



## E-Government in developing countries: Experiences from sub-Saharan Africa

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### ARTICLE INFO

Available online 18 October 2008

#### Keywords:

E-Government  
Good Governance  
sub-Saharan Africa  
ICT for Development  
Development Administration  
Administrative Reform

### ABSTRACT

This article addresses the different institutional and cultural contexts which must be considered when implementing E-Government in sub-Saharan Africa. Although E-Government is a global phenomenon, simply transferring ICT solutions and related organizational concepts from developed to developing countries seems inappropriate. E-Government undoubtedly has the potential to reduce administrative and development problems. However, it is obvious that compared to developed countries, additional effort is necessary when implementing E-Government in developing countries. More than in developed countries, the different initial institutional, cultural, and wider administrative contexts must be considered to avoid unintended effects. It is oversimplifying the issue to merely state that E-Government projects fail in Africa and other developing regions. Although E-Government in African countries lags far behind developed countries, this should be considered more as a state failure or lack of capacity in general. In particular, the different administrative contexts and rationalities must be taken into an account when implementing E-Government projects and strategies. Therefore, especially for African countries, a context-oriented approach seems to be a more promising route to the successful implementation of E-Government. The results of this approach may not seem ambitious from a western perspective, but could contribute to the solution of real-life and development problems in African societies.

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### 1. Introduction

E-Government has become a global phenomenon. Industrialized and developing countries have been initiating E-Government strategies and projects, the latter typically with support from donor organizations such as the World Bank or bilateral donor organizations. Under the label “Information and Communication Technologies for Development” (ICT4D), these organizations are stressing the relevance of Information and Communication Technologies (ICT) in general, and E-Government in particular, as a way to promote development and reduce poverty. Expectations are high. E-Government is seen as strengthening the performance of government and public administration, and an efficient and effective state administration is a necessary prerequisite for economic and social development.

This issue is especially relevant for countries in sub-Saharan Africa, where public administration is characterized by inefficiency, limited capacity, and poorly-trained personnel. One could say that E-Government can, in general, contribute to solving administrative problems, but because E-Government and its related organizational concepts were developed in industrialized countries, it should not be assumed that this concept is automatically appropriate for developing countries. Thus, when introducing E-Government in sub-Saharan Africa, it is expected that different and more far-reaching efforts will be necessary than in developed countries. This article examines the

opportunities and risks for E-Government in a developing-country context using the example of sub-Saharan Africa. The questions that will be addressed are: *What are the specific potentials of E-Government in developing countries?* and *What conditions must be taken into consideration when implementing E-Government there?*

Until now these questions, as they apply to developing countries in general and Africa in particular, have hardly been discussed in academic forums. Only a few scholarly articles addressing E-Government in developing countries exist, and these were referenced for this article. One of the authors working in this field is Richard Heeks, who has published a working paper specifically addressing Africa (Heeks, 2002). More commonly, this subject is discussed in the policy and strategy papers of various donor organizations, such in the framework of the 2000 UN Millennium Development Goals (United Nations-General Assembly, 2000). However, their perspective is often unreasonably optimistic (UN, 2005). In general, the discussion about the effectiveness of and prerequisites for E-Government in developing countries is still in its infancy. Therefore the purpose of this article is not to test hypotheses, but rather to explore, clarify, and analyze the implications of E-Government in developing countries. Because of the limited academic debate, in addition to existing literature, approximately twenty interviews with employees of development organizations and representatives of the scientific community were conducted. We also analyzed project reports; internet sites and strategy, status and working papers published by development agencies; and African government and administrative organizations. Knowledge gained from workshops conducted by the author and attended by development

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experts at the Sadat Academy in Egypt and Cairo University in June 2006; in Bogota, Colombia in November 2005; and in Dubai in December 2006 is also included in this article.

This article is structured as follows: first, E-Government and its associated organizational concepts are briefly outlined. Then the current state of its implementation in sub-Saharan Africa is discussed and the need for a contextual and cultural approach when implementing E-Government in developing countries is highlighted. Next, the impact of E-Government in the context of a developing country is discussed so that potentials, the risk of non-intended effects, and broader conditions can be addressed. Innovative cases from sub-Saharan African countries are then outlined in some detail so as to provide specific examples of the potential and implementation requirements of E-Government projects in a developing-country context. In conclusion, consequences are drawn and policy recommendations relevant for development cooperation are made.

## 2. E-Government in the developing countries

### 2.1. Context and characteristics of E-Government elements

Governments worldwide are working on implementing E-Government. These efforts are not only focused on the question of digitalization in itself, but also on the reorganization of public services and participation processes based upon new ICT. The term “ICT” is understood primarily as internet technologies and internet-based applications, but also includes network technologies, databases, and electronic workflow systems. Through these technologies it is possible to achieve temporal and spatial independence and flexibility because data, software functions, and processes are ubiquitously available. This means that work processes and public participation can be improved or redesigned. Thus, E-Government relates not only to the provision of public services (eAdministration), but also directly to questions of democracy, because it makes new participation forms possible. This can include new information, consultation, or communication possibilities, for example, in regard to proposed legislation or in planning processes.

However, the main focus of E-Government is the reorganization of service processes and citizen services. Correspondingly, the separation between front and back offices has become the most favored E-Government service structure (Lenk, 2004, 2002). The front office handles specific office processes or service components, with a focus on certain target groups (Lenk & Traunmüller, 2001). The back office, which can be spatially separated from the front office, is the place where decisions are made, as well as where IT functions such as databases, applications, signature infrastructure are located. The institutional separation between the front and back offices not only requires a readjustment of working processes, but leads to or requires numerous institutional changes (Schuppan, 2007). Especially important is the fact that this makes it possible to reduce or eliminate the institutional fragmentation of public administration because citizens can have access to public services from one location. As a result, through the separation between front and back office, it is possible to simultaneously realize efficiency and client orientation, which wasn't possible without new ICT.

A popular example of the comprehensive implementation of an E-Government service architecture is Australia's Centrelink Agency (<http://www.centrelink.gov.au>). Through Centrelink, citizens can choose between different access points such as a call center, a website, or a physical government office in their locale to gain access to public services. This means that citizens no longer need to travel to different public offices, but can handle all contacts with a public administration at one access point – in whatever form they wish. Examples of business-oriented services which implement new service architecture also exist, such as the U.S. government's portal for small and middle enterprises (<http://www.sba.gov>). Structured around

stages of a business' life cycle (e.g., starting the business, export/import, or closing the business) it is possible to access appropriate public and private services. This includes, among other things, the online registration of businesses and participation in online business education courses.

