Table of Contents

III. Appendix

1. Introduction

Access to information, its generation and distribution are becoming crucial in a globalized, networked world. In only a few years, the Internet has become our most popular public library, shopping mall, business platform and news-stand. Information and communication technologies (ICTs) and their components form the infrastructure of our lifes, which we organize increasingly with the help of digital devices. Computers manage the production of goods of all kinds, they regulate human telecommunication and administrate data flows. Due to this central position, ICTs play a key role in economic, cultural and social development. But access to ICTs is not evenly distributed. There is widespread concern that the explosive growth of the Internet is exacerbating existing inequalities between (information) rich and (information) poor. This problem is being referred to as the "digital divide". The majority of the world population, mostly located in the southern hemisphere, does not have access to ICTs.

Since the mid-1990s, the digital divide appeared on the political agenda. The new forms of communication technologies are viewed as powerful tools to enhance productivity and prosperity. Governments, non-governmental organizations (NGOs), civil society organizations (CSOs)[1] and the private sector are engaged in the field of digital divide related issues. The underlying assumption of their involvement is that by improving access to ICTs, living conditions, political democratization and equal opportunities would also improve. Also, the World Summit on the Information Society (WSIS) indicates that access to information and knowledge and the design of digital data spaces, especially of the Internet, is becoming a priority. Since 2002, the International Telecommunication Union (ITU), an UN-agency, has organized a number of conferences in the scope of the summit, which took place in two phases in 2003 and 2005 in order to discuss political, cultural and economic frameworks of a world that is increasingly adapting digital technologies. Possible ways to more widely distribute access to computers and the Internet are an important part of the summit.[2]

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1 When referred to NGOs/CSOs in the frame of this master's thesis, organizations with a background in human rights works are meant. Cp. Adloff, Frank (2005): Zivilgesellschaft. Theorie und politsche Praxis. Frankfurt/Main.

2 Cp. Kleinwächter, Wolfgang (2004): Macht und Geld im Cyberspace. Wie der Weltgipfel zur Informationsgesellschaft (WSIS) die Weichen für die Zukunft stellt. Hannover.

The digital divide features a wide array of aspects: social implications, high cost and lack of access to computers and connectivity, small bandwidth and language barriers that make the use of Internet-based information impossible are amongst them. Software, which lets computers and every other digital communication device operate, is a central component of ICT. Software serves as an interface between man and machine, as well as between man and man. Therefore, one would expect that software politics, its economics and social and cultural implications play a major role in the discourse.[3]

This work examines to what extent free/open source software (FOSS) policies are integrated into the development policy discourse about the global digital divide. The focus of this master's thesis will be on the Latin American region.

Development model, economy and culture of free and open software follow different principles than proprietary code. FOSS uses special licences, allowing the free distribution and adaption of the software and of source code. Source code is the "DNA" of software; it is text written in a higher programming language, consisting of commands in this language and readable by humans. Creation of economic value is not generated by selling licences, but by providing services in the form of customization or on-demand production. Popular FOSS-programs are the Firefox Browser, the office software OpenOffice or GNU/Linux-based operating systems like Debian. In the proprietary software model, e.g. the Microsoft operating system Windows XP or the office application Word, the source code is not distributed. Proprietary software generates profit for the most part by selling licences.

This work has two major hypothesis. Firstly, it argues that until very recently, the choice of the software model has played an only marginal role in the discussion about lack of access to ICTs in poor and economically disadvantaged countries. The parties participating in the discourse such as NGOs/CSOs, political decision makers and academics focusing on digital divide related issues have not put the nature of program code at the top of their agendas. The digital development policy discourse, which has

[3] This master's thesis speaks broadly of software. Certain key components, such as operating systems, office software, email-programs or application programming interfaces – in short: software with mass deployment – is meant.

been conducted for ten years, has lacked awareness of FOSS. Instead, overriding importance has been put on the physical availability of ICTs.

The second central assumption is that most recently, the question of the software model is increasingly getting attention, especially in the Latin American region. The focus of this master's thesis results from newly emerging developments. Since 2003, the government of Brazil has started to work with FOSS as an important element to bridge the digital gap.[4] In the frame of arguments concerning Intellectual Property Rights (IPR) systems, free and open code plays an increasing important role as well.[5] The government of Brazil takes a key position in this issue.[6]

This work argues that mere access to ICTs is of little benefit if they cannot be used in a meaningful manner. I will point out that it is not a sustainable approach to exclude software politics from concepts concerning the digital divide. There are compelling arguments why FOSS is of great use in this issue: it fosters technological independency, it is freely available and its openness allows access to the information engineering skills of the most developed countries. Its openness is another advantage with regards to language barriers. Proprietary software is being produced only in those languages and writing systems which promise to be economically profitable. Thus, there is often no translation into languages spoken mainly in countries with limited economic resources. Because FOSS comes with the source code, it offers the opportunity to translate the software into any language. It has the potential to distribute access to (digital) wealth more evenly. Free/open source software acts fair.

To verify the hypothesises of this work, two methods will be used. The analysis of publications focusing on digital divide related issues shall bring first insights to what extent FOSS is integrated into the development policy discourse about the global digital divide. The analysis of qualitative interviews with Latin American FOSS-activists working in digital divide related issues constitutes the core of this master's thesis.

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4 Cp. Dibbel, John: We Pledge Allegiance to the Penguin. Wired, November 2004, pp. 190-197.

5 Cp. Lessig, Lawrence (1999): Code and other Laws of Cyberspace. New York and Ghosh, Rishab Aiyer (2005): Code. Collaborative Ownership and the Digital Economy. Cambridge.

6 Cp. Grassmuck, Volker: Auf dem Weg zu einer entwicklungspolitischen Ausrichtung. IRights, April 20, 2005, available at http://www.irights.info/?id=381.

The first part of this work lays out the theoretical groundwork. Chapter 2 outlines Manuel Castells "informationalism-theory". The sociologist has analysed a vast number of empirical data and concludes that through the impact of digital ICTs, a new, global social structure is forming. Economy, society and culture are increasingly being structured in and through networks, with fatal consequences for those societies and groups which are excluded from this development due to a lack of digital infrastructure. Castells theory is sketched out to demonstrate the social dimensions of ICTs and their impact on development. Chapter 3 outlines the current state of the research concerning the digital divide. The optimistic perspectives attached to bridging it will be critically examined. Also, the controversy whether or not the digital divide is relevant in connection with development policies will be discussed with reference to Castells' findings.

Chapter 4 explores the nature of program code. Why does software matter? What exactly is free/open source software? Definitions, economy, culture, philosophy, a brief summary of its history and areas of its application will be described. A particular focus is put on the relation between FOSS and the different aspects of the digital divide. How can poor and developing countries benefit from this kind of program code? Emphasis is put on the Brazilian approach for digital inclusion. Obstacles that make the mainstreaming of FOSS in developing nations difficult will be discussed as well.

The empirical part of this master's thesis will test the hypotheses. Chapter 5 analyses academic book publications concerning digital divide related issues. Do the digital divide studies[7] focus on software issues? This is being done in order to indicate dominating trends. Chapter 6 describes the theoretical basics of qualitative interviewing. In the following, the analysis of the interviews shall generate meaning and give answers to the questions which arose in the context of this work.

The focus of this master's thesis is designed broadly, because the developments in question are very recent. Little literature and few resources are available. Thus, the method of interviews with practitioners who work in FOSS and digital divide related issues was chosen. This design makes it possible to indicate trends and, more importantly, to explain them.

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[7] The term "digital divide studies" includes academic disciplines working on issues concerning lacking access to ICTs in the frame of development policy.

I. THEORETICAL GROUNDWORK

2. The Information Age: Economy, Society and Culture

Manuel Castells' reputation as *the* sociologist of the Internet age is due to his three-volume work "The Information Age: Economy, Society and Culture"[8]. It presents an array of data, studies and observations in order to show that under the impact of digital ICTs, the world's societies are experiencing a process of massive transformations. According to Castells, economy, production, work, identity, social movements, political power, culture, even space and time are changing. The first volume "The Rise of the Network Society" describes the functioning of networks and their effects on social processes. Volume 2, "The Power of Identity" examines the interaction of networks with the formation of the self. Volume 3 "End of Millennium" interprets the historical transformations of the declining 20th century, especially the fall of communism, as a result of the hypothesises postulated in the first two books. The core of Castells' globalization theory is the assumption that technological innovation implies a social dimension: technology is – amongst other influences – a fundamental dimension of social change.[9] Castells writes that in the information age, fixed structures, routines and hierarchies (the dominant forms of organization in the industrial age) dissolve into flexible networks. According to Castells, the triumph of the network organizations are deeply connected with the rapid development of ICTs, which started in the 1970s. The industrial age with its paradigm of industrialism is coming to its end. A technological paradigm is a conceptual pattern that sets standards of performance. It organizes the available range of technologies around a nucleus that enhances the performance of each one of them. Castells sees "informationalism" as the new technological paradigm. It serves as a basis for the network society. These theoretical figures and their significance for the

[8] The Spanish-born Castells published the trilogy from 1996-1998. He is professor of sociology and professor of city and regional planning at the University of California, Berkeley.

[9] Castells' approach is subject to criticism; e.g. systems theorists of the Niklas Luhmann school put communication in the center of social theory; critical social theory regards the struggle between classes as crucial for social change.

digital divide are going to be examined in the following chapter.

2.1. Technology forms Society

Technological innovations like the steam engine or the mechanical loom are regarded as initial triggers of the industrial revolution in the 18th century. In its course, the industrial paradigm became dominant: this paradigm is characterized by its capacity to generate and distribute energy by artefacts, independent of the natural environment. Under the influence of industrialism, work and production came to be organized differently, cities and nation states emerged, mass media appeared and arts and culture detached from their religious context and became consumer products[10]. In short: the paradigm of industrialism formed a new social structure and thus transformed the people's daily lifes. Values, norms and culture were being reconfigured.

2.2. The Paradigm of Informationalism and the Rise of the Network Society

Castells claims the end of the domination of industrialism. He adopts the definition of the current technological-economic paradigm from Christopher Freeman[11]:

> *"A techno-economic paradigm is a cluster of interrelated technical, organizational, and managerial innovations whose advantages are to be found not only in a new range of products and systems, but most of all in the dynamics of the relative cost structure of all possible inputs to production.* In each new paradigm a particular input or set of inputs may be described as the 'key factor' in that paradigm characterized by falling relative costs and universal availability. *The contemporary change of paradigm may be seen as a shift from a technology based primarily on cheap inputs of energy to one predominantly* based on cheap inputs of information derived from advances in microelectronic and telecommunications technology." [12]

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10 In 1936, Walter Benjamin has written a key-text on the changing role of art in the context of industrialized mass-production. Cp. Benjamin, Walter (1969): The Work of Art in the Age of Mechanical Reproduction. In: Ahrendt, Hannah (ed.): Illuminations. New York, pp. 217-252.

11 Christopher Freeman is a leading English economist focusing on technical change in economic theory, the diffusion of generic technologies and their future implications as well as structural change in the world economy.

12 Castells, Manuel (2000): The Rise of the Network Society. Second Edition. Oxford, pp. 69-70. Cit. in: Freeman, Christopher: Preface to Part II. In: Dosi, Giovanni et. al. (1988): Technical Change and Economic Theory, p. 10. Emphasis in the original.

For Castells, the quoted developments in microelectronics and telecommunications technology are revolutionary. Genetic engineering and the interaction between these areas are also part of the foundations of this informational paradigm, in which software plays a key role:

> *"Software development is the critical technology to operate the whole system, but integrated circuits hold processing power in their design."* [13]

The following innovations, all made in the 1970s of the last century, initiated the new paradigm, which Castells named informationalism[14,15]:

- the Internet-predecessor Arpanet (1969)
- the development of the Internet-protocols TCP/IP (1973-1978)
- the Personal Computer (1974)
- the publishing of the UNIX-Code (1974)[16]
- the microprocessor (1978)
- USENET News (1979)[17]
- the development and distribution of new programming languages for PC's, e.g. Basic or Mbasic from Bill Gates and Paul Allen, the later founders of Microsoft

All these innovations became integrated in people's every day lives, at least in the developed countries.

2.2.1. Informationalism versus Information- and Knowledge Society

Informationalism is based on the enhancement of the human capacity in the generation and distribution of information in microelectronics and genetic engineering. Cas-

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13 Castells, Manuel (2001): Informationalism and the Network Society. In: Himanen, Pekka: The Hacker Ethic and the Spirit of the Information Age. London, p. 160.

14 Fundamental innovations (such as the first computers Colossus, Z-3 and ENIAC) were made in the first half of the 20th century. But these innovations were substantially improved and widely adopted only much later, in the 1970s. Therefore, Castells locates the birth of informationalism in the later decade.

15 Cp. Castells (2000: 38-51) and Castells (2001: 172).

16 Originally UNICS, Uniplexed Information and Computing System, an operating system for computing systems, which is today being used in different models on devices such as PCs or supercomputers.

17 A mailbox-system messenger service.

tells regards this new paradigm as technical.

> *"Informationalism is a technological paradigm. It refers to technology, not to social organization and not to institutions."* [18]

The main characteristic of the network society is *not* the central role of knowledge and information, because these values have always been crucial to humankind. (Without the knowledge on how to build public infrastructure, the Roman Empire would not have been possible.)

That is why Castells does not use the terms "information society" or "knowledge society". Instead, he speaks of the *informational society,* in order to express that in the network society, the *generation, procession* and *distribution* of knowledge and information is being transformed through the widespread use of ICTs. As a consequence, knowledge and information are becoming an increasingly significant source of power and influence.

> *"In the industrial mode of development, the main source of productivity lies in the introduction of new energy sources, and in the ability to decentralize the use of energy throughout the production and circulation processes. In the new, informational mode of development the source of productivity lies in the technology of knowledge generation, information processing, and symbol communication."* [19]

He argues that in every part of society, new social and organizational structures are emerging.

2.2.2. Characteristics of Informationalism

Castells defines five characteristics of the new paradigm, which form the material basis of the network society[20]:

1. *Information is the raw material of the new paradigm.* The new technologies act on information, and information acts on technology.
2. *The pervasiveness of the new technologies.* Information is an integral part of all human actions. All processes are directly shaped (although not determined) by the new technological mediums.

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18 Castells (2001: 158).
19 Castells (2000: 16-17).
20 Castells (2000: 70-72).

3. *Networks follow their own logic.* Systems which are structured in networks are well adapted to the increasing complexity of interaction and to unpredictable patterns of development arising from the creative power of such interaction. After Metcalfe's Law, the value, or utility, of a network equals approximately the square of the number of users of the system. Networks function in a binary mode; either you are in- or excluded.
4. *Flexibility.* Networks can transform their structure without damaging the organization itself.
5. *The growing convergence of specific technologies into a highly integrated system* (e.g., Voice over IP; doing phone calls over the Internet etc.).

2.3. Feature of the Network Society

In the first volume of his trilogy, Castells describes – on the basis of countless empirical studies – the rise of the network society and its different characteristics. His findings and hypothesises will be outlined in the following pages.

2.3.1. The New Economy: Informationalism, Globalization, Networking

The economy of the information age is *informational, global* and *networked.* Informational, because productivity and competition (be it between companies, regions or nations) depend on their capacity to generate, process and apply knowledge-based information. It is global, because production, consumption, and circulation, as well as their components (capital, labour, raw materials, management, information, technology, markets) are organized on a global scale. It is networked, because productivity and competition are performed in networks of global business players. The infrastructure of these new organizational forms is provided by the new technologies.

Another important feature is that information itself – IPRs in the form of copyrights and patents – becomes a much contested trade commodity.

Castells refers to Immanuel Wallerstein[21], who has proven the existence of a world economy (where capital and goods are traded over national borders) since the 16th century. The new feature of our current global economy is defined by Castells as...

> *"...an economy with the capacity to work as a unit in real time, or chosen time, on a planetary scale."* [22]

Different factors have led to this development. Firstly, the *interdependence of financial markets*, consisting of the following elements[23]: The deregulation and liberalization of financial markets, and the increase of currency trading, which has undermined the autonomy of governments in monetary and fiscal politics. The establishment of a technological infrastructure, which has made global data transfers in real-time (e.g., electronic stock markets such as NASDAQ) possible, has had an impact. New, computer-generated financial products, such as derivatives or hedge funds, which combine currencies, goods and stock values from various countries and thus make them interdependent, are also part of the new developments. Castells calls the globalization of the financial markets the backbone of the new global economy.

Secondly, Castells describes the *globalization of markets for goods and services* as another key factor. After the fall of communism and far-reaching harmonization of national trade rules (through institutions like the World Trade Organization (WTO), the World Bank or the International Monetary Fond), the flow of capital and goods has increased in speed and extend. This has led to an internationalization of production. Multinational corporations and international production-networks have developed, which are mostly managed from the economically dominant countries. Thirdly, an increase of *informational production and a selective globalization of science and technology* has taken place: generation of knowledge and technological capacity are key tools for competition between companies, organizations of all kinds, and eventually between nations. The empirical data quoted by Castells indicates that while research and science are increasingly organized in global networks, most of the "knowledge-centers" are concentrated in only a few countries and/or regions. Fourthly, a *new work structure* has emerged. Work is locally organized, except for a small but influential minority of high-

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21 US-American sociologist focusing on economy on a macroscopic level.
22 Castells (2000: 101).
23 Cp. Castells (2000: 102-135).

skilled experts. Work itself becomes flexible and loses institutional protection.[24] Fifthly, according to Castells, *the global economy is selective and promotes social exclusion.* Every country of the world depends on the global economy, but the largest part of economic activity takes place in OECD-countries[25]. There are regions and whole countries which hardly have any ties to the global economy. This leads to imbalances and social exclusion.

> *"...while dominant segments of all national economies are linked into the global web, segments of countries, regions, economic sectors, and local societies are disconnected from the processes of accumulation and consumption that characterize the informational, global economy."* [26]

This marginalization plays a key role in the concept of the digital divide.

2.3.2. The Network Enterprise

Castells social theory is based upon the assumption that cultures manifest themselves through their embeddedness in institutions and organizations. Corporate culture and working conditions are transformed under the dominance of the informational paradigm, and this has effects on society. The studies quoted by Castells indicate that the formerly favoured model of hierarchically structured companies competing with each other is currently being replaced by network structures – even between rivalling companies.

> *"The horizontal corporation seems to be characterized by seven main trends: organization around process, not task; a flat hierarchy; team management on team performance; maximization of contacts with suppliers and customers; information, training, and retraining of employees at all levels."* [27]

The successful Cisco Systems business model is mentioned as a popular example.[28]

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24 See on the transformations of work as well: Sennett, Richard (1998): The Corrosion of Character. New York.

25 The "Organization for Economic Cooperation and Development" is for the most part constituted by economically powerful nations.

26 Castells (2000: 135).

27 Castells (2000: 176), cited in: Business Week (1993): The Horizontal Corporation. October 28. Emphasis in the original.

28 "Cisco applied to itself the networking logic it was selling to its customers. It organized in/around the Net all relationships with its customers, its suppliers, its partners and its employees, and, through excellent engineering, design, and software, it automated much of the interaction." Castells (2000: 181).

Notably, this company produces Internet routers. Corporations internationalize. Castells claims a fundamental paradigm change:

> *"For the first time in history, the basic unit of economic organization is not a subject, be it individual (such as the entrepreneur, or the corporation, the state). [...] the unit is the network, made up of a variety of subjects and organizations, relentlessly modified as networks adapt to supportive environments and market structures."* [29]

A "common cultural code" is holding these economic networks together.

> *"It is made of many cultures, many values, many projects, which cross through the minds and inform the strategies of the various participants in the networks, changing at the same pace as the network's members, and following the organizational and cultural transformation of the units of the network."* [30]

In short: postmodernity has reached the world of business.

2.3.3. The Culture of Real Virtuality

Similar to the transformation of human life caused by the introduction of the alphabet or the letterpress, digital ICTs influence our cultures and daily lives. Marshall McLuhans famous words "The medium is the message" are still valid in the age of Internet: not only the content a medium carries is important. The characteristics of the medium itself affect society. Digital interaction technologies create new social and political practizes. The social dimension of technology constitutes Castells' core argument: technology forms society. He talks of an emerging culture of "real virtuality", which, according to him, is already taking shape:

> *"The emergence of a new electronic communication system characterized by its global reach, its integration of all communication media, and its potential interactivity is changing and will change forever our culture."* [31]

The mass culture of the industrial age, centered around the mass medium television, fragments into consumer-tailored on-demand and/or interactive contents. Digital, non-hierarchical ICTs like the Internet are adopted by social groups and movements of every kind as a powerful tool to reach the public. The new technologies integrate multimedia features, allowing simultaneity and interactivity on a global level. This has effects on society.

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29 Castells (2000: 214).
30 Castells (2000: 214).
31 Castells (2000: 357).

> *"Every cultural expression, from the worst to the best, from the most elitist to the most popular, comes together in this digital universe that links up in a giant, non-historical hypertext, past, present, and future manifestations of the communicative mind. By so doing, they construct a new symbolic environment. They make virtuality our reality."* [32]

Organizations of all kinds which do not adapt to the new environments are loosing influence. The system requires adjustment to its own immanent logic and language.

2.4. Reality-Check Network Society

This master's thesis does not intend to examine Castells' findings in detail. Nevertheless, current events, studies and literature support his thesis of the emergence of a global network society based on ICTs. In 1990, a gigabyte of digital storage cost several hundred thousand dollars and occupied a room. Today, it fits on a credit card and has a modest price. Moore's law, named after its "discoverer" Gordon Moore, who later founded Intel, states that the computing processing power doubles every 18 months while the price remains stable. Moore's Law has proven to be astonishingly precise.[33]

Due to the growing significance of networks, researchers across all disciplines are working on their analysis.[34] The physicist Albert-László Barabási explored the functioning of technological, social or biological networks. He found mathematical proof that networks are organized according to universal laws – independent of the network's nature.[35] His results correspond with Castells thesis, saying that: *"...networks will dominate the new century"*.[36]

A number of phenomenons point to a paradigmatic change towards informationalism. Jeremy Rifkins book "Access" predicts that under the influence of ICTs, the end of the industrial age and the classic capitalist model is approaching. Rifkin argues from an economic perspective and analyses the possible outcomes in the cultural sphere. According to Rifkin, *property* in material goods is becoming less significant. Instead, tem-

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32 Castells (2000: 403).

33 Borchers, Detlef : Vor 40 Jahren: Electronics druckt Moores Gesetz. Heise, April 19, 2005, available at http://www.heise.de/newsticker/meldung/58713.

34 Rauner, Max: Ziemlich verknotet. In: Die Zeit, February 26, 2004, p. 33.

35 Barabási, Albert-László (2003): Linked. How Everything is Connected to Everything Else and What it Means for Business, Science, and Everyday Life. Cambridge.

36 Barabási (2003: 7).

porary *access* to goods, experiences and especially to intellectual property and services is going to become the new source of wealth.

The classic buyer–seller relation is substituted by a user–supplier respectively client–server relation. In line with Castells, Rifkin states that for those who are excluded from economic, cultural, digital or political networks, important doors remain closed. Local markets are being replaced by global, flexible networks which provide access to goods, experiences or services. Rifkin warns that software, pharma, computer and telecommunication companies as well as transnational media conglomerates could act as "gatekeepers" for access to knowledge, content and information in a manner that damages the public good.

> *"In the era of networks, suppliers who amass valuable intellectual capital are beginning to exercise control over the conditions and terms by which users secure access to critical ideas, knowledge, and expertise."* [37]

The current struggle about the future of the World Intellectual Property Organization (WIPO) supports Rifkins warnings. WIPO is an UN-agency in charge of designing international rules concerning patents, trademarks and copyrights. The organization is massively criticized by poor and developing nations claiming that high barriers to intellectual goods hinder them in their development. IPRs reward rightsholders by giving them a temporary monopoly, allowing them to charge far higher prices than they could if there was competition. Although the ideas cannot be used by others temporarily and therefore follow-up innovations decelerate, society as a whole benefits, because intellectual property regimes create incentives for innovation. Critics argue that the permanent extension of IPRs in terms of time and scope (e.g. for mathematical algorithms, genes or plants) has perverted the system and actually hinders innovation. They claim that WIPO reflects the interests of the industrially advanced countries, respectively of their big corporations, more than the interests of the developing world.[38] As a matter of fact, the overwhelming share of patents and copyrights is held by companies and organizations which are based in the rich countries.[39] At WIPO, the country

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[37] Rifkin, Jeremy (2001): The Age of Access: The New Culture of Hypercapitalism, Where All Life is a Paid-For Experience. New York, p. 5.

[38] Cp. Stiglitz, Joseph E.: Intellectual-Property Rights and Wrongs. Daily Times, August 16, 2005, available at http://www.dailytimes.com.pk/default.asp?page=story_16-8-2005_pg5_12.

[39] Emert, Monika: Patt im Streit um die Zukunft der World-Intellectual Property Organization. Heise, April 14, 2005, available at http://www.heise.de/newsticker/meldung/58583.

of Brazil leads a group of economically disadvantaged countries trying to modify the agency's attitude of promoting the extension of IPRs-systems regardless of development aspects. This approach bears the label "development agenda". It aims to make WIPO implement concepts of IPRs that have the potential to benefit poor countries as well.[40]

The WSIS shows as well that the Internet can't be reduced to a mere communication medium, but is having fundamental consequences for every aspect of human life and the role of the nation state in a globalized world. In the frame of the summit, issues like freedom of expression on the Internet, eCommerce, digital divide related issues, eGovernment, security, IPR, domain names, root servers[41], software, privacy rights, spam and much more are subject of negotiations. Wolfgang Kleinwächter[42] explains the background of the WSIS:

> *"It was and is all about: who will control the key resources of the information age, who gets access to the 'raw material information'. And it is about how a society completely globalized by the Internet (re-)organizes politics, economy, and culture. At the center of the WSIS are fundamental political and economical interests."* [43]

A number of economic, political and cultural phenomena show that a globally connected world, in which access to information and knowledge becomes crucial, functions according to different rules than the industrial world.

2.4.1. Economy

In the era of knowledge and information, one main condition of economics does not apply: *these goods grow by sharing.* In digital data spaces, the transaction costs of information is almost zero. There is no shortage of supply. This shortage has to be created artificially. Traditional (analogue) business models fail to grasp this situation.[44]

40 Cp. Grassmuck (2005).

41 The root servers contain the IP addresses of all the Top Level Domains registries - both the global registries such as .com, .org, etc. and the 244 country-specific registries such as .fr (France), .cn (China), etc. This is critical information. If the information is not 100% correct or if it is ambiguous, it might not be possible to locate a key registry on the Internet.

42 Wolfgang Kleinwächter is professor for International Communication Policies at university of Aarhus and participant of the WSIS process.

43 Kleinwächter (2004: 2).

44 Rainer Kuhlen, who holds a chair in information ethics, analyses in his essay "Napsterisierung versus Venterisierung – Bausteine zu einer politischen Ökonomie des

The ongoing argument over digital peer-to-peer (p2p) systems may serve as an example: network based p2p systems, formerly Napster, today Gnutella or Bittorrent[45], allow the copying and sharing of media content on a global level, leaving the media content industry in sheer terror. So far, the billion dollar media content industry was unable to stop the spread of these program codes, sometimes written by teenagers in their spare time. As a result of this conflict, copyright systems worldwide are being adjusted to the new conditions. Led by the WIPO and the WTO, national copyright systems are subject to reforms and harmonization. The German copyright system is currently in the process of renewal[46], the USA already changed theirs with the introduction of the Digital Millennium Copyright Act (DMCA).

The fight about the introduction of software patents into the European Union and elsewhere also shows that the discussion about IPR has reached a new quality.[47]

The initiative Creative Commons (CC)[48], founded by Stanford law professor Lawrence Lessig, is a progressive attempt to adjust copyright regimes to the needs of a society in which exchange of and access to information of all kinds is crucial. With CC-licences, copyright-holders can exert their rights more flexibly. Within certain rules, consumers are allowed to use and distribute CC-media content. This copyright is currently in effect in 15 countries, 13 are working on its implementation. On estimate, there are more than 4 million CC-licensed Websites.[49] The "CC Developing Nations 2.0" licence is designed to the special needs of developing nations.[50] Initiatives from the academic sector promote free access to immaterial goods as well; the so-called "Open Access" movement promotes a flexible handling of copyright concerning scientific literature and

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Wissens" the changing role of knowledge and information in relation to the economy. In: PROKLA – Zeitschrift für kritische Sozialwissenschaft. Nr. 32, April 2002, pp. 57-88.

45 Thompson, Clive: The BitTorrent Effect. In: Wired, January 2005, pp. 150-153, pp. 178-179.

46 Sietmann, Richard: "Das Urheberrecht kennt kein Recht auf Privatkopie." Ein c't-Gespräch mit Justizministerin Zypries und Ministerialdirektor Hucko über geistiges Eigentum, Patente und Urheberrecht. In: c't 16/2004, pp. 158-163.

47 Krempl, Stefan: Digitale Erfindungen. Wie lassen sich Ideen von Programmierern angemessen schützen? In Brüssel tobt ein Machtkampf um die Patentierbarkeit von Software. In: Süddeutsche Zeitung, March 18, 2005, p. 13.

48 http://creativecommons.org.

49 http://search.yahoo.com/cc.

50 The License allows the free copying, distribution, modification, display and performance of a work of art, but these rights may only exercized in developing nations. Cp. http://creativecommons.org/licenses/devnations/2.0/.

materials.[51]

Companies and organizations which depend on information flows and which manage to adapt to the network logic can benefit from all these new conditions, e.g. the search engine firm Google[52], the digital auction house Ebay[53] and companies which deal in FOSS[54].

2.4.2. Politics

The rapid increase and intensification of transnational interactions takes the interconnection of different societies to an unprecedented extend. The nation state loses significance and has to transfer competencies and political power to supranational organizations, e.g. to the European Union. The WTO and the WIPO set up the rules for trade between nations and therefore deeply influence the daily lives of the people around the globe. This leads to a more globalized conception of politics.

Social and political movements are coordinating themselves with the help of ICTs as well. The transnational activities of Transparency International[55], an NGO devoted to combating corruption, or of Indymedia[56], a media collective operating on a global scale, are made possible to a large extend by the new networking technologies.[57] The terror network Al Kaida uses the Internet to communicate and coordinate its bloody work.[58] The growing independence from time and space is the operational basis of these organizations and ensures their influence. In this context, the political philosophic empire/

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51 Cp. the "Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities". Max Planck Society, available at http://www.zim.mpg.de/openaccess-berlin/berlindeclaration.html.

52 Google uses an algorithm called PageRank to rank web pages. The PageRank derives from human-generated links, and correlates well with human concepts of importance.

53 http://www.ebay.com This online auction house is organized non-hierarchical: everybody can trade with everybody.

54 For details, see chapter 4.

55 http://www.transparency.org/.

56 http://www.indymedia.org.

57 See Kreye, Andrian (2002): Berichte aus der Kampfzone. Die globalisierte Welt und ihre Rebellen. München, p. 278 and Klein, Naomi (2002): Fences and Windows. Dispatches from the Front Lines of the globalization Debate. New York, p. xv.

58 Leyendecker, Hans/ Flottau, Heiko: Schlag gegen die Propaganda-Maschine. Wie kein anderer Al-Qaida-Aktivist nutzte der getötete Saudi al-Mukrin das Internet zur Verbreitung seiner mörderischen Ideologie. In: Süddeutsche Zeitung, June 21, 2004, p. 7.

multitude concept of Antonio Negri and Michael Hardt is interesting (taking aside their strenuous ideological rhetorics). Like countless other theorists, they try to explain the new world order. With the term "empire", the two neo-marxists describe a new virtual kind of power transcending the nation state. A conglomerate of governments, global players and institutions of the financial capital are forming the decentered and deterritorialized center of this virtual power.

> *"In contrast to Imperialism, Empire establishes no territorial center of power and does not rely on fixed boundaries or barriers. It is a* decentered *and* deterritorializing *apparatus of rule that progressively incorporates the entire global realm within its open, expanding frontiers. Empire manages hybrid identities, flexible hierarchies and plural exchanges through modulating networks of command."* [59]

The "multitude" constitutes the positive counterbalance to the empire within the empire. It is defined as a hybrid force, acting on a global level, resisting the exploiting powers of the empire. The vision of a protest movement which holds power through contingency seems to belong to the realm of romantic revolutionary fantasies. But it can bear the weight of reality: on the 15th February 2003, millions of people demonstrated in over 60 countries in over 600 cities against the imminent war in Iraq.[60] Such a manifestation of a global will has never taken place before.[61] This event wouldn't have been possible without digital ICTs.

