

# **A Critical Analysis of the Policy on Free and Open Source Software Use for the South African Government**

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## **Abstract**

In recent years, due to rapid growth of the open source software (OSS) movement and improved functionality and quality of OSS systems, private and public sector attitudes towards open source software have changed. Economic and national benefits of OSS use, such as reducing the country's dependence on imported software and creating opportunities for local innovation, are widely discussed and acknowledged. At the same time, wider economic, social, and environmental implications of OSS use need to be investigated and assessed over the short, medium, and long terms. It is particularly important for South Africa with its emphasis on local development and local involvement in global development. This paper looks at examining the government policy on OSS use and its possible implications in the South African context. To uncover distortions, ideologies, and hype present in the policy, critical research perspective, using critical discourse analysis (CDA) and Habermasian theory of communicative action (TCA), was adopted. The main purpose of the research was to identify communicative distortions and evaluate their implications for OSS use in South Africa. While a number of communicative distortions were identified in the discourse analysis, the majority of the distortions relate to the declared benefits of OSS, legitimization forms, and use of metaphors and connotative language. The communicative distortions revealed in the analysis may have a negative impact on OSS implementation in government, increase the risk of the government OSS projects failures, and stability of the government IT systems used for the government IT service delivery.

Keywords: open source software (OSS), public sector, South Africa, critical discourse analysis (CDA), theory of communicative action (TCA).

## **Introduction**

The Open source software paradigm has often been portrayed as having potential to aid human and national development since it is arguably cheaper and easy to customise for developmental needs.

However, despite such claims the adoption of open source amongst governments in development countries has not been widely researched to determine the extent of adoption and the impact of such adoption. Recently, governments across the world have become active players on the open source arena. They are beginning to understand the importance of OSS and are now adopting various strategies to support the development of OSS. Some governments have initiated OSS projects and have been spending public funds on OSS procurement (Lee, 2006), while others have migrated most of their local governments and state agencies to open source software and have passed resolutions favouring or mandating the use of the open source software (Evans & Reddy, 2003; Mtsweni & Biermann, 2008). In order to promote open source software, some of the governments have even engaged in joint research and development activities (Chae & McHaney, 2006).

It has been almost a decade since the South African (SA) government has indicated its interest in OSS, with the first feasibility study on OSS use in the SA government being conducted between 2001 and 2003 (Mtsweni & Biermann, 2008). The first policy promoting OSS use in the SA government was supported by the SA Cabinet in 2003, while the current policy for OSS use in the SA government was officially approved in February 2007. Since then, there have been no government reports on the status of the OSS implementation within the national departments (Mtsweni & Biermann, 2008). However the open source community has reported a number of challenges that the government is facing in the implementation of its OSS policy (Haggard, 2007; Mahlong, 2009; Otter, 2009).

The objective of this research is to critically analyse the SA government policy on OSS use. The study employs a critical approach. According to Orlikowski and Baroudi (1991, p.19), “the critical perspective is concerned with critiquing existing social systems and revealing any contradictions and conflicts that may inhere within their structures”. In particular, the study employs critical discourse analysis (CDA) based on Juergen Habermas’ Theory of Communicative Action.

While the government view on the appropriate policy and strategy for OSS implementation in the SA government is presented in a number of government documents (GITOC, 2003; NACI, 2004; PNC, 2004; DPSA, 2006a; DPSA, 2006b; DPSA, 2006c; DPSA, 2006d), this study focused on the current government policy on OSS use within the SA government using the Habermasian framework for the CDA. The main research question is formulated as follows: “Is there any evidence of systematic communication distortions in the government documents on OSS?” The secondary research question is: “If such distortions are uncovered, what are they?”

To the best of our knowledge, no CDA has been conducted on the topic of OSS policy in South Africa. This research is expected to fill in the gap and to make a contribution to the body of knowledge for critical research on OSS adoption in government. This research is expected to be beneficial to the government departments and agencies responsible for the implementation of the OSS policy within the SA government. The results of the research will help in shaping the government OSS policy and emerging e-government systems. The findings of the study may also be useful to other developing countries.

## **Literature review**

### **Background**

In the last decade, open source software has been a subject of extensive research with the main focus on adoption, advantages, and disadvantages of open source software (Morgan & Finnegan, 2007; Agerfalk, Deverell, Fitzgerald, & Morgan, 2005). Open source software promotes easy access to intellectual property and allows all in the society to benefit from it for free (Evans & Reddy, 2003). Since the code source is made publicly available, knowledgeable users can adjust software to their specific requirements and needs, fix bugs, once they are detected, and provide bug fixes to all users. Security is often cited as one of the main advantages of OSS (Mtsweni & Biermann, 2008); however, it's unclear, if this is a real or a theoretical advantage (Evans & Reddy, 2003). Among the disadvantages of the open source software, various researchers mentioned poor user support, lack of documentation, and fragmentation of software (Evans & Reddy, 2003; Mtsweni & Biermann, 2008).

