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**Is There a Place for Community in Business?**  
**Free and Open Source as a Model for Coordinating**  
**Distributed Micro-Enterprises.**

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**A dissertation submitted to the University of Dublin in**  
**part fulfilment of the requirements for the degree of**  
**Msc. in Management of Information Systems**

**2007**



# Declaration

I declare that the work described in this dissertation is, except where otherwise stated, entirely my own work, and has not been submitted as an exercise for a degree in this or any other university.

Signed:

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Patrick Ruairí O'Connor

1<sup>st</sup> October 2007

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For Dad,  
Showing me the importance of community,  
You've left a lasting memory.

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## **Abstract**

This paper investigates the feasibility of transferring the culture and tools of the FLOSS software movement to an organisation model for coordinating the collaboration of micro and small businesses in the face of global competition. It will be relevant to researchers of SME organisation models and SME businesses alike as it aims to look for novel methods to provide a model which both allow businesses to operate more effectively internally and to improve their interactions with external parties such as customers, suppliers and other stakeholders.

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## Chapter 1: Introduction

Globalisation is changing the landscape of the commercial world from one where value is derived from a centralised base feeding a mass market economy to one where value is being driven by individualisation and knowledge based services.

These changes are creating repercussions across all areas of life driven by and causing great change in political, economic, social and technological facets of life. The overall effects have been written about extensively. An interesting angle is the fundamental changes that are under way in the small business sector. Traditionally, the vast majority of commercial value has been generated from the top down by governments and large corporations, as these institutions were the only ones with access to markets. The recent changes which have supported the growing global focus of business are also transferring a lot of ability to the individual (Standing, 1997). At the same time the highly dynamic nature of the global economy is leading to a loss of the perceived job security (Standing, 1997) which has the primary reason for people to seek employment within a larger company.

As a result, many individuals are finding that a more efficient manner in which to realise their abilities is to operate as a body corporate in and of themselves selling a portfolio of their skills to others (Handy, 2001). As this mode of realising one's own value becomes more prevalent, the traditional devices used to support workers such as centralised offices, company insurance, benefits and even traditional corporate structures will become less efficient and perhaps also less relevant.

In its place a new suite of devices is needed to support these individuals and their resulting micro / small enterprises in the realisation of the value in their portfolios. This dissertation seeks to analyse the traits of such a workforce, ascertaining the differing needs such a structure requires and hope to address these needs through the implementation of lessons from open source. Much is written in this area so the literature review will seek to evaluate the validity of this change in working models.

The second part of this paper looks at current research into how such needs may be met and how we may learn from the success of open source / free software movement. In creating leading software and innovations to beat the vast majority of its proprietary rivals FLOSS has a lot of lessons which may have potential to be translated to the new model of portfolio workers, micro and small enterprises. I will put forward the evidence that this

model in an advanced stage mirrors closely that of the distributed nature of the FLOSS developers and communities.

The research, seeks to fill gaps in the current research of the application of FLOSS models to organisation models already put forward by prominent researchers in the field. Two in-depth interviews with a technology organisation and another not directly involved in software creation who have applied FLOSS models paint a picture of the current application of the FLOSS models within and beyond the scope of software development. The second part of the research takes the form of a survey which, amongst other things concerns itself with trying to understand the motivations of FLOSS developers and members of the FLOSS community in the hopes of distilling this into a form portable to other areas of organisation modelling.

Once the required components of the previous chapters are blended together, the findings attempt to match the needs of the individuals living in the SME world with the lessons learned from the FLOSS world. Key to this is the identification of the motivation driver(s) in the portfolio model and linking those drivers to the elements of value creation within the model.

Finally, the author puts forward the potential for further research in this field as well as the use of this research for interested parties.

### ***Research Motivation***

The foundation for this research has come from reading about and experiencing the life of a portfolio worker, micro-enterprises and small to medium sized businesses. One particularly formative piece of literature was “The Elephant and the Flea” by Charles Handy (Handy, 2001). This book outlined the concept of the portfolio worker and the changes which have brought about the relevance of such work models. Having established a business in 2003, driven by the fact that I could not align my goals to that of any larger business coupled with a strong sense of independence, my own goals were to provide service to small business using my skills to allow them to focus on theirs.

Throughout this time, in dealing with a large variety of small businesses, it became obvious that small businesses in general conform, irrespective of their markets or product/service offerings to a clear pattern of operational behaviours. I also realised that these traits formed a “personality” of a small business in who's needs the market did not

respond to very effectively. By this I mean that products and services offered to these organisations, being bound by traditional organisation structures, were far from being optimised for the needs of their small business customers.

In addition to these observations, in my professional capacity as a technology consultant, the power of FLOSS in creating excellent software and innovative practices through seemingly chaotic relationships spread across the globe, coupled with the perspective gained from experience and literature referenced heavily in this paper collided to form the view that the potential for a new model of work was had potential to meet the needs of small businesses.

It has been advantageous that the technological drivers of the world economy [flatworld] have highlighted amongst some, a greater relevance in the role of micro and small businesses. In fact, as the literature review will show, much innovation is now being driven from the bottom up as opposed to from the traditional industrial age sources such as government departments and large corporations e.g. in the development of military technologies, research and development etc.

### ***Research Relevance and Importance***

This dissertation aims to add to the field of organisation theory in the co-ordination of micro-enterprises. As already outlined, the importance of micro-enterprises to innovation and hence value creation is becoming much more prevalent with the changes underpinning the global economy (European SMEs, 2003d).

To date, in the industrial age, micro and small enterprises have operated with little organisation and cohesion, mainly existing to fulfil minor value-add, niche products and services to larger corporations (Hyatt et al., 2004). Whilst this may remain true for some time to come, the role of the micro and small business is also shifting to a more pivotal one providing innovation and efficiencies to allow their larger patrons to compete in the global economy (Hyatt et al., 2004).

In their own right, micro and small enterprises will also serve as highly efficient networks to deliver products and services in the long tail model where value creation is shifting to customisation and micro-production (Stefan and Eric von, 2002). Additionally micro and small businesses serve as excellent vehicles allowing individuals to marry their own personal life goals with the requirement to generate wealth to sustain themselves

(Naughton, 1987).

Innovation creation by micro and small enterprises may form the main source for new ideas, products and services as the model progresses (Freel, 2000). As we are shifting into an era where the market, driven by consumer demand drives innovation, micro and small enterprises possess the on the ground knowledge and ability to respond quickest to these forces (Lee, 2000).

Finally, whilst not being of explicit relevance to this paper, the models proposed may, given future development, serve to provide the framework for larger organisations, especially those which operate best as virtual organisations.

### ***Scope, Objectives and Time frame of Study***

This paper focuses on enterprises in size from individual “portfolio workers” to micro and small businesses with a potential relevance for medium sized enterprises also. This segment of enterprise is a most interesting area of study given the new found powers individuals and small businesses now possess thanks to technological developments in the areas of information technology and the growth of capitalism across the globe as the primary economic model for nations wealth creation (Handy, 2001).

In this regard, the paper will view such organisations from the perspective of a unifying set of traits defining a framework for how they operate and interact with others. Such traits will be established by the literature review. Geographically, the case studies of organisations used in the research are from European sources purely due to logistical reasons limiting the scope thus.

Whilst the aim of the paper is to examine the components required to build a model to support small businesses effectively in their new roles, the scope of this paper will remain within the study of FLOSS tools. These tools are analysed in an attempt to distil the factors which may enable businesses to operate to higher degrees of efficiency, innovation and competitiveness. In addition, the paper attempts to map these factors into a service delivery model designed to allow small businesses to operate in a networked fashion in a cohesive manner. To draw a comparison, the traditional model used would be that of a franchise, however ownership and control would rest with the individual businesses as opposed to being centralised within a franchising company.

The basis for this paper has been a subject of interest for several years and as such the

basic framework of the research has been formed over this time. In terms of formally working on this paper, the project time frame is approximately ten months from the middle of November 2006 to completion in the middle of September 2007. The first month was spent formalising the paper's proposal and submission for approval. The project roadmap was also drafted in this time. The next stage of the project, which took approximately 5 months, was to compile and formalise the literature for review. Also, during this time much new literature was reviewed with the project scope reduced to focus solely on FLOSS models. This was primarily done due to the potential that FLOSS models hold in forming a framework for the papers subject and the findings on deeper literature research that relatively little formal research was available in the application of FLOSS models to micro / small businesses specifically.

From the project's inception it was difficult to understand exactly what form and content of research would be of most use to putting forward the paper's case. However, on building the literature review portion of the paper, it became clear that multiple research methods of interviews and a survey would be of most use. The interviews focussed on organisations utilising FLOSS tools, importantly the preference here being organisations operating outside of software development. The questionnaire, on the other hand, was aimed directly at FLOSS software developers and users. By trying to uncover data relating to the motivations of FLOSS software developers and users, the governance of FLOSS projects and data relating to developers involvement in FLOSS it is hoped to provide some traits which may be transferable to smaller businesses. It was also important to capture data from the user perspective of FLOSS software projects as they have a far more central role to play in software innovations as opposed to their proprietary counterparts. As such, data relating to how involved users were with software projects, the number and types of projects they used, and their interest in potentially taking a more central role of developing or creating FLOSS projects of their own. From conception to completion the research component of the project lasted from May to July.

The final stage of the project was to compile the paper drawing together the various components of the literature review and research, documenting the findings and writing the necessary introduction and conclusions. This part of the project ran from July to project completion in September.

## ***Chapter Outline***

This paper takes the expected form of an academic dissertation with an introduction providing a lead in to the papers objectives and areas for research. Chapter one expands more on the motivations for the research and its relevance to its subject as well as to the body of academic knowledge in this field. Next, this chapter gives information relating to the scope of the project and the time frame involved in conducting the literature review and research.

The second chapter contains the literature review

## **Chapter 2: Literature Review**

### ***Introduction***

This review seeks to investigate the current research relevant of the paper's topic. It is required that several points of view need to be taken into consideration to create a full picture of the current research landscape.

The review seeks to profile the features micro and small enterprises, analysing research which show key functional traits common to all enterprises of a certain size. It can be shown from research that the structures, processes and strategic views of smaller enterprises are, rather than emulating, of an entirely different nature to those of their larger cousins.

To set the scene for the operating landscape of micro and small businesses an overview of the technological drivers shaping the world's economy is presented. This will serve to demonstrate the relevance of such businesses and also present ways in which potential may be exploited.

In the final section of the literature review, this paper seeks out research into FLOSS. The review will provide a quick overview of FLOSS in general leading into a description of the traits which form the culture and the sort of results the movement has achieved. For the purposes of analysis those traits will be distilled into identifiable components to examine their portability out of purely software (and product) design. From there the review continues to drill down onto a more specific topic of FLOSS tools applying a lens of how projects are coordinated and portability of the concepts to areas outside of FLOSS.

It is the transposing of the review findings from FLOSS culture and tools to the identified traits of smaller businesses that will form the basis for the research section of this paper.

## ***The Changing Economy and Why Smaller is Better:***

This section looks at the landscape of the global economy, from the point of view of micro and small businesses. It is presented with a bias towards the technological drivers of the global economy with an aim to showing how such businesses are effected by and may take advantage of these. Additionally, it presents a rationale for the relevance of micro and small businesses in the world economy and presents a framework on which the generic traits of these businesses may be described.

## **Fast and Flat – Technological Overview of the Global Economy**

In the interests of brevity, to give an overview of how the global economy has changed, the ten “flatteners” posited by Thomas Friedman (Friedman, 2006), will serve as a useful time-line to describe the technological drivers of today's global economy. It is necessary to provide this information so as to set a backdrop for the relevance of micro and small businesses in economies and to understand the features required for the success of such enterprises.

### ***Ten Global Events to Form an Understanding of the Global Economy***

- The Fall of the Berlin Wall
  - The fall of the Berlin Wall and the subsequent collapse of the Russian economy led to capitalism becoming by far the strongest economic force on the globe. This created a near global adoption of capitalist economic structures around the world, opening new markets and creating a standard framework for business to be done.
- Windows 3.1
  - The launch and quick adoption of Windows as the de facto desktop operating system allowed for a degree of standardisation of documents and work practices thus creating a much greater degree of interoperability within and between businesses.
- Netscape IPO
  - The Netscape internet browser IPO ushered in the dot-com boom of the late 1990s which brought a suite of standard protocols and tools to enable

communication and knowledge sharing across greater distances.

- The dot-com boom, coupled with the de-regulation of the telecommunications industry in the US (and later copied across the world) sparked a huge investment in telecommunications, specifically in a global network of fibre optic cabling designed to carry the massive amounts of data expected to be generated by the Internet. When this failed to materialise, the infrastructure that was built was sold off for pennies in the Euro. This sudden decrease in the cost of data transfer allowed much more enterprise to flow across borders and facilitated the exporting of business functions to cheaper economies.
- Work Flow Software
  - With the availability of cheap ubiquitous computing, businesses began to see the value in using computers to automate work flows such as supply chain management and accounting functions which in turn progressed into improving the efficiency of communications and transactions between businesses. These work flow platforms allowed huge increases of efficiency in business operations, most especially in service industries.
- Open Source Software
  - In relation to global economics FLOSS currently plays a small but important role. Much of the innovation of the recent decades has been driven by software and the Internet. The vast majority of internet services (web servers, email servers) are run using FLOSS software as are the protocols running the Internet. More importantly, the intellectual property contained in software is lent more freedom with FLOSS licensing than with more traditional, proprietary development. This freedom lowers barriers to entry, making software more accessible, allows a more diverse pool of global talent to contribute and improve the software, building the intellectual capital and accelerates technology transfer from research into practical applications.
- Outsourcing
  - Defined in Wikipedia as “the delegation of non-core operations or jobs from internal production to an external entity (such as a subcontractor) that

specializes in that operation. Outsourcing is a business decision that can be made for quality or financial reasons. A subset of the term (offshoring) also implies transferring jobs to another country, either by hiring local subcontractors or building a facility in an area where labour is cheap”

- Outsourcing, a practice that has been used for millennia has come to the fore due to the trend amongst businesses in recent years to outsource their IT functions. Friedman proposes that this trend was boosted during the y2k bug issue that affected the world's computer systems. The y2k bug, caused by the potential inability of computers to count past the year 2000 sparked a need for a massive number of the world's software system to be re-programmed to allow the systems to transition into the year 2000. This need for labour was outsourced en-masse to India who had been building a large population of skilled and cheap programmers. Once the y2k bug was corrected, many of the companies who had built relationships with these Indian programming firms continued to outsource work to them, thus further normalising the practice of outsourcing knowledge based work.
- Offshoring
  - “Offshoring describes the relocation of business processes from one country to another. This includes any business process such as production, manufacturing, or services.” -- Wikipedia
  - Friedman's model example of offshoring is China's rise to becoming the centre of global manufacturing. This trend has been growing for some time but has increased in recent years because of the increased capability of their labour force and integration with global supply chains. This sophistication can be demonstrated by the newer phenomenon of “rapid prototyping”.
- Supply Chain Management
  - Supply Chain Management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. -- Wikipedia
  - With the support of information technology, companies have been able to

optimise their supply chains to such a degree as to allow them a competitive advantage, at least initially whilst competitors catch up. The result of extreme supply chain management techniques is to drive more cost out of a business's processes requiring competitors to be more and more efficient to remain competitive.