2.4.3. Culture

The success-story of the online encyclopaedia-project Wikipedia[62] fits into the multitude-concept and into Castells "culture of virtual reality"-approach. It serves as an illustration of the increased influence of networked individuals on the basis of ICTs.[63] Wikipedia is a "Wiki", a freely editable Website, open to everybody with an Internet connec-

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59 Hardt, Michael/ Negri, Antonio (2001): Empire. Cambridge and London, p. xii – xiii. Emphasis in the original.

60 Staud, Toralf: Global Kids. In: Die Zeit, February 20, 2003, p. 6.

61 See as well Mann, James (2004): Peace Signs. The Anti-War Movement Illustrated. Zürich. This picture book is an impressing testimonial of the international component of the protests against the war in Iraq. It covers 200 posters, created by artists and activists coming from 22 countries.

62 http://wikipedia.org/.

63 See as well "Smart Mobs" from the visionary thinker of networked worlds, Howard Rheingold. Rheingold, Howard (2003): Smart Mobs. The Next Social Revolution. Cambridge.

tion willing to write new articles or to improve old ones. The project is actively and developed in over 60 languages. The computer magazine c't evaluated the German edition of the digital encyclopaedia in a large scaled test as superior to the Microsoft Encarta and to the Brockhaus.[64]

So-called weblogs, a kind of online-diary, filled with content by hobbyists as well as professionals, are beginning to exercise substantial influence in politics and the media. In recent time, there were some cases where traditional media had to give in to the pressure of popular bloggers.[65]

In fact, the omnipresent media evoke the impression of a small world, a global village, where everything is connected with everything. The French philosopher Jean Baudrillard claims the existence of "world events", which are becoming part of the worlds' collective memory. The death of Lady Di, soccer world cups or the terror acts of the 11th September 2001 – respectively their pictures – are, according to Baudrillard, events which are perceived across national borders, having great cultural relevance.[66]

All of these phenomena support Castells' thesis of a world deeply transformed by ICTs.

2.5. The Network Society, the Digital Divide and Software

In the first volume of his trilogy, Castells focuses not only on what the diffusion of new technologies mean for those inside of the newly emerging network structures.

> *"Economic units, territories, and people that do not perform well in this economy or that do not present a potential interest for these dominant networks are discarded."* [67]

The logic of Networks implies that their value increases with the number of participants. The more people provide useful resources, e.g. information within a network, the more valuable it gets. Due to this characteristic, negative effects of exclusion also

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64 Kurzidim, Michael: Wissenswettstreit. Die kostenlose Wikipedia tritt gegen die Marktführer Encarta und Brockhaus an. In: c't 14/2004, p. 38.

65 Möller, Erik (2005): Die heimliche Medienrevolution. Wie Weblogs, Wikis und freie Software die Welt verändern. Hannover. See as well Kreye, Andrian: Neues aus Troja. Mit einem Promi-Blog will die Publizistin Arianna Huffington ein Untergrundmedium für den Markt zähmen. Süddeutsche Zeitung, May 2, 2005, p. 19.

66 Baudrillard, Jean (2002): Der Geist des Terrorismus. Wien, p. 11.

67 Castells (2001: 169).

increase exponentially: the marginalized are switched off. Barabási talks of a *"rich get richer"*-effect within a network.[68] This creates a new *quality* in the eternal battle between rich and poor. The term digital divide is just another label for this old conflict. The global information network not only connects, it divides at the same time.

> *"The gap between the possessed and the dispossessed is wide, but the gap between the connected and the disconnected is even wider..."* [69]

writes Rifkin. In this context, software can be seen as a medium that enables political, cultural and economic relations and communications or, when a digital infrastructure is lacking, makes them impossible. (Chapter 4 will deal with this aspect in more detail.)

2.6. Summary

For Castells, technology is a fundamental factor of social change. Based on this assumption, he collects substantial proof that deep social transformations are taking place under the influence of digital ICTs. This development has been pushed by a new technological paradigm, which Castells named informationalism. The formerly dominant paradigm of industrialism is thus replaced. Informationalism revolutionizes the relevance of knowledge and information due to its three main features: its self-expanding processing capacity in terms of volume, complexity, and speed; its recombining ability and its distributional flexibility. Knowledge and information are becoming a trade commodity and a much contested source of power and influence. "*Mind over matter*" [70] writes Rifkin. Software plays a crucial role in this development, because it processes information.

Based on the new digital information infrastructure, new social, network-organized structures arise. National economies become increasingly interdependent through global financial flows, transnational trade and an internationalization of production; politics and social movements are expanding the scale of their activities on a more global level. The interactive, multimedia-capable communication technologies are influencing human interaction and are responsible for what Castells labels "virtualization of

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[68] Barabási (2003: 88).
[69] Rifkin (2001: 13).
[70] Rifkin (2001: 54).

culture". The network society emerges. The new technological, economic and social developments have a paradoxical core: The world is networked and divided at the same time.

> *"While the informational economy shapes the entire planet, and in this sense it is indeed global, most people in the planet do not work for or buy from the informational, global economy. Yet all economic and social processes do relate to the structurally dominant logic of such an economy."* [71]

Digital information networks like the Internet offer services and valuable information of all kinds: they function as libraries, market places and medical databases. They connect and coordinate social movements and shape political decisions. But not everybody has access to them. People, groups, institutions and whole nations, which are not integrated due to a lacking ICT infrastructure, are thus becoming isolated.

Networks have a binary logic: inclusion or exclusion. A divide opens between the *information rich* and the *information poor*. What the term digital divide means and what it implicates will be discussed in the following chapter.

[71] Castells (2000: 135).

3. Digital Divide

The Internet population has grown from about 3 million worldwide users in 1994 to more than 400 million in late 2000.[72] By the end of 2003, nearly 676 million people had access to the net.[73] The rapid growth of the Internet and the applications it makes possible have captured the imagination of people around the globe. This new communication technology is viewed as a powerful tool to enhance productivity and prosperity. This is supported by Castells informationalism theory, which claims that societies which manage to adapt to the new paradigm have greater chances to accumulate wealth and power:

> *"...the ability or inability of societies to master technology, and particularly technologies that are strategically decisive in each historical period, largely shapes their destiny."* [74]

But access to Internet-related ICT is not evenly distributed. In 1999, about 87% of people online lived in post-industrial societies.[75] Nevertheless, the developing nations are catching up. By late 2003, 36% of the people living in less developed areas were using the Internet. (But only five countries account for this improvement: Brazil, Mexico, China, Korea and India.)[76] With an estimated population of more than 550 million, only 44 million Latin Americans have access to ICTs.[77] This state of access inequality is referred to as the digital divide. A new policy issue has formed. It is often referred to as "Information and Communication for Development" (ICT4D) or "eDevelopment"-field. Because the Internet and everything attached is a new phenomenon, there is no widely accepted definition. In general, the term refers to a lack of access to ICTs respectively Internet-based information and knowledge. The dominating issues within the discourse are the distribution of physical IT-infrastructure and the belief that ICTs have positive effects on economic, cultural and political development.[78]

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72 Norris, Pippa (2001): Digital Divide. Civic Engagement, Information Poverty, and the Internet Worldwide. Cambridge, p. 5.

73 UNCTAD (2004): E-Commerce and Development Report 2004. New York and Geneva, p. 1.

74 Castells (2000: 7).

75 World Bank (1999): World Development Report 1999. Washington, D. C. p. 9.

76 UNCTAD (2004: xvii).

77 UNCTAD (2004: 2) The Caribbean is included in the figure.

78 For an economic perspective on the digital divide, see Kagami, Mitsuko/ Tsuji, Masatsugu/ Giovannetti, Emanuele (eds.) (2004): Information Technology Policy and the Digital Divide: Lessons for Developing Countries. Bodmin.

The discourse of the digital divide is closely linked with theories concerning the information and knowledge societies, claiming that access to ICTs is an important factor for individual personal success.[79]

This chapter outlines the different features of the digital divide. The discourse can be divided in three different modes of argumentation: the optimists claiming the new ICTs could strenghten the voice of the poor and developing nations and/ or of marginalized groups; sceptics who believe that new technology alone will make little difference; and pessimists who emphasize that digital technologies will further exacerbate the existing North-South divide.[80] The different positions will be outlined and critically discussed. The leading questions in this analysis are: Who engages in the debate? Should the digital divide be part of development policy at all? General trends, not specific cases will be discussed.

3.1. Multiple Divides

There is not only one divide – there are multiple divides. The global divide refers to the divergence of Internet access between rich and poor nations, the social divide describes the gap between information rich and information poor within the same country. There is a gender divide, as more men than women surf the net. In rural areas, there are fewer Internet connections than in cities. Language barriers are also part of the problem. 80% of the web content is written in English, a language understood by an estimated one in ten people worldwide.[81] This fact made the UNESCO start programs to create web content in multiple languages.[82] The term democratic divide signifies the difference between those who do, and those who do not, use the panoply of digital resources to engage, mobilize, and participate in public life. On a more practical level, lack of hardware, electricity, bandwidth, appropriate software, computer skills or high

79 Cp. van Dülmen, Richard/ Rauschenbach, Sina (2004): Macht des Wissens. Köln.

80 Cp. Norris (2001: 9).

81 UNESCO (1999): UNESCO's World Communication and Information Report 1999-2000. Paris, p. 68 and Taik Sup Auh (2001): Language Divide and Knowledge Gap in Cyberspace: Beyond Digital Divide. UNESCO, available at www.unesco.or.kr/cyberlang/auhtaeksup.htm.

82 See "Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace". UNESCO, available at http://portal.unesco.org/ci/en/ev.php-URL_ID=13475&URL_DO=DO_TOPIC&URL_SECTION=201.html.

cost for an Internet connection are part of the problem. A vast number of studies give empirical evidence of the digital divide, e.g.: the UNESCO's World Communication and Information Report 1999-2000[83], the UNDP Human Development Report 2001[84] or the UNCTAD E-Commerce and Development Report 2004[85]. Precise figures vary according to measuring methods. But the existence of the multiple divides can always be found in any of them. Poorly educated people with little financial resources have little chance to have access to ICTs.

But if this diverging access to ICTs should be a policy issue at all is not so clear, as the next point shows.

3.2. From Digital Divide to Social Inclusion

> *"We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth."* [86]

This quote from the "Declaration of the Independence of Cyberspace" from 1996 illustrates the beautiful hopes and shattered dreams connected to the medium Internet. Yes, misery and inequality ruled in the "meatspace". But in cyberspace, everything should be different. The Internet was even supposed to promote more justice in the world. This "techie-romanticism" can partly be explained through the evolution of the Internet. Even though the US-military financed the Internet-predecessor Arpanet, only a rare mix of academics, technicians, IT-professionals and enthusiasts made the network come alive. The Internet is a telecommunicative accident, created outside of economic or state control.[87] Only since it has become a mass medium, political and eco-

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83 UNESCO (1999).

84 UNDP (2001): UNDP Human Development Report 2001. Making New Technologies Work for Human Development. New York.

85 UNCTAD (2004).

86 Barlow, John Perry: A Declaration of the Independence of Cyberspace. Electronic Frontier Foundation, February 8, 1996, available at http://homes.eff.org/~barlow/Declaration-Final.html. John Perry Barlow is a cyberspace-visionary, a former member of the Grateful Dead and co-founder of the Electronic Frontier Foundation (EFF). EFF promotes citizens rights in digital data spaces.

87 For a detailed history of the Internet, see Abbate, Janet (1999): Inventing the Internet. Cambridge. For the evolution of the World Wide Web, see Berners-Lee, Tim/Fischetti, Mark (2002): Weaving the Web. The Original Design and Ultimate Destiny of the World Wide Web by Its Inventor. New York.

nomical interests shape the net as well. It is a distributed communication network with an egalitarian structure. In theory, everybody can be a sender or a receiver. The Internet offers promise for the delivery of basic social services such as education and health information across the globe. Local teachers or community officials connected to the digital world in rural Africa or Latin America can access the same electronic journals, books, and databases as students at the Sorbonne or Harvard. It is not surprising that the digital divide appeared quickly on the political agenda. The following quote by Kofi Annan, taken from the UNCTAD E-Commerce and Development Report 2004, illustrates the big hopes attached to ICTs and how they could serve as powerful development-tools.

> *"Information and communications technologies have considerable potential to promote development and economic growth. They can foster innovation and improve productivity. They can reduce transaction costs and make available, in mere seconds, the rich store of global knowledge. In the hands of developing countries, and especially small- and medium-sized enterprises, the use of ICTs can bring impressive gains in employment, gender equality and standards of living."* [88]

In her book "Digital Divide. Civic Engagement, Information Poverty, and the Internet Worldwide" Pippa Norris set out to examine the evidence for access and use of the Internet in 179 nations. According to her findings, the Internet didn't function as the great leveller, at least not in the 1990s.

> *"In the first decade, the availability of the Internet has therefore reinforced existing economic inequalities, rather than overcoming or transforming them."* [89]

On the contrary – a "rich get richer-effect" (Barabási) could be observed. Metcalfe's law rules once more. Norris criticizes the idealistic expectations within the discourse about the digital divide in the 1990s. An old mistake. Technology has always held a promise as an engine of economic growth for transforming developing nations – including machines for printing or agricultural machines – but critics argue that primarily the industrialized, rich world has benefited from the new opportunities.[90] These experiences should be taken into account when discussing the digital divide. Providing computers and Internet access will hardly overcome century-old poverty. Internet is new, global economic inequalities are not. In his essay "Who benefits from the digital

88 UNCTAD (2004: Foreword).

89 Norris (2001: 66).

90 For a good critique on "technological romanticism", see Chatterji, Manas (1990): Technology Transfer in the Developing Countries. London.

divide?", scholar Brendan Luyt critically examines the digital divide discourse. Why is this topic, although so recent, so popular on the political agenda? He asks: Why aren't there, for example, working groups on the "fair working conditions divide" and alike? His answer: because four major groups benefit from the digital divide as a policy-issue: information capital, developing country governments, the developing "industry" and global civil society. For information capital, political programs on the digital divide create further demand for its products as well as a possible provision of an educated workforce capable of producing those products in the first place. The states in the South benefit from the legitimation which is conferred upon them through programs designed to combat the divide. They offer not only new accumulation opportunities for their elites, this also holds the possibility of diffusing discontent over poor economic projects for the middle class, a volatile section of the population. The "development industry", which is currently suffering from a neo-liberal attack that view development as irrelevant in the modern world, benefits by offering its expertise in trying to solve just another source of inequality. Finally, CSOs also win, as they attempt to capture ICTs for their own increasingly successful projects.

Luyt doesn't deny that the lacking access to information networks could impair personal and collective development. But he insists on the interdependence of the different forms of social exclusions:

> *"...those wishing to use new ICTs for the benefit of those truly at the bottom of the global social and economic hierarchy need to re-construct the nature of the digital divide as a policy issue, to frame it as more than access, skills, or even content, but rather as part of a challenge to the global order itself so that solutions to the problem consciously tilt the balance of benefits away from those already privileged (information capital, the state, and the development industry) towards those currently excluded from not only new information and communication technology, but the basic requirements of a dignified human existence."* [91]

In his book with the paradigmatic title "Technology and Social Inclusion: Rethinking the Digital Divide" [92], Mark Warschauer calls, similar to Luyt, for a reform of the original concept of the digital divide, which attached overriding importance to the physical availability of computers and connectivity, rather than to issue content, language, educa-

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[91] Luyt, Brendan: Who benefits from the digital divide? First Monday, Volume 9, August 2004, available at http://www.firstmonday.org/issues/issue9_8/luyt/index.html.

[92] Warschauer, Mark (2003): Technology and Social Inclusion. Rethinking the Digital Divide. Cambridge.

tion, literacy, or community and social resources. The new emphasis within the discourse are referred to as "social inclusion" or "digital inclusion".

3.3. Summary

The digital divide discourse plays an increasingly significant role on the political agenda: governments, intergovernmental organizations, supra-national organizations, NGOs, CSOs, the private sector – they all are engaged in expanding participation in the famous information society. The parties involved hope that through technological diffusion, the use of the Internet could lead to social, economic and political development. If all the rosy perspectives attached to the ambitious plans to bridge the digital gap will come true can hardly be answered. Desired outcomes such as the promotion of democracy or the improvement of living conditions are difficult to measure. And after all, it's a recent phenomenon. But taking into account that technology transfer to the Third World has a history of promising much and fulfilling little, one may be sceptical. Hopes for progress via the spread of ICTs alone seem unrealistically high. In his essay "Cybergeography. Zur Morphologie des digital divide"[93], Andreas Greis warns of treating the digital divide as an isolated phenomenon. This is an accusation that can be read from Warschauers and Luyts critique as well. These authors suggest to broaden the concept of the digital gap. It is not just computers, its components and connectivity that are lacking. Social and educational aspects should be integrated into the discourse of the digital divide. Not having access to ICTs is just one of many facets of poverty.

Taken into account Castells' findings of the relation between economic performance and successful adaption to the new paradigm of informationalism (and economic dominance has always been connected to political and military dominance), the digital divide as a policy issue seems nonetheless justified. The network societies of the world rely on information. Exclusion from information enlarges old inequalities, as the follow-

[93] Greis, Andreas (2004): Cybergeography. Zur Morphologie des Digital Divide. In: Scheule, Rupert M./Capurro, Rafael/Hausmanninger, Thomas (ed.): Vernetzt gespalten. Der Digital Divide in ethischer Perspektive. München, pp. 37-50. The whole anthology provides an overwiew of the different positions within the debate about the digital divide.

ing quote taken from an UNDP study illustrates:

> *"The network society is creating parallel communication systems: one for those with income, education and literally connections, giving plentiful information at low cost and high speed; the other for those without connections, blocked by high barriers of time, cost and uncertainty and dependent upon outdated information."* [94]

Information-based services and products become an increasing significant source of wealth, as Castells, Rifkin and many others have pointed out. Therefore, the integration of ICTs into development policies is a reasonable claim. But it would be naive to expect that the Internet would magically transcend (information) poverty overnight.

[94] UNDP (1999): Human Development Report 1999. New York, p. 63.

4. Free/Open Source Software

If you are plugged into a computer and the machine confronts you with a reality which is completely indistinguishable from your own, is it any less real? In the movie "The Matrix", software programmer Neo is confronted with this question. He learns the hard way that his life was just a simulation made of bits and bytes. "The Matrix" is fiction, but in a certain way, we are close to the world envisioned by the movie. The proof that I am who I say I am is a piece of data stored in a government-run database; communication is mediated increasingly over the Internet and digital devices; people who work with ICTs regard data spaces as their working place. In the age of informationalism, digitalization and virtualization enter our daily lifes.

This chapter wants to raise awareness of the crucial role software plays in everyday life, at least in the developed countries. We are already moving in digital worlds that we access via software. Thus, it would be a mistake not to address software politics when dealing with the digital divide.

Free/open source software is a special kind of program code. Its characteristics will be defined. What distinguishes "free" from "open source" software? In which areas is it being used? The development model of FOSS as well as history, economics and philosophy of the movement will be outlined. This chapter aims to work out the advantages of FOSS applications in poor and developing countries. But the exterior and interior obstacles FOSS faces will be outlined as well.

4.1. Why Software Matters

Software is the immaterial component of a computer system, as opposed to the physical hardware. There are two different types: applications like office software or browsers, and the operating system respectively applications which are part of the operating system, e.g. file management applications. The "Brockhaus Computer and Information Technology" defines software as such:

> *"According to DIN 44 300 the whole or part of programs for computing systems, whereby the functioning of the computing system, their utility with respect to solving certain problems or additional modes of operation and application are made pos-*

sible by these programs and the characteristics of the computing system." [95]

Software consists of commands, written by humans, which tell the computer what do to. People write these commands in a higher-level programming language such as C++ or Java. This source code, in a way the "DNA" of the software, is being translated by a software-tool, the "compiler", into a lower-level language, the assembly language. Another tool, known as an "assembler", breaks the assembly code down to the final stage of machine language, which consists of the numbers zero and one. The computer understands this binary code natively. Machine language would look like this:

```
11100011111110000001100011110011101110000000000000000111000000
11001100100110011001101110001101011110000011000000011000111100
00000000111111110001100011110011101110000000111111110010101010 0
10000111110001111101100011110011101110001100111100000000100011 0
00001111111001100001100011110011101111110001111111110011011 0011
```

The soft good has a technological nature. In use, it unfolds social, cultural, and political power. Moreover, our world is increasingly defined by code. In digital information spaces like the Internet, every action consists of data flows which are subject to certain regulatory mechanisms. Norms, the market and the law have an effect on the cyberspace. But the code (software and protocols) or the architecture of the cyberspace, which constitutes it in the first place, acts as the most powerful regulation law. A law, interpreted by machines, which controls the human-made information flows much more profoundly than a juridical law ever could. *Code is law*. Lawrence Lessig develops these thoughts vividly in his book "Code and other Laws of Cyberspace".[96]

Software not only runs hardware, it also serves as a particular kind of knowledge. Software functions as a medium, as a container and a key for knowledge and information. If my computer lacks a browser, this key to the numerous Internet-based services, this information source stays inaccessible for me.

In the early days of the computer revolution, hardware manufacturers gave away software as a mere accessory. Today, where computers are ubiquitous, software is big business. The global market for software amounts to 60 billion US-dollars[97]. Lawrence

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[95] Brockhaus (2003): Computer und Informationstechnologie. Mannheim, pp. 818-819. For a more comprehensible definition of software, see: Wikipedia: Computer Software. Available at http://en.wikipedia.org/wiki/Computer_software.

[96] Lessig (1999).

[97] Business Software Alliance (2005): Piracy Study 2005. Washington DC, p. 11.

Lessig, Jeremy Rifkin and others[98] have already warned of monopolistic tendencies: those who own communication channels, digital content and code that constitutes data spaces, are able to exercise control over the conditions and terms by which users access ideas, knowledge, and information. Rifkin writes:

> *"Controlling ideas, in today's world, is more powerful than controlling space and physical capital."* [99]

Software matters.

4.2. Definition

This work uses the terms "free" software and "open source" software, unprecise, for many even contradictory terms. This is being done because there is no consensus which type of software belongs to which classification. Neither programmers nor the media nor the academic literature distinguish the terms clearly. In general, the community-freedom thought is more important in free software. "Free" refers to liberty, not to price. Open source is more frequently used in the realm of enterprises. The development respectively business model is of greater significance.

4.2.1. Free Software

The world of free software has its own culture and values, which are completely different from those of proprietary software. This can be explained with its four main characteristics: 1. the software can be run for any purpose, 2. the source code is freely accessible, it can be modified, it can be used for educational purposes, 3. the software can be distributed and copied without restrictions either gratis of for a fee, 4. it can be distributed and copied in modified versions. These characteristics are determined by special licences. In his book "Freie Software", Volker Grassmuck provides a good overview of the different licence models.[100] The homepage of the Free Software

[98] e.g. Drahos, Peter/Braithwaite, John (2002): Information Feudalism: Who Owns the Knowledge Economy? New York.

[99] Rifkin (2001: 55).

[100] Grassmuck, Volker (2002): Freie Software. Zwischen Privat- und Gemeineigentum. Bonn, pp. 275-306.

Foundation (FSF)[101] also gives useful informations and classifications. The most important licence is the General Public Licence (GPL)[102] by Richard Stallman, initiator of the GNU-project (see chapter 4.3) and founder of the FSF.

In contrast to proprietary software, the source code is made available to the software's users. This is important for software developers: adjustment, integration, debugging, and development of software is only possible on the basis of the source code. While with free software no licence fees may be charged, the model nevertheless provides commercial opportunities.

4.2.2. Open Source Software

Much to the dislike of the free software movement, the term "open source" exists since 1998. The key text that is accountable for the change in terms was delivered by Eric S. Raymond (publisher of the Hacker's Dictionary) in his essay "The Cathedral and the Bazaar"[103]. "Free" is ambiguous – free beer or free speech could be meant. And the corporate world associated the term with horrifying things such as communism. The Open Source Initiative (OSI)[104] was founded under the participation of Raymond. Its goal was to replace the term free software, coined at least 14 years earlier by Richard Stallman, with a term that would also be accepted by CEOs and stockbrokers. The plan has proven successful. But critics argue that the emphasis put on "open source" has worked against the spirit of this special kind of software. By putting the aspect of freedom in the background, a software licensing practice has come into effect that doesn't relate to the original idea of free software any more. Source code that is accessible and viewable but doesn't allow modifications can still be called open. The attempt of the OSI to register the trademark "open source" as a quality seal for software has failed. Today, many products carry the label "open source" without giving the freedom to modify. But this is contradictory to the OSI-guidelines.[105]

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101 http://www.fsf.org/licensing.
102 http://www.fsf.org/licensing/licenses/gpl.html.
103 Raymond, Eric S. (1999): The Cathedral and the Bazaar. Sebastopol.
104 http://www.opensource.org/.
105 Grassmuck (2002: 230-232).

4.2.3. Summary Definitions

Today, there is confusion when it comes to terms: Linus Torvalds, initiator of the free operating system Linux, uses the term "open source", although Linux is published under the GPL, and profit maximization has never been of interest for Torvalds. A current example is Kasper Skårhøj, who started the popular content management system TYPO3[106]. He also uses the GPL. He explains his turning away from the proprietary world with his Christian faith[107]. "Inspire to share" is his slogan. Skårhøj embodies the spirit of free software. He doesn't speak of it, but uses the term "open source software" instead. This phenomenon can be observed throughout the whole scene. The media and non-professionals use the term indifferently. This ongoing term-debate is subject to countless disputes, sometimes conducted with almost religious zeal. Because there is no consensus, this master's thesis uses both terms equally. In doing so, I follow a common practice. Software that matches OSI as well as FSF guidelines is meant.

4.3. History of the FOSS-Movement

The history of the FOSS-movement is well documented, therefore only a short summary will be given.[108] In the early days of computing, all software was open and free, simply because it didn't serve as a commercial good. The hardware manufacturers enclosed the code as a kind of manual for their machines. Extensions and modifications were written by the users. Sharing of code was a common practice. Starting in the 1970s, the ICT-revolution took shape, as described by Castells. Computers slowly became a mass product. The soft good turned into a profit-promising trade commodity. UNIX operating systems became proprietary and subject to commercial activities; software companies like Microsoft or Sun were founded. The culture of free information flows – the hacker-ethics (see chapter 4.4) – in the programmer-scene was pushed aside by the new spirit: suddenly, company secrets had to be protected. Source codes

[106] http://www.typo3.com/.

[107] Skårhøj, Kaspar (2004): Foreword. In: Altmann, Werner/ Fritz, René/ Hinderink, Daniel: TYPO3 Enterprise Content Management. München, p. 7.

[108] See Raymond (1999: 5-25), Grassmuck (2002: 202-232), Himanen (2001), Torvalds, Linus/Diamond, David (2003): Just for fun. Wie ein Freak die Computerwelt revolutionierte. München and Levy, Steven (1994): Hackers. Heroes of the Computer Revolution. New York.

were locked away, and at the beginning of the 1980s, almost all software was proprietary.

Hacker-legend[109] Richard Stallman did not want to put up with this situation and started the GNU project in 1984. The recursive acronym stands for "GNU's Not Unix" (nerd-humour). Stallman wanted to create a free operating system, functionally equivalent to UNIX, but without a single line of UNIX code, which was held by the company AT&T. He invited hackers via the Internet to take part in the project. In 1985, he founded the FSF in order to pursue his goals in a larger institutional frame. The central instrument to protect this expanding universe of free software was the GNU GPL, Stallmans most successful – juridical – hack.

The GPL includes in addition to the characteristics listed in chapter 4.2.1 a particular feature: the obligation to distribute the modified code *under the same conditions.* This condition prevents the privatization of free software and thus the loss of its freedoms. Any new software-project using bits of code that are under the GPL has to be released to the public. Stallmans GPL created the foundation for an emerging cosmos of free software. He is one of the central personalities of the scene. In 1990 the GNU system was almost complete, except for the kernel.[110]

The Finnish information engineering student Linus Torvalds and his fellow programmers delivered the missing kernel in 1991. Torvalds was looking for an operating system he could afford and that would match his expectations. This wasn't available, so he developed his own. He worked with a Minix-base[111] and the software-tools delivered by the GNU project (C-Compiler, editors etc.). Torvalds invited interested Minix-users via the Internet to cooperate. In 1992 a stable kernel was developed. Torvalds put Linux under the GPL. Because a kernel alone is of little use, the growing community used the GNU system. If Linux was integrated as the last building block into the GNU system or vice-versa the GNU system components into Torvalds kernel is subject to personal preference.

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[109] The term hacker used to have a strictly positive connotation. It had nothing to do with computer crime. Simply, computerfreaks were meant. In the scene, intense typing into the keyboard was referred to as "hacking". "Cracker" would be the correct term for people who break into computing systems to do harm.

[110] A kernel is the central part of an operating system, it coordinates its vital functions.

[111] Minix is an operating system.

4.4. The Hacker-Ethic

People involved in FOSS have very heterogeneous intentions and ideals. For some, only the quality of software matters, some use it as a business model and some consider programming as a hobby. Linus Torvalds writes in his biography:

> *"Of course I have seen open source as a possibility to make the world a better place. But most of all, it is for me a possibility to have fun."* [112]

But GNU/Linux is not anti-commercial, to the contrary. Torvalds writes:

> *"Everybody can take part in open source. Why should the economy, which is responsible for such a big part of technological progress, be left outside – provided they play according to the rules? Open source simply helps to improve technologies developed by the industry. Maybe it can even tame corporate greed."* [113]

Others see their engagement for the software as a political practice. They want to have an effect on society[114]. Richard Stallman belongs to this category. He explains his passion in the following quote:

> *"Software hoarding is one form of our general willingness to disregard the welfare of society for personal gain. [...] We must start sending the message that a good citizen is one who cooperates when appropriate, not one who is successful at taking from others. I hope that the free software movement will continue to contribute to this: at least in one area, we will replace the jungle with a more efficient system that encourages and runs on voluntary cooperation."* [115]

Despite of the diversity and the different positions in the movement, values and norms such as free information flows and openness can be seen as unifying elements. "*Information wants to be free"* is a popular saying. A libertarian attitude is very common. The hackers' "jargon file", commonly written by them, defines hackers as people who *"program enthusiastically"*, believing that...

> *"...information-sharing is a powerful positive good, and that it is an ethical duty of hackers to share their expertise by writing open-source and facilitating access to information and to computing resources wherever possible".* [116]

In his book "The Hacker Ethic", Pekka Himanen investigates this very ethic. Steven

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[112] Diamond/Torvalds (2003: 177).

[113] Diamond/Torvalds (2003: 176).

[114] See Escher, Tobias (2004): Political Motives of Developers for Collaboration on GNU/Linux. Unpublished Dissertation. University of Leicester and Still, Brian: Hacking for a cause. First Monday, Volume 10, September 2005, available at http://firstmonday.org/issues/issue10_9/still/index.html.

[115] Stallman, Richard M. (2002): Free Software, Free Society. Selected Essays of Richard M. Stallman. Boston, p. 132.

[116] http://www.eps.mcgill.ca/jargon/jargon.html#%3D%20H%20%3D. This file is maintained by Eric S. Raymond. It has also been published as "The New Hackers' Dictionary".

Levy also has outlined the characteristics of the movement in his book "Hackers", which was published first in 1984. Various scientists claim that the hacker spirit has formed the Internet to a large extend. Their philosophy is considered the true secret behind the success-story of the distributed communication net.[117] For Castells, the rise of the Internet and the related rise of the network society is deeply connected with the hacker-ethics.[118] Hackers consider themselves something of an elite (a meritocracy based on ability), though one to which new members are gladly welcome.

This contrasts sharply with the gender relations in the movement: the "golden age of hackers" was male.[119] Today, there are still very few women hackers. According to a FOSS-study, only 1,1% of all FOSS-developers are female.[120]

4.5. FOSS-Development Model

Free and open source software is created within classic corporate structures, too. In this case, the development model is not different to those of proprietary software, e.g. there are regular superiors. Some projects are initiated by individuals and then released under a FOSS-licence. But the great share of free and open code is produced under the participation of the "community". The software is created as such: Developers, who are scattered around the world, write software together. They are working on it mostly in their spare time, often they don't get paid, and there are no superiors. Surprisingly, this work model produces software of such a high quality, that by now every company, organization or private person uses it in some form. Small companies or corporate players like IBM offer services for FOSS-solutions and make substantial profit.

