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PRIORITY 2
INFORMATION SOCIETY TECHNOLOGIES

FLOSSWORLD

Free/Libre and Open Source Software: Worldwide Impact Study

D13: Track 1 Survey Report – South Africa

(Referred to as D13a, D13b and D13c in the work packages description in the proposal)

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Table of Contents

List of tables

1. Introduction

This deliverable provides an overview of the methodology and samples of FLOSSWORLD Track 1 (skills survey) in South Africa. Track 1 consists of three separate surveys:

- Survey of FLOSS developers
- Survey of employers (HR managers at businesses)
- Survey of universities and institutes of higher education (HEIs)

The purpose of Track 1 is to find out how FLOSS contributes to human capacity building and how these capacities are valued by FLOSS community members and by employers. In this context, the study of HEIs is intended to reveal the role of FLOSS for higher education and how FLOSS is employed and taught in HEIs.

2. Design and Methodology

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

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

	Phase 1: Design, Implementation	Phase 2: Analysis, Policy
Track 1: study of human capacity building / skills development in FLOSS developer communities	Plan analytical framework. Finalise design and methodology of survey and questionnaire (based on results of on-going FLOSSPOLS survey). Define representative sample for employer/business and university/HEI respondents. Identify sample for FLOSS developer survey (possibly with Track 2). Localise questionnaire. Conduct pre-testing of questionnaire. Conduct survey. (For developer survey, possibly conduct jointly with Track 2.)	Interpret survey results. Determine quantifiable skills development impact of FLOSS participation and value to employers. Compare by region and with Europe (relate to results from FLOSSPOLS, CALIBRE). Determine policy impact on use of FLOSS in the education sector. Determine impact of FLOSS-based skills development on employment generation and business success.

Table 1: Design of Track 1

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

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

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

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

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

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

The questionnaire[2] for FLOSS developers asked, among other things, for detailed developer perceptions of skills learnt informally through FLOSS communities in comparison to a more formal setting (multi-disciplinary skills – understanding licensing issues, managing teams, writing modular software…). Developers were also asked to describe what activities (reading code, reading a book, participating in community discussion groups) lead to learning what skills. These questions aimed to determine what benefits for skills development are seen by participants. Finally, respondents were asked to quantify their skills in terms of increased employment possibilities and earning capacity.

The questionnaire for employers was directed at human resource managers at companies – not FLOSS or even software companies, simply employers of IT-skilled personnel. It complements the developer questionnaire to determine employers' perceptions of the type and level of skills learnt informally through participation in FLOSS communities, versus formally through, e.g., universities. Employers are also asked to quantify such skills in terms of hiring preferences and salary levels.

2 The questionnaires for the surveys and the guidelines for the local partners to execute the survey in their region are attached in Annex A. These documents are referred to in the proposal as Deliverable 6a (not to be released separately).

Universities and other Higher Education Institutes (HEIs) in target countries were surveyed to understand and utilize the information gathered by the survey of developers since for many target countries, the tertiary educational and training institutions are prime access points to the Internet for many young people, at high enough bandwidths to support interactive communication and initial involvement in experiential learning. These also are locales of personal contacts with more expert users and developers of FLOSS code, which may be important for effectiveness even in remote learning. (The FLOSS-US survey showed a clustering of South African developers at one locale, an HEI in Bangalore.) Thus, the policies of HEIs, and the depth of their personnel's expertise are important factors conditioning the entry of new cohorts of developers, as indicated by the prominence of university and technical college students among respondents to FLOSS and FLOSS-US. The third Track 1 survey targeted at investigating HEIs usage and awareness of FLOSS in order to identify institutional obstacles and solutions to overcome them in the target countries, and further at identifying sources of institutionalized capability in regard to FLOSS use in instruction and research.

3. Overview of the Samples of the three Track 1 Surveys

3.1. Developer Survey

51 FLOSS community members have participated in the FLOSSWORLD developer survey in South Africa. 2 respondents (4%) are female. 98% of the respondents are South Africans, 1 respondent is Italian. All respondents live in South Africa. On average, FLOSS community members in this region joined the community at the end of 1999, though 61% joined it after this year, thus indicating an ongoing strong dynamics.

The age of the respondents ranges between 19 and 58 years. 35% of the respondents are between 18 and 25 years old, and 16% are older than 40 years. The average age is 31 years; the South African FLOSS community is thus the “oldest” one as compared to the other FLOSS communities that were surveyed in FLOSSWORLD.

On average, South African developers start using a computer at the age of 13.1 and have their first own computer with 17.6 years. No respondent reported that he does not own a computer.

Table 2 shows the educational degrees of South African FLOSS community. Like in other FLOSS communities, university degrees dominate among the community members as the highest formal educational degree.

What is the highest level of education you have completed?

Degree	Percentage
elementary or primary school	0,0
A-levels	3,9
apprenticeship	5,9
high school	17,6
university - bachelors	43,1
university - masters	27,5
university - PhD	2,0
other	0,0
Total	100,0

Table 2: Educational degree of FLOSS community members

The share of the employed among the respondents is 59%, self-employed provide a share of 28%, and students provide a share of 12%. The share of unemployed was 2%. The professional structure of the South African respondents, illustrated in Table 3, resembles very much the structures of most other FLOSS communities.

If you are employed or self-employed, what is your profession?

Profession	Percentage
programmer	22,9
consultant	5,7
system administrator	8,6
software engineer	42,9
executive (manager, department heads)	8,6
network administrator	0,0
Internet/web designer	5,7
researcher	0,0
university staff	5,7
Total	100,0

Table 3: Professional structure

Software engineers and programmers provide the lion share of the community, network administrators and researchers do not appear at all within the respondents.

The share of South African FLOSS community members that earn money from their FLOSS activities is 55%, which corresponds to European FLOSS communities. Those who earn money directly from FLOSS are rather supporting than developing or administrating FLOSS, those who earn indirect monetary rewards usually got their job because of their FLOSS experience (Table 4).

Do you earn money from FLOSS, either directly or indirectly?

Direct / indirect monetary rewards	Percentage
Yes, I am paid directly for developing FLOSS	10,7
Yes, I am paid directly for supporting FLOSS	12,0
Yes, I am paid directly for administrating FLOSS	9,3
Yes, I am paid directly for other FLOSS activities	8,0
Yes, I am paid indirectly, - I got my job because of my FLOSS experience	9,3
Yes, I am paid indirectly, - I develop FLOSS at work although my job description does not include FLOSS development (i.e. my employer does not know that I develop FLOSS)	2,7
Yes, I am paid indirectly, - I also develop FLOSS at work (my employer knows that I develop FLOSS at work)	8,0

Table 4: Monetary rewards for FLOSS activities

The respondents can be distinguished by their degree of project and network experience in the FLOSS community. 24% of the respondents were not involved in any project when they participated in the FLOSSWORLD survey, 6% have never participated in any project, 57% have never led a project and 14% have no regular contact to any other FLOSS community member. On average, those who dispose of such experience were involved in 2.3 projects when the survey was carried out, participated in a total of 5.9 projects and led 1.9 projects since they joined the community, and have regular contacts to 11.8 other community members.

61% of the South African respondents work more with local communities in their country, 22% work more with international developers (17% don't know). 35% of the self-employed or employed respondents work more with independent developers, another 29% more within the firm (36% don't know). Finally, 55% of the respondents claim that they choose projects and tasks themselves, 35% are delegated to projects and tasks (10% don't know).

3.2. Employers Survey

37 South African employers have participated in the survey. All respondents know by and large FLOSS and how it differs from proprietary software. The share of companies using or developing FLOSS is 92%.

73% of the respondents consider FLOSS to be very important within the company (in any form - as a software user, developer, or vendor), and another 24% consider the role of FLOSS in their company as important. 3% say that the role of FLOSS in their company is hardly important. While all the FLOSSWORLD employer surveys resulted in a sample biased towards FLOSS users the South African sample is thus the one with the strongest bias.

Like in many other countries that were surveyed, small firms dominate among the respondents. 89% of the South African respondents represent small companies. Only 3% of the employers represent companies with more than 250 employees. The detailed size structure of the companies of the respondents is illustrated in Table 5.

How many people (including yourself) work in your company?

Number of employees	Percent
1-5	48,6
6-10	18,9
11-30	18,9
31-50	2,7
51-100	8,1
101-250	-
251-500	2,7
501-1000	-
More than 1000	-
Total	100,0

Table 5: Size of respondents' companies

95% of the respondents know whether there are employees in their company who have experience in the field of FLOSS. Remarkably, the lion share is provided by firms that employ (almost) exclusively employees with FLOSS experience (see the detailed shares in Table 6).

78% of the South African employers ask job applicants about their FLOSS experience, whereby 62% ask directly for FLOSS experience in job advertisements. 87% have positions in their company that require FLOSS experience. In 45% of these companies these positions are usually leadership positions.

What is the share of those with free software / open source software experience in your company?

Share of employees with FLOSS experience	Percent
1-10%	8,8
11-20%	-
21-30%	5,9
31-40%	8,8
41-50%	2,9
51-60%	8,8
61-70%	2,9
71-80%	2,9
81-90%	8,8
91-100%	50,0
Total	100,0

Table 6: Share of employees with FLOSS experience in respondents' companies

3.3. HEI Survey

Overall, representatives of 12 institutions have replied to the HEIs survey in South Africa, of which 7 are IT managers and 5 are administrators. There are no female respindents. The average age of the respondents is 39.5 years.

The number of enrolled undergraduates across all HEIs is 9,308; the number of enrolled graduates is 4,102. 952 persons belong to the teaching and research personnel at the 12 HEIs, while the administrative and support staff comprises 584 persons.

83% of the administrators and 83% of the IT managers said that their organisation uses FLOSS, whereby 94% see a need for the FLOSS use to increase in the entire institution. 61% of the HEIs also develop FLOSS.

17% of the South African respondents to the HEI survey claimed to have private and work-related FLOSS experience, 33% have only work-related FLOSS experience, nobody reported to have FLOSS experience only related to his private life, and 50% have no FLOSS experience at all.

In 33% of the HEIs job applicants are asked about their FLOSS experience. 33% of the HEIs have positions that require FLOSS skills, but in none of these cases these positions are usually leadership positions.

4. Regional Analysis

In this section we provide a descriptive overview of basic findings from FLOSSWORLD Track 1 for South Africa. A deeper analysis related to relevant literature and comparing results across the 8 countries covered by the FLOSSWORLD consortium is provided in D31.