- In-Sourcing
  - Often defined as the delegation of operations or jobs from production within a business to an internal (but 'stand-alone') entity (such as a subcontractor) that specializes in that operation. -- Wikipedia
- In-forming
  - This phrase was used by Friedman to describe the the analogue of outsourcing, insourcing and supply chain management etc. to individuals driven primarily by the Internet. The resulting empowerment of consumers has coined the term “prosumer”, defined by Wikipedia as “a portmanteau formed by contracting either the word **producer** or **professional** with the word **consumer**”. This phenomenon can be witnessed in the rise of Web 2.0 or user generated content driving much of the investment in web services today. Its effect is to create a customer base which is far more informed and opinionated about the products they buy and is driving the current trend for more differentiated products and services.
- The Steroids
  - Another term used by Friedman, this relates to other technologies, which enable and accelerate the effects of the other global economy drivers. These include processors, communications platforms such as VoIP, peer to peer networking, mobile telephony and data and collaborative tools.

By outlining the drivers above we can see a picture of a rapidly evolving economy driven by technology and increased specialisation aided by the models of sourcing. In relation to micro and small businesses we can see a need for these organisations to have a capability to communicate and collaborate with a broad range of suppliers, themselves often a link in a wider chain. In addition, to reinforce the relevance of micro and small businesses, large size is no longer a determinant of success; in fact it may pose a disadvantage in the rapidly changing economic landscapes . Potentially, a business which embraces the sourcing

strategies and technology drivers outlined above may actually be optimised to be small but highly specialised and connected to a global network of partners.

## **Small is Beautiful**

“Man is small, and, therefore, small is beautiful.”

“The system of nature, of which man is a part, tends to be self-balancing, self-adjusting, self-cleansing. Not so with technology.”

“Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius -- and a lot of courage -- to move in the opposite direction.”

(Schumacher, 1974)

Micro enterprises, generally defined as enterprises employing less than ten full-time equivalents (EUROPEAN COMMUNITIES, 1996) and small businesses, generally defined as enterprises employing less than ten full-time equivalents (EUROPEAN COMMUNITIES, 1996) have been recognised as being core to the development of innovation in the modern economy. In Europe, a comprehensive set of reports (European SMEs, 2003b) over the period 1992 to 1999 created by The Observatory of European SMEs, led to the creation of the European Charter for Small Enterprises. This charter, approved by all the European leaders at the Feira European Council in June 2000 is designed to highlight the importance of entrepreneurship and small businesses for competitiveness of the European Union.

“The most striking about modern industry is that it requires so much and accomplishes so little. Modern industry seems to be inefficient to a degree that surpasses one's ordinary powers of imagination. Its inefficiency therefore remains unnoticed.”

(Schumacher, 1974)

As outlined in the above chapter, “Fast and Flat – Overview of the Global Economy” small, niche businesses close to the market are turning out to be the drivers of value in the modern global economy. To this end, it is of great importance that micro / small enterprises are supported and allowed the ability to operate at their most efficient and effective. De Kok and Den Hartog (2006), in their paper “High Performance Work Systems, Performance and Innovativeness in Small Firms” (Den Hartog, 2004) studied

high performance work systems and their effectiveness in small businesses. High performance work systems entail “practices in the areas of extensiveness of staffing, performance based pay, pay level, job rotation, training and participation”(Den Hartog, 2004). Using a working sample of 909 companies from the SME Policy Panel, a panel of Dutch SMEs who regularly participate in interviews for research, the researchers used collected interviews to gather empirical data on the HRM and performance aspects of the sample. From the data, the researchers were able to show a “positive association of high performance practices with intermediate features of firms’ performance (i.e. labour turnover, labour productivity and firm innovativeness)” (Den Hartog, 2004). Despite the limitations of the study (no businesses with less than 20 employees) they showed that small businesses do indeed benefit from high performance work practices, with employees “producing superior and innovative” output.

Looking at the features of high performance work systems (listed below) we can see some practices that we would look to strengthen using lessons learned from the open source world. These features and others we will outline later will help to gauge the effectiveness of porting open source practices to organisation coordination.

- Effectiveness of Staff
- Performance Based Pay
- Pay Level
- Job Rotation
- Training
- Participation

“The first Ford car, from the beginning of the work to its appearance on the market, took four months, while a mere change of model now takes four years.”

(Schumacher, 1974)

Another feature of micro and small businesses is their flexibility to react to changes in the markets and exploit new niches. In addition, smaller organisations are highly suited to both develop and adopt new technologies (Acs and Gifford, 1996). This flexibility is a feature which may be likened to open source software projects ability to rapidly and efficiently

develop new software and features if not ahead of general trends then closely behind. An example of this can be found in the Mozilla browsers, which have gained close to 30% market share (Acs and Audretsch, 1987) primarily on the grounds of the ubiquitous Internet Explorer's inability to protect its users from a massive growth in spyware and malware infections in the last 3 years. This flexibility presents a number of advantages from the view of building value in an economy most notably in the ability to respond quickly to capitalise on market trends and also to minimise the negative impacts on market changes or downturns.

### ***Unifying Traits of Micro / Small Enterprises***

- Innovation
  - Based on extensive literature study, the EU Observatory of Small Business found that small businesses are very efficient at converting innovation and knowledge into to value (European SMEs, 2003b). Three main points were realised from the research:
    - SMEs increase the competition in the input market.
    - SMEs increase diversity in the market
    - SMEs serve as a vehicle for knowledge spill-overs, converting ideas into viable businesses.
- Reaction to economic slowdowns
  - The EU Observatory 2003 report “Small Businesses in Europe” found that the smaller the business, the less of an effect an economic downturn had on their operations (European SMEs, 2003d).
- Investment and Purchasing Traits
  - One off purchases as opposed to ongoing contracts.
- Supplier Relationships – Management and Sourcing
  - The European Observatory of Small Businesses report on cooperation between small businesses shows that most cooperate with at least 1-2 partners and those relationships tend to be long lasting with frequent contact

(European SMEs, 2003c).

- In relation to acquiring advice and consultancy services, most small businesses in the same study reported a preference of the opinions of other entrepreneurs over consultants or university sources. Finnish sources stated that they felt other entrepreneurs had experienced the same difficulties and problems and so could relate. The effect of this view is that any external competency sources a business may acquire can stand to increase the business's value by acting as a broker or intermediary to these resources (European SMEs, 2003c).
- Human Resources
  - In relation to competence building of staff within the business the EU Observatory Report 2003 on this subject found that there was little, if any, formalised competence building plans in place (European SMEs, 2003a). They state there are several limiting factors to small businesses outlined including “short-term business pressures, cost issues, the entrepreneur/management team's own negative attitude to change, the SME entrepreneurs' limited ability to diagnose effectively their own competence needs or their limited contact with relevant sources of competence. SMEs very often feel reluctant to invest in people, as they fear the possibility of skilled labour being 'poached ' by competitors.”
  - In contrast to larger organisations, small business employees tend to hold multi-purpose roles within the organisation, reflecting the need for skills at a smaller scale.
- Organisation Structure
  - Satellite
  - Micromultinationals

## ***Open Source Culture and Ecology***

Open source is a set of principles and practices that promote access to the design and production of goods and knowledge. The term is most commonly applied to the source code of software that is available to the general public with relaxed or non-existent intellectual property restrictions. This allows users to create software content through incremental individual effort or through collaboration. – Wikipedia.

The open source movement has gained great momentum in recent years from its roots in the 1970s as a method used by educational and commercial establishments to share code. It became a movement in the 1980s as a backlash to the prevailing method of proprietary software development. Today, much of the Internet's backbone uses open source software as its main software. This includes the management of domain names (BIND), mail serving (Postfix, exim etc) and running websites (Apache).

### **What's so great about Open Source anyway?**

Why is this paper proposing that Open Source may provide tools and models to assist in the control and coordination of micro and small enterprises? The open source movement has proven itself in the software world to be a highly efficient and innovative model for software development. Many of the products created by Open Source communities are leading their field as can be demonstrated by the fact that the backbone of the Internet's infrastructure and services running on it such as web and email servers predominantly run Linux and Linux applications.

Other software projects, run by volunteers, have succeeded in taking major market share in several areas of applications, including for example the success of the Mozilla Foundation browsers in taking close to 30% market share of the browser market despite Microsoft Internet Explorer's domination. Indeed among certain market segments, the market share for Mozilla browsers is closer to 90%. In recent years Wall Street has cottoned on to the potential of Open Source and a lot of the most successful IPOs have risen from Open Source companies, Red Hat, JBOSS and Google (who's entire infrastructure runs Linux) to name a few.

This success has arisen from the processes and culture of the open source movement, developed on the principles of scientific peer review and taken to new levels thanks to the advances in information technology.

Hippel et al suggested that research on Open Source be organised into three categories as outlined below (von Hippel and von Krogh, 2003). This division is useful to us as it allows to separate areas of research which may transfer to a model to coordinate the collaboration of distributed small businesses.

- Motivations of Contributors
  - As discussed by Federman (Federman, 2006) the motivations of open source developers and regular employees differ substantially. As a result, viewing research involved in understanding the motivations of Open Source developers is of great importance, to investigate if the motivations of people micro / small businesses can be similarly aligned.
- Governance, Organisation and Innovation Process
  - The governance mechanisms of open source projects are not only highly efficient and self organising but also adaptable to each project's needs (Federman, 2006). The ability of a collaborative group of micro / small businesses to operate in this manner is tantamount to the competitiveness of such a group against traditional organisation structures.
- Competitive Dynamics
  - This division relates predominantly to the effects of open source on the software market and a comparison of open source products versus proprietary. In this regard, the research is of interest but is more difficult to transfer to the concept of organising collaboration between micro / small businesses due to differing market forces. For example, in the software industry open source, by its nature is incompatible with the development of proprietary software. This dichotomy is not transferable to the coordination and control of collaborating micro / small businesses and the key advantages possible by learning from open source are not from a competition point of view but from an organisational point of view.

Integrating the divisions of Hippel et al to our review, the two main points of focus for this paper are, from the FLOSS standpoint, to gain an insight into the drivers of the contributors motivations and an understanding of the governance, organisation and

innovation process of open source projects. There is much research regarding the governance, organisation and innovation process of open source as referenced in this paper. Thanks to that, such concepts are quite easy to describe and understand. As discussed by Federman (Federman, 2006) the primary challenge to porting the successes of the open source phenomenon to management and organisation models is to provide workers with similar motivations to those of open source developers. This topic will be discussed in more detail in the chapter entitled “Portability of Open Source Culture, Tools and Models to Organisations”.

To this end, the research component of this paper will be involved with gathering data relating to developers and users of open source motivations coupled with complementary data relating to the structure and governance of open source projects. In addition to the survey, the research component includes case studies of businesses actively using open source concepts in the management and coordination of their organisations. This data will prove useful in providing some ground to build on the efficacy of open source concepts outside of software development.

Finally, having already discussed the culture of open source, there are some other aspects requiring attention. To support discussion of the research findings and to provide a more comprehensive suite of potential lessons from open source for collaborating micro / enterprises to use, the next section of the literature review will outline the tools and models of open source. With this information we may learn how to integrate the governance and motivation aspects of open source more closely with the coordination models of micro / small businesses.

## **The Culture of Open Source**

- Open.
- Transparent.
- Release early, release often.
- Free as in libre.
- If you don't like it, go do it yourself.
- Standards, standards, standards!

The terms above each describe the various aspects of FLOSS, the culmination of which

derives the nature of the culture and defines it as a community (Dixon, 2006). By discussing these terms I hope to provide a good sense of open source.

True to its title, open source is an open culture. This means that it is expected that all aspects of the software are visible to everyone. This means not only the code, but feedback from others relating to the code, warts and all. In comparison with more traditional work models this is quite a difficult thing to achieve as it leaves project members open to complete scrutiny. Similarly, the trait of transparency is expected within FLOSS. This is different to openness which can be described using the analogy of a glass door. It may be transparent but it is not necessarily open. Specifically, transparency is the ability of the community to see what's going on. This involves:

- A published road map so they know where the administrators plan to take the project.
- A public bug tracking system so they can report and review defects.
- Published design documentation.
- Communication about schedules and hurdles.

(Dixon, 2006)

The “release early, release often” is a core feature of open source and supports the above traits of openness and transparency. In addition, it fosters a system of user based testing to weed out bugs and generate ideas for new features.

The term “free” is often misconstrued in terms of FLOSS. Developed by Richard Stallman, “free” means the ability to do whatever you wish with FLOSS software (Stallman, 2004). The licenses implemented to achieve this require that any code created under the license must be freely available to anyone who wants it. A small charge may be involved to cover distribution costs so in essence FLOSS is no “free as in beer”.

The DIY concept of FLOSS is not designed as a barrier to entry but is a manifestation of the “free” principle. If you want something done, you have the freedom to go ahead and do it yourself.

As FLOSS grows in size and complexity, An aspect that is becoming more and more relevant is the need for defined standards. The huge growth in technological progress generated by the Internet is in part due to the establishment of open standards such as TCP/IP, HTTP and SSL etc. which enabled the rapid and widespread adoption of global

communications and knowledge distribution.

This bird's eye perspective of the main principles of FLOSS provides an understanding of the landscape within which participants exist. On first inspection they predominantly seem at odds with the principles of business but on further investigation it may be feasible to align these principles with those of micro and small businesses.

## **The Tools of Open Source**

Open source software comes in as many forms. For the purposes of this paper we are more concerned with the tools which have been created to aid open source developers in collaboration on and subsequent promotion and distribution of their projects and which incidentally, are of course open source. First we need to categorise the different classes of tools used by developers, these can be broken down thus:

- Infrastructure
  - These are the underlying applications that a lot of the other classes of tools rely on to operate. e.g. browsers, servers etc.
- Communications
  - This class contains the most tools which open source developers use. Communications tools are not only required for intra-developer communication but are also vital for the development team to communicate with other members such as users, documenters and testers.
- Code management and attribution
  - Developers use IDEs (Integrated Development Environments) to create their code. Once created they need tools to merge their work with others in an efficient manner.
- Advertising / Promotion
  - Tools used to advertise and promote the project to potential new developers and users.
- Distribution, including licensing
  - This class covers the tools used to distribute code and binaries to developers

and users. It also includes the central part of open source, which differentiate it from proprietary software, the licensing.