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[117] van Schewick, Barbara (2004): Architecture and Innovation. The Role of End-to-End Argument in the Original Internet. Unpublished Dissertation. Technical University Berlin and Lessig (1999).

[118] Castells (2001: 155-178).

[119] Sollfrank, Cornelia: Woman Hackers. Old Boys Network, 1999, available at http://www.obn.org/hackers/text1.htm.

[120] Ghosh, Rishab Aiyer/ Glott, Rüdiger/ Krieger, Bernhard/ Robles-Martinez, Gregorio (2002): FLOSS: Free/Libre/Open Source Software Study: Final Report. Part IV: Survey of Developers. International Institute of Infonomics, University of Maastricht, available at http://www.infonomics.nl/FLOSS/report/Final4.htm.

Approximately 70% of the worlds' webservers run on Apache[121], the Firefox-Browser is very popular[122] and free Blogger software such as Wordpress or pLog are used worldwide. Corporations like VW or DaimlerChrysler work with the content management system TYPO3. The government of Brazil is trying to migrate its administration to GNU/Linux. The city of Munich is migrating its desktops to Linux.[123] FOSS is not a phenomenon of the margins. It is developed as such:

Usually, a developer initiates a project because he is not satisfied with the existing software solutions. He invites other programmers to contribute. The people involved coordinate themselves over the Internet (via mailinglists, wikis, newsgroups or chats). When the number of developers and users increases, a "core-team" forms. It consists of people who are familiar with the project, have extensively worked with it or have contributed largely. The core-team makes the decisions regarding the aims of the project, e.g. which features shall be included. Big projects are split up into smaller entities (packages), for which a "maintainer" is responsible. Maintainer (and core-team-members) are mostly good coders, acting as driving forces and motivaters, who can keep a community together. Dozens, sometimes even several hundred developers are working on a package. If a developer likes to participate, he has to register for the project in order to be reachable for other coders. The collection of source code lies in a directory which is called "repository". The programmer can download the packages in which he is interested in to his local hard-drive, modify it, and load the data back up in order to make it available for everybody else. There are special software instruments like concurrent versions systems-server (CVS), which coordinate the cooperative administration of source code.

Companies who benefit from a certain FOSS-project (because they offer service for the program or because they use it) are often involved in the project development in various ways: they employ programmers who work only for this project, pay freelance-programmers to solve a particular problem, or send employees to the core-teams.

Some projects give themselves the legal shape of a foundation in order to manage

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[121] McHugh, Josh: The Firefox Explosion. Wired, February 2005, p. 97.

[122] Market-share in Europe in July 2005: 14%. Spreadfirefox, available at http://www.spreadfirefox.com/?q=node/view/17306. See McHugh (2005) as well.

[123] Emert, Monika: Stadt, Land, Tux. Linux im Rathaus - der Stand der Dinge. In: c't 11/2004, p. 38.

donations or funds from sponsors. Volker Grassmuck describes organization and work flow of FOSS projects vividly.[124] The TYPO3 [125] and the Apache[126] homepages also provide a good overview.

In 2002, for the first time ever, the FLOSS Project[127] (Free/Libre Open Source Software, founded by the European Union) has provided a detailed analysis of FOSS usage and development in a large scale study. One of its findings was that hackers are not altruists. Moreover, the programmers benefit indirectly from expertise they gain by their involvement. Just two examples: Ward Cunningham, the man behind the Wikipedia-Software, has afterwards worked for Microsoft (!).[128] Blake Ross, mastermind of the Firefox-Browser, is now employed by Google.[129]

4.6. Reasons to Integrate FOSS-Policies into the Concept of the Digital Divide

In recent years, there is increasing use of FOSS. Public administrations all over the world are applying it, and the private sector integrates FOSS in their business strategies. The advantages of FOSS will be outlined with focus on less developed countries. It will be shown why the integration of FOSS-policies into the concept of the digital divide is a sustainable way to let more people benefit from ICTs. Free program code acts fair.

A detailed analysis needs to discuss critical aspects also. Thus, the problems free software is facing will be sketched out. Most of the general public continues to feel that FOSS is not appropriate for them. Suggestions will be made how these problems could be overcome.

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124 Grassmuck (2002: 233-258).

125 http://typo3.org/about/faq/.

126 http://www.apache.org/foundation/faq.html.

127 Ghosh, Rishab Aiyer/ Glott, Rüdiger/ Krieger, Bernhard/ Robles-Martinez, Gregorio (2002): FLOSS: Free/Libre/Open Source Software Study: Final Report. International Institute of Infonomics, University of Maastricht, available at http://www.infonomics.nl/FLOSS/report/index.htm.

128 Heuer, Stefan/ Trojan, Jörg: Die Dot-Kommune. In: Brand Eins, May 2005, p. 75

129 N.N.: "Die Welt wäre besser dran, wenn Google mehr Einfluss hätte." Spiegel Online, April 14, 2005, available at http://www.spiegel.de/netzwelt/technologie/0,1518,351134,00.html.

4.6.1. Skill Transfer into Poor and Developing Countries

The advantages of FOSS derive from its characteristics. Software is a product which makes the creation of collective knowledge possible. The FOSS-community provides an environment of intensive interactive skill development at little explicit cost, which is particularly useful for local development skills, especially in economically disadvantaged regions. The FOSS-community features a built-in incentive for a shift from being a recipient of skills to being a skills donor. These skills can improve chances in finding a job and can help create and sustain small businesses. This is one of the main findings of the FLOSS Report. Consequently, the so-called "brain drain", which the poor and developing countries suffer from, can thus be counteracted. It is a common problem that talented programmers have little chances to find jobs or adequate education institutions inside of their native country. So they leave their home country, because most (proprietary) software is being developed in the richer countries. But with FOSS, it is possible to take part in an ambitious software development project, collaborate with individuals from all over the world via the Internet, and then be able to live from the acquired skills. These programmers can offer service around the developed software – without leaving the country.

4.6.2. The Cost-Argument and Total Cost of Ownership

Then, of course, there is the cost-argument. The scholar Rishab Aiyer Ghosh compared proprietary software licence fees with a country's Gross Domestic Product (GDP) per capita (e.g. the average individual income)[130]. In developing countries, the price tag for proprietary software is enormous in terms of purchasing power. In a country like Vietnam, the cost for proprietary software (operating system Windows XP together with Office XP) equals over 16 months of GDP/capita. In Argentina, it is roughly one month's salary. FOSS is available for free.

But critics argue that although the software itself is gratis, one has to pay for support and customization. These services plus the licence are being referred to as Total Cost of Ownership (TCO). While TCO is an issue, one has to consider that in developing

[130] Ghosh, Rishab Aiyer: License Fee and GDP per Capita. In: i4d, October 2004, pp. 18-20.

countries, labour is not a big cost factor. More importantly, the local software industry can be fostered. Besides – proprietary software requires professional support as well (see chapter 4.7.1).

4.6.3. Promotion of Technological Independency

Developing nations are poor in IPR. Future-oriented technologies like program code have to be imported for the most part. But software is more a process than a product – in order to keep it usable, it has to be developed continuously. Thus support, updates and upgrades have to be bought continuously. In the proprietary software world, it is a fairly common business model to initially sell software at a loss or even give it away for free in order to develop a user base. Initial losses are recouped in the future because the customer cannot easily adopt other solutions: the data is locked in the proprietary system. As a result, users have to pay premium prices for new versions of software, often coupled with high annual licencing costs. Jeremy Rifkin has described the economic trend to sell temporary access to goods instead of selling them. In doing so, long-term buyer-seller relations are established. Thus, the mere import of proprietary software intensifies the very dependencies poor and developing countries want to free themselves of.

Within the complex of technological independency, free standards, protocols and data formats are very important.[131] They are in the interest of consumers and businesses, allowing genuine market competition, giving users options and choices. Closed standards, protocols and technical secrets foster monopolies. Only if open standards and data formats are implemented, it is possible to renew hardware, without taking software into account. Replacing software without having to reformat data or change hardware would also be possible. (Of course, proprietary software can use open standards and protocols, but much of it doesn't.)

Openness fosters innovation: Tim Berners-Lee's World Wide Web only took off be-

[131] Coy, Wolfgang: Introduction Free Standards. Audio.Wizards of OS. June 10, 2004, available at http://wizards-of-os.org/index.php?id=718. and Mann, Steve: Free Source as Free Thought: Architecting Free Standards. First Monday, Volume 5, January 2000, available at http://firstmonday.org/issues/issue5_1/mann/index.html.

cause it was open: people could learn to write their own websites just by copying and changing other sites.

Another advantage of FOSS is that GNU/Linux operating systems can be run on old computers. Proprietary operating systems such as Windows rely on the newest processor-generation and are thus of little use for owners of older and thus poorly performing IT-infrastructure. Companies cease to offer support for older proprietary operating systems; e.g. as it is the case for Windows 95, 98 or 2000. With FOSS, the source codes are freely available. Provided that computer specialists are available, the systems can be supported as long as the hardware works. The costly race, where the newest hardware requires the newest software and vice-versa, doesn't have to be played.

4.6.4. Localization

As shown in the digital divide chapter, language can act as a barrier to the use of ICTs. There are over 6.500 languages in the world. But proprietary software is being produced only in those languages and writing systems which promise to be economically profitable. Adaptions cannot be made because the source codes aren't available. Indian languages are hardly supported. Because FOSS comes with the source code, it offers the opportunity to translate the software into any language; e.g., the Cambodian NGO "Khmer Software Initiative" is creating Software in Khmer in order to allow Cambodians to take part in the informational era:

> *"We believe that in order to enter a digital world without forfeiting its culture, a country must do it by using software in its own language. Software in a foreign language exacerbates the digital divide, makes basic computer training difficult and expensive, closes computer-using jobs to people with little economic resources, impoverishes local culture, and blocks computer-based government processes, as the local language script cannot be used in databases."* [132]

Localization makes FOSS of great use to address the digital divide.[133]

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[132] Khmer Software Initiative: Vision. Khmer OS, available at http://www.khmeros.info/drupal/?q=node/1.

[133] Shah, Jitendra: FOSS and Localization, pp. 33-35 and Tapia, Javed: Red Hat: Fuelling the OSS Movement. Interview, pp. 25-26. In: i4d, October 2004.

4.6.5. Security

Another advantage is security: the reason why viruses and trojans are able to infect computers throughout the world is because the overwhelming share of the world's population is working with Microsoft systems. Thus, malware is able to spread rapidly. *"Software-monocultures have proven to be problematic"*, said the German minister of the interior, Otto Schily.[134] In contrast to FOSS, Microsoft products do not have a reputation to be of high quality with regards to security. Free software can perform better because of its development model: programming errors and security holes happen – but with FOSS, there is a higher probability to find and fix bugs. "Given enough eyeballs, all bugs are shallow" is a popular saying in the community. The German embassies and the Bundestag have transferred their complete data-communication to Linux-servers.[135]

4.6.6. Transparency

Whether or not sensible data and the right of privacy are protected with proprietary software, is not comprehensible. Closing away the source codes turns software into a black box.[136] Especially with regard to eGovernment solutions, the transparency provided by FOSS is of advantage. If the user is not able to control what the software is doing on his computer, there is always the possibility of abuse.[137] Since proprietary software does not offer the possibility for modification, possible abuse cannot be prevented. With FOSS, the situation is different: of course, this kind of program code can

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134 Lütge, Gunhild: Programmierer aller Länder vereinigt euch! Die Online-Gemeinde rebelliert gegen das Prinzip Microsoft. Frei verfügbare Software wie Linux überzeugt jetzt sogar Betriebe und Behörden. In: Die Zeit, October 23, 2003, p. 17.

135 Borchers, Detlef: Deutsche Botschaften am Netz. Heise,18 December 2003, available at http://www.heise.de/newsticker/meldung/43069.

136 In this respect, cryptography and "Trusted Computing" is relevant. Cp. Himmelein, Gerald: Vertrauenswürdig für wen? Trusted Computing in der Diskussion, p. 76/ Ward, Jim: Keine Hintertüren. Interview mit Jim Ward, Leiter der Trusted Computing Group (TCG), p. 76/ Heil, Steven: Windows sichern. Interview mit Stephen Heil, Security Evangelist bei Microsoft, pp. 77-78/ Weis, Rüdiger: Kontrolle behalten. Interview mit Dr. Rüdiger Weis, Kryptologe und CCC-Mitglied, pp. 79-80/ Anderson, Ross: Gesperrte PCs. Interview mit Dr. Ross Anderson, Professor an der Cambridge University, pp. 80-81. All articles taken from c't 01/2004.

137 Hauser, Tobias: Finger weg. DRM-Systeme in der Praxis. In: c't 06/2003, p. 234.

be written in a way which violates privacy rights. But there will always be programmers resenting this and thus, change the source code. In this respect, FOSS is democratic. Furthermore, the extreme case of (illegal) governmental and corporate surveillance can be prevented as well.

4.6.7. Digital Preservation

Data and knowledge (be it firmware, content from databases and CMS-systems, or any other digital document) based on proprietary systems are getting lost at the latest when the company responsible ceases the support-service and does not release the source code. The use of proprietary formats and systems makes the long-term preservation of digital data difficult. While physical objects can easily be preserved in archives, museums or libraries, electronic publications present new challenges. Data preserved on digital carriers turns inaccessible in a very short time. This results from the short durability of the physical carriers, rapid media- and system changes, IPR-barriers and by the use of proprietary data formats (see chapters 4.6.3 and 4.7.1 as well).[138]

By using open program code, there is the possibility to keep such knowledge accessible. In poor and developing countries, access to knowledge is still even more difficult compared to the developed world.

4.7. Reasons that Make the Mainstreaming of FOSS Difficult

FOSS features a wide range of impressing advantages. So why is the use of it neither in rich nor in poor countries mainstream? There are very heterogeneous reasons which explain this situation.

[138] Wikipedia: Digitales Vergessen. Available at http://de.wikipedia.org/wiki/Digitales_Vergessen.

4.7.1. Exterior Obstacles

One hypothesis of this master's thesis is that awareness for software lacks in general. Supposedly, this is not just a phenomenon of the discourse about the digital divide. We live in a proprietary Windows-world – most people have been born into it. People stick to what they already know. Concerning usability-aspects, Windows-software is of good quality. And for poor people, the obstacle to costly proprietary software can easily be overcome – with illegally copied software. Furthermore, free and open source software is often organized in loose networks, and support is delivered via mailing-lists or Internet fora. This informal support challenges institutions of the public sector and companies only used to work with fixed structures. They have to plan for the long-term and demand guarantees. Often, the projects cannot or don't want to offer such services; e.g., Debian does not have a service telephone number. This is only available when FOSS-service companies offer consulting. A more professional approach in the scene could solve this problem.

On the other hand, proprietary software companies are offering guarantees – but at the same time, one depends on the mercy of the code-owners. If there is no or unreliable support, problems cannot be solved at all. E.g., the Microsoft Internet Explorer or Outlook Express are known as a security risk. The code owner has failed to deliver solutions – for years.[139]

Proprietary data formats also function as a barrier to FOSS-usage. The FOSS-movement cannot be blamed for the fact that a lot of information on the net is only available in closed formats such as Apple Quicktime files or Microsoft Word documents. Instead, it would be an important political task to encourage software producers implement freely accessible formats, as well as open protocols and standards.

4.7.2. Interior Obstacles

Further reasons why FOSS is struggling to become mainstream can be found in the movement itself. In her essay "Fundamental Issues With Open Source Software De-

[139] Schmidt, Jürgen: Sicherheitsrisiko Microsoft. Die Kehrseite des Windows Komforts. In: c't 21/01, p. 140.

velopment"[140], Michelle Levesque identifies five problems with the current FOSS-development and why these issues hold the movement back. She claims that the lack of focus on user interface design causes users to prefer proprietary software's more intuitive interface. Geeks value integrity over beauty. The gender gap might also be part of the problem. Secondly, FOSS tends to lack the complete and accessible documentation that retains users. Thirdly, developers focus on features in their software, rather than ensuring that they have a solid core. Open Source programmers also tend to program with themselves as an intended audience, rather than the general public. As a result, the design of Graphical User Interfaces (GUI) are often poor, sometimes lacking completely. "Klicki-Bunti" is not regarded very sexy. But working with text-commands is difficult for non-nerds. Finally, according to Levesque, there is a widely known stubbornness by FOSS-programmers in refusing to learn from proprietary software – e.g. keeping in mind that everybody outside of the nerd community does not enjoy spending time fixing a computer.

She concludes that if FOSS wishes to become widely used and embraced by the general public, all the listed issues will have to be overcome. And there are successful projects showing that usability-friendly FOSS is possible – such as the Firefox Browser, Debian-based Linux-distributions like Ubuntu[141] and Knoppix[142] or the office software OpenOffice[143]. With respect to developing nations, the issues identified by Levesque become even more important: only if know-how respectively access to it is provided, FOSS can help to bridge the digital divide.

4.8. Towards Digital Inclusion: the Brazilian Approach

The only country explicitly promoting free and open code is Brazil. The nation occupies place 10 on the list of the world's largest economies, but there is a large internal income and wealth discrepancy. 10% of the population control half of the wealth, more

[140] Levesque, Michelle: Fundamental Issues with Open Source Software Development. First Monday, Volume 9, April 2004, available at http://www.firstmonday.org/issues/issue9_4/levesque/.

[141] http://www.ubuntulinux.org/.

[142] http://www.knoppix.org/.

[143] http://www.openoffice.org/.

than 20% are living in extreme poverty. Of an estimated population of 180 million inhabitants, only 14 million Brazilians have access to ICTs.[144] The pro-FOSS-policy has its origin on a municipal and state-level. Several states and cities, mostly run by the "Partido dos Trabalhadores" (PT) set up programs aiming at bridging the digital divide, e.g. by initiating telecentros[145] operated by GNU/Linux. From 2001 until 2004, when the PT governed the City of São Paulo, where an estimated 80% of its inhabitants are not part of the information society, 102 GNU/Linux telecenters were opened. More than 200.000 people used these facilities. According to representatives of the PT-administration, the telecenter project was only possible because no licence fees had to be paid.[146] There are similar projects in other parts of Brazil.[147]

Since 2003, when the PT under president Luiz Inácio Lula da Silva gained power, the promotion of free and open code has been integrated into national policy strategies. The government declared that 80% of newly purchased computers should be equipped with open source software. The existing IT-infrastructure of the federal government is in the process of migrating as well. Brazil has also become the first country encouraging any company or research institute that receives government financing to develop software to license it as FOSS. Free and open code is part of national programs aiming at digital inclusion; e.g. the program "PC Conectado" which offers computers at a discount to low-income families. These activities are all done by recommendation. The corresponding law which would make the use of FOSS in the public sector mandatory is not yet ratified by the parliament.[148]

Brazil promotes its software policy as a way to reduce economic dependencies. The government regards it more sustainable to train the native workforce instead of transferring money out of the country in order to buy licences.[149]

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144 Cp. UNCTAD (2004: 3).

145 A telecentro is a public computer-center and/or Internet access point.

146 Emert, Monika/ Amadeu da Silveira, Sérgio: "Geisel einer proprietären Lösung." Brasilien forciert Open Source als Lösung für Entwicklungs- und Schwellenländer. Interview. In: c't 02/2004, pp. 44-47.

147 Dilger, Gerhard: Surfen in Brasiliens kostenlosem Internet. In 400 Computer-Zentren finden arme Einwohner einen Zugang zur modernen Welt. 4.000 Zentren bis 2006 geplant. In: die tageszeitung, September 7, 2004, p. 9.

148 H., C.: Brasilien sucht die Freiheit in der Software. Linux & Co. machen in Lateinamerika von sich reden. In: Neue Zürcher Zeitung, July 30, 2004, p. 55.

149 Cp. as well Graff, Bernd: Der Code der Armut. Weltsozialforum: Was darf Software für die

4.9. Summary

With the rise of the network society, the significance of software has increased substantially. The times where manufacturers enclosed code as a kind of computer-manual are over. Today it is a much desired trade commodity. The virtual ware operates computing systems and processes one of the most valuable raw materials of the informational age – knowledge and information. In the 1970s, the once practized culture of free information and code flows has been interrupted through the commodification of the soft ware.

Because of the engagement of hackers, namely of Richard Stallman and of Linus Torvalds, a wide range of freely accessible software exists today. Protected by special licences, FOSS is equally used for commercial and non-commercial purposes. Economic value is not created by selling licences, but by offering service in the form of customization or on-demand production. GNU/Linux can be found in every area of information engineering. It is written by corporations in order to generate profit or by political and cultural activists in order to pursue their goals.[150] Torvalds writes:

> *"It [Linux, M. R.] is a much more vivid possibility to distribute technology, knowledge, wealth and fun than the world of commerce has ever known. "* [151]

Its characteristics turn it into an excellent tool to bridge the digital divide. It is freely available and helps to transfer development-skills to less developed countries. Thus, it has the potential to promote technological independency and to stop the brain-drain. Because FOSS can be adapted to local language needs, language barriers which are part of the digital divide complex can be superseded. Transparency, digital preservation and security are additional advantages.

But all these advantages do not signify that free and open software automatically equal growth and development. Computer-skills and education are pre-conditions for a participation in the informationalism-powered network society as well. The most open and free software is of little use, when the training or competence to use it independently, to maintain and to develop it lacks.

Dritte Welt kosten? In: Süddeutsche Zeitung, February 2, 2005, p. 15.

150 Wikipedia, a great share of Blogs and Indymedia run of FOSS.

151 Diamond/Torvalds (2003: 175).

So far, only the country of Brazil has started to integrate strong FOSS-policies in its approach for digital inclusion.

Development model, economy and culture of FOSS vary substantially from the world of proprietary software. A great share of individuals, companies and institutions of the public sector feel that FOSS is not appropriate for them. This can be explained with its informal character.

II. EMPIRICAL PART

5. Analysis of Publications about the Digital Divide

To find out what role FOSS has in the discourse about the digital divide is the goal of this thesis. As shown in chapter 3, the parties participating in the discourse are just beginning to broaden the concept of the digital gap: away from physical access towards capacity building such as educational skills and knowledge. In line with these findings, this master's thesis argues that the social, political and economical implications of software have not been an issue in the ICT4D-discourse. Chapter 5 analyses those publications concerning the digital divide that were quoted in chapter 3. This is being done in order to indicate dominating trends, without claiming to represent the whole academic discourse.

The academic literature viewed in connection with the digital divide has not put emphasis on software-aspects. Mark Warschauer argues in his book "Technology and Social Inclusion. Rethinking the Digital Divide" that people's ability to make use of technologies to engage in meaningful practices is more important than mere physical access. In a chapter that puts emphasis on the importance of participation and local integration in ICT programs aiming to bridge the digital divide, Warschauer explains why FOSS is difficult to mainstream:

> *"In regard to outside support, it is important to bear in mind that no group participates in a community project without its own interests in mind. For example, many community technology projects are aided by businesses that donate hardware or software or provide community volunteers, and one of the largest such supporters is Microsoft Corporation. This support often comes in the form of donations of Microsoft software. While free software is valued by projects, these donations also benefit Microsoft in that they commit projects to a Windows platform and showcase Microsoft products to potential future customers. In addition, community organizations are much less likely to pursue using free software solutions, such as those based on Linux, if commercial operating systems and office suites are offered for free."* [152]

[152] Warschauer (2003: 170).

Apart from this valuable comment, Warschauer does not deal with software issues.

Pippa Norris focuses in her book "Digital Divide"[153] on this very divide and how ICTs influence political systems and how they can have an impact on civic engagement. The software issue is not addressed at all.

The anthology "Information Technology Policy and the Digital Divide. Lessons for Developing Countries" is a sad example of "techie-romaticism" (see chapter 3) in its ignorance of the realities of poor countries and of the nature of the Internet. In the foreword, the editors argue from an economic perspective why it is useful to address the digital divide: lacking access to ICTs equals exclusion from markets and trade. They write that the upcoming broadband-era will serve as a guarantee for prosperity and growth, even for economically disadvantaged regions such as Latin America, Africa or Eastern Europe. *"In particular, future utilization of broadband is a guide to the second IT boom."* [154] Non-G 8-countries should establish IT-infrastructure in "both physical and software terms"[155] in order to benefit from the coming boom. The editors talk of future optical fibre networks, "killer-content" and future multimedia applications such as interactive games and digital TV (!). The question of the software model is addressed neither by the editors nor by the contributors of the anthology. The foreword only mentions that FOSS is increasingly used in the economic sector. The article "Software in India: Development Implications of Globalization and the International Division of Labour"[156] by Paul Kattuman and Arnab Bhattacharjee has the goal to demonstrate the possibility of "leapfrogging" developments through knowledge intense industries such as software industries. The authors conclude that the software sector offers a pathway to development for "middle group" countries like India – provided that preconditions exist such as investment in education. The authors seem never to have heard of FOSS, which gives access to software engineering skills at very low entry cost.

A great share of articles of the anthology point out that private and public oligopolies and monopolies in terms of IPR-systems and industrial ownership are obstacles in

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153 Cp. Norris (2001).

154 Kagami/ Tsuji/ Giovanetti (2004: 3).

155 Kagami/ Tsuji/ Giovanetti (2004: 1).

156 Kattuman, Paul/ Bhattacharjee, Arnab (2004): Software in India: Development Implications of Globalization and the International Division of Labour. In: Kagami/ Tsuji/ Giovannetti, pp. 92-113.

bridging the digital divide. If a company manages to dominate a market to an extend that de facto standards are created, it is able to use its position in a way that ignores the interests of consumers and makes economic activities of competitors impossible. In the conclusions, the editors point out that IPR-systems have shown increasingly problematic for developing countries – respectively for their companies.[157] That the promotion of free and open code, formats and protocols can help to fight monopolistic tendencies is not an issue.

The anthology "Vernetzt gespalten", which claims to portray the discourse of the digital divide from an ethical perspective, includes a short article about FOSS.[158] Its author explains FOSS and discusses its potential to bridge the digital divide. He concludes that it is a serious option.

The rest of the publications concerning the digital divide which were quoted in chapter 3 do not deal with software issues at all.

[157] Cp. Kagami/ Tsuji/ Giovanetti (2004: 305).

[158] Weber, Karsten (2004): Non-proprietäre Software und Geschenkeökonomie. Lösungen für die digitale Spaltung? In: Scheule/ Capurro/ Hausmanninger, pp. 189-198.

6. Qualitative Interviews

> *"If you want to know how people understand their world and their life, why not talk to them?"* [159]

The use of qualitative interviews in social sciences aims at analysing social systems such as communities, organizations, groups or families.[160] As Steinar Kvale writes:

> *"In an interview conversation, the researcher listens to what people themselves tell about their lived world, hears them express their views and opinions in their own words, learns about their work situation and family life, their dreams and hopes. The qualitative research interview attempts to understand the world from the subjects' point of view, to unfold the meaning of people's experiences, to uncover their lived world prior to scientific explanations."* [161]

Findings are not only generated by summarising the interview contents. The analysis of the conditions from which the statements arise, and of their structure, are an important tool to come to conclusions. It is thus significant how and in what context something is said. The analysis of qualitative interviews is not based on a "one size fits all" strategy to generate meaning. The surrounding world is too complex for prefabricated methods and theories to portray it in an adequate manner. Qualitative Interviews require the interpreting person to develop creative concepts, which have to be thoroughly legitimated. A qualitative approach understands interview statements as manifestations of social relations and affairs, which rules are expressed in the selectivity of the messages. Members of a social system are not only its experts, but represent the system with their statements and their own relations to it. The consideration of this complex dynamic makes it possible to identify through the contents structure of meaning, order, and power relationships within a social field. The method of qualitative interviewing does not claim to reconstruct reality as an image, but is always interpretation; a construction effort claiming to describe reality's phenomena.

Academic works are required to maintain neutrality and distance to the issue at stake. As a FOSS-user, I fulfil these requirements only to a limited extend. The catch is: not one single computer-user can claim neutrality. If I were to work with proprietary soft-

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159 Kvale, Steinar (1996): InterViews. An introduction to Qualitative Research Interviewing. Thousand Oaks, p. 1.

160 Froschauer, Ulrike/ Lueger, Manfred (2003): Das qualitative Interview. Zur Praxis interpretativer Analyse sozialer Systeme. Wien, p. 7.

161 Kvale (1996: 1).

ware, it would be a violation of the principle of neutrality as well. The only possible way to follow the principle of objectivity would be to migrate to paper, pencil or typewriter. But that is not really an option. These circumstances illustrates once more the overall impact of software in our lives.

6.1. Justification of the Method

This work examines to what extend free and open source software policies are integrated into the development policy discourse about the global digital divide. The focus is on the Latin American region. The method of qualitative interviewing was chosen because academic production concerning this issue is scarce. The history of digital ICTs themselves is short – the revolution has started barely 30 years ago. Only 10 years ago, the Internet became a mass medium, which implies that the digital divide is an even more recent phenomenon. A differentiated scientific examination is just about to develop. In the digital world, things happen so quickly that the academic production is having trouble to keep up. For this very reason, there is little literature about FOSS as well. A functioning operating system exists only since the beginning of the 1990s. Although software and computers play an increasing role in our daily lives, there is little research about the social implications of software in general, respectively about FOSS. Technology-related academic disciplines tend to ignore the cultural, economical or philosophical aspects of ICTs. Social sciences rarely focus on the social, political and economical implications of different software models. I was not able to find a publication in print dealing with the digital divide with regard to software politics. The only sources available are newspaper- magazine- or Internet articles, which were published for the most part within the past one or two years.

Latin American FOSS-activists working at the intersection between the hacker community, the political and academic field as well as the NGOs/CSOs focusing on digital divide and digital inclusion are naturally able to give information about the issues which are of interest to this master's thesis. The interview-partners are renowned experts in the digital development policy area, working not only on a Latin American, but on an international level (see their personal backgrounds, chapter 6.2). The interviews were

conducted with the expectation to generate information and knowledge that is not yet available in the frame of the digital divide studies.
Furthermore, the method of qualitative interviewing allows a look at the issue which is not filtered by western projections and patterns of thinking. All those interviewed come from poor and economically disadvantaged countries. They are therefore much more familiar with the realities of these countries than academics who might have spent only a couple of weeks there for their research.

In the limited frame of this master's thesis, it is not possible to conduct a large scale study with numerous interviews, including representatives of the NGO/CSO or the public sector. Neither were there the capacities to share the work of designing and conducting the interviews, transcribing and interpreting them between different individuals. Thus, this work does not claim to unveil the inner-workings and hidden power constellations of the whole ICT4D-field respectively the relations of all actors among each other. Rather, it is of interest to generate meaning from the FOSS-scene representatives' point of view. When analysing the transcribed interviews, the emphasis is on the content of the interview conversations, not on the form of the statements; e.g. their structure or grammatical construction.

6.2. The Interviewees

All interview-partners are members of the committee that is in the process of setting up the Free Software Foundation Latin America (FSFLA)[162]. The FOSS-community is male dominated, its few women mostly focus on cultural and political implications of software. This could be an explanation why two of my interview-partners are female. The interviewees were chosen not only because of their expertise, but because they come from three different directions and thus, represent the heterogeneous FOSS-scene more adequately: Federico Heinz has a background as a free hacker, Fernanda Weiden programs for one of the world's largest open source corporations, and Beatrice Busaniche has a background in communication sciences.

[162] http://fsfla.org/.

6.2.1. Personal Background Federico Heinz

Federico Heinz (Córdoba, Argentina, born in 1963) is a programmer of free software and an official speaker of the Boston-based FSF.[163] In this position, he focuses on the role of free software in poor and developing countries. The application of FOSS in the public administration is his second field of expertise. He co-founded the foundation Vía Libre[164] in Córdoba which promotes the free dissemination of software and knowledge as a driving force behind social progress and sustainable development. He advises organizations and legislators throughout Latin America on the interdependencies between technology and society. In this capacity he was involved in the draft of a text promoting FOSS in the public administration, which now serves as a legislatory blueprint for a variety projects, including those of Peru[165], the Province of Buenos Aires (Argentina) and many more. He is a frequent speaker at international events dealing with free software; eg. Forum Internacional Software Livre (FISL)[166], Wizard of OS (WOS)[167] or Linuxtag[168]. He was engaged in the WSIS-process.

6.2.2. Personal Background Beatriz Busaniche

Beatriz Busaniche (Buenos Aires, Argentina, born in 1970) has a background in communication sciences. She coordinates the education program of the foundation Vía Libre. She works closely with NGOs/CSOs dealing in ICTs in education and develop-

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163 http://www.gnu.org/people/speakers.html.

164 http://www.vialibre.org.ar/.