It must be emphasised that FLOSSWorld was not designed in order to provide a statistically representative account of FLOSS-related human capacity building in the scrutinised regions. FLOSSWORLD primarily aimed to strengthen Europe's leadership in international research in FLOSS and open standards, and to exploit research and policy complementarities to improve international cooperation, by building a global constituency of policymakers and researchers. FLOSSWorld thus contributes to enhancing Europe's leading role in research in the area of FLOSS and strongly embed Europe in a global network of researchers and policy makers, and the business, higher education and developer communities. Finally, another purpose of FLOSSWorld was to enhance the level of global awareness related to FLOSS development and industry, human capacity building, standards and interoperability and e-government issues in the geographical regions covered by the consortium. The project contributed significantly in establishing and /or supporting a stronger, sustainable research community in these regions. The requirements from the data quality regarding proper academic research were therefore of secondary importance. Testing if and under which conditions data can be gathered in these regions and how collaboration between European and local research partners in these regions can be organised was way more important than statistical representativeness. In order to measure the success of Track 1 the consortium defined following thresholds for data collection, regardless of whether or not the data that was collected was representative:

- Developer survey: 320 developers across 8 countries of respondents
- Employer survey: 400 employers across 8 countries of respondents
- HEI survey: 400 HEIs across 8 countries of respondents

As described above (section 3), only the developer survey successfully reached the threshold. The reason why the HEI survey did not meet this criterion is that the HES in South Africa is not as large as supposed when the thresholds were defined. In fact, our South African partners pointed out that the 12 HEIs represent almost all important HEIs of the country. The reason why the employer survey did not reach the threshold is probably that the South African government had carried out a survey on FLOSS development in firms just one year before the FLOSSWORLD survey started, so that we assume that survey fatigue explains most of the comparably low response from South African employers.

4.1. Motivations for joining the FLOSS community and contributing to projects

The main reason why people join the FLOSS community in South Africa is to learn new skills, which perfectly corresponds to other communities. There are however some significant differences in the motivations of South African developers: South African community members emphasise more than others the importance of problem solving and improving job opportunities. Getting a reputation within the FLOSS community, distribute software that cannot be distributed as proprietary software, and to improve other developers' FLOSS products are the least important motivators for South African community members (see Table 7).

Remembering the time you joined the FLOSS community, what was the reason for this? (Maximal four answers)

Motivation	Percentage
to learn and develop new skills	80,4
because I think that software should not be a proprietary product	39,2
to solve a problem that could not be done by proprietary software	31,4
to improve my job opportunities	29,4
to share my knowledge and skills	27,5
to participate in new forms of cooperation	25,5
to participate in the OS/FS scene	25,5
to limit the power of large software companies	17,6
to get help in realizing a good idea for a software product	9,8
to make money	7,8
to improve OS/FS products of other developers	5,9
to distribute not marketable software	2,0
to get a reputation in the OS/FS developers' scene	0,0

Table 7: Reasons to join the FLOSS community

Regarding the projects the FLOSS community members choose to participate there may be other aspects that motivate people because contributing to projects happens only after the community member has acquired some knowledge and FLOSS experience. Like in many other countries the most important reasons why South African community members join a certain project are quite similar to the main motivation for joining the community. Table 8 shows that the wish to learn something new and personal interests, together with project involvement after being a user of the product of the project they join, are the main motivators to join a project.[3]

I joined this project…	%
Because I got somehow involved, after being a user of this project	36,6
Because I had a friend who was a developer of the project	9,8
Because I chose it as the most appropriate for my skills	19,5
Because I chose it as the most appropriate for my interests	34,1
Because I was hired to work in it	26,8
Because I worked in similar projects / a similar project before	9,8
Because I wanted to learn something new (I never worked in similar projects before)	39,0

Table 8: Reasons to join a certain FLOSS project

3 A detailed analysis of FLOSS projects and the way how FLOSS community members are involved is provided in Deliverables D22-D30.

4.2. Activities within the FLOSS community

The activity profile, gained from comparing activities that are performed often or very often to activities that are performed sometimes, seldom or not at all, shows that South African community members tend towards social and political activities, i.e. promoting FLOSS and participating in discussions and communications. Translating texts or software and providing creative elements are activities that the majority of the community members hardly performs (Table 9).

Activities performed within the FLOSS community

Activity	N	Mean*	Std.dev.
I convince people to migrate towards FLOSS	46	0,8	0,9
I read questions & answers in forums	47	0,8	1,0
I raise public awareness for FLOSS	46	0,7	1,0
I observe what the others do (inactive)	46	0,5	1,1
I participate in discussions	49	0,4	0,9
I test software	41	0,0	1,3
I answer questions in forums	45	-0,2	0,8
I read bug-reports / release reports	43	-0,3	1,0
I participate in technical workshops etc.	41	-0,3	1,1
I write code / fix bugs / provide patches	45	-0,5	1,4
I coordinate projects	39	-0,6	1,5
I provide ideasfor software projects	41	-0,7	1,0
I provide tutorials, HOWTOs, etc.	45	-0,8	0,9
I administer websites	38	-0,9	1,3
I participate in political activities	38	-1,1	1,0
I package software	42	-1,1	1,3
I document software	37	-1,1	0,8
I organise workshops etc.	37	-1,1	1,1
I moderate mailing lists	38	-1,3	1,2
I provide creative elements	37	-1,4	1,0
I translate software or documentation	39	-1,7	0,7
I translate texts (philosophy)	37	-1,8	0,6

* = Mean can range between -2 and 2. Values refer to following scale: -2 = not at all, -1 = seldom, 0 = sometimes, 1 = often, 2 = very often

Table 9: Activities within the FLOSS community

A completely different picture emerges from the data when the activities performed in the FLOSS community are considered with regard to whether their importance increases, decreases or remains the same over time. As illustrated in Table 10, those activities that were performed comparably seldom are just the ones that become more and more important for South African FLOSS community members over time.

Importance of activities within the FLOSS communityover time

Activity	N	Mean*	Std.dev.
I translate texts (philosophy)	32	0,9	0,2
I moderate mailing lists	34	0,6	0,7
I translate software or documentation	35	0,6	0,8
I provide creative elements	35	0,5	0,9
I administer websites	35	0,3	1,0
I read bug-reports / release reports	42	0,3	1,0
I provide ideasfor software projects	39	0,3	1,0
I package software	39	0,3	1,0
I organise workshops etc.	34	0,1	1,0
I participate in political activities	37	0,1	1,0
I document software	33	0,1	1,0
I provide tutorials, HOWTOs, etc.	42	0,0	0,9
I observe what the others do (inactive)	46	0,0	0,8
I participate in technical workshops etc.	40	0,0	1,0
I coordinate projects	37	-0,1	1,0
I write code / fix bugs / provide patches	41	-0,2	0,9
I read questions & answers in forums	46	-0,2	0,9
I test software	36	-0,2	1,0
I answer questions in forums	44	-0,2	0,9
I participate in discussions	48	-0,4	0,9
I convince people to migrate towards FLOSS	45	-0,4	0,9
I raise public awareness for FLOSS	45	-0,5	0,9
* = Mean can range between -1 and 1. Values refer to following scale: -1 = decreased, 0 = not changed, 1 = increased			

Table 10: Change of importance of activities within FLOSS community over time

4.3. Human capacity building

Participating in the FLOSS community is not limited to coding. As shown in Table 9, a wide variety of activities can be performed in FLOSS. As a consequence, the FLOSS community provides its members with an environment that enables them to improve more than only technical skills. We have asked the respondents to evaluate 31 different skills with regard to how much these skills have improved through their participation in the FLOSS community. These 31 skills were roughly differentiated into technical, managerial, legal, and general skills, plus two items representing "general awareness" of what is going on in software and the FLOSS scene. Table 11 shows that for South African FLOSS community members the community appears mainly useful for improving technical skills. The least improving skills contain skills of all four categories. Legal skills, which are reported to improve a lot through participating in the FLOSS community in other communities show only a medium improvement as compared to other skills.

Which of the following skills improved through your participation in the FLOSS community?

	N	Mean	Std.dev.
Improvement of general awareness: To get an overview of developments in software technology	49	3,1	1,0
Technical skills improvement: To become familiar with different programming languages	49	2,9	1,1
Technical skills improvement: To run and maintain software systems	48	2,9	1,1
Technical skills improvement: To write code in a way that it can be re-used	45	2,8	1,3
Technical skills improvement: To re-use code written by others	43	2,8	1,1
Technical skills improvement: Basic / introductory programming skills	46	2,7	1,3
Improvement of general awareness: To get an overview of the skills you need in the software professions	46	2,7	1,2
Managerial skills improvement: To express your personal opinions	41	2,5	1,2
Technical skills improvement: To look for bugs	45	2,4	1,3
Legal skills improvement: To understand licences	46	2,4	1,0
Legal skills improvement: To understand copyright law issues	46	2,3	1,2
Technical skills improvement: To design modular code	45	2,3	1,4
Legal skills improvement: To understand the differences between copyrights, patents, and licences	45	2,3	1,1
Managerial skills improvement: To accept and to respond to criticism from others	40	2,3	1,2
Managerial skills improvement: To coordinate your own work with the work of others	38	2,2	1,1
Technical skills improvement: To fix bugs	43	2,2	1,3
Managerial skills improvement: To clearly articulate an argument	37	2,2	1,2
Legal skills improvement: To understand patent law issues	46	2,2	1,2
Managerial skills improvement: To keep a community going	37	2,2	1,2
Managerial skills improvement: To clearly define and achieve targets	37	2,1	1,3
Managerial skills improvement: To evaluate the work of others	39	2,1	1,0
Managerial skills improvement: To motivate people	39	1,9	1,2
Managerial skills improvement: To lead a project or a group of people	36	1,9	1,5
General skills improvement: To understand and work with people from different cultures	43	1,9	1,2
Technical skills improvement: To document code	44	1,9	1,1
Legal skills improvement: To improve your understanding of liability issues	44	1,8	1,1
Managerial skills improvement: To settle conflicts within a group	38	1,7	1,2
General skills improvement: To interact with other people	44	1,7	0,9
Managerial skills improvement: To plan work and stick to a work schedule	36	1,6	1,1
Technical skills improvement: To create new algorithms	41	1,4	1,2
General skills improvement: To better understand English, especially technical discussion	41	1,1	1,2

* = Mean can range between 0 and 4. Values refer to following scale: 0 = nothing, 1 = little, 2 = some, 3 = more, 4 = a lot

Table 11: Skills improvement through FLOSS

The question which skills – based on a limited set of items in order to avoid survey fatigue of the respondents – can better be learnt in the FLOSS community than in a computer science course at university or at a firm (Table 12) revealed that the largest shares of the South African developers

consider two managerial skills ("to accept and to respond to criticism from others" and "to coordinate your own work with the work of others") and legal skills to be better to be learnt in FLOSS than in formal courses. Software-related technical skills like writing reusable code or running and maintaining complex software systems, which belong to the most FLOSS-specific skills in other communities, are secondary in the South African community. The strong emphasis on running and maintaining complex software systems might be explained by the fact that system administrators provide a large share of the respondents. Skills that were considered as FLOSS-specific by comparably few respondents are basic programming skills and managerial skills such as to plan work and stick to a work schedule or to define and achieve targets.