### ***Infrastructure***

Relying primarily on internet infrastructure, open source projects require a number of basic tools to enable them to operate. The first of this is obviously an internet connection. Secondly a web browser is required to enable most of the tools as they are delivered through web based applications. In addition to this developers require an IDE (integrated development environment) to create and test their code. We do not need to go into much greater detail with this class of tool. The main point of including this class is to highlight the fact that we are analysing the success of tools which are information intensive and internet based. This infrastructure would need to be included in any porting of concepts from open source to an organisation model for organising smaller businesses. (Markus and Brook Manville Carole, 2000)

<b>Name</b>	<b>Uses</b>	<b>Example</b>
Computer	<ul style="list-style-type: none"> <li>● Developing and testing code</li> <li>● Communication and Collaboration Platform</li> <li>● Storage</li> </ul>	<ul style="list-style-type: none"> <li>● IBM PC</li> <li>● Apple Computer</li> </ul>
Internet Connection	<ul style="list-style-type: none"> <li>● Code publishing and receiving.</li> <li>● Communication and Collaboration Transport</li> </ul>	<ul style="list-style-type: none"> <li>● Broadband</li> </ul>
Web Browser	<ul style="list-style-type: none"> <li>● Communication and Collaboration enabling.</li> </ul>	<ul style="list-style-type: none"> <li>● Mozilla Firefox</li> <li>● Internet Explorer</li> </ul>

### ***Code Management and Attribution***

A key area of efficiency for open source developers is gained by their use of very sophisticated code publishing and versioning tools. These tools allow many developers to safely work on and change code belonging to the project as well as keeping an audit trail showing who exactly submitted what. It should be noted that generally a small subset of the developer members will actually have the authority to physical make particular code

contributions part of the project. This group within the community tend to be the lead developers of the project who are charged with maintaining the direction of the projects development. Whilst this sounds contrary to the “open source ethos” it should be remembered that at any time individual developers or groups who do not agree with the direction the project is taking are free to “fork” the project and create a new project of their own, taking the code with them.

<b>Name</b>	<b>Uses</b>	<b>Examples</b>
Versioning Tools	<ul style="list-style-type: none"> <li>● Code storage</li> <li>● Code integration</li> <li>● Code change Management</li> <li>● Code Publishing</li> </ul>	<ul style="list-style-type: none"> <li>● CVS</li> <li>● SVN</li> </ul>

### ***Communications***

Communications forms a vital part of any software development process. Before and during the process developers need to communicate their own goals, coordinating with the others and then to devise methods to achieve the goals.

Whilst working on projects, developers will need to communicate with one and other. This class represents the bulk of tools at their disposal, aided by the fact that many of the tools have a much larger audience than just software. In fact, many of the web communication tools we all use today were originally created to allow developers to communicate. Once a project has created its first release, the communications tools have another very important role in providing channels to facilitate testing and support for users. Software development is a type of product which requires constant tweaking to fix bugs, address changes in technology etc. Open Source software development puts another layer of importance on support communication channels due to its culture of “release early, release often”. This means that developers will release code that has not necessarily been tested to production level. By giving users the ability to be testers of the software, issues and bugs can be reported and dealt with in a naturally more prioritised fashion.

<b>Name</b>	<b>Uses</b>	<b>Examples</b>
Email	<ul style="list-style-type: none"> <li>● Linear, threaded communications</li> </ul>	<ul style="list-style-type: none"> <li>● Mozilla Thunderbird</li> <li>● Outlook</li> </ul>

		<ul style="list-style-type: none"> <li>● Konqueror</li> </ul>
Forum	<ul style="list-style-type: none"> <li>● Publicly / Member only viewable, linear, threaded communications</li> <li>● Accessible from web browser</li> </ul>	<ul style="list-style-type: none"> <li>● boards.ie</li> <li>●</li> </ul>
Wiki	<ul style="list-style-type: none"> <li>● Collaborative documentation</li> <li>● Documentation Version Controls</li> </ul>	<ul style="list-style-type: none"> <li>● wikipedia</li> </ul>
Newsgroups	<ul style="list-style-type: none"> <li>● Publicly / Member only viewable, linear, threaded communications</li> <li>● File transfer / sharing</li> <li>● Not generally accessible from a web browser.</li> </ul>	<ul style="list-style-type: none"> <li>●</li> </ul>
IRC	<ul style="list-style-type: none"> <li>● Real time, text based chat.</li> <li>● File transfer / sharing</li> </ul>	<ul style="list-style-type: none"> <li>● irc.rizon.net#linux</li> </ul>

### ***Advertising and Promotion***

More often than not open source projects need to promote and distribute the code and applications they create. This is very important for several reasons such as gaining new developer members to contribute code, gaining new users who can help test and provide help documentation for the project and often to gain other supports such as finance and even partnerships with other open source projects developing complementary projects.

<b>Name</b>	<b>Uses</b>	<b>Examples</b>
Project Website	<ul style="list-style-type: none"> <li>● Detailed project information</li> <li>● Knowledge Base</li> <li>● Communications Portal</li> <li>● Shop</li> <li>●</li> </ul>	<ul style="list-style-type: none"> <li>● asterisk.org</li> <li>● openoffice.org</li> <li>● ubuntu.com</li> </ul>
Software Repositories	<ul style="list-style-type: none"> <li>● Centralised point of access to categorised software projects.</li> <li>● Accessible directly by open source operating systems for updates and upgrades to software.</li> </ul>	<ul style="list-style-type: none"> <li>● apt</li> <li>● yum</li> <li>● CPAN</li> </ul>
Software Distribution Websites	<ul style="list-style-type: none"> <li>● Centralised point of access to categorised software projects.</li> <li>● Ratings of development activity downloads etc to gauge projects' strength.</li> </ul>	<ul style="list-style-type: none"> <li>● Sourceforge.net</li> <li>● Fresmeat.net</li> </ul>
Conferences		<ul style="list-style-type: none"> <li>● Linuxcon</li> </ul>

## ***Distribution and Licensing***

Distribution of code and binaries (the finished applications designed to be run on specific computers types etc.) is a very important in the open source world as projects with a healthy number of developers and users tend to create better projects. Unlike the traditional view of software development, the rule in open source is “the more the merrier”.

A central part of open source software, which differentiates it from its proprietary cousins is the licensing used to distribute the software. There are numerous open source licenses being distributed and it is always a central topic in the community. The “Open Source Initiative” is a body which oversees the validity of open source licenses according to a set of guideline. In addition to this, the OSI monitors the use of open sourced software to ensure that license terms are being complied with. A recent case that the OSI is pursuing is that of a music device manufacturer using open source code in their products but failing to make the code they added to the open source code available.

The general rule of open source licenses is that the software code distributed under the license is made available to anyone who requests it on the proviso that any code that is built using the open source code is given back to the community. Below is provided an example of open source licenses approved by the OSI and outlining some of their key traits.

<b>License Name</b>	<b>License Traits</b>
GNU GPL v2.0	
GNU GPL v3.0	
Mozilla Public License	
BSD License	

## **Portability of Open Source Culture and Tools to Organisations**

Quite a bit of research has been conducted into the transfer of the benefits of open source into more conventional organisations. In fact the ability of apparently altruistic open source communities to create products that compete with and surpass their proprietary rivals is often envied by managers(Federman, 2006). Researchers have been extracting features of the Open Source approach to be used as a new paradigm for managing organisations, especially amongst virtual organisations (Federman, 2006).

For his article, Federman compares the concept of “fast capitalism” to open source management. Fast or new capitalism can be described as “ the design, production, and marketing of “high quality” goods and services for now saturated markets... selling newer and ever more perfect(ed) customized (individualized) goods and services to niche markets – that is, to groups of people who come to define and change their identities by the sort of goods and services they consume.” (Federman, 2006). Federman distils this to interpret a successful fast capitalist company as being one who can respond almost immediately to the demands of their customers, thus having lots of competencies in the knowledge functions of an organisation such as design, marketing and innovation.

He goes on to outline how the traditional hierarchical organisation structure is being replaced by collaboratively organised teams. Further to this, these teams are coordinated by more entrepreneurial minded staff who consider their careers as they do their jobs, that is as a project to be managed. By creating this link a synergy is created between wage-earning employees and the profit oriented organisation.

To explain the effect of this (Federman, 2006) say

“Since workers (now 'partners') will now find meaning in their jobs and will personally buy the 'vision' of the company, they should no longer need supervision and should be willing both to work harder for longer hours and to share in the risks and potential losses (and profits) of the company. there is also a greater emphasis on workers working in teams collaboratively, since such teams can be more efficient than any individual member, if they operate correctly. And furthermore teams ensure that workers can supervise each other, given that individual members of a team are rewarded or penalized on the basis of the team's performance, not just their own”[fastcap].

Federman continues to highlight the similarity between the motivation expected by fast capitalism workers and that of open source developers. He comments that to capture this motivation would indeed be a great prize. He goes on to warn that without an understanding of the “subtle dynamics of FLOSS participation and motivation” there will be a temptation to apply the “cosmetic figure of FLOSS” leaving behind the foundations from which it is built.

Another salient observation of Federman is the similarity of a fast capitalism worker’s alignment to the “corporate culture” of their employer to that of the personal need driven

motivation of an open source developer. More specifically, both are not solely motivated by “commercial benefit, financial gain or other compensation”.

Despite the community-centric structure of FLOSS, it is not generally runs as a democracy. Federman highlights the phenomenon of a “Benevolent Dictator” (Raymond, 2001) demonstrate this. This scenario is balanced by “secondary oversight” whereby the general community can pull an errant lead developer into line if, for example their quality of coding degrades. It is the culture of transparency and openness which enables this method of governance. That culture also allows developers the freedom to leave, at a relatively low cost of leaving

Benkler (2002) (Federman, 2006) provided the framework of “peer production” in which the motivation to participate in distributed enterprises is derived from the exchange of information concerning the value of human capital. In other words, the motivation comes from the utility gained by participants in exchanging information. Benkler used the transactional cost and reward model of Coase (1937), which uses three variables, monetary, hedonic and socio-psychological factors to derive reward. In summary, by applying this model, Benkler found that extra effort had a negative effect on the socio-psychological variable for a traditional worker, whilst it had a positive effect for FLOSS participants. This gives rise to a need for the socio-psychological factor to be artificially enhanced for traditional workers e.g. by having a worker align themselves with the corporate culture.

Federman synopsis another concept in his paper devised by Hippel (von Hippel and von Krogh, 2003), which proved to be a very important concept for this paper to absorb. Essentially, they put forward a theory which created a hybrid of the traditional innovation models private investment and collective action. This model, called a “private-collective” model was based on the proposition that FLOSS participants gain significant private rewards from their participation, for example the exchange of information as put forward by Benkler. This is so important from the point of view of this paper because by looking at how a private-collective model may be implemented in small businesses, an ability to stimulate innovation may potentially be derived.

## ***Literature Review Summary and Conclusions***

To summarise the findings of the literature review we have described the technological drivers of the global economy so as to set the scene for the role of small businesses. As can be seen, small businesses possess many traits, enabled by their size and the adoption of technology to act as a source of innovation and competitiveness.

Looking at the culture and tools of open source we can see a massive network of self-organised and governed communities of highly motivated people. Such a network does look to be an attractive model for small businesses to adopt. However, by placing the traits of FLOSS beside those of small businesses we can see that there is quite a wide gap in the cultures. Additionally, there are many subtle elements that serve to generate the culture of open source that need to be taken into account when transposing onto that of small businesses.

In summary, for our research the need is to investigate how develop a culture similar to FLOSS, using its tools, paying heed to the more subtle aspects put forward by Federman and Hippel, to leverage the traits of small businesses. We would then hope to bootstrap abilities which take into account and benefit from the global drivers of technology.

## Chapter 3: Methodology

The methodology used in the research was that of two interviews and a global survey from which we could obtain qualitative data relating to the use of FLOSS models and tools in business today. Additionally, in the case of the survey we can interpret the data both qualitatively and quantitatively. From a quantitative perspective, the data shows the patterns of FLOSS within the FLOSS community itself. The data can also be interpreted qualitatively to try and describe more functional aspects of developers and users of FLOSS motivations and also the structure of FLOSS communities.

The questions asked by the interviews looked to gauge the success of FLOSS models both in the technology industry and outside. This approach was taken to lend credence to the validity of using FLOSS tools and enshrining FLOSS culture in a business context.

The survey's, on the other hand was to gather data to try and formalise a structure in which to build a model emulating FLOSS advantages in the business world. Building on Federman and Von Hippel et al papers, the primary focus was determine the drivers of motivation of FLOSS members and also to understand the governance processes held within the communities.

The interviews were open ended to allow a deeper investigation of the rationale for the interviewees to adopt such practices and also to gauge the success of their initiatives. In compiling the data from the interviews, an understanding of the interviewees' progression to the adoption of FLOSS culture was important to provide the basis from which to give others a rationale for adopting such cultures.

The survey, which was aimed specifically at open source developers and users and was conducted entirely online using open source survey software. The sample was acquired by emailing global Linux User Groups (LUGs) which form the backbone of the linux community support structure. Responses were received from around the globe including Ireland, the U.K., Australia, Japan and the U.S. In the spirit of FLOSS, a contribution was offered in the form of a prize fund for participants. The prizes were to the value of €25 and the option was given to receive cash or, again in the spirit of FLOSS, a gift to the value of the prize. Prize winners were determined by a random selection of participants who chose to take part in a draw. The random selection was done using the random number generation features on a Linux computer. Interestingly, all winners chose to receive a gift of their choice which varied from books to DVDs which were purchased online and shipped

directly. A question arose during the survey as to the potential for bias in surveying purely members of the open source community as opposed to taking a broader sample of the population such as users of proprietary software developers and users. Additionally, by being members of LUGs the natural traits of the participants were to be quite active advocates of FLOSS. If we look at the data the survey aimed to gather, this bias is in fact irrelevant. The aim was to understand the motivation of FLOSS developers and users and also to draw the landscape of FLOSS governance. In this view, a sample of participants well versed in the cultures and tools of FLOSS was a requirement and a sample of people from outside the community would not have served any purpose.

The architecture of the survey was divided into 3 sections, one for all participants, one for developers and one for users. In reality, especially given the nature of FLOSS, all of the developers were users. As an exception, one participant chose to do the developer section but refrained from completing the users section. The questions asked were predominantly multi-choice with several ranking options and multi-answer selection questions. Space for comments and other notes the participants wished to include were provided where necessary. The answers to the questions were derived from research into the motivations of FLOSS members notably from (von Hippel and von Krogh, 2003), (Federman, 2006) reinforced by the author's own knowledge of FLOSS from being a participant. In designing the survey, a FLOSS approach was taken and the survey was released to The Irish Linux Group for beta testing. This testing uncovered some errors in the underlying code of the survey and also some semantic corrections were made to use more inclusive and correct terminology e.g. any reference to "open source" was replaced with "free / open source software" to include two distinct schools of thought within the FLOSS culture.

Appendix I contain the questions asked and the statistics relating to the answers.

To demonstrate sample quality, Appendix II consists of a table showing the geographical location of the participants derived from inputting their IP addresses into a geoIP database.

The all users section simply consisted of questions asking if participants wished to be entered into the prize draw and/or to receive information relating to the survey and this paper.

The developers section was broken down in to several areas outlined below:

- **Involvement:** The participants involvement in the FLOSS community, gauged by the number of projects developing for and previously developed for, and by asking

their opinion of the level of involvement of other FLOSS members.

