the contrary, respondents from Poland and Cyprus seem to be less FOSS aware (57.1% and 54.5% respectively).

Table 11. Foss awareness by country⁶

Country / FOSS awareness	Yes	%	No	%
Belgium	36	85.7%	6	14.3%
Bulgaria	13	86.7%	2	13.3%
Cyprus	6	54.5%	5	45.5%
Czech Republic	32	94.1%	2	5.9%
Germany	38	95.0%	2	5.0%
Greece	34	89.5%	4	10.5%
Ireland	16	100.0%	0	0.0%
Italy	434	90.8%	44	9.2%
Latvia	16	80.0%	4	20.0%
Poland	64	57.1%	48	42.9%
Portugal	6	85.7%	1	14.3%
Romania	23	69.7%	10	30.3%
Slovenia	8	88.9%	1	11.1%
Spain	43	89.6%	5	10.4%
Sweden	27	100.0%	0	0.0%
UK	30	75.0%	10	25.0%

⁶Due to a very limited sample of responses, data for Austria, Hungary and Netherlands is not included in this list.

Figure 11. FOSS awareness by country



3.2. Experience with FOSS in public administrations

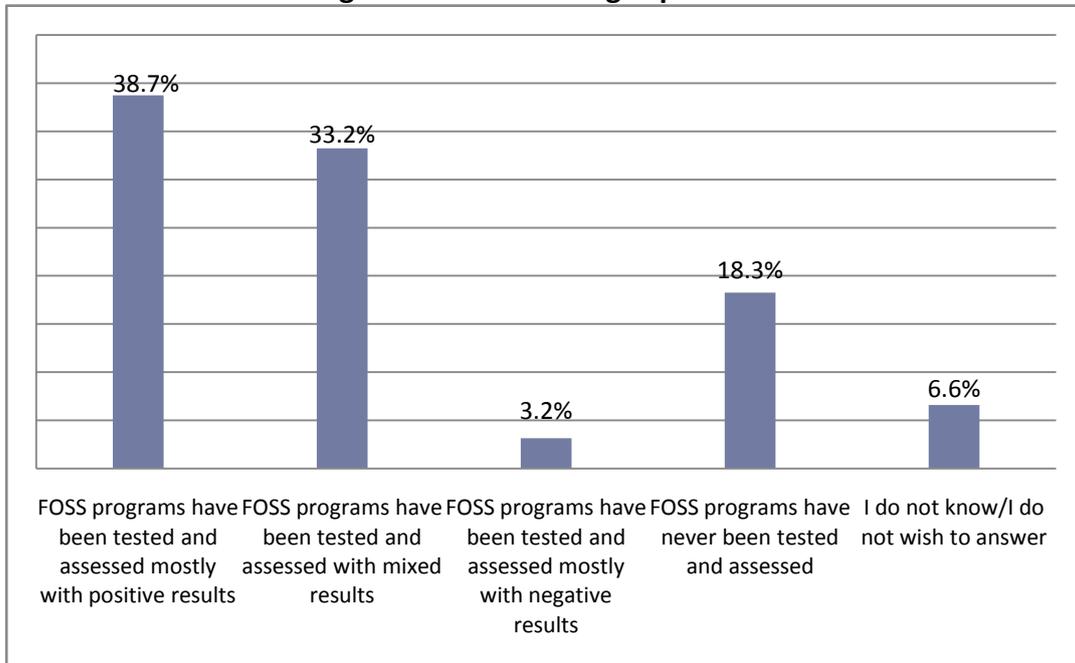
3.2.1. FOSS testing experience

A 38,7% of the respondents who had some experience with FOSS in their organisation, asserted positive results from testing open source systems and applications. Negative results from the testing of FOSS programs were only reported by a slight 3,2% of the respondents. A matter for discussion is that FOSS programs have been tested & assessed with mixed results for a 33,2% of the respondents. Further analysis could reveal interesting information on the factors that can affect a positive experience with FOSS. In addition, not negligible is that 18,3% of the respondents stated that FOSS programs have never been tested & assessed in their organisation.

Table 12. FOSS testing experience

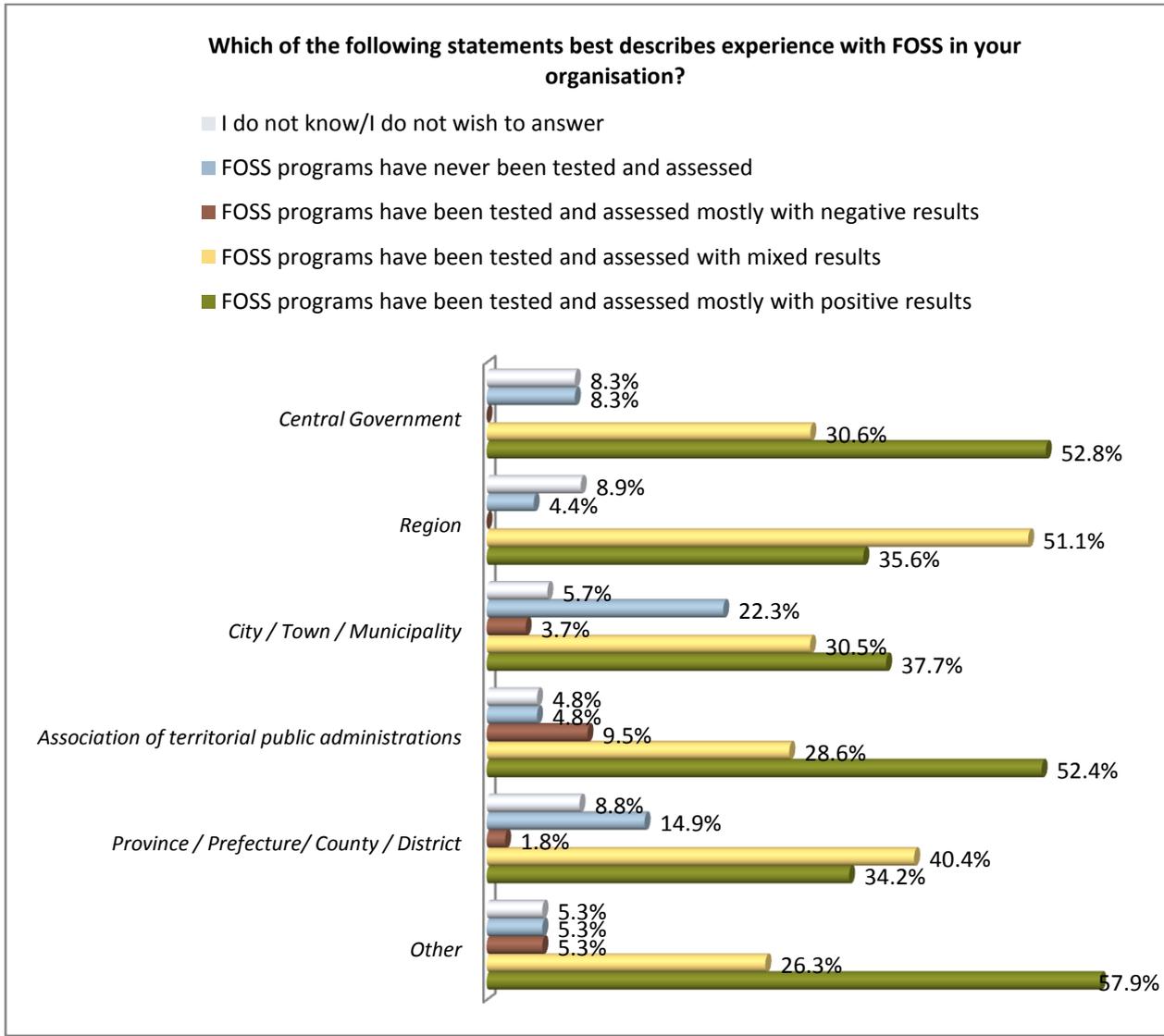
FOSS experience	Frequency	%
FOSS programs have been tested & assessed mostly with positive results	282	38,7%
FOSS programs have been tested & assessed with mixed results	242	33,2%
FOSS programs have been tested & assessed mostly with negative results	23	3,2%
FOSS programs have never been tested & assessed	133	18,3%
I do not know/I do not wish to answer	48	6,6%

Figure 12. FOSS testing experience



FOSS testing experience based on organisation type reveals some interesting aspects. It seems that in local public administration organisations such as cities, towns, or provinces, the percentage of those stating that FOSS programs have never been tested and assessed range from 15% - 22%, quite higher than regional administrations or central government bodies and organisations for which it varies from 4% - 8%. It also seems that central government bodies have a more positive experience with FOSS (with positive results up to 53%) than local or regional authorities (35% - 38% positive results).

Figure 13. FOSS experience by organisation type

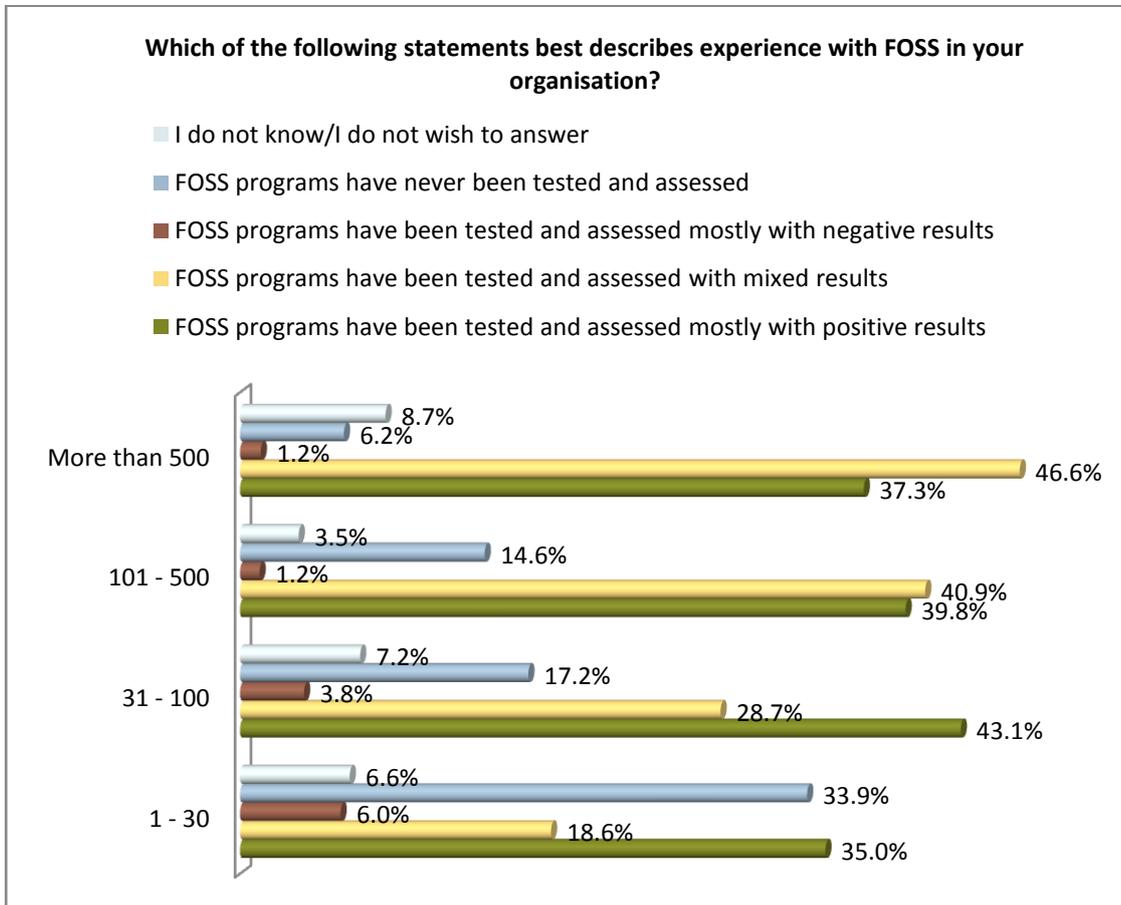


Based on the distribution of responses by organisation size, larger organisations are more likely to have extended experience with FOSS compared to small-size public administrations. While in small-size organisations the percentage of responses stating no experience with FOSS, the rate drops to 15% - 17% for mid-size organisations and to a limited 6% in organisations with more than 500 employees. This pattern shows that mid to large size organisations are more likely to have tested and assessed FOSS –whether with positive, negative or mixed results– while small scale organisations have significantly less experience with open source systems and applications. Rates indicating a negative experience with FOSS, however, are in all cases low, ranging from 1% to 6%.

Table 13. FOSS experience by organisation size (number of employees)

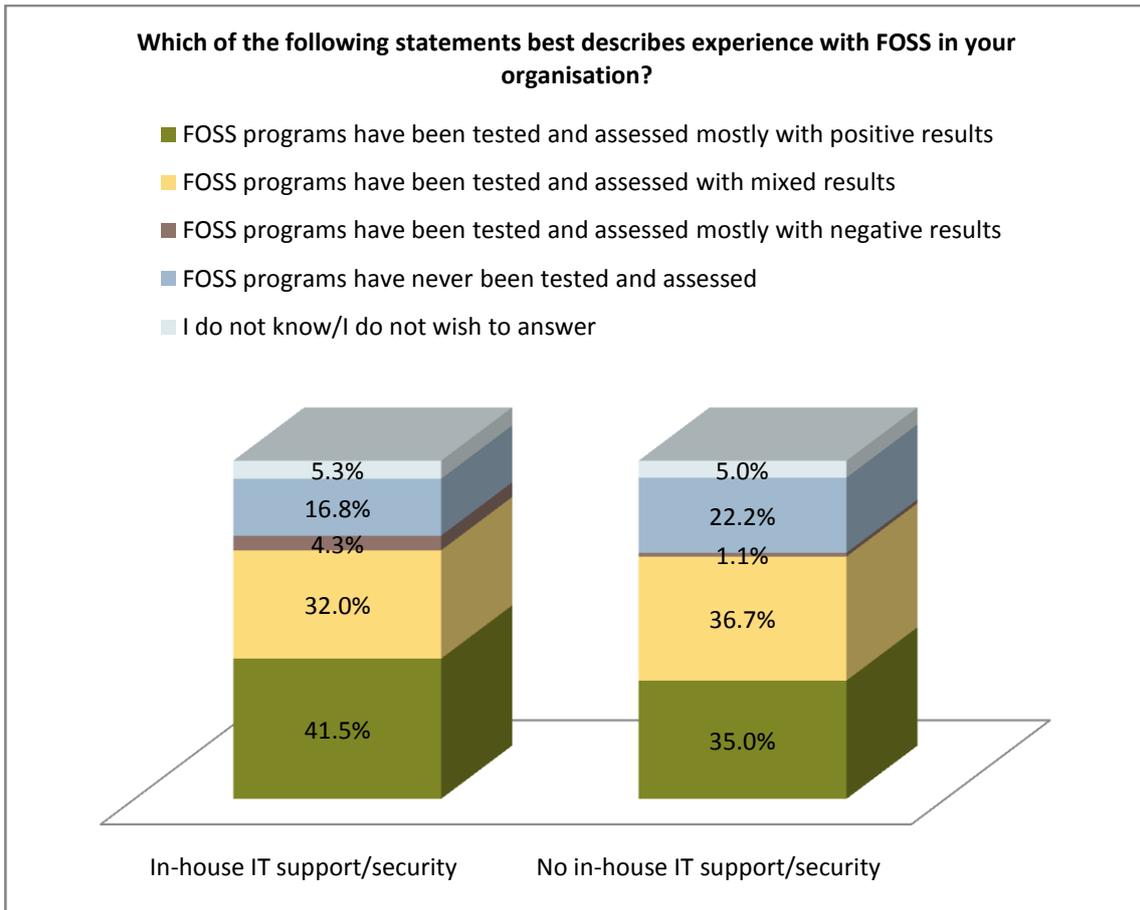
Number of employees/ FOSS experience	FOSS programs have been tested & assessed mostly with positive results		FOSS programs have been tested & assessed with mixed results		FOSS programs have been tested & assessed mostly with negative results		FOSS programs have never been tested & assessed		I do not know/I do not wish to answer	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
1 - 30	64	35,0%	34	18,6%	11	6,0%	62	33,9%	12	6,6%
31 - 100	90	43,1%	60	28,7%	8	3,8%	36	17,2%	15	7,2%
101 - 500	68	39,8%	70	40,9%	2	1,2%	25	14,6%	6	3,5%
More than 500	60	37,3%	75	46,6%	2	1,2%	10	6,2%	14	8,7%

Figure 14. FOSS experience by organisation size (number of employees)



An interesting comparison on the level of FOSS experience is that between public administrations that have in-house IT support and security and those that have no dedicated IT security manager. Respondents from public organisation with in-house IT support seem to have a slightly more positive experience with open source (positive results 41%). On the other hand, organisations lacking a dedicated security manager tend to have a less positive experience with FOSS (35%) and a slightly higher rate of no FOSS experience at all (22%).

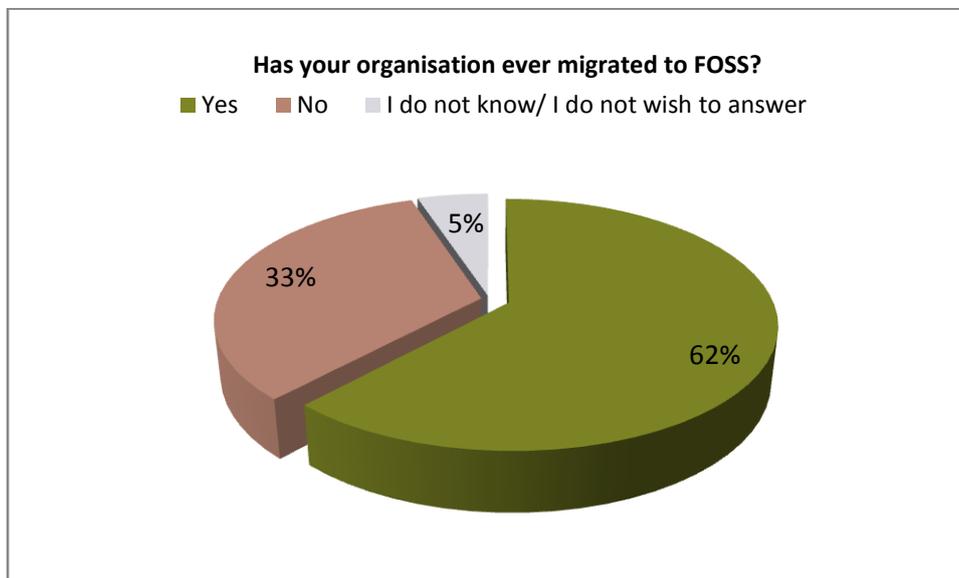
Figure 15. FOSS testing experience and in-house IT security support



3.2.2. FOSS migration experience

The majority of the OSEPA survey respondents (62%) stated that their organisation has some FOSS migration to experience while a 33% responded that no migration to open source systems or application has been implemented by their organisation.

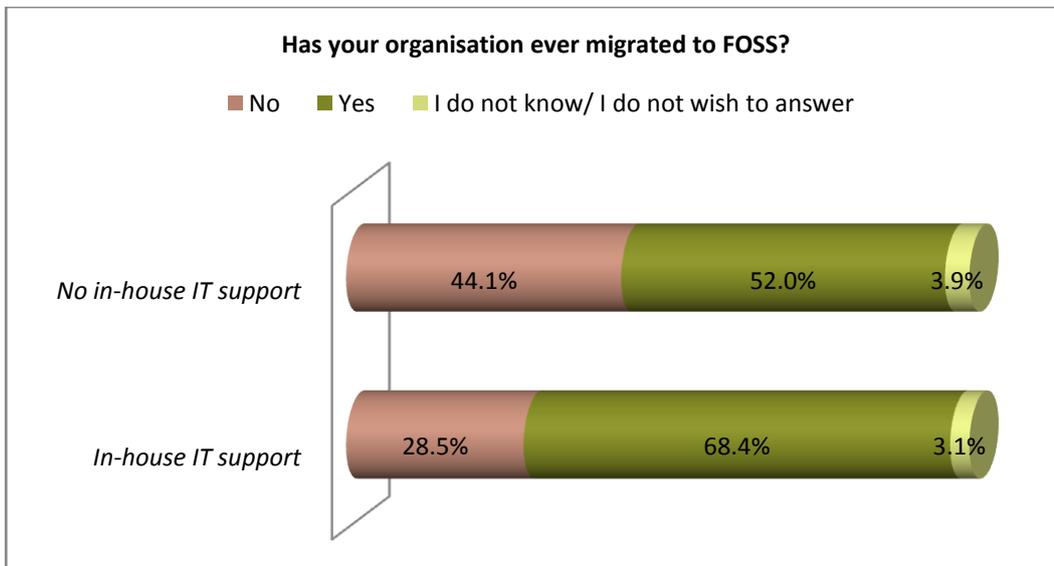
Figure 16. FOSS migration experience



No major differences occur regarding FOSS migration experience by organisation profile (type and size). There is a difference, however, when comparing migration experience in organisations with or without in-house IT support and security. Organisations employing a dedicated IT security manager have a significantly higher rate (68.5%) in FOSS migration experience compared to administrations with no dedicated, in-house IT support (52%).