Which of the following skills can be better learnt within the FLOSS community as compared to a formal computer science course, e.g. at university or at a firm? - Developers' and employers view

Technical skills	**Developers**	**Employers**
To write code in a way that it can be re-used	70,0	63,9
To document code	38,0	38,9
To run and maintain complex software systems	74,0	58,3
Basic / introductory programming skills	32,0	30,6
Managerial and teamwork skills		
To accept and to respond to criticism from others	78,0	55,6
To coordinate your own work with the work of others	84,0	52,8
To express your personal opinions	54,0	38,9
To lead a project or a group of developers	56,0	41,7
To evaluate the work of others	76,0	52,8
To clearly define and achieve targets	30,0	33,3
To plan work and stick to a work schedule	24,0	33,3
Legal skills		
To develop an awareness of legal issues relating to software, such as copyright, patents, licensing, liability	80,0	55,6

Table 12: Skills better learnt in FLOSS than in a formal computer science course – developers' and employers' views compared

Like in many other countries the view of developers on skills that can better be learnt informally in the FLOSS community than in formal courses complies very much with the view of employers on these skills (Table 12).

Table 13 illustrates how South African FLOSS community members evaluate the usefulness of different forms of learning. The mean values indicate that all these forms are considered to be useful ways of learning, except for formal learning in training courses. Guidance from mentors fixing bugs, and participating in discussions are considered to be the most useful ways of learning.

How useful do you personally consider the following activities as ways of learning technical skills?

Ways of learning	N	Mean	Std.dev.	Never done (%)
Learning: Guidance from mentors	47	2,7	0,6	4,1
Learning: Fix bugs	36	2,4	0,8	21,7
Learning: Participate in the discussions within the FLOSS community	47	2,4	0,7	0,0
Learning: Reading other developers' feedback to my patches / bug-reports/bug-fixes	37	2,4	0,7	21,3
Learning: Reading source code of programs and patches	41	2,3	0,7	14,6
Learning: Reading books or articles on programming	48	2,1	0,7	0,0
Learning: Checking programs	40	2,0	0,7	7,0
Learning: Participate in workshops or congresses	44	1,8	0,9	8,3
Learning: Reading bug reports	46	1,7	0,7	6,1
Learning: participating in training courses	45	1,6	0,9	10,0

* = Mean can range between 0 and 3. Values refer to following scale: 0 = not at all useful, 1 = slightly useful, 2 = useful, 3 = very useful

Table 13: Usefulness of different ways of learning within the FLOSS community

57% of the respondents consider the skills they learn in the FLOSS community as a core skill for their professional career, 31% consider them as a useful supplement, and 6% as an end in itself but unimportant for their professional career (6% don't know).

The skills that are learnt within and from the FLOSS community must also be evaluated with regard to the knowledge people have about FLOSS when they join the community. As illustrated by the mean values in Table 14, the South African FLOSS community members' advance knowledge when they joined the community was little with regard to all four dimensions of FLOSS that were addressed in the survey. Least was known about work and cooperation in FLOSS.

How much did you already know about FLOSS before you joined the FLOSS community?

Fields of knowledge	N	Mean	Std.dev.
Known before joining FLOSS: Technical aspects of FLOSS (programming languages, projects, products)	49	1,0	0,7
Known before joining FLOSS: How work and cooperation in FLOSS is organised	50	0,5	0,6
Known before joining FLOSS: The philosophy of free software or open source software	50	0,8	0,8
Known before joining FLOSS: The difference between FLOSS licences and proprietary licences	49	0,8	0,9

Table 14: Knowledge about FLOSS before joining the community

Regarding the value of FLOSS skills as compared to formal degrees, 67% of the developers think that proven participation in the FLOSS community can compensate for the lack of formal degrees, like certificates or university degrees. South African employers have a similar view on this in the sense that the largest share (51%) considers both qualifications as equal, though 21% say that a formal qualification is better than practical FLOSS experience and 19% say that the formal qualification is worse than practical FLOSS experience (8% don't know).[4] 92 % of the employers also say that FLOSS experience adds value to a formal computer science qualification.

4 The question the developers had to answer was: "For a prospective or current employee: How do you consider the relative merit of a university degree or other formal computer science qualification as compared to practical experience as a developer in the free software / open source software community?"

When two people with exactly the same level of formal qualifications but different experiences are imagined, Person A with proven experience developing an important component of a proprietary software product and Person B with proven experience developing an important component of a FLOSS software product of equivalent complexity, 41% of the FLOSS community members think that Person B and only 18% think that Person A would be in a better position to get a job.[5] 31% think that both are equal. 10% did not know how to decide on this question. South African employers' view on FLOSS skills is quite similar to the developers' view: 16% say that the differences between Person A and Person B would not influence their preference, 76% say that they would prefer Person B, and 8% would prefer Person A. The preference of employers for the FLOSS-experienced applicant is the strongest as compared to the other countries that were surveyed by FLOSSWORLD.

The question whether the FLOSS community members think that people like person A, with proprietary development credentials, are paid the same by employers as people like person B, with FLOSS development credentials, was apparently hard to answer, as 43% replied that they don't know if this is the case. 37% of the respondents assume that Person A would get paid more. Only 4% think that Person B would get paid more, and the share of those who think that both would get paid the same is 16%.

53% of the employers replied that they pay persons with FLOSS experience the same as persons with a formal computer science qualification. 9% said they would pay the person with formal degrees more, while 15% would pay those with an informal FLOSS qualification more (24% don't know).

5 It was explained to the respondents that "job" refers not just to permanent employment, but also any other paid work including freelance or consultancy.

5. Conclusions

FLOSSWORLD has proven that a successful collaboration between European and South African research partners is possible and reveals valuable results. What has been found out about the South African FLOSS community implies that this community differs in many respects very much from other European and non-European FLOSS communities. These differences relate to its demographic structure, which is characterised by a comparably high average age, and to motivations, as improving job opportunities is a much more important motivator for South Africans than for others. Another difference between FLOSS in South Africa is that the support for FLOSS from employers is much stronger than in other countries, though the reservation must be made that the South African employer sample is more biased towards FLOSS-related firms than the other FLOSSWORLD employer samples. The South African FLOSS community shows however strong coincidence with other European and non-European FLOSS communities with regard to the skills that are learnt through FLOSS and how these skills are evaluated with regard to their value on the labour market. Like in other regions, people are attracted by the FLOSS community through its philosophy and, most important, by its capacity to work as a relatively costless learning environment.

Annex A1: Questionnaire for Developer Survey

organisation :
name :
position :
email :
country :

1 / 53. What is your gender?

man

woman

---

2 / 53. How old are you?

---

3 / 53. What is your nationality?

---

4 / 53. In which country do you live?

---

5 / 53. When did you join the FLOSS community?

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6 / 53. What is the highest level of education you have completed?

:
◉

:
○
○

:
○
○

:

○
○
○

Other:
Please specify

---

7 / 53. From which age onwards did you use a computer?

years old

---

8 / 53. At what age did you have your first computer of your own?

years old

☐ I do not own a computer

---

9 / 53. What is your current employment status?

○ I do not work at present because I am unemployed

○ I do not work at present because I am a stay-home spouse

○ I do not work at present because I am student

⊙ I am employed

○ I am self-employed / free lancer / contractor

○ I am retired

9a / 53. If you are employed or self-employed, what is your profession?

○ Software engineer
○ Programmer
○ System Administrator
○ Network Administrator
○ Database Administrator
○ Internet / Web designer
○ Designer/Illustrator/Graphic Artist
○ Researcher
○ Consultant

○ Executive (Manager, Department Heads)
○ University staff

Other profession ? Please specify:

---

10 / 53. Approximately, what is your monthly gross income (i.e. total income per month, including benefits, before taxes)? Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

---

11 / 53. Do you earn money from FLOSS, either directly or indirectly? Please check every item that applies to you.

- ☒ No, I don't get any monetary remuneration for my FLOSS activities
- ☐ Yes, I am paid directly for developing FLOSS
- ☐ Yes, I am paid directly for supporting FLOSS
- ☐ Yes, I am paid directly for administrating FLOSS
- ☐ Yes, I am paid directly for other FLOSS activities
- ☐ Yes, I am paid indirectly, - I got my job because of my FLOSS experience
- ☐ Yes, I am paid indirectly, - I develop FLOSS at work although my job description does not include FLOSS development (i.e. my employer does not know that I develop FLOSS)
- ☐ Yes, I am paid indirectly, - I also develop FLOSS at work (my employer knows that I develop FLOSS at work)

Part 2: Your role in the FLOSS community

---

12 / 53. Remembering the time you joined the Free/Libre and Open Source Software community, what was the reason for this? (Maximal four answers)

- ☐ to participate in new forms of cooperation

- ☐ to learn and develop new skills
- ☐ to share my knowledge and skills
- ☐ to participate in the OS/FS scene
- ☐ to improve my job opportunities
- ☐ to improve OS/FS products of other developers
- ☐ to get a reputation in the OS/FS developers' scene
- ☐ to distribute not marketable software
- ☐ to get help in realizing a good idea for a software product
- ☐ to solve a problem that could not be done by proprietary software
- ☐ to limit the power of large software companies
- ☐ because I think that software should not be a proprietary product
- ☐ to make money
- ☐ I do not know

---

13 / 53. How would you characterise your participation in the Free / Libre / Open Source Software (FLOSS) community? Please indicate for each item to which degree it applies to you. Please indicate also how the importance of these activities has changed for you since you joined the FLOSS community. Leave out the activities you have never performed!

activity	scale	changing importance
I observe what the others do, but do not actively participate		
I participate in discussions		
I read questions & answers in forums		
I answer questions in forums		
I provide documents to help people with their FLOSS problems (e.g. tutorials, HOWTOs)		
I read bug-reports / release reports		
I test software		
I write code / fix bugs / provide patches		
I provide ideas for new features for a software project		
I package software		

I translate software or documentation (internationalisation / localisation)		
I translate texts about the idea / philosophy of FLOSS		
I provide graphics, sounds, or other creative elements for a project or Website		
I document software		
I have a coordinating function for a project (development)		
I help organising workshops, congresses, and other meetings		
I participate in technical workshops, congresses, and other meetings		
I participate in political activities (e.g. against software patents)		
I try to raise public awareness for FLOSS		
I try to convince people to migrate towards FLOSS		
I administer websites for FLOSS activities		
I moderate mailing lists for FLOSS activities		
Other, please specify		

13a / 53 Are you a member of local / national FLOSS groups (e.g. LUGs, voluntary associations, etc.)

