

APPLICATION FORM

ICT Research Grant

	Principal Applicant From USP	Co-applicants USP
Surname	Schutz	Finau
Forenames	Marko	Kisione
Title (Mr., etc.)	Dr.	Mr.
Institution address	Mathematics & Computing	Information Technology Section
Telephone No.	3212325	3212081
Fax No.	3303544	3304089
E-mail address	schutz_m@usp.ac.fj	finau_k@usp.ac.fj
	Co-applicants from USP	Co-applicants USP
Surname	Chand	Khan
Forenames	Atish	Natasha
Title	Mr.	Ms.
Institution address	Mathematics & Computing	ICT Capacity Building at USP
Telephone No.	3212219	3212470
Fax No.	3303544	3305441
E-mail address	chand_at@usp.ac.fj	khan_n@usp.ac.fj
Endorsement by the Head of School approving the Principal Researcher to undertake this research:		
<hr/>		
Name of the Head of the School		Date

Q1 Title of project (no more than 220 characters):
**A baseline survey on Free and Open Source Software (FOSS) in the South Pacific:
Knowledge, Perception, Usage, Contribution and Potential.**

Q2 Proposed start date (dd/mm/yy): 23rd December 2004

Q3 Period for which support is sought (in months): 4 months

Q4 Summary of total costs (in Fijian Dollars):

Consumables	\$2,900.00
Travel	\$12,750.00
Telecommunications	\$1,900.00
Support Staff	\$4,050.00
Educational material development	\$1,500.00
TOTAL	\$23,100.00

Q5 PROJECT BUDGET

(All costs should be in Fijian Dollars) Draw up a detailed budget for the project, including other funding sources, if any. Provide as much detail as possible in this section and include any other label as appropriate.

Grand Total					\$23,100.00
	No. of days	No. of persons	Amount	Subtotal	Total
Telecommunications					\$1,900.00
Postage for initial letters	12 countries	50 operations	\$1.00	\$600.00	
Phone/fax to set up interview schedule,	12 countries		\$75.00	\$900.00	
Postage of questionnaires to USPNet Operators and return	8 countries		\$50	\$400.00	
Travel and transportation					\$12,750.00
Flights:				\$4,860.00	
Samoa		2	\$700.00	\$1,400.00	
Tonga		2	\$730.00	\$1,460.00	
Vanuatu		2	\$1,000.00	\$2,000.00	
Vehicle rental:				\$1,000.00	
Vehicle rental - pilot in Suva and West - Fiji			\$300.00	\$300.00	
Vehicle rental - Samoa			\$200.00	\$200.00	
Vehicle rental - Tonga			\$200.00	\$200.00	
Vehicle rental - Vanuatu			\$300.00	\$300.00	
Allowances:				\$6,890.00	
4 days visit to West for Pilot - per diem	4	4	\$90.00	\$1,440.00	
Samoa	5	2	\$170.00	\$1,700.00	
Tonga	5	2	\$175.00	\$1,750.00	
Vanuatu	5	2	\$200.00	\$2,000.00	
Educational materials development					\$1,500.00
Questionnaire printing			\$500.00	\$500.00	
Data base setup			\$1,000.00	\$1,000.00	
Staff hire:					\$4,050.00
Research assistant - from 27 Dec 04 - 31 Mar 05	13 wks	1 person	\$250.00	\$3,250.00	
USPNet Operators - allowance for transportation and other related expenses for interviews in 8 countries		8 persons	\$100	\$800	
Consumables					\$2,900.00
Publicity for Focus group, etc		1 ad.	\$400.00	\$400.00	
Stationery for entire research				\$1,000.00	
Miscellaneous				\$1,000.00	
Printer cartridges				\$500.00	
Grand Total					\$23,100.00

A baseline survey on Free and Open Source Software (FOSS) in the South Pacific:
Knowledge, Perception, Usage, Contribution and Potential.

PROJECT BACKGROUND AND JUSTIFICATION:

Free and Open Source Software (FOSS) is increasingly popular in industrialized as well as developing countries. Its roots can be dated back at least as far as the 1970s, however, it only recently has gained momentum in the wider population. For the Pacific very little information is available regarding its use, although there is evidence of its use by a few institutions. This research revolves around a central question: "How can *we* benefit from free and open source software?" or "What do *we* need to do to derive benefit from FOSS?" In order to attempt an answer we will survey:

- ♦ the extent of usage of FOSS in the Pacific, particularly within the USP members countries,
- ♦ people's knowledge and awareness of FOSS (licensing issues, availability, etc.),
- ♦ people's perception of FOSS, and
- ♦ people's contribution to FOSS.

FOSS and proprietary software

We can distinguish proprietary software from free and open source software. The basis for this distinction is the rights to which the user of the software is entitled. Proprietary software typically denies rights that the user has with free and open source software. The most prominent being the right to look into (and thus learn about) the internal mechanisms of the software. Others being the right to change the way in which the software operates, the right to let others see or use the software, etc. Companies producing proprietary software sell users very limited rights in an effort to maintain control over the software. Some examples of these are Microsoft Windows 2000/XP, Macromedia Dreamweaver, Adobe Photoshop, etc.