While some of the reported motives for open source adoption have ideological or nationalistic reasoning, most of the rationales offered lie in the area of technical and cost-saving advantages (Evans & Reddy, 2003). Main rationales for open source adoption are (1) better security, stability, and privacy, (2) cost savings, (3) independence and minimization of vendor lock-in, (4) innovation, (5) competition, (6) helping domestic industries and local IT skills development (Evans & Reddy, 2003; Mtsweni & Biermann, 2008).

Like other software users, governments adopt open source software on the basis of technical and economic merits; however, their decisions can be sometimes politically motivated (Evans & Reddy, 2003). While some researchers suggested that open source software is technically superior and socially and politically progressive, mainly because of collaboration, cooperation, and expertise in development process (Chadwick, 2003), others argued that there is no evidence of the significant

market failure of the proprietary software that would justify government interventions in the software industry and policy of preferences favouring the open source software (Evans & Reddy, 2003).

Feasibility of the various government OSS policies around the world has been studied by many researchers (Evans & Reddy, 2003; Lee, 2006). While the main focuses of those open source policies are public good to the economy, cost saving, and technical efficacy, many of the policies bring the topic of technological independence, innovation, digital inclusion, and skills development at the national level (Schoonmaker, 2007). Some reports suggested that many of those policies are “in a state of policy ‘limbo’ between, on the one hand, calls for wider adoption and positive action and, on the other hand, approaches to ensure fair treatment and inclusion” (Lee, 2006, pp.135-6). Others warned against controversial and subjective OSS procurement regulations, which may result in reduced competition, increased prices, and lower innovation and social welfare (Schmidt & Schnitzer, 2003; Lee, 2006), and questioned government’s expertise in analysing software industry and their ability in re-designing or improving software industries (Evans & Reddy, 2003).

Some of the researchers have acknowledged democratic values of the open source software. They suggested that the wide involvement of users and technical personnel would counter government ‘technocratic’ bias and reflect citizens’ views on government systems (Chadwick, 2003), and would contribute to democratising technology in public organizations (Berry & Moss, 2006).

## **Open source use in South African Government**

The first South African policy on OSS use came into existence in 2003 (GITOC, 2003). In February 2007, the revised policy on OSS use for the South African government was approved by the South African Cabinet. It has to be noted that a number of the previous policy submissions had influenced the current government OSS policy. The first policy submission was the study on Open Software and Open Standards produced by the National Advisory Council on Innovation (NACI) in 2002, with revised version released in 2004. In 2003, then Department of Arts and Culture, Science and Technology in cooperation with the Government Information Technology Officer’s Council (GITOC), which represents a body of the government ICT experts, submitted the Proposed Open Source Software policy for Government (known as the GITOC policy), which was further revised in 2005. Another draft OSS policy was drawn by Presidential National Commission on Information Society and Development (PNC on ISAD), which utilised a large number of experts outside of the government to develop appropriate enhancements to the GITOC OSS policy. This draft policy was completed in 2004. In 2005, a conference on enhanced National Open Source policy and Strategy discussed the

GITOC policy and the PNC draft OSS policy. Subsequently, the GITOC policy was taken as the basis for recommendations to the Cabinet for the revised OSS policy.

The current South African OSS policy urges the government to implement OSS by supporting Open Content, developing software, based on open standards and licensed using an OSS license, and migrating current proprietary software to OSS, whenever comparable software exists. Figure 1 illustrates all the previous OSS policy submissions.