○ yes

⊙ No

if yes, please list the groups:

14 / 53. What licences do you use for the FLOSS software you write? Please answer separately for situations in which you can choose the license yourself and situations in which you have to use a license that is prescribed by the project you contribute to.

a) When I choose the licence myself, I choose:	
strong reciprocal / copyleft licences: LGPL, GPL, etc	
weak copyleft licences: CDDL, Mozilla license	
permissive ("BSD"-like) licenses: BSD, MIT, Apache, Perl Artistic, Zope etc.	
b) When I contribute to projects which have chosen a licence, :those licences are:	
strong reciprocal / copyleft licences: LGPL, GPL, etc	
weak copyleft licences: CDDL, Mozilla license	
permissive ("BSD"-like) licenses: BSD, MIT, Apache, Perl Artistic, Zope etc.	

15 / 53. What are the roles of an open source/free software license? Check all that apply.

- ☒ To prevent others from appropriating the software we've created
- ☐ To allow us to create OS/FS without scaring commercial firms from using it
- ☐ To force credit to be given to programmers' work
- ☒ To promote the launching of other OS/FS programs
- ☒ To protect the freedom that software users should have

Part 3: Learning in the FLOSS community

16 / 53. Which of the following skills improved through your participation in the FLOSS community? Please indicate for each item whether you learned nothing, little, some, more or a

lot. If you don?t know how to answer an item or if you have no opinion on it, tick "not applicable".

Technical skills:	
Basic / introductory programming skills	
To write code in a way that it can be re-used	
To re-use code written by others	
To document code	
To create new algorithms	
To become familiar with different programming languages	
To design modular code	
To run and maintain software systems	
To look for bugs	
To fix bugs	
Managerial and teamwork skills:	
To clearly define and achieve targets	
To plan work and stick to a work schedule	
To evaluate the work of others	
To coordinate your own work with the work of others	
To lead a project or a group of people	
To express your personal opinions	
To clearly articulate an argument	
To accept and to respond to criticism from others	
To settle conflicts within a group	
To motivate people	
To keep a community going	
Legal skills:	
To understand copyright law issues	

To understand patent law issues	
To understand licences	
To understand the differences between copyrights, patents, and licences	
To improve your understanding of liability issues	
General skills:	
To better understand English, especially technical discussion	
To interact with other people	
To understand and work with people from different cultures	
General awareness of ongoing developments:	
To get an overview of developments in software technology	
To get an overview of the skills you need in the software professions	

---

17 / 53. In your opinion, which of the following skills can be better learnt within the FLOSS community as compared to a formal computer science course, e.g. at university or at a firm?

Technical skills
☒ To write code in a way that it can be re-used
☐ To document code
☒ To run and maintain complex software systems
☒ Basic / introductory programming skills

Managerial and teamwork skills
☒ To clearly define and achieve targets
☒ To plan work and stick to a work schedule
☐ To evaluate the work of others
☐ To coordinate your own work with the work of others
☒ To lead a project or a group of developers
☒ To express your personal opinions
☒ To accept and to respond to criticism from others

Legal skills
☒ To develop an awareness of legal issues relating to software, such as copyright, patents, licensing, liability

---

18 / 53. How useful do you personally consider the following activities as ways of learning the technical skills referred to in the previous questions? If you don't know or don't want to answer, leave it blank

Learning by participating in training courses	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this
Participate in workshops or congresses	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this
Participate in the discussions within the FLOSS community	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this
Reading bug reports	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this
Fix bugs	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this
Reading source code of programs and patches	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this
Checking programs	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this

Guidance from mentors	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this
Reading other developers' feedback to my patches / bug-reports/bug-fixes	○ not at all useful ○ slightly useful ○ useful ○ very useful ○ I have never done this
Reading books or articles on programming	○ not at all useful ○ slightly useful ○ useful ◉ very useful ○ I have never done this
Other self-study, - please specify:	

19 / 53. What do you think about the skills you develop in the FLOSS community? (Note: in the items below, ?professional career? refers to your existing career or the professional career you plan to have.)

○ they provide a core skill for my professional career
○ they provide a useful supplement, but they are not a core skill of my professional career
○ they are an end in itself (they provide fun, contacts to others, help to use my time in a reasonable way etc.) but play no important role for my professional career
○ I don't know

20 / 53. How much did you already know about FLOSS before you joined the FLOSS community?

Technical aspects of FLOSS (programming languages, projects, products)	○ nothing ○ a little ○ quite a lot ○ really a lot
How work and cooperation in FLOSS is organised	○ nothing ○ a little ○ quite a lot ○ really a lot
The philosophy of free software or open source software	○ nothing ○ a little ○ quite a lot ○ really a lot
The difference between FLOSS licences and proprietary licences	○ nothing ○ a little ○ quite a lot ◉ really a lot

---

21 / 53. In the last week: How many hours did you spend on experimenting with coding programs, reading books, articles, documentation, mailing lists, and other activities that you think develop your skills in relation to FLOSS? If you are a freelancer on FLOSS, please separate if possible the time you spent on FLOSS-related activity privately (e.g. at home) and the time you spent on FLOSS-related activity in your professional environment (e.g. at work).

privately: hours

professionally: hours

---

22 / 53. Do you think that proven participation in the FLOSS community can compensate for the lack of formal degrees, like certificates or university degrees?

○ yes
○ no

---

23 / 53. Imagine two people with exactly the same level of formal qualifications but different experiences: Person A has proven experience developing an important component of a proprietary software product. Person B has proven experience developing an important component of an FLOSS software product of equivalent complexity. Who do you think is in a better position to get a job? Note: "job" refers not just to permanent employment, but also any other paid work including freelance or consultancy.

○ Person A, with proprietary development credentials, is advantaged

○ Person B, with FLOSS development credentials, is advantaged

○ They are equally likely to get a job

○ I don't know

---

24 / 53. Do you think that people like person A, with proprietary development credentials, are paid the same by employers as people like person B, with FLOSS development credentials?

⊙ Yes

○ No, Person A (proprietary) gets paid more

○ No, Person B (FLOSS developer) gets paid more

○ I don't know

24a / 53. If your answer is 'NO': What do you think the salary difference per month is? Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

---

25 / 53. Did you respond to the previous question based on your own experience in getting a job?

○ Yes

⊙ No

Part 4: Contributing to FLOSS projects

---

26 / 53. In the last week: How many hours did you spend on contributing to FLOSS projects, in any way - including coding, writing a translation, documentation, FLOSS-related website, FLOSS-related email, or any other FLOSS-related activity that you perform of which you make the results available to others?

---

27 / 53. What is the name of the FLOSS project you contributed the most in the past month

What is the URL of this project?

28 / 53. How much time did you spend in a typical week contributing to this project?

hours

29 / 53. Why did you join this project?

☐	Because I got somehow involved, after being a user of this project
☐	Because I had a friend who was a developer of the project
☐	Because I chose it as the most appropriate for my skills
☐	Because I chose it as the most appropriate for my interests
☐	Because I was hired to work in it
☐	Because I worked in similar projects / a similar project before
☐	Because I wanted to learn something new (I never worked in similar projects before)

30 / 53. In how many FLOSS projects are you actively involved at present?

31 / 53. Approximately, in how many FLOSS projects did you participate since you joined the community?

32 / 53. Approximately, how many FLOSS projects did you lead since you joined the community?

33 / 53. Approximately, with how many Free / Libre / Open Source Software participants do you have regular contact on an individual basis (e.g. by email or telephone)? Note: "Free / Libre / Open Source Software participant" means every person who is somehow actively involved in the community.

34 / 53. Do you work more with the local community in the country you live in or do you work more with international developers

○ More with the local community in my country

○ More with international developers

○ I don't know

---

35 / 53. FOR EMPLOYED AND SELF-EMPLOYED (INCL. FREELANCERS AND CONTRACTORS) ONLY: Do you work on Free / Libre and Open Source projects more within the firm ore with independent developers?

○ More within the firm

○ More with independent developers

○ I don't know

---

36 / 53. Do you usually choose projects and tasks yourself or are you usually delegated to projects and tasks?

○ I choose them myself

○ I am delegated

○ I don't know

Part 5: Women in the Free/Libre/Open Source Software Community

37 / 53. Do you normally use an online identity that indicates whether you are male or female?

○ Yes

⊙ No

---

38 / 53. Among people with whom you collaborate and interact regularly and which you know well in the FLOSS community, how many women and how many men are there (including yourself)?

men (number)

women (number)

People whose gender I do not know (number)

---

39 / 53. In your opinion, for whom is it easier to receive acknowledgement for work in the FLOSS community - men or women?

○ Men
○ Women

○ Nobody cares whether you are a man or a woman

○ I do not know

---

40 / 53. Regarding the FLOSS community as a whole, do you think that it would be better if

there were more female participants?

○ Yes

○ No

○ I do not know

---

41 / 53. Would you personally enjoy it if you could collaborate with more women in your FLOSS activities?

○ Yes

○ No

○ I do not know

---

42 / 53. What do you think the differences in the FLOSS community between men and women are

Women are not as interested in technology as men	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know
Women ask more questions than men	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know
Women are more interested in the documentation (writing guidelines, helps, user guides) than men	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know
Men spend more time on research (about coding details, bugs, code improvements) than women	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know
Men work on their own, women prefer to work in teams	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know

Women work more effectively than men	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know
In online contexts women often get more attention as a women rather than a FLOSS participant	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know
In offline contexts women often get more attention as a women rather than a FLOSS participant	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know
Women have less time than men to participate in FLOSS	○ very true ○ mainly true ○ mainly false ○ completely false ○ I do not know
Women and men contribute differently to the FLOSS community	○ very true ○ mainly true ○ mainly false ○ completely false ◉ I do not know
Other differences - please specify	

---

43 / 53. Regarding the FLOSS community as a whole, have you ever observed or experienced discriminatory behaviour against women?

○ Yes, I have observed discriminatory behaviour

○ Yes, I have experienced discriminatory behaviour

○ no

---

44 / 53. Regarding your collaboration with others during your FLOSS activities, have you

ever observed or experienced discriminatory behaviour against women?