In summary, the basic organizational principles related to E-Government are: multichannel distribution, the separation between front and back offices, and process reorganization which avoids media discontinuity. These principles are relevant to new participation forms as well as to the provision of public services. It is not only a question of providing services via the internet independently of space and time, but of changing the underlying processes, decision-making structures, and procedures, by using ICT to raise the overall efficiency, effectiveness, and legitimization of administrative structures and decisions.

### 2.2. Stages of implementation in sub-Saharan Africa

An exact ranking of sub-Saharan African countries with regard to the implementation of E-Government is difficult because the countries of this region are rarely mentioned – with the exception of South Africa – in relevant studies. This is in no small part due to the fact that, to date, sub-Saharan Africa has barely registered on the E-Government radar screen and thus hardly any measurable E-Government data is available. Relevant E-Government studies have been conducted, especially by large consulting firms (Accenture, 2006; Capgemini, 2006), by international organizations (UNDESA, 2005), and also by some universities (West, 2005).

In any case, not only do these studies provide little information about the state of E-Government implementation in developing countries in general (or in sub-Saharan Africa in particular), but they often show also considerable methodical shortcomings (Bannister, 2007; Janssen, Rotthier, & Snijkers, 2004). Thus, E-Government is reduced to the extent to which public service processes are conducted online. Actual usage levels or the impact of electronic services are hardly measured. Organizational changes relevant to E-Government, such as the reorganization of procedures and processes, are barely addressed as a central theme, or are only illustrated using randomly selected “best practice cases.”

In spite of the mentioned methodical shortcomings, the studies provide some information concerning the general state of development of E-Government in sub-Saharan Africa. It can be stated without a doubt that, from a global perspective, the countries of sub-Saharan Africa are particularly underdeveloped in the implementation of E-Government, with the exception of South Africa. In these countries, internet access is scarce and E-Government services are rare, although some advanced individual cases can be found (see Section 4).

Estimating the extent of E-Government implementation in sub-Saharan African countries is difficult, as only a few benchmarks exist and these are exclusively focused on internet services. According to the so-called web measure index from the UN's worldwide E-Government Readiness Report, countries such as Mauritius, South Africa, Uganda, and Ghana are in the upper third; while countries including Zambia and Central African Republic do not statistically register on the scale (UNDESA, 2005). These statements were also confirmed by the number of projects mentioned on the webpage of the Institute for E-Government ([www.ifg.cc](http://www.ifg.cc)), which provides news about E-Government projects worldwide.

Detailed internet searches which were carried out in January 2007 also confirm the insufficient state of E-Government implementation in sub-Saharan Africa. Although E-Government strategies exist in many countries (e.g.: The Republic of Ghana, 2003; Republic of Kenya – Cabinet Office – Office of the President, 2004; Republic of Uganda, 2004) they often repeat general E-Government rhetoric and say little about the actual state of implementation. Other web analyses show that only ministries and some central authorities have websites. In

Ghana, for example, these include the presidential office, the harbor authority (<http://www.ghanaports.gov.gh/>), and the tax authority (<http://www.irs.gov.gh/>). The provinces and districts do not offer their own websites. In Ghana there is only one central “district portal” (<http://www.ghanadistricts.com/home/>).

In considering the present level of development of E-Government in sub-Saharan Africa, the question as to which factors influence the spread and implementation of E-Government becomes even more relevant, meaning that existing administrative preconditions and environmental factors play an important role.

### 2.3. Initial and environment conditions of development administrations

Because E-Government is a concept which originated in the public administrations of industrial countries, it is especially important to address questions about E-Government's functionality in different administrative environments. If these diverse situations are not taken into account, then the potentials, effects, and requirements of E-Government cannot be sufficiently considered (see Section 3).

A low-performance public administration with correspondingly low resources is a typical problem in African and other developing countries. It is characterized by an often rigid centralism with neopatrimonial leadership style,<sup>1</sup> a weakly developed local administration, corruption, high levels of over-staffing with low pay scales, as well as unmotivated and unqualified staff (Wescott, 1999). All-in-all, public administration in Africa is perceived as inefficient and ineffective to the extent that the implementation of political will is barely possible.

No consensus exists in respect to the causes of these administrative deficits. To some degree, they are believed to be a result of exogenous factors (e.g., colonial legacy, restrictions imposed by international donor organizations) and partially of endogenous factors (e.g., securing of power by political leaders, cultural factors) (Reichard, 2004). A different administrative culture is also always cited as an important cause of these deficits, which expresses itself in the form of other values and orientation patterns and which especially complicates administrative change (Illy & Kaiser, 1985). In particular, the neopatrimonial administrative culture is typical of Africa. Under this system personalized power structures based upon of patron–client–relationships exist. Positions in the state apparatus are not filled based upon performance, but on mutual relationships between patrons and clients (Haynes, 1996). Rent-seeking behavior is also common among bureaucratic elites (Elsenhans, 1987), which, in view of widespread traditional ethnic ties and tribal loyalties, is seen as a firm component of African culture (Haynes, 1996). The concept of administrative culture is problematic as it is difficult to operationalize (Pitschas, 1992), so that many considerations can only be based upon on plausibility. Nevertheless, it is clear that the different administrative cultures in Africa must be taken into consideration.

The literature and development experts point out that, in addition to pre-existing administrative conditions (including the administrative culture), other environmental factors influencing public administration play a special role in regard to reforms (Turner & Hulme, 1997). This was pointed out in the 1950s and 60s, as administrative cooperation became increasingly important within the context of development assistance. The American, Frederick Riggs, was a prominent scholar who advocated the special consideration of the administrative environment in the 1960s. He developed the so-called “Prismatic Society” model to grasp the different degrees of functional differentiation among institutions in developing societies. He also

<sup>1</sup> Neopatrimonialism is widespread in African countries and is characterized by elements of patrimonial and rational-legal domination (Bratton & van de Walle, 1997). In a neopatrimonial system, patrons typically are office-holders in state institutions who misuse public funds or offices in order to stay in power. Although laws and norms are formalized, the application of these laws and norms is quite informal.

explicitly argues that environmental factors need to be taken into consideration, especially when transferring administrative technologies. Riggs claimed that, “... administrative activities [are] strongly influenced by non-administrative criteria. If we seek understanding of administration in a prismatic society, in other words, we need to study many non-administrative matters” (Riggs, 1960). Though Riggs' model is often criticized for its deterministic view of the relationship between the environment and administrative organization (König, 1986), today a consensus exists in academia and among practitioners in the field of development cooperation that economic, political-administrative, and cultural conditions must be taken into consideration when transferring or implementing new administrative techniques (Riggs, 1970; Adamolekun, 1976).