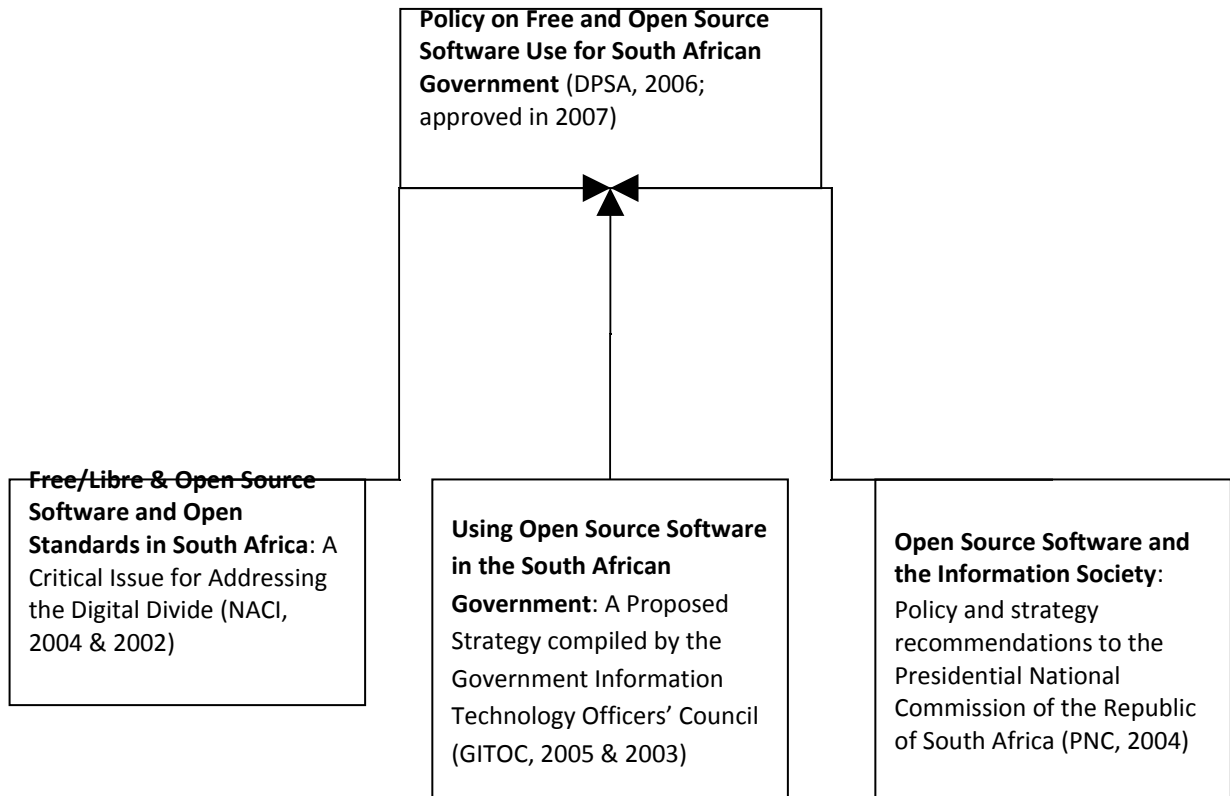


Figure 1: Illustration of previous OSS policy submissions

## Research methodology

For the purpose of uncovering systematic communicative distortions in the South African OSS policy, this research examined the problem from a critical perspective. The study adopted qualitative approach to data collection and a combination of qualitative and quantitative content analysis techniques for subsequent data analysis. The study was cross sectional in its timeframe.

The study employed CDA using a framework suggested by Habermas as a research strategy. Habermas’s four validity claims (truth, legitimacy, sincerity, and clarity) were examined. We followed an approach suggested by Cukier, Bauer, and Middleton (2004), who introduced a novel way of

operationalising the Habermasian framework. Similar approach was subsequently adopted by a numbers of researchers conducting critical research (Stahl, McBride, & Elbeltagi, 2005).

## Data Collection

Data collection was conducted in three stages. In the first stage, research databases and Internet resources were searched using the following criteria: "open source" AND [government OR "public sector"]. The Internet resources were narrowed down by adding additional search parameter "South Africa". During this initial stage, a number of academic and industry resources, related to open source use in government, private, and public sector, were identified and analysed. It was also during this stage that the current policy on OSS use for South African government, the previous policy, compiled by the Government Information Technology Officer's Council (GITOC, 2003), and a study on open source and open standards, conducted by the National Advisory Council on Innovations (NACI, 2004), were identified. The policy documents identified for the discourse analysis are listed in Table 1.

Document	Summary
[1] Policy on Free and Open Source software use for South African Government (DPSA, 2006a) (6 pages)	Identifies previous policy documents submitted to the Cabinet and how they influenced the approved policy, provides an overview of the policy, justification for its adoption and outlines the steps required for its implementation.
[2] Policy on Free and Open Source software use for South African Government: Appendix A – Policy implementation strategy (DPSA, 2006b) (5 pages)	Provides implementation strategy, identifies three strategy phases – initiation, enhancement, and mature - for the policy on OSS. For each phase a recommended set of strategies and implementation examples are given.
[3] Policy on Free and Open Source software use for South African Government: Appendix B – Multi-stakeholder Conference Declaration (DPSA, 2006c) (3 pages)	Provides a declaration unanimously adopted by the delegates of the conference on the South African National Strategy on OSS. The declaration supports OSS use in the South African government and outlines recommendations for the National Open Source Strategy. The conference took place in September 2005 and was attended by various

	participants from government, private and public sectors, and academia.
[4] Policy on Free and Open Source software use for South African Government: Appendix C – How Free and Open Source software and Open Content (FOSS/OC) is linked to development (DPSA, 2006d) (12 pages)	Provides characteristics of OSS, explains OSS types, levels of usage, relative benefits of OSS vs. proprietary software, and developmental benefits of OSS.

**Table 1: Documents analysed in the study**

The four documents listed in Table 1 constitute 26 pages of the Policy on Free and Open Source software use for South African government. These documents were identified as the primary data sources for the discourse analysis using a Habermasian framework.

The second stage of the data collection involved reading the current policy, the GITOC policy, and the NACI study, and compiling a list of the government departments and agencies, responsible for the policy implementation. The third step was to identify Web sites of the government departments and agencies, and to search for documents relevant to the current government OSS policy. The list of the government entities and the Web sites searched is provided in Appendix. The government policy on OSS use was found on a number of the Web sites listed in the Appendix. For example DPSA, FPO, SITA, and the South African Government provide the OSS policy on their Web sites, which confirms that as of now, the policy used for the discourse analysis in this paper is current.

