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ABSTRACT

Information and communication technologies (ICTs) have drastically changed societies, influencing the everyday activities of both individuals and governments. The Information Society has become a reality and has acted as a call to action by governments. Although much research has been done on the use and consequence of open source/free software in the public sector, not enough knowledge exists on public sector and government policy options and behaviour as regards the adoption of this software. This ongoing dissertation research has made an attempt to place the different actors into one complex model.

Keywords

Software requirements for public sector, open source, government strategy consideration

INTRODUCTION

> "Our public policy focus is to insure that public records remain independent of underlying systems and applications, insuring their accessibility over very long periods of time. In the IT business a long period of time is about 18 months. In government it's over 300 years, so we have a slightly different perspective."
>
> Eric Kriss,
> Secretary of Administration & Finance, the Commonwealth of Massachusetts

Societies and governmental functions and operations can be managed only by the extensive use of ICTs and by using software applications. The software that operates the hardware has become as important as the hardware itself. Governmental usage of software can impact on virtually all aspects of civil life: the inclusion and participation of citizens in public life, the transparency and openness of decision making, the elimination of the digital divide, digital persistence and digital literacy. The question of which software is utilized by public administrations is, therefore, of fundamental importance. Free/Open Source software has entered into the mainstream of research.

Governments play important roles in creating the proper environment for ICT development, and also have a significant leading role as users of these technologies by creating new modes of public behavior. (Lanvin, 2003) The world's largest consumers of computer software are usually governments and they thus can have considerable influence on the software market.

RESEARCH DESIGN AND METHODS

The proposed research method uses an inductive research approach, generalizing from interpretive case studies. The main question is: Can one assign the various motivations and issues to a general model? This research makes an effort to reveal the main actors within public sector decision making and these actors' consideration of Free/Open Source Software (FLOSS) in order to better understand the motives and actions related to development of the Information Society in different countries. The proposed general conceptual model is based on known and publicly available strategy documentation of various public sector and government initiatives for promoting or using FLOSS. The selection of key factors is grounded in available research literature on OSS and the above-mentioned documentation and case studies. The research focuses now only in support of the theoretical framework of the general model, and future research should clarify the model. A part of this research was previously published (Laszlo, 2005) on different foci and feedback gave valuable advise to adjustment of research design.

BACKGROUND AND SIGNIFICANCE

A preliminary point as to terminology is appropriate. The Digital Economy transforms governments and governments have taken on new roles in those areas of the economy most affected by technological changes. Information strategy can be defined in terms of political planning or political action planning for development from 1990's; however, information strategy or policy had already appeared in the late 1960's. (Karvalics, 1999) These policy programs showed the demand for managing the challenge of changes in its complexity and trends produced an effect in the directions to a complex "National Information Strategy". A National Information Strategy can be defined in terms of political planning or political action planning for development. A definition was given by the Library and Information Association of New Zealand: "A National Information Strategy addresses strategic issues to ensure that all citizens have the opportunity to access and utilize a nation's knowledge wealth in a way that will enhance the social, political and economic well-being of that country. It states the government position on the creation, management and use of information, and sets direction for government action in support of the strategic goals. (New Zealand National Info Strategy, 2005) The complex National Information Strategy became a strategy for 'Development for ICTs' and also the 'ICTs for Development'. The governments' programs for development are often communicated as the "information society development".

SOFTWARE REQUIREMENTS OF PUBLIC SECTOR

There are 3 major levels at which governmental functions can significantly be affected (and generally improved) by ICT: e-Government (Policy coordination, Policy implementation, Public service delivery); e-Administration (Policy development, Organizational activities, Knowledge management); e-Governance (Democratic processes, Open government, Transparent decision-making). (Lanvin, 2003)

Public administrations have special functions and operations which sometimes cannot be adequately handled with proprietary software applications on the market that are developed for multiple purposes. For example, an e-voting system without transparency leaves organizations and governments at the mercy of software providers, and citizens cannot trust the result of e-voting. As the result, privacy is a key factor in the interaction between governments and citizens. Whatever software is utilized by governments to control, manage and transmit the citizenry's personal data must be transparent in order to protect the citizen's right to privacy. The moderate opinions which stress that there is no need to make a choice between FLOSS and proprietary software vendors gather ground but perhaps the real solution is mixing these software options.