- **Motivations:** The section assessing the participant's motivation to develop FLOSS included an explicit request as to what their motivations were (multiple choice and multiple answer question). Also, another multiple choice multiple answer question was asked regarding the actual benefits realised from participation in FLOSS development.
- **Governance:** This section used several questions to gauge the participants view regarding the governance of their projects. A ranking question was asked to measure their preferred methods of project governance with a complementary question investigating the exercising of the right to fork a project and the low cost of doing so. Another question asked was the rewards given to superior members of the project. In retrospect, it was an oversight of the survey that it should also have included a question relating to the controls used to reign in errant members.
- **Role of Users:** Some questions were posed to the participants in relation to their views of and interactions with users. This was in an attempt to understand the importance of users to developers in a FLOSS project.
- **Project Structure:** Further questions were asked of the developers opinion of project size and actual size of their favourite projects.

The users sections consisted of sections outlined as:

- **Involvement:** This was measured by asking questions relating to how many and what FLOSS the participants used. The number and types of FLOSS a participant uses was quite a difficult question to pose due to the huge numbers of software in existence. However, useful information was garnered which helped to profile the users based upon their choices.
- **Contribution:** This section posed questions relating to users involvement above simple usage. The answers were derived from established methods of contributing to a project apart from developing and also allowed comments to be made.
- **The final section** attempted to understand any motivations a user might have to actually participate as a developer in a FLOSS project. Several multiple choice questions were asked as to whether they would like to start a new project or join an

existing one and if not, were there barriers preventing them from doing so. This section was designed as a complement to the contribution section to more assess in a more subtle fashion the actual contribution a user would be willing to make over merely their intentions.

# Survey of Open Source Users and Developers

## Developers Survey

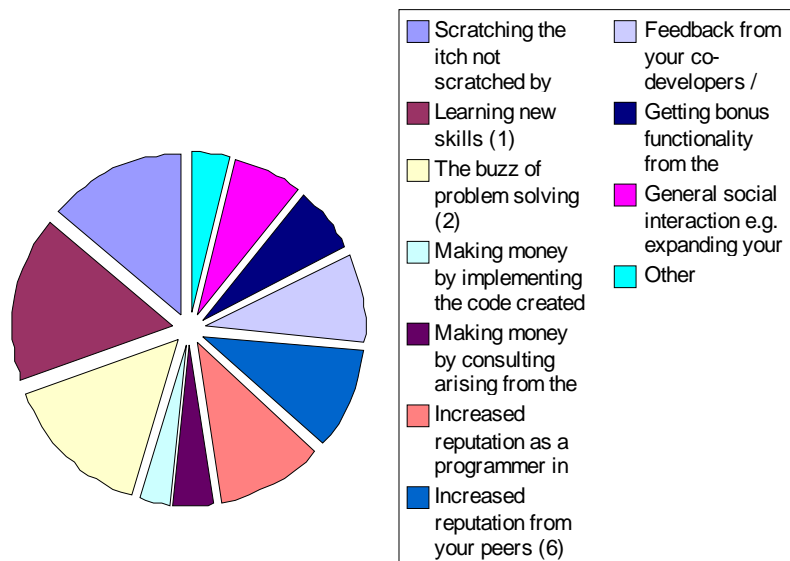
The total number of developers taking part in the survey was 53 from a total participant number of 202. This was quite a respectable sample size given the scope of the survey however given the global nature of the FLOSS movement this be improved by adding extra dimensions such as cultural bias (e.g. of country of origin) and increasing sample size to gain a more accurate view.

### *Involvement in FLOSS Projects*

Of the sample, it appeared that the majority of users (78%) contributed to one or two projects. This is held up by comments and answers to questions which show that most developers participate on their free time and do not engage in FLOSS developments part of their paid work. However, when asked how many projects they have contributed to in total the large majority (89%) stated that they contributed to up to 8 projects. This, backed up by comments and a question regarding the average activity level of members demonstrates the participants' interest in being a part of FLOSS communities but being restrained by time.

### *Motivations for Involvement in FLOSS Projects*

## Motivations for Contributing



The above chart shows the distribution of responses to the question “What are your main motivations / expectations for contributing to your favourite open source / free software projects?” The distribution is very even showing that a wide number of factors are influencing developers equally. Of those that answered “Other” their responses were very similar to those provided for in the multiple choices. When asked a question regarding their actual rewards the responses were equally as distributed and the same multiple choices were provided.

### ***Governance of FLOSS Projects***

To measure this we can compare the actual and preferred governance methods given from the multiple choices. There were distinct deviations in regard to two methods. The first “Self Governing based upon the widely held general views of the project contributors” was preferred by 23% of the sample but was used in actuality only 6% of the time. The second method, “Governed by an organisation not directly contributing to the project” was used 10% of the time but, of the most popular ranking none of the participants chose it as a preferred method.

### ***Role of Users***

According to developers, the most important role of users is by far reporting bugs and next to increase market share and provide documentation. This highlights the users central role in the FLOSS community. Regarding the level of contribution played by users the views of the developers was skewed very much towards some to quite a bit of contribution, midway on the scale of level of contribution provided. In regard to keeping the community open to users, some practices are used to prevent users from very easily accessing or installing the software. This is seen not as a barrier to keep users out but more of a hazing to ensure users of the right calibre ( as designed by the community) can take advantage of the software.

### ***Project Structure***

Some interesting statistics came out of the project structure section. The popular view of

FLOSS proponents is that projects can sustain large numbers of members. From the survey questions however, the majority of developers were part of projects which contained up to ten members. This was held up in a question showing that developers had a preference to be part of projects of a similar small size. In relation to explicit rewards offered by the community to its excellent members, the most stated answer (70%) was “Contribution is all the reward needed”.

## **Users Survey**

Of the sample, 50% of participants used over 26 FLOSS applications, with their predominant interaction with the projects after usage being bug reporting and documentation which holds up with the developers’ role of users in a project. 60% of participants rated the importance of contribution as important to extremely important, highlighting the awareness of the users to their role in the project. To somewhat prove these statistics, the reinforcement questions of whether the users would like to participate in or start a project of their own 50% responded positively with the majority preferring to join an existing community over starting one themselves. Finally, the user participants were asked as to what reason they had for wanting to participate from a development standpoint and the distribution of these answers were very similar to those of developers outlined in the chart above (Motivations of Developers).

## ***Experience of an Open Source Micro-Enterprise***

Much of the impetus for this paper has come from my own experiences as a self-employed “portfolio worker” or micro-enterprise providing technology outsourcing services to the small business segment of Irish industry. After leaving a start-up business with no capital I was faced with the prospect of trying to find another source of income. Being educated in business studies and having spent the previous three years as a technical director of a start-up I had a very broad range of skills but not enough depth, it seemed at the time, to get a job in a career that interested me. From my time working in the previous business surrounded by similar small businesses I recognised a need for a service for small businesses where they could confidently outsource their technology requirements in a manner suited to their specific needs. Having a strong commercial sense and an aptitude for technology I felt this was a service I could provide very effectively and so decided to start my own operation.

Building on the acquaintances I had made in the business park where my previous business was (and still is) running I quickly developed a sustainable customer base of firms glad of the level of attention and knowledge I was able to provide directed by my ability to understand their businesses and create technology solutions specifically for them. During this time I had to undergo a lot of self-training in technology best practices and processes. I was glad to have the luxury of being able to focus on what was best for my clients current and future needs and in my research found myself tending towards open source products over proprietary. Initially I had a vague interest in open source for the obvious reasons of low financial barriers to entry, with no capital and a tiny customer base I was of no interest to the established suppliers of technology products. It was also very comforting to know that if I hit a stumbling block, there would be a community of experts available to address my issues and the potential to contribute something back to assist someone else in a similar position seemed to just make sense.

Initially, coming from a Microsoft centric world, open source software was difficult to adjust to. The very fibre underpinning the movement are on an entirely different dimension to those of the corporate driven proprietary world. However once the seal was broken and after some very intense training sessions on technology in my own office the practices and processes of using open source software made more and more sense. Every time I would be charged with a project or requirement from one of my clients I would draw up proposals comparing the proprietary solution with its open source equivalent. Time after time, from

servers to software projects the open source proposal would win out on grounds of future proofing (no vendor lock-in, ease of obtaining support), security, standards compliance, overall reliability and of course finance (cheaper or using a payment model more suited to my clients).

From before establishing my business I had held a loose idea of a service model which could provide small businesses with access to the technology they required to enable them to focus on their abilities and not be tied down by other, non-value adding functions like administration, accounting etc. About two years into the business I began to see traits in the culture and tools of open source that seemed to lend themselves to this aim. On returning from an open source conference in Amsterdam the concept presented itself in its first form as that of an open source project. Here are some of the foundations of the concept:

- Instead of having aims to build a software program, it instead aimed to be a network of members providing technology outsourcing to their clients.
- All the collaboration and knowledge sharing / management tools used in open source would be applied and established standards would be used to ensure consistency of service across the project.
- Each member would be expected to adhere to the established culture of the project, which would help to ensure the quality of the service provided by members. They would contribute to the knowledge base (of processes and policies to apply to customers needs) thus allowing the knowledge base to evolve with technological change.
- There were additional advantages of efficiency by providing each member with the tools required to fulfil the non-core needs of each of their businesses i.e. accounting and standardised marketing practices.
- Finally, the project was to be themed in such a way that several types of technology professionals could become members and assign their own skills portfolios to that of the project, essentially forming a very integrated business networking group.

What happened next was to be expected. Practically everyone I mentioned the idea to either didn't understand what I was on about or eschewed it entirely, categorising it as a co-op concept which could not work on the grounds that it would either be impossible to control and coordinate, failed to deliver any value or simply that it did not address any

need.

However, on thinking about it more the concept constantly presented itself as being a viable way to match the needs of small businesses. The one key element that was missing, highlighted to me thanks to constructive criticism from members of the open source community was that there was a disparity between the motivations of open source developers and those of profit seeking individuals / businesses. Another key flaw was that by running the project on open source principles it seemed that the intellectual capital of the business i.e. the knowledge base was open to anyone to pillage and use for themselves. Over the next while, with these issues bubbling around I began to devise strategies which would negate the “intellectual capital leakage” problems of the concept, spurred on by the success of newly developed open source business models and other important factors.

- It occurred to me that if this could be applied to the provision of technology outsourcing services, it could be applied to nearly any service for small businesses. In fact there was no reason the same concept could not be applied to larger businesses with sufficient progress in the coordination abilities of open source.
- A second factor motivating me to pursue the concept lay in the findings of my own research trying to develop business cases and a resultant business plan which pointed to the increasing relevance of small businesses in driving innovation and hence value creation in economies.
- A third factor has been the emergence of user generated content on the Internet i.e. Web 2.0. Whilst this concept has been squeezed to its limits thanks to the massive influx of venture capital wanting to cash in, the models being developed hold some potential for the “open source services” concept.

My confidence in the concept is such that, on completion of this paper I will be taking the lessons learnt and applying them to the very business that inspired it. Initially, I will be creating a loose network of self employed portfolio workers in the IT industry to form a network for delivering IT services. It will be based around a community approach as opposed to a franchise or aggregated services model with me advocating all the principles and practices I've learned from open source. The end goal will be to create an open source platform to enable service delivery communities populated by individuals, micro and small businesses. Members can function in a highly integrated manner, with the potential to offer superior levels of service than traditional organisations and very importantly, the

ability to allow its members the freedom to pursue their interests and talents how they want to.

Acting on my belief of the potential for building a model for micro / small businesses to interact optimally with the global economy led me to investigate the topic for this dissertation. Of the hurdles presented in the formulation of the concept the most challenging is aligning of the motivations of open source advocates with the motivations of those outside the open source community. It seems to me that if we can make steps towards this we will be on a much stronger footing to benefit from the extraordinary abilities of unified communities.

## ***Interview with Andy Law of The Law Firm***

### **Introduction**

Andy Law runs “The Law Firm”, an advertising agency using a business model of creating a franchise between previously independent advertising agencies around the world. His career in the advertising world has been both revolutionary and controversial. In the advertising industry, he is famous for his unique approach to delivering advertising and creative services. In 1995 he founded St. Luke's, an ad agency with an organisation structure based upon equal employee ownership and was a major disruptive influence on the industry. After leaving in 2003 he went on to re-vamp Springer and Jacoby, re-branding one of its arms into a new agency. This agency had a focus on worldwide coverage, drawing in a global resource of disciplines.

Following this he set up another agency with business partner Kenneth Praveen called L&KV. Here the global view continued and following a re-structuring is now re-branded “The Law Firm” with two very interesting features. These features namely “open source creativity” and the concept of a “nodal network” seek to mirror the success of the dissemination of digital technologies driven by open source.

After tracking down Andy on LinkedIn (<http://www.linkedin.com>) he agreed to give me some time to interview him on his vision for The Law Firm. I used this interview to provide a practical example of the implementation of open source concepts given the business' ambition to build a truly global organisation and knowledge resource through the tools of open source.

### **Andy's view on the Failure of St. Luke's**

Andy's reasons for the failure of St Luke's: as the business grew larger and wealth increased, the members grew more protective. Instead of expanding the model globally, attitudes started to contract and grow more conservative. At its height, St Lukes had the problem of having lots of money in the bank but no-one with the will to spend it.

Amidst the backdrop of this, Andy left because his ultimate goal was to take the model global whilst 65% of the trustees did not want to. Frustrate with this and the over-arching lack of willingness to give away the very thing that Andy had given to them as a sacrifice

to grow the model he felt he could no longer stay with St Lukes

Today St Lukes has changed to become a traditional local ad agency with little growth and having difficulty competing with the larger globally positioned ad agencies.

## **Moving the Model to an External Perspective to Coordinate a Global Network**

Andy held a perception that from the consumer perspective that all decisions are informed by a global patterns of behaviour e.g. creative origination, distribution (Damon Albarns Chinese opera - collision of cultures).

Wool of communications putting flags everywhere and defining the global market in that way, likened to an imperial attitude.

He saw a different view, styled by his opinion of the consumer perspective. By creating an interdependent network of services built around a global pool of talent. The supposition being that it should not matter whether you are "selling socks in Oxford Street or hats in Manila", there will be a set of skills available to service and address that need.

The Law Firm:

After leaving St Lukes, Andy had a vision of creating an "open source global brand", designed to change the way people think and work in the creative industry.

Spent a few years seemingly making worse mistakes and after other ventures, created L&KV. This morphed quickly into The Law Firm once the partners, Andy and Kenneth Praveen realised their strategic goals were heading in different directions. On talking with his friends and mentors Gordon and Anita Roddick, he realised that he should develop his own vision and then see if anyone wanted to join him. This led to the inception of The Law Firm by partnering with Martin Smith.

Basis of "open source creativity" is that in the creative industry, an idea has no value until it is used. To this end it is best to share the ideas generated with a large pool of community members in order to utilise the idea to its highest potential.

As described by Andy, the idea goes from a gaseous form (pure idea), to liquid (realisation of a practical utilisation) to solid (fully fledged concept sold to client). Along its route, all contributors are rewarded for their work on developing and commercialising the idea.