Experience in the transfer of public management instruments also confirms the importance of taking environmental factors specifically into account (Schick, 1998). For instance, it is clear that the contracting out of public tasks – one of the central elements of new public management (NPM) – is hardly possible. Suitable public services cannot be obtained from the private sector because many developing countries have only weakly formalized and functioning market, economic, and judicial systems.

Experiences based upon the cooperation between different public administrations have already shown that, in the area of E-Government, a simple transfer of concepts is not sufficient. This is especially believed to be the case when organizational changes, in addition to the mere implementation of IT support for existing structures, are attempted. Certainly when questioning to what extent E-Government is suitable in the context of the problems facing African administration, the existing institutional situation, and specific administrative culture and other environmental factors (such as economic, social, or political-administrative aspects) must be taken into consideration. And these factors can help explain the success or failure of E-Government reforms.

## 3. Effects of E-Government in the development context

### 3.1. The potential of E-Government for developing countries

Without a doubt, E-Government offers numerous opportunities to resolve some administrative problems. In view of the present difficulties facing many African countries, E-Government offers improvement potential in the following areas: the general provision of public services, statistical and information processes, finance management and tax systems, public participation, and formalization.

In the area of public service provision in the African context, it is first a matter of providing and setting up the processes and services necessary for state activities under the rule of law. Unfortunately, the necessary data is often non-existent or completely outdated – for example land registers, residential data or geographic data – so that services cannot be provided at all. As a result, permit processes (such as building permits or property acquisition) can frequently span several years, and often no services can be received without “acceleration money.” In addition, citizens (especially those living in slum areas) often have no birth certificate (Akther, Onishi, & Kidokoro, 2007). These problems have immediate consequences for development objectives. Because permission processes are slow, or access to public services is non-existent, slum areas or informal settlements sometimes expand rapidly, with considerable consequences for the environment, public safety, and for the public budget. E-Government offers opportunity to improve these services, even in areas with low literacy rates. Access to public services can be facilitated, for example by kiosk systems with voice recognition – a system which has spread quickly in rural regions of India (Sharma, 2004).

In addition to citizens' services, statistical processes and information processes not directed at individual citizens have a fundamental importance to the state's effectiveness. It is a matter of obtaining

information about different fields of activity, such as data about economic activities, medical data, or information about processes in public administration. A state collects such data and evaluates and interprets it so it can develop policies. Consistent (and up-to-date) data is a key requirement for development planning. In most sub-Saharan African countries, data relevant to development is hardly available in the quality required. IT applications make it possible to electronically (and often automatically) generate statistical reports, considerably reducing the effort for the party obligated to produce the reports. In sub-Saharan Africa, for example, the UN is especially supporting the establishment of such statistics through its own projects ([www.devinform.org](http://www.devinform.org)). However, often there is simply not enough current information available – for example market prices, public service indices, and so on – which individually would have a considerable developmental impact.

The use of ICT also offers particular potential to improve financial and taxation systems, especially because governments in sub-Saharan Africa often lack a well-functioning tax administration and finance administration system (see Section 4.2). The introduction of integrated financial systems with appropriate databases offers the possibility to better control financial flows within the state. Thus, for instance, the spending behavior of decentralized or (partly) autonomous administrative units (agencies) can be better supervised, which simultaneously reduces the possibilities for manipulation and corruption. The introduction of integrated tax systems makes it is not only possible to control expenditures, but also to better supervise taxpayers, increasing internal revenues. This is significant because sub-Saharan African countries often generate little inland revenue. When authorities are unable to enforce existing tax laws, basic state functions can only be carried out insufficiently or not at all. Because of weak income tax systems, revenues may be disproportionately generated from exorbitant export duties or other tax sources. This practice may ultimately constrain economic development and increase poverty.

Beyond service delivery, ICT use can make public administrations more democratic and responsive through new participation forms (e.g., via the internet), also contributing to legitimization. In many countries it is already possible to participate in processes such as the development of land-use plans or budgetary decisions. Good starting points for such efforts often exist at the local level in particular, which is responsible for such planning decisions. Also, legislative drafts are available online in many countries, sometimes including the ability for citizens to discuss them. Such participation processes represent the chance for greater outward responsiveness and transparency. Decision-making processes become easier to trace and understand through digitalization (so-called track and tracing function) which, considering the low trust the African population generally places in their public institutions, would be particularly valuable.

Last, but not least, when implementing E-Government it is important not to overlook the fact that the digitization of service processes also requires a degree of formalization, which may also serve as a mechanism to impose a certain level of formalization to facilitate administrative work. Informal, incomprehensible administrative behaviors which are not subject to controls are one of the essential problems facing African administrations and contribute to unequal treatment and corruption. In this context a certain potential can be also expected from electronic procurement. Electronic procurement is not only about combining purchases within an administration (thereby reducing expenditures), but also reducing (through standardized procedures) the possibility for manipulation in the tendering process.

To summarize, it appears that E-Government offers a variety of possibilities for more efficient and effective administration and may also yield concrete development impacts. Especially those development projects executed through donor organizations should stress E-Government implementation and innovation. Assuming that many

processes, registers, and data are limited in quantity and quality or do not exist at all, these can be built up through E-Government from the beginning, paving the way for additional E-Government solutions. Nevertheless, it should be taken into consideration that achieving these potentials is risky in the context of pre-modern African administrative institutions and the special administrative culture which exists there.

### 3.2. The risk of unintended effects

Because the use of IT is determined by the interests in power and takes place in the context of pre-modern or authoritarian administrative cultures and state structures, risks are unavoidable when implementing E-Government; in such a setting, unintended consequences are to be expected. This is due to the fact that ICT, as such, has much less of a direct impact upon the organization. Instead, its effect is utilized and transmitted by political actors whose rationalities reflect power interests. Therefore the IT also has an effect as an “attractor” on decision-makers (Van de Donk & Snellen, 1998) so that E-Government potentials are also implemented in new service structures. Solutions are possible because technology enables them. The Egyptian government, for example, now provides extensive information about cabinet meetings online, as well as extensive online public services (<http://www.egypt.gov.eg/english/>), something inconceivable at the end of the 1990s, in light of Egypt's authoritarian and quite inward-oriented administrative culture (Schuppan, 2003).

E-Government can promote decentralization through the use of new forms of networked collaboration between different bureaucracies and authorities, a concept which is closely compatible with the goals of contemporary development policy. However, networking different government organizations cannot only be used to implement more efficient and effective forms of work, but also to exercise *more* control of decentralized units. This would mean that new E-Government solutions could reverse the decentralization efforts of the last years, leading to the centralization of decision-making and increased concentration of power. The implementation of policy would be increasingly shifted to decentralized units, but political and administrative decision-making would remain centralized. Aggravating this problem is the fact that African bureaucracies tend to be highly insulated. Clientelism and neo-patrimonialism in particular promote vertical and hierarchical communication structures, hindering the formation of new networked processes and overall decentralization. As a result, a more centralized, but not necessarily a more effective or more democratic, administrative structure could emerge.