The e-Government Interoperability Framework (2005) in the UK "defines the technical policies and specifications governing information flows across government and the public sector. These policies and specifications cover interconnectivity, data integration, e-services access and content management. The e-Government Interoperability Framework contains the high level policy statements, management, implementation and compliance regimes, whilst technical policies and specifications are contained in the Technical Standards Catalogue."

OPEN GOVERNMENT

An open government must be transparent and accountable, and information related to the decisions an open government makes must be open to the public and freely available. Laws in many countries regulate access to government and public information. Perrit (1997, p397) stated: "Freedom of information issues are centrally important in countries around the world, and the Internet's World Wide Web offers the potential to provide freedom of information at low cost." In contrast China offers the best example of a country whose economic success appears in part to be the result of the government's ability to compartmentalize the types of information that receive wider currency—increasingly promoting more open access to economic information while keeping tight control on what is deemed "political". (Tipson and Frittelli, 2003)

FREE/OPEN SOURCE SOFTWARE

The programmers write their programs using programming instructions – referred to as the source code of a program - and this is human-readable. This source code is compiled into binary machine-code that is readable by computers. When the user wants to customize the software for own needs he or she must have access to the source code. A significant difference between open source and proprietary software is that with open source – as it named – the software source code is freely available. In contrast, the proprietary software vendors typically release their product only in binary form, and it is illegal to decompile to source code.

Although the terms 'Free Software' and 'Open Source Software' are commonly used as synonymous, in fact there is a fundamental difference between the two movements. As one person put it, "Open source is a development methodology; free software is a social movement." (http://www.gnu.org/philosophy/free-software-for-freedom.html)

ADOPTION POLICY AND TRENDS OF OPEN SOURCE BY PUBLIC SECTOR

All governments use FLOSS in some ways. Many governments have specific policies for using FLOSS, or speak to the issue of FLOSS policy utilization within the broader context of policies to support such issues as equity or education. However, FLOSS policies and legislation as developed by national, regional or local governments around the World are more often than not inadequate to support the viable realization of such policy goals. The Center for Strategic & International Studies maintains a list of such initiatives that were approved or proposed. (Government Open Source Policies, 2004) As it is impossible to cover all of the initiatives and best practices; this section just highlights some different approaches of adaptation and policy considerations for the implementation of FLOSS, although the research comprised more case studies.

In recent years many Open Source-related programs have been launched by the European Union. Fields of development of FLOSS within the EU include security, interoperability and e-participation. One early Commission Working paper stressed the need for interoperability of programs for public administration across the EU. It states that the proposed interoperability framework "will be based on open standards and encourage the use of open source software." (Linking up Europe, 2003, p5.) In the European Union, the public sector was advised to avoid proprietary document formats, known as lock-in.

Coming after the switch to Linux in the servers of the Bundestag in 2002, Otto Schilly, Germany's Interior Minister, signed an agreement with IBM to offer the German Government offices deep discounts on computer systems based on Linux. (IBM signs Linux deal with Germany, 2002). The Council of Munich voted on May 2003 in favour of the adoption for its desktop and notebook computers an open source operating system and office applications. This move, unprecedented in scale in the European public sector, has been widely commented upon and discussed since then.

The case of Massachusetts illustrates the technology-based considerations concerning software usage. The goal of the open initiatives is to ensure that investments in information technology result in systems that are sufficiently interoperable to meet the business requirements of its agencies and to effectively serve its constituencies. (http://www.state.ma.us/itd/)

The Brazilian government identified economic reasons to migrate to Open Source Software; however it was a political decision as well. Through numerous open source projects, the government has tried to bridge the technology divide within the Brazilian population. (Benson, 2005)

A Peruvian bill has as its aim to establish measures and policies which will permit the acquisition of software licenses by the public administration under conditions of technology neutrality, and the free concurrence and equal treatment of suppliers. (Peruvian bill translation, 2005)

The South African government's official strategy for FLOSS was one of the first strategy documents that has officially recognized the legitimacy of the adoption of FLOSS within the public sector. (Using Open Source Software in the South African Government (2003).