Free and open source software on the other hand is free in terms of user's rights, but not necessarily free in terms of cost. The user has the right to look into the source code and learn how the internals of the software work. In response to emerging circumstances and needs it can be changed and adjusted. It can be passed on to others in the hope that it may serve their needs. These fundamental differences give rise to many phenomena about FOSS that have recently been studied and reported. With its source code available for everyone interested, a culture of peer review and criticism (not unlike that known from academia) has evolved. As a result it tends to run much more stable than proprietary software, has fewer defects and in general is more secure. The release schedule of FOSS projects is typically guided only by technical considerations and not guided by marketing or other non-technical interests. Thus contributors can decide purely on the basis of technical merit whether to include some new feature or not. It is important to note that FOSS is an enabling trend. There are no hindrances to participation and contribution. Hence the traditional categorization user vs. developer is, if at all, much less significant than it is for proprietary software. A more appropriate categorization for FOSS would be the level of expertise and the degree of participation by a user/developer. Usage, in particular in combination with giving feedback, is one form of participating in FOSS. Activities like asking for additional features, reporting software defects, supporting other users by sharing hints, configuration advice, etc. are all not traditionally considered development activities, but are contributions just as important as actually writing the code. It is only a sequence of small steps e.g. from observing a defect, to reporting it, to looking into the source code, asking "Why?", to fixing the defect, and then to contributing it to the particular project. Every participant is free to choose a level or form of participating that suits him/her. Some examples of FOSS are Linux

(named after Linus Torvalds, who started developing the system in 1991 as a student of Helsinki University), Apache (Web Server), Mozilla (Internet Browser), MySQL (Database Software), Open Office (Office Software) and many more. In fact free software powers most of the Internet today.

FOSS has shown a lot of potential in developing countries, because it has the advantage of keeping the resources within the community and contributing to their socio-economic development and empowerment, compared to proprietary software which is largely driven by corporate interests typically presenting a resource drain towards industrialized countries. Furthermore, FOSS allows local talents and resources to be utilized instead of outside expertise which tends to be more expensive and sometimes inappropriate for the local needs.

Because of the low cost in obtaining FOSS the savings made can be invested towards customization of the software to some specific use. Hence investment goes directly into the creation of new software modified by locals. It is for these reasons that one may reasonably assume that FOSS has a lot of advantages in Pacific communities and thus there is a need to encourage and popularize its use. The central questions we ask are: "How can *we* benefit from free and open source software?" or "What do *we* need to do to derive benefit from FOSS?"

World-wide shift to FOSS

In recognition of its innovative features, a number of countries have embarked on large scale projects to institute and encourage use of FOSS.

The South African government has recently approved a government FOSS strategy which allows for the use of both propriety and FOSS but based on software appropriateness. FOSS is to be used in situations where there is doubt about the reliability of proprietary software. A requirement by the government is that all software is to adhere to open standards. The use of FOSS is to be supported by partnerships and public projects must use FOSS license wherever possible. The South African government strategy provides for measuring the "value" realized by using open source as a way of gauging success or failure.¹

In Spain 80,000 computers running FOSS have been deployed in schools.² In Germany a major FOSS project is overseeing the conversion of 13,000 desktops and servers to be used in the administration of Munich City. The rationale is to create jobs within the IT industry.

One of the most ambitious projects is in France where one million computers in official use are being converted to FOSS. The French recently completed a test in which 20,000 PCs in the French Police and some ministries were converted to FOSS. By doing this, France hopes to decrease its software spending by half.

The European Union has produced a paper which outlines the framework for FOSS as a way of encouraging its use and in the UK there is now emphasis on open standards as a result of poor

¹ See <http://www.tectonic.co.za/view.php?id=147> for article and http://www.oss.gov.za/docs/OSS_Strategy_v3.pdf for strategy paper.

² See <http://www.gnome.org/press/releases/extremadura.html>.

service by vendors. Brazil plans to migrate 80% of all computers in state and state-owned institutions to FOSS.

To encourage popular use of FOSS the Ministry of Information in Thailand is selling PCs with Linux pre-installed for around F\$500³ while China is sponsoring the collection of open sources software which is particularly adapted to its needs. To cut down costs and improve IT innovation India has embraced FOSS in a big way.

“Developing” countries which have moved towards FOSS have realized its advantages and potential. Their experiences should provide some indicators in relation to potential benefits to the Pacific countries.

Potential benefits of FOSS for Pacific countries

As a way of encouraging socio-economic development and technological progress in the Pacific, choice of the right software is very important to ensure that local IT skills are fully developed and IT potential is geared towards the needs of the local organizations or groups. FOSS provides for this by ensuring freedom to learn, adapt and redistribute the software. It also prevents single vendor and technology lock-in; encourages positive competition, self-help and mutual co-operation; encourages the use of local software developers; builds up a critical mass of good coders; develops one’s ability to localize software oneself; and creates the environment to stimulate and build up the local software industry.⁴ In addition, FOSS is cheaper and highly reliable.

FOSS is already being used in the Pacific by some organizations. Some known users are South Pacific Geo-science Commission (SOPAC) based in Suva, Connect, ITC Services of the Fiji Government, South Pacific Tourism Organization and University of the South Pacific.

Importance of research

The research is necessary to provide baseline information on which FOSS policies in the Pacific can be formulated. Very little is known about the extent of usage of FOSS in the Pacific, although as we have seen above, the popularity of FOSS is ever increasing world-wide. Any well-founded FOSS-related strategy by governments, organizations or individuals hinges on the information this survey will provide.

Because of the advantages and benefits of FOSS in the long run we suggest using the findings in areas such as national economic planning, formulation of educational policies and public reforms, amongst others.

At USP there is growing enthusiasm within the IT community, in particular ITS and the MaCS faculty regarding the potential for FOSS. At present USP uses both proprietary and FOSS software.

³ See http://www.asiaosc.org/article_142.html.

⁴ See Stork, Edo 2004. “Introduction to Free and Open Source Software (FOSS).” UNDP paper.