FOSS migration experience and in-house IT support

Figure 17. FOSS migration experience and in-house IT security support

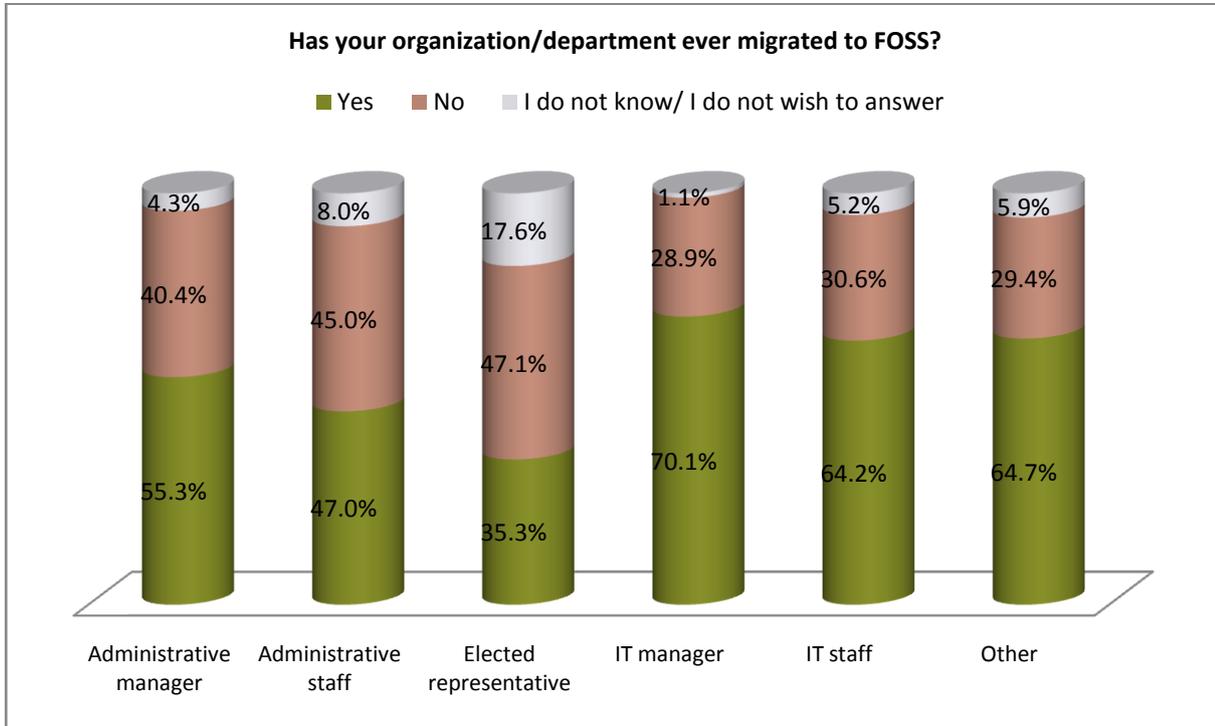


FOSS migration experience is closely linked to the technical or non-technical profile of respondents. The great majority of IT managers and IT staff (65% to 70%) state they have some experience with migration to open source software in their organisation, while the rate is significantly lower for administrative staff and elected representatives (35% to 55%).

Table 14. FOSS migration experience by respondent profile

Role in organisation / FOSS migration experience	Yes		No		I do not know/ I do not wish to answer	
Administrative manager	26	55,3%	19	40,4%	2	4,3%
Administrative staff	47	47,0%	45	45,0%	8	8,0%
Elected representative	6	35,3%	8	47,1%	3	17,6%
IT manager	131	70,1%	54	28,9%	2	1,1%
IT staff	147	64,2%	70	30,6%	12	5,2%
Other	88	64,7%	40	29,4%	8	5,9%

Figure 18. FOSS migration experience by respondent profile



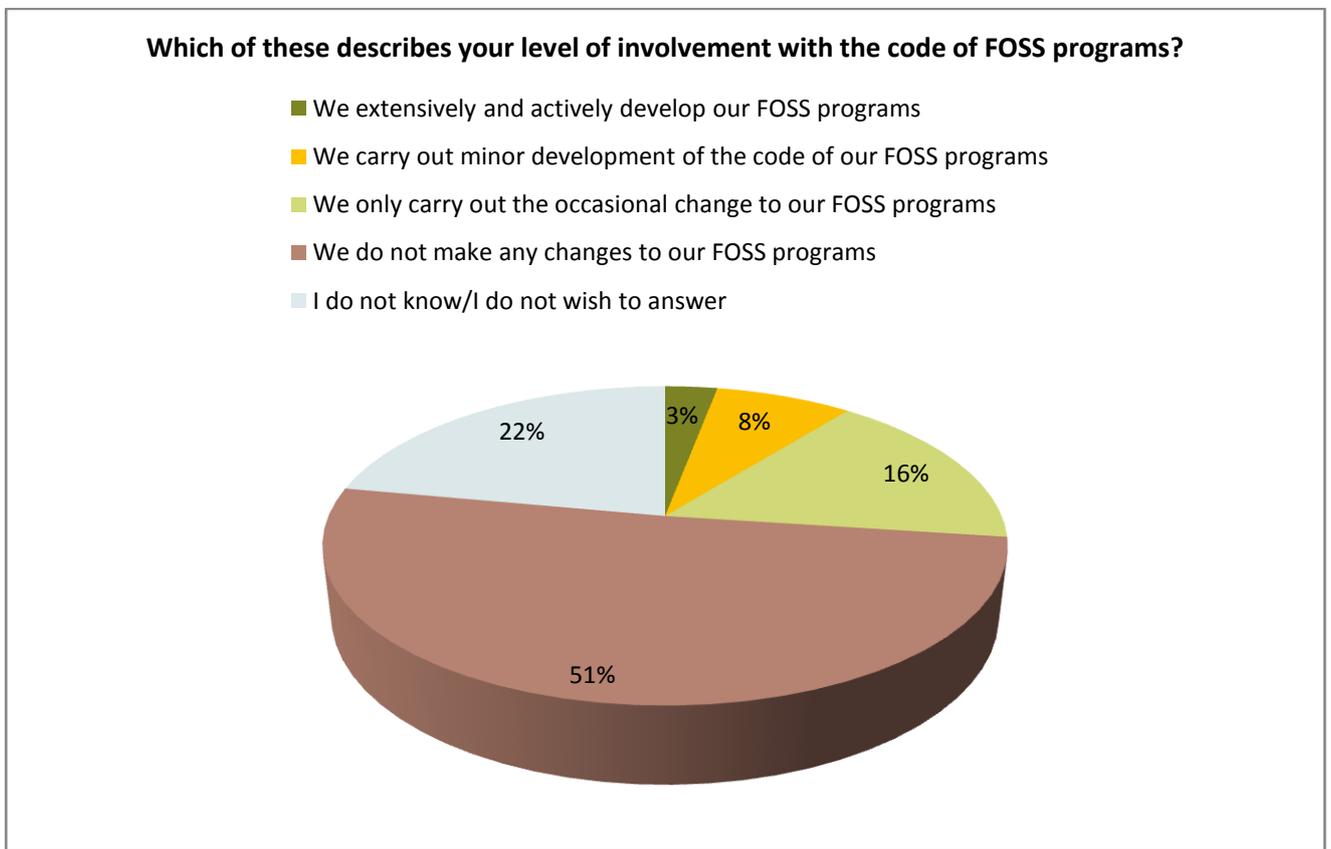
3.2.3. Experience with source code modification

As shown by survey results the majority of respondents state that their organisations either do not change FOSS programs at all (51%) or only carry out minor code development (8%). A 16.5% of respondents report just occasional changes to FOSS applications while only a limited 3% affirm that extensive development of FOSS programs at the source code level is carried out in their organisation.

Table 15. Source code modification experience

Source code modification experience	Responses	%
<i>We extensively and actively develop our FOSS programs</i>	21	2,9%
<i>We carry out minor development of the code of our FOSS programs</i>	55	7,7%
<i>We only carry out the occasional change to our FOSS programs</i>	117	16,4%
<i>We do not make any changes to our FOSS programs</i>	362	50,8%
<i>I do not know/I do not wish to answer</i>	157	22,1%

Figure 19. Source code modification experience



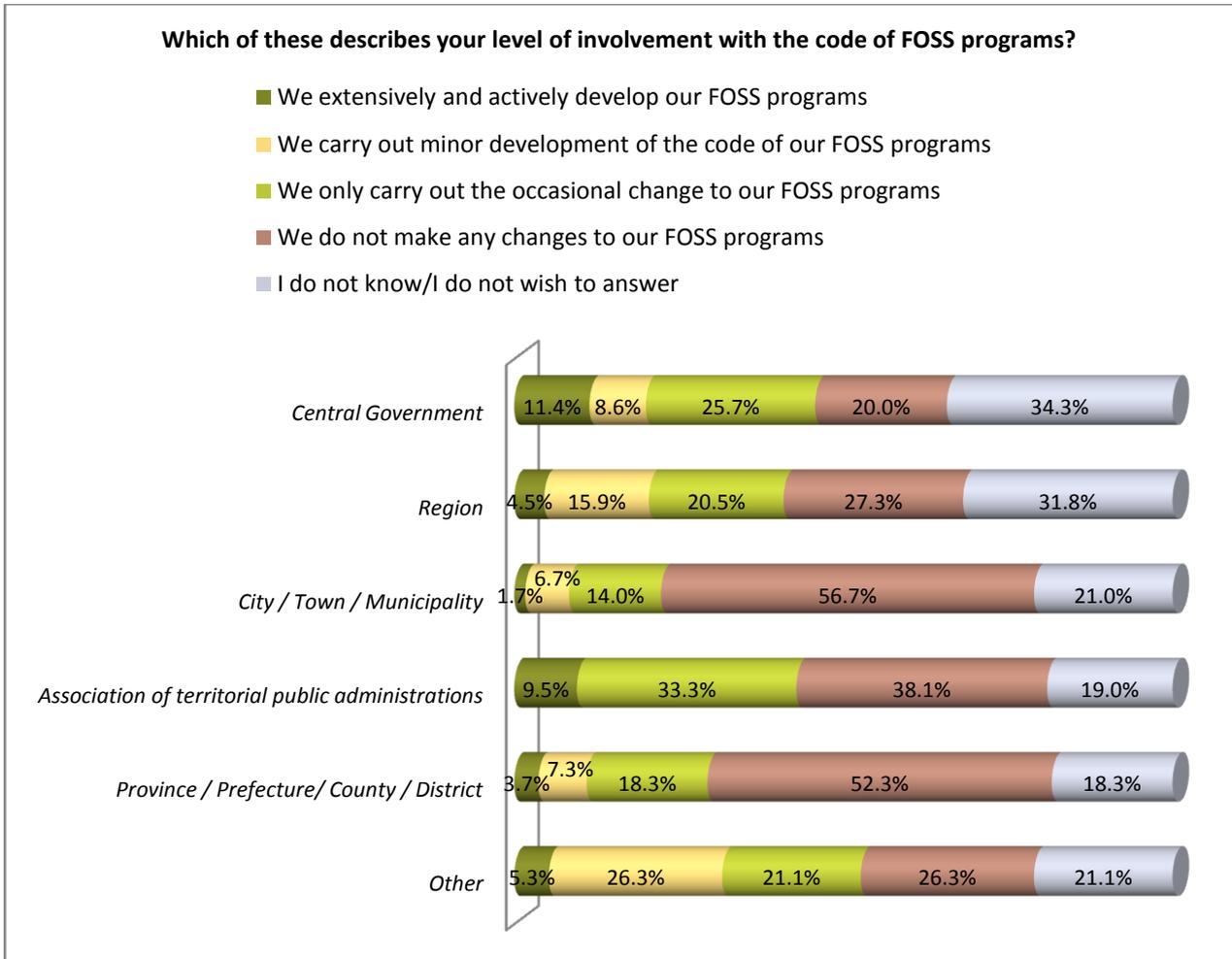
Central government departments and organisation and regions seem to be more experienced with source code modifications compared to local administrations (cities, towns, provinces) that tend

not to change FOSS programs at all (52% - 57%). Central government organisations and territorial associations also score highest rates in the experience level of extensive FOSS development. It is safe to assume that central or national agencies and associations, based on available resources, are in a better position to carry out occasional or extensive FOSS development in contrast to local administrations that tend to use FOSS programs unmodified.

Table 16. Source code modification experience and organisation type

Organization type / Source code modification experience	We extensively and actively develop our FOSS programs		We carry out minor development of the code of our FOSS programs		We only carry out the occasional change to our FOSS programs		We do not make any changes to our FOSS programs		I do not know/I do not wish to answer	
Central Government	4	11,4%	3	8,6%	9	25,7%	7	20,0%	12	34,3%
Region	2	4,5%	7	15,9%	9	20,5%	12	27,3%	14	31,8%
City / Town / Municipality	8	1,7%	32	6,7%	67	14,0%	272	56,7%	101	21,0%
Association of territorial public administrations	2	9,5%	0	0,0%	7	33,3%	8	38,1%	4	19,0%
Province / Prefecture/ County / District	4	3,7%	8	7,3%	20	18,3%	57	52,3%	20	18,3%
Other	1	5,3%	5	26,3%	4	21,1%	5	26,3%	4	21,1%

Figure 20. Source code modification experience by organisation type

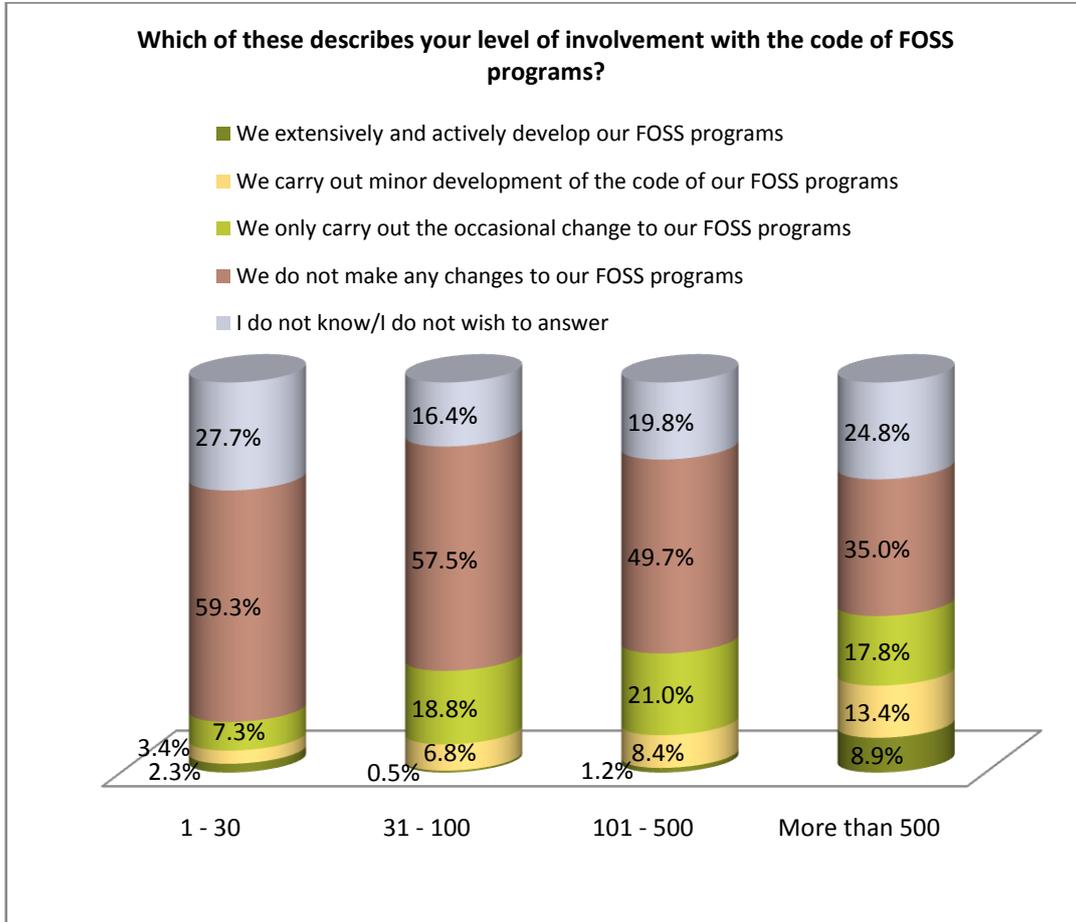


A similar observation applies in terms of organisation size. Experience with extensive source code modification is significantly higher in large size organisations with more than 500 employees (8.9%) dropping to less than 3% for mid-size to small-size organisations. More than 50% of small scale or mid-size organisations seem to have no experience with source code modification (50% - 60%).

Table 17. Source code modification experience by organisation size (number of employees)

Number of personnel / Source code modification experience	We extensively and actively develop our FOSS programs		We carry out minor development of the code of our FOSS programs		We only carry out the occasional change to our FOSS programs		We do not make any changes to our FOSS programs		I do not know/I do not wish to answer	
1 - 30	4	2,3%	6	3,4%	13	7,3%	105	59,3%	49	27,7%
31 - 100	1	0,5%	14	6,8%	39	18,8%	119	57,5%	34	16,4%
101 - 500	2	1,2%	14	8,4%	35	21,0%	83	49,7%	33	19,8%
More than 500	14	8,9%	21	13,4%	28	17,8%	55	35,0%	39	24,8%

Figure 21. Source code modification experience by organisation size (number of employees)

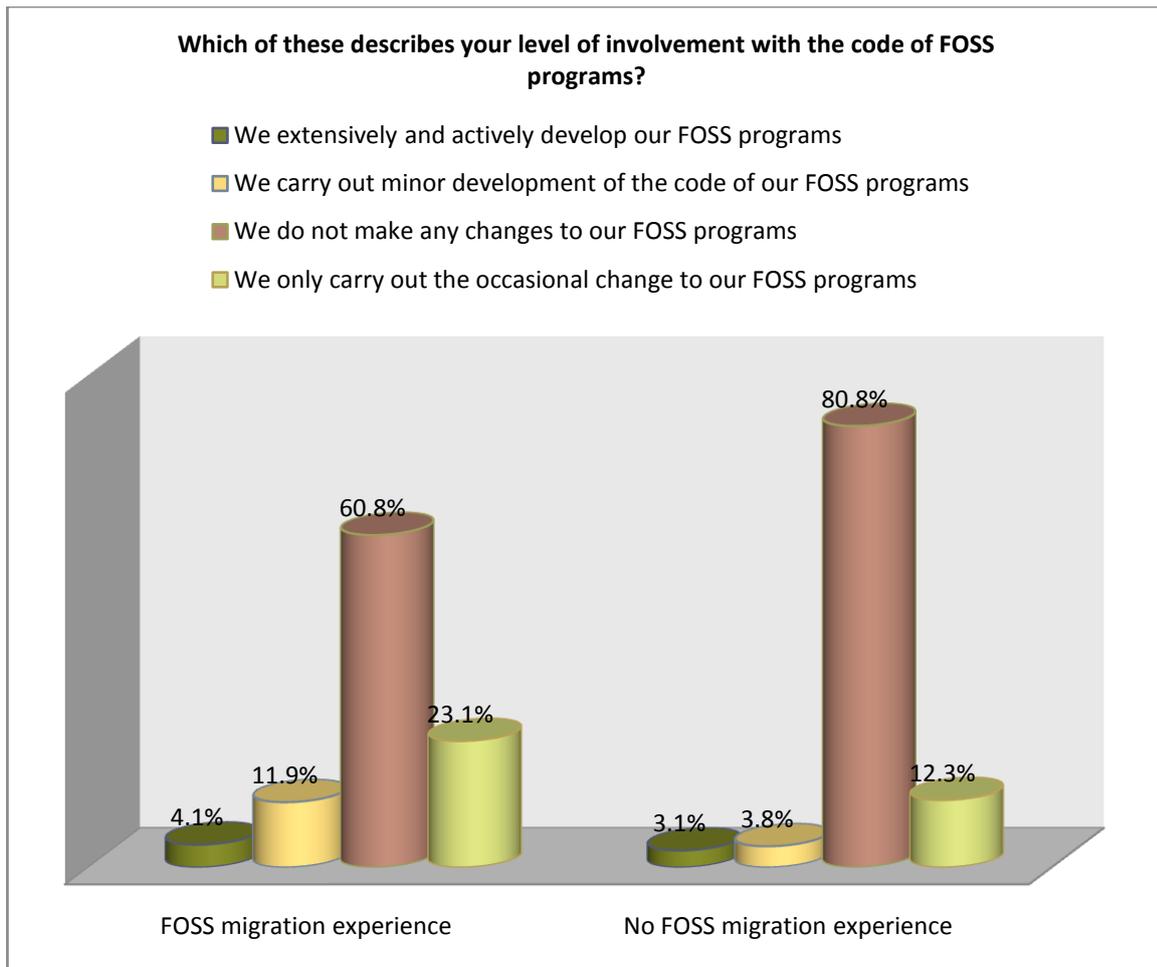


Experience with source code modification also seems to relate with any previous migration to FOSS. The level of no code modification is higher among organisations with no previous migration experience (80.8%) compared to organisations in which migration to FOSS has been carried out (60.8%). Minor or occasional changes to source code are also more frequent among administrations with previous FOSS migration experience.

Table 18. Source code modification experience and FOSS migration experience

	We extensively and actively develop our FOSS programs		We carry out minor development of the code of our FOSS programs		We do not make any changes to our FOSS programs		We only carry out the occasional change to our FOSS programs	
FOSS migration experience	17	4,1%	49	11,9%	250	60,8%	95	23,1%
No FOSS migration experience	4	3,1%	5	3,8%	105	80,8%	16	12,3%

Figure 22. Source code modification experience and FOSS migration experience



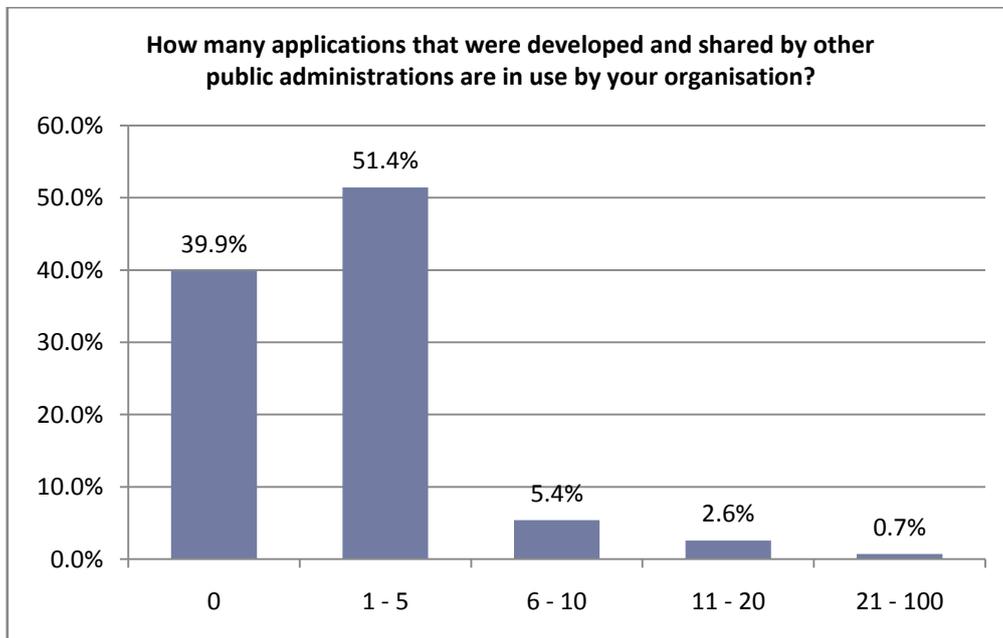
3.2.4. Software re-use level

More than 50% of survey respondents reported that their organisation is using 5-10 software applications that were developed by other public organisations. An almost 40%, however, stated that no software developed by other administrations is in use in their own organisation.