The concept of the nodal network is styled in a similar concept to Internet networks. Presented as an alternative to dividing the global into country based markets, the nodes each possess a range of competencies from which node members can easily draw on. Additionally, similar to an advocacy model, each node reinforces and supports the culture of the network. For example, the South African node, can support and relate with African nodes and also French speaking nodes.

The business model of St. Luke's is that of a "mutual franchise" i.e. a franchise in which the aims of each member are addressed and fulfilled, in contrast to traditional franchises where the goals of the business are defined by a central controlling body. In fact Andy was very clear in stating the fact that he does not wish to own the franchise, he sees his role as stimulating it and driving it outward. To describe this relationship he says that he does not run the network but himself and the other members in fact are the network. The overall social goal of supporting this model goes back to the initial core realisation that "work is the world's employer" and should play a central role in improving people's lives. To this end the model is designed to allow the wealth created within the network to be distributed more evenly than in a more traditional organisation structure.

## Chapter 4: Findings & Conclusions

### *Applying Open Source Tools and Culture to Small Businesses*

To help in gathering the findings I am using points from (Markus and Brook Manville Carole, 2000) which compare the operations of a FLOSS project to a virtual organisation.

These points are:

- Motivations, rewards and behaviours differ between open source and traditional organisation, FLOSS focuses on collective performance and individual benefit as much as individual performance. Also, development and maintenance of personal reputation are large features of motivation and control in open source projects.
- Membership in FLOSS projects is fluid whilst maintaining a core of participants
- Membership is important to members' professional identities.
- Control exercised by autonomous players acting on a few simple rules governing conduct and fair play. These are embodied in licenses, membership rules and voting procedures. These rules are flexible depending on the projects requirements.
- Self governance is a large part of projects. Formally through discussion and voting and informally through social control. Leaders maintain a strong influence by enforcing the norms and keeping the expected high quality of work.
- IT is central in enabling FLOSS.

Certain Traits of FLOSS are also pointed out:

- FLOSS requires a large “community of practice” with a strong shared culture of technical professionalism.
- FLOSS projects' work is intrinsically challenging, difficult to see FLOSS principles could be applied to more mundane work.
- FLOSS culture is a rapidly evolving, not sure if current rules will always hold weight.
- FLOSS members enjoy and are familiar with IT communication methods, not all workers are as comfortable with these methods of communications.

- Self governance is essential to FLOSS success.

With these points in mind we can consider the literature review and research findings. The aim of this paper is to investigate how develop a culture similar to FLOSS, using its tools, paying heed to the more subtle aspects put forward by Federman and Hippel, to leverage the traits of small businesses. We would then hope to bootstrap abilities which take into account and benefit from the global drivers of technology.

To do this we look at he the identified traits of small businesses and can see that, different to larger businesses some of the cultural aspects can be aligned. By having a preference for freedom over the responsibility of a large business, small businesses can maintain the fluidity of membership in project groups. We have already shown that small businesses are flexible to change and are excellent sources of innovation. It is this flexibility and drive for innovation that is one of the important aspects of Open Source.

In aligning the motivations of small businesses with those of FLOSS projects, a project based structure, already conducive to small business interactions with partners is ideal. The project can be open but the value will be in the interactions between members especially due to the importance of knowledge in business. As in FLOSS, free riders are welcome but they cannot benefit as much from the project group as much as those who actively contribute.

Work in the small business segment is intrinsically challenging due in part to the increasing complexity of business operations and also the feature of small business that requires its members to be multi-tasking ensuring efficiency at that scale.

One central area of concern is the requirement to be familiar with technology tools for the maintenance of a FLOSS model. This can be ameliorate thanks to the proliferation of next generation technologies designed to simplify a users interaction. For example, mundane work processes can be automated allowing businesses more time to focus on their core competencies. The advantage of such a system is that it can integrate the operations of multiple businesses into a FLOSS project like model with shared process, knowledge and efficiencies derived from such. This is quite a leap to make from the traditional micro enterprise or small business to globally connected node competing on knowledge and speed but as shown in this paper, it seems a requirement.

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## Appendices

### Appendix I - Survey Questions and Responses

#### All Participants Section - Answers

##### Field Summary for 1:

Please enter your email address if you would like to be entered into the prize raffle, receive notifications of the survey results or receive notification of the paper which this survey is for.

Answer	170	84.16%
No answer	32	15.84%

##### Field Summary for 2:

Would you like to:

Answer	Count	Percentage
be added to the prize raffle? (1)	148	73.27%
receive notification when the survey results are compiled? (2)	119	58.91%
receive notification when the paper that the survey results are for is available (3)	106	52.48%
None of the above (4)	33	16.34%

##### Field Summary for 3:

How would you like the prize pool to be divided out?

Answer	Count	Percentage
No answer	0	0
Give 1 prize of the total prize pool (0)	13	6.44%

Divide the prize pool into €25 prizes (1)	37	18.32%
Divide the prize pool into €50 prizes (2)	27	13.37%
Divide the prize pool into €100 prizes (if I get 200+ responses), otherwise divide into €50 prizes (3)	17	8.42%
Divide the prize pool into €100 prizes (if I get 200+ responses), otherwise give 1 prize of the total prize pool (4)	6	2.97%
Don't Care (5)	102	50.50%

## Developers Section - Answers

### Question 1:

How many projects do you actively develop for?

Answer	Count	Percentage
1 (0)	27	50.94%
2 (1)	15	28.30%
3 (2)	8	15.09%
4 (3)	1	1.89%
5-10 (4)	3	5.66%
10+ (5)	0	0.00%

### Question 2:

How many Open Source / Free Software Projects have you developed for in total?

Answer	Count	Percentage
1-3 (0)	33	62.26%
4-8 (1)	14	26.42%
9-12 (2)	4	7.55%
13-19 (3)	1	1.89%
20+ (4)	2	3.77%

### Question 3:

If you like you can list the open source / free software projects that you have developed for here.

Answer	Count	Percentage
Answer	31	58.49%

### Question 4:

What are your main motivations / expectations for contributing to your favourite open source / free software projects?

Answer	Count	Percentage
Scratching the itch not scratched by already available software (0)	32	60.38%
Learning new skills (1)	38	71.70%
The buzz of problem solving (2)	35	66.04%
Making money by implementing the code created (3)	7	13.21%
Making money by consulting arising from the expertise gained from creating the code (4)	9	16.98%
Increased reputation as a programmer in general, e.g. adding to your resume/cv (5)	25	47.17%
Increased reputation from your peers (6)	24	45.28%
Feedback from your co-developers / contributors / users (7)	20	37.74%
Getting bonus functionality from the contributions of your co-developers (8)	16	30.19%
General social interaction e.g. expanding your social network by meeting new people etc (9)	16	30.19%
Other	9	16.98%

**Question 5:**

**What actual benefits have you realised from your participation in the open source / free software project(s)?**

Answer	Count	Percentage
Increased reputation from your peers (0)	25	47.17%
Increased reputation as a programmer in general, e.g. adding to your resume/cv (1)	27	50.94%
Making money by consulting arising from the expertise gained from creating the code (2)	9	16.98%
Making money by implementing the code created (3)	10	18.87%
The buzz of problem solving (4)	31	58.49%
Learning new skills (5)	44	83.02%
Scratching the itch not scratched by already available software (6)	28	52.83%
General social interaction e.g. expanding your social network by meeting new people etc (7)	19	35.85%
Getting "bonus" functionality from the contributions of your co-developers (8)	11	20.75%
Feedback from your co-developers / contributors / users (9)	22	41.51%
Other	6	11.32%

**Question 6:**

**How are projects you work on governed / guided?**

Answer	Count	Percentage
By a Benevolent Dictator (0)	14	26.42%
Self governing based upon the generally agreed aims of the project (1)	11	20.75%
Self Governing based upon the widely held general views of the project contributors (2)	10	18.87%
Governed by an organisation not directly contributing to the project (3)	3	5.66%
Governed by an org contributing or driving the project (e.g. Asterisk, Adempiere etc) (4)	5	9.43%

**Question 7 [1]:**

**Given the options below, what are your preferred methods of guiding an open source/ free software project ?[Ranking 1]**

Answer	Count	Percentage
By a Benevolent Dictator (0)	12	22.64%
Self governing based upon the generally agreed aims of the project (1)	17	32.08%
Governed by an org contributing or driving the project (e.g. Asterisk, Adempiere etc) (2)	11	20.75%
Self Governing based upon the widely held general views of the project contributors (3)	12	22.64%
Governed by an organisation not directly contributing to the project (4)	0	0.00%

**Question 7 [2]:**

**Given the options below, what are your preferred methods of guiding an open source/ free software project ?[Ranking 2]**

Answer	Count	Percentage
By a Benevolent Dictator (0)	8	15.09%
Self governing based upon the generally agreed aims of the project (1)	13	24.53%
Governed by an org contributing or driving the project (e.g. Asterisk, Adempiere etc) (2)	4	7.55%

Self Governing based upon the widely held general views of the project contributors (3)	24	45.28%
Governed by an organisation not directly contributing to the project (4)	3	5.66%

**Question 7 [3]:**

**Given the options below, what are your preferred methods of guiding an open source/ free software project ?[Ranking 3]**

Answer	Count	Percentage
By a Benevolent Dictator (0)	19	35.85%
Self governing based upon the generally agreed aims of the project (1)	13	24.53%
Governed by an org contributing or driving the project (e.g. Asterisk, Adempiere etc) (2)	10	18.87%
Self Governing based upon the widely held general views of the project contributors (3)	8	15.09%
Governed by an organisation not directly contributing to the project (4)	2	3.77%

**Question 7 [4]:**

**Given the options below, what are your preferred methods of guiding an open source/ free software project ?[Ranking 4]**

Answer	Count	Percentage
By a Benevolent Dictator (0)	5	9.43%
Self governing based upon the generally agreed aims of the project (1)	5	9.43%
Governed by an org contributing or driving the project (e.g. Asterisk, Adempiere etc) (2)	24	45.28%
Self Governing based upon the widely held general views of the project contributors (3)	8	15.09%
Governed by an organisation not directly contributing to the project (4)	10	18.87%

**Question 7 [5]:**

**Given the options below, what are your preferred methods of guiding an open source/ free software project ?[Ranking 5]**

Answer	Count	Percentage
By a Benevolent Dictator (0)	8	15.09%
Self governing based upon the generally agreed aims of the project (1)	4	7.55%
Governed by an org contributing or driving the project (e.g. Asterisk, Adempiere etc) (2)	3	5.66%
Self Governing based upon the widely held general views of the project contributors (3)	0	0.00%
Governed by an organisation not directly contributing to the project (4)	37	69.81%

**Question 8:**

**How many developers are involved in your favourite project that you are developing for?**

Answer	Count	Percentage
1 (0)	10	18.87%
2-5 (1)	18	33.96%
6-10 (2)	10	18.87%
11-20 (3)	1	1.89%
21-30 (4)	3	5.66%
31-50 (5)	1	1.89%
51-100 (6)	0	0.00%
101-250 (7)	4	7.55%

250+ (8)	5	9.43%
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**Question 9:**

**In your view what is the optimal number of developers in a project?**

Answer	Count	Percentage
1 (0)	0	0.00%
2 to 5 (1)	7	13.21%
6 to 10 (2)	7	13.21%
11 to 20 (3)	3	5.66%
21 to 30 (4)	2	3.77%
31 to 50 (5)	1	1.89%
51 to 100 (6)	0	0.00%
101 plus (7)	1	1.89%
Depends on the project (8)	31	58.49%

**Question 10:**

**In general, how active are the majority of developers in your favourite project that you are developing for?**

Answer	Count	Percentage
Very Active (0)	5	9.43%
Quite Active (1)	15	28.30%
Fairly Active (2)	17	32.08%
Loosely Active (3)	13	24.53%
Not Very Active (4)	2	3.77%

**Question 11:**

**What forms of rewards (if any) does the project give to its uber-hackers / major contributors?**

Answer	Count	Percentage
Code Release Rights (0)	10	18.87%
Project Roadmap decision making (1)	19	35.85%
Representing the project at conferences etc. (2)	15	28.30%
Contributing is all the reward I need! (3)	37	69.81%
Other	9	16.98%

**Question 12:**

**What is your view on the role of users (non-developers) in contributing to your project, if any?**

Answer	Count	Percentage
Increase market share of project (0)	24	45.28%
Testing and recording bugs / issues (1)	47	88.68%
Documenting (2)	27	50.94%
Financing (3)	13	24.53%
No Role (4)	5	9.43%
Other	9	16.98%

**Question 13:**

**In your favourite project that you are developing for, what degree of participation do users have?**

Answer	Count	Percentage
A lot of contribution, users are at the core of the project's development (0)	7	13.21%
Quite a bit of contribution, users input helps a lot (1)	22	41.51%
Some contribution (2)	17	32.08%
Not much contribution (3)	6	11.32%
No contribution, we develop for ourselves only (4)	0	0.00%

**Question 14:**

**Does your project use any methods to prevent a user (non-developer) from easily using the code?**

Answer	Count	Percentage
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Requirement to build from source (0)	15	28.30%
Requirement to obtain code from versioning systems (1)	8	15.09%
Lack or restriction of availability of documentation (2)	13	24.53%
Dependency Hell (3)	3	5.66%
Other	19	35.85%

**Question 15:**

**If you have stopped contributing to a project or projects after being a central developer why did you do so?**

Answer	Count	Percentage
Project died due to lack of interest (0)	9	16.98%
Project fulfilled its goals (1)	10	18.87%
You didn't have the time to contribute due to work pressures (2)	15	28.30%
You didn't have time to contribute due to personal pressures (3)	15	28.30%
You didn't have time to contribute due to obligations / interests in other projects (4)	12	22.64%
You didn't agree with the direction the project was taking (5)	2	3.77%
You didn't get on personally with the other developers in the project (6)	1	1.89%
I've never left a project (7)	19	35.85%
Other	1	1.89%

**Question 16:**

**After leaving the project or projects did you fork a version for your own aims?**

Answer	Count	Percentage
Yes (Y)	0	0.00%
No (N)	3	5.66%

**Question 17:**

**Feel free to comment on why you left the project(s) or why you forked the project.**

Answer	Count	Percentage
Answer	0	0.00%

**Question 18:**

**General Comments**

Answer	Count	Percentage
Answer	16	30.19%

**Developers Section – Comments**

**Question 3 - If you like you can list the open source / free software projects that you have developed for here.**

ID	Response
<a href="#">79</a>	Kernel Gnome Xorg Jaws Cherokee
<a href="#">88</a>	gcc phc
<a href="#">90</a>	Zope3 Twisted Plone
<a href="#">95</a>	GNU
<a href="#">10</a>	Open Watcom, JabRSS, XPCOM2CORBA, greylstd, sipfwd
<a href="#">4</a>	
<a href="#">10</a>	dsl rflinux