E-Government could also lead to more corruption. Although process transparency and reducing the autonomy of offices which deal directly with citizens could reduce corruption, new channels of corruption could also arise, in particular through the delegation of front office functions to third parties, so-called intermediaries. If such intermediaries offer bundled public and private services, this would also create additional vulnerabilities for corruption. At the same time, geographically distant back offices could develop their own bureaucratic culture. This could reduce competent decision-making and blur the responsibility for decision-making. New corruption risks also could arise due to the fact that E-Government increases proximity to the private sector. Cooperation within the private IT sector and process outsourcing pose an especially high risk of corruption and have an anti-competitive effect in the market for IT services, contributing to increased costs.

Another risk when transferring E-Government organization principles to African administrations is to associate this transfer with an oversimplified view of efficiency. The personnel expenditures of African administrations amount only to one tenth of those in western industrial countries. Substituting staff with IT could, in fact, lead to a less efficient administration. Indeed, African administrations



have an overall efficiency problem, but just as important are the problems of effectiveness and legitimization which could easily be overlooked. Therefore, when implementing E-Government in the African context, it is important to find the cost to benefit ratio. It may be that guaranteeing basic state functions and stability is preferable to a narrow focus on cost reduction. In other words, African administrations must expand their service spectrum using the personnel available while improving the quality of their services, thereby achieving an improved cost-benefit ratio.

In summary, it is apparent that due to the differing administrative characteristics and culture in Africa, a simple transfer of E-Governmental concepts would be neither sensible nor successful. It is therefore necessary to take additional factors into account. Otherwise there is an inherent danger that IT solutions may be merely implemented in existing organizational structures and abused by the bureaucratic elites for their own interests. The result could mean then that E-Government leads to more corruption, centralism, and hierarchy, and to less efficiency in government service.

### 3.3. Relevant environmental factors

As indicated in Section 2.3, in addition to existing administrative factors, non-administrative basic factors are also important. Political-administrative, infrastructural, demographic, social, and economic factors are especially relevant in encouraging or hindering E-Government (Banerjee & Chau, 2004). In the following, these basic factors are outlined in depth and their relevance for the implementation of E-Government in sub-Saharan Africa is explained.

#### 3.3.1. Political-administrative system

The political-administrative category includes the general functional liabilities of political-administrative systems as a whole, for example, the low level of democratization. In many African countries, military coups and civil wars make administrative reforms difficult, if not impossible.

Another important factor is the experience which a state has making administrative reforms. Observations of E-Government programs have shown that especially those countries which have undergone organizational changes in the direction of public management-oriented reform, such as Australia, New Zealand, or the UK, are better prepared to implement E-Government than countries which do not have such experience. This is especially relevant for African countries because administrative capacities are weakly developed in general and management liabilities cannot be compensated for by the use of technology. Some countries in sub-Saharan Africa, such as Ghana and Uganda, have already had some experience with public management-oriented reforms. For example, a main focus of the Ghanaian reform efforts was the creation of semi-autonomous agencies (agencyfication). For example, a water authority was created which is now considered a prime example of efficient water management in the region (Mutahaba & Kiragu, 2002). Nevertheless, these management reforms have not reduced staff with lasting effect, decentralized the administration, or changed the administrative culture.

In addition, the values, attitudes, and rationalities of the population with respect to the political-administrative system also play a role when implementing E-Government, particularly because patterns of administrative action can feedback into the behavior and attitudes of the population. Thus, for example, the danger exists that online services will not be accepted by the population because they will lose the ability to negotiate with government officials. This was illustrated by a participant in an E-Government workshop in Cairo who offered the following example: "If I have to pay a speeding fine or a parking ticket, I do not pay via internet, but go personally to the administration because I am able to argue my position and reduce the punishment by at least half." This shows that deficiencies in law enforcement may

also result in corresponding behavior by citizens, hindering the acceptance of E-Government services.

#### 3.3.2. Infrastructures/connectivity

This factor includes internet access and other basic infrastructure. Not only are internet access rates in many African countries below 5%, but in many rural areas electricity is not available or is only available for a few hours a day (Jensen, 2003). For example, the number of internet users and available PCs per 100 inhabitants in Ghana equals 1.72 and 0.52 respectively. It is not uncommon that the costs of internet access may amount to 80–90% of average income. For example, the monthly subscription fee for unlimited access and one email account in Ghana is about U.S. \$30 (Frempong, Esselaar, & Stork, 2005).

To mitigate these access problems, the Ghanaian government has developed, with the support of the Indian government, a concept for so-called Community Information Centers (CIC) (Ministry of Communication Ghana, 2004). The CICs are equipped with PCs connected to the internet, printers, fax machines, photocopiers, phones, televisions and radios. In addition, the CICs also serve as libraries and provide other information, such as information about prices of agricultural products for farmers; microloans for potential entrepreneurs; and information about scholarships for students.

Even for those who have internet access, high levels of inequality exist. Studies show that, especially in Africa, the younger-educated classes and men, use the internet more frequently, so that in the result could be a one-sided concentration leading to the further systematic exclusion from online services of women and of the lower social classes (Nakafeero, 2005). However, mobile phone penetration has increased by double-digit amounts in many countries of sub-Saharan Africa (Slater & Kwami, 2005; Kirui & Muhatia, 2005; Sudan, 2005), a factor which should be considered when selecting access channels for E-Government services.

Nevertheless, the present E-Government discussion is still often limited to the advantages of providing online services. Due to the problem of internet access, such a perspective is poorly suited to less-developed countries in sub-Saharan Africa (Heeks, 2001a). Therefore so-called intermediaries are especially worth consideration in the developing-country context (Heeks, 2001b).

#### 3.3.3. Demographic and social factors

Demographic and social factors are relevant because they are critical in respect to the acceptance of online services. Age, gender, education, income distribution, language diversity and the percentage of the population living in rural areas are decisive factors in user behavior and the acceptance of online services.

The percentage of the population living in rural areas is especially relevant because poverty and illiteracy rates in rural areas are higher and infrastructure in rural areas is typically less-developed. Thus, additional considerations are necessary when providing access to E-Government services. Various authors have pointed to the fact that, when compared to urban areas, residents of rural areas require additional training to overcome access problems (Sorj & Guedes, 2005). Michael Lipton developed the concept of "urban bias" between urban and rural areas (Lipton, 1977). Lipton indicates that the main divide in peripheral countries is in particular between metropolitan and rural areas. The corrupt state class (Elsenhans, 1987) prefers to spend scarce resources on urban infrastructures and prestige objects instead of ensuring basic services for the rural population.