## **Coding**

The analysed documents were examined and coded using the list of the guiding questions suggested by Stahl et al. (2005); Cukier, Ngwenyama, Bauer, and Middleton (2009). Computer assisted qualitative data analysis software package Atlas.ti was used to assist with coding. Multiple rounds of coding were necessary to evaluate the claims, as it was easy to focus on one validity claim at a time. In addition, separate rounds of coding were done, to uncover each of the following: connotative language, technical jargon and obfuscated terms, and statements based on the theory of technological determinism. The coding results were analysed and grouped into sub-claim categories.

## **Data Analysis**

Data collected for this research was analysed using the following general procedure for operationalising CDA (Cukier et al., 2009):

1. Identifying the corpus of data for the analysis.
2. Analysing the content and data coding.

3. Reading and interpreting the empirical observations.
4. Explaining the findings.

According to Cukier et al. (2009), steps 2 and 3 are iterative, while step 1 could be iterative, if empirical observations trigger further data collection. Each of the documents was identified with an identification code (1 to 4, see Table 1), to allow for referencing of the sources later.

## Expected results

Preliminary review of the government policy and strategy on the OSS implementation showed evidence of communication distortions. Hence, it was expected that subjecting those documents to CDA would reveal further distortions. It was also expected that the government documents on the OSS implementation would overlook the disadvantages of OSS and fail to adequately communicate and mitigate risks of such adoption. The pertinent literature review also suggested that any politically- or ideologically- motivated benefits of OSS would be proven to be far-fetched.

## Limitations of the study

Due to the limited time frame of the study, only the current government OSS policy was examined. The scope of the study was rather small and the sample only consisted of four documents listed in Table 1. No secondary data resources were included in the research due to the time constraints.

## Findings

This section discusses the findings of the analysis. A high level breakdown of all the validity claims is provided in Table 2. Findings for each of the four validity claims are examined and discussed in the following sub-sections.

Claim	Number of claims	Percentage (%)
Truth	72	37.5
Sincerity	61	31.8
Legitimacy	34	17.7
Clarity	25	13.0
<b>Total</b>	<b>192</b>	<b>100</b>

Table 2: High level breakdown of all validity claims identified in the study

## Truth claims: Argumentation and evidence

Discussion of any technology should ideally start with its definition and characteristics, followed by thorough analysis of the costs and benefits involved. Definition of OSS is provided in two documents [3] and [4], while a more detailed description, characteristics, and elements of OSS are discussed in



[4]. Claims related to description and characteristics of OSS constitute 33.3% (24 claims) of all identified truth claims (see Table 3).

Claim	Number of claims	Percentage (%)
Definition	10	13.9
Characteristics	14	19.4
Costs	4	5.6
Benefits	14	19.4
Evidence	3	4.2
Distortion	8	11.1
Ideology	9	12.5
Problems	10	13.9
<b>Total</b>	<b>72</b>	<b>100</b>

**Table 3: Summary of truth claims**

Claims related to OSS benefits constitute one of the largest groups among the truth claims (19.4% of the truth claims). OSS benefits are briefly mentioned in [1] and discussed in detail in [4]. Benefits mentioned in the policy documents are: (1) low financial cost; (2) freedom to probe, modify, learn from, and customise software; (3) interoperability, (4) improved reliability, (5) absence of licence restrictions, (6) absence of vendor lock-in, (7) localization opportunity, and (8) benefit of non-obsolence.

Some of the benefits were classified as ideology-based and distortion-based claims. One of the policy documents [3] explicitly states that OSS help to achieve “the South African national strategic objectives for socio-economic development”, which are “to improve competitiveness, support local innovation and investment, broaden BEE participation in the economy, build a better world, improve the reach and efficiency of government service delivery and in doing so reduce poverty and redress imbalances of the past”. This statement highlights a mix of distortion-based and ideology-based truth claims, as well as assumption-based legitimacy claims, that have its roots in technological determinism. Assumption-based claims will be examined in detail in sub-section 4.2.; however, it’s important to mention that any attempt to link OSS technology to socio-economic development or efficiency of government service delivery is an example of technological determinism. It is oversimplified and, in fact, misleading. In the quotation above the claims to “broaden BEE participation in the economy, build a better world” and “reduce poverty and redress imbalances of the past” are clearly ideologically and politically motivated.

Though, it seems plausible that wider OSS use may improve competitiveness in ICT sector and increase ICT innovation, no evidence to support such claims has been provided. It is also somewhat unclear what effect OSS use may have on the local investment in ICT. Furthermore, when compared to proprietary software, OSS adopt a different business model which generates revenues from OSS-

related services, “ranging from systems integration to support and training” (NACI, 2004, p.19), rather than software license fees. While, it has been reported that “OSS projects require a large user base to provide the necessary volunteers” (GITOC, 2004, p.9), the same applies to customer base. In order to generate enough revenues from OSS-related services, OSS projects require a large base of clients interested in such services. Economic viability and profitability of OSS projects require further research and financially based analysis.