○ Yes, I have observed discriminatory behaviour

○ Yes, I have experienced discriminatory behaviour

○ no

---

45 / 53. Due to your household work: Do you have problems at home to dedicate time to your open source / free software activities?

○ never

◉ rarely

○ sometimes

○ often

○ very often

○ I do not know

---

46 / 53. Approximately, how many hours of spare time do you have per week?

---

47 / 53. How much of this spare time do you spend in front of a computer - in hours per week?

number of spare time hours spent on the Internet

number of spare time hours spent for FLOSS activities (coding, organising meetings, etc.)

number of spare time hours spent for other computing activities (gaming, writing personal emails, etc.)

---

48 / 53. Did it happen that other FLOSS community members asked you to meet for social events outside the FLOSS community?

○ Yes, quite often

○ Yes, but not very often

○ Never

---

49 / 53. Have you ever been asked for a date by a FLOSS participant?

○ Yes, quite often

○ Yes, seldom

○ Never

49a / 53. Would you be interested in getting to know FLOSS participants for activities unrelated to the FLOSS community?

⦿ Yes

○ No

○ I don't know

Part 6: Contact

---

50 / 53. What is your SF / BerliOS / Savannah username?

_____ SF username

_____ BerliOS username

_____ Savannah username

---

51 / 53. Would you allow us to contact you in case we have further questions?

○ yes

○ no

---

52 / 53. Do you want to receive notification of the survey results by e-mail?

⦿ yes

○ no

---

53 / 53. If you answered "Yes" to question 51 or 52, please could you provide us with your email address?

Annex A2: FLOSSWORLD Guidelines for the Developer Survey

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

1. **Check the revised global questionnaire** carefully with regard to understandability of the wording, order of the questions, and completeness of aspects that are surveyed again. Inform MERIT and URJC about changes you want to make and errors.

2. **Localise the questionnaire.** As described in the analytical framework paper, localisation means to translate the complete questionnaire into your language, to introduce local terms to ensure international comparability (e.g. using local currencies in the questionnaire and localised scales when asking about income or expenditure levels, but do also localise the FLOSS terminology that we use (e.g. FLOSS, F/OSS, Libre Software, Free Software, Open Source Software, or any other term that you think would be best to use in the region you survey) and the educational degrees and professions) and to add questions that are unique to each country's context. **At the end of this text a separate short list is provided for the questionnaire of the question numbers and points that MUST be localised by ALL FLOSSWORLD PARTNERS.**

3. **Prepare the circulation of the questionnaire** (start in parallel to localisation): Figure out how you want the questionnaire to be circulated. For FLOSS community participants we expect to use only the online version. Therefore you must as soon as possible identify which organisations (developer forums, user groups, mailing lists, etc.) you want to use in order to distribute the questionnaire. Get in touch with them, explain the purpose of the survey, and find out whether they are willing to distribute the questionnaire. Make a list of all these organisations with contact details (i.e. name of contact person, email address, and any other information that is relevant for contacting this person). If you find out that a different way of circulating the questionnaire (i.e. by letter or fax or face to face during user group meetings or conferences) would be better, you have to collect contact information (telephone or fax numbers or locations / dates for possible face to face interactions) of the persons you want to survey (not only of persons / organisations you want to distribute the questionnaire). These personalised address lists must be sent to MERIT, too. *Note: The advantage of an online version is that it can be distributed within your*

local FLOSS community independently from you – once we have posted it to the multipliers you specified, it will be further distributed within the community in a self-organised way. If you rely on other channels for distributing the questionnaire you will have to organise the distribution of the questionnaire yourself.

4. **Create different versions of an introductory email or letter/fax** in order to announce the survey and explain its purpose to the multipliers or persons that are intended to distribute the questionnaire or to be surveyed. This will be done by MERIT and coordinated with you. *You will have to localise the introductory letter and send it back to MERIT.*

5. **Send the localised questionnaire to MERIT**. The localised questionnaires will be converted into on-line form and hosted on a web server at UM (in cases where connectivity is an issue, questionnaires can be hosted on local web servers arranged by the international partners). The on-line questionnaires will be accessible in two ways: addressed access, where unique web addresses will be generated for each pre-selected respondent with identifying information pre-recorded; and open access, where respondents may be asked to provide contact information. *The developer survey is intended to use open access, but that's no must and depends on your and your respondents' preferences[6] - for instance, if you compile lists of user group or developer group members, these people could receive the online questionnaire individually through addressed access, while others receive the open access version*. If you want to use letters or faxes, MERIT will create a database that you can access online and in which you can fill in the responses you get.

6. **Pre-test preparation and execution**: Select a limited number of developers (usually, 5-10 respondents suffice for this purpose), for instance members of a specific user group, and let them fill in the questionnaire. If possible, you should try to talk to a couple of the pre-test respondents directly about the questionnaire, this provides you with much deeper insights in how the questionnaire works and how the targeted group of respondents might react than indirect communication. For the pre-test we will need some additional questions on the items listed below. These questions must also be sent to MERIT in order to include them in the pre-test version of the questionnaire. Answers to the pretest must be treated as normal responses and tehrefore be submitted to MERIT, if appropriate they will get integrated in the final survey dataset. Extra items the respondents should comment on in the pre-test are:

6 See the analytical framework.

- understandability of the questions,
- questions that appear difficult or impossible to answer,
- questions they did not want to answer,
- questions (or terms) they find unclear or annoying,
- the time they needed to complete the questionnaire (in an online version we can monitor this ourselves) and whether or not they find it to time-consuming (ask for the concrete question at which they got the feeling the questionnaire is too long),
- their general impression of the survey and the questionnaire
- further comments

7. **Analysis of the pre-test:** Particular attention will be given to any local differences in understanding or answering the localised versions of the questionnaire.

8. **Revision of the questionnaire** (if necessary), including localisation of the new elements and revision of the online version.

9. **Distribution of the final version of the questionnaire together with the introductory letter** to either the multipliers (the Internet forums, user groups, mailing lists etc.) or to the persons in the address lists that have been collected during step 3. This will be done by MERIT. Depending on which way of distributing the questionnaire you chose the questionnaire will either be sent by email to multipliers, providing open access to the online questionnaire for the respondents, or to the persons that you have specified in personalised address lists, providing addressed access to the online questionnaire (a combination of both is also possible). In case of addressed access, MERIT will attribute each personal record with a personal password that will be used in the introductory email to allow respondents to access their personal version of the online questionnaire (i.e. nobody else will be able to see what they reply). If you prefer to distribute the questionnaire by fax or by letter these paper versions must be distributed by you and the completed questionnaires must be returned to you, too. In case of letter questionnaires we recommend strongly to use pre-paid response envelopes with your address, as this eases the respondents to reply and raises the response rate.

10. **Data collection:**

- For online survey with open access to the online questionnaire: Respondents will fill out the questionnaires directly on the website, the responses will automatically be transferred

into a password-protected database that can be accessed by you online.

- For online survey with addressed access to the online questionnaire: Respondents will access the online questionaire and authenticate by entering their personal password, then they will complete the questionnaire. The responses will automatically be transferred into a password-protected database that can be accessed by you online.

- For letter or fax survey: The respondents will send you back the completed questionnaires. You will have to access the password-protected database that is provided online by MERIT and to enter the responses maually in this database.

- For face to face interviews / meetings: Either use a computer to have the interviewee fill out the questionnaire online, or fill out a paper version of the questionnaire which you will then provide in electronic form to MERIT as with the letter survey described above.

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

- FLOSS terminology (i.e. FLOSS, F/OSS, Open Source Software, etc.)

- Question 6: educational degrees

- Question 9a: professions

- Question 10: currency

- Question 22a: currency

- Question 25: name of main FLOSS project

- Question 32: if you think that language barriers are important we might have to include an extra question on this here

- Question 38: If you know or have hints that there are a lot of women in in the FLOSS community of your country we have to change or drop this question.

- Question 39: If you know or have hints that there are a lot of women in in the FLOSS community of your country we have to change or drop this question.

- Question 41: Maybe nothing for the questionnaire itself but something we should keep in mind while interpreting the results: There may be regional differences in what is perceived as discriminatory behaviour.

- Question 42: Maybe nothing for the questionnaire itself but something we should keep in mind while interpreting the results: There may be regional differences in what is perceived as discriminatory behaviour.

Question 43: The hypothesis behind this question is (as you probably assumed already) that women are burdened more with household and family than men and therefore behave different in the community. If for your country the division of household and family work in the family deviates from the classical "Western-European" way (i.e. women do the lion share of this work) you should let us know.

Annex A3: Questionnaire for Employers

How many people (including yourself) work in your company?

1-5

6-10

11-30

31-50

51-100

101-250

501-1000

more than 1000

By and large: Do you know free software / open source software and its differences compared to proprietary software? (Note: We do not mean expert knowledge here, but basic knowledge on open source software and its main differences compared to proprietary software).

yes

no

---

1 / 10. Do you use or develop free software / open source software in your company?

no

yes

I'm not sure

I don't know

---

2 / 10. Do you know whether there are employees in your company who have experience in the field of free software / open source software?

yes

no

2a / 10. What is the share of those with free software / open source software experience in your company?

1-10%

11-20%

21-30%

31-40%

41-50%

51-60%

61-70%

71-80%

81-90%

91-100%

I don't know

---

3 / 10. Do you ask job applicants about their experience in the field of free software / open source software?

yes

no

---

4 / 10. Do you ask directly about experience in the field of free software / open source software in job advertisements?

yes

no

---

5 / 10. Are there positions in your company that require experience in free software / open source software?

yes

no

5a / 10. Are these positions usually leadership positions?

yes

no

---

6 / 10. For a prospective or current employee: How do you consider the relative merit of a university degree or other formal computer science qualification as compared to practical experience as a developer in the free software / open source software community?

the formal qualification is better

the formal qualification is worse

the formal qualification is equal

I don't know

---

7 / 10. In your opinion, which of the following skills can be better learnt within the free

software / open source software community as compared to a formal computer science course, e. g. at university or at firm?

Technical skills
Technical skills better learnt in FLOSS: to write code in a way that it can be re-used
Technical skills better learnt in FLOSS: to document code
Technical skills better learnt in FLOSS: to run and maintain complex software systems
Technical skills better learnt in FLOSS: basic / introductory programming skills

Managerial and teamwork skills
Managerial skills better learnt in FLOSS: to clearly define and achieve targets
Managerial skills better learnt in FLOSS: to plan work and stick to a work schedule
Managerial skills better learnt in FLOSS: to evaluate the work of others
Managerial skills better learnt in FLOSS: to coordinate your own work with the work of others
Managerial skills better learnt in FLOSS: to lead a project or a group of developers
Managerial skills better learnt in FLOSS: to express personal opinions
Managerial skills better learnt in FLOSS: to accept and to respond to criticism from others

Legal skills
Legal skills better learnt in FLOSS: to develop an awareness of legal issues relating to software, such as copyright, patents, licensing, liability

---

8 / 10. If a prospective employee has a formal computer science qualification, do you think that experience in the free software / open source software community (i.e. experience in developing, supporting, or using Open Source / Free Software) adds value?