A baseline survey on Free and Open Source Software (FOSS) in the South Pacific:
Knowledge, Perception, Usage, Contribution and Potential.

RESEARCH QUESTIONS:

Experience reported from numerous projects and international institutions suggests⁵ that free and open source software has particular features that are inductive in cost reduction, but also in supporting sustainable development of software and capacity building.

Our hypothesis is that the benefits of FOSS can be brought to bear in the Pacific region. In order to achieve this, strategic information is needed for the different stakeholders to plan effective action. Our survey will provide this information enabling the various stakeholders to direct their activities for optimal effect.

Therefore the research questions are:

1. "What are the obstacles for achieving these benefits?"
2. "What are the issues that need to be addressed before our region can maximize benefit from a widespread use of FOSS?"

Any substantial answer to these questions will need strategic information. We will therefore:

1. Collect thorough information on the current usage of FOSS in the region.
 - a. What is the extent of FOSS usage?
 - b. How many are using it?
 - c. Who uses it?
 - d. How and for what purpose is it used?
 - e. Why do they use or not use it?
 - f. What are personal and institutional factors which determine the use of FOSS?
 - g. What are the internal and external factors?
2. Collect information on knowledge and awareness of FOSS. There is a whole range of knowledge categories which need to be comprehensively evaluated in the survey. Sometimes people may be using FOSS without realizing it. Apart from knowledge, there is also the question of peoples awareness of the significance, benefits etc. of FOSS. Therefore, some of the questions asked will be:
 - a. What and how much is known about FOSS?
 - b. What is the nature of that knowledge (basic, functional, technically advanced)?
 - c. How is this knowledge translated into practice?
 - d. Is the knowledge sufficient for workability and sustainability?
 - e. What are the sources of knowledge?
 - f. What are the reasons for lack of knowledge?
3. Collect information on the perception of FOSS in the Pacific region.
 - a. How is FOSS perceived?
 - b. Is the perception negative? If so what are the reasons?
 - c. Is the perception positive? If so, what are the reasons?
 - d. What are some factors which shape these perceptions?

⁵ Please read http://oss.mri.co.jp/floss-asia/short_summary_en.html

- e. Is this perception recent and superficial or deeply embedded? Is it changing or static?
 - f. What is the general attitude towards FOSS?
 - g. What are some factors shaping these perceptions/attitudes?
 - h. How informed are these perceptions and attitudes?
4. Collect information on the extent of people's participation and contribution to the FOSS community.
- a. To what extent do people participate/contribute to FOSS?
 - b. How many are contributing?
 - c. Do regional contributions have a common theme?
 - d. Who contributes?
 - e. What are individual and institutional reasons to contribute or not to contribute?
5. And collect information on the potential increased usage of FOSS in the Pacific.
- a. What are the areas with the most potential for FOSS?
 - b. How can this potential be realized?
 - c. What action is needed by the stakeholders to realize the potential?
 - d. Is the potential for the Pacific unique or the same as in other countries?
 - e. Has potential for FOSS being realized or not? What are the reasons for this?

PROJECT OBJECTIVES:

The purpose of this study is to gather information on the extent of usage, knowledge, perception, potential of FOSS in the Pacific Island countries and to provide this information to key stakeholders in the region. The specific aims of this study are:

1. to gauge the understanding of various key stakeholders in their use of FOSS
2. to discover how IT managers deploy, and plan to deploy, FOSS in their organisations
3. to discover how software developers at use, and plan to use, FOSS tools, licenses and development paradigms
4. to discover how end-users use FOSS applications
5. to discover interest in longer-term development or participation in the FOSS community
6. to find out how FOSS could be utilized to help in developing cheaper and more flexible IT systems in the Pacific.

PROJECT BENEFICIARIES:

Data gathered by this research will be distributed to stakeholders with emphasis on the usefulness of FOSS. FOSS is suitable to developing countries because of financial and industrial reasons and so there are potential demands and trends for the use of FOSS in the Pacific region. This research will contribute to trigger and accelerate the use of FOSS in the Pacific region by providing current status of the use of FOSS.

Data from this survey is expected to specifically benefit a number of stakeholders such as ICT policy makers, educational institutions, ICT system managers/analysts and current and potential users.

The beneficiaries and how they would benefit of this study are outlined below:

Beneficiaries	How they would benefit
ICT policy makers	National policy makers need reliable data to formulate policies targeted towards IT use within the country.
Educational institutions	The baseline data produced would be useful for educational institutions teaching ICT, especially in relation to designing their curriculum targeted towards popularizing FOSS.
ICT system managers or analysts	Since these are important players in as far as adapting and re-writing FOSS programs, data generated would be important in designing and adapting programs which are relevant and appropriate.
Current and potential users	For ordinary and specialist users, knowing about what is generally available is important information in terms of who to turn to for help etc.

PROJECT SUSTAINABILITY:

The project will find appropriate baseline information which can be used for long-term strategic planning and policy formulation in relation to IT use in the Pacific. While not in the scope of this project, providing the information in an online database for access and update through a web front-end is straightforward.

PROJECT METHODOLOGY:

Both qualitative and quantitative and secondary research techniques will be employed. At the individual level in-depth interviews, focus groups, direct observation (requesting respondents to show the technical interviewer his/her computer so gather what types of software the respondent is using, as sometimes people do not know they are using FOSS). In-depth interviews as well as semi-structured interviews will be conducted with consultants, project/IT/human resource managers or large private or corporation, relevant government representatives, international, regional and national organizations to gather the necessary information. Non-users will also be interviewed to gauge their knowledge and restrictions to FOSS usage.