A number of the policy statements on the developmental benefits of OSS were based on the assumption that “FOSS/OC contribute in meaningful ways to economic development generally, and directly support South African economic development priorities in particular” [1]. While the policy makers referred to evidence of “additional research and consultation pertaining to FOSS [that] has taken place on a national and international level across a wide spectrum of stakeholder groups” [1], further research is necessary to support the claim.

Ideology based claims constitute 12.5% of the truth claims. Besides the previously mentioned ideologically motivated claims, such as economic empowerment and “better life for all in South Africa” [4], a number of ideology-based claims were identified in the discourse analysis and are as follows:

The intrinsic benefits of OSS “help counter a psychology of dependence on developed countries and corporations to provide the innovations and solutions to problems faced domestically”. [4]

“Open source raises the profile of South Africa in the global economy and narrows the digital divide”. [4]

“Participating in the FOSS/OC community raises the profile of the developing world, helps to demonstrate its capabilities and its desirability as a progressive, technologically literate and knowledge-savvy nation”. [4]

A number of distortion-based claims (11.1%) have been identified. For example, from the government perspective, one of the relative benefits of OSS vs. proprietary software – “freedom to probe, modify, learn from, and customise software” – has, among others, the following subsequent benefits: (1) “ensuring free access to public data by citizens”, (2) “guaranteeing the permanence of public data”, and (3) “security of public and state information” [4].

Another example of the distorted truth claim is:

“FOSS/OC supports ICT spending with local companies, keeping that money ‘onshore’ and thereby encouraging a valued, employable skills base to flourish domestically, which in turn keeps educated and skilled workers at home and encourages other educated and skilled workers to immigrate, drawing in talent”. [4]

Claims that OSS use in the government “furthers the success of small, medium, and micro-enterprises (SMMEs)”, drives job creation, and supports “both social and economic upliftment” are another examples of distortion-based claims.

While benefits of OSS usage were identified and discussed in detail, costs of OSS technology received less attention (5.6% of the truth claims). The policy acknowledges that low cost of OSS was among the main reasons for OSS use, as “justifications typically focus on cost, security, and similar issues” [1]. Another cost related claim states that:

“the issues of technical performance, security, cost, and others, pertaining to the selection, implementation, support and enhancement of FOSS IT systems, were addressed, and it was predominantly on the basis of these direct cost/performance issues that policies supportive of FOSS were adopted”. [1]

While, in both above-mentioned quotations, cost related claims were mentioned in passing, cost justification of OSS remains an issue. It has been reported that there are still divergent views on the total cost of ownership (TCO) of OSS (GITOC, 2003). Some reports suggested that the cost of training, adapting, maintaining, implementing, and supporting of OSS could be greater than costs associated with proprietary software (GITOC, 2003; NACI, 2004). Hence, there is a need for objective, factual, and financially based analysis of costs and benefits associated with OSS. Without providing any evidence, the policy states that:

“When objective technical and financial analyses are conducted to calculate total cost of ownership, return on investment, technical performance levels, security, and other measures, FOSS/OC typically proves highly competitive (and frequently superior) across many categories of ICT”. [1]

As was already mentioned, there is very little evidence provided to support the claims related to the benefits of OSS and its superiority vs. proprietary software. Only three evidence-related claims were identified during the discourse analysis. Most of the claims do not provide any reference to the original source, so the reader could not verify or analyse the original source. Examples of such evidence-based claims are:

“Additional research and consultation pertaining to FOSS has taken place on a national and international level across a wide spectrum of stakeholder groups”. [1]

The policy acknowledges some of the issues related to OSS usage. One of them is the lack of available OSS systems that could replace existing proprietary software. For example:

“This is not to say that FOSS/OC solutions are currently available or appropriate in every situation or for every user ...” [1]

The policy also recognises the fact that there are barriers to the wider use of OSS. However, according to the policy, most of these barriers have lost their importance.

“Many of the early barriers to the use of FOSS have rapidly eroded. As items of FOSS software mature they have become easier to use. Local firms as well as the wider user and developer community offer support... Alternative business models have arisen which allow contributors to profit from their efforts without charging for the software itself, and many small and large commercial IT vendors have professional teams contributing to open source development projects”. [1]

Although, on two occasions, the policy mentions issues of technical performance, security, and cost, in general, any problems related to OSS use are overlooked.

## Sincerity: Metaphors and Descriptors

Cukier et al. (2009, p.188) state that “sincerity requires congruity between what is said and what is meant, or between the underlying intent and the expressed intent in the communication”. When sincerity claims are analysed, special attention is given to hyperboles, metaphors, and imagery, as such figurative language can reinforce certain perceptions, even when sufficient evidence was not provided (Cukier et al., 2009). While hyperboles were not present in the policy documents, metaphors and connotative words were identified in the analysis. Summary of the sincerity claims is provided in Table 4.

Claim	Number of claims	Percentage (%)
Metaphor	9	14.8
Connotative words	52	85.2
<b>Total</b>	<b>61</b>	<b>100</b>

Table 4: Summary of sincerity claims

The most frequently metaphors used in the discourse are ‘information society’, ‘knowledge economy’, and ‘digital divide’. OSS usage is associated with ‘information society’ and ‘knowledge economy’ and narrows ‘digital divide’ [4].