165 The law passed the Peruvian parliament in September 2005, cp. http://www.congreso.gob.pe/relatoria/documentos/PROY1609Software.pdf. For an English translation, see http://www.apesol.org/news/199.

166 International forum for free software which takes place in Porto Alegre, Brazil. It is the biggest FOSS-event in Latin America. Federico Heinz works as a program committee member as well. http://fisl.softwarelivre.org/.

167 Wizards of Operating Systems, organized by Volker Grassmuck, who published a standard book about free software. The conference is concerned with the emerging knowledge order of digital media. Its focus is on the potential of PC and Internet for promoting free communication and open collaboration in the creation of knowledge. The WOS-conferences, workshops and online resources provide a platform for this meeting of "hard" techno sciences with "soft" cultural and social sciences, of hackers and lawyers, of business people and artists, of activists and politicians. http://wizards-of-os.org.

168 The fair Linuxtag is one of the biggest events in Europe concerning free software, Linux and Open Source, with nearly 16.000 professionals. http://linuxtag.de/.

ment policy, advocates free software and counsels universities and policy makers. She was actively involved in the WSIS and was attending the preparatory conferences and the intersessional meeting as an official representative of the civil society. The WSIS is divided into issues, Beatriz Busaniche was active in the "Education and Academia" and the "Patents, Copyrights, Trademarks" Caucus. She served as a member of the "Latin American Caucus" as well.[169] She is frequently invited to speak and publish about her work, in Latin America as well as in other parts of the world.[170]

6.2.3. Personal Background Fernanda Weiden

Fernanda Weiden (São Paulo, Brazil, born in 1982) is a project manager at Linux Technology Center of IBM Brazil, a software development lab working to contribute to GNU/Linux operating systems. She is a Red Hat certified engineer and holds a LPI certification.[171] She works as a package maintainer on Debian project and is a member of "Debian Women", a project focused on including women to contribute on Debian development. She is an active member of the Brazilian free software community, involved in projects like "Projeto Software Livre Brasil"[172] (Free Software Project Brasil), a national group promoting technological independency and awareness on free software in Brazil. She is one of the founders of "Projeto Software Livre Mulheres"[173] (Women Free Software Project), which works to increase digital inclusion of women and assists feminist NGOs and social groups with understanding and using free software. She is frequently invited to speak at FOSS conferences and Linux-fairs worldwide, including

169 http://www.net-gov.org/wgig/busaniche.php.

170 Busaniche, Beatriz/ Levis, Diego (2004): Between Words and Actions: Civil Society and Education at the WSIS. In: Information Technologies and International Development, Volume 1, Issue 3-4 (Summer 2004), pp. 97-100, available at http://mitpress.mit.edu/catalog/item/default.asp?ttype=5&tid=1557 For more publications and speaking engagements, see http://www.vialibre.org.ar/ as well.

171 The open source enterprise Red Hat and the Linux Professional Institute (LPI) both certifiy GNU/Linux professionals, their tests are internationally recognized. See https://www.redhat.com/training/certification/ and http://www.lpi.org/.

172 http://www.softwarelivre.org/.

173 http://mulheres.softwarelivre.org/.

events like LinuxWorld[174], Africa Source[175], CONSOL Mexico[176] and FISL. She works as a program committee member at FISL as well.

6.3. The Research Process

Qualitative empirical research does not have prefabricated methods in order to understand the social world in an appropriate way. This is the reason for one central principle of empirical research: it has to adjust to the area that is to be examined. For this, three conditions must be fulfilled. Firstly, a *pragmatic methodological starting point* must be found. A basic understanding of the possible structure of the focused field has to exist in order to be able to start the empirical analysis. As a FOSS-user and in connection with the theoretical background I worked out for this master's thesis, I was able to collect substantial knowledge. Furthermore, due to a seven-months-stay in Latin America in 2001/2002 and additional trips to this region I am familiar with the situation in Latin America. During a traineeship for an NGO in Nicaragua[177] I taught HTML and worked as well in the web-editorial of the Goethe-Institute of Santiago de Chile. From my own personal experiences I know the situation regarding access to ICTs in developing and economically disadvantaged countries. Secondly, qualitative interviewing requires a *flexible repertoire of research-instruments*. The more open and flexible the methodological instruments are which are chosen to grasp the issue of the research, the better. This principle has been observed as well, see chapter 6.4.3 and 6.4.4.

Thirdly, a conduction of qualitative interviews requires a *reflexive research strategy*. The reflexion of the consideration of the nature of the empirical world shall make possible the modification of basic understanding as that of the applied methods. This rule

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[174] LinuxWorld Conference & Expo Frankfurt is one of the most important information platforms for professional corporate applications utilizing GNU/Linux and Open Source in Europe with more than 15,000 professional visitors and 150 participating companies, http://www.linuxworldexpo.de.

[175] Africa Source was the first pan-African free and open source software developers meeting, held in March 2004 in Okahandja, Namibia. http://www.tacticaltech.org/africasource.

[176] Community-organized event around free software with international speakers http://www.consol.org.mx/.

[177] http://www.c3mundos.de/.

has been followed during preparation, carrying out and analysis as well.[178]

6.4. Additional Protocol

6.4.1. Setting Up of the Interviews

In June 2004, Federico Heinz was a speaker at WOS 2004 where I was present. He spoke mostly about the adoption of free software in the public sector, but he made some comments on free program code in poor and developing nations. I found the topic interesting and spontaneously made contact. We had a quick chat about FOSS in Latin America. At WOS, I met Georg Greve, president of Free Software Foundation Europe (FSFE) as well. As a member of the organization committee of "download culture?"[179], I invited him to hold a lecture about free software in Lüneburg, which he did. Through personal friends, I kept contact with people from FSFE. In June 2005, I had met Georg Greve in the office of FSFE in Hamburg, we talked about free software in developing countries. He told me that Federico Heinz and Fernanda Weiden were experts on this issue, and that there would be the possibility to interview them at Linuxtag 2005 in Karlsruhe. I contacted them via email and asked for an interview, and they agreed. At Linuxtag, Georg Greve introduced me to Beatriz Busaniche. Spontaneously I interviewed her as well. Weiden and Heinz were interviewed on 24th of June, Busaniche on the following day. All interviews were conducted on a freely accessible gallery on the first floor of the congress center of Karlsruhe, a little separated from the noisy fair business. The interviewees interrupted for the length of the research conversation their public relations activities at the FSFE-booth and went back to them afterwards.

All interview partners knew about the general frame of the interview. I informed them by email and again at the beginning of the interview. I told them that I was writing my master's thesis about FOSS and the digital divide, and that publications on this issue were scarce and that I was hoping to get valuable information from them because they

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[178] Cp. Froschauer/Lueger (2003: 11-14).

[179] Student-run initiative which examined the role of intellectual property in digital spaces, http:// www.download-culture.org.

were experts on this issue due to their everyday work. The interviewees knew that I was going to analyse and publish the interviews. The audio-taping of the conversation was agreed upon as well. I had asked each one for about 30 to 45 minutes of their time.

6.4.2. Guidelines for the Conduction of the Research Interviews

I have tried to ask open questions in order to be able to interpret from their answers what *they* – and not me – regard relevant. Specific, concrete questions function like a filter – the interviewer sets the topics which he or she thinks is important. This is why I asked what they generally think of the development policy discourse in connection with the digital divide or how their favourite concept on access to ICTs in poor and developing countries look like. Only at the end of the interviews I asked questions implying narrow answering frames. I tried to let the interviewees talk long and freely in order to avoid to direct the flow of the conversations.

6.4.3. Atmosphere during the Research Interviews

All three interview partners were happy that someone was interested in their work. The length of the interviews shows that they enjoyed to explain the issues at stake from their point of view (Heinz: 107, Busaniche: 55, Weiden: 64 minutes). They seized the opportunity to talk extensively about the advantages of non-proprietary program code. Problems and critical aspects of free and open source software were an issue as well, though only when I explicitly pointed to them. Federico Heinz criticized me for using the term "open source". He does not accept the term and wants to be quoted only in connection with free software (see chapter 4.2 as well). The atmosphere during the interviews was nice and friendly.

6.4.4. Interview Design and Guidelines for the Analysis of the Transcriptions

I had only set up a loose thematic framework. The questions resulted from the dynamics of the conversations. All interviews were conducted in English. In the beginning, the interview partners were asked to talk about their personal background. The main issue of this master's thesis is to examine the role of FOSS-policies in the development policy discourse about the digital divide. There are three main parties shaping the discourse: NGOs and CSOs, local government entities and academics focusing on digital divide and digital inclusion related issues. In order to produce answers, the research conversation was organized in four thematical issues. Firstly, I was interested in the nature of the cooperation between the FOSS-community and NGOs and CSOs working in the ICT4D-area. Secondly, the interviews focused on the use of FOSS in the public sector and its position on political agendas. Thirdly, I was interested in my interview partner's views on the academic production concerning digital divide and digital inclusion related issues. Fourthly, I hoped to get answers if FOSS is gaining significance in Latin America, as well as reasons explaining the situation. The conversations stayed open for issues and aspects that were brought up by the interviewees. When interviewing Heinz and Busaniche, the general situation of free and open source code in Latin America was in the focus. In the case of Fernanda Weiden, the situation in Brazil was primarily of interest.[180]

Due to the worked out background (Froschauer/Lueg speak of the pragmatic methodological starting point) I have set up four theses before the conduction of the interviews. All theses refer to the situation in Latin America. The interpretation of the interviews is supposed to bring knowledge if the theses can be adhered to. Should the research interviews bring up completely new aspects or new theses, they surely will be integrated into the research process. I am aware that the broad design of the research focus does not make it possible to portray the issue at stake in all its complexity and heterogeneity. In the limited frame of this master's thesis, it is of interest to indicate dominating trends.

[180] This is the reason why only the Brazil-related issues have been transcribed, Fernanda Weiden's statements concerning CSOs are similar to those of Busaniche and Heinz.

6.5. NGOs/CSOs

Hypothesis 1: NGOs/CSOs working in the digital divide context have hardly integrated FOSS-policies. The cooperation between the FOSS-community and these groups is only beginning.

6.5.1. Software as a Blind Spot

The statements of the interviewees concerning the attitude of NGOs/CSOs imply that this field does not integrate the nature of code on its agenda. Federico Heinz' point of view is that software policy serves as a downright *"blind spot"* [Federico Heinz 146]. According to Heinz, even NGO-staff dealing in security-relevant human rights work are lacking awareness how to treat software-controlled sensible digital data. Beatriz Busaniche remarks that she is still busy to raise awareness for FOSS [Beatriz Busaniche 643-645]. According to her, NGOs working in the ICT4D-field *"...have software as a secondary issue"* [BB 472]. It wouldn't be unusual that NGO-employees have no knowledge of the existence of FOSS. "*Many people do not know that there is a world outside of Word"* [BB 622-623]. Heinz has made similar experiences [FH 532-533, 537].

Federico Heinz explains this ignorance with the fact that proprietary software is much more common. Most people, including NGO-people, would literally being "born" into the Windows-World, because this software model is much more present, especially in desktop-applications [FH 1102-1105].

6.5.2. Funding, Sponsoring and Conflicts of Interest

Federico Heinz says that in his opinion, it is a common problem that NGOs/CSOs working in digital divide related issues are getting into a conflict of interest. In order to be able to work, organizations of the NGO/CSO-community depend on funding, volunteers and sponsors. Proprietary IT-companies, Heinz mentions frequently the Microsoft Corporation, are very generous donors. As a consequence, the organizations as well as their aid-programs are working with proprietary software [FH 236-238, 244-245,

249-252, 448]. Beatrice Busaniche, too, has the view that CSOs/NGOs are using proprietary software inside of their organizations as well as in their aid programs because they simply have the capacity to purchase it. She has the assumption that the acquisition of funds is not too difficult because the issue of the digital divide is a policy issue with priority *"...some NGOs are using this concept [of the digital divide, note MR] to get the funding..."* [BB 450-451]. Beatriz Busaniche thinks that the issue of the digital divide is frequently abused as a *"marketing concept"* [BB 458].

Federico Heinz tells that companies of the private sector are migrating faster than civil society organizations, because they have to manage scarce financial resources concerning software-licences, rely on technological independency and have the need for customized technological solutions [FH 546-587]. All these issues are achieved better with free and open code.

6.5.3. Piracy

Beatriz Busaniche and Federico Heinz both state that the practice of using illegally copied software is the reason why NGOs/CSOs are not using FOSS as well. It wouldn't be unusual in NGO/CSO-circles to work with pirated software inside of their own IT-infrastructure. *"...let's face it, the only competition to free software is not proprietary software; it is bootleg software."* [FH 559-560, 570-571, 575]. Beatriz Busaniche reports that citizens of poor countries chose the same way [BB 504-507].

6.5.4. Migration: Differences between Policy and Action

Federico Heinz has observed that NGOs appreciate FOSS, but only on a semantic level *"...the attitude I see in most of civil society towards free software is: 'We should support free software and we should encourage free software and we should use free software as long [...] as it's not much work'"* [FH 230-232]. But migration from proprietary to free and open source software is always an effort. NGOs/CSOs therefore often

hesitate to actually migrate to FOSS even if they recognize its potential advantages. Beatriz Busaniche tells about a clear difference between policy and practice which became evident in her experiences with international ICT4D-organizations during the WSIS: they publicly promote FOSS, while using proprietary systems. *"...they all support free software – not all, of course, but some of them ... but then they are sitting there with their laptops using Windows"* [BB 514-515]. Federico Heinz expresses the view that migration to free and open systems would hardly take place due to resistance of the technical staff. *"When you have an IT-infrastructure you have technicians and in my experience [...] the strongest resistance to change is not in the users but in the support staff"* [FH 304-306]. According to Heinz, this is a result of the technicians' education, which is focused on proprietary systems. The introduction of a new system goes along with uncertainty and fear of losing influence. The management-level rejects migration often with the following argument: *'"I'm fighting poverty here! I don't have time to learn another system!"'* [FH 353]. Federico Heinz expresses understanding for this attitude, since a system-change in fact draws resources for a period of time. According to Heinz, the behaviour of the NGO/CSO-community has severe consequences – when the NGOs/CSOs themselves rely on proprietary infrastructure inside of their organizations as well as in their programs, the clients of the aid programs and their environment are likely to adapt closed-source system as well [FH 280-283]. Beatriz Busaniche tells of the following situation: staff of digital divide initiatives recommend the use of FOSS, while working with proprietary software. As a consequence, the clients of these initiatives are having the impression of receiving second-class software – and reject adopting it [BB 587-594].

6.5.5. FOSS-Scene and the NGO/CSO-Community: a Complicated Relation

Concerning the cooperation with the civil ICT4D-community and FOSS-activists, Busaniches statements indicate that the exchange between the groups is a difficult process. She says: *"I think there is [...] still a gap between the free software community and the NGOs that participate in this 'ICT4D'"* [BB 547-548]. Busaniche reports

of organizations that are open towards FOSS but integrate this program code only partly into their aid programs. The NGOs argue that they cannot teach skills which the local labour market is not demanding [BB 490-491].

Beatriz Busaniche tells about an argument with an NGO-employee who didn't recommend GNU/Linux to his clients [BB 492-507]. The legitimization for this policy is that FOSS is not easy to handle. In addition, support and maintenance is insecure due to the little diffusion of GNU/Linux in comparison to proprietary systems. Busaniche does not accept this point of view, she thinks those arguments are prejudices. The fact that the interview-partner chose to tell this episode indicates its importance for her and thus indicates that the attitude expressed by the NGO-employee is a common experience.

Beatriz Busaniche tells of serious arguments during her WSIS-activities concerning the cooperation with the Latin American Caucus, which resulted in the FOSS-people being treated as *"fundamentalists"* [BB 582-583]. She says: *"There's a lot of resistance from the people from the NGOs"* [BB 601].

Busaniche thinks that the reasons for this complicated relation between professional helpers and hackers have a lot to do with the fact that two worlds with completely different values, vocabulary and communication rules meet, which makes cooperation very difficult. E.g., Busaniche as a representative of the FOSS-scene does not accept certain terms and assumptions, which constitute the self-understanding of the professional helpers; such as the terms "ICT4D", "Information and Communication technologies for Development" [BB 548-549]. The interviewee denies legitimation to most of the digital divide discourse. *"I don't really believe that digital divide is something we have to worry about. I guess we have to worry about the social gap. It's education, it's basic services."* She explains this attitude with the failure of aid-programs. *"...bringing the computers to a place where they don't even have chairs to sit... or bringing computers to a place where they don't have energy, or bringing computers or trying to teach how to use an email to people that could hardly read or could hardly write. [...] I think digital divide is not the main issue now"* [BB 230-231]. Federico Heinz criticizes the focus of the digital divide discourse as well: providing the under-privileged with IT-infrastructure would often be regarded as an end in itself and thus missing the real problem; fighting the roots of poverty [FH 188-197]. Referring to his experiences with civil society during

the WSIS, he says that there is a counter-productive fascination for new technologies which would completely miss the reality and the needs of the citizens of poor countries [FH 402-427].

Fernanda Weiden takes a different standpoint. She does not criticizes the digital divide discourse, but defends her government for taking initiative in this issue. She thinks that it is a good thing to focus on basic aid programs aiming at the reduction of hunger but at the same time putting digital inclusion on the political agenda. *"Brazil has [...] basic problems that all the developing countries have. But the problem with some countries there's the option of care about the basic problems and forgot about the [...] problems that you have to take care in 10 years, 20 years. [...] If you look to the basic things like 'Fome Zero'* [181]*: It's [...] basic thing, [...] we have lots of hunger people in Brazil. But at the same time, we are not [...] forgetting [...] to look for our future. Because our country are not only hunger people. [...] We have to look ahead and see what will happen in the next 10, 20 years"* [Fernanda Weiden 401-408].

The critical attitude of Beatriz Busaniche and Federico Heinz concerning the policy issue of the digital divide has a lot of conflict potential. In addition, before the exchange of both groups can even start, huge barriers built up: some FOSS-activists do not accept the use of proprietary software by professional helpers. If they are sending Word-documents over mailing lists (which is an important working tool), this often causes heated debates on principles, before the matter as such can be discussed. Beatriz Busaniche says: *"I know people that [...] don't understand what happens with free software, they cannot even communicate with free software people"* [BB 552-554]. On the other hand, she acknowledges that, when communicating with NGO-people, *"...sometimes hackers are not exactly diplomats"* [BB 619-620].
In the direction of the NGOs/CSOs goes the repeated accusation that they would not really understand the importance of the software issue, the nature of digital media and, associated to this, the ongoing arguments concerning IPR-systems, which are crucial to the FOSS-scene [BB 520, 627-628, 645-647, 865-866, see chapter 6.8. as well].

[181] "Fome zero" (Zero Hunger) is a Brazilian program aiming at the reduction of famine.

She has the point of view that is is not suitable for people working with ICT-related issues not to know about the existence of FOSS [BB 627-628]. Heinz says that for him, being a programmer, it would be very difficult to explain to people without a technical background why FOSS has advantages in the frame of digital divide related issues [FH 126-127].

Busaniche thinks there are *"responsibilities on both sides"* [BB 550] to bridge the gap between professional helpers and members of the FOSS-scene.

6.6. State/ Public Sphere

Hypothesis 2: Policies which explicitly promote the use of FOSS in the public administration are the exception. But the interest in free and open code is rising.

According to Federico Heinz, institutions of the public sector rarely adopt FOSS. Latin American policy makers rather opt for proprietary code, on municipal as well as national level. Just as in the case of NGOs/CSOs this can be explained with the lacking awareness for free and open source software in general. The Brazilian way towards GNU/Linux is an exceptional case. In recent years, there are, according to Heinz, signs indicating that the nature of program code is becoming an increasingly political issue in Latin America. *"A few years ago, you got legislators who where completely clueless, they didn't know if they were for or against. You don't run so much into those right now. Most of the ones you [...] reach today, well, some of them still don't know what it [free software, note MR] is about, but they know whether they're for or against it"* [FH 919-922]. But the design of bills explicitly fostering FOSS in the public administration is increasing, although the implementation is often unsuccessful. *"...the fact that there are bills proposing [...] using free software in [...] every country of Latin America means something. Of course, the fact that most of these projects never make it also means something"* [FH 1004-1006]. Heinz thinks that the rising interest in FOSS is due to increasing media coverage of this issue. It would be "*discussed all over the place"* [FH 935].

The statements of Beatriz Busaniche seem to be paradoxical at first glance. On the

one hand she talks of the every day work of the foundation Vía Libre, which consists of doing classes about FOSS and offering counselling on FOSS for South American policy makers and institutions of the public administration [BB 106-121, 130-132]. On the other hand, she says that she is still busy to raise awareness for FOSS in the public administration. *"We are trying to put the issue on the agenda"* [BB 155]. This paradox dissolves when keeping in mind that Vía Libre is one of the very few organizations focusing on this topic in the Latin American region. Interested government bodies come to Vía Libre inevitably, but this situation should not be generalized.

Similar to the situation in the field of NGO/CSO, there are clear differences between public statements and the implementation of pro-FOSS-policies. According to Busaniche, e.g. Argentine policy makers are publicly recommending FOSS, but at the same time favouring the use of proprietary software in the public sector [BB 177-179].

6.6.1. Lobbyism

Beatriz Busaniche regards lobbyism as another important reason for the marginal role of FOSS in the public sector. In her opinion, (software) policy is shaped to a large extent by influencing members of congress. The free and open source movement does not have the capacities to engage in lobbyism as corporations [BB 713-714, 776-777]. In this respect, it would be of use to have powerful open source corporations such as IBM on the side of the free software scene, because they have the necessary financial and personal capacities. Busaniche sees this with mixed feelings, because her main motivation is the promotion of civil rights, while corporations are pursuing business-perspectives [BB 790-794].

Heinz has a contrary opinion here, criticising open source companies for not taking stance for FOSS when government-initiated digital inclusion programs implement only proprietary software [FH 867-870].

Heinz frequently refers to lobbyism as well, thus indicating the significance of this issue. He tells an episode from Peru, where in addition, external interventions of the U.S. government into internal Peruvian affairs have played a role. The Peruvian parliament was about to ratify a bill (which Heinz helped to draft) which was supposed to

make the use of FOSS in the public sector mandatory. According to Heinz, the personal intervention of the North-American ambassador acting in the interest of the Microsoft corporation was responsible for "freezing" the bill [FH 733-746].[182] Heinz reports a similar story that took place in the the province of Buenos Aires [FH 751-757]. Such experiences are common.

Referring to "PC Conectado", a Brazilian digital inclusion program, Heinz talks of massive lobbying as well. *"Microsoft went to ridiculous lengths to [...] lower its prices in order to get their software onto this 'PC Conectado'..."* [FH 774-775]. In this case, the corporation was not successful – FOSS was chosen.

Federico Heinz mentions an Argentine government-run digital inclusion program, featuring only proprietary software [FH 823-828]. Similar to the NGO/CSO-scene, he reports of proprietary firms (Microsoft and Intel) which were exerting influence on this public program via sponsoring [FH 851-852]. Heinz calls such engagements "interference with competition". Beatriz Busaniche makes similar comments on this project [BB 256-286].

In this context, it becomes clear why the FOSS-activists were willing to give the interviews. They are interested in raising awareness for their cause in order to gain significance within the ICT4D-discourse.

6.6.2. Political Instability and the Informal Character of the FOSS-Movement

Federico Heinz regards the general political instability of the region as another reason for the fact that most legislatory attempts to make FOSS mandatory do not pass the parliaments. *"The problem with [...] Latin American governments is that they are too unstable..."* [FH 721-722]. Beatrice Busaniche mentions further possible reasons for the preference of proprietary software to FOSS in the public sector: *"I don't know if it's*

[182] Different media-coverages confirm Heinz' description of the incident, e.g.: D'Empaire, Augustin: Microsoft's Big Stick in Peru. Wired, July 27, 2002, available at http://www.wired.com/news/business/0,1367,54141,00.html and H. (2004). The law spent three additional years in the Peruvian congress before it got ratified, for details see chapter 6.2.1.

a prejudice but everybody says that: if you contract a corporation to do something for the public administration you have someone to blame if something fails. It's not that you will have support, you just have someone to blame. And for people working in public administration, that is an issue. But if you decide to make your own policy ... not depending on one corporation, you are the responsible. So, if something fails, you are the head that will run. So, maybe that is an issue" [BB 766-772]. This statement indicates (similar to the NGO/CSO-community) the concern of not getting adequate support and guarantee when using FOSS, thus making proprietary software more attractive for representatives of the public sector.

6.6.3. Microsoft's Mistakes

Heinz explains the rising interest in FOSS with inappropriate behaviour of the most powerful proprietary software company – Microsoft – towards business clients as well. Negotiation practices and licence-models which representatives of the public sector find unfair, increasingly aggressive lobbyism and rising costs of proprietary software add to the growing awareness of software issues. E.g. in the case of the German city of Munich, which is currently in the process of migrating their IT-infrastructure to FOSS, the corporation acted in a disrespectful way, which made the city council opt for GNU/Linux instead. The negotiations looked like this: *"'...that's the price I put, but I can slash it in half, I [...] can slash it in [...] forth and I'm [...] still making money. [...] I'm just setting the price to whatever I want.' [...] And once this becomes obvious... you realize that you don't want to do business"* [FH 956-959].

6.6.4. The Exception of Brazil

The statements of all three interviewees characterize Brazil's software policies in the public administration and in digital divide related issues as the exception to the rule. Fernanda Weiden and Federico Heinz explain the singular course with very active, politicized FOSS-activists. Another characteristic of the Brazilian FOSS-scene is the in-

tegration of many non-hackers in the movement. "*Inside the 'Projeto Software Livre Brasil', we have a lot of different skills there, like developers, sociologists, political people, managers or [...] CEOs of companies"* [FW 108-109]. There is a long-term co-operation with the PT which started on a municipal and regional level and continued with the election victory of the party under Luiz Inácio Lula da Silva on a national level. *"...when Lula got elected, they started to discuss about putting free software in the IT-infrastructure in the government, migrate the system to free software and then the government did a thing that – I never saw anything like that before: they asked us to join them and say what [...] should be the governmental strategy to do that"* [FW 71-75, FH 592-593]. Weiden puts emphasis on the good relations between the government-agency in charge of designing the national IT-policy[183] and the FOSS-scene *"...things are really open"* [FW 113-115]. Weiden says that the self-understanding of the Brazilian FOSS-scene is based on bridging the digital divide. *"In fact our main motivation [...] is giving the opportunity to the Brazilian citizens to [...] our country in general, I mean companies, people and government, to have the equal opportunity to participate in the digital age"* [FW 184-186]. Fernanda Weiden gives the official arguments of the Brazilian government concerning its software-strategy: "*Technological independency, it's because they want to promote our local IT-industry. Because they want to save money...".* The practice of proprietary companies to limit licenses temporarily would be an important reason as well. "... *if you could [...] buy a license like for a Microsoft Office and keep using that for the rest of your life – no problem. But the problem is: the proprietary software has cycles of renewing and renewing the license..."* [FW 363-367]. So far, concerning IT-issues, a large part of the Brazilians were only *"consumers"*, and in Weidens opinion, this cannot be equated with real participation in the digital age. There would be the desire to become *"technology developers"*, which is only possible with free software [FW 339-440]. Heinz, too, explains in the frame of the interview-part concerning Brazil that *"the most powerful idea behind it"* is to achieve technological independency [FH 675-680]. The interviewees think that most of the proprietary software represents the economic interest of the richer countries. The mere import of this kind of software is considered as a kind of "electronic colonization". For Beatriz Busaniche,

[183] The "Instituto Nacional de Tecnologia da Informação".

software is not a product, but *"a cultural technique of the digital age"* [BB304][184].

Weiden and Heinz both feel that the Brazilian pro-Linux software policy is doing great strides concerning migration to FOSS, but at the same time it is not very solid. The strong relations to the PT are having the advantage that free software is getting integrated fast into public programs to bridge the digital gap. But if the PT has to resign, the FOSS-policy could come to an end, too. This has already happened on a regional level: when the formerly ruling PT had to step out of office in the state of Rio Grande do Sul, in Porto Alegre and in the city of São Paolo, much what had been achieved was undone; e.g. GNU/Linux telecentros closed or its budget was reduced. The interviewees think that GNU/Linux is not yet established in social institutions, that migration is a long process [FW 228-230, 235-239, 243-255, FH 640-646]. Heinz fears that FOSS could be harmed between different political interests. *"Just the fact that in Brazil the PT has practically taken free software at [...] its flag causes that other parties [...] oppose it just because it's the PT defending it"* [FH 616-618]. Fernanda Weiden sees her main task as a representative of the PSL and as a member of the FSFLA in convincing all political powers of the advantages of GNU/Linux [FW 435-445].

6.7. Digital Divide Studies

Hypothesis 3: Academics focusing on ICTs and development are treating software as a secondary issue

Beatriz Busaniche says that the digital divide studies do not focus on software issues. She is hardly invited to academic congresses [BB 800-803]. Federico Heinz reports of similar experiences. His expertise is often required by the technical academic field, but the social academic field is not asking him to give lectures. Heinz thinks that this lack of interest is a mistake [FH 1053-1057]. If at all, members of this discipline would talk about software as of a material good. Heinz takes this as a sign that a great share of the academics do not really understand the virtual nature of software; virtual goods are

[184] This way of conceiving code is included in the WSIS Civil Society Declaration, see WSIS Civil Society Plenary: Civil Society Declaration to the World Summit on the Information Society. In: Kleinwächter (2004: 151, 158).

subject to completely different laws than physical ones. Beatriz Busaniche has the point of view that the academic discourse of the digital divide is misguided. She refers to the in her opinion inadequate design of IPR-systems. In connection with this topic, the sustainment of the (digital) public domain is not a subject within the digital divide discourse [BB 382-397]. Busaniche is very critical towards the whole policy issue digital divide, which is designed by the academic field as well [BB 424-428].

6.8. History and Recent Developments: The Role of FOSS in the Concept of the Digital Divide

Hypothesis 4: The development policy discourse about the digital divide has been conducted for about 10 years. The software-question played an only marginal role. The participating parties such as NGOs/CSOs, policy makers or academics focusing on the ICT4D-area have neglected reflections on the nature of code. But in recent years, software becomes a political issue. FOSS becomes increasingly prominent in the development policy discourse, particularly in the context of discussions concerning IPR-systems.

So far, the analysis of the interviews supports the thesis formulated in chapter 6.8: The NGO/CSO-community is an important decision maker in the development policy discourse about the digital divide. They advise politicians and set up programs aiming to bridge the digital divide. Heinz' and Busaniche's opinion is that in this field, on a Latin American and an international level alike, FOSS plays only a marginal role. They observe a lack of integration of GNU/Linux in the organizations themselves, even if they are publicly promoting it, which supports the overall thesis. Still, Beatriz Busaniche reports of some organizations, which are slowly migrating their IT-infrastructure *"...just because we complain so much"* [BB 478]. The advocacy of the FOSS-scene shows some results, but the process is only at its beginning. The interpretation of Federico Heinz' statements point into a similar direction. Migration would become easier, he concludes therefore that FOSS will gain significance in the NGO/CSO-field in the near future "*...nowadays [...] you can switch gradually [...] it's not like it was three years ago*

where it was more of an all-or-nothing preposition." The development of new tools, for open and proprietary platforms alike, are increasing the distribution of GNU/Linux [FH 376-381]. Heinz reports of some institutions of the NGO/CSO-area, which are integrating FOSS-policies. As an example, he mentions the Uruguay-section of UNESCO [FH 497-498]. He thinks that the mainstreaming of GNU/Linux inside of the NGO/CSO-community is just beginning. *"...we are just happening [...]. I think it's a first step"* [FH 368].

The situations of the Latin American public administrations and in the NGO/CSO sector are similar: proprietary software solutions dominate the field. The use and legal integration of FOSS is an exception. Only Brazil has performed the step from debate to action and explicitly promotes FOSS in the frame of digital divide and digital inclusion related initiatives. However, the legislatory mandate is lacking on national level in Brazil, too. The fact that Weiden in Brazil and Heinz [FH 695-696] have access to representatives of congress and public administration in the whole Latin American region is evidence of their influence, even if their activities often turn out to be unsuccessful. The option of using FOSS in public administration is taken serious. Beatriz Busaniche thinks that Brazil's IT-policy helps to put the topic on Argentina's political agenda *"...having Brazil so close, we have some influence"* [BB 157]. Since 2003, the pro-Linux policy in Brazil is developing on the highest political level. It seems to work as a "lighthouse-case". The fact that the world's 10th largest economy promotes GNU/Linux turns this special kind of code into a policy issue. Intensified lobbyism-activities from proprietary and non-proprietary companies and associations alike are leading to a rising awareness for the nature of code as well [FH 964-967]. But whether or not the process will develop further or will even spread out remains to be seen. The interviewees regard migration as a long, complicated process, which is only beginning. They fear that the Brazilian approach to bridge the digital divide could be terminated once the PT loses power.