Email will be utilized to communicate with the respondents to request for any further feedbacks during the setup of the database. Email will not be utilized as the main medium for interviews as a number of studies in other parts of the world has indicated that email sent questionnaires elicit low response rates. A similar trend is also noted in the Pacific as the UNESCO (2002) study states *"...the questionnaire was distributed by email and facsimile to 161 potential respondents in 15 UNESCO Pacific Islands Member States. This included members of UNESCO national commissions, Governments, NGOs and private sector organizations. A special effort was made to reach the people who were in the best position to answer the specific questions about Internet infrastructure and e-governance.*

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As the initial deadline (31 July 2001) for the questionnaires approached, an intensive effort was made to make telephone contact with all potential respondents. A total of 134 were reached by telephone, but despite many promises and after a number of extensions to the deadline, only 37 completed questionnaires were returned by the end of September 2001. This represents only 20% of the number distributed."

The face to face interviews will also allow the interviewers at the end of interviews to inform respondents of the issues pertinent to FOSS and thereby empowering the respondents on this issue. Consequently, this would not be the traditional 'information extraction' process where researchers will obtain information without provide any relevant information. The research will involve a mixture of qualitative and quantitative approaches.

Because of the geographical size and diversity of the Pacific region coupled with the limited resources and time of the research team members, the fieldwork will be divided into two major approaches.

Approach 1:

The team members will personally conduct the interviews in Fiji, Tonga, Samoa and Vanuatu. Two of the team members will visit Tonga, Samoa and Vanuatu and all the members will conduct the interviews in Suva and West in Fiji Islands. Pilot interviews of a few persons will be conducted within the USP community by two of the team members during the last week of December. This will allow revisions to be made to the questionnaire if required.

Approach 2:

The ITS (USP) Manager will liaise with USPNet Operators to distribute the questionnaires to persons/organizations identified by the team members. The questionnaires will be couriered to the USPNet Operators and all completed questionnaires will be couriered back of the Office. The USPNet Operators will be given a specific and detailed memorandum on how to conduct the interviews. They will be further supported by email from all the team members for any arising issues of concern.

Quantitative method

Use of structured questionnaires to gather quantifiable data relating to such things as the number of people using FOSS; the frequency of FOSS use; the number of computers available etc;

Interviews to be conducted on a face to face basis to ensure reliability in terms of guaranteed "return" of the questionnaire;

Tabulating, classifying and stratifying the data;

Analyzing the data using comparative and deconstructive methods.

Qualitative method

The use of the Participatory Action Research (PAR) method to investigate the broader socio-economic and socio-cultural environment of FOSS use in the Pacific and also to gauge peoples feelings, awareness and knowledge. The PAR will involve the active participation of respondents in focus group discussions relating to understanding their own problems and their possible solutions. Qualitative data from this exercise will be used to supplement quantitative data gathered.

Focus groups will be used to gauge the extent of consensus or differences amongst the various respondents.

Some of the questions in the questionnaires will be qualitative in nature and will be used to supplement quantitative data or analyzed separately, depending on the contexts.

SAMPLING

The sample is based on the estimated proportion of internet users amongst the Pacific countries. The size of the population has also been taken into consideration, although it usually does not directly correspond to the level of IT usage. Due to time constraints, only four countries will be visited by the research team members for the interview. Interviews in the other countries will be conducted by the USPNet operators. The four countries selected for visit by the team members are Fiji, Tonga, Samoa and Vanuatu. These countries have been identified as emerging leaders in the use of ICT in comparison to other USP member Pacific countries. The total number of interviewees would be 360 for the IT technicians, managers, analysts and technical users and 600 for other users. The total would be 960 altogether. The country breakdown is shown in the table below.

Country sample distribution

Country	Population	Approach 1	Approach 2	IT personnel	Other users	Total
Cook Is	16,500			20	30	50
Fiji	800,000			100	220	320
Kiribati	85,000			20	30	50
Marshall Is	61,000			20	40	60
Nauru	11,500			10	20	30
Niue	2,000			10	20	30
Samoa	174,000			50	60	110
Solomon Is	417,000			30	20	50
Tokelau	1,500			10	20	30
Tonga	98,000			50	60	110
Tuvalu	11,000			10	20	30
Vanuatu	182,000			30	60	90
Total	1,859,000			360	600	960

In-country sample clusters

For each country the sample will be largely based on IT users. IT users refer to those who use IT either at work for professional purposes, use for educational purposes (e.g. students) and those who use it at home. This includes those who do not own computers but use it for various purposes at various times. The IT users can be further broken down into sub-categories such as government, private sector and civil society groups as a way of gauging the extent of usage and

perception of FOSS within these categories. The distribution of sample in the table is based on approximate estimates of internet users in the Pacific.

In-country sample clusters

Category	Details	Estimated % of IT users	Sample (% of total country IT sample)
Government and public sector	Consists of government and public sector institutions and employees, IT personnel (programmers, analysts etc.). Some government employees who use official PCs have their own PCs. This information will also be captured in the data.	20	20
Regional organizations	CROP agencies-mostly based in Suva. These are some of the biggest internet users.	10	10
Private sector	Refers to companies and business establishments of different sizes; and those who use It for business purposes.	35	35
Educational institutions	Schools, technical institutes, universities, training centers etc. Largely revolve around the use of IT for educational and professional purposes.	15	15
Civil society groups	Churches, community organizations, voluntary groups etc.	20	20
Total		100	100

The sample distribution above will generally apply to all the countries. The distribution is based on the Fiji internet use data. Fiji has a large private sector and thus has the highest allocation. The figures will need to be adjusted for those states where the state is the largest user of internet.