Table 19. Software re-use level (use of applications developed by other organisations)

Number of applications	No of responses	%
0	170	39,9%
1 - 5	219	51,4%
6 - 10	23	5,4%
11 - 20	11	2,6%
21 - 100	3	0,7%

Figure 23. Software re-use level (use of applications developed by other organisations)



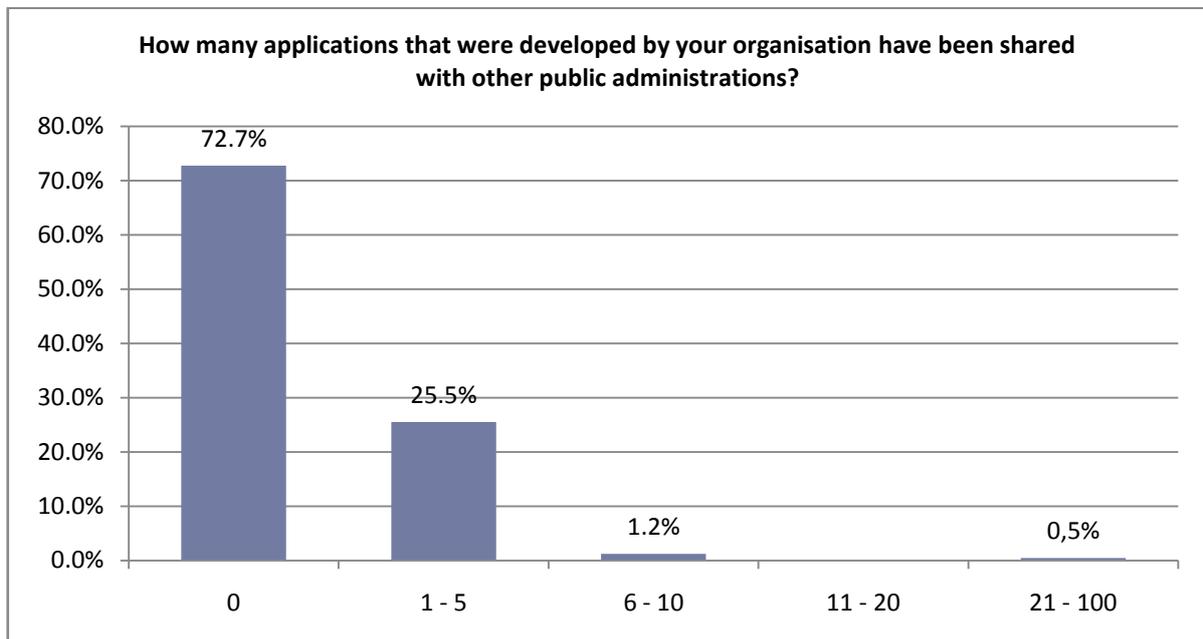
When it comes to software applications developed by their own administrations and shared by other organisations respondents provide a different view. Only a roughly 27% stated that 1-5

(25.5%) or 6-10 (1.2%) software applications developed by their organisations have been shared with other public administrations. The great majority (72.7%) reported that no software applications have been developed by their organisations and shared with other institutions.

Table 20. Software re-use level (applications developed by own organisation)

Number of applications	No of responses	%
0	299	72,7%
1 - 5	105	25,5%
6 - 10	5	1,2%
11 - 20	0	0,0%
21 - 100	2	0,5%

Figure 24. Software re-use level (applications developed by own organisation)



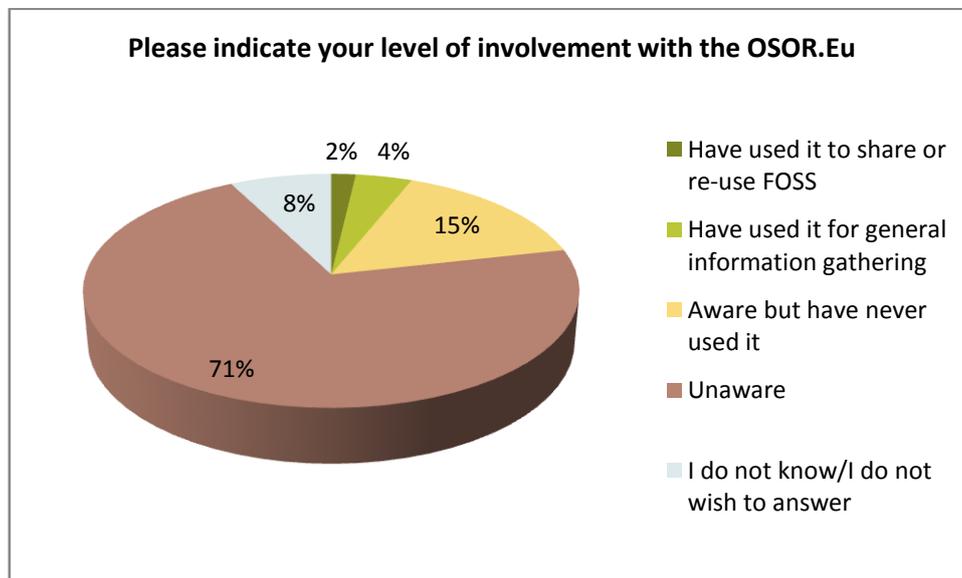
3.2.5. Use of OSOR.eu

Most of the survey respondents (71%) are not aware of the osor.eu network for open source software sharing among public administrations. From those that are aware of osor.eu⁷, 15% have never used it and 4% have used it to gather general information. Only a roughly 2% have used it to share or re-use open source software applications.

Table 21. Use of OSOR.eu

Use of OSOR.eu	No of responses	%
<i>Have used it to share or re-use FOSS</i>	13	1,8%
<i>Have used it for general information gathering</i>	30	4,2%
<i>Aware but have never used it</i>	110	15,4%
<i>Unaware</i>	505	70,9%
<i>I do not know/I do not wish to answer</i>	54	7,6%

Figure 25. Use of OSOR.eu



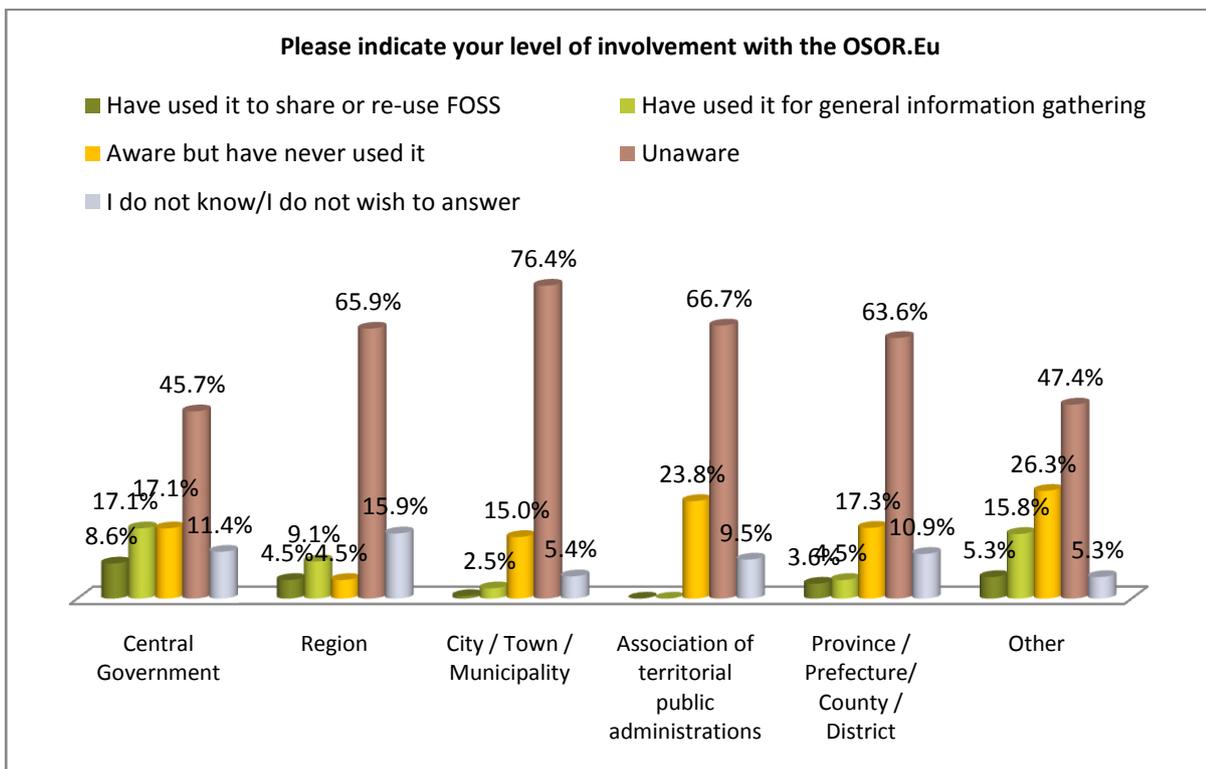
⁷ OSOR has now migrated to “Joinup”: <https://joinup.ec.europa.eu/page/osor.eu>

The use of OSOR.eu seems to be slightly higher among regions and central government departments and organisations, although non-awareness is still high across various organisational profiles.

Table 22. Use of OSOR.eu by organisation type

Organization type / Use of OSOR.eu by organisation type	Have used it to share or re-use FOSS		Have used it for general information gathering		Aware but have never used it		Unaware	I do not know/I do not wish to answer		
Central Government	3	8,6%	6	17,1%	6	17,1%	16	45,7%	4	11,4%
Region	2	4,5%	4	9,1%	2	4,5%	29	65,9%	7	15,9%
City / Town / Municipality	3	0,6%	12	2,5%	72	15,0%	366	76,4%	26	5,4%
Association of territorial public administrations	0	0,0%	0	0,0%	5	23,8%	14	66,7%	2	9,5%
Province / Prefecture/ County / District	4	3,6%	5	4,5%	19	17,3%	70	63,6%	12	10,9%
Other	1	5,3%	3	15,8%	5	26,3%	9	47,4%	1	5,3%

Figure 26. Use of OSOR.eu by organisation type



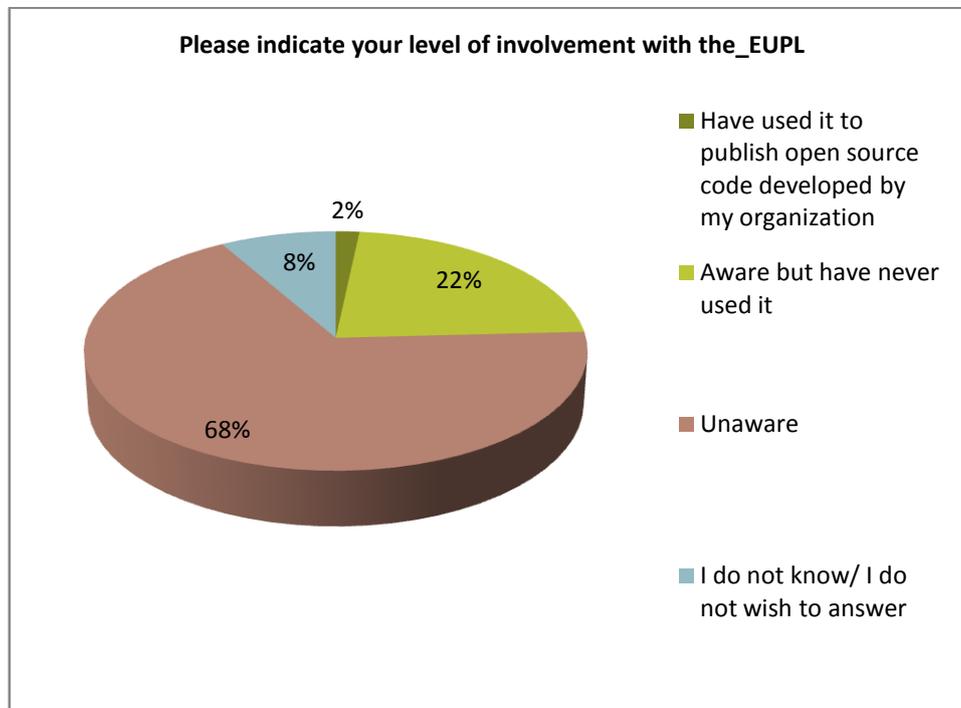
3.2.6. Use of EUPL

Most of survey respondents (68%) are not aware of the European Union Public License. A 22% is aware of it but have never used it and only 2% of respondents stated that they have used EUPL to publish open source code developed by their organisation.

Table 23. Use of EUPL

Use of EUPL	No of responses	%
<i>Have used it to publish open source code developed by my organization</i>	12	1,7%
<i>Aware but have never used it</i>	160	22,5%
<i>Unaware</i>	480	67,5%
<i>I do not know/ I do not wish to answer</i>	59	8,3%

Figure 27. Use of EUPL

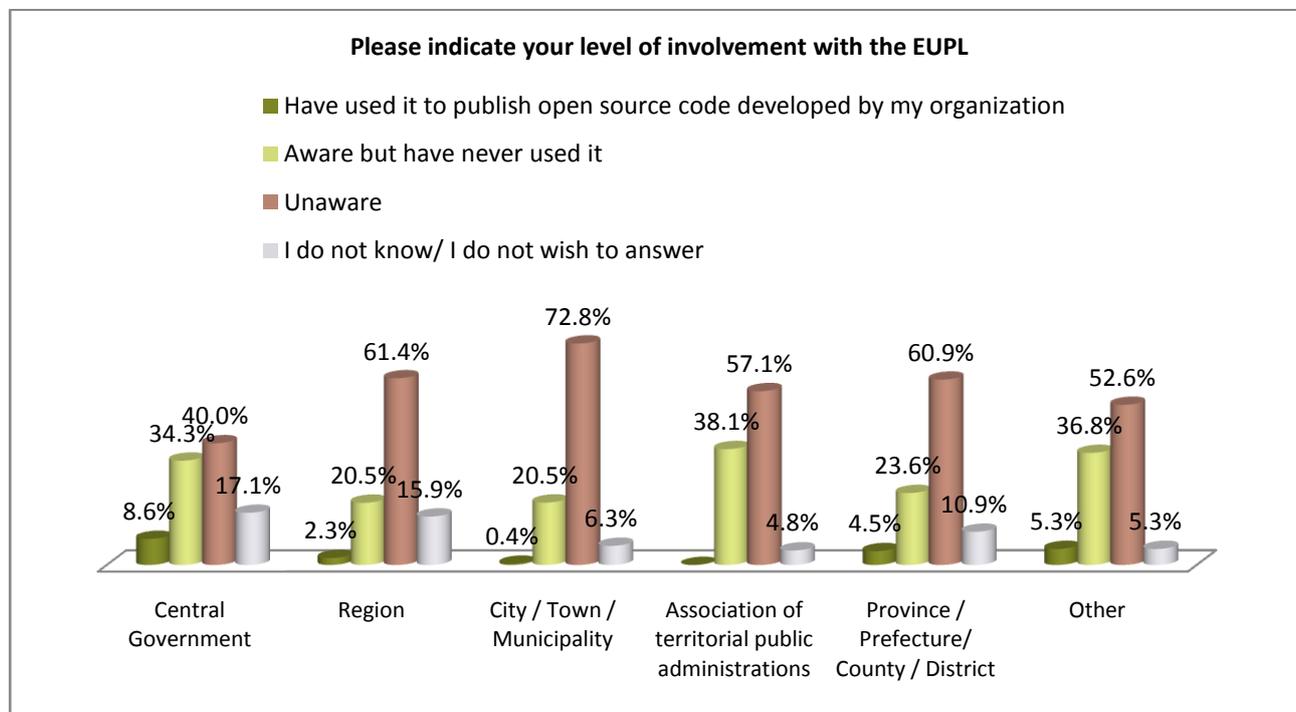


EUPL use and awareness is higher among central government departments and organisations, particularly compared to local administrations (cities, towns and municipalities, counties and provinces).

Table 24. Use of EUPL by organisation type

Organization type / Use of EUPL	Have used it to publish open source code developed by my organization		Aware but have never used it		Unaware		I do not know/ I do not wish to answer	
Central Government	3	8,6%	12	34,3%	14	40,0%	6	17,1%
Region	1	2,3%	9	20,5%	27	61,4%	7	15,9%
City / Town / Municipality	2	0,4%	98	20,5%	348	72,8%	30	6,3%
Association of territorial public administrations	0	0,0%	8	38,1%	12	57,1%	1	4,8%
Province / Prefecture/ County / District	5	4,5%	26	23,6%	67	60,9%	12	10,9%
Other	1	5,3%	7	36,8%	10	52,6%	1	5,3%

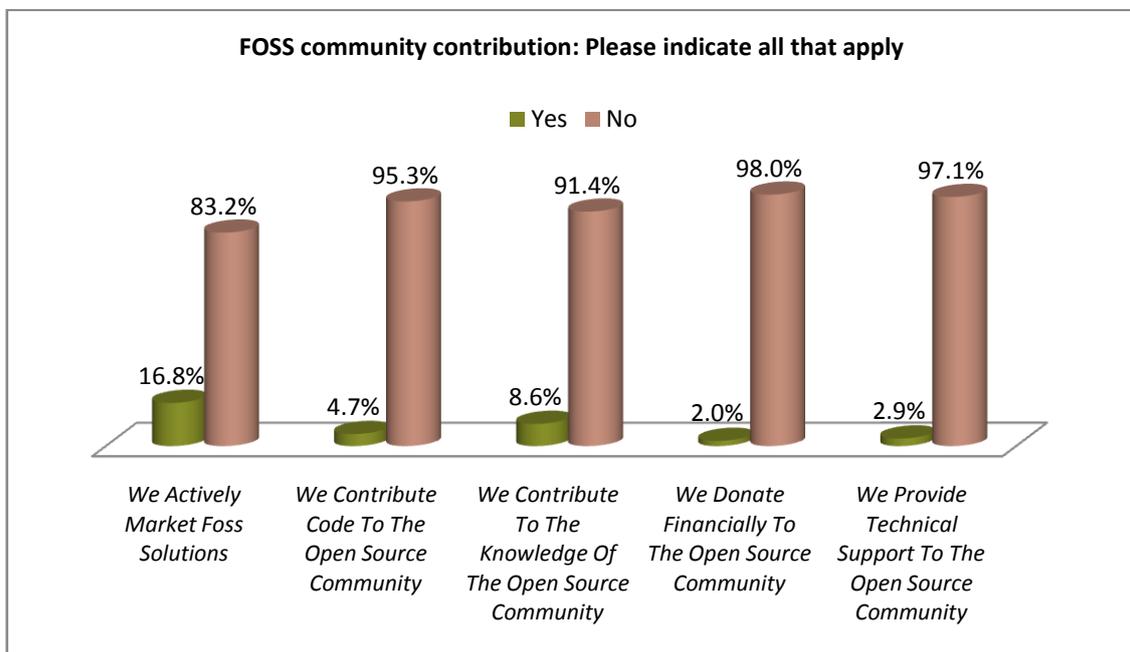
Figure 28. Use of EUPL by organisation type



3.2.7. FOSS community contribution

When asked about their organisation’s contribution to the open source community, most survey participants (percentages ranging from 83% to 97%) reported no direct involvement with or contribution to the open source community. Those, however, who responded positively, stated that their organisations mostly contribute in terms of marketing FOSS solutions (16.8%), knowledge (8.6%) and code development/sharing (4.7%). Financial donations and technical support are less frequent ways of contributing.

Figure 29. FOSS community contribution.



3.3. Attitude towards FOSS in public administrations

Two questions (Q26& Q27) of the online questionnaire aimed to reflect the general attitude of both the IT and non-IT staff towards FOSS in European public administrations:

Q26: How would you describe the general attitude of the IT staff in your organisation towards FOSS usage?

Q27: How would you describe the general attitude of the non-IT staff in your organization towards FOSS usage?

Possible general attitudes towards FOSS weredefined in five categories: resistant, reluctant, indifferent, supportive, enthusiastic.