6  
11 Linux Kernel ispell LinuxOnLinux ipbench q-tools TIS FWTK snapgear openzaurus  
2 glibc etc etc  
12 currently they are all new projects: opencoin disconnected a not yet named  
5 wikilike software  
14 quagga rbl-milter opensolaris  
3  
14 KDE MySQL JMOL JFreeChart Gentoo stylecheck (several personal projects)  
6  
14 KFM (kfm.verens.com) FCKeditor (www.fckeditor.net) LiveCalendar  
8 (www.jonabad.com/livecalendar/)  
15 SvnFs SpamAssassin  
3  
15 Linux kernel isomaster phpsysinfo  
5  
16 Source Mage GNU/Linux, Gentoo, Mandrake  
2  
16 personal website Database (mysql) for gaa club College projects  
3  
16 USB Serial  
7  
16 Apache httpd, Apache apr, Apache Spamassassin, Exim, Debian, Ubuntu, mnc,  
8 Linux, nsd, more  
17 In question 2 I have considered "developed" to include work on the FreeBSD ports  
1 collection.  
17 Gentoo Linux OSDT dclong Adontheil ...  
2  
17 SourceScope (<http://fsdev.net/SourceScope.html>)  
4  
17 libs for CMS based system php/mysql. robot building from scratch with open  
9 source tools.  
18 Linphone  
9  
19 <http://sourceforge.net/projects/giis> <http://sourceforge.net/projects/numa>  
1  
20 Ubuntu Tango Desktop Project KDE  
5  
21 Jokosher LinkPot.net  
2  
24 phc -- [www.phpcompiler.org](http://www.phpcompiler.org) maketea -- [www.maketea.org](http://www.maketea.org) deli --  
2 [delicon.sourceforge.net](http://delicon.sourceforge.net)  
24 LWP SYMBOL Finance: :Quote Perl 5 other various modules  
7  
26 CECID - A PHP web proxy  
2  
27 gpscorrelate, soon to be released webmail client.  
4

**Question 4 - What are your main motivations / expectations for contributing to your favourite open source / free software projects?**

<b>ID</b>	<b>Response</b>
<a href="#"><u>87</u></a>	giving back
<a href="#"><u>88</u></a>	phd research
<a href="#"><u>11</u></a>	I'm paid to work on free software
<a href="#"><u>2</u></a>	
<a href="#"><u>14</u></a>	contributing to the conglomerate effort
<a href="#"><u>6</u></a>	
<a href="#"><u>16</u></a>	Scratching an itch caused by a pre-existing solution, by fixing that solution
<a href="#"><u>5</u></a>	
<a href="#"><u>17</u></a>	Giving back for all the free stuff I've got from others, a repayment of sorts
<a href="#"><u>1</u></a>	
<a href="#"><u>17</u></a>	fun
<a href="#"><u>2</u></a>	
<a href="#"><u>19</u></a>	I really want to help others
<a href="#"><u>1</u></a>	
<a href="#"><u>19</u></a>	business requirements.
<a href="#"><u>8</u></a>	

**Question 5 - What actual benefits have you realised from your participation in the open source / free software project(s)?**

<b>ID</b>	<b>Response</b>
<a href="#"><u>79</u></a>	Job opportunities..
<a href="#"><u>11</u></a>	Academic papers
<a href="#"><u>2</u></a>	
<a href="#"><u>16</u></a>	Job offers, current job
<a href="#"><u>8</u></a>	
<a href="#"><u>17</u></a>	a job
<a href="#"><u>2</u></a>	
<a href="#"><u>19</u></a>	Feel like connected to whole world.
<a href="#"><u>1</u></a>	
<a href="#"><u>19</u></a>	ease of maintainance, extensibility
<a href="#"><u>8</u></a>	

**Question 11 - What forms of rewards (if any) does the project give to its uber-hackers / major contributors?**

<b>ID</b>	<b>Response</b>
<a href="#"><u>88</u></a>	Many developers are paid to work on gcc
<a href="#"><u>11</u></a>	Kudos
<a href="#"><u>2</u></a>	
<a href="#"><u>12</u></a>	money
<a href="#"><u>5</u></a>	

<u>14</u>	Recognition
<u>8</u>	
<u>17</u>	commit bits
<u>1</u>	
<u>17</u>	I am the only developer (at the moment)
<u>4</u>	
<u>19</u>	N/A
<u>8</u>	
<u>24</u>	There are no "major" contributors. Everyone works equally hard.
<u>1</u>	
<u>26</u>	payment
<u>7</u>	

**Question 12 - What is your view on the role of users (non-developers) in contributing to your project, if any?**

<b>ID</b>	<b>Response</b>
<u>87</u>	motivation to achieve things
<u>10</u>	Requesting new features
<u>2</u>	
<u>11</u>	Giving real use cases for future development
<u>2</u>	
<u>12</u>	giving motivation
<u>5</u>	
<u>16</u>	Using it !!
<u>5</u>	
<u>17</u>	They're users. Not developers.
<u>4</u>	
<u>19</u>	Feedback
<u>1</u>	
<u>20</u>	Suggesting direction for development
<u>8</u>	
<u>24</u>	Non-developers are awesome
<u>7</u>	

**Question 14 - Does your project use any methods to prevent a user (non-developer) from easily using the code?**

<b>ID</b>	<b>Response</b>
<u>79</u>	No. Gnome provides methods to build from source, but is generally distributed to users by distributions.
<u>88</u>	None
<u>10</u>	None of these
<u>0</u>	
<u>10</u>	none
<u>4</u>	

<u>11</u>	None
<u>2</u>	
<u>11</u>	None
<u>4</u>	
<u>14</u>	No
<u>8</u>	
<u>15</u>	None
<u>3</u>	
<u>15</u>	n/a
<u>5</u>	
<u>15</u>	none
<u>7</u>	
<u>16</u>	None
<u>2</u>	
<u>16</u>	no active prevention, passive from dev laziness maybe ..
<u>5</u>	
<u>16</u>	no
<u>8</u>	
<u>17</u>	Nothing is actively done to discourage users from using the code.
<u>1</u>	
<u>17</u>	But I am talking about Gentoo, so the requirement to build from source is not a
<u>2</u>	negative in my mind
<u>19</u>	I release documents and code as free
<u>1</u>	
<u>20</u>	No
<u>8</u>	
<u>21</u>	see note
<u>2</u>	
<u>26</u>	fixed dependence on specific database
<u>7</u>	

**Question 15 - If you have stopped contributing to a project or projects after being a central developer why did you do so?**

<b>ID</b>	<b>Response</b>
<u>88</u>	My work in it wasnt going anywhere

**Question 18 - General Comments**

<b>ID</b>	<b>Response</b>
<u>10</u>	Question 14 doesn't have a "none of these option"
<u>0</u>	

- 10  
2 Projects start with someones good idea. This is realised by others who then join and help contribute. Users test and request other ideas and this is where projects really bloom as the best ideas take form. Occasionally, ideas are not implemented as they require more effort by the coders, but hopefully if the desire is great enough, then someone will scratch that itch.
- 10  
6 na
- 11  
2 I'm a systems guy, so don't really touch userspace unless there's something bothering me about it.
- 14  
6 none
- 15  
3 SvnFs is the primary project I currently work on. I started it myself in the last year, and it's only getting off the ground, so it has a relatively small userbase and only myself contributing code.
- 16  
3 OS is generally more difficult and slower to get setup. Prop packages generally are more focused, coherent,etc
- 16  
5 ...
- 16  
8 blank
- 17  
2 I like to write code, and I like to help people out. I think that the needs I have are not usually unique; often others can benefit from an itch that I scratch for myself.
- 19  
1 I really love to be part of open world. :-)
- 19  
8 There seems to be an assumption that open-source development is adhoc. IN fact, many large-scalle businesses use it for their own projects.
- 20  
8 My Free Software development has taken place within national and EU-funded research projects and so has a somewhat different pattern to the more well-known pieces of Free Software, such as Apache HTTPD, Linux, etc. I have also contributed patches, translations, packages to a number of Free Software projects but I would not consider myself a "developer" for these projects (although that would be appealing). Making all items on question 6 mandatory doesn't make sense if involved in less than 5 projects! In question 14 it seems impossible to state that one doesn't deliberately make things difficult for users.
- 21  
2 Note for question 14 it can be difficult with new projects, as often the binary builds are out of date with the source builds, and to get effective bug reports you need your non-developers to be running the latest version.
- 24  
1 Question 7 is broken. The remove image isn't showing up. Change <http://survey.patrickoconnor.ie/Cut.gif> to <http://survey.patrickoconnor.ie/cut.gif>. Small "c" and it'll be fine.
- 26  
7 none survey is hopeless, won't let you proceed to next page, probably because there is no "other" box to check on questions 11 Question 14 changes order everytime you go up and down the screen

## Users Section – Answers

### Question 1:

Approximately how many open source / free software applications do you use?

Answer	Count	Percentage
--------	-------	------------

1-3 (1)	10	5.03%
4-6 (2)	26	13.07%
7-10 (3)	16	8.04%
11-15 (4)	18	9.05%
16-25 (5)	18	9.05%
26+ (6)	99	49.75%
Other (-oth-)	12	6.03%

**Question 2:**

**What open source / free software applications do you use?**

Answer	Count	Percentage
Mozilla Firefox (1)	191	95.98%
Mozilla Thunderbird (2)	96	48.24%
OpenOffice.org (3)	158	79.40%
Apache Webserver (4)	152	76.38%
Open Source Mail Server (5)	94	47.24%
Open Source DBMS (e.g. Mysql, Postgresql etc) (6)	130	65.33%
Linux Distribution (Ubuntu, Debian, Fedora etc.) (7)	173	86.93%
Open Source Instant Messaging Client (Gaim, Jabber etc) (8)	130	65.33%
Open Source P2P Application (Azureus, Ares etc) (9)	94	47.24%
Open Source CRM (10)	23	11.56%
Open Source ERP (11)	10	5.03%
Open Source Graphics Apps (Gimp etc) (13)	146	73.37%
Open Source Web Publishing (Wordpress, Drupal etc) (14)	92	46.23%
Open Source Multimedia Authoring (Audacity etc) (15)	94	47.24%
Other	62	31.16%

**Question 3:**

**What is your relationship to the community around the products you use?**

Answer	Count	Percentage
I use the software (1)	196	98.49%
I write documentation (2)	22	11.06%
I report bugs (3)	103	51.76%
I helped with financing the development (4)	18	9.05%
I have given gifts to the developers (5)	18	9.05%
I act as an advocate for the software (6)	107	53.77%
Other	16	8.04%

**Question 4:**

**How important is it for users to contribute to open source / free software products e.g. through advocacy, documentation, bug reporting, financing, gift giving etc.**

Answer	Count	Percentage
Irrelevant (1)	3	1.51%
Of some importance (2)	27	13.57%
Quite important (3)	44	22.11%
Important (4)	40	20.10%
Very Important (5)	44	22.11%
Extremely Important (6)	41	20.60%

**Question 5:**

**Would you like to participate in an open source / free software project by developing code for it?**

Answer	Count	Percentage
Yes (Y)	102	51.26%
No (N)	97	48.74%

**Question 6:**

**What existing open source / free software project(s) would you like to participate in?**

Answer	Count	Percentage
Answer	75	37.69%
No answer	124	62.31%

**Question 7:**

**Would you like to create an open source / free software project(s) yourself and invite others to contribute?**

Answer	Count	Percentage
Yes (Y)	76	38.19%
No (N)	123	61.81%

**Question 8:**

**What type of open source / free software project(s) would you like to start?**

Answer	Count	Percentage
Answer	58	29.15%
No answer	141	70.85%

**Question 9:**

**Would you like to learn to develop with the aim of creating code for an open source / free software project(s)?**

Answer	Count	Percentage
Yes (Y)	104	52.26%
No (N)	95	47.74%

**Question 10:**

**If so, what are the barriers for you to learning to develop code?**

Answer	Count	Percentage
No Time (1)	73	36.68%
Don't know where to start (2)	32	16.08%
Don't know what language I would like to start with (3)	20	10.05%
I don't have access to training (4)	12	6.03%
I don't think I could be a good developer (5)	15	7.54%

**Question 11:**

**If you are interested in starting / participating in an open source / free software project what would be your motivations?**

Answer	Count	Percentage
Scratching the itch not scratched by already available software. (1)	91	45.73%
Learning new skills (2)	119	59.80%
The buzz of problem solving (3)	100	50.25%
Making money by implementing the code created (4)	17	8.54%
Making money by consulting arising from the expertise gained from creating the code (5)	27	13.57%
Increased reputation as a programmer in general, i.e. adding to your resume/cv (6)	80	40.20%
Increased reputation from your peers (7)	65	32.66%
Getting feedback from your co-developers / contributors / users (8)	56	28.14%
Getting bonus functionality from the contributions of your co-developers (9)	58	29.15%
General social interaction e.g. expanding your social network by meeting new people etc (10)	51	25.63%
Other	15	7.54%

**Question 12:**

**Any further comments you would like to make**

Answer	Count	Percentage
Answer	53	26.63%
No answer	146	73.37%

## **Users Section – Comments**

### **Question 2 - What open source / free software applications do you use?**

<b>ID</b>	<b>Response</b>
<a href="#"><u>80</u></a>	Open Source media players
<a href="#"><u>81</u></a>	GNU
<a href="#"><u>83</u></a>	FreeBSD, Subversion, PHP, Perl, Python, etc. etc. etc.
<a href="#"><u>85</u></a>	GNU tools/utilities
<a href="#"><u>88</u></a>	Many open-source development tools
<a href="#"><u>10</u></a>	Several database and record keeping software
<a href="#"><u>3</u></a>	
<a href="#"><u>10</u></a>	BSD
<a href="#"><u>5</u></a>	
<a href="#"><u>11</u></a>	LaTeX, gcc, moin, gwc, etc., etc.
<a href="#"><u>2</u></a>	
<a href="#"><u>11</u></a>	Open source CMS & web forum
<a href="#"><u>4</u></a>	
<a href="#"><u>11</u></a>	media applications such as mplayer, xmms, git, subversion, ffmpeg, gcc dev tools
<a href="#"><u>5</u></a>	
<a href="#"><u>11</u></a>	Games, Multimedia editing and creation, basically everything i do on a computer...
<a href="#"><u>7</u></a>	
<a href="#"><u>12</u></a>	Eclipse JDK
<a href="#"><u>1</u></a>	
<a href="#"><u>12</u></a>	Numerous Open Source System Administration Tools (25+)
<a href="#"><u>3</u></a>	
<a href="#"><u>12</u></a>	ZoneAlarm, Ad-Aware, AVG Anti-virus, pdf995, Free Download Manager
<a href="#"><u>4</u></a>	
<a href="#"><u>12</u></a>	Software Development - JEdit
<a href="#"><u>8</u></a>	
<a href="#"><u>13</u></a>	kmail, icewm, etc
<a href="#"><u>7</u></a>	
<a href="#"><u>13</u></a>	Zope Plone
<a href="#"><u>8</u></a>	
<a href="#"><u>14</u></a>	dhcpcd, bind, mutt, openssh, winscp, openvpn, openssl, asterisk, subversion,
<a href="#"><u>1</u></a>	rsync, bugzilla, mediawiki, vsftp, spamassassin, sqlgrey, mono, php, truecrypt,
<a href="#"><u>15</u></a>	asterisk-java, chkrootkit, log4j, motion
<a href="#"><u>15</u></a>	fwbuilder, asterisk, openvpn, wifidog, xen
<a href="#"><u>6</u></a>	
<a href="#"><u>15</u></a>	Many, many more.
<a href="#"><u>8</u></a>	
<a href="#"><u>15</u></a>	Too numerous to mention...
<a href="#"><u>9</u></a>	
<a href="#"><u>16</u></a>	Open Source Mail Clients, Open Source Browsers, Open Source games,
<a href="#"><u>1</u></a>	calculators, accounting software, editors (numerous), multimedia players, image
<a href="#"><u>16</u></a>	organisers, file managers, desktop managers, programming languages, shells...
<a href="#"><u>16</u></a>	FLOSS dev s/w (gcc, perl etc)
<a href="#"><u>4</u></a>	
<a href="#"><u>16</u></a>	Far too many to list ...
<a href="#"><u>5</u></a>	