The interpretation of the interviewees statements concerning the digital divide studies shows that academics have not yet discovered software as an issue, too.

6.8.1. Structural Characteristics

Structural characteristics support the hypothesis that FOSS has only played a marginal role in the development policy discourse about the digital divide so far, but recent developments indicate a positive change towards GNU/Linux. All interviewees are involved in the process of founding the FSFLA. The institutionalization of a permanent lobby for free software in Latin America indicates an increasing significance of GNU/Linux, while at the same time implying, that there were no capacities and/or no demand for such a step until now. Professional structures are promoting ways of influencing the policy-making process. In general, the Latin American free software scene shows a high degree of organization, they conduct international congresses such as FISL or CONSOL, and they are part of world wide networks aiming to promote free and open code (FSF, FSFE, FSF India). The participation of representatives of the Latin American FOSS-scene at the WSIS shows that FOSS is slowly becoming a factor at the political stage as well.

6.8.2. Intellectual Property Rights

Without me asking into that direction, Heinz, Busaniche and Weiden were frequently referring to IPR-systems respectively to the WIPO [BB 388-389, 419-420, 442-443, 577, 629, 651, 709, 737-739, 750-751, FW 390, FH untranscribed part 01:22:40 – 01:35:35]. This indicates that this topic is crucial for them and thus for the whole discourse. Busaniche brings Brazil's pro-FOSS-policy concerning the digital divide in connection with its approaches to modify existing models of IPR [BB 435-455]. Weiden, too, supports the view that the Brazilian IT-policy is closely linked with the international discussion of IPR, e.g. at WIPO. *"Brazil was never being [...] a leader in IT-discussions in [...] United Nations or things like that. And free software, the view [...] of the government, like suggesting developing agenda for WIPO and doing the things we are doing there – we are for the first time really participating, not just accepting rules about IT"* [FW 388-391]. As shown in chapter 2.4., the issue of IPR has drawn a lot of attention in recent years. Poor and developing countries are demanding reforms of the current systems. At WIPO, Brazil is leading a group of economically disadvantaged countries

aiming at modifying classical protection of IPR. Heinz reports that Brazil's supportive attitude towards FOSS has led to its inclusion in the "Declaration of Principles" of the 1st WSIS as a crucial part of the information society [FH 1118-1119].[185] Heinz has the impression that the Brazilian government is being under great pressure due to its pro-Linux policy [FH 768-769].

It is striking that the interviews did not concentrate much on a technical level. The interview-partners rather mentioned cultural, economical and political reasons in order to explain the under-representation of FOSS within the digital divide discourse.
Software is not only about code. It is about rights, control, security, freedom, transparency and power.

[185] Cp. Kleinwächter as well (2004: 86).

7. Conclusions

In his informationalism theory, Manuel Castells describes the rise of the network society. He has identified four features that distinguish informationalism from the prior industrial stage: the driving role of science and technology for economic growth; a shift from material production to information processing; the emergence and expansion of new forms of networked industrial organization; and the rise of socio-economic globalization. Knowledge and information become a trade commodity and a much contested source of power and influence. Because software administrates and distributes these goods, its economical, cultural and political value increases as well. The networked society is increasingly influenced by code. When it comes to judging the rise of the network society, Castells is cautious:

> *"...the network society is not the promised land of the Information Age. It is, simply, a new, specific social structure, whose effects for the well-being of humankind are undetermined."* [186]

The transformations described here create a new quality in the relation between rich and poor. Networks follow a binary logic: inclusion or exclusion. The spreading of the Internet has triggered a paradox development – the world is networked and divided at the same time. In the course of these developments, the digital divide has appeared on the political agenda. By improving access to ICTs, it is hoped to also foster prosperity, growth and democratization. In the frame of this discourse, the term global digital divide stands for the existing differences of rich and poor countries concerning access to ICTs.

The focus of the policy issue digital divide is subject to a lot of criticism. The main accusation is that the digital gap is treated as an isolated phenomenon, instead of seeing it in connection with other factors such as generally poor living conditions and lack of education. Within the digital divide studies, there are efforts to broaden the original concept by including social factors. These approaches can be summarized under the term digital inclusion or social inclusion. Representatives of this position understand missing access to ICTs as just one more new aspect of poverty. Distribution of ICTs is treated as a means to an end, not as an end in itself.

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[186] Castells (2001: 174).

The development policy discourse about the digital divide has been conducted for about 10 years. Software issues have hardly played a part. There is very limited awareness that software controls human-initiated data flows and thus, influences human behaviour. Despite its crucial significance, code is simply not noticed. Software has a technological nature. In use it unfolds political, cultural and economical power. This position, which Lawrence Lessig represents with his dictum *code is law*, is not discussed within the ICT4D-field. In correspondence to this finding, free/open source software only plays a marginalized role in the digital development policy discourse, despite its compelling characteristics which make it an attractive solution for poor and developing countries. There are convincing arguments indicating that the blocking out of the software-question reproduces exactly the same circumstances which are supposed to be overcome; e.g., technological dependency is continued.

As to digital divide related studies, there is little interest in focusing on software. Emphasis is put on social and political aspects, leaving software-related issues behind. Its cultural, economical and political potentials are not subject of academic research. There is a clear lack of literature and studies concerning the impact of different software models in connection with the digital divide.

The analysis of literature and of the interviews have shown that there is hardly awareness for FOSS, in the Latin America region as well as on an international level. This can be explained by two obvious reasons: overwhelming dominance of proprietary software, especially in the desktop area, and the common practice to work with illegally copied proprietary software. In connection with this, it is complicated to explain why the nature of code is relevant concerning development policies. There are diverging opinions what software actually is. While the dominant parties which shape the discourse, such as NGOs/CSOs, policy-makers and academics, conceive software as a *scarce product*, representatives of the FOSS-scene understand it as a *process, as a free, cultural technique of the digital age*.

Development model, culture and economy of free and open code vary substantially compared to the proprietary software world respectively to the "meatspace" in general. In digital data spaces like the Internet, one main condition of economics does not ap-

ply: *there is no shortage.* FOSS-programmers take advantage of this characteristic. Free flows of information are part of their philosophy. From a hacker perspective, software-production based on cooperation is only an economic technique adopted to the characteristics of the medium. For a great share of the FOSS-scene, this practice is an ethical lifestyle as well. Value is created by offering service, not by selling licences. For more than 30 years, hackers have been doing what Jeremy Rifkin describes in "Access" – they evolve capitalistic structures. But those practices do not fit into classic economy and value systems, they even question them. In capitalism, everything has a price tag, and gratis-goods like software do not fit into traditional patterns of thinking. In addition, the use of ICTs in poor regions like Latin America is much more primitive than in post-industrial nations. All these aspects make the communication of benefits of FOSS difficult.

The virtual, technological character of software accounts for the situation that code in general does not get much attention. Most people do not develop an emotional relation to this good. A comparison with the Creative Commons initiative clarifies this issue. Creative Commons allows copyright holders and consumers of music, texts or films to exercise their rights in a more flexible manner. Creative Commons is very popular on a global scale. It has helped to promote the Open Access movement as well. But this initiative has existed only since 2001 – the FSF was founded in 1984. For the most part, only male programmers are engaged in FOSS advocacy. In contrast to Creative Commons, there is a clear absence of broad support. In differentiation to software, we develop emotional relations to works of art. Everybody has a song that he or she really loves. The right book at the right time can change a life. But software is only used.

One major outcome of this master's thesis is that the under-representation of FOSS-policies is less to be explained by technological, but rather by a variety of cultural, political and economical reasons. Opposing political power constellations and economic interests limit the diffusion of this special code.

With respect to NGOs/CSOs focusing on ICT4D, the following reasons constitute obstacles to the mainstreaming of FOSS: a conflict of interests plays an important role. NGOs/CSOs depend on funding and sponsors. Proprietary companies, namely the Mi-

crosoft Corporation, has much bigger financial capacity to satisfy this need than the FOSS-movement or FOSS-companies. As a consequence, FOSS is not being integrated into programs trying to bridge the digital divide. In addition, migration is, although it is becoming easier, still an effort which few are willing to undertake. Another important reason for the distant and sometimes uneasy relation between professional helpers and representatives of the FOSS-scene is that two different systems with diverging values, vocabulary, self-understanding and communication rules meet. This complicates the exchange between these groups.

Concerning the policy sector, the widespread political instability of poor countries is responsible for the fact that FOSS only plays a marginalized role in legislation processes. Lobbyism by proprietary software companies accounts for the situation that the promotion of FOSS in the public administration and in digital divide related issues stays an exception. The analysis of the academic production, newspaper articles and of the interviews show that concerning lobbyism and sponsoring, Microsoft Corporation plays an infamous key role. Public-private-partnerships allow the inclusion of economically disadvantaged people in the information age. But one has to take into account that in cooperating with proprietary corporations like Microsoft, potential future customers get used to their products, and proprietary standards, protocols and formats are enforced.

In the end, this social commitment might better serve the economic interests of the donor than those of the recipients. Microsoft has a history of violating antitrust laws and is known for notorious business practices.

There are internal reasons that make the mainstreaming of FOSS difficult as well. Free/open source software is often organized in loose networks, and support is delivered via mailing lists or Internet fora. This informal support challenges NGOs/CSOs and representatives of the public sector focusing on digital divide related issues. They are used to work with fixed structures, have to plan for the long-term and demand guarantees. Often, FOSS-projects cannot or do not want to offer such services. As a consequence, migration is not considered as an attractive option. Such demand can only be satisfied when there are FOSS-companies which offer these services.

A number of recent developments indicate that the interest in software issues in general and especially in FOSS is slowly starting to grow on a global level. This can be explained with a maturing of FOSS and its tools, especially in the desktop domain. Migration is becoming easier. A general dissatisfaction with pricing structure, licence models and service of the most influential proprietary software company – Microsoft – plays a role as well. FOSS also gains significance in connection with disputes concerning IPR-systems, which many poor countries consider as obstacles to their development.

So far, Brazil is the only country that has integrated strong FOSS-policies on the national and the municipal level into their approach to digital inclusion. Again, there are a number of economic, cultural and political reasons that primarily account for this situation, but not technological ones. Brazilian policy makers promote FOSS in order to reach technological independency and to strenghten their local software market. The gain of political power is an issue. The mere import of proprietary software is seen as a sort of "electronic colonization". These findings match Castells', who has shown that technological dependency is deeply connected with economic, military and cultural dominance. *Software has become a political issue.*

Brazil's FOSS-policies are closely linked with the ongoing arguments concerning IPR, especially at WIPO. It would be a mistake to reduce the Brazilian IT-policy to a mere effort to fight poverty. It is rather an attempt to create commercial and social value without classic protection of IPR, but with new IPR-models adapted to digital media.

There is evidence that the Brazilian way towards free and open code has been caused by a very active, politicized FOSS-scene, which managed to integrate non-hackers such as people from social sciences, policy makers and people with economic interest into the movement. By integrating GNU/Linux into national programs aiming for digital inclusion, Brazil has pushed the code debate to a new level. Other governments or institutions of civil society are influenced by this new approach. In September 2005, the Peruvian parliament voted in favour of free software. There is increased media coverage, not only in Latin America, but on a global level. The digital divide studies will certainly focus on the Brazilian way to reach digital inclusion; this will help to put code on the agenda in the near future. An intensified professionalization of the FOSS-scene,

e.g. institutionalization of lobby groups, growing economic activities and international networking will increase its influence.

Despite all these developments, the way towards GNU/Linux in digital divide related issues is still in its infancy. If this trend will continue and at what speed is impossible to forecast. It depends on a number of factors: will the public sector adopt FOSS? Will the NGO/CSO-community integrate it into their programs and into their own IT-infrastructure? In which direction will the IPR-debate go, and how will this affect software issues? Because the FOSS-supporters cannot compete with their proprietary counterparts in terms of financial resources, public relation activities and lobbyism, it is likely that the process of mainstreaming FOSS will be slow.
Concerning Brazil, there are factors indicating that its pro-FOSS course is not very solid. The country's way towards GNU/Linux is tightly linked to the fate of the PT. The country has only managed to do the first steps in migrating. There is concern that this policy could end as soon as the PT loses power.

Despite all its compelling characteristics – free and open code does not automatically equal growth and development. It is of little use to only point out its advantages for poor and developing countries. There have to be local structures securing its use, maintenance and development. And even if this should be achieved, it will only be a small step towards the overall goal. Mainstreaming of free ICTs alone will not solve century-old inequalities between rich and poor countries.

A number of external and internal factors would influence the diffusion of FOSS positively in connection with digital divide related issues: the promotion of open standards, protocols and data formats; its adaption by NGOs/CSOs and public administrations; legislations in favour of free and open code and public-private-partnerships between FOSS-companies and digital divide initiatives. A further professionalization of the FOSS-scene; the integration of women and improvements concerning usability-aspects would have positive effects as well.

A large share of the world's material resources is located in the southern hemisphere. Citizens of poor and developing countries have not benefited from this situation, because the exploitation of these resources is mostly controlled by corporations from post-industrial nations. Knowledge and information, as well as systems for controlling the distribution of immaterial goods, are also concentrated in the North. In contrast, free/open source software belongs to everybody. Its fair conditions of use and development have the potential to induce a more even distribution of (digital) wealth.

Software not only consists of information, it functions as a key to knowledge of all kinds. Knowledge is a valuable good: it grows by sharing.

III. APPENDIX

A.1 List of Abbreviations

CC	Creative Commons
CSO	Civil Society Organization
FISL	Fórum Internacional Software Livre
FOSS	Free/Open Source Software
FSF	Free Software Foundation
FSFE	Free Software Foundation Europe
FSFLA	Free Software Foundation Latin America
GPL	General Public Licence
ICT	Information and Communication Technology
ICT4D	Information and Communication for Development
IPR	Intellectual Property Rights
IT	Information Technology
NGO	Non-Governmental Organization
OSI	Open Source Initiative
PT	Partido dos Trabalhadores
WIPO	World Intellectual Property Organization
WOS	Wizards of Operating Systems
WSIS	World Summit on the Information Society
WTO	World Trade Organization

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Casa de los Tres Mundos: http://www.c3mundos.de/

Consol Mexico: http://www.consol.org.mx/

Creative Commons: http://creativecommons.org

Download Culture?: http:// www.download-culture.org

Ebay: http://www.ebay.com

Fórum International Software Libre: http://fisl.softwarelivre.org/

Free Software Foundation: http://www.fsf.org/licensing

Free Software Foundation Latin America: http://fsfla.org/

GNU Project: http://www.gnu.org/people/speakers.html

Indymedia: http://www.indymedia.org

Knoppix: http://www.knoppix.org/

Linux Professional Institute: http://www.lpi.org/

Linuxtag: http://linuxtag.de/

LinuxWorld Conference & Expo: http://www.linuxworldexpo.de

Open Office: http://www.openoffice.org/

Open Source Initiative: http://www.opensource.org/

Projeto Software Livre: http://www.softwarelivre.org/

Projeto Software Livre Mulheres: http://mulheres.softwarelivre.org/

Red Hat: https://www.redhat.com/training/certification/

Tactical Tech: http://www.tacticaltech.org/africasource

Transparency International: http://www.transparency.org

TYPO3: http://www.typo3.com/, http://typo3.org/about/faq/

Vía Libre: http://www.vialibre.org.ar/

Wizards of Operating Systems: http://wizards-of-os.org

WSIS Internet Governance Caucus: http://www.net-gov.org/wgig/busaniche.php

Ubuntu Linux: http://www.ubuntulinux.org/

Yahoo: http://search.yahoo.com/cc

All Internet sources were accessed on November 12, 2005

A.3 Transcription Legend

Italic writing: *Person accentuates a word*

Filler Words/ Noises: [Uhm], [urm], [ah], [like], etc

KAPITAL LETTERS: PERSON RAISES THE VOICE

Emotion: [laughs]

Inaudible word: ?

Speakers quoting other people: 'in single quotes'

Stammering, repetitions, slip of tongues which are difficult to comprehend in writing: [in brackets]

Clearly noticeable breaks, longer than 2 seconds: [break]

Short break, less than 2 seconds: ... (When ... appear at the end or beginning of a statement, it indicates an interruption by one of the interview partners)

Non-transcribed parts: [issue, starting and ending time of the non-transcribed part]

Abbreviations: MR: Meike Richter, FH: Federico Heinz, BB: Beatriz Busaniche, FW: Fernanda Weiden

A.4 Interview Transcription Federico Heinz

Meike Richter: Let me explain first why I wanted an interview with you.

Federico Heinz: Yeah.

MR: So, I write my masters thesis about the digital divide and free and open source software and you are... a free software activist and you focus on sustainable development, stuff like that. So I'd say: 'You're my man!' You can...

FH: [laughs]

MR: ... tell me lots of interesting things.

FH: I sure hope so.

MR: Yeah.

FH: Em... [break].

MR: But maybe I'd like to start the interview with your background. So, if you tell me something about your biography first.

FH: Well, I'm a, I'm a computer programmer. [break]. I, [er], [break] work, [er] ... I studied, [er], computer science, never actually finished in the studies. I worked developing software for some time. Part of it in Germany. I lived in Berlin for eight years. [break] And [er] [em], I went back to Argentina in 1994. [er] ... also the time, I mean, [er], when I was here in Germany I was, a, a free software user of the tools of the time. There were... there was no complete free software system yet, no project hadn't produced a full system. [Em] ... but I used lots of s... lots of free software tools, [er]. I was actually developing proprietary software right then for a software house. [Er]. Then I went to Argentina, I did some stuff and I went... And then started working as a, as this IT information officer for a rather... for a medium sized supermarket chain... rather large for our market. And, [er], there I was responsible for the IT of this whole [break] chain. And for the first time in my life I was, [er], not master of my... of my... [er], tools. Because, [er], this company, [er], was using proprietary software in many key areas. And we were really, [em], prisoners of the people who had developed this software, because we were not able, although we had the tools, although we had the means or had the people, we were not able to solve the problems we had, because we had to get our solutions from them. And they delivered them, when they wanted, if they wanted, at the price, they wanted. [Em], and most of the time, it seems, they didn't want enough... because they didn't actually ever solved... And, [er], we wanted to do stuff with software, which, if it was in their interest, we got it, if it wasn't, we never did. [Er]. And [er]. Well, we, we had real trouble, we couldn't actually cooperate with other companies, which would have similar, [er], interests. Or we couldn't cooperate with our suppliers or our customers. And it was really, really, really bad, and... I had used free software as I said for long time and I had realized, [er], its, [er], advantages and stuff and I liked it very much, but, [er], only when I made this, [er], when I made this step, I realized really *how* bad it was. And, [er], I, that was, the... the worst personal exper... [er] professional experience I had and I promised myself not to put myself into such a situation ever again. And [er], so I started doing lots of free software advocacy and working towards that then we [er] set up the foundation Vía Libre which is an organization working on sustainable development, [er] [break].

MR: But you focus pretty much on ICTs at Vía Libre.

FH: But, yeah, but, it's not, we're not a broad sustainable development, [er], organization, we are concen... we concentrate ourselves in the [er], [er], in the [er] [em], in, in the computers and communications [er] area and that means [em] that means free software. Free software for, for Vía Libre is, [er]... I'm, I'm... distinguished because we are also in the process of setting up free software foundation in Latin America and it's very different there. For Vía libre, [er], free software is a means to an end. Free software is, [er]... We see free software as a precondition for sustainable development. In, ah, [er], em... Actually, [er], not just in the computer arena, but all over the place you nowadays you have to use computers, and, and, and it would be silly not to use them. But to use them with proprietary software is actu... is actually an obstacle to sustainability.

MR: Who's [like]seeking your advice? Or who's inviting you to do speeches about this... topic?

FH: Em, [break], well, em, [er], I'm [er], I'm being invited actually mostly by, [er], free software activists [break] to talk at free software events about this area. It's not...

MR: But isn't that like preaching to the converted, because they already know, what's going on?

FH: [Em], well, it's actually... the idea is more... [em], there's a... there's... there's this problem: I am a programmer. I come, [er], from the technical side. [er], and, [er], the idea, [er], [ah] I cannot come from the, [er], from the development arena, because I'm not, [er], active at that field. My role... I see my role, [er], and the role of, [er], Vía libre more to, [er], as, [er], a role of enticing other, [er], people who are working in these other areas. And we work with lots of...

MR: What does "enticing" mean?

FH: [Em], [er], to, [er], [Em]... oh... I [er]... How do you say this? [Er]... Encourage.

MR: Mhm.

FH: And [er], and, it's more than just encouraging, it's [er], has more of a, [er], it has other connotations... I think of them while I'm speaking.

MR: I look, I look them up...

FH: Yeah.

MR: ... in the dictionary later.

FH: [Em] it has something to do with seducing. [Laughs]. It's encouraging and seducing other people who are working in, [er], in other areas to look at this and to see: This is not just a technical thing. [Em]... [break]. People from our organization are being, [er], asked for other, [er], for, [urrm], [er], for..., to other, into other events, too, like, [er], [break] [er], there was this [?] Amsterdam there was another event, Bea was there, well, because, [er], Bea Busaniche is also here...

MR: Mhm.

FH: ...she's also from Vía Libre and from the FSF LA and she's a journalist. And... well, she can approach the issue from some other sides and she has other connections. [Er], since I am, [er], more of a technical guy, [er], my connections are mainly on the, mainly on the technical side. And [er]...

MR: So you hardly get invitations from like civil society organizations?

FH: Sorry?

MR: Do you get invitations from civil society organizations to talk about free software?

FH: [Urrm] Sometimes. I'm trying to think about [er]... Last year I was, I was at WOS[1].

MR: Mhm.

FH: ...which is, wh... wh... wh... is from the... mostly a civil society thing and [er], who work with other civil society organizations wh... I, I talk at... I've done talks at [er] some of UNESCOs Telecentros, which are [er] places, where people can go and see... [er, er] and use computers and stuff and [er, urrm]...

MR: But like WOS and the UNESCO, they deal with ICT...

FH: Yeah!

MR: ... technologies, right?

FH: It's [er], but [er, er]... It is a really... [urrm] [break] It is really very difficult to, to... to talk about these things with people who don't deal with ICT, because [er] they [er] have difficulties to figure out that it's important.

MR: Mhm.

FH: And [er]...

MR: ... so it's not like... that you get invited and the officials that... who invite you go like: 'O Federico, it's great that you are here, because I have a GNU/Linux desktop at home and we use free software in this organization...'

FH: No.

MR: '... and get lots of aid programmes and they all feature free software policies...'

FH: [Urrm]

MR: ...stuff like that?

FH: It's not like that. There's really [urrm] [break]... It's amazing [urrm]... *There's this blind spot*... [break] [urrm] [break] You have people who [er] are fighting against [er] [break] genetically

[1] Wizards of OS.

modified food that won't... [er, er] genetically modified grains that won't grow once harvested... And who [er] understand extremely complex issues and who [er] are [er] working on very [er] important things [urrm] such as... I know... [urrm] [break] defending human rights in... different countries and... And they will [er]... They will be extremely [urrm]... extremely consequent. They will be [er] extremely [urrm] [er] [urrm]... What's the word? Coherent!... in their... lives, in... lot's of things. And if they're doing for instance human rights work, they will be ex..., absolutely paranoid about security and stuff like that. In all kinds of things... *except*... for free software. Except for software, not for free software. [break] [Er, er] you, you can see this same thing [er] even in the, in the economy... [er]... No sane company would ever [urrm] put itself in a situation where it has a single provider for some key com... key components of the, of the company. They... You just don't do that. That's... [er, er, er] that's, that's [er, er] administration 1-0-1. You...

MR: Mhm.

FH: ... [er, er, er] you're just giving away your company if you do that. [Er] and... the same people who would never do that on any other area they do that in, in software *don't think*... a *don't think of that!* [break] You know? And [urrm]... Human rights organizations that [er] have security protocols of who knows who and they don't even know each ev... They, they know... even know everybody in the group and whatever. And they use proprietary software to communicate over unencrypted email! [break] You know?

MR: Mhm.

FH: And [er]...

MR: So you have to do like rise awareness...

FH: ... [er]...

MR: ... in the first step for free and open source software and...

FH: [Er, er] you, you must raise awareness *that there is an issue at all!*

MR: Mhm.

FH: Once you raise awareness that there is an issue [er], free software is the obvious alternative.

MR: Mhm.

FH: It's the obvious solution to it. [break] There's no doubt about it. But [er] there [urrm]... I've seen organizations doing lots of this... called *digital divide things*. [Urrm] [break] People think it's an issue. I think *digital divide* is just another name for [er] the... old [er] divide between *rich and poor*. [break] It's not, nothing *digital* about it. [break] You know? The o... OK, there's people who don't have access to the net. *Yeah!* That's right. *There's people who don't have access to education.* [break] And [er] that's the same divide. *You won't solve that* by throwing computers of the problem! [break] Yeah, there are lots of NGOs... who address the [urrm]... who address the issue of the *digital divide* as one of *providing access*. *The important thing is people should have access. But what good is access...* if you can't not make the [er]... if you can not make the technology your own?

MR: Mhm.

FH: If you can... have no control of it? If you can not duplicate it? If you can not... [urrm] maintain it? [break]

MR: But it... What always stri... strikes me is [like] that especially civil society and NGO [?] should love free and open source software, because in this [er] sector the term or the catch phrase of "good governance" is very en vogue which means [like] you need participation, transparency, sustainability. But these organizations just don't have [?] also work in the field of the digital divide or have aid programs who are trying to bridge the digital divide. They just don't focus on software and really not on free and open source software.

00:14:08 – 00:17:19 Not transcribed part. Federico Heinz explains why he does not accept the term open source.

MR: Mhm. This... or [like] my my main approach is not like [aehm]... if the digital divide is important at all in development, in development theory.. and it's not... what is better... [like]: free software, open source software – however you define it – or proprietary software. So, I'm just focusing [like] if free software or open source software is playing a role *at all* in the debate of the digital divide...or like if... just to start from scratch: if *software* is playing a role in this.

FH: Well [er] software is undoubtedly playing any ever increasing role in our daily lives, it' s shaping our lives in ways that we could not imagine five years ago, so [urrm]...

MR: So how come [like] the civil society is not [like] asking you [like] every two weeks to give a speech about this [er]...

FH: Well [er]...

MR: ... software model?

FH: ... there's [er] there's this problem, I guess, that... the... the attitude I see in most of civil society [er] towards free software is: 'We should support free software and we should [urrm] encourage free software and we should use free software as long as... as it's not much work.' [Break] You know? And these are people who are willing to take to... to go to extreme lengths to be coherent in... other areas of their [er] [urrm] [er] of the discourse. And who pay lots of, pay lots of attention to their co... to their coherence. But when it comes to [urrm] [er] to a t... to [break] to [er] bridging the digital divide. They go and see: 'Hey, we... we want to provide access.' and 'Who gives us money to provide access?' and *'Hey! It's the, it's the proprietary software companies! So we work with them!'* [Break] You know? And, and...

MR: Do you have any examples for..., for what you just described?

FH: [Urrm]... I [er] had rather not mentioned names, because that's what... But I have... There are plenty of [er] N..., NGOS who [urrrrm] whooo [urrm] place [er] who do work like... putting computers on... in schools and that, and that kind of things. *And they are basically funded by Microsoft.*

MR: Mhm.

FH: And of course they put all Microsoft products in there. And some kids get exposed to [urrm] [er, er] to Microsoft, [er] products and proprietary products and they..., and that's how they..., how they [urrrm] learn what software is intended to be and they..., they are exposed to this idea that software should not be copied at a very early age. And [urrm] that's counter-productive. [Break]

MR: So [urrm]...

FH: Beyond..., besides being wrong! [laughs]

MR: Yeah. And [like] [er], so... Now, you outlined, why the aids programs, they hardly use Free and o..., free software or open source software policies, so they just look: 'Ah, who's having money?' or 'Who's giving money? Right! It's Microsoft, so we'll take them. Fine!' How about [like] inside the organizations themselves?

FH: I, I, I've just been trying to seduce one large, one really large [er] NGO, European NGO, whose [urrm] [break] whose mentor... once [urrm] talked to me [urrm]... He, he [er] we, we're... He was with his entire staff visiting us and [er] we were talking and making..., we were explaining him what we were doing and he was extremely well prepared and he was..., he knew what, he already knew what we were doing and [er] he said there, before his..., [er] in front of the entire staff that free software is central to the development..., to the [er] sustainable development work we do and it's not [?]. It's very important... and that was some... two and a half years ago. Ever since I've been trying to get... the people inside this [er] organization to switch... But they don't do it.

MR: So...

FH: It [er] it would be [er, ah] and it would be amazingly useful, if, if they did...

MR: Mhm.

FH: ... because [er, er] it's wha... [er, er] this idea of [er] 'Yeah! You should use free software! We don't use it, because we have the money, but [urrm] but it's... it would be very good for *you!'*... That doesn't work. These kind of organizations like organizations should be [er] should be breaking the waves, should be [laughs] at this, at, at the forefront.

MR: So, how come that...

FH: [Er]

MR: ... although everyone is [like] talking [like]... I often [like] hear sentences or *read* articles that go [like]: 'Aha, it's like a promising aproach!'

FH: Mhm.

MR: 'Free software is [like] getting... it's like having great potential.' But it stays an intellectual debate.

FH: [Er]

MR: So, how come it's not being mainstream. Because [like] everyone goes like: *'Yeah, it sounds good!'*

FH: Hm, there [er] In my opinion from what I've seen... it's harder the larger the organization is. If you have a small organization they [er] usually can do such a switch... rather easy. You know? If you have a large organization [er] or you'll have an IT-infrastructure. When you have an IT-infrastructure you have [urm] technicians and in my experience.. the... the strongest resistance... to change is not in the users... but in the support staff. [Break] They [urrm] they know proprietary software, that's what they've learned. They have learned how [er] to keep the system from crashing too much and they don't know why the system doesn't crash too much, when they do that, but it doesn't, so!? And [urrm]... all of a sudden they [er] imagine having to change that... for something they *don't* know. And [er] in their minds it's [er] they're having [er] learned this magical dance that makes them [er] usefuls to the, to the organizations. And not the [er] and not the knowledge they can actually achieve. [Urrm] in those organizations where, where this *does happen*... when the migration does happen, these people later find out that, hey, they have more free time, they can actually provide solutions that their [er] professional role actually improves and their [er] internal image improves. They're not any longer the guy you call when a computer doesn't work again, but you, you're the guy [er] you're the guy, the guy you call when there's some new nifty solution that [er] somebody needs and you can provide it. So, [er] in organizations where [er] there is an IT-infrastructure and there is an IT, there is I... IT personal and stuff... and they... sometimes they often already have some kind of [urrm] proprietary software infrastructure, they use everyday. [Urrm] it is [er] it is a hard sell... not to the users *themselves* but to the technicals.

MR: Mhm.

FH: And then [urrrrrrrm]...

MR: What about [like] the management of these organizations?

FH: [Urrm] you know, management in many of these organizations – both NGOs and companies... they're often hostage to their own IT-infrastructure. You know? They cannot... They, they [urrm] they are really beaten up and [er] they don't dare upset the technical staff too much, because [urrm] they will be grumpy and they won't [er] come and reset the computer [?] software [?], so...

MR: But what about [like] this very impressive financial... [er] argument that, you know, you... just don't want to pay for your licences anymore and they're mostly [like] licences go for a couple of years and then you would need new ones, so that would be a...

FH: [Er, er] There are lots of [er] there are lots of arguments [er], there [urrm] but [long break] [urrm] intern..., when it comes to internally... it depends on whether the organization has any money or not. *Many organizations have the money.*

MR: So they just don't use free software, right?

FH: And they [er] and they, they, they have the money and they... Well, it is money they could invest in sustainable development but, [urrm] they'd rather [urrm] spend on [er] licences which is [er], spending on licences is something that would... wouldn't enough... some [er] IT-managers

actually love, because it increases the budget and thus their importance. [Break] [Urrm] I mean, your [urrm] your importance within the organization has to do with how expensive is the toy you actually play with. So, [er, n] there are lots of *social issues*, there are not technical issues, that play a role here. Now, [urrm]... mmmmany [urrrm] [er]... using free software and switching to free software for people who already use other systems takes work! [Break] And, and many say: 'I, look, I've... *I'm fighting poverty here!* I don't have *time* to learn another system!'