○ yes

○ no

○ I don't know

8a / 10. Do you offer prospective employees with free software / open source software development experience but no formal degree different pay than those with formal qualifications such as a university computer sciences degree but no practical experience?

○ No, they earn the same

○ Yes, those with formal degrees but no practical experience get paid more

○ Yes, employees with free software / open source software experience but no formal degree get paid more

○ I don't know

---

9 / 10. Suppose you were to face a choice between two prospective employees (person A and person B) with exactly the same level of formal qualifications but different experiences: Person A has proven experience developing an important component of a proprietary software product, as an employee of a proprietary software company. Person B has proven experience developing an important component of a free software / open source software product of equivalent complexity, as an independent participant of the developer community. Would you be more likely to hire person A or person B?

○ Person A (with proprietary software experience)

○ Person B (with free software / open source software experience)

○ These different experiences would not influence my preference

○ I don't know

---

10 / 10. How do you assess the role of free software / open source software within your organisation (in any form - as a software user, developer, or vendor)?

○ very important

○ important

⊙ hardly important

○ not important at all

---

1 / 3. Do you know whether there are employees in your company who have experiences in the field of free software / open source software?

○ yes

○ no

1a / 3. What is the share of those with free software / open source software experiences in your company?

○ 1-10%

○ 11-20%

○ 21-30%

○ 31-40%

○ 41-50%

○ 51-60%

○ 61-70%

○ 71-80%

○ 81-90%

○ 91-100%

○ I don't know

---

2 / 3. Do you ask job applicants about their experiences in the field of free software / open source software

○ yes

○ no

2a / 3. Do you usually employ developers with experiences in the field of free software / open source software on leadership positions?

○ yes

○ no

2b / 3. Do you think that it will become useful for your company in future to ask job applicants for experiences in the field of free software / open source software?

○ yes

○ no

○ I don?t know

---

3 / 3. Would you offer prospective employees with free software / open source software development experience but no formal degree different pay than those with formal qualifications such as a university computer sciences degree but no practical experience?

○ No, they earn the same

○ Yes, those with formal degrees but no practical experience get paid more

○ Yes, employees with free software / open source software experience but no formal degree get paid more

○ I don't know

3a / 3. How much (EURO or other currency per month) would you pay more? Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

Annex A4: Guidelines for the localisation of the Employers Questionnaire

FLOSSWORLD Guidelines for the Employers Survey

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

1. **Check the revised global questionnaire** carefully with regard to understandability of the wording, order of the questions, and completeness of aspects that are surveyed again. Inform MERIT about changes you want to make and errors.

2. **Localise the questionnaire.** As described in the analytical framework paper, localisation means to translate the complete questionnaire into your language, to introduce local terms to ensure international comparability (e.g. using local currencies in the questionnaire and localised scales when asking about income or expenditure levels, but do also localise the FLOSS terminology that we use (e.g. FLOSS, F/OSS, Libre Software, Free Software, Open Source Software, or any other term that you think would be best to use in the region you survey) and the educational degrees and professions) and to add questions that are unique to each country's context. **At the end of this text a separate short list is provided for the questionnaire of the question numbers and points that MUST be localised by ALL FLOSSWORLD PARTNERS.**

3. **Prepare the circulation of the questionnaire** (start in parallel to localisation): Figure out how you want the questionnaire to be circulated, this may be dependent on the availability of contact information for companies in your country. You can either use databases that contain such information, search the Internet, contact industry or employer associations, use address books, yellow pages, etc. At any rate it would be good if you have a name of a person in the companies you want to survey who is able to answer our questions (anyone who is responsible for hiring people for IT functions, i.e. usually HR or IT managers, in small companies maybe the CEO) and to whom we can send the questionnaire. Our experience in Europe is that eliciting such information through phone calls is an extremely hard and time-consuming business. Nevertheless, having a personal contact usually helps considerably to raise the response rate, and you can explain the purpose of the survey and ask for the preferences of the respondents regarding the kind of questionnaire (online, letter, fax). Make as soon as possible a list of all the

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

4. **Create different versions of an introductory email or letter/fax** in order to announce the survey and explain its purpose to the companies or, if applicable, contact persons in the companies. This will be done by MERIT and coordinated with you. *You will have to localise the introductory letter and send it back to MERIT.*

5. **Send the localised questionnaire to MERIT**. The localised questionnaires will be converted into on-line form and hosted on a web server at UM (in cases where connectivity is an issue, questionnaires can be hosted on local web servers arranged by the international partners). The on-line questionnaires will be accessible in two ways: addressed access, where unique web addresses will be generated for each pre-selected respondent with identifying information pre-recorded; and open access, where respondents may be asked to provide contact information. *The developer survey is intended to combine addressed and open access, because you might see a possibility to get the questionnaire and the introductory letter circulated in a self-organised way within industry or employers associations in your country*. If you want to use letters or faxes, MERIT will create a database that you can access online and in which you can fill in the responses you get.

6. **Pre-test preparation and execution**: Select a limited number of companies (usually, 5 respondents suffice for this purpose), for instance Hr or IT managers of companies of different size in the area where you live, and let them fill in the questionnaire. If possible, you should try to talk to a couple of the pre-test respondents directly about the questionnaire, this provides you with much deeper insights in how the questionnaire works and how the targeted group of

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

- understandability of the questions,
- questions that appear difficult or impossible to answer,
- questions they did not want to answer,
- questions (or terms) they find unclear or annoying,
- the time they needed to complete the questionnaire (in an online version we can monitor this ourselves) and whether or not they find it to time-consuming (ask for the concrete question at which they got the feeling the questionnaire is too long),
- their general impression of the survey and the questionnaire
- further comments

7. **Analysis of the pre-test:** Particular attention will be given to any local differences in understanding or answering the localised versions of the questionnaire.

8. **Revision of the questionnaire** (if necessary), including localisation of the new elements and revision of the online version.

9. **Distribution of the final version of the questionnaire together with the introductory letter** to the persons in the address lists that have been collected during step 3. This will be done by MERIT. Depending on which way of distributing the questionnaire you chose the questionnaire will either be sent by email to the persons that you have specified in personalised address lists, providing addressed access to the online questionnaire. If you found a way to distribute the questionnaire in a self-controlled way within industry or employers, open access to the questionnaire will also be provided. In this case the respondents will have to specify the name of their company and some other relevant information (such as their function) that otherwise would have been collected in step 3. (Note: A combination of addressed and open access to the questionnaire is generally possible). In case of addressed access, MERIT will attribute each personal record with a personal password that will be used in the introductory email to allow respondents to access their personal version of the online questionnaire (i.e. nobody else will be

able to see what they reply). If you prefer to distribute the questionnaire by fax or by letter these paper versions must be distributed by you and the completed questionnaires must be returned to you, too. In case of letter questionnaires we recommend strongly to use pre-paid response envelopes with your address, as this eases the respondents to reply and raises the response rate.

10. **Data collection:**

- For online survey with addressed access to the online questionnaire: Respondents will access the online questionaire and authenticate by entering their personal password, then they will complete the questionnaire. The responses will automatically be transferred into a password-protected database that can be accessed by you online. After a specified period of time (i.e. one week after distributing the questionnaire), those who did not reply will get a reminder by email. We usually send 3-4 email reminders and then make a final reminder phone call before we close the survey.

- For online survey with open access to the online questionnaire: Respondents will fill out the questionnaires directly on the website anf have to specify some extra personal information (name of company, industry, etc.), the responses will automatically be transferred into a password-protected database that can be accessed by you online. Reminders cannot be used because we have no contact information.

- For letter or fax survey: The respondents will send you back the completed questionnaires. You will have to access the password-protected database that is provided online by MERIT and to enter the responses manually in this database. You will also be responsible for sending reminder letters and faxes. At any rate, you should calculate a longer survey period for letter and fax surveys than for the online survey (at least double the time).

- For face to face interviews / meetings: Either use a computer to have the interviewee fill out the questionnaire online, or fill out a paper version of the questionnaire which you will then provide in electronic form to MERIT as with the letter survey described above. Since you meet the respondent personally there's no need for reminders.

11. **Non-response analysis:** Not all of the contacts you have collected for the lists will reply. The crucial question for the validity of our results is whether our respondents differ significantly

from the non-respondents in one or more respects. If this is the case our sample would be biased towards this or these characteristics, for instance towards FLOSS users. In order to estimate whether such (a) bias(es) exist(s) we have to conduct a non-response analysis. This means that we have to contact the non-respondents (or a sub-sample of them) again after the survey is closed and to ask them a couple (2-4) of relevant questions that allow comparing the non respondents and the respondents with regard to characteristics that are important for the survey. For instance, FLOSS usage, size of the organisation, and level of the organisation could be such important criteria. The small questionnaire for the non-response analysis will be created in collaboration of all consortium partners, the execution of the non-response survey will fall into the responsibility of the local partners. The results of the non-response survey must be sent to MERIT and will be analysed and compared there.

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

- FLOSS terminology (i.e. FLOSS, F/OSS, Open Source Software, etc.), see for instance first filter question

- Question 4: the usefulness of this question depends on whether or not recruiting by job advertisements is the dominating way of hiring people

Annex A5: Questionnaire for HEIs (Administrators)

What is your gender?

female

male

I don't want to answer this question

Which year were you born?

---

1 / 18. What is the total number of students that your institution currently enrols?If you don't know an answer, leave it blank. Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

number of undergraduate students

number of graduate and postgraduate students

---

2 / 18. What is the total number of teaching and research personnel that your institution currently employs? If you don't know the answer, leave it blank. Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

number of teaching and research personnel

---

3 / 18. What is the approximate total number of central and departmental administrative personnel and support staff (e.g. research assistance, administrative assistants, ICT staff etc.) currently working at your institution? Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

number of administrative and support personnel

---

4 / 18. Does your job involve following positions? Please select all that apply.

an executive position (e.g. manager, department head)
a position as lecturer / teacher
a position as researcher
other

---

5 / 18. Do you have any of the following administrative responsibilities?Please select all that apply.