To gain maximum development from E-Government, it is important to offer services to poor population groups (so-called "pro-poor-services") – something which requires additional effort. First, specific target groups within the poor population must be identified. For example, poor farmers require different services and information than poor urban dwellers. Typologies must then be developed for these target groups and services offered which fit these

typologies, thereby making it possible to address the specific problems of these groups. Thus, for example, if the poor rural population lacks information about the sales and distribution of their agricultural products, a significant benefit would be expected merely by the provision of relevant information.

It is also important to consider the language diversity which exists in Africa when setting up services. Tribal languages are widespread in rural regions of Africa, whereas English largely cannot be read or understood (Kaaya, 2004; Omosa & McCormick, 2004). Although English is, for example, the official language of Ghana, 70% of the population speaks one of the tribal languages (which are also used in neighboring countries). Nevertheless, the websites of the Ghanaian government are only available in English, meaning that a large percentage of the population cannot be reached. Thus in E-Government projects, special consideration must be made regarding the language which is to be used when offering services to specific target groups.

3.3.4. Economic development

The level of economic development as a whole is also relevant because establishing E-Government structures is usually associated with high costs. For example, at present, approximately one-third of the Ghanaian budget is financed by foreign donors (Bayern, 2005). Furthermore, the per-capita income is so low in most African countries that the population cannot afford internet access. This trend is aggravated by often insufficiently liberalized telecommunications markets (Osiakwan, 2004; GHP, 2004) which barely allow for competition, so that access costs are many times higher than in industrial countries.

Also there are only a few private IT service providers, an important requirement when outsourcing and implementing E-Government services. One question which must be addressed is whether suitable providers for application software are available, or do capacities to develop services and software have to be built up within

government organizations themselves? The existence of external service providers and general economic liberalization are essential preconditions for E-Government, especially in regards to technical implementation.

In summary, basic conditions in sub-Saharan Africa differ fundamentally from those in industrial countries. The argument is that E-Government in developed countries is better able to produce the intended results because of more favorable environmental administrative conditions. Therefore, particularly in developing countries, in addition to the different administrative situation, wider societal conditions must be considered. Thus, the argument that E-Government projects generally fail in Africa is oversimplified and to some degree points to the neglect of these different environmental factors. Nevertheless, just because all conditions are met does not in itself ensure successful implementation. For example, if there is not enough political will and technical expertise, even conducive environmental circumstances cannot prevent project failure, as experiences in many industrial countries have shown.

4. Empirical findings

In this section, three cases of noteworthy E-Government projects in African countries are illustrated: Ghana, Uganda, and Kenya. As an orientation aid for understanding the case, the environmental conditions, the institutional and cultural administrative situation, as well as the potentials and risk of E-Government, have been summarized in the following Fig. 1.

The selected cases illustrate the development potential of E-Government under the above outlined conditions in sub-Saharan Africa. At the end of this section, these cases will be analyzed from a comparative perspective. In all cases, the objectives, solutions, method of implementation, and results of each project are described. Data for the cases was collected through semi-structured in-depth interviews with development experts conducted over a two-month

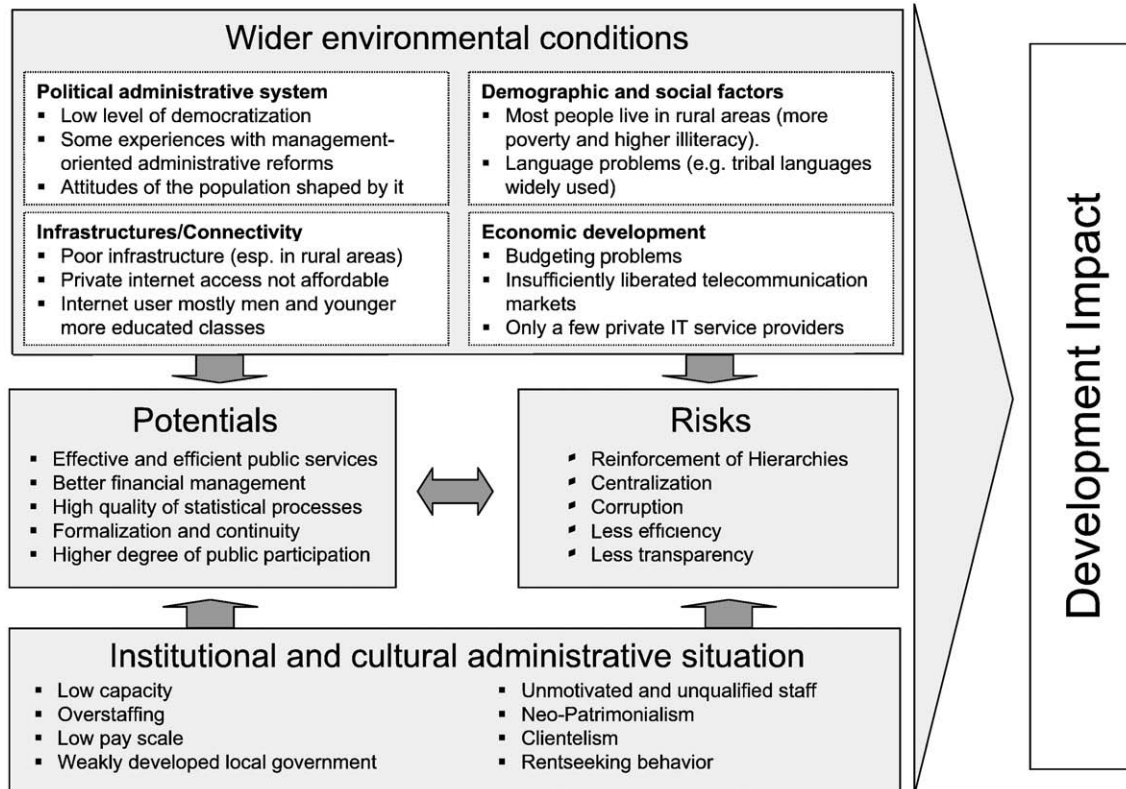


Fig. 1.

period in 2006. Data was also collected from secondary sources including websites, government reports, newspaper articles, and official policy documents.