PROJECT TIME LINE:

Literature review	early Nov – late March
Revision of proposal	13-16 th December
Submission of proposal	17 th December
Response on proposal	22 nd December
Interview arrangements	23 rd – 31 st December
Questionnaire finalization	23 rd – 31 st December
Pilot interviews at USP	28 th – 31 st December
Interviews in Suva	4 th – 10 th January
Interviews in Nadi – Lautoka	11 th -14 th January
Interviews in region	21 st Feb – 25 th March
Data input	4 th Jan – 31 st March
Data analysis	28 th March – 8 th April
Outline of report preparation	February 2005
Report preparation	April 2005

RISK MANAGEMENT:

The interview teams will consist of IT experts and a research assistant to provide a balance of the technical and social knowledge. A social scientist will be consulted in an advisory role for the duration of the research. A research assistant will also be hired for the duration of the research to assist the research team members in all logistical and administrative work in relation to the conduct of the interview. The research assistant will also code and input the data under the supervision of the team members. Proper scrutiny of data at all stages will be undertaken to ensure reliability.

PROJECT OUTPUTS:

The quantitative and qualitative data will be analyzed and used to build a database for IT research at USP. A database will be created and placed online. It is anticipated that persons interested in FOSS would set up FOSS community in the Pacific region and will start more active interaction with each other after the completion of this research.

A report that contains analyzed data for utilization of FOSS will be published. This report and the data will be useful for IT policy formulation purposes. This report will provide this information to all stakeholders in the region such as interested individuals, educational organizations, policy makers, government agencies, departments, ministries, civil society and private sector organizations and regional organizations. The report will be also be published in open and easily accessible formats (e.g. csv, SQL) to encourage further use of FOSS.

Based on the findings, sector specific recommendations would be formulated. These recommendations and the report will be circulated amongst stakeholders to initiate further discussions on issues arising out of the research findings. It is anticipated that effective actions

would be planned by the key stakeholders. This research could also complement some of major studies done on FOSS in developing countries⁶.

PROJECT MONITORING:

The database will provide the baseline for changes in usage, knowledge and perception of FOSS over time. Changes in the usage, perception and knowledge of FOSS will be monitored through future surveys.

PROJECT ORIGINALITY:

This is the first large scale survey on FOSS done in the Pacific.

⁶ See for instance the report by the Davis Group on perspectives for FOSS in developing countries on behalf of infoDev, a subsidiary of World Bank (<http://www.infodiv.org>)

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CURRICULUM VITAE FOR PRINCIPAL APPLICANT

Surname: Schutz Forenames: Marko
Date of birth: 7 December 1965 Nationality: German
Degrees: PhD, J.W. Goethe Universitat, Frankfurt, 2001.
MSc, J.W. Goethe Universitat, 1995.

Current post: Lecturer
Department Mathematics and Computing Science
University of the South Pacific

Dates from: 7 June 2004 to 6 June 2007

Previous posts: Professurvertreter, FB Informatik, FH Darmstadt, 2002--2004
Software Engineering Consultant, self-employed, 2001--2002
Research Assistant, FB Informatik, J.W. Goethe Universit at, Frankfurt,
1995--2000
Research Assistant, FB Mathematik und Informatik, FU Berlin, 1995

Publications:

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A baseline survey on Free and Open Source Software (FOSS) in the South Pacific:
Knowledge, Perception, Usage, Contribution and Potential.

Annex 1: QUESTIONNAIRE – WORKING DRAFT

(Please note that this is a working draft and therefore not in any specific order yet)

How many IT people does your company employ? (employees in the IT department or employees responsible for IT related tasks)

_____ total _____ Full time _____ Part time
8 don't know
99 no answer

How many total full time and part time employees does your company have? (including IT staff)

_____ total _____ Full time _____ Part time
8 don't know
99 no answer

How many computer users does your company have?

_____ total
8 don't know
99 no answer

Number of separate computers that your department provides software and software support for:

_____ total
8 don't know
99 no answer

Open Source Software

Is your company using Open Source Software, e.g. Linux, Apache, MySQL, or planning to do so within the next year? We are talking about software with source code that is open, readable and changeable.

1 Yes
2 No (Go to.....)

From your point of view, what is the importance of Open Source Software for your company's IT infrastructure? Is the importance...

1 very high
2 high
3 medium
4 low
5 very low
8 don't know
99 no answer

Use of Open Source Software

What is your organization's average level of awareness of Open Source Software?

1 Very few are more than slightly aware of open source concepts.

- 2 Open source software has been looked into by quite a number of people, or by a few in some depth, but in general further information is needed before deploying.
- 3 Open source has been investigated and decisions have been made on deployment.

What is your organization's overall level of skill with open source software? This question is concerned with skill in using and administering open source software packages and software.

- 1 There are very few staff with these skills.
- 2 A moderate number of staffs are skilled with at least one open source software package.
- 3 Significant numbers of staff are skilled with more than one open source software package.

What is your organization's overall level of skill with the open source software process? This question is concerned with familiarity with how open source software is developed, where to go for support, how bugs are fixed, etc.

- 1 There are very few with these skills.
- 2 A moderate number of staffs are somewhat familiar.
- 3 Significant numbers of staff are skilled with the entire open source software processes.

Have you deployed, or do you intend to deploy, open source software in a significant way within your organization? If yes, what time frame do you have for deployment?