There are 46 positive adjectives associated with OSS usage compared to six negative terms. The disproportion in frequency of positive and negative descriptors could signal the possibility of distortion (Cukier et al., 2009). Most frequently used descriptors of OSS that evoke positive associations are: ‘developmental’ (7), ‘strategic’ (6), ‘substantially beneficial’ (6), ‘collaborative’ (3), ‘robust’ (3), and ‘significant’ (3). OSS solutions are described as ‘empowering’, ‘innovative’, ‘new’, ‘technological’, and ‘universal’. Proprietary software is associated with ‘restrictive’ licensing conditions and ‘prohibitive’ costs and represents the ‘bare-knuckled culture of market competition’ [1].

### **Legitimacy: Whose interests?**

Legitimacy claims can be evaluated “by considering the inclusivity of the discourse, and by assessing the extent to which the discourse relies upon experts and sources.” (Cukier, Middleton, and Bauer, 2003, p.212). A summary of the legitimacy claims identified in the discourse is provided in Table 5.

<b>Claim</b>	<b>Number of claims</b>	<b>Percentage (%)</b>
Assumptions	12	35.3
Legitimation	8	23.5
Stakeholders	14	41.2
<b>Total</b>	<b>34</b>	<b>100</b>

**Table 5: Summary of legitimacy claims**

A number of assumption-based claims identified in the discourse are directly linked to technological determinism (11 claims) and social determinism (one claim). The policy makers believe that OSS use in the government will lead to social improvement, ranging from development of the local IT skills base and the ICT industry to increased transparency and accountability in the government. For example, wider use of OSS has “the potential for a local ICT development industry to flourish, with associated societal benefits” [4]. Other examples of technological determinism are:

“The nature of open technologies can help move forward a culture of openness and transparency in government as well as society ... and enabling government to be accountable to the people...” [4]

“Making preferential use of FOSS/OC will expand and strengthen the local economy by keeping spending at home and building skills and capacity.” [4]

“FOSS/OC help[s] achieve these [South African national strategic] objectives by contributing to socio-economic development nationally, regionally, and internationally in significant ways that other technologies and forms of content do not.” [3]

At the same time, the policy itself is based on socio-deterministic assumption – that society determines and shapes technology. The policy makers proceed from the assumption that the government support for OSS and financial funding allocated to it will stimulate innovation, in general, and OSS growth and development, in particular. For example:

“Support for FOSS/OC by government will have ripple effects throughout the economy that will result in more opportunities for innovative products, and investment in developing and promoting them in new market segments and expanding markets in southern Africa and beyond.” [4]

Various means of legitimation used in the policy were revealed in the discourse analysis. Most often legitimation claims used are: the Constitution and the human rights, national and provincial legislation, academic research, and the government sponsored investigations and reports. While the policy only identifies the government OSS strategy generally, it allows each of the government departments to manage the policy according to their strategies, plans, and projects. In this case, the government departments may refer to the Constitution and the human rights, as well as the legislation:

“In some cases, reference will be made to the Constitution and the human rights protected therein (such as the right of access to information, the right to freedom of expression, the right to equality without discrimination with regard to language, among others), while in other cases it will be national or provincial legislation, municipal by-laws, departmental strategic plans or other documents that establish the basis of the relevant scope.” [1]

Legitimation claims based on the Constitution and the human rights are the most powerful legitimation claims in the discourse. Despite the fact that the policy mentions academic research, it does not provide any references to it, and does not allow for verification and analysis of such research.

Another way of powerful legitimation of the policy is the multi-stakeholder conference declaration [3] that forms part of the policy. The conference took place in September 2005 and was attended by numerous stakeholders from private sector (20 organizations), public sector (16 organizations), government (25 national and provincial departments), and academia (5 universities). The conference declaration was unanimously supported by all the delegates. The list of the organizations participated in the conference builds a strong association with the power structures that exist in the South African society. The fact that the declaration was adopted unanimously reinforces the power of these structures and the power of the declaration itself.

Despite the presence of the multi-stakeholder conference declaration, which includes voices of organizations from private sector and academia, only the government experts and agencies are speaking. Therefore only the government views on OSS are presented and only its interests manifest in the policy. Interests of proprietary software development companies, software vendors, and citizens are under-represented in the policy.

## Clarity

Cukier et al. (2009, p.179) state that violations to clarity are caused by incomplete messages, information overload and “the excessive use of language that the participant cannot understand”. Clarity claims were identified by examining the policy for unexplained terms, technical jargon, and evidence of obfuscation. The summary of the clarity claims is provided in Table 6.