16 vim, bash, all the gnu toolset ...  
6  
16 Games, Publishers(Scribus etc), Programming(Gambas, idle) etc  
9  
17 I do web dev with php, running on all open source servers  
0  
17 Openbox,XEmacs,Amarok,GCC,X.org,SSH,gnome-terminal  
2  
17 LaTeX  
3  
18 stacks of old stuff like latex, command line, etc, etc  
1  
18 stellarium  
4  
18 vim  
9  
19 Development Software (Eclipse, GCC, autotools, ...)  
0  
19 and my own tools  
1  
19 many Linux utilities  
4  
19 security software  
5  
19 fvwm, python  
6  
19 bind, java, php, perl  
7  
20 Python, Perl  
0  
20 vim, bash, openssh, kawa, python, lots of other system administration and  
8 development tools  
21 various games, PuTTY, Python, SPE, others  
2  
21 vim  
7  
22 kmail, icewm, etc  
6  
22 Zope Plone  
7  
23 dhcpd, bind, mutt, openssh, winscp, openvpn, openssl, asterisk, subversion,  
0 rsync, bugzilla, mediawiki, vsftp, spamassassin, sqlgrey, mono, php, truecrypt,  
 asterisk-java, chkrootkit, log4j, motion  
23 Development tools (git svn vim gcc etc)  
1  
23 All desktop software that I use  
9  
24 squid,frox,dante  
0  
24 Lots of projects from GNU

<u>6</u>	
<u>24</u>	Perl, PHP, Python, Spam Assassin, Amavisd, vim, w3m
<u>7</u>	
<u>24</u>	pine, pico, bedework, nagios, mrtg, openbsd, exim, postfix, procmail
<u>9</u>	
<u>25</u>	vim,kde,mplayer
<u>0</u>	
<u>25</u>	pure data
<u>4</u>	
<u>25</u>	Free download manager
<u>6</u>	
<u>26</u>	Eudora,
<u>0</u>	
<u>26</u>	wpkg, gramps, bacula, sudowin, unattended, purgos, ... rather a long list
<u>4</u>	
<u>26</u>	geospatial apps: postgis, gdal, mapserver, geoserver & related apps/libs
<u>5</u>	
<u>26</u>	lots
<u>8</u>	
<u>27</u>	MP3, DVD, games
<u>0</u>	
<u>27</u>	FileZilla
<u>3</u>	
<u>27</u>	python
<u>5</u>	
<u>27</u>	OpenVpn, 7-Zip, FileZilla, WinSCP, Foxit Reader
<u>6</u>	

### Question 3 - What is your relationship to the community around the products you use?

<b>ID</b>	<b>Response</b>
<u>81</u>	campaigning against software patents, against IPRED2, raising awareness of the public process for GPLv3, etc.
<u>82</u>	HW
<u>85</u>	Money
<u>10</u>	Contribute at fora
<u>3</u>	
<u>11</u>	Fixed bugs, contributed patches
<u>2</u>	
<u>11</u>	Install and maintain the software
<u>6</u>	
<u>16</u>	I support other users
<u>1</u>	
<u>16</u>	I give support and am a member of the beginners team on ubuntuforums.org
<u>6</u>	
<u>16</u>	I write a little as I or my friends need it.
<u>9</u>	

17 patching  
2  
20 Localisation  
8  
25 i help users on forums  
0  
25 Donated  
6  
25 support  
7  
26 mailinglist help  
5  
27 Support  
3

**Question 6 - What existing open source / free software project(s) would you like to participate in?**

<b>ID</b>	<b>Response</b>
<u>78</u>	any which I actually use.
<u>84</u>	OpenBSD
<u>90</u>	Zope3 Twisted
<u>95</u>	Yagarto
<u>99</u>	OpenMoko
<u>10</u>	Jokosher
<u>1</u>	
<u>10</u>	OpenOffice, KDE, KDE education packages, Xmms, cdparanoia, kmail, xspect,
<u>2</u>	uqxl, kweather
<u>10</u>	Small dedicated applications
<u>3</u>	
<u>10</u>	Starting my own...would like to find other developers to participate
<u>6</u>	
<u>10</u>	Enlightenment
<u>8</u>	
<u>11</u>	I contribute to many already.
<u>2</u>	
<u>11</u>	openfabrics alliance, openmpi, mvapich, mplayer, xmms2, git
<u>5</u>	
<u>11</u>	open office
<u>9</u>	
<u>12</u>	not sure
<u>1</u>	
<u>12</u>	nothing right now
<u>2</u>	

- 12 A number of the projects I use in the areas of system administration and High  
3 Performance Computing are heavily driven by user submitted patches. If I had a requirement that was not catered for in one of these projects I would build a patch and submit it for review and inclusion. I currently have no such outstanding requirements so I do not need to submit patches.
- 12 I already do  
5
- 12 Media player  
7
- 13 smplayer  
1
- 13 Wordpress  
2
- 13 I have contributed to some open source projects in the past, by contributing code  
3 / bug fixes for features I wanted to use myself. I would participate if the project had good potential, or is of use to me.
- 13 Firefox, Azureus, Apache  
8
- 14 asterisk  
1
- 14 apache  
2
- 14 I already participate in some projects, I'll report, and sometimes fix, bugs in other  
3 projects whose code I use.
- 14 Linux, Ubuntu, MythTV, Pidgin  
4
- 14 too many already!  
6
- 14 I'd like to help out more in KDE, but I'm a web developer, and don't have the  
8 skills yet for desktop programming.
- 15 pornview  
2
- 15 None specifically  
3
- 15 kde, koffice  
6
- 15 Subversion, git  
8
- 16 Linux kernel  
2
- 16 gnash  
4
- 16 skol-linux  
6
- 16 I try to fix anything I can when it effects me.  
8
- 17 FreeBSD, FreeBSD ports (already do), Exemplar (my own project)  
1
- 17 I already am contributing to a few  
2
- 17 OpenLDAP

3

17 The Linux kernel itself (need to brush up on my C) OpenOffice (they need major help) Eclipse

4

17 Gnome

5

17 openbsd, freebsd

9

18 If I could write software, I would most certainly help.

3

18 stellarium, open office

4

18 Bibdesk

6

19 gnuradio, eclipse

0

19 Projects related to file system

1

19 Don't know

2

19 I would participate in any - however I feel that my current level of expertise precludes this.

6

19 Linux. Interest is particularly on the networking side.

7

20 Not sure yet

0

20 Any. Where I have time/skills

7

20 GNOME, Ubuntu, Kawa

8

21 PiTiVi

2

21 Open Source Flash related applications, swfmill, Flash Develop

3

21 Graphics packages

4

21 Gentoo

7

22 smplayer

0

22 Wordpress

1

22 I have contributed to some open source projects in the past, by contributing code / bug fixes for features I wanted to use myself. I would participate if the project had good potential, or is of use to me.

2

22 Firefox, Azureus, Apache

7

23 asterisk

0

23 Fedora Project

6

24 Relational DBMS  
1  
24 Apache-MyFaces  
5  
24 CrowdControl  
7  
24 exim, debian  
9  
25 twisted, ruby, rails, kde  
0  
25 any .Net based project  
6  
25 gaim & perhaps others  
7  
26 Bacula - one day.  
4  
26 Quite possible audio or crypto stuff :)  
6  
26 help in whatever way a scripty but not codey systems and ops guy can ;-)

8

27 Ubuntu

7

27 TurboGears

9

**Question 8 - What type of open source / free software project(s) would you like to start?**

ID	Response
<u>83</u>	Network Management / Provisioning
<u>84</u>	decent recruitment software
<u>87</u>	Group Information Manager instead of a PIM
<u>89</u>	Sensors Platform
<u>90</u>	OpenOffice.org addons
<u>95</u>	yagarto
<u>10</u>	Better aids for visual impairment
<u>2</u>	
<u>10</u>	Linux distribution running on USB that runs on emulator so runs without host computer rebooting
<u>6</u>	
<u>10</u>	Sorry, can't divulge at this time.
<u>8</u>	
<u>11</u>	www.ipbench.sf.net
<u>2</u>	
<u>11</u>	mpeg4 reference encoder reimplemented in fortran90
<u>5</u>	
<u>12</u>	nothing right now. Just whatever is needed, if there is nothing already doing the job.
<u>2</u>	
<u>12</u>	digicash application, community software - already doing it

5  
12 CSCL Application for Multi-media production  
8  
13 Collaborative environment  
2  
13 If in the future, I have a good idea I would, but at the moment no.  
3  
13 WYSIWYG score editor (held back by lack of qualification to create core code)  
7  
14 Already created!  
6  
14 Common webservices for certain business domains - medical, real estate etc.  
7  
14 I'm just about at 1.0 status with my current project, so am planning two other  
8 projects now - a game, and an AJAX RAD tool.  
15 I have started SvnFs, a filesystem client for Subversion repositories.  
3  
15 An emacs-based SQL database development tool (as an alternative to TOAD)  
8  
16 FOSS MMORPG  
2  
16 audio sequencer  
4  
16 Wrong follow-on ! I'd like to create an OSS project at some point, on the  
5 assumption I had something worth putting together !  
16 I have started and maintained open source projects in the past.  
8  
16 I need to get an open source all in one project that will combine a raffle ticket  
9 program, database and slide show application that my Golf Club can use. The  
commercial ones are too expensive and not specific enough.  
17 I have an almost complete web GUI for the music server mpd that I intend to  
0 release as open source when I am happy it is complete.  
17 Already have, although it's really just an offshoot from a college project and a  
1 "rolling test bed" for my own hacking urges. <http://exemplar.mcdermottroe.com/>  
17 s3fs - use Amazon's Simple Storage Service as a filesystem  
2  
17 Mathematical  
3  
17 I did: SourceScope (<http://fsdev.net/SourceScope.html>)  
4  
17 a(new|nother) linux dristo based on \*BSD kernels.  
9  
18 A true Open Source Video Editor that WORKS. Current state of video editing in OS  
0 is sad w/o 1 single program that can do it well products like Kino are 2 simple,  
Jahshaka is more for animation and Cinderealla Just plain rots.  
18 image stitching, space flight simulation  
4  
18 Skim-notes using application for Linux (Skim is an application for Mac OS X that  
6 allows to add notes and markups to pdfs w/out using Acrobat and w/out touching  
the pdf), some kind of Bibdesk-port for Linux (very good software for managing  
bibtex-files)

18 Project Managment tool  
8  
18 Database performance tuner  
9  
19 software radio (developed by the CTVR @ TCD). This package is likely to be  
0 released as open source and I am a major developer of it.  
19 tools on file system.  
1  
20 Any. Where time/skills allows.  
7  
20 Don't know: It would need to be related to my work (grid computing and security)  
8  
21 Open Source Flash RIAs  
3  
21 Graphics packages  
4  
21 mathematical software, vector graphics and CAD software  
7  
22 Collaborative environment  
1  
22 If in the future, I have a good idea I would, but at the moment no.  
2  
22 WYSIWYG score editor (held back by lack of qualification to create core code)  
6  
23 Software synthesiser  
1  
23 courseware exchange database  
4  
23 A research network (based on the structure of a social networking website). The  
5 development would mainly be composed of widgets for this environment.  
24 Relational DBMS  
1  
24 Those that I'm already involved in. Was co-founder on two of them :)  
2  
26 Crypt-analysis tools I am working on as well as some online privacy tools I have in  
6 mind.  
26 once again, whatever fills the need or helps most at the time, within the skillset  
8  
27 System Administration automation  
5  
27 GTK front end to the USB missile launcher  
7 [http://cole.homedns.org/usb\\_missile\\_launcher.php](http://cole.homedns.org/usb_missile_launcher.php)  
<http://scott.weston.id.au/software/pymissile/>  
27 Symbian OS Tools  
8

**Question 11 - If you are interested in starting / participating in an open source / free software project what would be your motivations?**

<b>ID</b>	<b>Response</b>
<u>82</u>	Giving to a community
<u>10</u>	I like the variation of working on different projects
<u>3</u>	
<u>11</u>	generating indirect revenue streams
<u>0</u>	
<u>11</u>	I'm paid to do it.
<u>2</u>	
<u>13</u>	Does not apply to me. Unable to code.
<u>6</u>	
<u>17</u>	I'd like to give something back as I use exclusively OS software
<u>0</u>	
<u>18</u>	totally pissed off with open source development
<u>1</u>	
<u>19</u>	Sense of "giving something back" to the open source community from which I derive so much benefit
<u>7</u>	
<u>19</u>	putting the likes of Google out of business
<u>8</u>	
<u>22</u>	Does not apply to me. Unable to code.
<u>5</u>	
<u>23</u>	to give something back
<u>7</u>	
<u>24</u>	To give back to the open source community
<u>6</u>	
<u>25</u>	Just to contribute to something I believe in
<u>1</u>	
<u>25</u>	Advocacy and evangelism
<u>3</u>	
<u>27</u>	I have no skills in this area
<u>0</u>	

**Question 12 - Any further comments you would like to make**

<b>ID</b>	<b>Response</b>
<u>81</u>	About questions 5, 7, 9, 11 - I used to be a developer, and I would like to be a developer again in the future, but I have no plans to do so - no spare time. And in case it makes any difference, free software advocacy and campaigning is my full-time job (FSFE).
<u>85</u>	Not everyone can be a developer. That's why I Advocate the use of Free Software, help other when I can to use Free Software and monetarily support organizations that produce and/or protect Free Software.
<u>10</u>	Not interested in high usage applications, just those that are needed by either myself or in answer to someones need that I have heard about.
<u>2</u>	
<u>10</u>	FOSS gives power and choice. You discover the world is bigger than you thought.
<u>3</u>	