#### 4.1. Ghana Community Network – GCNet

Since end of the 1990s, it has been a goal of the Ghanaian government to develop the country as an important transit center for the landlocked countries of West Africa. To do so, the current bureaucratic system of duty collection, which had considerably delayed goods traffic, had to be modernized (De Wulf, 2004, 2005). Previously, bureaucratic procedures delayed imports and exports for up to four weeks. One example of bureaucratic inefficiency is that exporting a shipment required making thirteen copies of shipping papers which the exporter had to distribute personally to authorities (often 25–32 different offices) to get the required permissions. This procedure was not only extremely ineffective, but contributed considerably to corruption, because many of the offices involved also expected “acceleration money” (which was usually paid).

With the introduction of a new IT system – the GCNet – all customs affairs necessary for the import and export of goods can, to a very large extent, be performed electronically. The GCNet was first used in October 2002 at the Kotoka international airport and was later implemented in Ghana's ports. GCN has two central components: the so-called TradeNet and the customs management system. The TradeNet is a data exchange platform for sending messages and information concerning trade to organizations involved in the transaction. The customs management system automates the issuance of custom declarations as well as the management of import and export licenses.

Ministries including the Ministry of Trade and Industry (MoTI), as well as the Bank of Ghana and the Customs and Excise Preventive Service (CEPS), are integrated into the system. From the private sector, the Ghanaian shipping council, the shipping companies, cargo enterprises and banks are involved. For the data exchange and communication between the GCNet and the CEPS, a broadband network created especially for the system is used (see: <http://www.ghanatradenet.com/aboutus/organisation.asp>).

Originally the introduction of the system was planned for November 2000. However, elections in December 2000 delayed the project when the opposition won and the new Minister from the MoTI was not as supportive of the project as his predecessor. The CEPS management implemented the necessary procedural changes with reservations. CEPS employees opposed the changes because it was clear that the new system would increase process transparency and formalization, reducing the possibilities for them to generate “additional income.” Other project delays were caused by foot-dragging in enacting legislation. By July 2006 the system was implemented in six locations including Tema (the most important port in Ghana). A gradual implementation at all border crossing points is planned. Despite the difficulties implementing the system, acceptance of the project was encouraged by the fact that the system was based upon a similar system in Mauritius, making it a successful example of a south–south cooperation. Furthermore, implementation of the project had been personally and actively accelerated by the Minister, ensuring political support for the project.

Implementation and operation of the project is through a Public Private Partnership (PPP) founded in 2000 and consisting of a Swiss investor (60%), the Ghanaian CEPS (20%), the Ghanaian Shippers' Council (10%), and two local banks (5%). A total of seven million U.S. dollars were invested. The PPP has concluded a ten-year service contract with the MoTI to provide, among other things, the installation and operation of the system, construction of the infrastructure in the CEPS, and training for employees and users. For every customs declaration executed via the system, the PPP receives a fixed sum from the commercial ministry.

As a result of the project, the flow of goods could be substantially accelerated by the system, not just because the interactions between different government offices and contact points for importers were computerized, but also because they were reduced in number. For example, importers no longer need to personally visit the different permitting institutions and authorities because most processes can be executed electronically. In the CEPS, documentation and verification were reduced to fifteen minutes, and the payment of duties (and bank confirmation) occurs within ten minutes. Goods at the airport are dispatched within one day and in the harbor within three days. Ship's idle time, and the resultant demurrage, has been substantially reduced. Since the introduction of the system, tax and duty revenues have increased by up to 50% (Sudan, 2005).

#### 4.2. Integrated Tax Administration System in Tanzania – ITAX

ITAX is an integrated tax management system which the Tanzanian tax authority, the Tanzanian Revenue Agency (TRA), has introduced with the support of the German Agency for Technical Cooperation (GTZ). The project was initiated in 1998 and implementation was largely completed at the end of 2007. The reasoning behind the introduction of the system was that despite the organizational restructuring of the Tanzanian tax authority in the 1990s, neither tax income nor efficiency increased. Therefore, the objective of the project was to build up a comprehensive electronic tax system. This would make an integrated data exchange between citizens and public administration possible so that processes are supported electronically.

The realization of the project occurred in three phases. In the first phase (July 1998 to June 2001), the administration was equipped with computers, project employees were trained, processes for income and business taxes were analyzed, and the software was developed. In the second phase (July 2001 to June 2004), software was programmed. In parallel, beginning in February 2002, the system was introduced in all tax regions of Tanzania. Because implementation was delayed, a third project phase followed in which it was planned to introduce the system in all regions of the country by June of 2007.

Implementation was managed by a ten-person task force at the tax authority, which included five IT experts and five other employees responsible for the management and user training. Four permanent working groups were created to provide support and maintenance of the system and, if necessary, to modify it.

Over a nine-year period the costs for the project, including software development, totaled nearly six million Euros. As a result of the introduction of ITAX, transparency and tax revenue has increased, while processing time and the possibility of fraud have been reduced. Citizens and businesses may be more quickly held accountable if they provide incorrect information to the tax authority.

In addition, the tax project has also reduced corruption because citizens no longer have to directly contact the responsible back-office employee, but instead can go to one-stop tax offices created as part of the project. Another contribution in the fight against corruption is that tax audits and returns are carried out by two or three TRA employees, instead of being performed by only one (<http://www.u4.no/projects/project.cfm?id=421>).

#### 4.3. Anonymous online corruption reporting in Kenya

A new system for the online reporting of corruption was introduced in Kenya in mid-October, 2006. The so-called Business Keeper Monitoring System (BKMS™) should make it possible for every citizen to anonymously report incidents of corruption, which can then be efficiently investigated. The objective of the introduction of the BKMS was to increase the number and quality of corruption offense reports.



The rationale behind the project is the active fight against corruption which was announced by President Kibaki when he took office. Concurrently, a corruption representative with the rank of Assistant Secretary was created in the Ministry of Justice (he resigned in 2005 due to threats upon his life). In 2004 the Kenya Anti-Corruption Commission (KACC) was founded, which is an independent authority responsible only to parliament. The KACC examines cases of corruption upon its own initiative and on the basis of reports from citizens, as well as from authorities. In 2005 the KACC received nearly 6000 reports, about 1000 of which were treated as corruption cases. Public employees were the subject of about 1500 complaints. The KACC is recommending the appointment of an ombudsman to address such cases.

Previously, corruption cases could be reported personally in the office of the KACC, by mail, by phone, or by fax; all without the protection of anonymity. Additionally, an online report could be filed either via the portal of the Kenyan government ([www.kenya.go.ke](http://www.kenya.go.ke)) or directly via the KACC portal ([www.kacc.go.ke](http://www.kacc.go.ke)). Confirmed reports of corruption are published on the portal including the government office involved.