- 1 Decided not to deploy open source software
- 2 Have already deployed open source software but in a rather limited way
- 3 Have already deployed open source software in significant ways/quantities
- 4 This year
- 5 Within five years
- 6 No decisions made yet

If you have not deployed open source software, skip to the next section

What proportion of software deployed in your organization is available under an open source license? (By numbers of packages, and by numbers of copies)

What proportion of your software budget do you estimate was spent on open source software (including support and maintenance)?

What would best describe your organization's level of involvement in open source software?

- 1 Use open source software, but do not participate in development to any extent.
- 2 Indirect contribution to open source software development, e.g. filing bug reports, project administration on a moderate scale.
- 3 Contributing directly to the development work of open source software projects (including documentation) on a significant scale.

Where is open source software used in your organization? (Check all those that apply)

- 1 Infrastructure (network, web/file/print servers, etc)
- 2 Administration
- 3 Finance
- 4 Teaching
- 5 Student Labs
- 6 Research

In the following, I will line out specific IT areas for the use of Open Source Software. Please tell me for each area whether your company is currently using Open Source Software or planning to use it within the next year. Please indicate also whether you are using Open Source Software in your regular IT operations or just in unimportant exceptional cases.

- 1 currently using in regular IT operations
- 2 currently using only in unimportant exceptional cases
- 3 planning to use within the next year in regular IT operations
- 4 not using in regular IT operations and not planning to do so within the next year
- 8 don't know
- 99 no answer

Where have you deployed open source software?

- 1 Predominantly on servers. e. g. Linux or Free/Open BSD. Specify if others. _____
- 2 Predominantly on personal computers (client applications). e. g. Linux, KDE, Gnome, Mozilla or StarOffice/Open Office. Specify if others. _____
- 3 Database e. g. MySQL, PostgreSQL or Interbase or SAP-DB. Specify if others _____
- 4 Creating websites e. g. Apache, PHP, Perl, Python, Squid or Open Source Content Management Systems
- 5

What benefits has open source software provided to your organization?

- 1 Saving on Total Cost of Ownership (TCO)
- 2 Able to modify source for specific purposes
- 3 Better response with bug fixes and/or support
- 4 Less reliance on a particular vendor
- 5 Better interoperability with other products due to open standards

6 Other, please specify

On average, have you found the support available for open source software better or worse than that of non-open software?

- 1 Better
 2 Equivalent
 3 Worse

Have you had to provide any additional services due to your use of open source software? (For example, help desk support for clients using open source packages)

1 Yes, how _____
 2 No

Have you found that the maintenance and support demands of open source software are higher than those of proprietary software?

1 Yes, how _____
 2 No

Please estimate your organization's expenditure on software licenses in 2004:

Please estimate your organization's expenditure on software support in 2004:

Open Source Packages

The following table is a selection of open source software packages. Please indicate whether you are aware of each package or have deployed each one.

Package	Aware	Deployed
GNU/Linux (Operating system)	<input type="checkbox"/>	<input type="checkbox"/>
OpenOffice.org (Office package)	<input type="checkbox"/>	<input type="checkbox"/>
Mozilla/Konqueror (Web browsers)	<input type="checkbox"/>	<input type="checkbox"/>
Evolution (Outlook clone)	<input type="checkbox"/>	<input type="checkbox"/>
Octave (Matlab clone)	<input type="checkbox"/>	<input type="checkbox"/>
LaTeX (Typesetting language)	<input type="checkbox"/>	<input type="checkbox"/>
MySQL/PostgreSQL (Database servers)	<input type="checkbox"/>	<input type="checkbox"/>
Apache (Web server)	<input type="checkbox"/>	<input type="checkbox"/>
Samba (Windows-compatible file sharing)	<input type="checkbox"/>	<input type="checkbox"/>
Gaim (Instant messenger client)	<input type="checkbox"/>	<input type="checkbox"/>
VI/Emacs (Text editors)	<input type="checkbox"/>	<input type="checkbox"/>

Now I will present to you several criteria that can influence a decision in favour of Open Source Software. Please tell me, how important each of the following criteria was on average for your decision in favour of Open Source and against any proprietary operating system.

Criteria	1=very important	2=important	3=neither nor	4=less important	5=not important	8=don't know	99=no answer
1. Open and/or modifiable source code							
2. Lower or no licence fees							
3. Better price to performance ratio							
4. Higher performance							
5. Higher stability							
6. Better protection against unauthorized access							
7. Better functionality							
8. Higher number of potential applications							
9. Open Source server operating system was already integrated in another product you have acquired							
10. Hardware cost savings							
11. Cost savings regarding installation, integration and customization to company needs							
12. Cost savings regarding daily operations, administration and support							
13. Cost savings regarding training and introduction of users							
14. Recommendation of your IT service provider							
15. Existing solutions, know-how and/or experiences in your company regarding							
16. Open Source server operating systems							

Let's discuss server operating systems. Your company is currently using Open Source Software for server operating systems or is planning to do so. In the following, I will name several Open Source operating systems. Please tell me for each one whether you are currently using it or planning to use it within the next

year. (1Linux ,Free/2Open BSD, If 3 Other, please specify_____)

- 1 currently using
- 2 planning to use within the next year
- 3 not using and not planning to use within the next year
- 8 don't know
- 99 no answer

Let's discuss databases. You are currently using Open Source Software for databases or you are planning to

do so. In the following, I will name several Open Source database products. Please tell me for each one whether you are currently using it or planning to use it within the next year.

(1MySQL, 2PostgreSQL, 3Interbase, If 4Other, please specify_____)

- 1 currently using
- 2 planning to use within the next year
- 3 not using and not planning to use within the next year
- 8 don't know
- 99 no answer

If you are currently using Open Source Software on desktop or client computers or you are planning to do so.