Claim	Number of claims	Percentage (%)
Technical Jargon	2	8.0
Unexplained term	7	28.0
Obfuscation	16	64.0
<b>Total</b>	<b>25</b>	<b>100</b>

**Table 6: Summary of clarity claims**

Five unexplained terms were identified in the discourse analysis. The terms are “MIOS”, which stands for Minimum Interoperability Standards, “e-Government Metadata Frameworks (e-GMF)”, “e-Government Metadata Standards (e-GMS)”, “e-Government”, and “e-Strategy”. The terms MIOS, e-GMF, and e-GMS are very technical and, most likely, beyond comprehension for most of staff members within the government departments. Besides that, the policy does not provide definitions for any of the terms under discussion. While terms e-Government and e-Strategy are less technical and more widely used, the fact that the terms and activities related to the terms are not defined, can lead to misinterpretation.

Two technical jargon terms, i.e. ‘siloes systems’ and ‘software commons’, were identified in the policy. As with the unexplained terms, these terms hinder comprehension of the document and are incongruent with the style and vocabulary of the high-level government document.

A number of obfuscated phrases were identified in the discourse. The most often obfuscated phrase used in the policy is ‘significantly superior’ (7). The policy states that “the South African Government will implement FOSS unless proprietary software is demonstrated to be significantly superior” [1]. However, the policy does not provide and does not reference any guidelines, frameworks, and/or metrics for evaluating OSS vs. proprietary software. Without a structured process guided by a framework and metrics, an impartial and objective evaluation of OSS vs. proprietary software is

hardly possible. Furthermore, the policy states that “whenever FOSS is not implemented, then reasons must be provided in order to justify the implementation of proprietary software” [1]. This raises a number of questions. What are the metrics for justification of use? Are they based on cost/benefit analysis? Why only implementation of proprietary software has to be justified? Especially, in the light of what the policy says about availability of OSS solutions (“this is not to say that FOSS/OC solutions are currently available or appropriate in every situation or for every user ...” [1]), would not it be more appropriate to justify the use of both OSS and proprietary software in the government departments?

Another obfuscated phrases used are ‘ICT environment’/‘ICT asset’ (2), ‘service delivery through electronic channels’, ‘industry leaders’, ‘multi-stakeholder association’, and ‘best practice software development process’.

### Summary of the analysis

A summary of the discourse analysis is presented in Table 7. The majority of the communicative distortions are related to the declared benefits of OSS, legitimization forms, and use of metaphors and connotative language.

Claim	Summary of findings
Truth	<ul style="list-style-type: none"> <li>• While benefits of OSS usage were identified and discussed in detail; costs associated with OSS received little attention.</li> <li>• There is very little evidence provided to support the claims related to the benefits of OSS and its superiority vs. proprietary software.</li> <li>• Though policy acknowledges some of the issues associated with OSS use, these issues are either underestimated or overlooked.</li> <li>• A number of the reported benefits are distorted or based on ideology.</li> </ul>
Sincerity	Use of metaphors and connotative language evokes positive associations related to OSS and strongly favours OSS use.
Legitimacy	<ul style="list-style-type: none"> <li>• A number of assumptions made from the position of technological determinism are used for legitimization.</li> <li>• The Constitution and the human rights are used as powerful legitimization means in the discourse.</li> <li>• The power structures that exist in the South African society are used for legitimization. Unanimous vote on the declaration to adopt the policy on OSS is another powerful form of legitimization.</li> <li>• Only the government views on OSS are presented and only its interests</li> </ul>



	<p>manifest in the policy.</p> <ul style="list-style-type: none"> <li>• Interests of proprietary software development companies, software vendors, and citizens are under-represented in the policy.</li> </ul>
Clarity	A number of unexplained terms, jargons and obfuscated phrases were identified in the discourse.

**Table 7: Summary of the findings of the discourse analysis**

## **Discussion of the findings**

The analysis of the findings presented revealed a number of communicative distortions in the current government policy on OSS use. Most of the distortions show a strong bias towards OSS that can be partially explained by the government unrealistic expectations of the OSS social and economic benefits, such as spin-off development of the local ICT skills base, job creation, raising the profile of South Africa in the global economy, and promoting a culture of openness and transparency in the government. The policy is based on the assumption that the widespread use of OSS results in the significant developmental benefits and supports the South African developmental goals – improved national competitiveness, support for local innovation and investment, economic empowerment, and building a better life for all South Africans. As it was mentioned already, very little evidence is provided to support the claims related to the OSS social and developmental benefits.

One of the examples of the strong bias towards OSS is the clear preference for OSS solutions in the new software procurements. In order to be implemented, proprietary software has to be “significantly superior”, and its use must be justified. The policy stops short of providing any metrics for evaluation of the benefits and costs of OSS software vs. proprietary software and justification of use. When commercial measures of OSS and proprietary software, such as functionality, stability, technical performance, TCO, security, and risks, are equally strong, then the OSS solutions are selected in recognition of their perceived societal and developmental benefits, which can be hard to quantify.

Though, it’s true that citizens can benefit from the use of OSS and intrinsic interoperability of open content standards, both OSS and open content standards are just a few factors, among many others, contributing to “free access to public data by citizens”. OSS and open standards can not ensure access to public data on their own without other relevant factors, such as availability of reliable customized software system, telecommunications infrastructure, computer or other access device, and, more important, certain level of computer literacy among the citizens.