Software procurement/purchasing
Developing institutional ICT policies
Overseeing implementation of ICT policies
Developing/administrating institutional ICT budgets
Designing/approving software licensing agreements
Approving software development in-house
Managing/coordinating ICT training
Developing ICT training
None of these

---

6 / 18. Are decisions on software purchases in your institution made on an institution wide basis?

yes

no

I don't know

6a / 18. Who is (are) most important for decisions on software purchases in your organisation? Please choose not more than two answers and rank them by a '1' for most important and a '2' for second most important.

IT Manager / Head of IT department

users

financial department

other management (possibly including yourself)

external consultants

others

Please specify

I don't know

---

7 / 18. Roughly speaking, how large was the IT budget of your institution in 2005? Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

I don't know

---

8 / 18. Roughly speaking, what is the percentage of the share of software purchases and license fees in your organisation's IT budget in 2005?

I don't know

---

9 / 18. Roughly speaking, what is the percentage of the share of personnel cost in your organisation's IT budget in 2005?In case the IT budget does not include personnel cost please fill in 0.

I don't know

---

10 / 18. What do you think: Is the share of software purchases and license fees in the total IT budget of your institution too high, too low, or reasonable?

too low

reasonable

too high

I don't know

---

11 / 18. Do you see a need for reducing the expenditure for software purchases and license fees in your institutions within the next two years?

yes

no

I don't know

---

12 / 18. Does your institution have a stated IT policy or strategy?

yes

no

I don't know

---

13 / 18. Does this IT policy or strategy include Open Source Software (OSS) as an option when procuring software?

yes

no

I don't know

13a / 18. Does this policy require that you choose the Open Source Software (OSS) application, if one exists, instead of a proprietary software alternative?

yes

no

I don't know

13b / 18. Why does the IT policy or strategy not include Open Source Software (OSS) as an option when procuring software?

the policy does not explicitly or implicitly mention software

the IT policy mentions software, but does not specify the type of software

the IT policy focuses only on proprietary software

the policy explicitly excludes OSS as an option

other reason

I don't know

---

14 / 18. Do you use open source software in your institution?

yes

no

I don't know

14a / 18. To which extent do the following groups in your institution use open source software?

Administration staff (including IT staff)	**not at all** **a little** **much** **a great deal** **I don't know**
Teaching staff	**not at all** **a little** **much** **a great deal** **I don't know**
Students in computer science	**not at all** **a little** **much** **a great deal** **I don't know**
Students in other science	**not at all** **a little** **much** **a great deal** **I don't know**

Students in non-science	**not at all** **a little** **much** **a great deal** **I don't know**

15 / 18. Would you find it useful to increase the share of open source software in your institution?

yes

no

I don't know

15a / 18. To which extent should the use of open source software in your institution increase for the following groups?

Administration staff (including IT staff)	**not at all** **a little** **much** **a great deal** **I don't know**
Teaching staff	**not at all** **a little** **much** **a great deal** **I don't know**
Students in computer science	**not at all** **a little** **much** **a great deal** **I don't know**
Students in other science	**not at all** **a little** **much** **a great deal** **I don't know**
Students in non-science	**not at all** **a little** **much** **a great deal** **I don't know**

16 / 18. Do you develop open source software anywhere in your institution?

yes

no

I don't know

16a / 18. To which extent do the following groups in your institution develop open source software?

Administration staff (including IT staff)	**not at all** **a little** **much** **a great deal** **I don't know**
Teaching staff	**not at all** **a little** **much** **a great deal** **I don't know**
Students in computer science	**not at all** **a little** **much** **a great deal** **I don't know**
Students in other science	**not at all** **a little** **much** **a great deal** **I don't know**
Students in non-science	**not at all** **a little** **much** **a great deal** **I don't know**

16b / 18. Do you have a policy on licensing the use of software that has been developed by staff or students in your institution?

yes

no

I don't know

16c / 18. What best describes your institution's licensing policy?

We release our software into the public domain for free	**does not apply at all** **sometimes** **often** **very often** **I don't know**
We release our software under an open source software license	**does not apply at all** **sometimes** **often** **very often** **I don't know**
We sell our software or license it commercially	**does not apply at all** **sometimes** **often** **very often** **I don't know**

---

17 / 18. Do you have personal experience in working with OSS?

yes

no

17a / 18. What kind of experience do you have?

work-related experience

private experience

---

18 / 18. Is there anything you would like to add to the information that you gave in this survey that you have not been able to express?

Annex A6: Questionnaire for HEIs (IT Managers)

What is your gender?

female

male

I don't want to answer this question

Which year were you born?

drop-down

---

1 / 25. What is the total number of students that your institution currently enrols?If you don't know an answer, leave it blank. Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

number of undergraduate students

number of graduate and postgraduate students

---

2 / 25. What is the total number of teaching and research personnel that your institution currently employs? If you don't know the answer, leave it blank. Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

number of teaching and research personnel

---

3 / 25. What is the approximate total number of central and departmental administrative personnel and support staff (e.g. research assistance, administrative assistants, ICT staff etc.) currently working at your institution? Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

number of administrative and support personnel

---

4 / 25. Does your job involve following positions? Please select all that apply.

an executive position (e.g. manager, department head)
a position as lecturer / teacher
a position as researcher
other

---

5 / 25. Do you have any of the following personal technical skills and/or responsibilities in your employment position? Please check all that apply.

Software development (e.g. producing code, producing packages etc.)
Programming
System administration
Network administration

Database administration
Internet / Web design
ICT / Software training or teaching
None of these

---

6 / 25. Do you have any of the following administrative responsibilities? Please select all that apply.

Software procurement/purchasing
Developing institutional ICT policies
Overseeing implementation of ICT policies
Developing/administrating institutional ICT budgets
Designing/approving software licensing agreements
Approving software development in-house
Managing/coordinating ICT training
Developing ICT training
None of these

---

7 / 25. Are decisions on software purchases in your institution made on an institution wide basis?

○ yes

⊙ no

○ I don't know

7a / 25. Who is (are) most important for decisions on software purchases in your organisation? Please choose not more than two answers and rank them by a '1' for most important and a '2' for second most important.

▼	IT Manager / Head of IT department (possibly yourself)
▼	users
▼	financial department
▼	other management
▼	external consultants
▼	others
	Please specify
☐	I don't know

---

8 / 25. Roughly speaking, how large was the IT budget of your institution in 2005? Please, use ONLY numbers with no other characters (e.g. 10000 for ten thousand).

☒ I don't know

---

9 / 25. Roughly speaking, what is the percentage of the share of software purchases and license fees in your organisation's IT budget in 2005?

%

☒ I don't know

---

10 / 25. Roughly speaking, what is the percentage of the share of personnel cost in your organisation's IT budget in 2005? In case the IT budget does not include personnel cost please fill in 0.

%

☒ I don't know

---

11 / 25. What do you think: Is the share of software purchases and license fees in the total IT budget of your institution too high, too low, or reasonable?

○ too low

○ reasonable

○ too high

○ I don't know

---

12 / 25. Do you see a need for reducing the expenditure for software purchases and license fees in your institutions within the next two years?

○ yes

○ no

○ I don't know

---

13 / 25. Does your institution have a stated IT policy or strategy?

○ yes

○ no

○ I don't know

---

14 / 25. Does this IT policy or strategy include Open Source Software (OSS) as an option when procuring software?

○ yes

○ no

○ I don't know

14a / 25. Does this policy require that you choose the Open Source Software (OSS) application, if one exists, instead of a proprietary software alternative?

○ yes

○ no

○ I don't know

14b / 25. Why does the IT policy or strategy not include Open Source Software (OSS) as an option when procuring software?

○ the policy does not explicitly or implicitly mention software

○ the IT policy mentions software, but does not specify the type of software

○ the IT policy focuses only on proprietary software

○ the policy explicitly excludes OSS as an option

○ other reason

○ I don't know

---

15 / 25. Do you use open source software in your institution?

○ yes

○ no

○ I don't know

15a / 25. To which extent do the following groups in your institution use open source software?

Administration staff (including IT staff)	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Teaching staff	○ not at all ○ a little ○ much ○ a great deal ○ I don't know

Students in computer science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Students in other science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Students in non-science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know

16 / 25. Would you find it useful to increase the share of open source software in your institution?

○ yes

○ no

○ I don't know

16a / 25. To which extent should the use of open source software in your institution increase for the following groups?

Administration staff (including IT staff)	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Teaching staff	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Students in computer science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know

Students in other science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Students in non-science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know

17 / 25. Do you develop open source software anywhere in your institution?

○ yes

○ no

○ I don't know

17a / 25. To which extent do the following groups in your institution develop open source software?

Administration staff (including IT staff)	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Teaching staff	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Students in computer science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know
Students in other science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know

Students in non-science	○ not at all ○ a little ○ much ○ a great deal ○ I don't know

---

17b / 25. Do you have a policy on licensing the use of software that has been developed by staff or students in your institution?

○ yes

○ no

○ I don't know

17c / 25. What best describes your institution's licensing policy?

We release our software into the public domain for free	○ does not apply at all ○ sometimes ○ often ○ very often ○ I don't know
We release our software under an open source software license	○ does not apply at all ○ sometimes ○ often ○ very often ○ I don't know
We sell our software or license it commercially	○ does not apply at all ○ sometimes ○ often ○ very often ○ I don't know

---

18 / 25. Do you have personal experience in working with OSS?

○ yes

⊙ no

18a / 25. What kind of experience do you have?

☐ work-related experience

☐ private experience

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19 / 25. Which of the following types of computer programming courses are available at your institution to students or staff?

for students

- ☒ Introductory programming course (e.g. Visual Basic, Python, Deplhi, etc.)
- ☐ Web management tools course (e.g. Frontpage, Dreamweaver, etc)
- ☒ Simple HTML course
- ☒ Advanced HTML course (e.g. CSS, javascript, etc)
- ☐ Intermediate, advanced programming (e.g. C/C++, Java, C#, Pascal/Delphi, etc.)
- ☐ Shell scripting course (e.g.Perl, Bash, etc.)
- ☐ Other course

  Please describe:

- ☐ I don't know

for staff

- ☐ Introductory programming course (e.g. Visual Basic, Python, Deplhi, etc.)
- ☐ Web management tools course (e.g. Frontpage, Dreamweaver, etc)
- ☒ Simple HTML course
- ☐ Advanced HTML course (e.g. CSS, javascript, etc)
- ☐ Intermediate, advanced programming (e.g. C/C++, Java, C#, Pascal/Delphi, etc.)
- ☐ Shell scripting course (e.g.Perl, Bash, etc.)
- ☐ Other course

Please describe:

☐ I don't know

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20 / 25. Do you ask job applicants about their experiences in the field of free software / open source software?