In the following, I will name several kinds of Open Source Software in the desktop area. Please tell me for each one whether you are currently using it or planning to use it within the next year.

(1Linux, 2KDE, 3Gnome, 4Mozilla, 5StarOffice/OpenOffice, 6 Other, please specify_____)

- 1 currently using
- 2 planning to use within the next year
- 3 not using and not planning to use within the next year
- 8 don't know
- 99 no answer

You are currently using Open Source Software for creating or operating websites or you are planning to do so. In the following, I will name several kinds of Open Source Software for creating or operating websites. Please tell me for each one whether you are currently using it or planning to use it within the next year. (1Apache, 2PHP, 3Perl, 4Python, 5Squid,

6Open Source Content Management Systems, 7Other, please specify _____)

- 1 currently using
- 2 planning to use within the next year
- 3 not using and not planning to use within the next year
- 8 don't know
- 99 no answer

Now I have some questions on the general use of Open Source Software in your company. They are not related to any specific IT area. In the following, I will present a number of statements to

you. Please, tell me for each statement how much it applies to your company. For your answer, you can use the following range:

Statements	1=totally agree	2=somewhat agree	3=neither nor	4=somewhat disagree	5=totally disagree	8=don't know	99=no answer
We use Open Source Software because we want to be more independent from the pricing and licensing policies of the big software companies.							
By using Open Source Software we want to support the Open Source community.							
We use Open Source Software because IT specialists for this kind of software are more easily available on the labour market than specialists for proprietary software.							
We prefer using Open Source Software - that's part of our company policy.							
Our software developers are free to work on Open Source projects within their time at work.							
We are deliberately working together with Open Source service companies in order to support the development of Open Source software.							

A. Background information on interviewee

1. Name
2. E-mail
3. Job title
4. Job responsibilities?
5. Speaking for the whole institution, or only a department?

B. Individual Experience with OSS

1. Have you had any experience with FOSS, either as a user or a developer?
2. How would you characterize your knowledge of the software packages?
3. Of the legal issues?
4. Of the community?

C. Software Purchase Decision-Making Process

1. Does your organization have an IT policy or strategy?
 - 1.1.If yes, what is the strategy?
 - 1.2.If yes, how far into the future does the strategy give guidance? Short-term only, or is it long term?
 - 1.3.If yes, how often is this strategy reviewed?
 - 1.4.If yes, did you consider an FOSS component the last time you developed your strategy?
 - 1.5.If yes, how does the strategy address FOSS, if at all?
 - 1.6.If yes, do you think your institution will consider FOSS in the short- or long-term? Why or why not?
 - 1.7.If no, how does your institution make purchasing decisions? How often are decisions made?
 - 1.8.If no, do you have plans to develop a strategy in the near-term?
 - 1.9.If no, how have the FOSS options factored into your purchasing decision process?
 - 1.10.If no, do you think your institution will consider FOSS in the short- or long-term? Why or why not?
2. Who is responsible for making software purchasing decisions? Does one group of decision-makers make purchases for the entire institution, or is responsibility more medieval?
3. What is the process by which short-term purchasing decisions are made? Who influences the decisions?
4. Is the process different for long-term decisions? If there is a long-term strategy, what is the process for formulating that?
5. Is the actual process of procurement different in any way from the stated strategy?
6. How much leeway do individuals have to 'go their own way'? Departments? Do groups depart from the stated strategy? Why?
7. Do you look to any outside bodies for guidance on what software to purchase? Who is responsible for doing this research?
8. What are the factors that go into your purchasing decisions? (TCO, ease of use, user familiarity, compatibility, modifiability, support, staff expertise, path dependence/lock-in...?)
9. Do you have a method for surveying all the available software packages? Do you always consider FOSS?

D. FOSS Use

1. How would you characterize your organization's average level of awareness of FOSS?
2. How widely used is FOSS in your institution? How would you describe the 'depth of penetration'?

Proportion of software packages under an FOSS license?

If FOSS is used...

3. In what areas is FOSS used? (operating, network, information, desktop, specialized applications, software development environments)
4. How dependent is your institution on FOSS? To what extent would it suffer if FOSS disappeared?
5. What is your institution's overall level of skill with FOSS? IT staff and users?
6. Is FOSS used by behind-the-scene techies only, or also by students, staff, etc?
7. Who provides support for FOSS products in your institution?
8. Does your institution train staff and users on FOSS products?
9. What were the main reasons you chose to use FOSS over proprietary analogues?(TCO, able to modify source, better response to bug fixes, better support, less reliance on particular vendor, better interoperability w/other programs b/c of open standards).
10. Are there features of your institution (size, expertise, etc.) which you would say are indispensable for deploying OSS?
11. What percentage of your budget would you estimate was spent on FOSS? (incl deployment, support, maintenance)
12. Has your institution made attempts to evaluate the TCO of FOSS as compared to proprietary analogues?
13. Who are the biggest champions of FOSS in your institution? (techies?) Who are its biggest detractors? (IT managers?)
14. What have been your greatest concerns about FOSS? (legal, interoperability, identification of relevant software, managing in-house projects, investigation of takeup in comparable environments around the world, 3rd party support)
15. What are your most important sources of information on FOSS?

If FOSS is not used, or if it's not used in certain areas...