MR: Mhm.

FH: [Break] Ok. That's a point.

MR: So, you, you... one could summarize that... [er] [like] in the field of civil society free and open source software is [like] really *not known* and [like] you're being busy in this field, your work is more [like] to raise awareness and you have a good argumentation and to *try* to just put this [urm] topic... on their agenda at first...

FH: Yeah, I think...

MR: ... for a start.

FH: ... we are just happening... just happening. I think it's a first step.

MR: So...

FH: What we should start doing know is how is [er] how we can get this [er] these organizations to actually put the money where the mouth is, because [urm]... [errr] it is an important issue and it is... it, it, it makes a difference whether you use it or not. And ok, you might [er] have to [er] [er] for a while you... you might lose some productivity until you learn to use the new tools, but nowadays actually you can switch gradually. I mean, it's not like it was three years ago where it was more of a all-or-nothing preposition. You had to switch over to GNU/Linux in no time or else. Now you can start using free software on your platform of choice and you can use Mozilla and you can use OpenOffice dot org and you can use whatever. Lots of free software tools that are available for proprietary platforms. And once you have moved most of your work out of proprietary programs... switching the operating system isn't really... isn't that much.

MR: So, one could say or you could say that, that this improvement of the, of the software gave a boost [er], to, to [er]... Or [like]... that, that, that...

FH: I think, we, we use...

MR: ... set it on the agenda?

FH: Yeah. I think it will [er]... we will see more people using [er] free software in NGOs in next time. And then in the next few years. [Urrm] How much and at which speed, it depends on, on a number of things.

MR: Mhm.

FH: [Urm]... I have seen this ongoing discussion for instance in, at WIPO... Ah, no, sorry, not WIPO, at the World Summit of the Information Society. You know. There's [er, er] the civil

society caucus and [er]... and...

MR: How did you take part at the... summit?

FH: I participated [er] remotely, because, you know, it's a [er, er]... it's open to all, but you have to get the money to, to get there and that's [er] not the same for civil societies as it is for corporations. And [er]... Anyway, [urm] these [er]... There, there were civil society organizations and I, I think they, they meant, they meant well, they, they really wanted to do something good. *For our insistings. At least [?] at least for two years now. Now they start using [urm] video conferencing tools. Because it would improve the participation and whatever. And I think there is some... they're losing touch with reality. [Er] World Summit of the Information Society* [?] *they are not doing* [?]. I know where, where the point is. But [urm] [er]... They have this huge desire to do that... and they will, well! They will not stop to provide funds to pro... [er] to producer [er] for free software solutions for these problems they wanted bad, so bad. They will use some [er] free ...as in beer - solutions that is not free - as in freedom. [Break] Just so they can [er] use this toy *which is not actually that useful.*

MR: Mhm.

FH: Because [er] I mean, what's the point? We've been working on an email...

MR: And you're [like] ...hard to get your point of view through...

FH: It... *I mean, it was very hard to get them even to acknowledge that it's not needed.* And they never did acknowledge it. You know? You, you have this great medium which is text, which works over low bandwidth lines. You can use it with very small computers, you can access it practically everywhere in the world. If you were, are going to use video conferencing software you gonna need a [er, er] fat band... a fat, a fat, a fat pipe, you will need a decent processor, you will need memory, you will need a computer with multimedia capability or sound card. I mean, many computers don't even have, a, a, a *speaker!* [Break]

00:32:30 – 00:34:33 Not transcribed part: Clarification of the terms "Civil society" and "NGOs"

MR: So then maybe let's talk about some certain organization like UNESCO for example...

FH: Yeah.

MR: ... who focus on [er] [like] communication and information programs and also do telecentros.

FH: Well, that's great. That's a good example. The UNESCO for instance is completely [urm]... [err] has multiple personalities.

MR: It's a huge organization.

FH: *It's a huge organization, which has multiple personalities.* You got UNESCO worldwide which is fostering, which is promoting free software and which is doing these free telecentros all over the place and which is [er] hosting [er] the Latin American Conference on free software and which is doing all these things. And you got [er] UNESCO at the Caribbean [er] doing an, doing

an agreement with Microsoft which bears the title of *"Microsoft Unlimited Potential"*. I mean, when did UNESCO become a marketing company? [Break] You know? And [errrrrr] [er, er] it's..., Maybe it's just their federal structure or whatever, but I don't think it, you can meaningful [er]..., you can say anything meaningful about UNESCO as a whole.

MR: Mhm.

FH: We can speak about [err, urrm] individual [urrm] in... individual initiatives [er, err] within UNESCO, but UNESCO is ho... mid... The US has just gotten back into UNESCO and the first things we, we hear from UNESCO shortly thereafter is, that the Caribbean makes an agreement with Microsoft.

MR: Mhm.

FH: Which bears the Microsoft name.

MR: Actually they, they signed a contract with Bill Gates in December last year...

FH: ... yeah...

MR: ... giving [like] a billion to the information..., to the information and communication program.

FH: A billion money of a billion licences?

MR: Money.

FH: Real cash? [Break]

MR: So but, what about the, the... because I think that Via Libre is corporating with UNESCO on the telecenter...

FH: Yes!

MR: ... project.

FH: Yes, yes. We are, we have a just writing a report on that when you came. [Laughs]. And [er]... [er] They're going, [er] they, they provide [er] funding for the infrastructure and the idea is to create a, a space where people can go and use the, the computers and do [urrm] training and that kind of thing.

MR: And how did that project start? So, did you approach them or...

FH: No, they approached us, because they're [urrm] UNESCO Uruguay has had strong ties to the free software community group by some time now.

MR: Mhm.

FH: They organized in 2003 and they have supported a number of free software events in Uruguay and in Peru and in [er] Brazil and I don't think they have actually supported anything in Argentina yet, but I might be mistaking. So, [urm] UNESCO in Uruguay has been working for a

long time with the free software community and they've been really helpful and trueful in many...

MR: Mhm.

FH: ... in many aspects. [Urrm] [Beep of recorder] Well, as I said, it is a federal entity, international, large...

MR: I'd like to summarize this NGO/civil society part and [like] speaking about, you know [like] organizations...

FH: ... Mhm...

MR: ... [like] to get the definition right [er] who, who are working in the field of improving...

FH: ...social life...

MR: ... social rights oder, [er] ja, living conditions, so, your experience is that there's [like] more like a lack of a, of a political debate about the use of...

FH: *I think there's a lack of awareness...* there's still a lack of awareness of how important this is. And I can understand it, I mean, it's something new.

MR: Mhm.

FH: And [er] [err] and there's this huge propaganda machine working all day long telling them [er] 'Software means... proprietary software.' And [er] free software doesn't have the means to do that kind of [er]...no, the... [Er] doesn't have the means, nor, nor the [er] nor the occasion [er] to, to do that kind of thing. [Break] And so [er] it's sometimes [er] hard... I, I've been to [urm] to many places where you tell people 'You should not, you should try to avoid...'

[Noise, the batteries of one of the two recorders die out]

FH: I've been to places where you tell people 'You should not, you should not [er] send documents by email in proprietary formats. You should not use word format for exchange documents.' And they look at you in complete puzzlement and say: 'Is there, are there, is there another way?'

MR: Mhm.

FH: You know, they are not even aware that there is, there a are alternatives. [Urm] [break] it's [er]... It's a long process. I think [er] [urm] what I seen in Latin America, too, is also, [er] we, we, which doesn't have [?] issue for instance in, in companies you see that the pressure for optimizing and [er, urm] doing [er] doing [er] good and useful use of resources is much stronger. [Er] we actually see in Latin America that companies are switching to free software much, much faster than [er] civil society organizations.

MR: So, why is that happening?

FH: [Urrrrrm] I think that's happening for two reasons: One of them is that companies have more pressure to, to do [er] rational use of resources and [er] and to [er] keep their [er] independence

from suppliers and stuff and so there's slowly [er] eliminating this blind spot I was speaking about earlier.

MR: Mhm.

FH: [Urrrrrm] And that's one reason. The other reason [er] is that there're usually more sophisticated users of computers than in NGOs. At many NGOs computers are just means to send email and to write letters. And [er] although they, there are very bad consequences of doing that with proprietary software [er] they don't need so much... they don't feel so much the need for customizing and for having a machine that does exactly what they want. [Er] They only feel the pressure in their [er] in their pockets when they have to upgrade every so many months and it's actually not the [er] not the pressure of buying the licences, because, let's face it, the only competition to free software is not proprietary software; it is bootleg software.

MR: What's that?

FH: [Er] illegally copied software.

MR: Ah, ok.

FH: [Break] You know? [Er] when, when you really have the competition between free software and proprietary software, proprietary [er], proprietary software loses [er] consistantly. However, many people in NGOs don't use [urm] don't use proprietary software. They use... they u... they don't use proper copies of proprietary software.

MR: Mhm.

FH: They are not... they are... unlicensed software... And [er] so they feel the pressure on their pockets when they... everytime they have to upgrade their computers, because they have installed new software to do the same thing they were doing two years ago but [er] now they need twice the computer for some reason. [Break] But that's, that's all they see. They [er] don't have sophisticated needs. When they start having [er]... They, they... the appeal of free software is much larger the more sophisticated you are in your computer needs. That's why in technical [er, urrm] in technical circles free software is the obvious solution, because the needs are very, very [er] complex.

MR: Mhm.

FH: And you need to customize solutions, and that's, that's where you, you don't even question the fact that [er] there's no one-size-fits-all-solution.

MR: And what would be your explanation why governments are raising software policies... [like] or why are they putting it... starting to put it on their agenda [like] Brazil is doing now?

FH: Well, [er] Brazil is doing it, because [er] it has a very strong [urm] free software community which has worked with the [er] current party with the..., with the body which is currently in power for a very long time. [Er]... from the time where it was in Rio Grande do Sul... , and [er] [er]... [err] So, the Brazilian government [er] is doing this things due of very long and very successful work...

MR: Mhm.

FH: ... by [urm] free software [er] activists that were doing this work...

MR: So there's a strong tie between the government entities... and the community?

FH: Well, the, the, the... the bad news is that unfortunately in Brazil the ties are more between [err] free software community and the Partido dos Trabalhadores, the party which currently in power. [Urm] This is good... because [er] it allows for [urm] for large actions and for [er] very fast action. [Urm] However, it can be bad, because it's not that [urm] solid.

MR: So it's more [like] tied to the party?

FH: It's more, more tied to the party. It, it, it calls for [urm] for [er] enemies that shouldn't be enemies.

MR: Mhm.

FH: You know? Just the fact that in Brazil the PT has [er] practically [urm] taken [urm] free software at a, at its flag... [er] causes that other parties which, which, which could find an ally in free software, too, oppose it just because it's the PTs defending it.

MR: Mhm. When I talked to Fernanda, she told me that [er], the community in Brazil is really trying to, to mainstream [like] software as an issue [like]...

FH: Yeah.

MR: ... it's not that it's like being pushed by one party in the government. So they really try to open doors for [like] [er] whatever... female organizations, civil soc... civil societey, that they start [like] to have an awareness for software and so that it's not being... [er like] that this development is not stopping when the Partido dos Trabalhadores is... [er] [like] has to step out of... [er]... they're losing the next election.

FH: There's a lot of work going on there, and, and we all hope that it is successful.

MR: Mhm.

FH: [Urm] If we look at what happened at Rio Grande do Sul, for instance, [er] that's an example of, of an [?], where it was not...

MR: Is that a state, or what?

FH: It is a state. That's a state of Brazil. Rio Grande do Sul had a very strong free software policy for the years that Olívio Dutra was in the government of the state.

MR: Ah...

FH: ...was out of office and [er]... I would say that most of the work that had been done in free software was taken back.

MR: But that would mean, that it really wasn't established [like], you know, within the country. Maybe so... that would more back the, the, the assumption that it was... [like] the community pushed it and the government pushed it, but it never made it... [like], you know, to the *core* or [like] to the heart of the people, that they...

FH: ... [er]...

MR: ... maintained it, when the government...

FH: That, that, that is, that is one point. That is the, the idea what, what, what must be done.

MR: Mhm.

FH: And the idea is to [er] make it popular with people to..., that people know that it is important to, to raise the awareness and talking about which is not... just not there.

MR: Yeah.

FH: When people [er] realize how important it is, well, they, they support it. But... [er]...

MR: It's starting, the whole process?

FH: [Er, er] We are still far away... If you take into account that [urm] computer usage in [er] Latin America is *much,* much lower than here..., you know, and... OK! Everybody uses their computer every time when he uses a phone. But you're not aware of that. You know? And [er, urm] in a population where the use of computers is so primitive... [er] to raise the awareness of *why* it is not, it is important to use free software, it has to do with... it has to do with things like [urm]: 'Well, we must be able to [er], to reproduce this technology, we cannot be *dependend* on something that doesn't, that we cannot produce ourselves.'

MR: Mhm.

FH: That is the most powerful idea behind it.

MR: Yeah. So, when we just take Brazil, they are really pushing...

FH: Yeah.

MR: ... that, that, that issue...

FH: Yeah.

MR: ... and [like] because [like] you, you, you're a speaker of the Free Software Foundation and you focus on the... sustainable development. So what about [like] other countries or... [like] do policy makers invite you to give a speech or [like] to talk about your issue... or is there... there not [like] much...

FH: Yes. I was invited by [er] by a few governments to speak on, on free software issues like Peru and Venezuela and... [Urrm] [break]

MR: And what about Peru and Venezuela? So, I would *guess* that Hugo Chavez is really, really trying to do everything he can to, to, to stop [urm] tech... technological dependency...

FH: Who is doing that?

MR: Chavez.

FH: Chavez. [Er]...

MR: But, but...

FH: ...yeah...

MR: ...because he's [like] really being outspoken against the United States and everything attached...

FH: Yeah, my... my... I [er]... Chavez is doing [er] lots of things in, in that direction. [Urm] I [er] know the people who advise him and that. I don't quite know what's going on there. I know he wants to [er] that, that Venezuela is going towards free software and the friends of free software and...

MR: But is there a bill... to like... to make it *mandatory*... the use of...

FH: They have... they have, they have done a bill. The problem with... again with Latin American [er] governments is that they are too unstable and they have a very short attention span. [Break] You know? And [er] we should see what hap... what happens there. I, I [er] I really hope [urm] they succeed in [er] in, in using [er] free software and [er], and [er] I sure hope to help them do that. [Er] However, [er]... governments are not... that's what I was talking about with UNESCO ... Governments are usually not a homogeneous... [er] [er, er, er] a uniform [urm] a uniform body. You know, they go at different speeds, they are more of a coalition of different entities which are most of the time [er] enemies of each other... [laughs] It's very difficult to coordinate. [Urm] So, [er] Venezuela is doing [er] is doing things there [urm] Peru tried to, to, to put out a bill.

MR: But you used the past-form. It didn't make it?

FH: [Er] Well, it's actually still their trying to [er] pass it, but it was [er]... There [er] was this episode when this bill was really, really close to being passed. [Er] And [urm] out of the blue came the [er] American ambassador, the North American ambassador [er] working as a messenger boy for Microsoft, delivering an internal Microsoft memo to the president of the [er] of the [er] Legislatory in Peru. And then [er] to the president, to president Toledo [er] telling him that [er]... bringing him an urgent invitation by [er] Mi... by..., by Bill Gates [er] telling him that [er] he had something very urgent to speak with him, would he please come.

MR: Did he?

FH: [Break] And he did. He dropped everything he had on his table and went for a couple of days [er] to Redmond and [urm] came back with a really, really cheap bribe like $50,000 in cash [er] lots of licences and stuff like that. And from then on the project didn't go, didn't [er], didn't do any, any, any process..., progr...

MR: Is that like a common experience that [er] the attempts get shattered when the *Big Player* - again - steps in and... because you are threatening their business model. So ...

FH: [Er] It is a common experience. It is a very common experience. They [er]... we are having... [er] In Buenos Aires, in Buenos Aires province right now there is a similar bill to the Peruvian one which was actually several... [er, er], very similar an Argentine one previously. And [er] this province in Buenos Aires was doing very good progress and was going voted... when out of the blue some guy asked: 'You know, this bill didn't go through my commission and I really think we should [er] check it out before we go into vote.' And they demanded that they, it go into their commission which has nothing to do with, with software or technology...

MR: Mhm...

FH: ... or anything like that what so ever. And [er], well, since then it's been sleeping there. [Break]

MR: So, and [like, like] [? background] you just said that it is really hard to, to get the, the free software policy through when [like] the Big Player Microsoft steps in. So then it's [like] especially remarkable what Brazil is doing.

FH: [Urm] Sure! And, and I mean the, the Big Players are placing [er, er] are placing a lot of pressure on Brazil... right now.

MR: Mhm.

FH: They are... [er, urm] And they're doing lots of work to [er] discredit what is going on and [er] Microsoft went to ridiculous lengths to [er], to put down [er], to, to lower its prices [urm] in order to get their software onto this "PC Conectado"[2], what's Brazil doing...

MR: They did that in India, too, I think.

FH: Yeah. And they just, they actually just [urm] [er, er] told the world how much Windows is worth: One dollar!

MR: Mhm.

FH: That's the price they agreed on with [er] oh, I don't remember right now the name of this country, some Asian [er] country, they just made an agreement: 'OK, you..., we will wide out all your licences...'

MR: Mhm.

FH: '... for [er, er] for, for Windows for one dollar.'

MR: So [like] this... [er]... Can... [urm], can you say that the governments are starting to use GNU/Linux as a weapon for negotiation?

FH: Well, companies have been doing this *for years*. You know, if you want to, to have Microsoft or Oracle, well, Oracle not so much... but particularly Microsoft, you want Microsoft to give you a

[2] Brasilian government-run initiative for digital inclusion.

discount... all you have to do is put [er] is put a penguin on your... [er] a stuffed penguin on your desktop and your desk and a couple of boxes of some Linux... Linux distributions and you're set!

MR: Mhm.

FH: [Er] Imply that you are contemplating a migration to free software and... so it goes. And ... [er] governments are using this. [Er] There are gov... I think the government of Brazil is *not* doing this negotiation ... and [er] neither is Venezuela.

MR: All right.

FH: You know? And [er] as for the rest of the countries, well, it depends on the organizations. Some, some [er] government organizations are really meaning to go to free software, some others are doing licence.

MR: I have the impression that when the other Big Players step in like IBM or Novell Suse, then it's being *easier* maybe for governments to push FOSS policies. Is that true or...?

FH: As a matter of fact IBM does not push free software policies! [Urm] IBM [er] is telling everybody that free software is good and you should use it and... well, the... well [urm] it [er], it [er], it's a better solution and it's most, more cost-effective... but they go to great lengths to avoid... to avoid [urm] speaking of free software and freedoms, because they want to [er] sell their proprietary solutions, too. And they oppose every... [er] they oppose every initiative to actually legislate in favour of free software. [Urm] So, [er]... What Novell Suse does, they actually [urm]... I've not have seen them taking any, any political stands. They are going at it from the purely market [er]... market perspective. You know, 'we want to compete'. [Urm] But I've seen things like... Argentina just [er] made a program similar to the PC Conectado from Brazil... [er] only... Argentina did it really wrong. [Er] you can [er] buy, you can buy computers in [?], in, in [er], in [?], but the only computers you can buy in the installments which are, which are [er]... the financing is done by state owned banks. You can buy only two models... both have Intel processors, there's no other alternative, and they all have Microsoft Windows and Microsoft Works on them. You cannot buy them with free software. You know?... *Which is outrageous!*

MR: Mhm.

FH: I mean, if state banks are going to [er] to promote the [er, er] possession of computers they should just say: 'OK, get your computer, it should do at least these things [er] and... I lend you the money...'

MR: Maybe software and free software is not being really integrated [like] in institutions. E.g. not being integrated in school curricula or in [like] university curricula.

FH: Well, it depends. Universities use free software *a lot. A lot!* Not [er], it's not like that, in schools it's not [er, er, er] it's not as much. But in any case, why are they imposing it? There's no reason to im... to... to... force you... to buy... to buy a... a particular product with your computer.

MR: But, yeah, but there should be [like] there's the answer... because there's a lack of awareness and a lack of political debate.

FH: [Er] well, no, no, no. The guys who did this didn't do this, because they *didn't know.*

MR: Oh, you mean, the, the, the Telecentro project?

FH: No, no, I'm talking about the, the, the people who [er] who set up these programs to finance computers for people. The guys who set up this program, they... This program was actually set up by Intel and Microsoft and nobody *hides* that fact. [Break] You know? Only the financing is being provided by the state. [Break] So [er] [break] what was I aiming at? [Urm]

MR: My, my approach was that there's a really a *lack* of awareness of free software, Open Source Software and that's why is it so easy for Microsoft to step in and say: 'You want an aid program? No problem'!...

FH: But, but...

MR: '...we can cooperate!'

FH: That is, that is, that is true, but it's not true in the [urm] in the organizations who set up this program. You know? It's true for the normal consumer and, I mean, Microsoft could make use of this fact and just say: 'OK, [er] let us [er] do financing for any arbitrary computer with any arbitrary software and they would probably sell a lot, because people would not be aware that there are alternatives. [Urm] however, where I was going to is, for instance: In this decade, where you can see very clearly that there is a [urm] that there is [er], an interference with com... with competition. You know? And where companies like Nov... like Novell or Redhat or other companies could actually complain and... and, and do something about it, *and they don't*. [Break] No, they don't actually go and speak out, speak out about these things, and, and that's [?], OK, that's the way it is [?]. Actually this particular government program is particularly pathetic, because [er], because the computers they are offering, they are not cheaper than the computers you can buy at supermarkets. [Er] there...

MR: What would be [like] your master plan, what must [like] the community do or policy makers do [like] [?] discuss the community, because I say [like] the community is really pushing this issue...

FH: ... yeah...

MR: ... and it's hard for you guys to get through...

FH: Yeah.

MR: Policy makers, NGOs, CSOs, what would be [like] you're master plan to raise awareness and that... to make GNU/Linux more mainstream?

FH: [Er] it's all over about communications, about two things: one thing, which is [er] probably most important for..., is Free..., [er] writing free software, having software, having better free software and [er] sharing software, that's [er] one..., that, that, that's [er] the most important thing and...

MR: You mean [like] having [like] some 'light house' case like for example Firefox?

FH: No, I mean just having the software. It's no use [er]... I mean, it is, it is of use [er] the Free

Software Foundation has done it for a long time saying that free software is [er] is important stuff although there was no, not much free software. But if we want to make it mainstream, [er] we need to have software to support the needs of most users. [Er] that part is fortunately [er] working pretty well. So, but this is [er] the, the, this is obviously the most important part: that there is free software.

MR: Yeah.

FH: [Er] the second part is [er] communication...

MR: ...to try to find new allies? Allies?

FH: [Urm] it's actually [er] talking about it. Writing articles in newspapers. [Er] giving talks [er], rais... Distributing software in all possible manners, [er] trying to get the word out, that's the [er]... There are many things. We are... [er] we are working with [urm] legislators at many... in many countries and stuff... [er] trying... [er] [er] trying to [er] have bills introduced to [er] require that the state is using free software.

MR: And would you say the this cooperation with legislators is increasing in the last years?

FH: [Urm] it's both increasing and decreasing. You know, there are [er] legislators who are starting to get interest in this, and there are legislators who don't want to have to do anything with it. [Er, urm] A few years ago, you got legislators who where completely clueless, they didn't know if they were for or against. You don't run so much into those right now. Most of the ones you [er], you reach today [er], well, some of them still don't know what it is about, but they know whether they're for or against it.

MR: Yeah.

FH: You know? [Er] so, ...

MR: Do you have [like] a suggestion why it's becoming more... [like] why there's... more awareness?

FH: Why there's more, there's...

MR: ... yeah...

FH: ... Well, because it's being discussed all, all over the place. The community has done a great job of placing this... I mean, even Microsoft is doing publicity for us. There...

MR: ... actually I've seen lots of [em] advertisements in [like] Linux magazines...

FH: Yeah, and, and...

MR: ... I found it kind of funny.

FH: And, no, and they [er], and, and in other in mainstream press, you see, you see this huge advertisements 'Let's get the facts out of Windows and Linux!' That's how to do advertisements for, advertising for free software. They are scared!

MR: I have a suggestion why this topic is... is starting [er like] to... to gain significance and why e.g. Munich is migrating. I'd say that the public sector is kind of striking back and... [er] the governments are trying to free themselves from dependencies... because since capitalism is [like] the onlyest system remaining around the globe... really... [like] governments... public sector is really being under *big* pressure... economic pressure and I think governments are trying to... yeah... like to strike back and to gain more, more power against...

FH: That might be. I think [er] the case of Munich was... they were really very badly abused by Microsoft. You know, [er] Microsoft [er] did what they want... they, they actually told them: 'Hey, that's the price I put, but I can slash it in half, I can... can slash it in, in forth and I'm... I'm still making money... so, I... I'm putting... I'm just setting the price to whatever I want.' You know? And once this becomes obvious... you realize that you don't want to do business.

MR: Mhm.

FH: You know? There are many things that came together in... in... in the Munich case, so, you, you maybe right in that, in that account. [Urm] [Break] The... Many politicians are aware of this also, because there's *massive lobby*. You know? And the BSA[3] is lobbying for stuff and the community is lobbying for stuff and [er] companies are lobbying for stuff and so... it raise... that raises awareness.

MR: And when you do lobbying for free software, do you use [like] [er] arguments from this digital divide debate or, or, how, how do you...

FH: No, we go... you you... we go about it [er] on [er]... on principle debates... on principles. We argue that the state must, that one of the roles of the state is keeping, of the state is keeping the public record.

MR: Mhm.

FH: The public record is not [er, er] it's not *owned* by the state, it's owned by the citizens. And the citizens..., it's citizens has no choice but to that functions to the state. So, when the state is doing its work...

MR: Mhm.

FH: ... it is essential that it preserves the integrity of the data...

MR: Mhm.

FH: ... and the security, integrity, [?], that it preserves the [urm] the [er] [?], the... the availability of the time of the data, because we're talking about data, that has to survive for centuries. It must be acceptable.

MR: Do you [like] to go through in this eGouvernance field?

FH: Well, [urm], in certain [er]... I open certain doors, then I close certain others. [laughs] You know? There are people who are willing to listen to this...

[3] Business Software Alliance.

MR: Mhm.

FH: ... and who are [er]... who really get... and push it. And there are some other people who don't.

MR: Mhm.

FH: It's [er, er].... I mean [er] the fact that there are [er] bills proposing that [... ? ...] using free software in [?] every country of Latin America means something. Of course, the fact that most of these projects never make it also means something.

MR: Yeah.

FH: But some of the do.

MR: So, [like] you as an activist, you don't use this digital divide argument...

FH: No**.**

MR: You don't. But [like] is there...

FH:... I use... but the Brazilian government does.

MR: [?]

FH: I [er], I, I go more for [er] another approach. I say: 'If we're going to [er, er] to [er] approach the digital divide issue, we must do it with free software. If not, we're not actually approaching it. We're not solving it.'

MR: Mhm.

FH: But [er] that's our message in the digital divide issue. We don't make any statements on weather there is such a thing like the digital divide or not, I have my personal opinion on that. [Er] but [er, urm] of course, I think, we think, it's maybe good to have more computers amongst people and we think it's maybe good that [er] people [er] learn to use [er] certainly good that people use and learn to use them. But it's [er], what we say, it's good that they do it, if they do it with free software. It's not they're learning to [er] they're learning to [er] become dependent and that's not good!

MR: So...

FH: ... so we're [er...] when we approach the digital divide issue, we approach a methodo... methodological [er, er] way, we say: 'If we're going..., when we're going to approach this, we should do it like this, if not, we're not achieving it to the goal."

MR: Let me tell you [like] a story... [like] when I read... [like] lots of literature, academic literature about the digital divide...

FH: Mhm.

MR: ... and there, there's [like] literature very scarce, because it's a very new field and very few [er] scholars spoke upon it, but [like] in most books [like] 200 pages, 300 pages, you hardly find just the word 'software'... and... and... or... free or open source software. Not at all, almost, so [like] sometimes then, then you find formulations like, 'aha, it's like a promising approach, but they're it stops. So, how is [like] your experience of the academic field? Do they invite you?

FH: [Urm] The technical academic field invites me a lot. [Er] the social academic field... [urm] You know, my impression on that is that talking about software is getting into the technical side of things and that's not something that interests social [er, urm, er, er] social researchers. And that's a *huge mistake!* Because software is crucial, you cannot approach the, the [er] anything about this new technology...

MR:... this is the ankle of my masters thesis, because I really was astonished that you have all these very smart people who write these very smart book but they... they might write about hardware... but software is just not on their agenda.

FH: And, and even in, even in hardware they don't ...[ah] I mean, on hardware there's actually little to say, because what are you going to do say... architecture? I mean, it's..., all you can say, all you can say is, well, we need every cheaper hardware and every cheaper connectivity and... [er] to, we need for it to be universally available. OK, I think we can all agree with that!

MR: Mhm.

FH: You know? But [er] hardware is subject to certain constraints [er] as [er] as it is [er, urm] a physical [er] good.

MR: Mhm.

FH: That [er]..., well, we know how to handle with that. There's not much to talk about. [Er] however, software is crucial to all of this. I mean, actually software is much more important than ha... than hardware. 'Cause the same software can run on different hardware. And [er] the thing that controls what happens with the data, with the communications and that... that actually does this... does... does the work... is software! And [er]...

MR: So, it's even more astonishing that policy makers, NGOs, civil society, academic field does *not* have software on their agenda.

FH: It is [er], it's very frustrating. It is very, very frustrating. [Urm] most of them argue about software in the same way you would argue about a physical thing. You know? We need software to be cheaper, we need software to be faster, we need software to be... whatever.

MR: Mhm.

FH: But they don't go into what software *is*. They... [er] most of them actually buy the [er, urm] buy the argument promoted mostly by the proprietary software companies. But... software is sort of a ready made product. You know?

MR: Yeah, but...

FH: ... a manufacturer ...

MR: [?] most people... get [?] right ...

FH: Yeah...

MR: ...[like] everyone is [like], you know, born into his Windows computer.

FH: Yeah! Yeah, that, that, that is the point! They... everybody gets the idea, OK, software is delivered ready-made, you know, and you, you use it as it is. And [urm] in countries like Latin America there's, there's not even the awareness that we could actually produce the stuff!

MR: [...] How do you judge... or bewerten... the fact that the World Summit on the Information Society... and I don't want to go into if it's [like] useful that it is taking... place... [urm] happening... just like: they produced in 2003 the "Declaration of Principles" and they mention free and open source software explicitly. So, would you say that it's like a little success?

01:18:18 – 01: 21:23 Not transcribed part: Federico Heinz expresses criticism about the World Summit on the Information Society

FH: I think there has been... We have managed to do some damage contention. It could have been worse. We have managed to put some [er] free software language in certain documents from WSIS which may help us in the future for certain things. And this was mostly thanks to the [er] pressure put by the Brazilian government, because they did a really, a really great job. [Er] so, to your original question, well, this is an advan... it is an advance, I think, it really helps us in the future. How much it will help us, I don't know, because [urm], you know how it is with, with your instincts... you know... there is, were solutions and these solutions were multiple parts and some of these parts magically ap... progress more rapidly than some others. And so...

01:22.40 – 01:35:35 Not transcribed part: Federico Heinz criticizes the WIPO; he explains why he does not accept the term "Intellectual Property"; he talks about reforms of current Intellectual Property Systems; we talk about Creative Commons.

FH: There's one... one thing I particularly... that particularly itches me with Creative Commons. [Urm] free software was conceived as a movement by programmers. Know... Who knew the stuff and knew the issues and who... [er] started doing things the way they thought that they ought to be and they started publishing their own works. [Break] Creative Commons is *not being pushed by musicians.* Not all, not, not, not [er] not m... not [er] not *mostly by musicians*. There are some who are...

MR: They are scholars.

FH: Yeah. They are scholars, they are lawyers. There... You know, it's mainly lawyers who are pushing it.

MR: Yeah, but they managed to make it [like] a *real issue*. [? Rest difficult to understand]

FH: Yeah, yeah...

MR: And they managed [like] to get into the artist community and they have artist on their side.

FH: They're, they're managing...

MR: And I would say that the software movement *really* is having problems to get their knowledge out of their community.

FH: [Er], well, that is [er] that is, because it's something new. That is, because it's something completely new. I... everybody understands music. People get taught how to write in school.

MR: Yeah, but everybody also today is having contact with software *all the time.*

FH: There's a lot...

MR: Our lifes are being organized by software to a big extend.