○ yes

○ no

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21 / 25. Are there positions in your company that require experiences in free software / open source software?

○ yes

○ no

21a / 25. Are these positions usually leadership positions?

○ yes

○ no

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22 / 25. Suppose you were to face a choice between two prospective employees (person A and person B) with exactly the same level of formal qualifications but different experiences: Person A has proven experience developing an important component of a proprietary software product, as an employee of a proprietary software company. Person B has proven experience developing an important component of a free software / open source software product of equivalent complexity, as an independent participant of the developer community. Would you be more likely to hire person A or person B?

○ Person A (with proprietary software experience)

⊙ Person B (with free software / open source software experience)

○ These different experiences would not influence my preference

○ I don't know

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23 / 25. Which of the following operating systems are the basis of the IT system of your institution? Answer this question for servers and desktop PCs separately.
on central servers

- ☒ Windows Server 2003
- ☐ Windows XP
- ☐ Windows ME
- ☐ Windows 95 or earlier
- ☐ AIX
- ☐ Free BSD
- ☐ NetBSD
- ☐ OpenBSD
- ☒ GNU/Linux
- ☐ HP-UX
- ☐ MacOS
- ☐ Mac OS X
- ☐ Netware
- ☐ Open VMS
- ☐ OS/2
- ☐ Plan 9
- ☐ SOLARIS
- ☐ yellowTAB ZETA/BeOS
- ☐ I don't know

on desktop PCs

- ☐ Windows Server 2003
- ☒ Windows XP
- ☐ Windows ME
- ☐ Windows 95 or earlier
- ☐ AIX
- ☐ Free BSD
- ☐ NetBSD
- ☐ OpenBSD
- ☒ GNU/Linux

☐ HP-UX
☐ MacOS
☐ Mac OS X
☐ Netware
☐ Open VMS
☐ OS/2
☐ Plan 9
☐ SOLARIS
☐ yellowTAB ZETA/BeOS
☐ I don't know

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24 / 25. Which of the following software systems are used in your institution?

☒ Apache
☐ FreeBSD/OpenBSD
☒ Gnome
☒ GNU/Linux
☐ Evolution
☒ KDE
☐ Konqueror
☒ LaTeX
☒ Matlab
☒ Microsoft Internet Explorer
☒ Microsoft Internet Information Server
☒ Microsoft Office
☒ Microsoft Outlook
☒ Microsoft Outlook express
☐ Microsoft SQL Server
☒ Mozilla/Firefox
☒ MySQL
☐ Netscape
☐ Octave
☒ OpenOffice.org
☐ Perl

- ☒ PHP
- ☐ PostgreSQL
- ☒ Samba
- ☐ Squid
- ☐ Sun Java Web Server
- ☐ Thunderbird
- ☐ Zope

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25 / 25. Is there anything you would like to add to the information that you gave in this survey that you have not been able to express?

Annex A7: Guidelines for the Localisation of the HEIs Questionnaire

FLOSSWORLD Guidelines for the HEI Survey

The following guideline provides a stepwise instruction for the preparation and execution of the higher educational institutions (HEI) survey. PLEASE NOTE: the HEI questionnaires are not final by now, as the revised versions that have been distributed in December do not fully address the comments from UWC and CSIR. We plan to cut several questions in each of the two HEI questionnaires. Therefore we need your comments and your decisions on which questions in the two questionnaires are most important to you **before January 15**!

1. **Check the revised global questionnaires** carefully with regard to understandability of the wording, order of the questions, and completeness of aspects that are surveyed again. Inform OII about changes you want to make and errors.

2. **Localise the questionnaire.** As described in the analytical framework paper, localisation means to translate the complete questionnaire into your language, to introduce local terms to ensure international comparability (e.g. using local currencies in the questionnaire and localised scales when asking about income or expenditure levels, but do also localise the FLOSS terminology that we use (e.g. FLOSS, F/OSS, Libre Software, Free Software, Open Source Software, or any other term that you think would be best to use in the region you survey) and the educational degrees and professions) and to add questions that are unique to each country's context. **At the end of this text a separate short list is provided for the questionnaire of the question numbers and points that MUST be localised by ALL FLOSSWORLD PARTNERS.**

3. **Prepare the circulation of the questionnaire** (start in parallel to localisation): Figure out how you want the questionnaire to be circulated, this may be dependent on the availability of contact information for government organisations in your country. You can either use databases that contain such information, search the Internet for such organisations and associations of such organisations, use address books, yellow pages, etc. At any rate it would be good if you know the name of a person in the organisations you want to survey who is able to answer our questions and to whom we can send the questionnaire. Our experience in Europe is that eliciting such information through phone calls is an extremely hard and time-consuming business. Nevertheless, having a personal contact usually helps considerably to raise the response rate, and

you can explain the purpose of the survey and ask for the preferences of the respondents regarding the kind of questionnaire (online, letter, fax). Make as soon as possible a list of all the organisations you want to contact, together with contact information (name of the organisation, name of the contact person, email address(es), and any other information that is relevant for contacting this organisation) and the way how they should be contacted (email, letter, fax, phone, maybe even face to face). Send all these information to OII/MERIT. Be aware that the survey addresses two separate groups of questions that can be answered by two separate groups of people – IT managers and administrators! You will possibly have to build two separate contacts lists. If you find out that circulating the questionnaire by letter or fax or face to face would be better, you have to collect contact information (telephone or fax numbers or locations / dates for possible face to face interactions) of the persons you want to survey. These lists must be sent to OII/MERIT, too. *Note: The advantage of an online version is that it can be very easily distributed and responded. If you rely on other channels for distributing the questionnaire (i.e. telephone, fax, face to face) you will have to organise the distribution of the questionnaire yourself.*

4. **Create different versions of an introductory email or letter/fax** in order to announce the survey and explain its purpose to the government organisations or, if applicable, contact persons in these organisations. This will be done by OII/MERIT and coordinated with you. *You will have to localise the introductory letter and send it back to OII/MERIT.*

5. **Send the localised questionnaire to OII/MERIT**. The localised questionnaires will be converted into on-line form and hosted on a web server at UM (in cases where connectivity is an issue, questionnaires can be hosted on local web servers arranged by the international partners). The on-line questionnaires will be accessible in two ways: addressed access, where unique web addresses will be generated for each pre-selected respondent with identifying information pre-recorded; and open access, where respondents may be asked to provide contact information. If you want to use letters or faxes, OII/MERIT will create a database that you can access online and in which you can fill in the responses you get.

6. **Pre-test preparation and execution**: Select a limited number of HEIs (usually, 5 HEIs suffice for this purpose) and let them fill in the questionnaire. If possible, you should try to talk to a couple of the pre-test respondents directly about the questionnaire, this provides you with much deeper insights in how the questionnaire works and how the targeted group of respondents might

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

- understandability of the questions,
- questions that appear difficult or impossible to answer,
- questions they did not want to answer,
- questions (or terms) they find unclear or annoying,
- the time they needed to complete the questionnaire (in an online version we can monitor this ourselves) and whether or not they find it to time-consuming (ask for the concrete question at which they got the feeling the questionnaire is too long),
- their general impression of the survey and the questionnaire
- further comments

7. **Analysis of the pre-test:** Particular attention will be given to any local differences in understanding or answering the localised versions of the questionnaire.

8. **Revision of the questionnaire** (if necessary), including localisation of the new elements and revision of the online version.

9. **Distribution of the final version of the questionnaire together with the introductory letter** to the persons in the address lists that have been collected during step 3. This will be done by OII/MERIT. Depending on which way of distributing the questionnaire you chose the questionnaire will either be sent by email to the persons that you have specified in personalised address lists, providing addressed access to the online questionnaire. (Note: A combination of addressed and open access to the questionnaire is generally possible). In case of addressed access, OII/MERIT will attribute each personal record with a personal password that will be used in the introductory email to allow respondents to access their personal version of the online questionnaire (i.e. nobody else will be able to see what they reply). If you prefer to distribute the questionnaire by fax or by letter these paper versions must be distributed by you and the completed questionnaires must be returned to you, too. In case of letter questionnaires we recommend strongly to use pre-paid response envelopes with your address, as this eases the respondents to reply and raises the response rate.

10. **Data collection:**

- For online survey with addressed access to the online questionnaire: Respondents will access the online questionaire and authenticate by entering their personal password, then they will complete the questionnaire. The responses will automatically be transferred into a password-protected database that can be accessed by you online. After a specified period of time (i.e. one week after distributing the questionnaire), those who did not reply will get a reminder by email. We usually send 3-4 email reminders and then make a final reminder phone call before we close the survey.

- For online survey with open access to the online questionnaire: Respondents will fill out the questionnaires directly on the website, the responses will automatically be transferred into a password-protected database that can be accessed by you online. Reminders cannot be used because we have no contact information.

- For letter or fax survey: The respondents will send you back the completed questionnaires. You will have to access the password-protected database that is provided online by OII/MERIT and to enter the responses maually in this database. You will also be responsible for sending reminder letters and faxes. At any rate, you should calculate a longer survey period for letter and fax surveys than for the online survey (at least double the time).

- For face to face interviews / meetings: Either use a computer to have the interviewee fill out the questionnaire online, or fill out a paper version of the questionnaire which you will then provide in electronic form to OII/MERIT as with the letter survey described above. Since you meet the respondent personally there's no need for reminders.

11. **Non-response analysis:** Not all of the contacts you have collected for the lists will reply. The crucial question for the validity of our results is whether our respondents differ significantly from our respondents in one or more respects. If this is the case our sample would be biased towards this or these characteristics, for instance towards FLOSS users. In order to estimate whether such (a) bias(es) exist(s) we have to conduct a non-response analysis. This means that we have to contact the non-respondents (or a sub-sample of them) again after the survey is closed and to ask them a couple (2-4) of relevant questions that allow comparing the non respondents and the respondents with regard to characteristics that are important for the survey.

For instance, FLOSS usage, size of the organisation, and level of the organisation could be such important criteria. The small questionnaire for the non-response analysis will be created in collaboration of all consortium partners, the execution of the non-response survey will fall into the responsibility of the local partners. The results of the non-response survey must be sent to MERIT and will be analysed and compared there.

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

- **both questionnaires**
  - IT-terminology, educational degrees and professions, FLOSS terminology (i.e. FLOSS, F/OSS, Open Source Software, etc.)
  - Terminology for "institution" and / or "organisation"
- **questionnaire for administrators**
  - Question 14: currency
  - Question 15: currency
  - Question 17: currency
- **questionnaire for IT managers**
  - Question 12: list of operating systems
  - Question 13: list of software systems
  - Question 30: list of courses