The claim, that the permanence of public data is guaranteed by the mere fact that continuous development of government systems is ensured by the availability of the source code, is oversimplified. The concept of public data encompasses not only source code of the government software systems, but any data that belongs to the public domain. So in order to ensure the permanence of public data, the government needs to consider other measures as well.

Similar to the above, security of public and state information is a wide concept. The fact that “source code of the applications, which allow public and state information to be stored and exchanged, can be inspected by citizens, the state, and independent experts” [4], and, as a result of that, source code “is free of critical bugs or potential security flaws” [4], does not guarantee security of public and state information in general.

While it is true that revenues from OSS-related services provided by local ICT companies will stay in South Africa, one can express reasonable doubts about the effects of such spending on the local IT skills base. The current shortage of IT skilled professionals in the South African ICT sector, where demand is far outstripping supply, proves that there are other factors influencing IT skills base development in South Africa. It is also debatable, if such demand on its own can keep skilled workers at home, or cause foreign IT specialists to immigrate to South Africa. Furthermore, OSS development model does not require project participants, who are distributed around the world, to relocate, as they stay connected by the Internet, computer networks, and collaboration tools.

Though the previous policy pertaining to OSS use in the South African government (GITOC, 2003) was not analysed in the discourse analysis, overall, it showed a balanced view on OSS adoption in the government, and followed a more neutral approach towards OSS use than the current policy. The previous policy called for “utilising analytical tools to judge whether OSS implementation will deliver superior value” (GITOC, 2003, p.2), and suggested that any decision to migrate to OSS should be a business decision based on sound business principles and rational argument. The policy stated that “subjective preferences because of noble principles involved should not be the deciding factor” (GITOC, 2003, p.21). The policy talked about “level playing fields”, “selection on merit”, and “neutrality of documented software assessment criteria” (GITOC, 2003, p.22). The policy also mentioned models and frameworks available for determining cost-benefit analysis, however, no references to such models or frameworks were given.

While the current government OSS policy demonstrates a clear bias towards OSS, a large number of the distorted claims represent a shift away from the ideal speech act. The communicative distortions, revealed in the analysis of the current government policy on OSS, can lesser chances of

the successful implementation of the government OSS policy and increase the possibility of the government OSS projects failures. This can have further implications for the stability of the government IT systems used for the government IT service delivery.

## **Conclusion**

This study applied a Habermasian framework to analysing the policy on OSS use for the South African government. Due to the limited time frame of this study, the main focus was on the current government policy on OSS use. Despite the small scope of the analysis, a number of communicative distortions in the current government policy on OSS use were identified.

While this study contributes to the body of critical research on OSS adoption in government, there is a clear need for further research on the topic. One of the potential areas of future critical research on OSS use within the South African government is to enlarge the scope of the analysis and conduct a longitudinal study of the government discourses on OSS. The study would allow for critically comparing changes in the discourses of various policies and documents over time.

A critical analysis of the government discourses on OSS is a promising area of academic research, because it can help to identify distortions, particularly those related to omission of costs and downplaying of implementation issues. Uncovering the communicative distortions and understanding their economic and societal implications on the public sphere raises awareness of the powerful role of the discourse in shaping public opinion, and highlights the significant impact of the discourse on the success of the government OSS policy and shaping of e-government technology.

## Appendix: Government resources searched for information on the OSS policy

Government Department / Agency	Web site
Department of Communications (DOC)	<a href="http://www.doc.gov.za/">http://www.doc.gov.za/</a>
Department of Public Service and Administration (DPSA)	<a href="http://www.dpsa.gov.za/">http://www.dpsa.gov.za/</a>
Department of Science and Technology (DST)	<a href="http://www.dst.gov.za/">http://www.dst.gov.za/</a>
Department of Trade and Industry (DTI)	<a href="http://www.dti.gov.za/">http://www.dti.gov.za/</a>
FOSS Programme Office (FPO), Open Source Software Standing Committee (OSS SC)	<a href="http://www.oss.gov.za/">http://www.oss.gov.za/</a>
Government Communication and Information System (GCIS)	<a href="http://www.gcis.gov.za">http://www.gcis.gov.za</a>
Government Information Technology Officer's Council (GITOC)	<a href="http://www.gitoc.gov.za">http://www.gitoc.gov.za</a>
Meraka Institute	<a href="http://www.meraka.org.za/">http://www.meraka.org.za/</a>
National Advisory Council on Innovation (NACI)	<a href="http://www.naci.org.za/">http://www.naci.org.za/</a>
Presidential National Commission on Information Society and Development (PNC on ISAD)	<a href="http://www.pnc.gov.za/">http://www.pnc.gov.za/</a>
South African Government	<a href="http://www.info.gov.za">http://www.info.gov.za</a>
South African Parliament	<a href="http://www.parliament.gov.za/">http://www.parliament.gov.za/</a>
State Information Technology Agency (SITA)	<a href="http://www.sita.co.za/">http://www.sita.co.za/</a>

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