China has been very aggressively promoting Linux. In the country there is a high frequency of pirated software. The military has been one of the earliest adopters of Linux. (http://www.redflag.com)

On the other hand, notwithstanding the above-mentioned initiatives, the relationship between governments and open source is not unambiguous.

MODEL

As is highlighted by selected case studies, there are many different approaches around the world to using FLOSS within the public sector. In this section a wide-ranging model is introduced. The general idea of the model reaches back to IDABC "The Many Aspects of Open Source"(n.d.) material, which was then extended and modified based on the research to give a broader picture as to the aspects of software usage in the public sector. On the other hand, the connection and mutual interference on one another factors will be examined in the future as part of this ongoing research.

The key factors were derived from motivations of governments within their environments, which were revealed. Every actor has its own attributes but in some cases there are attributes with different meanings.
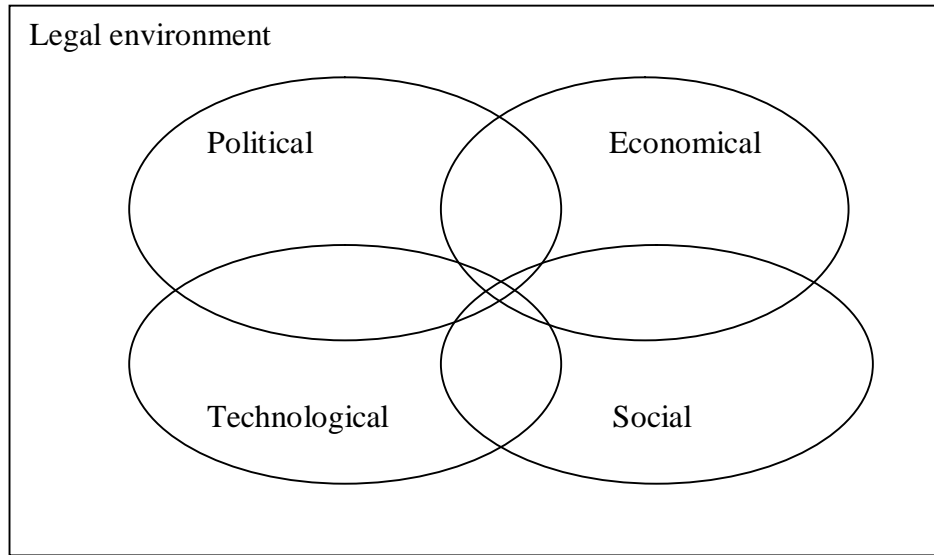
Figure 1. Model of actors of FLOSS usage by/in public sector

The legal environment surrounds the model because it has an effect on the other four factors. It has its own attributes as well. The political aspect is related to government's function and roles. One of the primary economic concerns is the cost of software usage. In the social context, the ICTs have a huge potential to make life better by that means the IT industry give employment a growing number of employees. As well, the users of ICTs can also meet their specific information needs. The dual societal pursuits of freedom and equality are furthered via the ability of citizens to access the information and services of national and municipal governments. The goal of open, transparent government is dependent upon the ever-greater access that ICTs offer. Meanwhile, the choices governments make as regards open or proprietary software, and the value they place on either, act as an example to the public, as well as reflecting the governments' position vis-à-vis issues such as privacy and security. The measurable technical parameters are, among others, the reliability, performance and scalability of the systems.

Future research

FLOSS touches upon multiple areas, as was introduced in the paper. There are also various other policy areas interrelated with FLOSS policies. Much empirical and theoretical work is still needed in this field and in reference to the presented model. Future research will focus on a detailed examination of motivations and a more precisely defined analysis of every factor involved.

CONCLUSION

The trends show that the consideration and utilization of FLOSS by national and municipal governments will continue to grow in the coming years. Countries in the developing world can gain the possibility to use high-quality free software as opposed to scaled-down versions of more costly proprietary software. Developed countries can gain the interconnectivity and the digital endurance of their digital stored documents and data. However, it should be noted that the advantages and disadvantages of FLOSS can be measured and evaluated in relation to proprietary software.

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