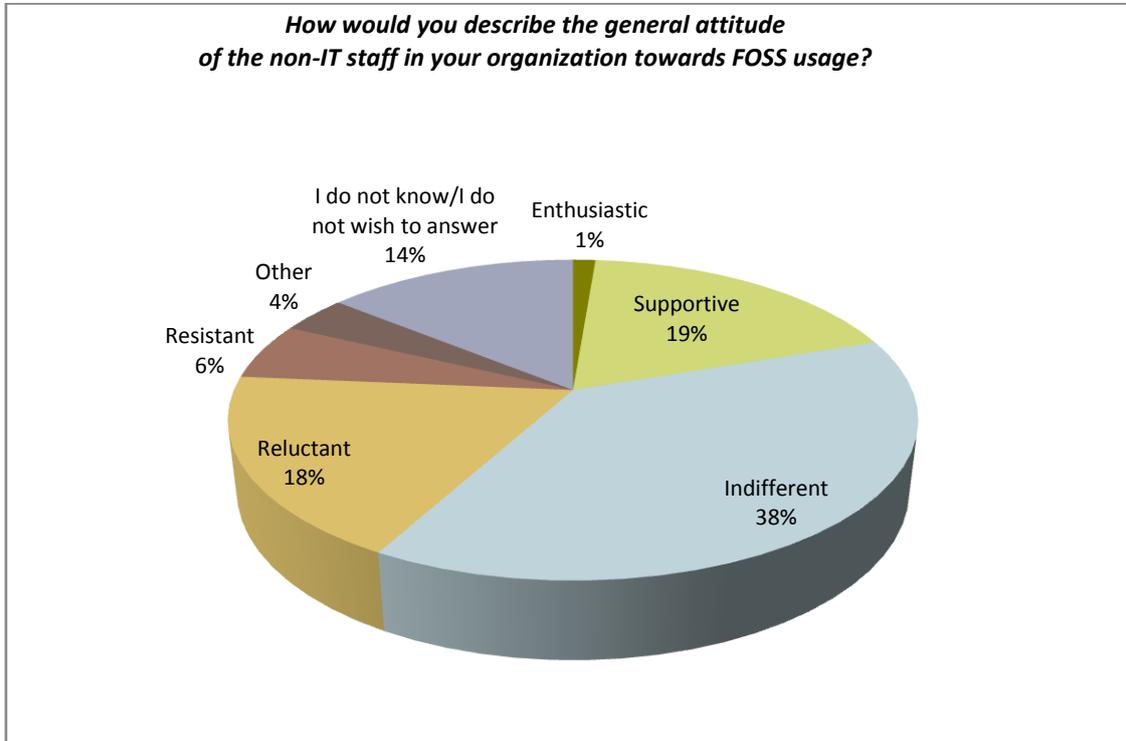
3.3.1. FOSS attitude: non-IT staff

Although only a 5.7% of the non-IT staff is described by respondents as resisting to FOSS usage, the majority of the non-IT staff in European public administrations, (more than 56,7%) is described as being either reluctant or indifferent to FOSS. Only an almost 20% of the non-IT staff is regarded by respondents to have a supportive or enthusiastic stance towards FOSS.

Table 25. General attitude towards FOSS: non-IT staff

<i>How would you describe the general attitude of the non-IT staff in your organization towards FOSS usage?</i>	No of responses	%
Enthusiastic	9	1,3%
Supportive	132	18,4%
Indifferent	274	38,3%
Reluctant	132	18,4%
Resistant	41	5,7%
Other	27	3,8%
I do not know/I do not wish to answer	101	14,1%

Figure 30. General attitude towards FOSS: non-IT staff



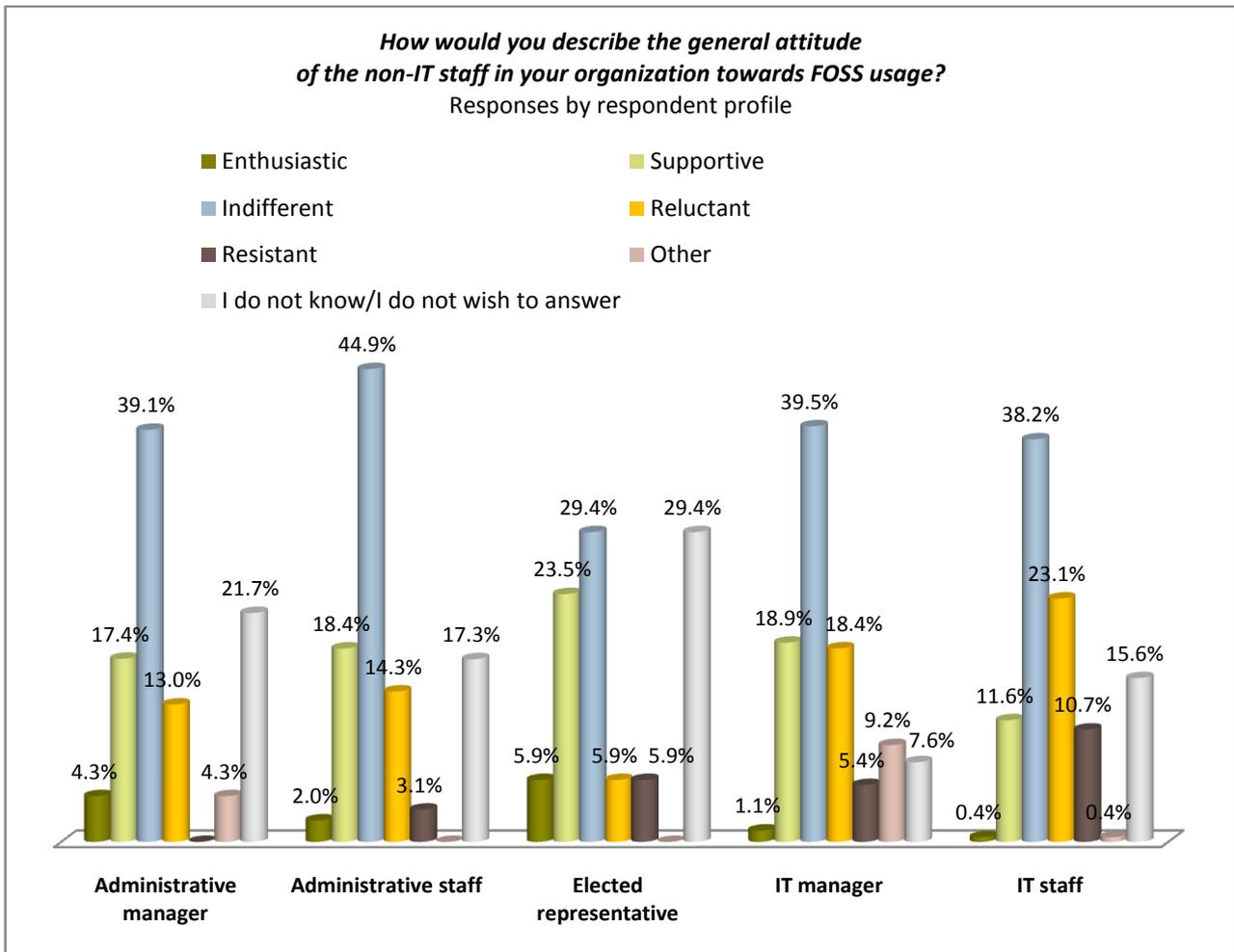
One gets a more complex view once viewing responses distributed by respondent profile.⁸ Both IT and administrative staff seem to equally regard (ranging from 48% to 60%) non IT staff as either reluctant or indifferent to FOSS usage. IT staff in particular tends to regard non-IT staff as less FOSS supportive compared to what non-IT staff think about themselves. At the same time, it seems that elected representatives believe that non-IT staff is less indifferent and more supportive towards FOSS.

⁸“respondent profile” refers to the respondent’s role in his/her public organisation.

Table 26. Perceived FOSS attitude of non-IT staff by respondent profile (f.=frequency)

	Enthusiastic		Supportive		Indifferent		Reluctant		Resistant		Other		I do not know/ I do not wish to answer	
	f.	%	f.	%	f.	%	f.	%	f.	%	f.	%	f.	%
Administrative manager	2	4,3	8	17,4	18	39,1	6	13,0	0	0,0	2	4,3	10	21,7
Administrative staff	2	2,0	18	18,4	44	44,9	14	14,3	3	3,1	0	0,0	17	17,3
Elected representative	1	5,9	4	23,5	5	29,4	1	5,9	1	5,9	0	0,0	5	29,4
IT manager	2	1,1%	35	18,9	73	39,5	34	18,4	10	5,4%	17	9,2	14	7,6
IT staff	1	0,4%	26	11,6	86	38,2	52	23,1	24	10,7	1	0,4	35	15,6

Figure 31. FOSS general attitude by respondent profile



3.3.2. FOSS attitude: IT staff

IT staff is regarded to have a significantly more active and positive attitude towards FOSS. A 55% is considered to be supportive or enthusiastic about FOSS usage with only a 26% considered to be reluctant or indifferent. The self perception of IT staff and managers is that IT personnel is highly supportive of FOSS (ranging from 58% to 65%) while administrative staff has also a similar opinion about IT staff (40% - 50%). Elected representatives tend to think that IT staff is slightly less supportive or enthusiastic about FOSS (35%). IT staff reluctance or indifference to FOSS ranges from 15% to 30% across respondent profiles. There is also an interestingly consistent percentage of responses (ranging from 2% to 3%), irrespective of respondent profile, describing IT staff as resistant to FOSS usage.

Table 27. General attitude towards FOSS: IT staff

<i>Q26: How would you describe the general attitude of the IT staff in your organisation towards FOSS usage?</i>	No of responses	%
Enthusiastic	88	12,3%
Supportive	311	43,4%
Indifferent	118	16,5%
Reluctant	67	9,3%
Resistant	19	2,6%
Other	36	5,0%
I do not know/I do not wish to answer	78	10,9%

Figure 32. General attitude towards FOSS: IT staff

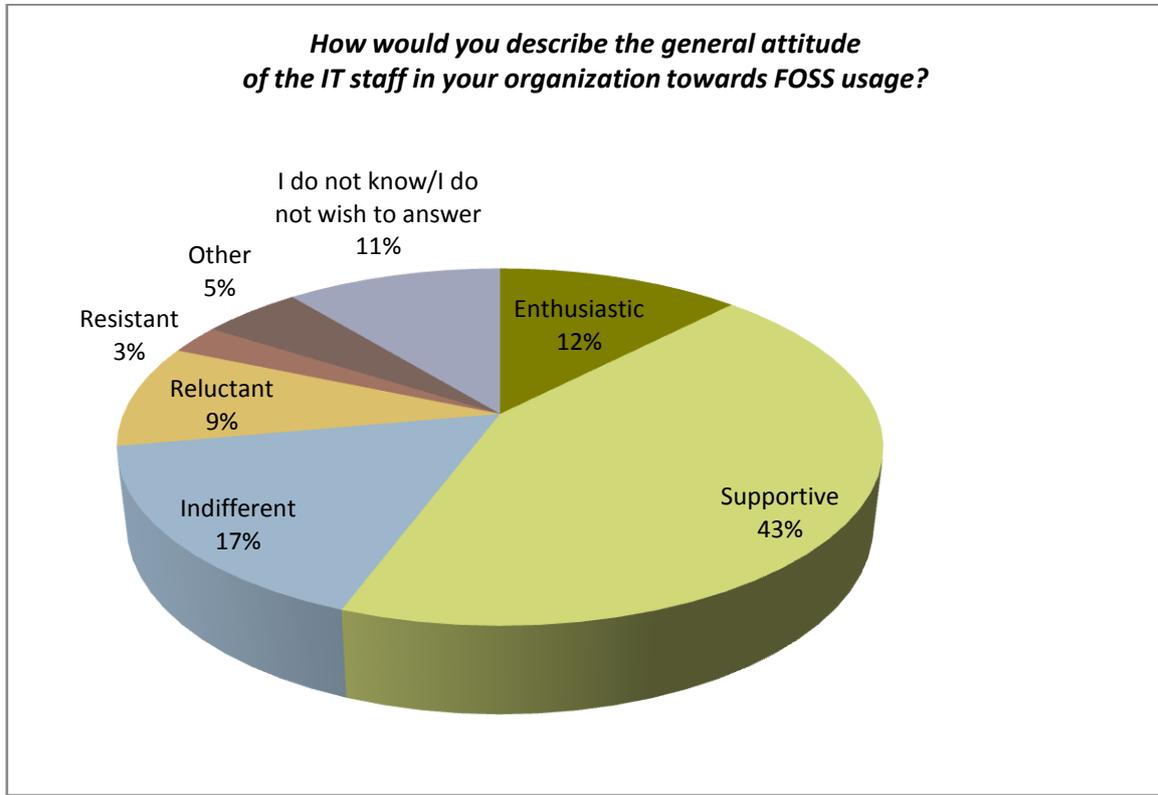
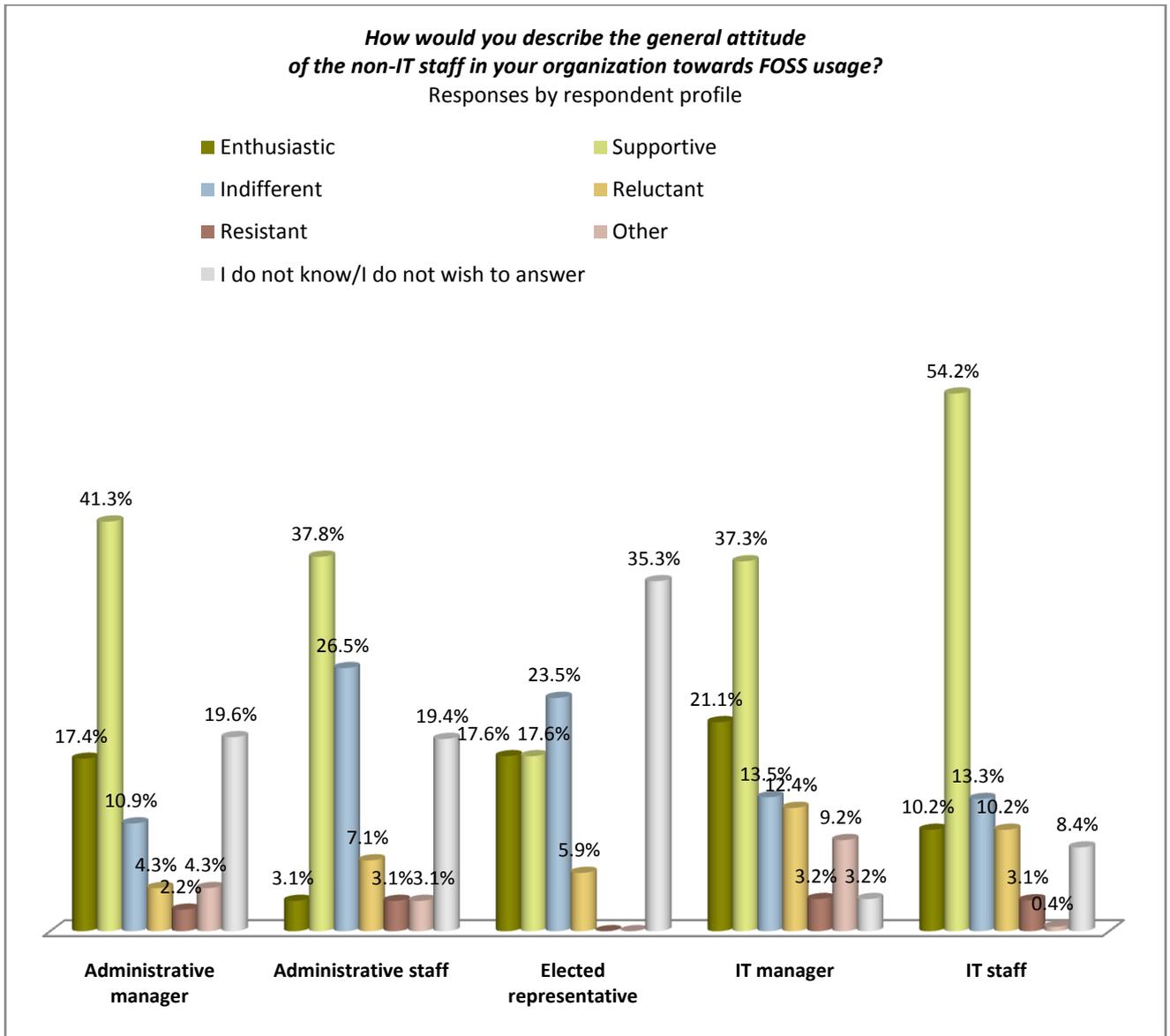


Table 28. Perceived FOSS attitude of IT staff by respondent profile (f.=frequency)

	Enthusiastic		Supportive		Indifferent		Reluctant		Resistant		Other		I do not know/ I do not wish to answer	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Administrative manager	8	17,4%	19	41,3%	5	10,9%	2	4,3%	1	2,2%	2	4,3%	9	19,6%
Administrative staff	3	3,1%	37	37,8%	2	26,5%	7	7,1%	3	3,1%	3	3,1%	19	19,4%
Elected representative	3	17,6%	3	17,6%	4	23,5%	1	5,9%	0	0,0%	0	0,0%	6	35,3%
IT manager	39	21,1%	69	37,3%	2	13,5%	2	12,4%	6	3,2%	1	9,2%	6	3,2%
IT staff	23	10,2%	12	54,2%	3	13,3%	2	10,2%	7	3,1%	1	0,4%	19	8,4%

Figure 33. Perceived FOSS attitude of IT staff by respondent profile



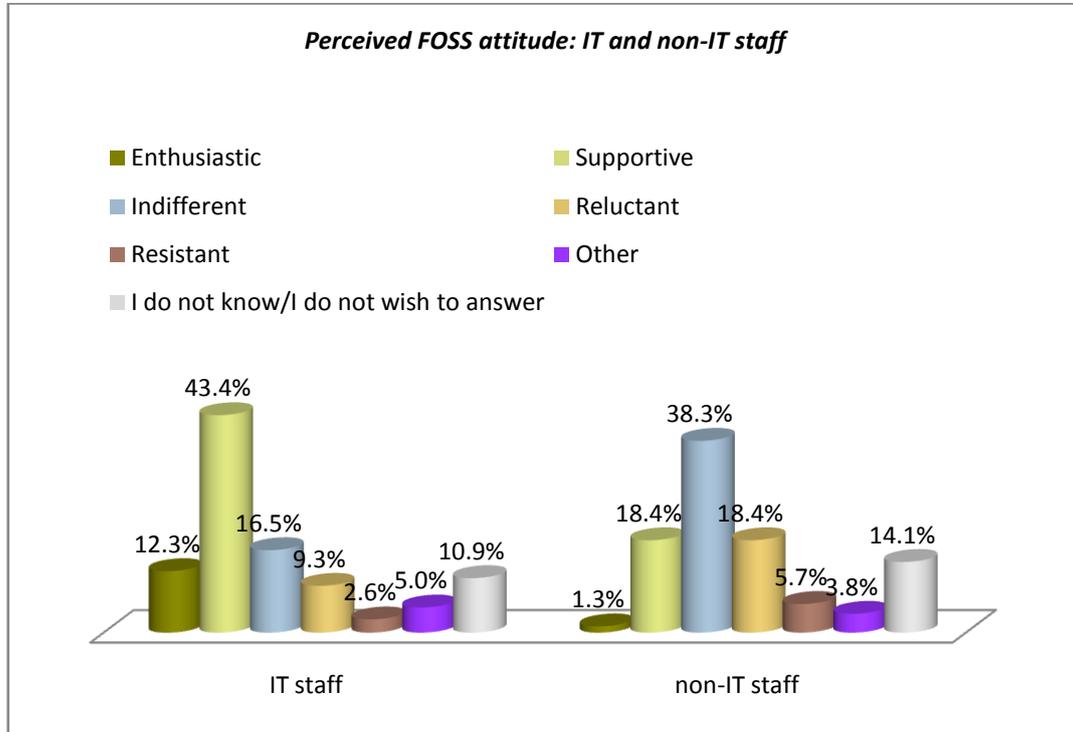
3.3.3. Attitude towards FOSS: IT and non-IT staff

Survey results clearly indicate that IT staff is considered to have a more active and supportive attitude towards FOSS, especially compared to administrative, non-IT staff that is largely regarded as either reluctant or indifferent (up to 57%) to FOSS usage. Non-IT staff also seems to be regarded as more resistant to FOSS usage (5,7%) compared to IT staff (2,6%).

Table 29. Perceived general attitude of IT and non-IT staff towards FOSS usage

Attitude towards FOSS	IT staff		non-IT staff	
Enthusiastic	88	12,3%	9	1,3%
Supportive	311	43,4%	132	18,4%
Indifferent	118	16,5%	274	38,3%
Reluctant	67	9,3%	132	18,4%
Resistant	19	2,6%	41	5,7%
Other	36	5,0%	27	3,8%
I do not know/I do not wish to answer	78	10,9%	101	14,1%

Figure 34. Perceived general attitude of IT and non-IT staff towards FOSS usage



3.3.4. FOSS attitude and FOSS migration experience

Survey results show a link between the general attitude of both IT and non IT staff and FOSS migration experience in public organisations. The vast majority of respondents that regard the staff in their organisation as being supportive or enthusiastic to FOSS have experienced, at least once, a migration to FOSS within their organisation. Those having experienced a FOSS migration also tend to think of both IT and non-IT staff as less resistant to FOSS usage. Still, however, there is a high percentage showing reluctance or indifference to FOSS, particularly of non-IT staff, even following an experience with FOSS migration. It is also clear that respondents with a previous FOSS experience in their organisation have shaped and tend to express more openly their own viewson regarding FOSS usage. This is reflected in higher “other” and lower “I don’t know, I do not wish to answer” response frequency rates.