To facilitate anonymous reporting, the new Business Keeper Monitoring System (BKMS) created a secure site on the internet. This makes it possible for a whistleblower to communicate with the corruption investigators of private businesses or with the police without revealing his or her identity. The process of the corruption report and corruption investigation is as follows:

- (1) To make an announcement, the whistleblower registers on the system. He or she can choose any login name and password.
- (2) Once the whistleblower makes the report, the corruption investigator is informed so that he can log into the system. The corruption investigator can read the report, but it cannot be traced back to the whistleblower.
- (3) If the corruption investigator needs further information to pursue the case, he can send the whistleblower messages via the system. That means that all communication, including further inquiries, occurs only via the BKMS, protecting the anonymity of the whistleblower through the whole process.

The implementation of the system was carried out by the GTZ within the context of the project “Support of Good Governance,” which is being implemented in Kenya with the objectives to “fight against corruption” and provide “legal access.” The GTZ implemented the new feature (in cooperation with the KACC) and contracted with a German software company. The system was introduced without the involvement of any other organization or permission from government ministers, and the initialization took only a couple of months. In short, all potentially critical actors were bypassed – something which may be considered a factor in successful and fast implementation. The KACC now pays the license fees for the BKMS software out of its own

budget, something which is seen as an indicator of the will of the involved actors and the sustainability of the system.

As the result of the introduction of the BKMS, the quality of corruption reports has increased, with 67% of all whistleblowers using the new system to anonymously submit their reports (Business Keeper, 2007). Whereas prior to the introduction of the BKMS, only 20% of the reports were related to the KACC’s responsibility, after the introduction, 44% of the reports fall under the jurisdiction of the organization. Also, it can be observed that the reports submitted via the BKMS tend to concern more serious cases of high-level corruption than those submitted via other channels (e.g. via telephone).

In the future it is planned to transfer the BKMS tool to other African countries. It is also planned to provide the websites in Kiswahili so that a greater share of the population people can use the service in Kenya.

#### 4.4. Analysis

In the following Table 1, all cases are summarized so that concrete administrative problems, specific E-Government solutions, the method of implementation, and direct project outputs and wider development impacts can be seen from a comparative perspective.

All of these E-Government cases represent different solutions which go beyond the simple provision of online services. In particular, the GCN and the Tax Administration project aim to establish basic services which are relevant for every state. Both projects focused not only on the pure usage of ICT, but also on changing working processes with institutional implications. However, the Kenyan project concentrated primarily on the introduction of a new ICT application to anonymize corruption reporting.

Because the GCN and Tax Administration project were aiming for organizational change (in particular the reduction in the number of contact persons via front office integration) to reduce the possibility for these persons to earn “extra income,” implementation was especially difficult. Due to the fact that most employees lost informal income, resistance from employees was especially strong. In respect to implementation it is clear that there were considerable delays and problems in both projects, which is to be expected. Often, the initial state of the institutions involved and basic administrative factors were misjudged. Evidence also suggests that the actors involved and the approaches followed were rather technically-centered, meaning that specific initial factors and basic circumstances were insufficiently considered. Also of note in the GCNet project was the fact that delays were caused by both elections and by resistance from public employees. Nevertheless, the considerable benefits for external actors and the state meant that, in general, broad support for the project existed.

As a result, all cases have shown direct improvement for the public administration. Interfaces were reduced, processes were streamlined,

Table 1

	GCNet in Ghana	Tax administration in Tanzania	Corruption reporting in Kenya
Problem	<ul style="list-style-type: none"> <li>•Delay of goods traffic</li> <li>•High bureaucratic procedures</li> </ul>	<ul style="list-style-type: none"> <li>•Inefficient tax collection system</li> </ul>	<ul style="list-style-type: none"> <li>•No possibility to anonymously report corruption</li> </ul>
E-Government solution	<ul style="list-style-type: none"> <li>•Electronic customs declaration system</li> <li>•Reduction of interfaces to the customer</li> </ul>	<ul style="list-style-type: none"> <li>•Online tax collection system</li> <li>•Reorganization of tax processes</li> </ul>	<ul style="list-style-type: none"> <li>•Introduction of a Business Keeper Monitoring System for anonymous reporting</li> </ul>
Implementation	<ul style="list-style-type: none"> <li>•6 years with delay because of elections</li> <li>•Support through a public private partnership</li> </ul>	<ul style="list-style-type: none"> <li>•Long implementation phase (9 years) with many delays</li> <li>•Low capacity in the tax office</li> </ul>	<ul style="list-style-type: none"> <li>•Few problems because institutional change had already been realized through the creation of KACC</li> </ul>
Results	<ul style="list-style-type: none"> <li>•Faster customs declaration</li> <li>•Reducing the dispatching time</li> <li>•Less corruption</li> </ul>	<ul style="list-style-type: none"> <li>•More efficient tax administration</li> <li>•Less corruption</li> </ul>	<ul style="list-style-type: none"> <li>•Reporting of more corruption cases</li> <li>•Increase of transparency</li> </ul>
Wider development impact	<ul style="list-style-type: none"> <li>•Facilitating of trade</li> <li>•Increased inland revenue</li> <li>•Increased economic development</li> </ul>	<ul style="list-style-type: none"> <li>•Increased inland revenue</li> </ul>	<ul style="list-style-type: none"> <li>•More legitimacy</li> <li>•Less corruption in society</li> </ul>



and all of these projects have contributed to (or have the potential to contribute to) good governance. In addition, improvements were achieved which have an impact upon wider development goals. The project GCNet serves to reduce trade barriers and to efficiently collect fees. Not only does it contribute to economic development by facilitating goods traffic, but it also raises public revenue. The tax management system in Tanzania makes the tax authority more efficient and makes it easier to reach taxpayers, also making it possible to raise public revenue. The anonymous online corruption reporting system in Kenya contributes to the fight against corruption and increases transparency, bringing with it increased legitimization of the political-administrative system. All of these projects have implications for wider development goals, although their long-term effect has yet to be determined.

In summary, all projects have shown that E-Government solutions can make a contribution to development efforts, even though the time required to implement the project was sometimes long.

## 5. Conclusions

The case studies have made it clear that when implementing E-Government in sub-Saharan Africa, basic processes and services need to be thoroughly established for the long-term and that the optimization of existing projects is less important. Nevertheless, because technology has a wide impact, the danger persists that E-Government (in the special context of African public administrations) may run contrary to economic and political development goals. As a result, a negative scenario which leads to more hierarchy, corruption, and centralism could arise if initial political and administrative factors are not sufficiently considered when implementing E-Government.