- 10 the questions in this section are confusing if you are both an Open Source  
4 developer and user
- 10 na  
6
- 10 I know nothing about codeing and am just a user.  
7
- 11 I'm a developer \*and\* user; so this part of the survey is a bit difficult to answer.  
2
- 11 Not being a developer, I find this survey not delving deep into the realm of the  
7 users of Open Source software. There are quite a few, I believe, who are like me and really we are the ones that really matter when it comes to measuring the success of OSS. You could have included questions such as why do we use OSS, do we use OSS at home or at work, do we also use proprietary software, would we still use some proprietary software if there was an OSS alternative, etc... All the best with your thesis!
- 12 This survey has some very odd questions radio buttons 1-25, 26+, other?? What  
2 other?? The javascript extra questions are unsettling, too. Static is better. I was pointed here by my local Linux User Group. That will give you a self selecting participant skew. Offering money to take part is an unusual strategy, too. Good luck
- 12 This secton tends overly towards 'positive' feedback. By this I mean that you can  
3 answer 'Yes I would like to' and then explain 'Why' but it doesn't solicit the opinion of someone who answers no but rather discards their potential input. To use an analogy it's like saying that you're interested in why N% of the market buy your product but don't care about the other M% you could potentially facilitate more.
- 13 none  
1
- 13 I have been involved in some open source projects in the past, and I mostly, I  
3 have found the atmosphere to be very friendly and productive.
- 13 I'm not sure what element of the open source software piece you are looking at.  
6 Personally I believe that open source is capable of hugely contributing to the development of software application or can even change the applications of software. I think though the challenge is to "package" open source software so it appears attractive to SME's as CIO's of large organisations do not see open source as relevant. Notwithstanding the security and malware issues they think there are hidden costs and complexity that are barriers to adoption. "Ian Cohen, Associated Newspapers CIO - and recently voted one of the UK's top 50 CIOs - said at the Forrester IT Forum in Edinburgh this week that open source just isn't "particularly relevant". Cio-connect 12/06/07, Andy McCue.- Open source 'not relevant', claim CIOs Good luck with the rest of it. Full Article . Open source 'not relevant', claim CIOs And they're not too enamoured with software as a service either... By Andy McCue Published: Tuesday 12 June 2007 The hidden cost and complexity of open source is still a key barrier to adoption for many CIOs and large enterprises. Ian Cohen, Associated Newspapers CIO - and recently voted one of the UK's top 50 CIOs - said at the Forrester IT Forum in Edinburgh this week that open source just isn't "particularly relevant". Cohen said that while he doesn't mind it being embedded in hardware or exploited by suppliers open source isn't something he is interested in doing himself. If you do the analysis fully open source is not as attractive as is first apparent... He said: "It is another layer of complexity." Daryl West, Lloyds TSB CTO, speaking at the same event agreed: "If you look at the savings you end up having to create a support organisation internally to support it. If you do the analysis fully it's not as attractive as is first apparent." You what...? Bust through tech jargon with silicon.com's Cheat Sheets. The much-hyped software as a service (SaaS) trend also came under fire and Cohen said he

remains to be convinced about SaaS in the enterprise, despite some of the services players such as Google have released. He said: "It's a concept I'd like to buy but I'm a cautious buyer. I'm struggling with the next step, the industrialising of the idea." Lloyds TSB's West added: "For large enterprises where you have got a lot of stuff, and an industry like mine tightly regulated, having core pieces of your application stack as a service doesn't fit. Then you've got to plumb it in and that plumbing is not easy." But Pascal Matzke, principal analyst at Forrester, said the IT "ecosystem" will move more and more towards delivering functionality as a service through SaaS, storage-on-demand and adaptive IT services, with the CIO becoming a "service broker". Matzke said: "Essentially what we are looking at is the concept of a service broker organisation to broker internal and external service delivery in the context of business service level agreements and on an as-needed basis. Technology will be much more transparent in terms of the value it provides to the business." The key roadblock to all of this, he admitted, is the existing "silo" structure within many organisations' infrastructure and applications. He said: "If you look at the monolithic application landscape, especially on the ERP side, consolidation is essential. That's going to take some time."

13  
8 I use a CMS for business which is supported by an open source development company, and they have been terrible to work with.

15  
2 My bonnie lies over the ocean...

15  
8 My preferred description is Free Software (and no, I am not Richard Stallman). Unless you have specific reason not to, I would like to urge you to consider using "Free Software" as an alternative to "Open Source" and to promote this term with your fellow researchers.

15  
9 None. Although I run the Northants Linux User Group I'm not as much of a Linux Advocate as I should be, and I should stress that I'm a fan of Linux because its free ( as in beer ), it works, and rewards the effort that you put into it.

16  
3 none

16  
4 I believe that all software should be free and I want to participate in the development of free s/w that equals or surpasses its proprietary equivalent

16  
6 I love the diversity of solutions that open source offers

16  
7 I do enough project work at the moment so the above questions were irrelevant

17  
0 Good luck with the work, I'll be interested to see the results from this survey.

17  
3 I'm afraid this survey was not very well designed

17  
5 In question 11, one options should be : "contributing to the society"

17  
7 Actually, I did develop a piece of software for another platform (Amiga) once, but never got around to making it open source. Even now, I would only want to do it for Amiga, if I had the time and the new knowledge.

18  
0 yep OS rules

18  
1 I was heavily involved in the open source community for over a decade; advocacy, supporting users, supporting user group, running OS events, etc, etc. But I became very disappointed as I still needed to keep MS OSs around for even basic applications. I then saw developer drive away the basic user from our local LUG so they could have a private club. All the criticism of MS OSs that encouraged me to see out the Open Source software can now be applied to Open Source.

18 Yes, I hope that Open/free software continues to thrive, and hey maybe even I  
3 might write a little program one day, and thanks.

18 A significant part of my motivation in using open office is that it uses published file  
4 formats. I know people who are unable to open documents from old Microsoft  
Office versions.

18 Lots of users would get more involved if they knew how non-programmers could  
5 help.

19 open world--free software for all

1

19 I am already a developer 9-5 - however I believe that the skills exhibited in the  
6 open source world far exceed my humble abilities.

19 N/A

8

20 I contribute directly to projects, just not in code but in art and graphics. :)

5

20 I know a fair few languages, but I have realised a long time ago that I am no  
7 developer. I help out where I have the time and/or skills, but I am more of a  
sysadmin than a coder. I help out where I can - usually bug reports and docs.

21 I cannot program outside of my work due to a very restrictive intellectual property  
7 agreement. I would release open source software myself if that were not the case.

22 none

0

22 I have been involved in some open source projects in the past, and I mostly, I  
2 have found the atmosphere to be very friendly and productive.

22 I'm not sure what element of the open source software piece you are looking at.  
5 Personally I believe that open source is capable of hugely contributing to the  
development of software application or can even change the applications of  
software. I think though the challenge is to "package" open source software so it  
appears attractive to SME's as CIO's of large organisations do not see open source  
as relevant. Notwithstanding the security and malware issues they think there are  
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services players such as Google have released. He said: "It's a concept I'd like to  
buy but I'm a cautious buyer. I'm struggling with the next step, the industrialising  
of the idea." Lloyds TSB's West added: "For large enterprises where you have got  
a lot of stuff, and an industry like mine tightly regulated, having core pieces of

your application stack as a service doesn't fit. Then you've got to plumb it in and that plumbing is not easy." But Pascal Matzke, principal analyst at Forrester, said the IT "ecosystem" will move more and more towards delivering functionality as a service through SaaS, storage-on-demand and adaptive IT services, with the CIO becoming a "service broker". Matzke said: "Essentially what we are looking at is the concept of a service broker organisation to broker internal and external service delivery in the context of business service level agreements and on an as-needed basis. Technology will be much more transparent in terms of the value it provides to the business." The key roadblock to all of this, he admitted, is the existing "silo" structure within many organisations' infrastructure and applications. He said: "If you look at the monolithic application landscape, especially on the ERP side, consolidation is essential. That's going to take some time."

- 22  
7 I use a CMS for business which is supported by an open source development company, and they have been terrible to work with.
- 23  
3 Some of my answers may seem absurd to open source advocates. I use open source software because I am used to it as all my computer training was done on unix/linux based systems.
- 23  
4 Interested in the application of Open Source thinking to other aspects of society/economy
- 23  
7 This is the future of software. I am first a scientist. We didn't get where we are without standing on the shoulders of giants. We can't do that unless we know what they did. I also think you get more out than you put in with Open Source and everyone benefits.
- 23  
9 This is a project on Open Source, but would not play nicely with Konqueror (my preferred browser) and I had to switch to Firefox. I find it ironic that this survey is apparently not fully compliant with web standards. So here is some of my proselytising for Open Source! I always complain if I cannot use Konqueror
- 24  
1 In questions 9-11 there should be an option for people who are already developers.
- 24  
4 I am not convinced that open source is necessarily an improvement on any other method of development.
- 25  
1 I do my best to find and use open source solutions whenever possible, even if better solutions exist elsewhere - provided the OSS solution is at least functional.
- 25  
3 FOSS is important in many ways. I use it because I can, because I like it and because I want to support it in that way. I consider myself an evangelist and advocate for Linux in particular, but not to the point of being radical and ludicrous. I participate financially as well.
- 25  
7 I appreciate the fact that many FOSS projects require funding, which I cannot offer. This lack of money is also one of my main motivations for using FOSS (bit of a catch-22). Thus I relieve my "guilty conscience" by participating in community support forums and adding what I can to the general knowledge pool.
- 26  
5 Q11 responses may need weighting to get a true picture.
- 26  
7 no
- 26  
8 interesting questions and well put together frontend. not a classic developer but a user and developer of sorts for a long long time. look forward to seeing what comes from it. cheers.

## **Appendix II – Geographical Location of Survey Participants**

This data was obtained by inputting the IP addresses of the participants into a GEOIP database provided by Maxmind (maxmind.com)

Note: Not all participants IP addresses were able to be pinpointed to a geographical location.

AU	Australia	Queensland	Oxford Park
AU	Australia	New South Wales	Leichhardt
AU	Australia	New South Wales	Auburn
AU	Australia	New South Wales	Dobroyd Point
AU	Australia	New South Wales	Pymble West
AU	Australia	Victoria	Newport
AU	Australia	New South Wales	Ryde
AU	Australia	New South Wales	Ingleburn
AU	Australia	New South Wales	Villawood
AU	Australia	New South Wales	Lakemba
AU	Australia	Australian Capital Territory	Canberra
AU	Australia	Victoria	Campbell
AU	Australia	Victoria	Campbell
AU	Australia	Victoria	Dandenong
		Brussels Hoofdstedelijk	
BE	Belgium	Gewest	Brussels
CN	China	Sichuan	Chengdu
DE	Germany	Berlin	Rummelsburg
DE	Germany	Nordrhein-Westfalen	Dortmund
DE	Germany	Bayern	Gunzenhausen
DE	Germany	Berlin	Berlin
EG	Egypt	Al Qahirah	Cairo
ES	Spain	Madrid	Torrejón De Ardoz
EU	Europe		
EU	Europe		
	United Kingdom		
GB	Kingdom	Rochdale	Rochdale
	United Kingdom		
GB	Kingdom	Slough	Chiswick
	United Kingdom		
GB	Kingdom	Stockport	Stockport
	United Kingdom		
GB	Kingdom	Slough	Slough
	United Kingdom		
GB	Kingdom	Portsmouth	Havant
	United Kingdom		
GB	Kingdom	Buckinghamshire	Lower Winchendon
	United Kingdom		
GB	Kingdom	Cheshire	Sale
	United Kingdom		
GB	Kingdom	London	London
GB	United Kingdom	Herefordshire	Cheshunt

	Kingdom		
	United		
GB	Kingdom	Herefordshire	Cheshunt
	United		
GB	Kingdom	Glasgow City	Glasgow
	United		
GB	Kingdom	West Lothian	Blackburn
	United		
GB	Kingdom	Wrexham	Colemere
	United		
GB	Kingdom	Telford and Wrekin	Telford
	United		
GB	Kingdom	Northamptonshire	Northampton
	United		
GB	Kingdom	Northamptonshire	Northampton
	United		
GB	Kingdom		
	United		
GB	Kingdom	Bedfordshire	Biggleswade
	United		
GB	Kingdom	Nottinghamshire	Wellingborough
	United		
GB	Kingdom	Buckinghamshire	Aylesbury
	United		
GB	Kingdom	Buckinghamshire	Stoke Mandeville
	United		
GB	Kingdom	Herefordshire	Cheshunt
	United		
GB	Kingdom	Herefordshire	Cheshunt
	United		
GB	Kingdom		
	United		
GB	Kingdom	Slough	Slough
	United		
GB	Kingdom	West Sussex	Heyshott
	United		
GB	Kingdom	Wokingham	Farnham
	United		
GB	Kingdom		
	United		
GB	Kingdom	Staffordshire	Saint Helens
	United		
GB	Kingdom	Portsmouth	Portsmouth
	United		
GB	Kingdom	Oxfordshire	Warminghall
IE	Ireland	Cork	Cork
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Swords
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Ballyfermot
IE	Ireland	Offaly	Edenderry
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Dublin



IE	Ireland	Wicklow	Cloghoge
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Dublin
IE	Ireland	Westmeath	The Downs
IE	Ireland	Dublin	Dublin
IE	Ireland	Dublin	Dublin
IE	Ireland	Wicklow	Baravore
IE	Ireland	Dublin	Swords
IE	Ireland	Dublin	Rathcoole
IE	Ireland	Carlow	Kilcrrig Cross Roads
IE	Ireland	Dublin	Dublin
IE	Ireland	Carlow	Kilcrrig Cross Roads
IE	Ireland	Dublin	Brittas
IE	Ireland	Dublin	Rathcoole
IE	Ireland	Dublin	Dublin
IE	Ireland	Carlow	Kilcrrig Cross Roads
IE	Ireland	Dublin	Dublin
IE	Ireland	Wexford	New Bridge
IN	India	Karnataka	Bangalore
IN	India	Karnataka	Bangalore
IN	India	Tamil Nadu	Madras
IT	Italy	Sardegna	Alghero
JP	Japan	Tokyo	Yodobashicho
JP	Japan	Tokyo	Tokyo
JP	Japan	Kanagawa	Yokohama
JP	Japan	Tokyo	Kami-meguro
MY	Malaysia	Pulau Pinang	Glugor
NL	Netherlands	Noord-Holland	Haarlem
NL	Netherlands	Zuid-Holland	Leiden
NL	Netherlands	Zuid-Holland	Rijswijk
PH	Philippines	Bulacan	Kaybiga
RO	Romania	Cluj	Cluj
RO	Romania	Bucuresti	Bucharest
US	United States	Michigan	Sterling Heights
US	United States	Georgia	Macon
US	United States	Massachusetts	Holbrook
US	United States	Colorado	Denver
US	United States	Florida	Tampa
US	United States	North Carolina	New Bern
US	United States	Alabama	Albertville
US	United States		
US	United States	Wisconsin	Baraboo
US	United States	Utah	Salt Lake City
US	United States	California	Pleasanton
US	United States	Hawaii	Honolulu
US	United States	New York	New York
US	United States	Missouri	Brazeau
US	United States	Washington	Pullman