Figure 35. Attitude to FOSS (IT staff) and FOSS migration experience

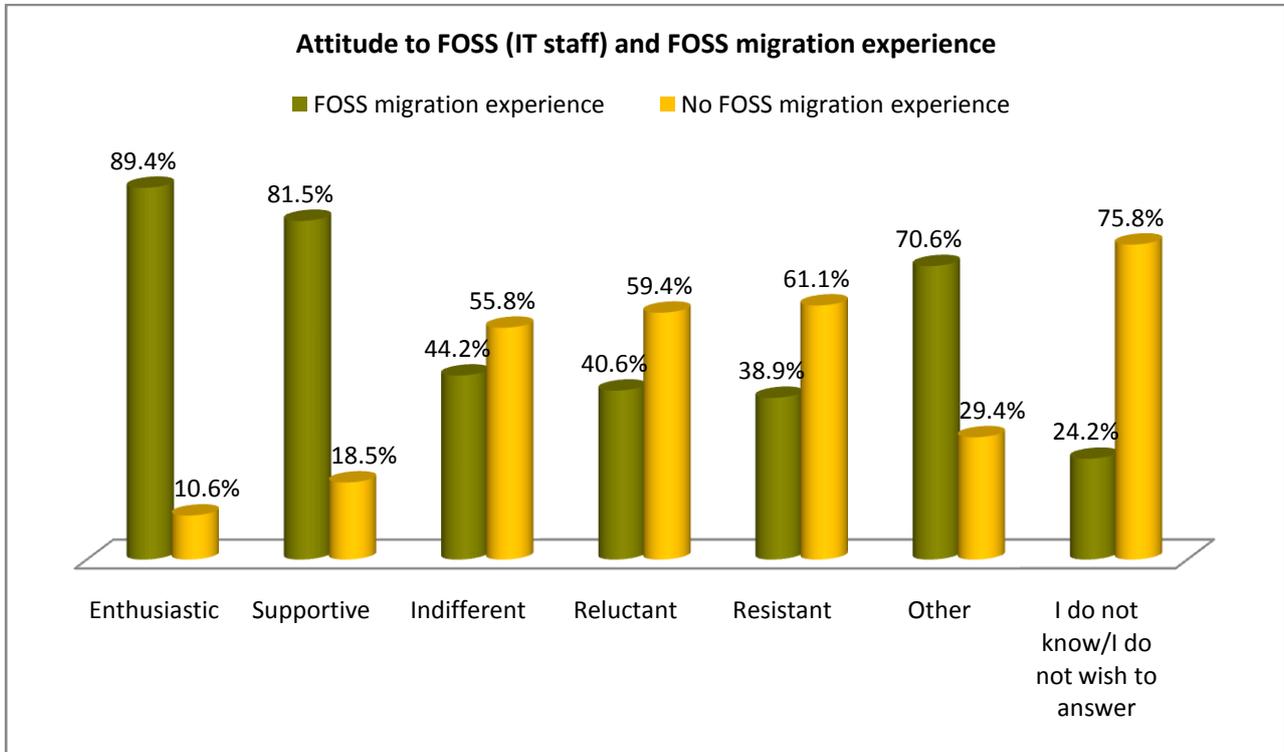
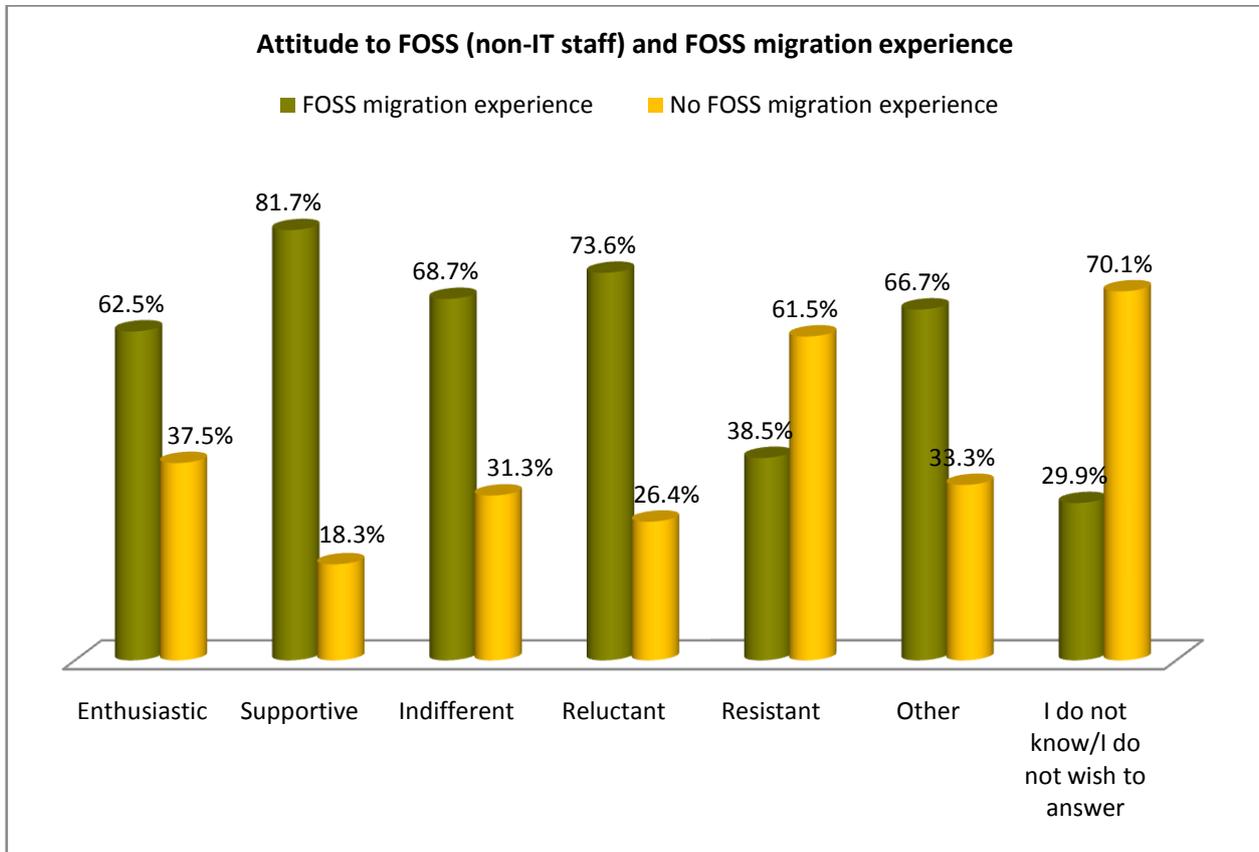


Figure 36. Attitude to FOSS (non-IT staff and FOSS migration experience)

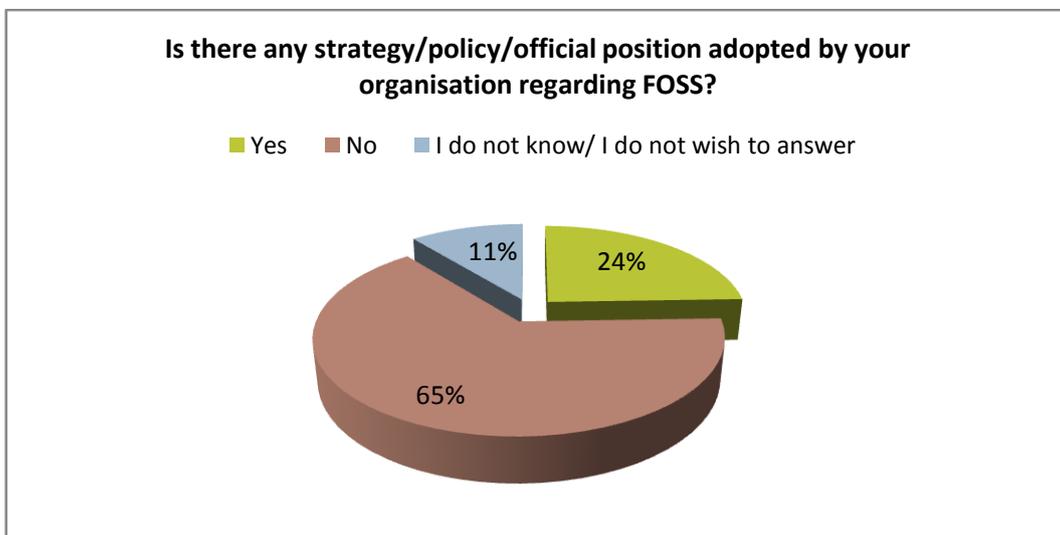


3.4. FOSS policies

3.4.1. FOSS-specific policies in public administrations

The majority of survey respondents (65%) stated that no specific strategy, policy or official position regarding FOSS has been adopted by their organisation. Only a 24% confirmed that there is a FOSS-specific policy adopted by their organisation.

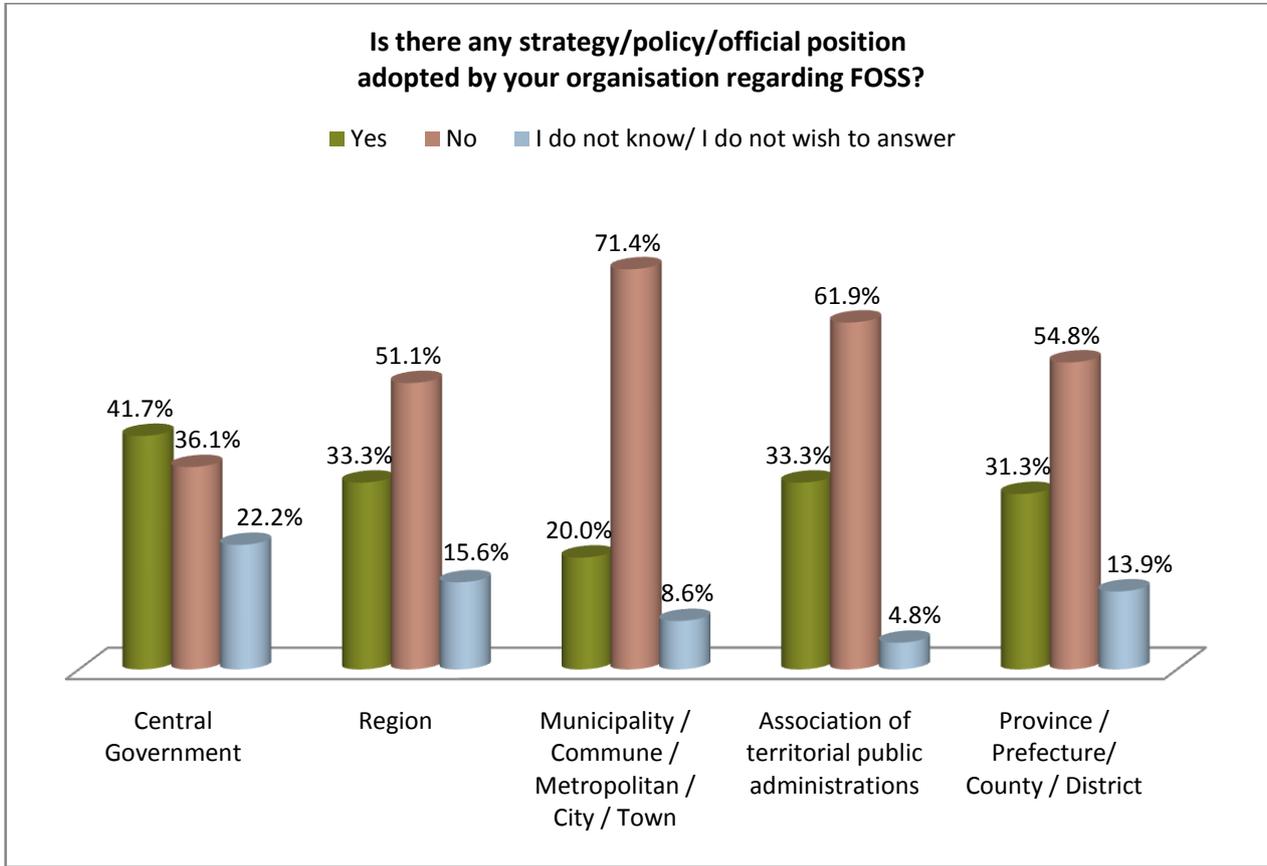
Figure 37. FOSS-related policies or strategies in public administrations



3.4.2. FOSS policy adoption by organisation type

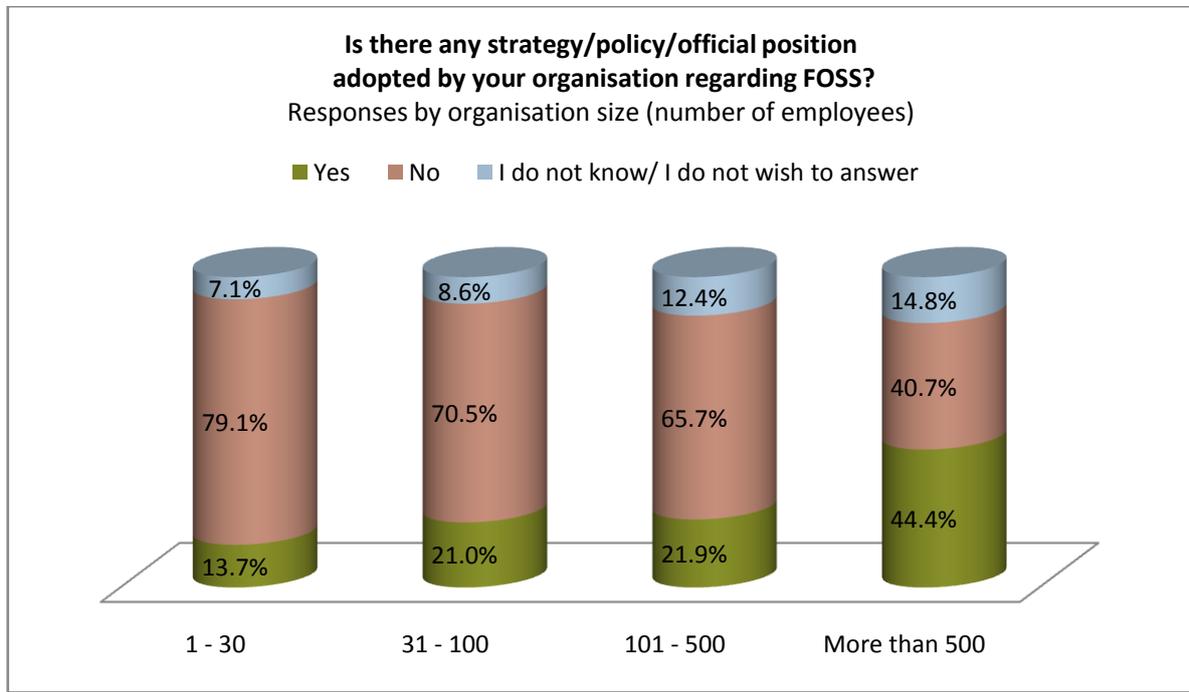
The highest rate of FOSS policy adoption is to be found among central government organisations, followed by regions or territorial associations and cities, municipalities and provinces. The rates of no FOSS-specific policies are higher among 2nd and mostly 3rd level public administrations (cities, municipalities, provinces). This pattern seems to reflect the top-down hierarchy of the policy making process. Local or regional authorities seem to follow policies developed at a central government level instead of implementing their own strategies regarding FOSS.

Figure 38. FOSS policy adoption by organisation type



This top-down scheme of policy making also reflects in response distributions by organisation size. Larger organisations with more than 500 personnel are more likely (up to almost 45%) to have their own strategy or official policy regarding FOSS. Mid-to-large size organisations also hold a clearly lower, but still significant rate of FOSS policy adoption (more than 20%). Small-size organisations (1-30 staff number) have only a limited rate of FOSS policy adoption.

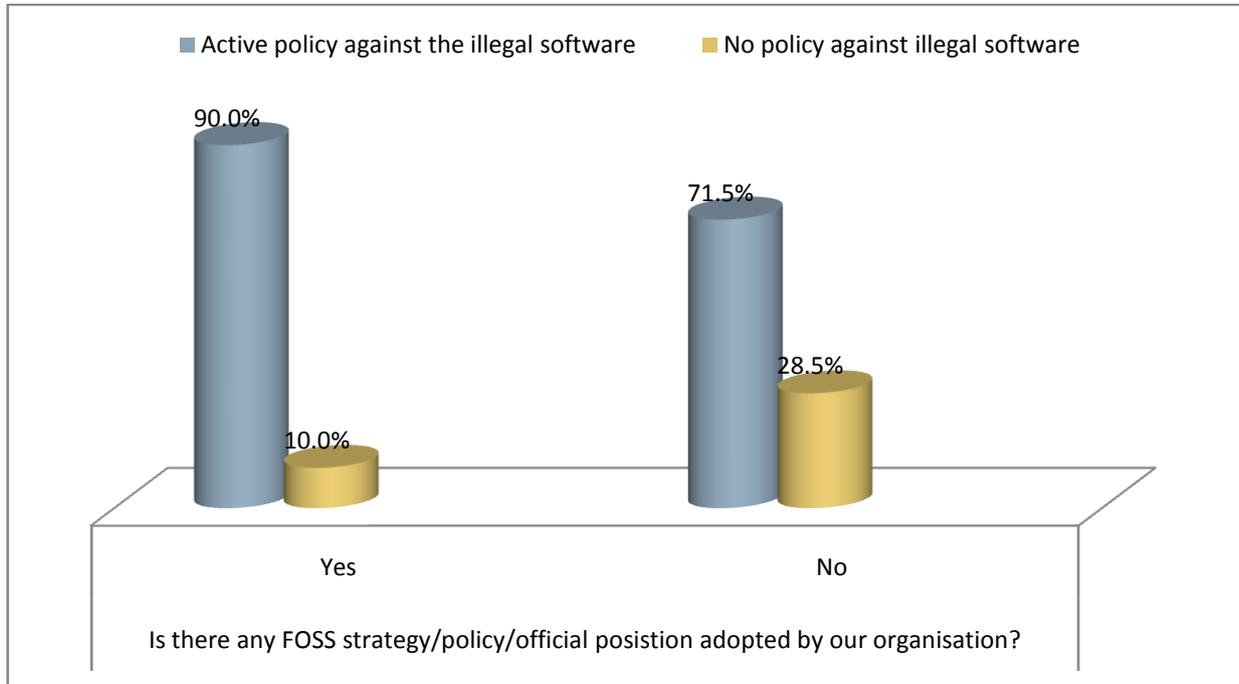
Figure 39. FOSS policy adoption by organisation size (number of employees)



3.4.3. FOSS policy adoption and illegal software policy

Public organisations that have adopted an official FOSS strategy are more likely to have an active policy against illegal software. On the other hand, organisations that have not adopted a FOSS policy reach a lower rate in policy adoption for illegal software. However, there is a higher rate of organisations that have an active illegal software policy compared to organisations that have adopted specific FOSS policies as shown in Figure 40.

Figure 40. FOSS policy adoption in relation to illegal software policy



3.5. Perceived FOSS benefits

Question 31 of the online survey questionnaire (“*please rate your level of agreement with the following statements regarding FOSS benefits*”) aimed to identify the main benefits associated with FOSS usage as perceived by respondents by measuring the level of agreement to 16 statements regarding FOSS strengths. Based on the statements with the highest score of agreement the main perceived FOSS benefits could be grouped as following:

- *lower procurement cost and independence from vendors (83%- 86%)*
- *code access, sharing and customisation (79% - 83%)*
- *performance, security and best use of infrastructure (51% - 59%)*

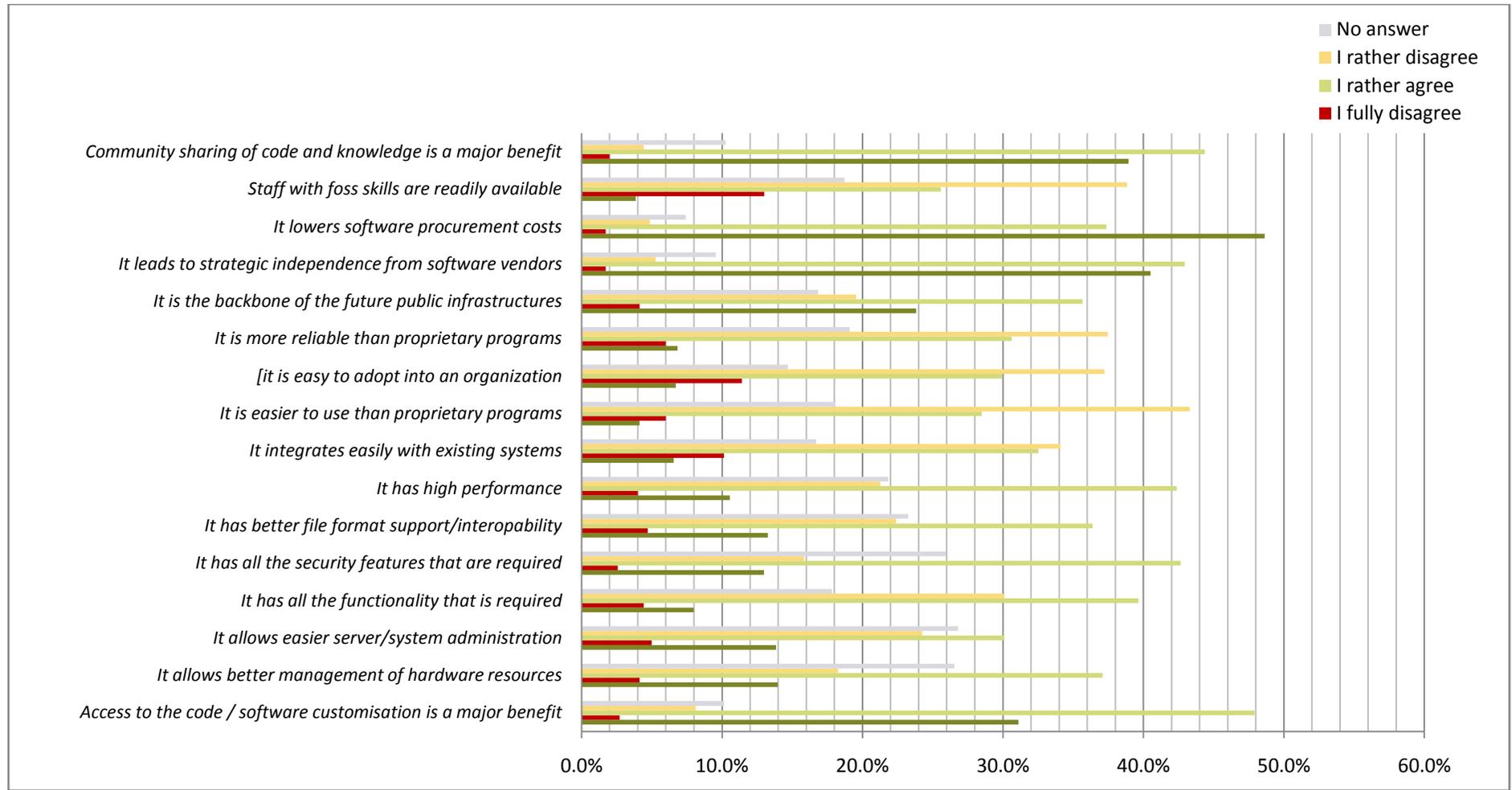
Certain statements, however, had significantly lower rates of agreement indicating that are less perceived as benefits associated with FOSS usage. These statements could be summed up as following:

- *integration with existing systems (less than 40%)*
- *reliability (37,5%)*
- *ease of adoption and use (32% - 36%)*
- *FOSS staff availability (less than 30%)*

Table 30. Overall level of agreement for FOSS benefit statements

	FOSS benefit statements	Overall level of agreement (I fully agree / I rather agree)
1	<i>It lowers software procurement costs</i>	86,00%
2	<i>It leads to strategic independence from software vendors</i>	83,50%
3	<i>Community sharing of code and knowledge is a major benefit</i>	83,30%
4	<i>Access to the code / software customisation is a major benefit</i>	79,00%
5	<i>It is the backbone of the future public infrastructures</i>	59,50%
6	<i>It has all the security features that are required</i>	55,60%
7	<i>It has high performance</i>	52,90%
8	<i>It allows better management of hardware resources</i>	51,10%
9	<i>It has better file format support/interoperability</i>	49,60%
10	<i>It has all the functionality that is required</i>	47,60%
11	<i>It allows easier server/system administration</i>	43,90%
12	<i>It integrates easily with existing systems</i>	39,10%
13	<i>It is more reliable than proprietary programs</i>	37,50%
14	<i>It is easy to adopt into an organization</i>	36,70%
15	<i>It is easier to use than proprietary programs</i>	32,60%
16	<i>Staff with FOSS skills are readily available</i>	29,40%

Figure 41. Level of agreement to statements regarding FOSS benefits



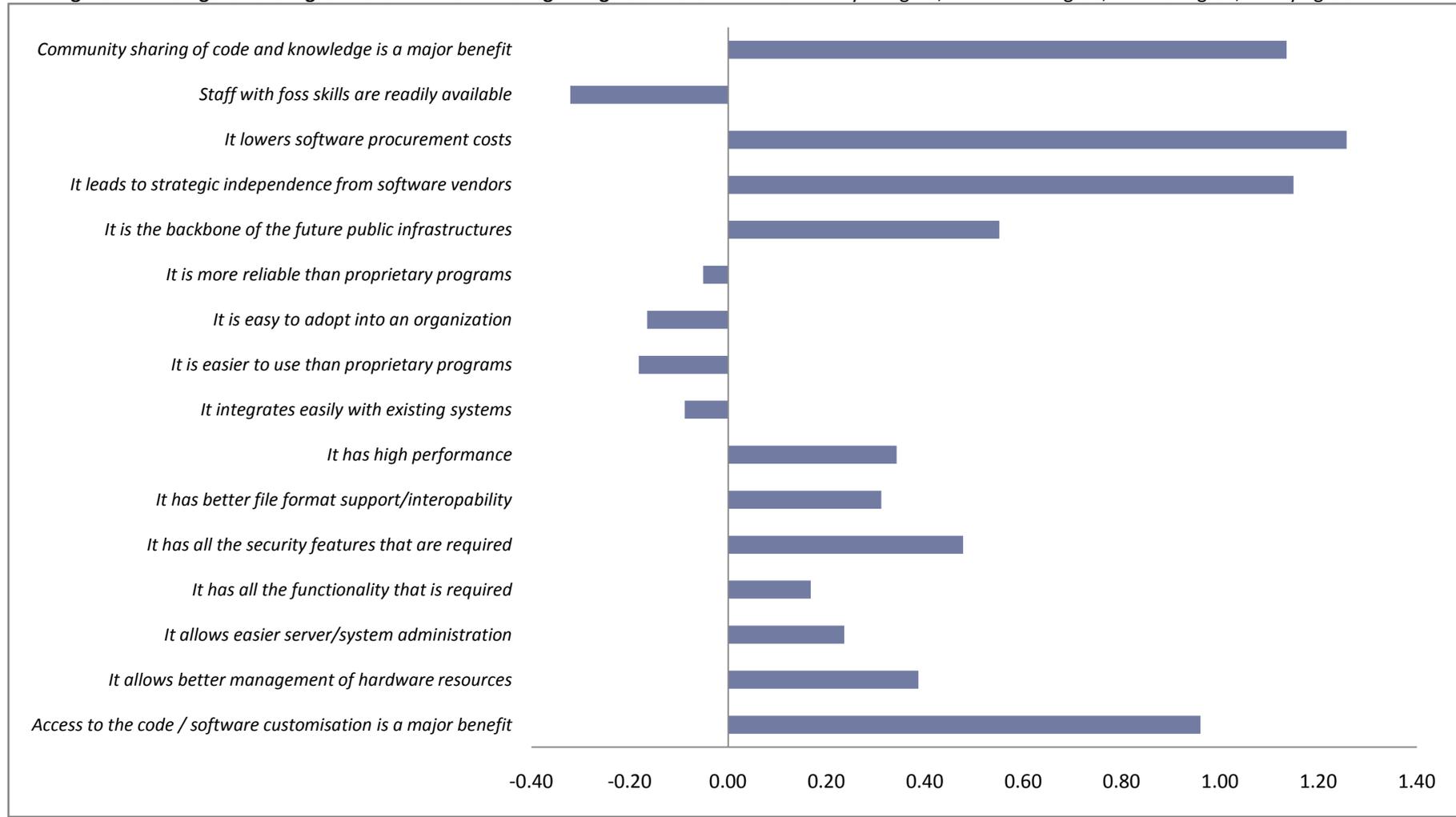
On a basis of response average on four-level scale (-2= fully disagree, -1 rather disagree, 1 rather agree, 2 fully agree) also certain statements stand out as main perceived benefits linked to FOSS usage. Lower cost for software procurement cost is regarded the major benefit associated with FOSS usage in public organisations. Almost equally important as perceived benefit is the independence of public organisations from software vendors achieved through FOSS usage. Community shared code, knowledge and support along with the ability for software customisation are also highly regarded as FOSS strengths. Respondents tend to agree on FOSS being a "backbone" feature for performance and security in public IT infrastructures in the future.

Survey respondents, however, tend to think of FOSS as not being easy to use and integrate into existing systems within a public organisation. What survey participants think as a major weakness regarding FOSS usage is the lack of FOSS-skilled staff in public organisations.

Table 31.Level of agreement to statements regarding FOSS benefits. Scale: -2: fully disagree, 2 fully agree

FOSS benefits: level of agreement	Response average
<i>It lowers software procurement costs</i>	1,26
<i>It leads to strategic independence from software vendors</i>	1,15
<i>Community sharing of code and knowledge is a major benefit</i>	1,13
<i>Access to the code / software customisation is a major benefit</i>	0,96
<i>It is the backbone of the future public infrastructures</i>	0,55
<i>It has all the security features that are required</i>	0,48
<i>It allows better management of hardware resources</i>	0,39
<i>It has high performance</i>	0,34
<i>It has better file format support/interoperability</i>	0,31
<i>It allows easier server/system administration</i>	0,24
<i>It has all the functionality that is required</i>	0,17
<i>It is more reliable than proprietary programs</i>	-0,05
<i>It integrates easily with existing systems</i>	-0,09
<i>It is easy to adopt into an organization</i>	-0,16
<i>It is easier to use than proprietary programs</i>	-0,18
<i>Staff with FOSS skills are readily available</i>	-0,32

Figure 42. Average level of agreement to statements regarding FOSS benefits. Scale: -2 fully disagree, -1 rather disagree, 1 rather agree, 2 fully agree



Expressed opinions on benefits associated with FOSS usage do not differentiate significantly in terms of respondent profile (IT staff and managers, administration staff and managers, elected representatives, other). A distribution of response averages based on respondent profile, however, provides a more detailed view on what IT and non-IT staff regard as major strengths of FOSS.

IT staff seems to be more sceptical than administrative staff regarding FOSS strengths in terms of its ease of use, reliability and integration into existing infrastructures, especially compared to administrative staff and elected representatives that seems to be more positive on the technical aspects of FOSS. IT managers and staff, focus on access to code, software customisation and community support as being the major benefits of FOSS.

All respondent groups, however, highlight lower costs, customisation, community support and vendor independence as the main strengths FOSS while, on the other hand, identifying the availability of FOSS-skilled staff as the element to be least considered as a FOSS benefit.

Figure 43. Average level of agreement to statements regarding FOSS benefits. Distribution by respondent profile

Scale: -2 fully disagree, -1 rather disagree, 1 rather agree, 2 fully agree.

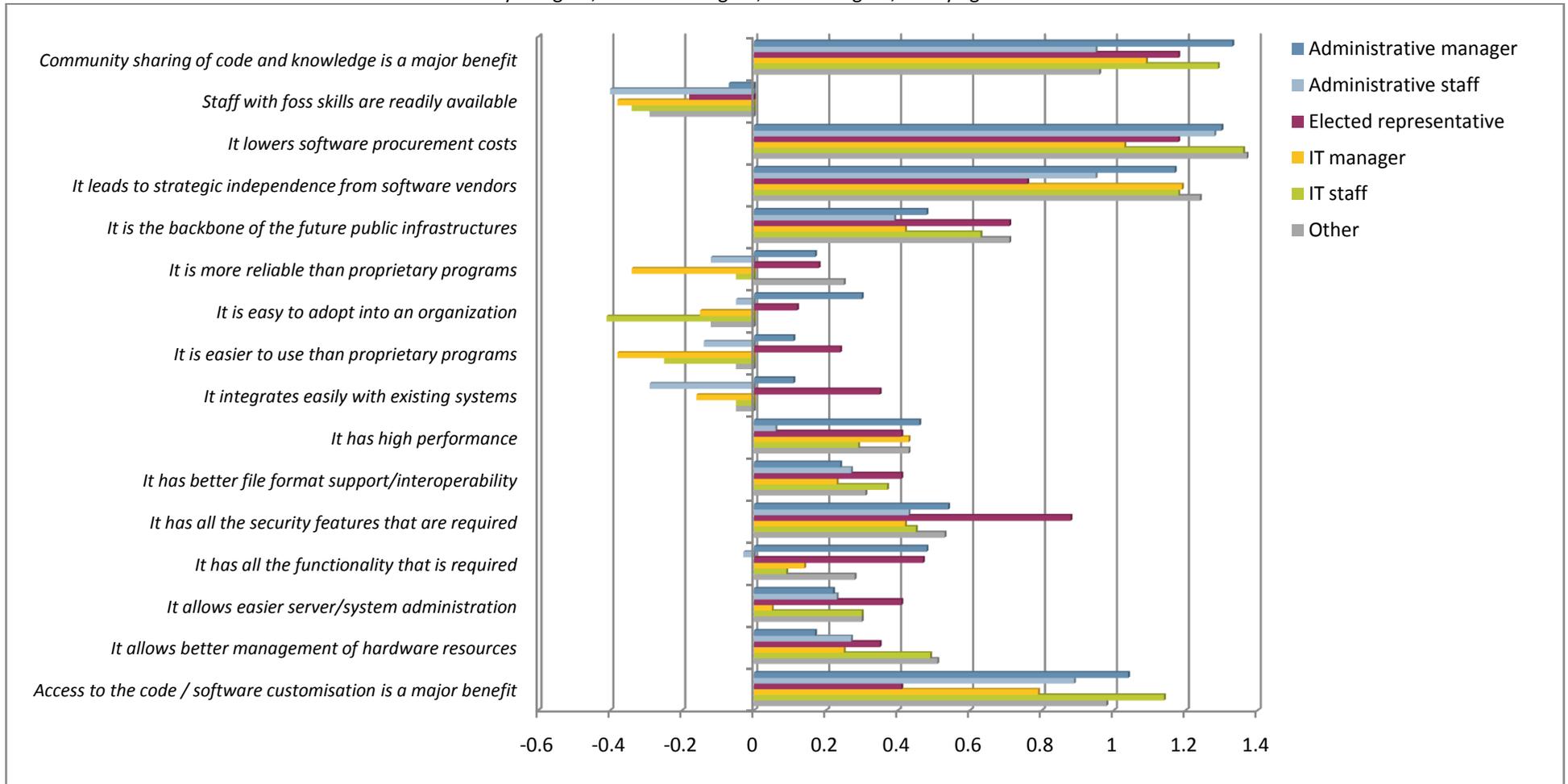


Table 32. Level of agreement with statements regarding FOSS benefits. Results by frequency (f), percentage and response average.

Please rate your level of agreement with the following statements regarding FOSS benefits	I fully agree		I fully disagree		I rather agree		I rather disagree		No answer		Response Average (-2 fully disagree, 2 fully agree)
	f.	%	f.	%	f.	%	f.	%	f.	%	
<i>Access to the code and the ability to customise the software is a major benefit</i>	218	31,1	19	2,7	336	47,9	57	8,1	71	10,1	0,96
<i>It allows better management of hardware resources</i>	98	14,0	29	4,1	260	37,1	128	18,3	186	26,5	0,39
<i>It allows easier server/system administration</i>	97	13,8	35	5,0	211	30,1	170	24,3	188	26,8	0,24
<i>It has all the functionality that is required</i>	56	8,0	31	4,4	278	39,7	211	30,1	125	17,8	0,17
<i>It has all the security features that are required</i>	91	13,0	18	2,6	299	42,7	111	15,8	182	26,0	0,48
<i>It has better file format support/interoperability</i>	93	13,3	33	4,7	255	36,4	157	22,4	163	23,3	0,31
<i>It has high performance</i>	74	10,6	28	4,0	297	42,4	149	21,3	153	21,8	0,34
<i>It integrates easily with existing systems</i>	46	6,6	71	10,1	228	32,5	239	34,1	117	16,7	-0,09
<i>It is easier to use than proprietary programs</i>	29	4,1	42	6,0	200	28,5	304	43,3	127	18,1	-0,18
<i>It is easy to adopt into an organization</i>	47	6,7	80	11,4	210	30,0	261	37,2	103	14,7	-0,16
<i>It is more reliable than proprietary programs</i>	48	6,8	42	6,0	215	30,6	263	37,5	134	19,1	-0,05
<i>It is the backbone of the future public infrastructures</i>	167	23,8	29	4,1	250	35,7	137	19,5	118	16,8	0,55
<i>It leads to strategic independence from software vendors</i>	284	40,5	12	1,7	301	42,9	37	5,3	67	9,6	1,15
<i>It lowers software procurement costs</i>	341	48,6	12	1,7	262	37,4	34	4,9	52	7,4	1,26
<i>Staff with FOSS skills are readily available</i>	27	3,9	91	13,0	179	25,6	272	38,9	131	18,7	-0,32
<i>The community of developers and users sharing code, expertise and knowledge is a major benefit</i>	273	38,9	14	2,0	311	44,4	31	4,4	72	10,3	1,13

3.6. Perceived FOSS barriers

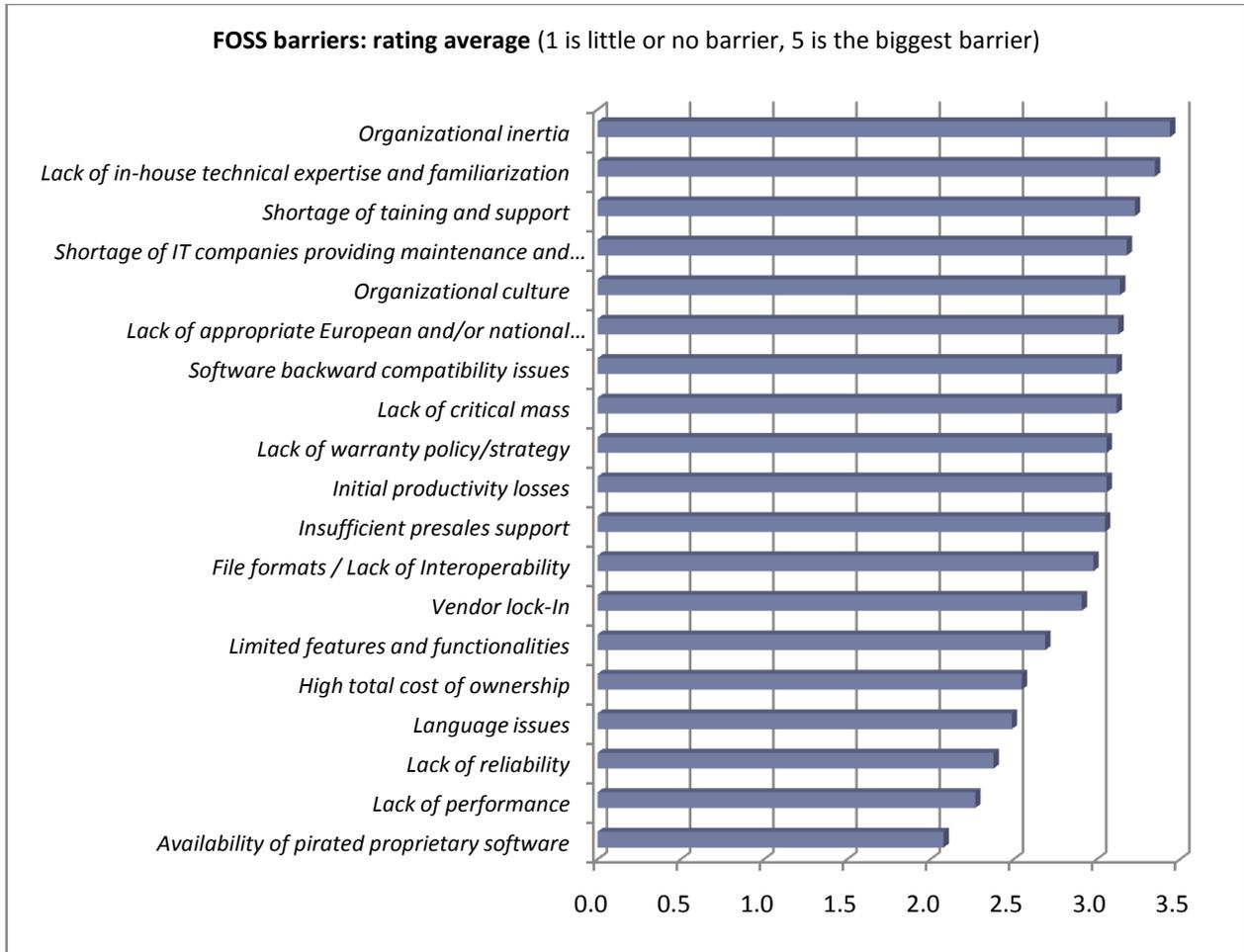
Question 32 of the online survey questionnaire (*“please rate the importance of the barriers to the successful implementation of FOSS”*) asked survey participants to rank possible barriers to FOSS use and implementation by importance level (1=little or no barrier, 5=is the biggest barrier).

The highest rated factor identified as a barrier to FOSS usage is the organisational inertia, followed by the lack of technical expertise, training, support and appropriate organisational culture. Compatibility and productivity issues along with a lack of a critical mass on the demand side are also identified as significant barriers to the use of open source software. Respondents seem to identify two major critical elements that hinder the use and uptake of FOSS in public administrations. These two elements could be summed up as: a) lack of familiarity and organisational culture b) lack of training and technical support (both in-house and external). By identifying organisational inertia as the major barrier respondents highlight the socio-organisational resistance to FOSS as a perceived unfamiliar terrain and not always desired change. They also stress the lack of technical support either in-house or provided by IT companies that could help familiarise public administration staff with FOSS and lay the ground, in this way, for a smoother transition to open source systems and applications. These more fundamental issues pertaining to organisational structures and processes, change management, training and support seem are highly ranked in terms of importance compared to other more specific concerns such as software backward compatibility, interoperability or lack of warranty. Other factors, such as vendor lock-in, performance, or total cost of ownership score low rates as barriers and therefore should be rather considered as FOSS strengths.

Table 33. Ranking average for perceived FOSS barriers by level of importance (1 is little or no barrier, 5 is the biggest barrier)

FOSS barriers	Ranking average
<i>Organizational inertia</i>	3.44
<i>Lack of in-house technical expertise and familiarization</i>	3.35
<i>Shortage of training and support</i>	3.23
<i>Shortage of IT companies providing maintenance and technical support services</i>	3.18
<i>Organizational culture</i>	3.14
<i>Lack of appropriate European and/or national framework of standards on data exchanges and on interoperability approaches</i>	3.13
<i>Lack of critical mass</i>	3.12
<i>Software backward compatibility issues</i>	3.12
<i>Initial productivity losses</i>	3.06
<i>Lack of warranty policy/strategy</i>	3.06
<i>Insufficient presales support</i>	3.05
<i>File formats / Lack of Interoperability</i>	2.98
<i>Vendor lock-In</i>	2.91
<i>Limited features and functionalities</i>	2.69
<i>High total cost of ownership</i>	2.55
<i>Language issues</i>	2.49
<i>Lack of reliability</i>	2.38
<i>Lack of performance</i>	2.27
<i>Availability of pirated proprietary software</i>	2.1

Figure 44. Ranking average for perceived FOSS barriers by level of importance (1 is little or no barrier, 5 is the biggest barrier)



3.7. FOSS use and integration in existing systems and applications

Questions 37-56 of the online survey questionnaire aimed to get a more detailed view on the distribution of FOSS/proprietary operating systems and applications and the level of integration of open source software in existing systems and applications.

3.7.1. FOSS/proprietary software distribution

Based on survey responses the majority of software applications (up to 66%) most frequently used in public organisation servers are mostly or exclusively proprietary. 19% of respondents identify an equal distributions of FOSS and proprietary applications in their organisation servers. FOSS share equals to a 11% (mostly FOSS) and a slight 1% for exclusive use.

Still, proprietary software applications have even a larger share in client use (up to a total of 77%) with FOSS use limited to 5% overall. Equal use of FOSS/proprietary applications in clients is reported by the 19% of respondents.

It is clear from the survey results, that although proprietary applications have the largest usage share in both servers in clients, FOSS applications maintain a fair amount of use (more than 10%) in servers, even not in exclusive mode.