FH: But there's a great distance between... that's the issue of how you perceive software. You perceive software as something that's ready-made. [Er] it's something very different than when you regard it as a technical [er, er] as a cultural technique.

MR: Mhm.

FH: When you see that software is like writing... that software is like... like music, like..., that software is like maths. It's something that we all ought to know, at least the... the... the... most basic things about it. I mean, we don't expect everybody [er] to be [er] a Stephen Hawking, yet we teach everybody to do simple maths. We don't expect everybody to become an Umberto Eco, but we teach them to write. You know? When it comes to software... schools... what do schools do? They teach them how to use software.

MR: Word.

FH: Word! Ok. You know? And that is not teaching, that's training! [Break] You know? That... [er, er]...What we need the school to do is to teach students the rudiments... the... the most rudimentary issues at least of programming. That... that just as they teach [urm] students some art and try to show 'em how to [er, er] get them started and trying to paint something, even they, they have no ability whatsoever for that. And no vocation to do it. OK, you should try to write some rudimentary piece of software, so that you understand what's, what's happening there. It's not something magical that can only be achieved with [er] extraterrestrial technology. *It's just text!* [Break] And [er] I think the difficulty is not that the community is having trouble communicating outside. [Er]... I mean, we are having trouble communicating outside**,** but that's because... [er] the people outside the community don't have *the most basic tools* to understand what we are talking about.

MR: So...

FH: We can't really provide them.

01:39:50 – 01:42:00 Not transcribed part: Basicly a repetition of the topic about the difficulty to raise awareness for GNU/Linux.

MR: Maybe... the whole history of information and communication technologies is so young,

maybe [like] 30 years, and you know [like] the net itself became popular [like] 10, 15 years ago, so that's really the beginning of the story. So, no one can expect that...

FH: Of course. But the point is...

MR: But it is, but it's really [like] important to get to that point that people are aware of the type of software they are using...

FH: [Er] I meant trying to...

MR: ... [?] matter how powerful the software is.

FH: I mean, it's very difficult to understand the concept of free software unless you understand the so... the concept of source code for instance. Try to explain source code to a random person in the street. [Break] They are completely unaware that any such thing could *ever exist* or it will take you *a couple of days* until the person really gets it. And you were lucky, if this person ever gets the connection between what he or she uses every day. And what you [?]. So, [urm] society has not yet adapted itself to a new environment. And so, it is true that the [er] that the free software community is having trouble communicating with [er] with society, because our message is much different to that from the proprietary software. The proprietary software world is telling you: *'you don't need to know anything.* The less you know the better. *Actually, as a matter of fact, I'm going to forbid you from learning about it.'* You know? And, so, *here you got it, it's shiny, it blinks, use it!*

MR: Press the button.

FH: Right! You know? Whereas for free software community our message is much more complex. This stuff is crucial, it's shaping your life, don't... So, you must be able to somehow shape what's shaping your life. And it means a very difficult thing, the [er]... I really... I think it's [urm] it is really unfortunate that the free software movement started in an English language ... country, [er] because of this ambiguity between "free" as in "beer" and "free" as in "speech". [Er] because it has come, it, it has become very strong, this association between [er] free software and gratis software. And *I can't for* the *life of me figure out how* in cer... certain cultural environments *freedom* and [er] *cost* [er]... freedom and no cost could ever become, could ever, could ever be [er] associated. *Freedom is expensive! It always has been! Freedom is often bought with blood.* And you don't, and you mo... in most of the time you don't even get the real item [?]. And even if we're not going to have armed geeks attempt... attempting to take over the world and that kind of thing, [er]

MR: [laughs]

FH: There's still a very [er], a very substantial cost of free software. And that is responsibility. Freedom means, free... freedom [er, er], freedom is always [urm], has a contra-word which is responsibility. You, you're using free software, you're welcome to do it and now you're responsible for [urm] using it. And [er] you, you only have the choice. OK, you are using proprietary software and it doesn't do whatever you need. You can ask for the company to change it and if it doesn't, OK. It doesn't do it. What, what can you do about it? If you're working with free software and you need the software to do that and it doesn't do it, do what you need, it's *your* responsibility.

MR: Mhm.

FH: You can chose not to, not..., you can, you can say, it would be too expensive for me to actually have this feature build in, so, OK, that is your choice. Nobody took away that choice from you. [Break] And that is a substantial cost.

MR: Mhm.

FH: It's also a substantial asset. For those who, who value it.

MR: But I mean your movement is [like] worldwide active, so...

FH: Yeah, our freaks are all over the place! [Laughs]

MR: [Laughs] Definitely today in Karlsruhe. Absolutely.

FH: Yeah. [Laughs]

MR: Thank you for the interview.

A.5 Interview Transcription Beatriz Busaniche

Meike Richter: Let me explain first why I want an interview...

Beatriz Busaniche: Yes.

MR: ...with you. So, I write my master's thesis about free and open source software...

BB: Yeah.

MR:.. and the digital divide.

BB: Aha.

MR: And, so there's hardly any literature about it and so I [uhm] decided to talk to the community, to people who work in that field to get some more cono... conocimientos...

BB: [uhm]

MR: ...of these things. [And so] just let me clarify: My goal is not to [uhm] [to] [uhm] [what's the word] [break] [like] I'm not focussing on how the digital divide... is it useful to have that topic on the political agenda...

BB: Mmh.

MR: ...or is that... like the ultimate goal...

BB: Yes.

MR: to... bring [like]...

BB: Yeah. [laughs]

MR: ...wealth to everybody...

BB: Yeah.

MR: ...[and so] I'm really focussing on when policy makers, [uhm] [like] people on the streets, or NGOs, civil society, when they address the topic of the digital divide, to what extent, if and how, they talk about software politics...

BB: Yes.

MR: ...and especially about free and open source software.

BB: Yeah.

MR: But I'd like to start the interview with [uhm] your personal background.

BB: [Ah, yeah] My name is Beatriz Busaniche, I'm working in Fundación Vía Libre, that is a foundation in Córdoba, Argentina, but I live in Buenos Aires. I am coordinating the education area of the fundación. I am also [uhm] part of the... team of free software foundation Latin America, which is a Latin American node of the Free Software Foundations Network.

MR: Is it already funded?

BB: Not yet, we are working on that. We are [uhm] working on the structure, the goals, the... the.. the... the... the frame of the foundation, so... that's why we are still a small team [uhm]. Because we are... doing... [uhm] something that needs to be done very very carefully because we are [uhm] founding the... the basic structure of the foundation, we are making decisions about how the decisions will be make [uhm]]in... in] [uhm]... in the foundation in... how the people could join the foundation... and... the main goals of the foundation, so... they are decisions that we have to make very very very carefully to... [to] have a strong Free Software Foundation Latin America. [uhm] well, if you ask my personal background: I have a mass communication degree from the university of Rosario in Argentina, ... I also followed some Sociology Studies in [uhm] the University of Buenos Aires. [uhm], I am interested in ICTs [uhm]. I first [uhm] started [uhm] my contact to ICTs... was related to ICTs and education and ICTs and work...

MR: Mhm.

BB:...workers' rights in ICTs, I [uhm] used to work with a group in the University of Buenos Aires, called the Centro de Teletrabajo, that is Centre of Teleworks, I... where we [uhm] made some research on the impacts of [uhm] distance workers.. [uhm] [so..., so...] these new kinds of work...

MR: Mhm.

BB: And a new kind of working relationships that could be done in the so called information societies.

MR: And what do you... [uhm] [what .. and] what area exactly is Vía Libre working on in connection with ICTs?

BB: [uhm]... well, Vía Libre has [uhm] some projects [uhm], one of them - the most important, I guess [uhm] by the moment - is [uhm] [is...] that about open source software where [uhm], I [uhm], we are developing software for small [uhm] business or NGOs or small... organizations... [uhm, it's ...] we are developing... [uhm]... how...how do I say it in English? Sorry for my English, but ... [uhm]

MR: Sorry for mine! [laugs]

BB: It's ok! [laughs]

MR: Say the spanish word.

BB: [uhm] Software de gestión administrativa.

MR: [Like] [uhm] development?

BB: No, it's a software [to... to...] [uhm]... to accounting for [... to, to...] all the administrations of... [uhm], the business and ... or the NGO or the small organization. [uhm], this is one of the projects we are doing. We also do a lot of advocacy.

MR: Mhm.

BB: We are ... I am proud [laughs] to say that we are one of [uhm] the organizations in Latin America that did a lot of advocacy, we were...

MR: And that's your main focus, you... you're not a programmer.

BB: No, I'm not a programmer. I'm making advocacy and the other part is the education area where we have courses, training people on using free software... [uhm]... also, we are ...[uhm]... focusing our education area in ... [uhm]... advocacy. So, every course, it's not like an academy where you go and just learn how to administrate the GNU/Linux [uhm] system, but it is also, well, yes, you will learn how to administrate the new Linux system. BUT you will have all the background around licenses, around the freedom of ...[uhm].. the user relationship to the software, the rights of the user, the GPL also, we have [uhm] we don't just do courses for technical people, we are also [uhm] planning to make some ... [uhm] I don't know how to say it but ... some kind of training for politicians. We are making [uhm] some project around that because we know that the people that make decisions, that are policy makers, are not aware of the importance of free software and the impacts of ICTs in [uhm] our daily lifes.
In Vía Libre, we also... [we] we don't just take care of free software but also sustainable development - as I told you before – but also other issues like for example spam, cyber crime or all these projects that suddenly appear in the world's parliaments... who know who brought that, who brought them up? But they are very dangerous for the freedom in civil space and so... we could consider ourselves as [uhm] civil rights [laughs] defenders.

MR: What kinds of institutions are seeking your advices or your services?

BB: Well, [uhm] [uhm] different kinds of institutions [uhm] but [uhm] public administration [uhm], for sure because we very very well known as[uhm] [uhm] [uhm] [uhm]– which is the word... accesorar... in English.... Advise?

MR: Mhm.

BB: We did a lot of advice in the public administration, so... many people that are migrating places in the public administration call us for help...

MR: Mhm.

BB: [uhm] Also we are in a close relationship with other projects, [uhm] education projects in [uhm], Argentina, there is a huge project – I really like this project – it's [uhm]... its name is "Cleducar"[1]. It's a project on education, specific in education in schools. It is [uhm] ... So, we have close relationship with [uhm], schools, with [uhm], with public administration, with politicians, [uhm], and whoever needs support or help or whatever... We are participating in mostly events we could... we ah [uhm]

[1] http://gleducar.org.ar/.

MR: It sounds now, that when it comes to [uhm], education and the public administration, that the question of what kind of software policy to choose [is] [uhm] ...

BB: Yes.

MR: ...is really on the agenda [of the...] of the people. So that [that]....

BB: I'm not sure. We are pushing for that. [laughs] We are trying to put this issue on the agenda. But it's not... not very easy. Because... well, at least in Argentina it's not easy at all. [uhm], but [uhm] having Brazil so close [uhm]... we have some influence. So government knows that it is politically correct to say that they support free software - so they do that. But they don't really support it. In fact, they are signing agreements but...

MR: The Brazilians?

BB: No, no, no. They are Argentinian. Because, well, the influence from Brazil makes Argentine politicians think that free software is good, because... well, you know, Brazil, President Lula..

MR: Yes.

BB: ... you know, but...

MR: The same as in Germany, also...

BB: Yes.

MR: You read [like] in the special interest magazines that focus on ICT, that da Silveira[2] is giving interviews in these magazines...

BB: Yes, yes, but in Argentina, it's quite different because they publically say that they support free software and they have a free software oriented policy... but in fact they are signing an agreement with Microsoft... in crucial areas like education or [like] mass media or for example the...[uhm] ... public media ...[like the]... the... big media that belong to the gov... to the state... they signed a contract with [uhm] ...an agreement with Microsoft. And they are publishing those media on [uhm] the internet. But to hear the radio, to watch TV, you have to have a Windows Media Player.

MR: Mhm.

BB: So... it's... that's not...

MR: So, Brazil, is [uhm]... communicating their migration, or, [uhm] they connect it very closely [uhm], to the digital divide.

BB: Yeah.

MR: They say they want to use more GNU/Linux software, so that more people can take [uhm] part...

[2] Amadeu da Silveira.

BB: Yeah.

MR: ...in information and communication technology...

BB: Yes.

MR: But how's that being... [So,] the digital divide is being a big part of the debate.

BB: Yes.

MR: How is that in Argentina?

BB: No, I don't think it is [uhm] a big part of the debate, no... [uhm],... there were a lot of... some programmes in Argentina to... to [uhm], to... against the digital divide... but they were completely failures. Ah, ... a few years ago.... during... Menem's presidence, ... [uhm], they started [an in...] a digital inclusion plan, they installed around one thousand three hundred telecentres in [in] [uhm] Argentina...

MR: How was that project called?

BB: Ah,... CTC... "Centros Technologicos Communitarios". And it was run by an agency, called PSI – "Progamma para la Sociedad del Informacion". So, they tried to push the issue on the agenda, but this programme was a completely failure, because they sended the Telecentres to the places where the... oh, well, imagine, they... they... started with one hundred and... no, one thousand three hundred eh telecentres with at least five computers each one.... and now if .... there.... maybe... you could find one hundred working. And this is... it wasn't long time ago, it was in 2000. So in three years, everything just disappeared. Because they didn't made any strategic or any plan behind that. They just bought the computers and brought there and...

MR: And what kind of software did they use?

BB: Windows, of course. Of course, Windows, yes.....yes... they didn't even think of anything else. [uhm]..... but in Argentina, there is [uhm] there is not a big discussion around [uhm] digital divide. We just think it's [uhm] it's good because... I don't really believe that digital divide is something we have to worry about. I guess we have to worry about the social...

MR: Mhm.

BB: ...gap. It's education, it's basic services. I guess you've been hearing what I've been talking to Pablo a few minutes ago, [uhm] about [the .. the] bringing the computers to a place where they don't even have chairs to sit...

MR: Mhm.

BB:...or bringing computers to a place where they don't have energy, or bringing computers or trying to teach how to use a email to people that could hardly read or could hardly write. So, I... for sure, I think digital divide is not the main issue now.

MR: Maybe we should clarify that term digital divide. So, what is your opinion how policy makers

approach it. And let... let me give you like two examples. So...

BB: Yeah.

MR: [uhm]..... when ... when you observe the debate, do policy makers in your country talk like: 'We just have to give [uhm] the people access to ICT and then the rest will follow' or is it more like: 'The digital divide is one aspect of this century-old battle of rich and poor and this is one angle to tackle the whole [uhm]... problem'.

BB: Yeah, well...[uhm]... I guess the first example [laughs] is the reality in Argentina. They just [uhm]... let me give you another case. In Argentina, a few months ago, the current government started their plan called "MI PC", [uhm] that is "mi primera compu" – my first computer . And they are giving [uhm]... credits from [uhm]... the state banks [uhm]... to buy a computer. That is an Intel processor with - of course, *of course* - Microsoft software. They are giving credits to the people to buy two models of computers – just at least two models and the price of these computers is almost the same price you could find wherever in Argentina with GNU/Linux installed. So, they are making people pay the licenses... a license... that for sure there would never be, because they are already buying computers with GNU/Linux. The argument behind this [uhm] projects is "digital inclusion" and [uhm] and that the people will... the people need to have a computer, to have access. But that's access in a very very limited [uhm] concept of the word "access". Because access is not only to "have a computer".
So, we're [uhm] knowing that they did the whole plan and they include in the computer [uhm]... a few months of soft... training and of course in using Windows [uhm].... with one school that has a [uhm] [uhm]. filiales sogurcales [?]...[uhm]... which is the word in English?

MR: Filiales?

BB: Sogurcales [?]. [uhm] [uhm] it's a... it's a big school of [uhm] computers...

MR: [Like ...] dependances?

BB: Yeah, it has [uhm] ...[pla]... offices in the whole country.

MR: Mhm.

BB: So,... they gave this course – the monopoly in their education programme of these programmes - They teach Microsoft, so they give people easy credits, [so, people] ... if you could buy the same computer, the same price, but you have a good credit to buy this and no credit to buy this, you will buy this. If you don't care you buy it. You will buy it. Or want it, what the government is promoting. But they are promoting buying this computer and the education of that other school which is only learn how to use [uhm]... Windows and Microsoft Office.

MR: Mhm.

BB: So,... this is the concept they have of digital inclusion.

MR: Mhm.

BB: Bring people the computer and teach them how to use these programmes.

MR: What kind of concept would you prefer?

BB: I...

MR: ...of the digital divide?

BB: Well, let me start from a concept that we are pushing from the Free Software Foundation and... we also put... included... this concept in the civil society declaration from... for the "World Summit on the Information Society": Software is a cultural technique of the digital age. As a cultural technique, every citizen should have the right to learn, to study, to have access. [So...., if you ...] if you ask me about digital divide...ok, I prefer not to use this concept because I think it's a marketing concept that is being used for huge corporations to make governments buy them computers, to bring to the poorest parts of the world. So, I guess [uhm] "digital divide" is something like a marketing term. So, I prefer to think in terms of [uhm] "access to culture" and "the right to access to culture" AND [uhm] "rights of the citizens". [Because as...] I guess... [you...] you ... know Lawrence Lessig... Well,... in his book "Code and other laws of cyberspace" he says clearly "code is law". So, we are building societies now which will have every day more and more [uhm] code [uhm] legislation, more and more things will be regulated by code, by software ... So, if we are not ready to understand the way our laws are made... which kind of citizens are we? [break] If we leave all that power in just a few hands, we will build a [a] society where concentration will be the [the] consequence and people will just be [uhm] simple [con... con...] consumers, users ... [so] without any rights.

MR: Mhm.

BB: Computers are everywhere now. Even if you don't have a computer at home, even if you have never touched a keyboard, even if you don't have any education at all. If you depend on [... on... on] [uhm] [uhm] social help, if you depend on social help, you are also depending on software, because our whole system depends on software.

MR: Mhm.

BB: So, who controls software controls much more than anybody... has the right to control in this world. And this is dangerous! So, I prefer to think in... in these terms... [in] "citizen's rights" and "access to culture". And we have to understand that software [uhm] [is] is... a... cultural technique in the digital age so, we have the right to know, to learn, to study, to modify, to share. To share! Especially that - to be part of this culture. Because this is our world, so, we are citizens of this society... so, I think this is the crucial issue we have to understand. We cannot help monopolies...

MR: Mhm.

BB: ...because monopolies are not good for democracy. Proprietary software is not good for democracy.

MR: So, you do not use the term digital divide because you think it's a marketing concept...

BB: Yeah.

MR: And it's being abused sometimes...

BB: Yeah.

MR:... in projects. but you think that software and ICTs [uhm] could be a way [like] that people can live their lifes with more participation and that's [that's .. like] [uhm] [break] it's not possible to have [like] [demo] democratic- style countries if you cannot control, for example, the crucial...

BB: Yeah.

MR: ...parts...

BB: Yeah.

MR: ...of the society.

BB: Yes. Because someone else is controlling it.

MR: Mhm.

BB: And... and how do you know what that people... it.. it's a matter of transparency and... and... it's a matter of trust, basically. Governments cannot be run proprietary software because the government receives information that you as a citizen [uhm] has to give them – your tax for example. You.. you have [to do] to give them information about you. [uhm] so, the government has to take care of that information. They cannot put that information in hands they cannot control, so.. but who controls the big corporations of software? [It it].. it's a problem.

MR: Mhm. I scanned and read lots of literature about the digital divide...

BB: Yeah.

MR: ...and... it's scarce, because it's kind of [like] a new topic...

BB: Yes.

MR: ...in the academic world, but you hardly just find the term "software" in it.

BB: Yes, I know. Yes, [uhm] but well, I have a very very critical perspective on the.... Well, I come from the [uhm] human [science] sciences and I'm very critical [uhm] with my colleagues. [laughs] Because I think there's a lot of people – also people with [uhm] high degrees of education, that are publishing documents or publishing books and making lobby and participating in the global discussion around it, but they do not really understand what is happening. I think that [this] [uhm] this issue around the digital divide has made a lot of people be blind about what are the *main* issue they have to consider. For example, well, now [I .. I...] that there's more people interested in copyrights and patents... but it's [uhm].. I don't know many people that really understand the issue... It... [uhm]... I guess.. [uhm] the.. [uhm] the whole intellectual property propaganda did by the WIPO that... that mix between copyrights, patents and that it seems to be the same ...[uhm]... they did a good job. Because they confused a lot of people... They are confusing a lot of people abound these issues...for example there's... now I see .. I'm happy to see that there's more discussions around public domains... But [uhm], I *don't* see many discussions around public domains in the digital divide studies. [uhm] Have you seen

it? ... Public domain is something that is crucial for digital inclusion but they are *not* talking about that.

MR: I think it's starting now. For example with Brazil... [and] that's why the case of Brazil is observed in Germany.

BB: Yes.

MR: The public... domain wants to have control back and they start seeing software...

BB: Yes.

MR: ...as an issue. To control their data [uhm] [their data] or [like] .. treat their sensible data...

BB: Yeah.

MR: ...- that is citizens' data... [uhm] Yeah...

BB: Yes, but I.. thinking about the academic production around these issues, *at least* what I know, that is in Argentina...

MR: Mhm.

BB: [uhm]... They are not making focus on these issues of public domains, copyrights, patents software.... It's so strange.

MR: That's the ankle of my master's thesis.

BB: Yeah? [laughs] [uhm] Yes, that's a crucial issue. We need to understand that, [uhm] so, [uhm] I guess. I, I guess I could sound maybe violent or hard, but I don't want to bring computers to the poor people. I guess it's better... they need something else but computers ... they... they need electricity, they need water, they need [uhm] schools, they need [uhm] books. Books! [like]... Books! [laughs] though all... [laughs].... I guess... if you...

MR: [uhm] what about..., why is Brazil then pushing... ICT... so, [uhm],... strongly and...

BB: Yes.

MR: ...and they really place it...

BB: Yes, yes, in favelas, in [uhm]

MR: No, no, I mean, they really place it in the *discussion* about the digital divide ... they really outcommunicate...

BB: Yes, yes. They [uhm] they ... I guess it's because it's easier to [uhm]... how could I say this? [break].[uhm] I guess, they have another perspective... they are making focus in crucial areas and they are making also focus in [uhm] other areas like [uhm] medicine, patents you know?

MR: Mhm.

BB: They have a strong policy among all the... intellectual property... I don't like this word! But they have a policy [uhm]... around that [uhm] that...but.... [uhm] I guess the... the... digital inclusion discourse is now something that we cannot avoid very easily. ... so,.. I know ,... I think that the many... I don't know exactly Brazilian government but, for sure, some NGOs are using this concept to... well, to ... to get the funding... you know ...it's.... when you're going to work with international agencies you need to speak the same language they speak... So, that's how it works.

MR: Mhm.

BB: So, I guess that's one of they key issues why this concept is sooo.... spread around [uhm] and everbody is using it because it's a concept that.. it's marketing.

MR: So, [uhm], what about ...

BB: [uhm] but I don't...

MR: ...civil rights organizations ... NGOs who work in that field. How do they approach the ... the term of software, or software policies?

BB: Well, [uhm] it's [uhm] [it's][it's] not easy to generalize ...make... a generalized approach...

MR: Talk about the experience you have.

BB: *But* [uhm] I know many organizations that [uhm] think that they are doing well bringing computers to ... poor ... people and they have software as a secondary issue – they don't care if they teach free software or proprietary software...

MR: Do you have like examples of an organization?

BB: [uhm] well yes, but I [laughs] I know... I know organizations that are migrating. But slowly. Just because we complain so much.

MR: They themselves or they migrate their aid programmes to...

BB: [uhm] Yes, yes.

MR: ...Software, free software?

BB: Yes, yes. They are migrating their ... also [uhm], for example, I know an organization in Argentina that is called NODO TAU[3] in Rosario. It's a member of APC Network[4]. They used to work with proprietary software and sometimes they worked with proprietary software. Now, they are developing [uhm] materials of.. education materials with free software. But they... they care about software, they .. they understand the issue. *But* [uhm] sometimes, they say "ok, but we have to teach the people what they will need to go to work after this". [uhm] for example, last week in Amsterdam, I w... I was talking to a guy [uhm] in a meeting [uhm], .. he was from I... ICD agency - and he told me that every time that somebody wants to start a.. free software-based

[3] http://www.tau.org.ar.

[4] The Association for Progressive Communications, http://www.apc.org/.

project in Africa, in places like Namibia, ...[uhm] they say .. they recommend them *not* to do that with free software. I asked him:'why'? – and they have the prejudice that they will not get support. [uhm] I asked him 'Well, which support will they get from Microsoft?' ... and he said 'No, no, no, don't misunderstand me, they... because if they use Microsoft, for sure they will find someone that al... is already using that'.. and I said 'ok, but how much money will you spend in licences if you start a project with proprietary software? It is better if you use this money in training the people, so you generate local'...

MR: ?

BB: '...local capacity, local capacities to....' And they said 'Oh, well, well, these people do not pay the licences'... so, I thought 'you have the money – international agency – are you promoting illegal copying?' [laughs] and they said '[uhm] no, no, no, no, no, don't misunderstand it, but this is reality'. So, they base this... discourse on 'reality'. But I don't know the meaning of reality...for *them*...

MR: Mhm.

BB: So, I [uhm], what I've seen in many NGOs that are involved in this – I have a lot of experience with NGOs, [so that] I have participated in the World Summit on the Information Society – what I have seen there [uhm], is that they all support free software – not all, of course, but some of them ... but.. [uhm] then they are sitting there with their laptops using Windows... So, it's a big, big, big contradiction.

MR: So, it's not integrated in the institutions themselves?

BB: They... they don't really use free software. They don't know how it is. [uhm] [what] I guess sometimes I am... [uhm] something like an extremist because I cannot live with that... contradiction. When I first... when I started talking about free software... the first thing I did was migrate my computer. At home, where nobody saw my computer... [uhm] I could have [uhm] Windows there...

MR: Mhm.

BB: ...but I don't have it. Because I cannot go there making advocacy of something I don't really know....

MR: My impression is that it still is an intellectual debate. NGO-people talk like 'Aha, it's promising approach...'

BB: Yes.

MR: 'Yeah,... It could have a great potential'... but then it stops.

BB: Yeah.

MR: And I think, a part of the problem is, for sure, that it's not being mainstream...

BB: Yeah.

MR: ... the use of free and open source software. And that it's not that the people use it - so it's just something far away and the next step, making an action, that's the lacking.

BB: Yes, [uhm], well.. there's [uhm]. I think there is [uhm] there's still a gap between the free software community and the NGOs [uhm] that participate in this "ICT4D". [that] That is another expression I don't like. [laughs] "ICT for Developing". *What?* ... [uhm], ... I think that there is a big gap. And [uhm] responsibilities on both sides. Because, well, the free software community is not [uhm] a very, very common place where you could interact easy. But, well, I'm lying. [I have]... I've always had good experiences with free software communities. But, I know people that, [uhm] they don't understand what happens with free software, they cannot even communicate with free software people.

MR: Mhm.

BB: [uhm] If you follow the discussions in,.. [in].. [uhm] the World Summit in the Information Society...

MR: How did you participate there?

BB: How?

MR: How, yes. By mailing list or did you go there?

BB: No, I went there. I participated in almost the whole first phase. I was in the [uhm] Prepcoms, I went to the second Prepcom in Geneva, [to the]... to the intersessional meeting in Paris, to the third Prepcom in Geneva again, and to the summit. I... I yes.. I, I was actively involved in the...

MR: And [uhm] on a.. special topic?

BB: Education.

MR: Mhm.

BB: And "Patents, Copyrights, Trade Marks Caucus". These were the both groups...

MR: Mhm.

BB: ...where I've been working more. And also an "Latin American Caucus". *But* for example in the Latin American Caucus, we had [uhm] big problems because they started treating us as fundamentalists [uhm]...

MR: Mhm.

BB: ..because, [uhm] ... this is a contradiction: you cannot support free software and just go around using *Windows* ... Because it *is* a contradiction... It is really.. and I think it's bad for our plans because, if you go to another NGO, for example, or the place where you work or ... do... some digital inclusion and you ask them to use free software or you teach them to use free software, but... they SEE... they WATCH you using *Windows* they will think that 'ok, they are giving us the cheap or the second class' [uhm] that is an impression that is... false, of course, it's not true, but [uhm], that is the impression they got when they go around with their laptops

with Windows saying 'people, you have to use free software because it's free'...

MR: I have seen that on [uhm] a [con] congress about information technology for development. [like] a guy who promoted free software and who used a mac. So, ... that was contradictory.

BB: Yes, I.. I think it is a contradiction there, but, [uhm],... well, in the World Summit, we had a lot, a lot of discussions around this topic. [uhm], There's a lot of resistance from the people from the NGOs. *They have a lot of resistance. I don't know why.*

MR: Maybe it's because it's very different worlds.

BB: Yes.

MR: [like] NGO-people have their own vocabulary. How they talk about this issue... and when you say, this term "ICT for Development", you don't use it, you don't like it...

BB: Yes.

MR: ...and that's their everyday life, that's what they dedicate...

BB: Yes.

MR: ...their lives for, that's why they get paid... to bring this, but maybe both fields kind of want the same things, what's just lacking is the communication.

BB: Yes, it's a problem of communication, yes. And I have to recognize that sometimes hackers are not exactly diplomats [laughs] .... so, ... [uhm]... these people from NGOs are all the time sending [d] [docs]... [documents] Word documents to mailing lists, and so the hackers say 'oh, please, stop sending that!' Many people do not know that there is a world outside of *Word.* [laughs]

MR: But many people do not know this.

MR: Yes, yes. But the problem is that these people dealing in these issue... so, it.... how could we trust them if they go to make advocacy if they don't understand the basic issues? Understand how to communicate in mailing lists... [uhm] Patents, copyrights... understanding internet governance for example... I guess this, [this] issue around internet governance is one...

MR: Mhm.

BB: ...is the one ...

MR: From your experience: do you get through with your arguments? Or... Do these organizations seek your advice?

BB: [uhm], some of them yes and some of them no. [break].. No,... [uhm],.. I don't know, I guess we ... well, we, we ... we were, in some issues, we succeed in the summit, but.... er, we still have a lot to do to get closer to...

MR: You.. you.. you're still busy to rise awareness for free software?

BB: Yeah, yes. Yes. Much more now with the problems of patents and with a lot of confusions around the licences, around the concepts, [uhm] [I], I've heard people talking about FLOSS - and they said Free Linux Open Source Software, so, this is confusion.

MR: Mhm.

BB: And... I guess we have a lot of threat in our way now. Patents are the worst part.. but [break] We have to.. to go on [laughs]... Nothing to do, we have to go on. But [uhm], with people from NGOs it's [uhm].. we have a lot, a lot to ... a lot to.... Because these people is the one that is doing projects, bringing technologies to the people...

MR: Mhm.

BB: And sometimes they are just something like the marketing agency of the big corporations. Because they are asking the government to implement digital exclusion, digital divide problems and [uhm] .. you know.. So, they are asking the government to invest money in buying computers, in buying hardware, buying software licences .. so, this is [uhm]... somehow strange. [laughs]... but anyway, that's how it works and this is the environment where we are working. We have to try to change it as [fa...], [as fast] as soon as possible.

MR: Mhm.

BB: As soon as possible.

MR: And to start a critical debate about software.

BB: Yes. Yes. It's, it's not easy... it's not easy... because a lot of people do not really understand what are we talking about.

MR: Mhm.

BB: [uhm] They are still looking at us as a group of dirty hackers [laughs] .. crazy, with computers all the time.. [uhm] using unfriendly computers, unfriendly software .. which I could say it's not true because [uhm]... we have a lot of friendly software. [laughs]

MR: Mhm.

BB: But [uhm] I guess there is still some prejudice around that.

MR: So, how about the private sector?

BB: Well, the private sector, I guess the private sector has [uhm] don't have the same problems because [uhm]... business are business, and free software is good for business. [laughs] And... free software is good for free markets [uhm], if, if and... [uhm], at least the... the [uhm], corporations, well, there are *corporations* and *corporations,* you know.. when we talk about private sector, it's different to talk about Microsoft, Sun Microsystems and IBM.. [uhm] IBM has strong policies of supporting free software. [uhm] that means something ... so, I guess everybody that [uhm], believes in free markets... has to support free software because [uhm], using proprietary software is falling just in hands of monopolists. So, I guess private sector

have.. ah, it's easier with private sector – also.. *also* because of the issue around the costs.

MR: But how come then that you hardly see... [break] [uhm] or my impression is that it's just starting. That firms start to migrate. Exactly like the public sector...