20. Why isn't FOSS used [in certain areas]?
21. Do you have plans to deploy FOSS in the near- or long-term? In what areas?
22. Would your institution be open to the idea of using FOSS? What would be the barriers to use?
23. Who are the biggest champions of FOSS in your institution? (techies?) Who are its biggest detractors? (IT managers?)
24. What have been your greatest concerns about FOSS? (legal, interoperability, identification of relevant software, managing in-house projects, investigation of takeup in comparable environments around the world, 3rd party support)
25. What are your most important sources of information on FOSS?
26. What is the best way for your institution to receive this information if FOSS Watch were to provide it? Who should receive it? In what areas (types of application, deployment strategies, etc.) do you have the most need for information?
27. If you decide at some point to deploy FOSS, do you already have the skill capacity on staff to immediately get FOSS off the ground? How much additional investment in skills/staff members do you think you would need?

28. How do you currently discuss FOSS?

E. FOSS Development

1. Does your institution develop software in-house? Does it contribute to projects based outside the institution? (if no, end this section)
2. What is your organization's overall level of skill with the open source software development process? This question is concerned with familiarity with how open source software is developed, where to go for support, how bugs are fixed, etc.
3. Do your developers share source code with other institutions?
4. Do your developers work on FOSS projects?
5. What is your policy for licensing software?
6. How did you settle on this policy?
7. Who is responsible for choosing the licensing strategy? Is there a process?
8. Have you sought legal advice on licensing or other intellectual property issues? If not, is this something you currently have the capacity to do? Would this capacity be helpful to you?
9. How do you track developments outside your institution?
10. What have been your greatest concerns?

F. Comments

1. Any additional comments?

Annex 2: POSSIBLE ORGANIZATIONS/PERSONS FOR INTERVIEW

(Please note that this will be confirmed after approval of funding)

Fiji	Tonga	Samoa	Vanuatu
USP	TCC	Princess Tui Inn	Pacific ISOC
SOPAC	TonFon	Virgin Cove Resort	Telecom Vanuatu
FFA	Antz Internet Cafe	SPREP	Vanuatu Broadcasting and Television Corporation
SPC	Dateline Hotel	IPacifika	Min of Finance
Forum Secretariat	MOF	LeSamoa	Dept of Information
FNPF	Lagoon Resort	Samoa Observer	Meteorological Dept.
UNDP	Tonga Visitors Bureau	Samoa Tourism Authority	Airports Authority
EU	Tonga Star	MOT	Customs Dept
Fiji TV	Min of Finance	Min of IT	Dept. of telecommunication
Fiji Times	TCF – Tonga Corporation	Meteorological Dept.	Asian Development Bank
Carpenters Fiji Ltd	Min of Lands	MOE	Chamber of Commerce
ASCO Motors	MOH	PSC	Pacific Island Broadcasting
Reserve Bank of Fiji	Radio Tonga	Samoa Broadcasting Corp	Red Cross
ANZ Bank	FWCC	Dept. of Police	National council of women
Westpac Bank	LDSC	Airport Authority	Price Waterhouse
Colonial Bank	Taholo Kami	Central Bank of Samoa	Air Vanuatu
ATS	Tonga Computer Society	Development Bank of Samoa	Air Caledonie
CAAF	Customs Dept	Electric Power Corp	Asia Pacific Trust
Sheraton Hotels	Tonga Medical Assn	National Provident Fund	Bank of Hawaii
ITC	Tonga Chamber of Commerce	National University of Samoa	National Bank of Vanuatu
FSM	Royal Tongan Airlines	Polynesian Airlines	Reserve Bank of Vanuatu
Fiji Telecom	Tonga Development Bank	Ports Authority	Vanuatu National Provident Fund
Connect Fiji	Bank of Tonga	Samoa Life Assurance	Datec
FEA	MBF Bank	Samoa Polytechnic	Computer World
Ports Authority	National Reserve Bank	Samoa Water Authority	Pactec Pacific Technology
Home Finance	Palm Travel & Tours	Customs Dept	Boral Gas
TPAF	Heilala Hotel	Samoa Chamber of Commerce	StarNet
FSC	Sandy Beach Resort	ANZ Bank	Telecom
MOH	Tonga Electric Power Board	Bermuda Trust	SITA
MOF	Tonga Broadcasting Commission	Vailima Investments	
ECREA	TV 7	Aggie Greys Hotel	
Greenpeace	Airport Authority	Apia Rentals	
FCOSS		Avis Rent a Car	
FWCC		Sinali Hotel	
Customs and Revenue Dept.		Samoana Hotel	
Fiji Police		TV Corp	
Fiji Meteorological Dept.		Western Samoa TV Corp	
Outrigger Hotel		Pacific International Travel	
Shotover Jet Fiji		Telecom Samoa Cellular	
Sonaisali Island Resort		Pacific Internet Services	
Awesome Adventures		Pacific Communications	
Beachcomber Cruises		ASCO motors	
Tanoa Hotels			
Fiji Visitors Bureau			

Immigration Department			
SPTO			
Air Pacific			
Fiji Live			

Sample selection:

This study was initiated to examine the investment into knowledge development of OSS, including the broad potential but un-tapped skill-base. Thereby the survey had to include individuals who have the education and work experience, but do not necessarily use and develop OSS products. To do so, the survey was targeted to participants with a degree in Master of Science in computer engineering. The rationale for choosing these persons was that they likely have the skills of interpreting code and errors that might occur and contribute with bug reports and new lines of code (McKelvey 2001). In addition, people with a degree in computer engineering probably make decision at their workplace about which operative system to choose, what kind of computers to buy etc.

Two universities were picked – Linköping University in Sweden and Rice University in the USA. Both universities have been involved in the development of research and have educated computer engineers during a longer period, from which a sample could be picked.