Figure 45. FOSS/proprietary software distribution in servers

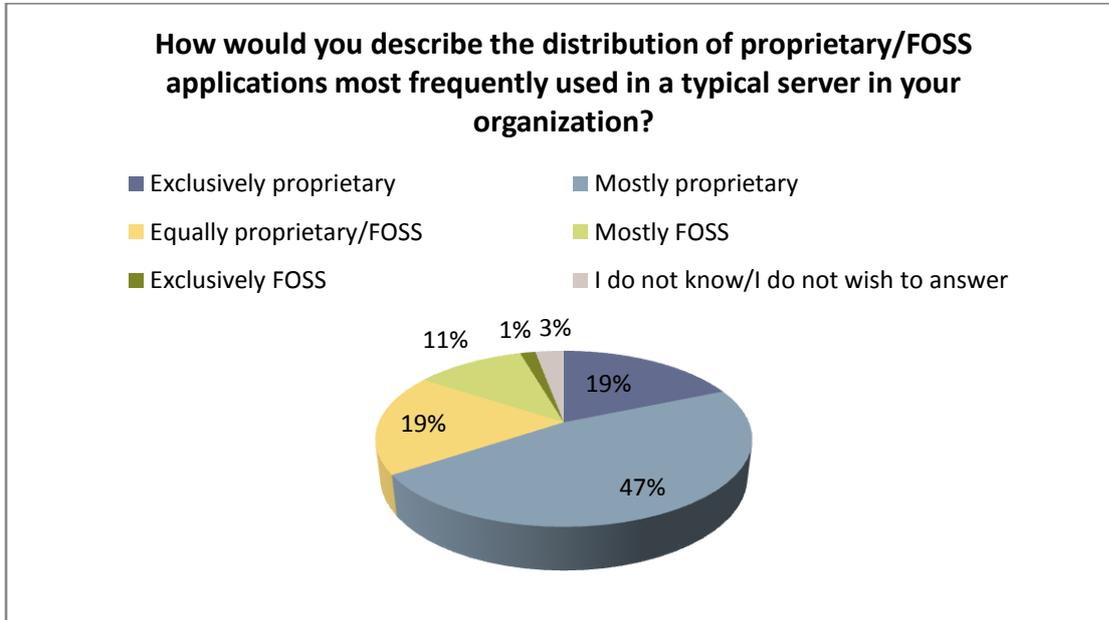
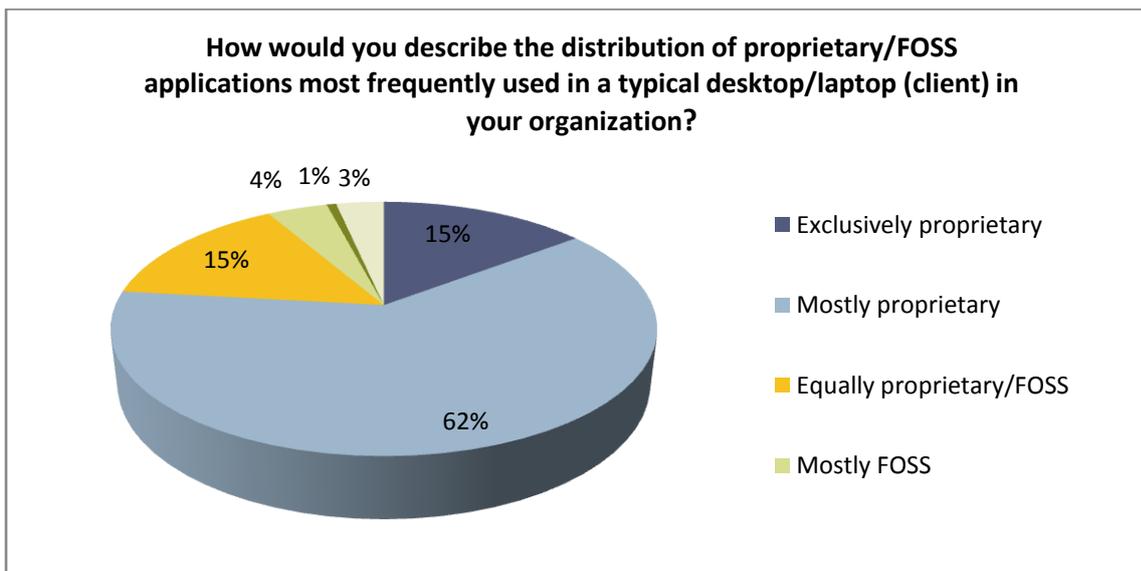


Figure 46. FOSS/proprietary software distribution in clients



When it comes to FOSS/proprietary software distribution by software type it is clear that FOSS usage is higher in web servers (reaching almost 50%), content management (up to 45%), social software (25%) and intranet (32%) tools and applications. It is also in server operating systems (25%), testing environments (27%), databases (20%) and bug reporting (18.5%) tools. Exclusive use of FOSS is reported in content management tools (31%), intranet applications (23.5%) and web servers (19.7%).

Table 34. FOSS/proprietary software distribution by software type

FOSS/proprietary by software type	No answer	Excl. proprietary	Mostly proprietary	Equally FOSS/proprietary	Mostly FOSS	Excl. FOSS
<i>Bug Reporting (Eg Bugzilla)</i>	60.00%	9.40%	6.80%	5.10%	8.50%	10.20 %
<i>Client Operating Systems (Eg Ubuntu, Debian, Fedora, Suse)</i>	5.00%	57.70%	31.00%	2.10%	1.70%	2.50%
<i>Corporate Applications</i>	24.20%	39.40%	25.00%	6.40%	3.80%	1.30%
<i>CRM (Eg Sugarcrm)</i>	63.80%	17.90%	4.30%	4.30%	4.70%	5.10%
<i>Databases (Eg Mysql)</i>	3.30%	21.30%	40.20%	14.60%	13.00%	7.50%
<i>ERM (Eg Alfresco)</i>	66.80%	11.50%	8.50%	2.60%	5.10%	5.50%
<i>Intranet</i>	20.20%	24.40%	14.30%	9.20%	8.40%	23.50 %
<i>Middleware (Eg Lgol-Net)</i>	65.30%	12.70%	12.70%	4.20%	2.50%	2.50%
<i>Office Software (Eg Openoffice)</i>	2.10%	22.00%	38.10%	15.70%	16.50%	5.50%
<i>Project Management (Eg Dotproject)</i>	63.40%	13.20%	8.10%	6.00%	2.60%	6.80%
<i>Security Tools</i>	8.40%	36.30%	26.20%	11.80%	11.80%	5.50%
<i>Server Operating Systems (Eg Ubuntu, Red Hat, Antos-Os)</i>	5.00%	26.40%	23.40%	20.50%	20.50%	4.20%
<i>Social Software (Eg Mediawiki)</i>	58.50%	5.10%	6.80%	5.10%	7.60%	16.90 %
<i>Surveys (Eg Limesurvey)</i>	67.20%	3.40%	5.10%	3.80%	6.40%	14.00 %
<i>Testing Environments</i>	42.40%	7.20%	12.70%	14.80%	14.80%	8.10%
<i>Web/Content Management, Blogs (Eg Cms, Wordpress)</i>	15.60%	18.10%	13.50%	8.00%	13.50%	31.20 %
<i>Web Servers (Eg Apache)</i>	8.40%	13.80%	16.70%	11.30%	30.10%	19.70 %
<i>Transactional Services</i>	70.60%	14.50%	6.80%	3.40%	2.10%	2.60%

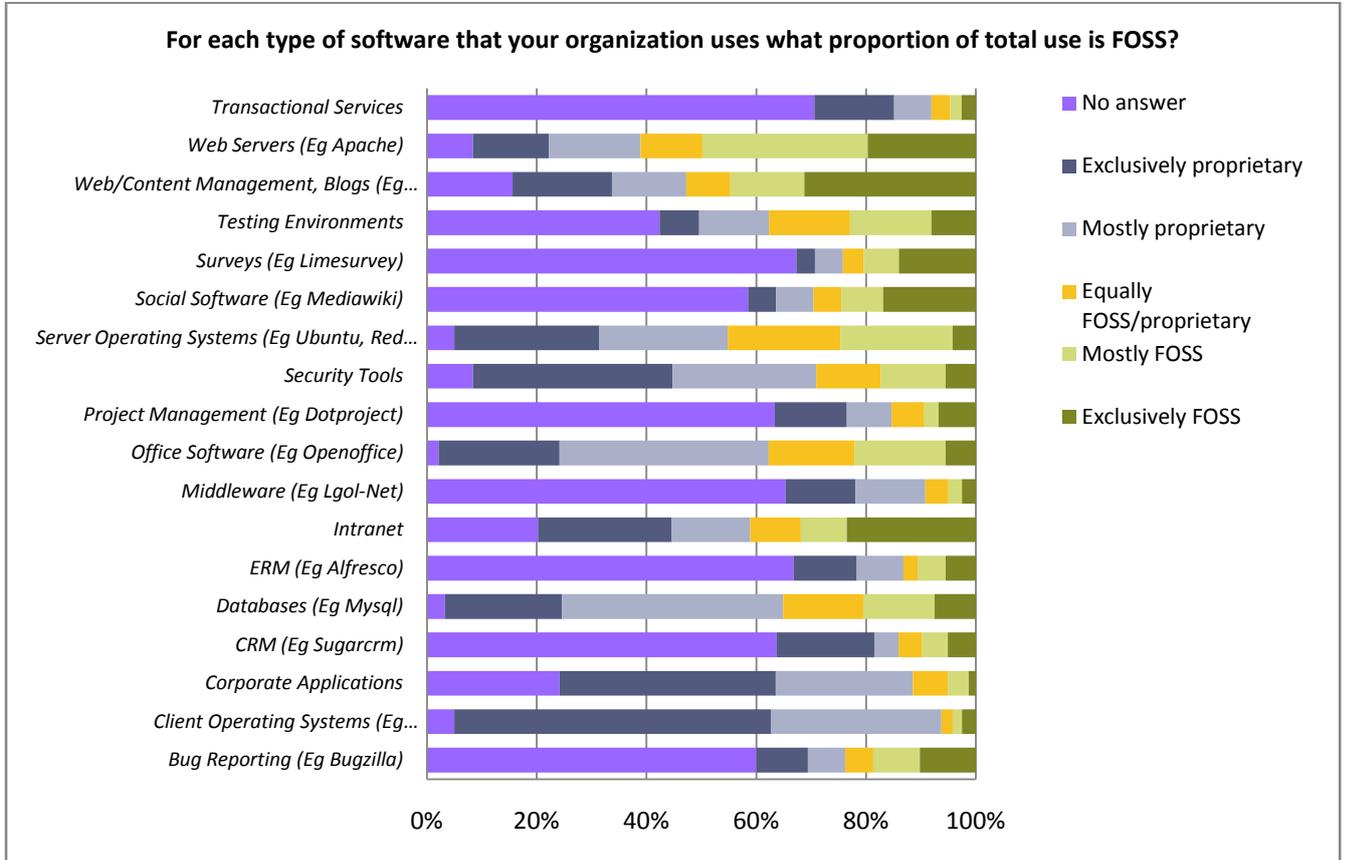
Table 35. FOSS most frequent or exclusive use by software type

	Mostly FOSS/Exclusively FOSS
<i>Web Servers (Eg Apache)</i>	49.80%
<i>Web/Content Management, Blogs (Eg Cms, Wordpress)</i>	44.70%
<i>Intranet</i>	31.90%
<i>Server Operating Systems (Eg Ubuntu, Red Hat, Antos-Os)</i>	24.70%
<i>Social Software (Eg Mediawiki)</i>	24.50%
<i>Testing Environments</i>	22.90%
<i>Office Software (Eg Openoffice)</i>	22.00%
<i>Databases (Eg Mysql)</i>	20.50%
<i>Surveys (Eg Limesurvey)</i>	20.40%
<i>Bug Reporting (Eg Bugzilla)</i>	18.70%
<i>Security Tools</i>	17.30%
<i>ERM (Eg Alfresco)</i>	10.60%
<i>CRM (Eg Sugarcrm)</i>	9.80%
<i>Project Management (Eg Dotproject)</i>	9.40%
<i>Corporate Applications</i>	5.10%
<i>Middleware (Eg Lgol-Net)</i>	5.00%
<i>Transactional Services</i>	4.70%
<i>Client Operating Systems (Eg Ubuntu, Debian, Fedora, Suse)</i>	4.20%

Table 36. FOSS exclusive use by software type

	Exclusively FOSS
<i>Web/Content Management, Blogs (Eg Cms, Wordpress)</i>	31.20%
<i>Intranet</i>	23.50%
<i>Web Servers (Eg Apache)</i>	19.70%
<i>Social Software (Eg Mediawiki)</i>	16.90%
<i>Surveys (Eg Limesurvey)</i>	14.00%
<i>Bug Reporting (Eg Bugzilla)</i>	10.20%
<i>Testing Environments</i>	8.10%
<i>Databases (Eg Mysql)</i>	7.50%
<i>Project Management (Eg Dotproject)</i>	6.80%
<i>ERM (Eg Alfresco)</i>	5.50%
<i>Office Software (Eg Openoffice)</i>	5.50%
<i>Security Tools</i>	5.50%
<i>CRM (Eg Sugarcrm)</i>	5.10%
<i>Server Operating Systems (Eg Ubuntu, Red Hat, Antos-Os)</i>	4.20%
<i>Transactional Services</i>	2.60%
<i>Client Operating Systems (Eg Ubuntu, Debian, Fedora, Suse)</i>	2.50%
<i>Middleware (Eg Lgol-Net)</i>	2.50%
<i>Corporate Applications</i>	1.30%

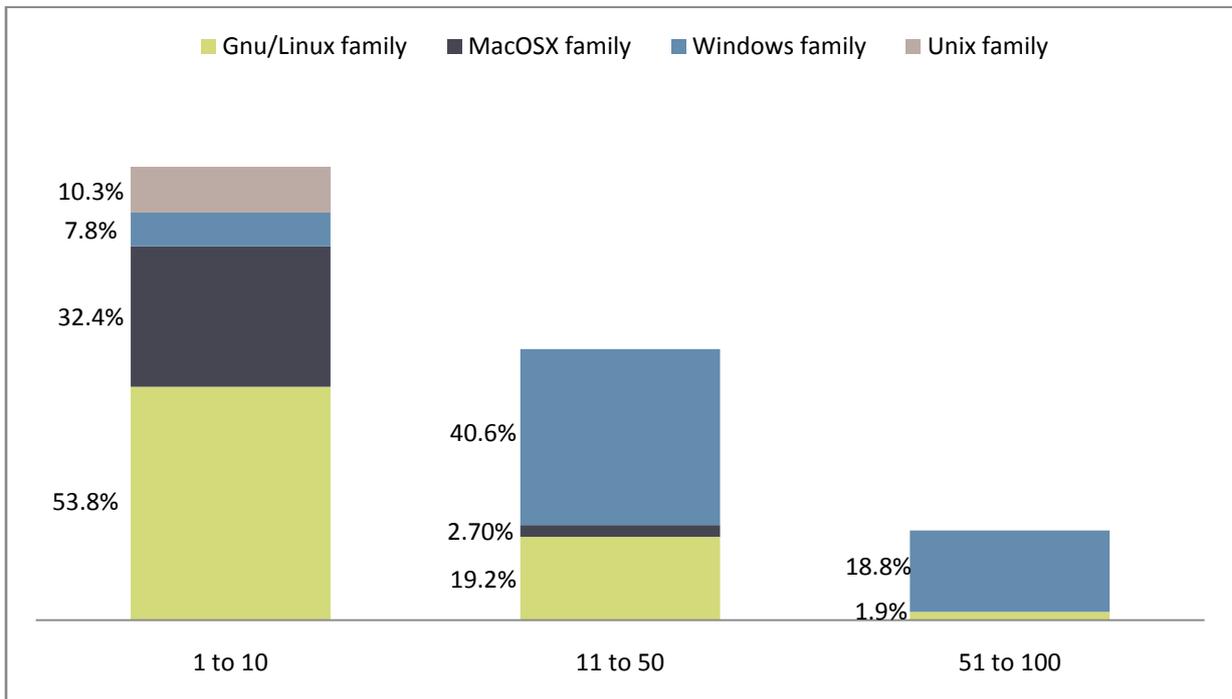
Figure 47. FOSS/proprietary software distribution by software type



3.7.2. FOSS use in operating systems

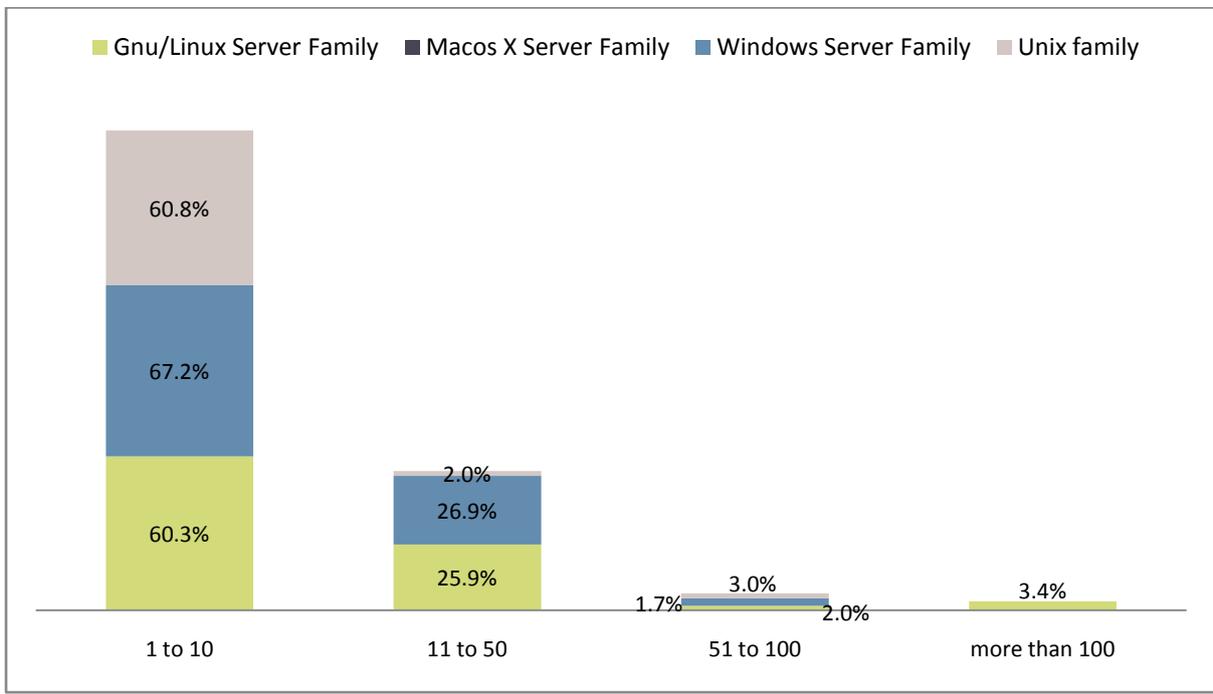
Gnu/Linux family has a larger share in 1-10 operating systems (more than 50%) with a tendency to decline in larger number of operating systems for clients. Windows family, on the other hand, is at its highest use level in mid-scale 11-50 operating systems running on clients.

Figure 48. Software categories by number of operating systems on clients



The GNU/Linux server family maintains a larger share on servers (compared to clients) reaching up to 60%. Its level of use, however, still tends to be lower as the number of operating systems is rising. Windows family has the largest share (67%) in 1-10 operating systems but it lowers to an almost equal to Linux 27% in the 11 to 50 category.