BB: Yeah.

MR:.. is just starting to migrate.

BB: Yes, they are at the beginning, but on the other hand you have [uhm], you, you could see the active private sector, especially controlled by organizations like the Business Software Alliance or ... [uhm], in the World Summit on the Information Society they are included in the [uhm], CCBE.. BI.. CCBI[5], I don't know exactly the meaning of the... It's a commerce-chamber-business-industry or something like this... but I'm not sure. But the private sector is working together in the World Summit and they are, of course, promoting surveillance [laughs] [uhm], extending copyrights [uhm], patents, you know...

MR: Mhm.

BB: They are working in that field. [uhm] they are lobbying in every government. They are lobbying all the time, pushing for agreements with Microsoft, using Microsoft in education...[uhm] Business Software Alliance is [uhm], is a strong.. is really strong. In Argentina they have a... there is an organization called "Software Legal" that [uhm]... did some campaigns around...[uhm] telling you "if you copy software you will go to jail and ... that has consequences [laughs] which you will not like" [laughs]

MR: Mhm.

BB: [uhm] I guess they are doing this kind of campaigns everywhere, but, well, it, it's.. private sector is... like civil society, difficult to .. to talk about it as a whole.

MR: Yes.

BB: Because you could find...

MR: ...just tell about trends. That's what I'm interested in.

BB: Yeah, you have people like... IBM. Well, they have patents, but they have patents to fight against the other patent holders. So, it's "who has more patents to fight against the other that has..."

MR: Mhm.

BB: A few weeks ago, in Buenos Aires, a guy from Sun Microsystems...we had a panel on software patents with [uhm], two of... two guys [of] [uhm] against software patents and two guys in favour of soft.. soft.... software patents. It was really interesting because one guy in favour was an engineer of Sun Microsystems... and the whole story he told us reinforced the "No". Because he told us he... he has three... I, I guess three or four patents in soft... software patents, and... [uhm], he explained how it works. He explained that the first time twenty lawyers, twenty

[5] CCBI, Coordinating Committee of Business Interlocutores.

lawyers from IBM came to.. Sun Microsystems to say "you are infringing our patents and have to pay". He told us that story... then he told us how different was his development to the [uhm],... the final statement that the lawyer .. the patents lawyers wrote to.. to ask for the patent. He told us that he could hardly recognize ... recognize his work.. in that... what ... in the...in the...

MR: Crazy.

BB: So, that's crazy... [uhm], but anyway, you have ah, different positions in the... but big corporations are using patents to fight...

MR: Mhm.

BB: between them, against each other...

MR: I have an assumption, and maybe you could tell me if it's true: [so that] as soon as the [uhm], ICT players, like IBM, steps in...or Novell Suse...is it then easier for governments to start a free software, open source software initiative? If they are being backed by these big...

BB: Well, there is a...

MR: ...trustfully...

BB: IBM has a bad experience with the government. We had a big scandal a few years ago, so it's not... not so easy now. But there is something that [uhm] [uhm] [break] I don't know if it's a prejudice but everybody says that: if you contract a corporation to do something for the public administration you have someone to blame if something fails. It's not that you will have support, you just have someone to blame. And for people working in public administration, that is [uhm]... that is an issue. But if you decide to make your own policy ... not depending on one corporation, you are the responsible. So, if something fails, you are the head that will run [laughs] So, maybe that is an issue.

MR: Mhm.

BB: Maybe that is an issue. [uhm] The other issue is that [uhm], big corporatins have capacity, they have capacity to lobby.

MR: Yes.

BB: And you know, [uhm] in public administrations many things are done because of lobby. So, I guess it's better if we have big corporations on our side, that is...

MR: Mhm.

BB:...better. That's not a solution.

MR: but they open doors... sometimes...

BB: Sometimes. I don't know if it is good because I don't know *how* do they open the doors – maybe they just make focus on the concept of "gratis" instead of "libre". It's not good because we want to make people be aware of that... that freedom is something that is... that matters.

Freedom and independence matter, really matter. But... if they will migrate to free software, it's ok.

MR: Let me switch to the academic field. Do they seek your expertise? Scholars?

BB: [uhm]...I don't understand the ... the [w...] question.

MR: [uhm], do they... Do they invite you to... [like] academic congresses... that you can speak about free software?

BB: [uhm], yes, [uhm] yes. [uhm] not a lot of them, but yes, [uhm] last year for example there was a really interesting meeting in Cordoba, the University of Cordoba, and the interesting issue was that it was organized by the mass communication school, [uhm] in the University of Cordoba, the.. [uhm] the carreer that... I did, so I felt like home there, because I didn't study there but they are my colleagues. And I was happy there because they invited me and another guy from the free software community to a meeting, to discuss media, new media, communitary radio... [uhm] all the policies around the information society - from the perspective of citizenship and democracy. [uhm] it was a very very interesting meeting because we had a lot of people, all the students of the university attended the meeting because there were people very very well known like ?

MR: I don't know him.

BB: No, you don't know him. He lives in France, he lives in Paris but he's a ... I... well, I used to read his book when I was a student, so, ... he's a very very well known... in [uhm] in our field. [uhm] that was something very very interesting... [uhm],

MR: But did you have to talk a lot about "what is free software?" also? Or was it...

BB: Well, I...

MR: ... common sense in this kind of audience?

BB: I decided as... as there was another speaker on free software, I decided to... made a broader approach.

MR: Mhm.

BB: So, I.. I wrote something I called a "bestiario". Do you know what is a bestiario?

MR: No.

BB: It's a small collection of strange mythological animals [laughs] ...[uhm], my... my presentation, my presentation's name was "Bestiario of the information society". So, I took [laughs] those mythological animals like "digital divide", [uhm] "access to computer", "improve democracy", [uhm] the other one I took was [uhm], there is a slogan in Argentina that - the organization that represents the... the music industry in Argentina has the slogan that – "[every copy, each copy,] each illegal copy kills an artist". That [uhm] something like this is [uhm]...- in Spanish it's "porcada"...

MR: We have those kinds of slogans in Germany also.

BB: "Por cada copia pirata desaparecida un artista." So, I took this slogan...

MR: Mhm.

BB: The other slogan I took was [uhm]... America Online campaign against spam and viruses. The campaign said "[in] [uhm] in internet jungle, just *America Online* protects you". Because they filter your email [laughs].... so, I took this [uhm], slogan and analysed them. That was so funny because the people said "AAHH!" because they're .. those are the common sense slogans...

MR: Mhm.

BB: ...that's how they... and and as that was in a communication university, a mass communication university, so, I... I took the opportunity to talk about how you cons... how you build [uhm] common sense around something that is *not* true because you are not killing an artist because you are copying a song... so, you are not stealing anything, you are not... [uhm] I don't expect America Online to protect me [laughs] in the "jungle of internet", So, I... did some kind of humour on those topics and [uhm], and of course, I spoke about free software...

MR: How was the reaction on.. on .. when you said that ICTs do not necessarily promote...

BB:...democracy? [uhm] well, many people were surprised because they were people from NGOs that are promoting that...ICT4D But they couldn't discuss my argument. [laughs]

MR: I think it's a little general... it kind of generalizes this topic... because there are, in my opinion, cases where it really ... helps that...

BB: Yes, yes, I know.

MR: ...that political opinions...

BB: I know.

MR: ...that are not mainstream, get [uhm] get into public sphere so [uhm], and then [like] for example Indymedia – I'm sure you're familiar with that -, that's a very good platform for political opinions that are not mainstream...

BB: Yeah... yeah...

MR: ...you can reach an audience.

BB: Yes, I know, but Indymedia is not the kind of project where you buy computers and bring computers to poor communities. The people that build Indymedia around the world are educated people...

MR: Mhm.

BB: I guess they must be middle class.

MR: They are.

BB: They have access to computers, they are not the target [uhm] of these [uhm]... projects that we... I mean, when I did my critical approach, I.. I made a difference between the people that work on free software, on access to knowledge, on public domain, on.... so, there is a big difference them, so, I did that difference. I said "ok, this is not good just as it is"

MR: Mhm.

BB: We have to take care with this because this could help corporations sell computers to the governments or this could help the people. So, we have to be careful in the way we approach to this concept. But it was funny [laugs] everybody were laughing after that and said 'huh, wow'... and there was also .... issues like civil crime. There's nothing... I I don't ... that's a buzz word!

MR: A what word?

BB: Buzz word. [uhm]...There's nothing like civil crimes. People also use cars to commit crimes and there are no auto crimes..[laughs] car crimes... so, so,... if you are a criminal, you are not a civil criminal because you are using email to coordinate a kidnap or something .. that... that's just crime.

MR: Mhm.

BB: So, there's a lot of words and ... and expressions and things like that ... that are dangerous because they open the door to surveillance over all of us.

MR: So, all in all, one might... could say that the whole discussion about the internet and democracy in "information and communication technology for development" is just starting, and that the discussion or... debate is not very mature...

BB: Yes.

MR: And it's hard that... the civil rights sector does not speak the same language like free software/open source software activists...

BB: Yeah.

MR: And they are all together *not* speaking the language of the policy makers...

BB: Yes. That's the situation, yes. Well, but...

MR: And the academics?

BB: Ah, no, they are way [laughs]... they are far away. But I... from the... I guess the free software community has [uhm], a lot of conscience around [uhm] civil rights.

MR: Mhm.

BB: I... I'm sure of that. At least the people I know and the organizations I know, we are aware of civil rights, we know which are our rights... privacy, ... the right to... to, to [uhm] use encryption

communication... [communication...] the right to access to knowledge, so, I guess the free software community knows, understands the issue.

MR: Mhm.

BB: I'm optimistic about that... we need a little bit more communication.

MR: Mhm.

BB: Yes, I guess we have to... reduce the resistance we... we find. I don't know how. I don't know how...

MR: In participating in...

BB: ...No, in making contact with [uhm]... NGOs, with the NGOs...

MR: That's what I mean, in, [like], participating in these debates...

BB: Yeah.

MR:...[and] where the people sit to make these aid programmes, who make the policies...

BB: Yeah, it's getting hard for us... to be part of these discussions.

MR: All right, thank you very much.

A.6 Interview Transcription Fernanda Weiden

Meike Richter: Just let me outline first why I wanted an interview with you. So, I write my master's thesis about free and open source software and the digital divide. And you are a free software activist and you are from Brazil. And Brazil is [like] really active in this field and is doing [like] great strides to [like] migrate the whole country to free and open source software. And then Georg[1] told me that you would be coming over, and I said 'Oh, perfect! Maybe that's [like] [Uhm] some interview for me!' because there is [like] very little literature about the digital divide. Because it's kind of a new phenomenon. And there is [like] even less literature about Free/ Open Source software...

Fernanda Weiden: Yeah.

MR:.. because, I'd say that it's not so big on the agenda. [uhm] But I'd like to start with your personal background. So, if you just could tell me something about your professional life and...

FW: OK. [Urm] I'm working with free software since 1998 when I started to becoming interested, and I started to use free software, used GNU/Linux at my home and then 2000 I moved from Porto Alegre – Porto Alegre that is a city in the south of Brazil - to São Paolo to work with free software work and be paid [laughs] doing it and then...

MR: So you're like [urm]... Did you get trained or you just did everything by... by trying it out. I don't know the exact...

FW: [Urm]

MR: ...expression right now.

FW: Ah, yes, I learned it alone at my home with me [uhm], I never did any kind of technical training or... nothing. [Laughs] and well, I moved to São Paolo – at that time I was studying mathematics in Porto Alegre and then I stopped my university course because I moved and I started to work with it daily... and then, in December of 2003, I decide to leave the company where I was working for a year at that time and started to work *only* to the free software community. I mean, I just thought, 'ok, I will leave this enterprise work' and I... I have to spend some time with my community doing things for them. And I spent like seven months there... and [break] in this time some people inside IBM heard things about me, about the job I was doing in the community, actually they read [uhm] an interview that I gave to MTV Magazine in Brazil ...

MR: Mhm.

FW: ... and then we started to get in touch, they invited me to give some talks with them inside IBM, outside for customers and some conferences... in Brazil... and ... in June of 2004, they invited me to join the Linux Technology Center [uhm] which is [uhm] a free software development lab inside IBM. And I'm working there... have one year, more or less. But... even before I start to work for IBM, I mean, my work in the community was mainly with "Projeto Software Livre Brasil", Brazilian free software project. And our job is put [like] the government, the companies, the universities, users, hackers in general, put all these people in contact to work for, [um] to promote the technological independency and... [uhm] IT alternatives for Brazil.

[1] Georg Greve, President of the Free Software Foundation Europe.

MR: So is this projeto, is it like a community based project or...

FW: Yes.

MR: ...or does the government does funding?

FW: No, it's community based... actually it is started by a government initiative in Rio Grande do Sul, it's the southest State of Brazil, but then, [uhm] when the government at that time like [uhm]... changed because lost the election [uhm]... the community like [uhm] [break] remained maintaining that project and doing the things, doing the FISL – that means "International Free Software Forum", it's the biggest meeting in, about free software in Latin America, one of the biggest in the world and the community keep... keeped doing the job. And then, in 2003, we [uhm] had a meeting with some people from other parts [uhm] of Brazil and then we decided to start [uhm], other... at that time just existed until there, [like] only the "Projeto Software Libre Rio Grande do Sul", the state project. And then we decided to create [uhm] national projects, [uhm]... with, [uhm] regional projects, which... states with their own project. And working together [uhm] like [uhm] organisating the activities together [uhm]. And it's working fine, I mean... when the government, the Brazilian government, started to discuss about migrating the systems and then [uhm]...

MR: Is it like... like that the government was trying to migrate [like] on a state basis, right? Some states started, and than Lula got elected, and than he started pushing...

FW: Exactly. In the federal government. And when Lula got elected, [uhm] they started to discuss about putting free software in the IT-infrastructure in the government, migrate the system to free software and then the government did a thing that [uhm] - I never saw anything like that before: they asked *us* to join them and say what the... what should be the governmental strategy to do that. Because, you know, they're politics... they are not [uhm]... they are not [uhm] the community, they don't know free software, so they called us to help them to do it. And it was a really interesting experience. And then, the other year, [like] they are getting more and more experienced and they don't needed more our help but we are still working really close with the government and with the companies. We are like *one big group* doing the things like work for companies, the community and for the government, everybody together, putting the things like in a kind of *symphony* in Brazil.

MR: It's like when... when you get news in Germany, from what's Brazil is doing, Brazil's policy [and] on free software, it's kind of like a myth. It's like you know, it's not that they are not even trying to migrate one ministry or one state. No, it's [like] the whole country!

FW: Yeah.

MR: And it's very well observed here. Like some... there's some special interest-websites, magazines and, like [uhm] da Silveira, the the guy who... who is like on top of this IT...

FW: Yeah. Sérgio Amadeu.

MR: He is [like] giving interviews in these special interest magazines. But it is really hard to judge from Germany [like] if there is [like] really a public debate about this, [like] in whole of Brazil, [or it's like there] is [like] enthusiasm in the country about it? Like a well known topic? Or

is it like: the government is trying to promote free and open source software... And it's... you know... H... How is it like? Is there a public debate about it?

FW: Yes. Yes. It's really [uhm]... especially the "Projeto Software Livre Brasil". We discuss a lot about [uhm]... you know, in the community we have a lots of user groups, and the user groups, they usually, they don't care about politics, discussions and.... and then they don't like to get involved in ... they just don't do it.

MR: So they are kind of in their tech-community and they, you know, try to produce good software and it's like their world ...

FW: Inside the "Projeto Software Livre Brasil", we have a lot of different skills there, like developers, sociologists, political people, managers or.. I don't know, CEOs of companies, so... what happens is: when the governments starts with a project, for example the government is doing now, it's working, it's finishing a project called "PC Conectado", it's "connected PC". This project [uhm] will offer lower cost computers to ... to the population, and will run only free software. And when they started with this project, when we... [uhm] because I mean, in Sérgio Amadeu I can say that he's my personal friend. I can call him and say "oh, what's going on? Do you need some help?" [uhm] It's... the things are really open. So, when... when we start to hear about the idea of having a project to sell machines to [uhm] ... to people like [uhm]... that have not much money to buy a computer by the government, we start to discuss inside the "Project Software Libre Brasil" how it would work or... how it should work to, to, to be sourceful. And then we bring the ideas to the government and usually they get our ideas and adapt this, their realities... so, that's the way the things [uhm] work there. I mean...

MR: You said [like] that MTV asked you to give an interview, interview. So, [uhm] do you get often invitations like this?

FW: Yes. [laughs]...yes, [uhm] [break] magazines... actually the [like] the traditional or... press of... IT press in Brazil, they just don't care about free software, I mean [uhm] [like] [uhm] "Info Exame", our biggest magazine, "Info" is the biggest IT magazine in Brazil, they do some... some articles, they public some news... about Linux but they don't talk about all the discussions [uhm] behind that.. I mean, they just put [like] another option in technology. In some editions they just don't tell anything. But.. [uhm] but the ... and...

MR: That's [like] funny. Because in Germany, all you hear is you know, oh, Brazil is going to migrate the whole country...

FW: Yeah.

MR: ... You know [like] the players like da Silveira. That's all you can listen to. Brazil is like this big myth, so...

FW: And... Also, but at the same time the biggest journals, or the biggest [uhm]... like TV Cultura it's like a alternative TV channel in Brazil, they do lots of programs about free software and all those more publications not with [uhm] focus in IT but others like MTV Magazine, they.. [uhm] they are in contact with us and I can, I can tell you, [like] we have [uhm] lots of things about free software published. I'm ... in the last time I think, I can tell you that I give an interview once the month at least in Brazil...

MR: That's good.

FW: ... and it's good. [uhm]

MR: [It's like...] When I say, you know, I write my master's thesis about free and open source software and the digital divide, everyone goes like: what? And there appears this big question mark on their faces. And than I have to start [like] from scratch. Like what is free and open source software? What is the digital divide? So, [and] if you talk to these magazines... Do you have to start from scratch? Or is it [like] common sense?

FW: Sometimes [uhm]. Sometimes [uhm]... the interviews are about [like] more generic interviews...

MR: More what?

FW: More generic. The term is more generic, the subject is not all free software. But, [like] [uhm] sometimes they publish [like] [uhm]... especially with me because I'm working with free software, with gender issues and free software, so sometimes they published [like] cyberfeminism and the people come to me to ask something about and I explain briefly about free software, but the focus is another one. But if you read the [uhm]... the, the article after that, you'll see 'oh, it's "Projeto Software Livre", they are migrating things' and something like that. So, you can do the connection with our movement. And also sometimes like last year, they, the "Folha de São Paulo" is the biggest newspaper in Brazil, they asked [uhm] some, some different people from the community to talk about job opportunities... [uhm] [uhm] enterprise opportunities. And then they gave us like an entire page in the economic [uhm] part of the journal just to talk about free software and then we explained what free software is and [uhm] something about the community, what the government is doing... and they asked me about my project with [uhm]... taking care about gender issues. So, there are a lot of different... But usu..., I, I think in Brazil, the, the, the press people that come to us to ask us to give interviews and things like that, [uhm] they already know about free software and...

MR: What about this theme about the digital divide? [Is it like] You outcommunicate that a lot? So, that there's [like] this political approach to... or like... how do you guys [uhm]... what's the word? [uhm] Like in your self-understanding of this group? ... [uhm] so you really address this topic? [like] That you want that more people can have access to information and communication technologies?

FW: Yeah, yes. In fact our main motivation – [uhm] and we make it pr... really clear – is giving the opportunity to the Brazilian citizens to, to, to our country in general, I mean companies, people and government, to have the equal opportunity to participate in the digital age. Because today what, what's the view of the big companies? Brazil it's a... an emerging market. And we are not only a market. *We are about a country.* We have a people there, we *can do things also*. We, we... we cannot just make more money producing things *for them and buying the things*. I mean, we can participate, developing technologies... There is a really interesting project of São Paolo government - São Paolo City because the state has the same name – called "Telecentros". And there, the last government they [like] builded... an eGov-sector, [uhm] and then they started to build lots of Telecentros that are like research centers with 12 machines [uhm], internet access, and people like monitor to, to... to [uhm] teach the people organize like seminaries, small course... in, I mean, in the [break] in the far place in São Paolo City where the people *really don't have money* and it was one of the ... [uhm] it, it actually is the biggest digital

inclusion project in Latin America with free software. [Uhm] I.. I, I just like to... ours, is to make clear it's with free software because it's for us, to "Projeto Software Livre Brasil" – the free software community in Brazil – that is no digital inclusion if you... we, we don't use free software.

MR: Mhm.

FW: Or if you are doing it with proprietary software is not... it's digital exclusion, not inclusion. And I think. And, well, there are some cases of people that *never* got or had access to computers before, [uhm], learning how to program by themselves... I mean, they just sit there and start to take a look on codes then do things, I mean, they start to be developers and it will... would not be possible with proprietary software. How much money we would spent to pay license of [uhm] compilers, [uhm] IDs, [uhm] development environment and things like that to give to, to those people the opportunity to *feel or think* if they want or not be a developer. I mean, only free software can do it. And there are other the projects... the federal government has a project of more or less like Telecentros in São Paolo, in Porto Alegre the government did the same [uhm]... the same project and when the last government [uhm] ... lost the last... the last election, ... they [uhm]... they gave the last numbers we have about Telecentros were that more than 800.000 people used that centros. I mean... that's a lot of people.

MR: You just mentioned that the [uhm] last government got... didn't got re-elected, right?

FW: Yeah.

MR: Where these Telecentros were. And [uhm] can... I... Is it so that this whole ICT policy is really connected to the Partido dos Trabal...ha...dores... whatever! [like] workers' party, you know what I mean. So [uhm] what will happen when the workers' party...

FW: La... [uhm] left?

MR: Right.

FW: In the Rio Grande do Sul state, they closed the service, of all the free software [uhm]... the... the workers' party government did and in São Paolo, they [uhm]... reduced the budget for Telecentros in 50%.

MR: But that would kind of mean that it's not that established [like] in the population, or? because...

FW: Yeah [uhm]. But in São Paolo especially. The popul.. ah the problem with the Telecentros in São Paolo, in Porto Alegre, when the government gave the machines to the population, from that moment, the population would be, the local community would be responsible for maintain that... that [uhm] center. But not in São Paolo. In São Paolo was all about the government. It was not like they didn't give to the community the responsibility to take care of the Telecentros.

MR: Was it a lack of participation?

FW: Exactly. That [uhm]... I mean, it's more institutional. You have like 'we are the government, it's our project and you are the [uhm]... our... like our *target*, our target public. So, you use, it's yours', but who takes care is the government. And in Porto Alegre, it was different, because the government [like] gives support but the community [uhm]... who owned the... the place, the

machines and all the things is the community. So, when the government changed - in Porto Alegre it changed also. It's not more the workers' party there – eh but it's more difficult to... to... eh *kill* the project. I mean, it's not so easy because you have to... to fight with the community and the community will be who will vote or not in you in the next election. So, [laughs] it's more complicated. But in São Paolo yes, it's happened. The community... the community asked [uhm]... the people who worked in ... in [uhm]... the last eGov in the last government should create an NGO with more communities participating to make sure that the project will [uhm]... will [uhm] remain alive. I mean, the government will still [uhm] remain giving money to them to maintain the centros and to let...

MR: Down to basics. What I understood so far is that the use of free and open source software is not yet mandatory. It's more like that there's [like] two [uhm] laws that are supposed to get through congress?

FW: Yeah.

MR: But it didn't happen yet. All the action and all the projects like Telecentros that's [like] [uhm] happening on recommendation and because the government is really *keen* on this topic.

FW: [uhm]

MR: Is that true?

FW: Actually, the [uhm] the local governments in Brazil, they are independent of the federal government. It's the government, [uhm] it's the president find like what they are liking to, like [uhm] impose a rule – Sérgio Amadeu is working on a project to [uhm] the president will sign a document saying 'you have to use free software. If you want to buy ah proprietary software, at least for desktop machines, you have to say me *why* you need proprietary software'. So,... [uhm] but even if he did... he... if he does it in the federal government, will not be valid in the local government because they are independent.

MR: Allright.

FW: So...

MR: But this law... I think I've read articles that are almost two years old. So it seems like...

FW: No, it's not two years old. Sérgio Amadeu started to ... we have like [uhm] ... in, I think more than ten states in Brazil a recommendation of [uhm] of the government saying 'we'll use [break] - I forgot the word. One second [break] – oh,... preference? Does it exist?

MR: Mhm.

FW: Yeah.

MR: Prefer?

FW: 'We will give... we will prefer to use free software if, have... if a free software solution exists. So [uhm], that's what you should do. [Uhm] you have to do it. If you are looking for a software solution, and have an.. a free software solution exists to do it, you have to use the free software

solution.' And this law – it's a law – exists in different states in Brazil. I think ten states. But not in the federal government. And the federal government, Sérgio Amadeu is working on it, have like six months. And [uhm].... it's really really close [uhm] to the days of like go to the president, say 'Sign that!' and then start to ... start to [uhm] start to apply this new rule. And, the difficult thing about implementing free software in the federal government is, if you go there to interview the people and ask the people 'Do you support free software in the government?', *everybody* who works in the government will say 'Yes, sure.' But the problem is the managers responsible for do the things daily, some of them, *even if*... who say 'oh, I'm.. I support free software' [uhm] some of them don't. And then, when they have to do the things, they ... like do the things towards that, it's like so *sloooow* because they will take *lots* of time to *dooo* the things happen. And that's the problem in the government, yes. Right now – because nobody says 'I don't want free software here.' Everybody is a free software supporter.

MR: So everyone knows about it. It's a topic.

FW: Yeah, yeah. And then, in fact, some of these people who said 'oh, I'm a free software supporter' are *not* and make the things like go really slow in the migration in the government. So, having this decree signed by the president, they will have like... they will not have excuse because they will not have the permission to re-sign contracts with Microsoft or other proprietary software companies, so, they will have to make the things happen.

MR: So, so... when you say that the people or like governments [uhm] people who work for the government, they really back free software. And they know about it. So h... how do they think about it? Is it like to get rid of technological dependencies? Or, or how come that they are really so strong on free software. Because it could also be like: 'No, you know. I worked 15 years with proprietary Windows stuff, so, and I don't want to switch.' Because that is... I'm sure... the case in Germany where free and open source software is not a big issue. It's staring, very slow. Especially because the government are trying to push it. But It's really not [like] common sense.

FW: The... the reason for this [uhm]... this [...] for all the things that are happening in the government are basically two. Firstly, because Brazil [uhm]... in Brazil, our IT market [uhm] it's about 3.2 billion dollars for a year. And 3.2 billion dollars for... [uhm]... by year for IT [uhm] comp... [uhm] market... [uhm] for a country like Brazil, the big size of the country, a large country...

MR: I think you are ... the eleventh biggest economy in the world.

FW: ... it's *nothing*. Even being nothing, 1.2 billion are sent to United States by paying rights royalty, royal, *royalties* and licenses for software. How can we have an IT industry in Brazil if we have to send a third part of all the money that we make with technologies in Brazil to companies in the United States to pay rights and licenses? It's impossible. We will never have a IT company really in Brazil. That way. Why not? Because the more we make this kind of [uhm] industry increase in Brazil we will be more dependent, we'll be more *customers* and not technol... [uhm] technology developers. We are not participating in developing technologies. And that's the reason the government started... *because* they spent lots of money like re-signing, re-signing contracts, using lots of *old* technologies – I mean technologies that you will never use to do anything but, ok, a company sold to them, they bought the software, the proprietary software, and now they are still paying [like] *a lot of money* to those companies because, they *even* haven't access to the code of the software they bought. [laughs] You know?

MR: I know.

FW: So, those things have started to come up like 'Wow!'. What are... I mean, look at it. We have a lot of contracts, our systems are the same, we have 20 years. We are still paying those companies, we are not like [uhm], we are not evolucing, [uhm] there is no evolution in our IT-sector here because we are paying the same system we paid in 1980 for the same company [laughs], so, we need to start to use high technology in the government and stop to spent money doing like lots of programs that connecting old programs because ‘oh, ok, if we change this program, it’s so complex, it takes so many time, we don’t have access to the code...’, so, when this government assume, started to look for free software, they said 'we will migrate because we need to be really the owners of our IT infrastructure'.

MR: And can you maybe give some more information on how [like] the high [or like] ... how is the government communicating [uhm] or explaining why Brazil is doing this software policy? [Like] what are [like] the official [uhm] arguments for it?

FW: Technological independency, it's because they want to promote our local IT industry. Because they want to save money [uhm] they say, the problem is not only buying licenses of... I mean, if, if you could [like] buy a license like for a Microsoft Office and keep using that for the rest of your life – no problem. But the problem is: the proprietary software has cycles of *renewing and renewing* the license you have.

MR: Mhm.

FW: And if we put *all* this money we spend to do nothing new, to make, to put free software in the government, this money can be used to like having high technology there and not only text processors and [uhm] contracts like 20 years old to maintain the same system like developing a language that not exists any more and things like that. So, the line for the government is [uhm] creating a local IT industry and [uhm] promoting our technological independency. Yeah. That’s the main line of the government.

MR: And [uhm] is it placed [uhm] a lot of the zero Hunger program? Because these are like two main things I noticed about [like] what news come from Brazil to Germany. [Like] First, it's [like] this ICT policy, which is really exotic. And that’s becoming a topic here, too, but then again this "Zero Famine" Program. And they are kind of connected...

FW: Yeah, [uhm], you know, [uhm] Brazil never being like [uhm] *owned* the discussion about IT policies in United Nations and things like that...

MR: They never did what?

FW: Brazil was never being like a leader in IT discussions in the United Stat... [uhm], United Nations or things like that. And free software, the view, view of the government, like [uhm] suggesting [uhm] developing agenda for WIPO and doing the things we are doing there – we are for the first time really participating, not just accepting [uhm] rules about IT and it’s a new thing for us... Brazil, it’s like [uhm]... making... the problem is not only that Brazil, the problem is that Brazil is like showing all the other developing countries what we can change the things there. I think, that’s what the IT, the big IT companies fear about what is happening in Brazil.

MR: So, [uhm] How would you explain [like] that Brazil is really going so strongly in this ICT

sector? Because you also could say [like] you know, maybe, Brazil should start a program [like] to provide clean water and stuff like that. So, what's the explanation, why Brazil is being so strong on... on free software, to push it so strongly...

FW: Oh... Brazil has [like] basic problems that all the developing countries have. But [uhm]... the problem with some countries there's the option of care about the basic pro... problems and forgot about the the problems that you have to take care in 10 years, 20 years. In Brazil, the government is doing good things. [uhm] If you look to the basic things like "Fome Zero": It's a project like, [uhm] it's a basic thing, [we] we have lot's of hunger people in Brazil. But at the same time, we are not [like] forgetting to... to look for our future. Because our country are not only hunger people. We have [like]... We have to look ahead and see what will happen in the next 10, 20 years.

Not transcribed parts:
00:34: 25 - 00:36:46 Politics of the PT, Lula, corruption

00:36:46 - 00:38:30 CSO, Microsoft

00:38:30 - 00:43:48 Digital divide as a gender problem, significance of software, FOSS as a policy issue

00:43:48: - 00:47:09 FOSS use in the private sector, Engagement of Novell and IBM, collaboration with the community

00:47:09 - 00:52:02 Use of free software in different academic disciplines

00:52:02 - 00:59:00 Collaboration with CSO

00:59:00
MR: I think this is done, right. You talked so much, and you gave me so many valuable information. Thank you very much. Maybe you can give me one more outlook. So, what do you think? What will happen in Brazil? Especially [like] when the workers party has to step back.

FW: Yeah. That's, that's I think is the big challenge for the community. [uhm] Actually, I'm working the last months building the Free Software Foundation Latin America.

MR: Mhm.

FW: And I think the first *big big big* challenge for Free Software Foundation Latin America is make sure that [uhm], we'll talk with all the parties, the political parties, and make sure that [uhm] free software in Latin America will not be like a party policy and [uhm]... instead of that, being like a, a country policy I mean to, to like [uhm] promote the independency, promote the growth of our countries. So that I think that is the big challenge either Brazil or Latin America in general. So, that I think is the big challenge for "Projeto Software Livre Brasil" also is to talk *right now* with all the parties that will [like] be in the next election with candidates and things like that. And I've been 'ok, I'm the civil society, and I like what the government is doing. what *you*... what will *you* do if got elec... If you be the government next year?' And make them like [uhm] [uhm] [break] as soon as like, a commitment with the actual IT policies, I mean... And that I think is the only way to play now.
01:01:00 - 01:04:18 Not transcribed part: Planned actions to promote free software.