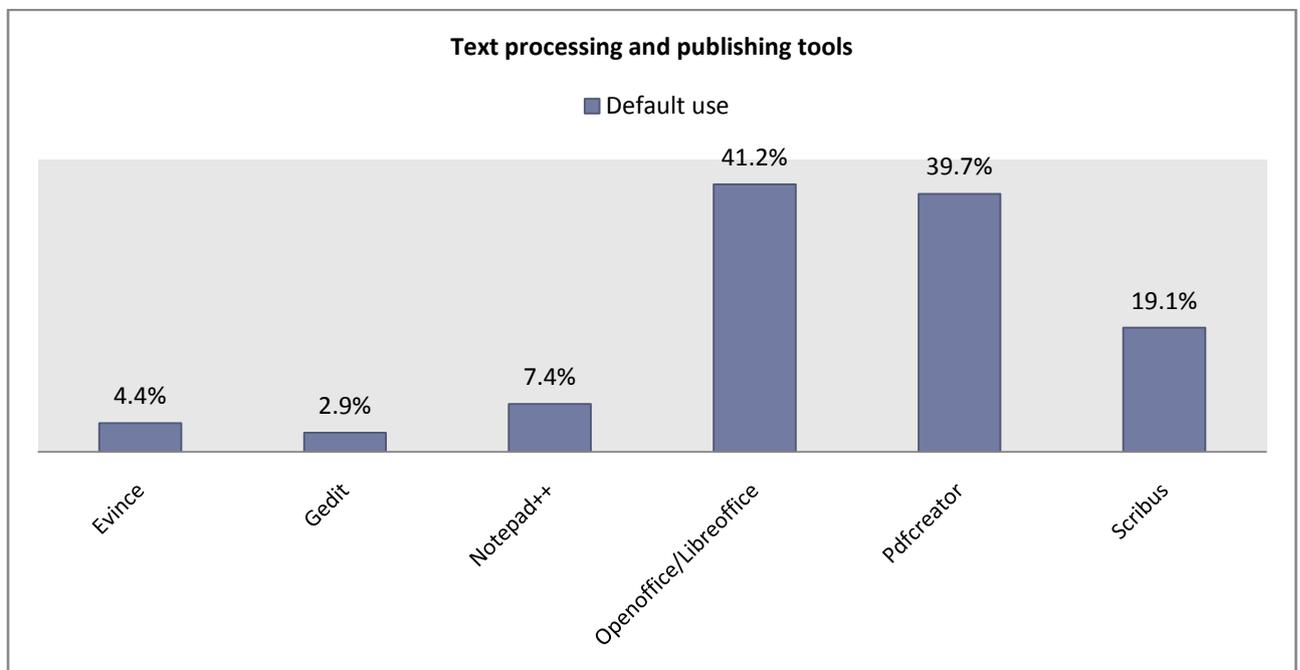
Figure 49. Number of operating systems on servers by type/category

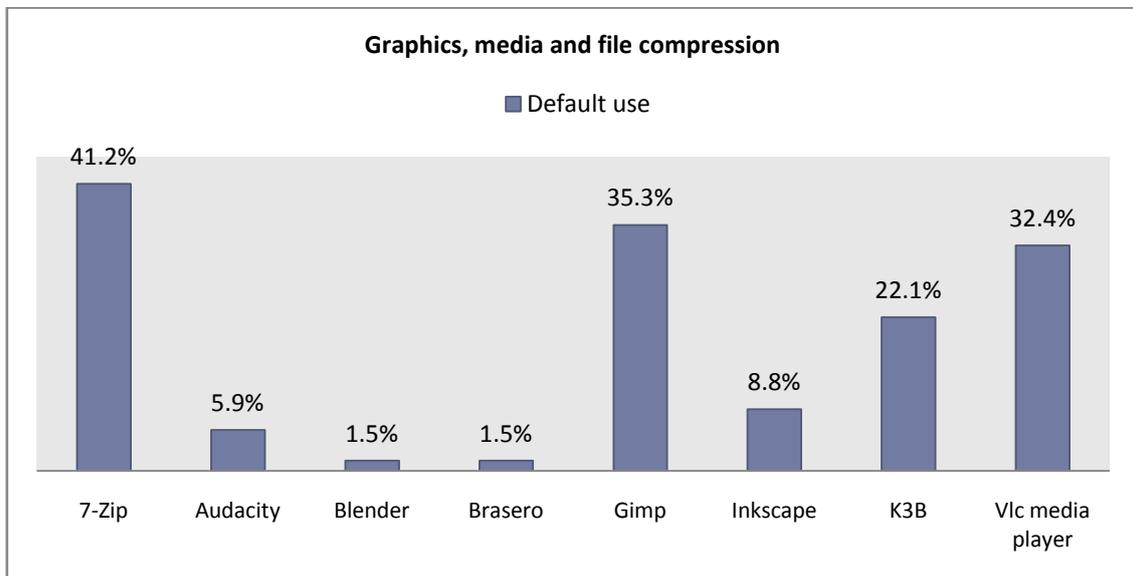
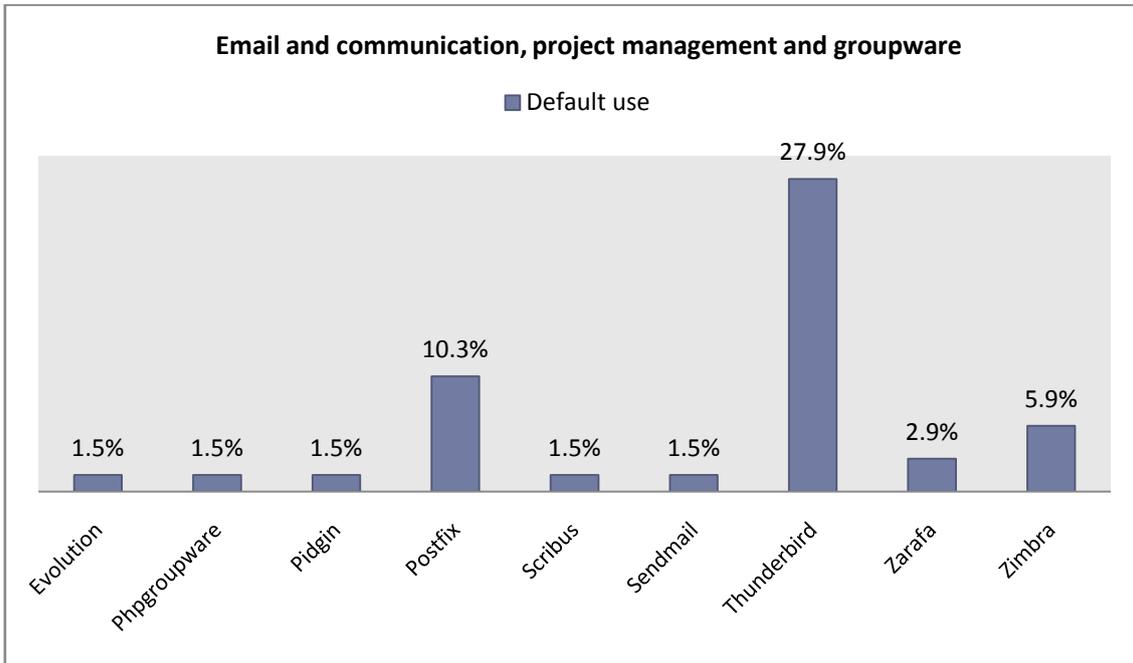


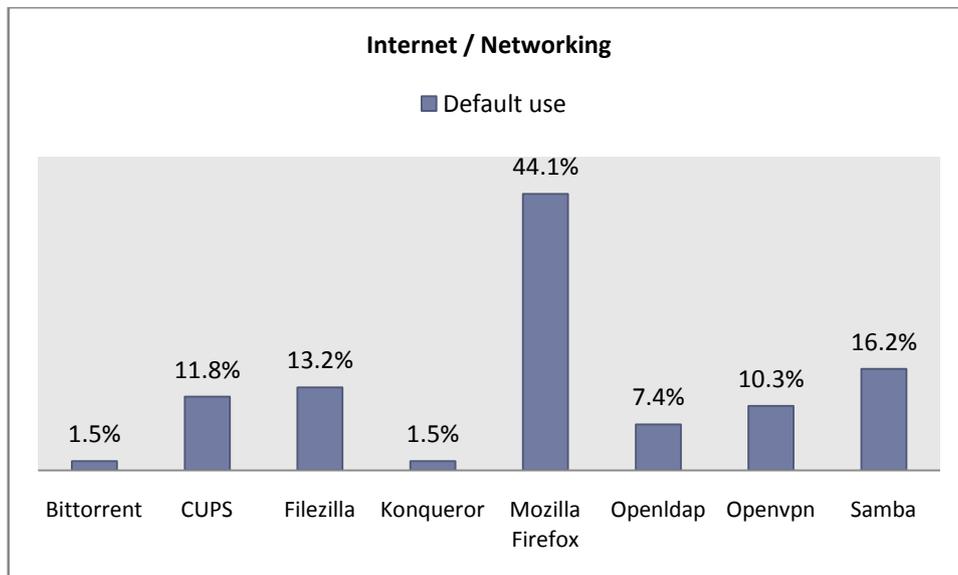
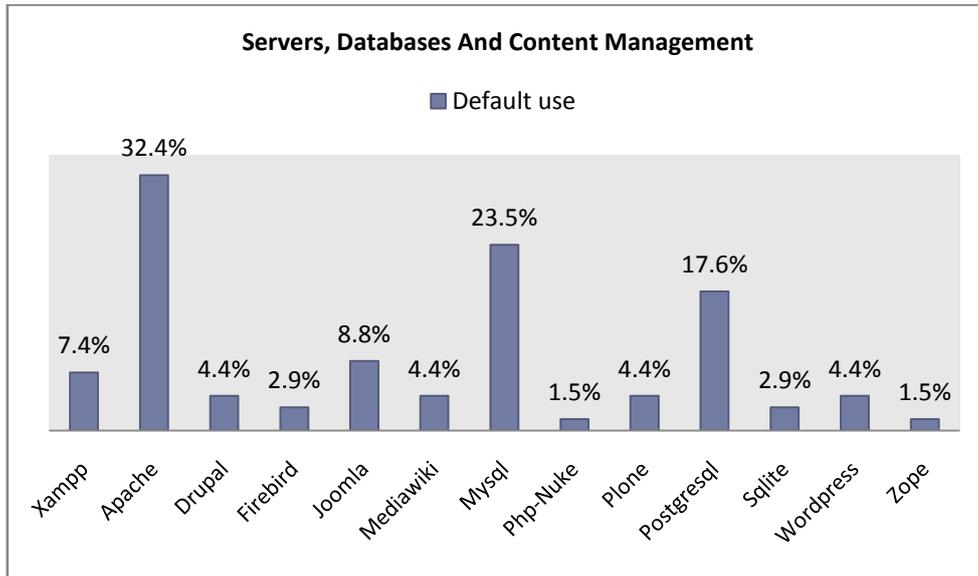
3.7.3. Use of FOSS applications by software category

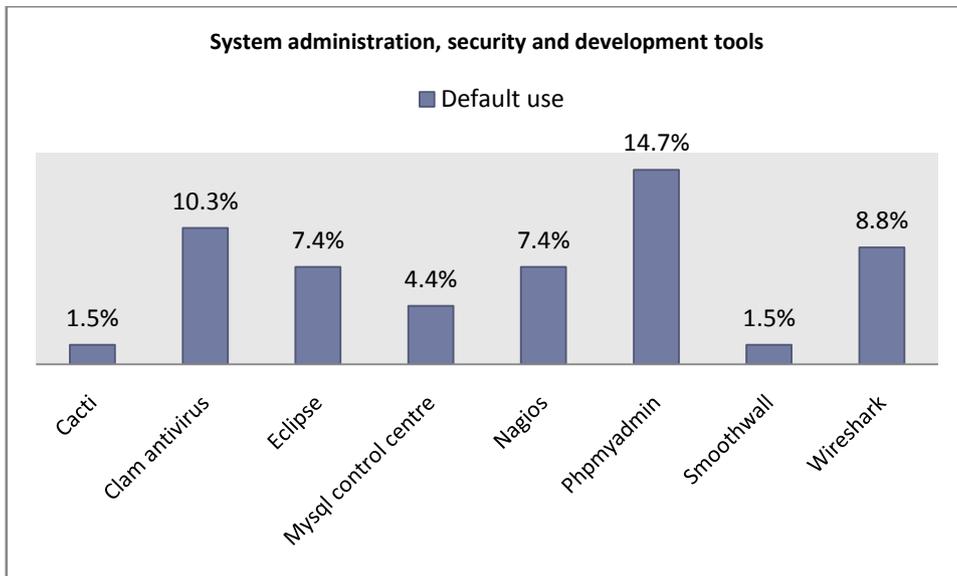
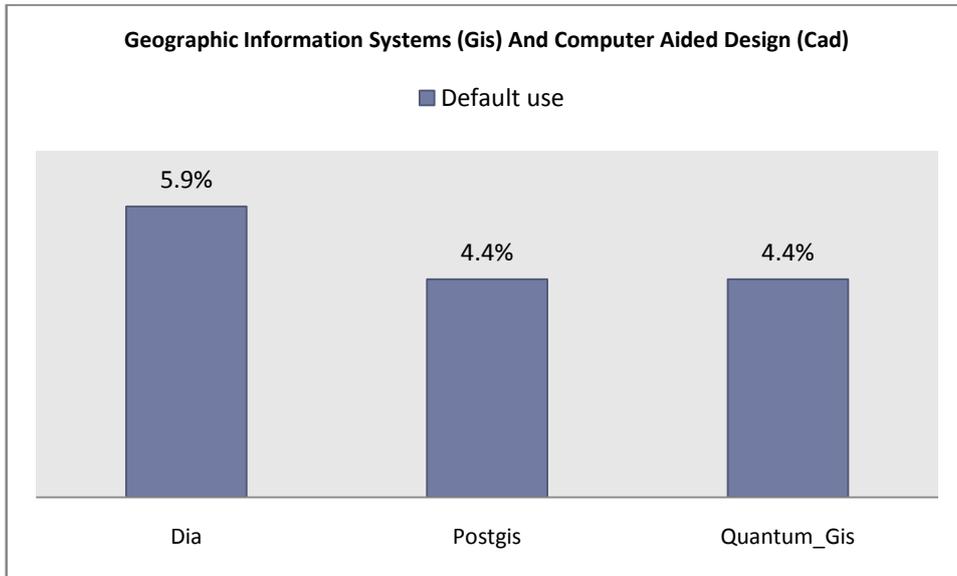
The following figures present a more detailed view on the most used FOSS applications by software category that have been indicated by survey participants as default software applications in their organisations. It is clear that widely supported, well-known and commonly used open source application packages such as OpenOffice/LibreOffice, Thunderbird, Mozilla Firefox, Gimp, VLC media player are more frequently used as default applications by public administration staff. In addition, IT staff in public administrations also uses certain, advanced FOSS tools as default applications for database management and system/server administration such as Apache, mySQL, phpmyAdmin.

Figures 50-56: Most used FOSS applications by software category (percentage of default use)









4. ANNEX A: data processing and analysis

Data processing and analysis, facilitated by a preparation stage of data consolidation, followed a four-step process as described below:

- 1) Step one: defining variables
- 2) Step two: mapping and coding of responses
- 3) Step three: statistical data processing
- 4) Step four: exporting results

Data preparation and processing steps were defined based on the foreseen analysis methodology for the OSEPA survey results, the structure of the online survey questionnaire and the type and volume of data produced.

4.1. Preparation stage: data consolidation

To validate survey results and facilitate data processing and analysis, upon survey completion, exported data was “cleaned”, validated and consolidated through a four-step process: 1) categorisation 2) screening 3) editing/correction 4) integration.

The OSEPA survey was conducted through local online questionnaire versions in 20 countries over a period of 10 weeks (24/10/2011 – 31/12/2011) gathering a total of 1507 – both full and incomplete – responses from 19 countries (no responses in France). Data consolidation resulted into a total of 1088 valid responses that were processed and analysed.

4.2. Step one: defining variables and levels of measurement

Based on the survey online questionnaire fields and the survey objectives, variables and levels of measurement were defined in order to process data accordingly.

Nominal (categorical), ordinal and interval types of variables were used in order to identify, categorize and quantify technical factors and technological aspects of FOSS usage within European Public Administrations.

Nominal or categorical variables are based on mutually exclusive but not ranked or ordered categories. Yes / no, multiple choice or demographic questions (e.g. age, gender, ethnicity, location) are usual examples of nominal variables. Nominal variable questions are mainly used to establish a respondent's or a public organisation's identity profile. In the case of the OSEPA survey's questionnaire on technical factors, nominal variables aim to establish an IT / technical profile for each participating organisation.

Ordinal variables are based on categories that can be ordered or ranked and therefore questions could include a rating scale. Offering an ordered set of choices, ordinal variables are more flexible than nominal variables and allow for an evaluation of priority issues, opinions or levels of satisfaction and agreement which in the context of the OSEPA survey relate to the technical aspects of FOSS usage.

Interval variables measure data ordered in equal intervals on a defined scale (e.g. temperature in Celsius scale). Interval variable types, typically the five-level Likert scale, are widely used in surveys to identify levels of agreement to a statement and possible variations or correlations.

4.3. Step two: mapping and coding of responses

Prior to data processing, valid responses were reviewed, grouped into categories and mapped to defined variables based on relevance, priority and question type (e.g. closed ended – open-ended). Questionnaire sections and fields with no direct relevance to FOSS or not allowing for quantitative processing (e.g. open text fields) were not included in the analysis process.

In case of investigating relations between variables more than one questionnaire fields were combined. In case of ordinal or interval variables, responses were recoded, where required in numerical values in order to allow for quantitative processing.

4.4. Step three: statistical data processing

SOFA, an open-source statistics, analysis, and reporting software package⁹ was used to import and process collected data for survey responses. SOFA was used to import and validate data, recode responses where needed, calculate frequencies, row and column stats, for single, paired (cross-tabs) or more than two variables. In case of numerical data, mean values were also produced.

4.5. Step four: exporting results

Data was exported from SOFA either to spreadsheet files or standalone reports summing up and visualising results. Exported results were compared to imported data for any

⁹ <http://www.sofastatistics.com>

inconsistencies and data processing was repeated if required. Finally, exported results were listed in tables, visualised in graphs and included in the analysis report.

5. ANNEX B: analysed questionnaire fields

Colour key to table

Personal info. Not processed.
Not included in analysis
Open ended questions that were not include in quantitative analysis
Responses to questions processed and analysed

QID	Question Full title	Type
INTRODUCTION		
Q01	<i>First name in English</i>	Closed ended
Q02	<i>Last name in English</i>	Closed ended
Q03	<i>Email address</i>	Closed ended
Q04	<i>The name of the public administration with which you are affiliated</i>	Closed ended
Q05	<i>Your role in the public administration</i>	Closed ended
YOUR ORGANISATION		
Q06	<i>Organization type</i>	Closed ended
Q07	<i>Approximate number of personnel in your organization</i>	Closed ended
Q08	<i>Does your organization outsource any of its IT based services?</i>	Closed ended
Q09	<i>Which IT based services does your organization outsource?</i>	Closed ended
Q10	<i>Is your organization reviewing IT budget in the light of financial cuts?</i>	Closed ended
Q11	<i>Does your organization have an active policy against the use of illegal software in offices/departments?</i>	Closed ended
Q12	<i>Is your organization using private or public cloud solutions?</i>	Closed ended
Q13	<i>Is your organization actively expanding services to include mobile phone and related access?</i>	Closed ended
Q14	<i>Is your organization engaging with social networking systems?</i>	Closed ended

Q15	<i>Does your organization have a dedicated data security manager?</i>	Closed ended
Q16	<i>Are you aware of what is free and/or open source software (FOSS)?</i>	Closed ended
	FOSS NON-TECHNICAL	Closed ended
Q17	<i>Which of the following statements best describes the experience (s) of FOSS operating systems and applications in your organization?</i>	Closed ended
Q18	<i>Has your organization or department ever migrated to FOSS operating systems and/or applications?</i>	Closed ended
Q19	<i>Is there any strategy/policy/official position adopted by your organization regarding FOSS?</i>	Closed ended
Q20	<i>Please provide more information related to your organization's strategy/policy/official position regarding FOSS</i>	Open ended
Q21	<i>Please attach a file of your organization's strategy/policy/official position if that is convenient.</i>	Open ended
Q22	<i>Which of these describes your organization's experience with supporting FOSS?</i>	Open ended
Q23	<i>Please indicate all that apply</i>	Closed ended
Q24	<i>How many applications that were developed and shared by other public administrations are in use by your organization?</i>	Open ended
Q25	<i>How many applications that were developed by your organization have been shared with other public administrations?</i>	Open ended
Q26	<i>How would you describe the general attitude of the IT staff in your organization towards FOSS usage?</i>	Closed ended
Q27	<i>How would you describe the general attitude of the NON - IT staff in your organization towards FOSS usage?</i>	Closed ended
Q28	<i>Which of these describes your level of involvement with the code of FOSS programs?</i>	Closed ended
Q29	<i>Please indicate your level of involvement with the OSOR.eu</i>	Closed ended
Q30	<i>Please indicate your level of use of the EUPL (European Union Public Licence)</i>	Closed ended
Q31	<i>Please rate your level of agreement with the following statements regarding FOSS benefits</i>	Closed ended
Q32	<i>Please rate the importance of the barriers to the successful implementation of FOSS</i>	Closed ended
Q33	<i>Please give any additional barriers that were not included in the above list.</i>	Open ended
Q34	<i>If your role is technical we ask you please to answer further questions. Do you wish to continue?</i>	Closed ended
	FOSS TECHNICAL	Closed ended
Q35	<i>Approximately how many servers (physical or virtual) are in use in your organization?</i>	Closed ended
Q36	<i>Approximately how many desktops & laptops (clients) are in use in your organization?</i>	Closed ended
Q37	<i>How would you describe the distribution of proprietary/FOSS applications most frequently used in a typical server in your organization?</i>	Closed ended
Q38	<i>How would you describe the distribution of proprietary/FOSS applications most frequently used in a typical desktop/laptop (client) in your organization?</i>	Closed ended

Q39	<i>Please choose how you wish to define the technical profile of your organization</i>	Closed ended
Q40	<i>For each type of software that your organization uses, what proportion of total use is FOSS?</i>	Closed ended
Q41	<i>Please specify the number of operating systems running on servers in your organization. Select all that apply.</i>	Open ended
Q42	<i>Please specify the number of operating systems running on clients (desktops and laptops) in your organization.</i>	Open ended
Q43	<i>Text processing and publishing tools. Please estimate how many indicate any that are the standard default application. Select all that apply</i>	Closed ended
Q44	<i>Please enter any other text processing and publishing tools that were not included above and indicate if they are your organization's default application.</i>	Open ended
Q45	<i>Email and communication, project management and groupware. Please estimate how many and indicate any that are the standard default application. Select all that apply</i>	Closed ended
Q46	<i>Please enter any other email, communication, project management or groupware tools that were not included above and indicate if they are your organization's default application.</i>	Open ended
Q47	<i>Graphics, media and file compression. Please estimate how many and indicate any that are the standard default application. Select all that apply</i>	Closed ended
Q48	<i>Please enter any other graphics, media and file compression tools that were not included above and indicate if they are your organization's default application.</i>	Open ended
Q49	<i>Internet / networking. Please estimate how many and indicate any that are the standard default application. Select all that apply</i>	Closed ended
Q50	<i>Please enter any other Internet / networking tools that were not included above and indicate if they are your organization's default application.</i>	Open ended
Q51	<i>Servers, Databases and Content Management. Please estimate how many and indicate any that are the standard default application. Select all that apply</i>	Closed ended
Q52	<i>Please enter any other server, database and content management tools that were not included above and indicate if they are your organization's default application.</i>	Open ended
Q53	<i>Geographic Information Systems (GIS) and Computer Aided Design (CAD). Please estimate how many and indicate any that are the standard default application. Select all that apply</i>	Closed ended
Q54	<i>Please indicate any other GIS or CAD tools that were not included above and indicate if they are your organization's default application</i>	Open ended
Q55	<i>System Administration, Security and Development tools. Please estimate how many and indicate any that are the standard default application. Select all that apply</i>	Closed ended
Q56	<i>Please enter any other System Administration, Security or Development tools that were not included above and indicate if they are your organization's default application</i>	Open ended