In any event, the development potential of E-Government can only be realized if certain minimum preconditions exist in the country in question, or if they are taken into consideration during implementation. Often, there is a lack of basic infrastructure which needs to be addressed before a project can be (successfully) undertaken. Considering that it seems unrealistic to quickly change the broader administrative environment, E-Government strategies and projects need to be adapted to account for factors such as illiteracy, rural area problems, and weak infrastructure, through the development of adequate access methods. In general, a simple transfer of E-Government concepts from industrial countries to developing countries is not promising. Though the common E-Government rhetoric heard in developing countries and in sub-Saharan Africa is often quite similar to that emanating from industrialized countries, the problems which need to be solved by E-Government are not necessarily the same.

Due to institutional conditions in Africa, longer preparations and project time (compared to developed countries) are to be expected when implementing E-Government. The argument that E-Government projects in Africa generally fail is naive and based on administrative experiences from industrialized countries. For the development of cooperation in E-Government, it is necessary to focus on capacity building. The implementation of E-Government pilot projects should therefore increasingly be used to build up relevant management competence in these countries, going beyond the simple implementation of IT systems.

In closing, E-Government offers a whole array of development policy potential, the implementation of which is very ambitious. Nevertheless, discussions in the region suggest that the political elite of these countries have a high affinity towards E-Government. This may also have to do with the general – not unproblematic – affinity for technology which can so often be found in developing countries. However, if this contributes to good governance and poverty reduction, even in a single case, essential development policy objectives will have been achieved.

## References

- Accenture. (2006). *Leadership in customer service. Building the trust*.
- Adamolekun, L. (1976). Towards development-oriented bureaucracies in Africa. *International Review of Administrative Sciences*, 42(3), 257–265.
- Akther, M. S., Onishi, T., & Kidokoro, T. (2007). E-government in a developing country: citizen-centric approach for success. *International Journal of Electronic Governance*, 1(1), 38–51.
- Banerjee, P., & Chau, P. Y. K. (2004). An evaluative framework for analysing e-government convergence capability in developing countries. *Electronic Government*, 1(1), 29–48.
- Bannister, F. (2007). The curse of the benchmark: an assessment of the validity and value of e-government comparisons. *International Review of Administrative Sciences*, 73(2), 171–188.
- Bayern, L. B. (2005). *Länderanalyse Ghana München*.
- Bratton, M., & van de Walle, N. (1997). *Democratic experiments in Africa. Regime transitions in comparative perspective*. Cambridge: Cambridge University Press.
- Business Keeper, A. G. (2007). BKMS system adopted in Kenya. Evaluation results. [http://www.business-keeper.com/ger\\_DE/300/aktuell\\_newsletter.html#TH6](http://www.business-keeper.com/ger_DE/300/aktuell_newsletter.html#TH6)
- Capgemini. (2006). *Online availability of public services: how is Europe progressing? Web based survey on electronic public services. Report of the 6th measurement*.
- De Wulf, L. (2004). *Tradenet in Ghana. Best practice of the use of information technology*. Washington D.C.: World Bank.
- De Wulf, L. (2005). Governance and customs operations: the role of information and communications technology. *Regional Conference on Investment Climate and Competitiveness in East Asia, 21–22 November 2005, Kuala Lumpur Kuala Lumpur*.
- Elsenhans, H. (1987). Dependencia, undevelopment and the third world state. *Law and State*, 36, 65–94.
- Frempong, G., Esselaar, S., & Stork, C. (2005). Ghana. In A. Gillwald (Ed.), *Towards an African e-Index. Household and individual ICT access and usage across 10 African countries* (pp. 94–105). Johannesburg: Witwatersrand University LINK Centre.
- GHP. (2004). GISPA signs agreement with GT for new, low prices on Sat-3. <http://www.ghanaweb.com/GhanaHomePage/NewsArchive/artikel.php?ID=69800>
- Haynes, J. (1996). *Third world politics. A concise introduction*. Oxford, Cambridge: Blackwell Publishing.
- Heeks, R. (2001a). *Building e-Governance for development: a framework for national and donor action*. Institute for development policy and management University of Manchester, working paper 12. Manchester: Institute for Development Policy and Management, University of Manchester.
- Heeks, R. (2001b). *Understanding e-Governance for development. Institute for development policy and management, University of Manchester, working paper 11*. Manchester: Institute for Development Policy and Management, University of Manchester.
- Heeks, R. (2002). *eGovernment in Africa: promise and practice. iGovernment working paper series, paper no. 13*. Manchester: Institute for Development Policy and Management, University of Manchester.
- Illy, H. F., & Kaiser, E. (1985). *Entwicklungsverwaltung: Wandlungen im Selbstverständnis eines Forschungsbereiches. Speyerer Forschungsbericht Nr. 47*. Speyer: Forschungsinstitut für die öffentliche Verwaltung.
- Janssen, D., Rotthier, S., & Sniijkers, K. (2004). If you measure it they will score: an assessment of international eGovernment benchmarking. *Information Polity*, 9(3–4), 121–130.
- Jensen, M. (2003). The current status of information and communications technologies in Africa. In J. O. Okpaku (Ed.), *Information and communications technologies for African development. An assessment of progress and the challenges ahead* (pp. 55–78). New York: United Nations ICT Task Force.
- Kaaya, J. (2004). Implementing e-Government services in East Africa: assessing status through content analysis of government websites. *Electronic Journal of e-Government*, 1(2), 39–54.
- Kirui, S., & Muhatia, G. (2005). Universal access: the Kenyan experience. In F. E. Etta, & L. Elder (Eds.), *At the crossroads: ICT policy making in East Africa, Vol. 1*. (pp. 84–99) Ottawa et al.: International Development Research Center.
- König, K. (1986). Zum Konzept der Entwicklungsverwaltung. In K. König (Ed.), *Öffentliche Verwaltung und Entwicklungspolitik, Vol. 1*. (pp. 11–44) Baden-Baden: Nomos Verlagsgesellschaft.
- Lenk, K. (2002). Electronic service delivery – a driver of public sector modernisation. *Information Polity*, 2–3(7), 87–96.
- Lenk, K. (2004). Organisatorische Potenziale für die Verwaltungsmodernisierung. In C. Reichard, M. Scheske, & T. Schuppan (Eds.), *Das Reformkonzept E-Government: Potenziale - Ansätze - Erfahrungen* (pp. 36–58). Münster et al.: LIT Verlag.
- Lenk, K., & Traunmüller, R. (2001). Broadening the concept of electronic government. In J. E. J. Prins (Ed.), *Designing E-Government* (pp. 63–74). The Hague: Kluwer Law International.
- Lipton, M. (1977). *Why poor people stay poor: a study of urban bias in world development*. Cambridge (Mass.): Harvard University Press.
- Ministry of Communication Ghana. (2004). *Community of Information Centres (CICs) in the age of ICT: Ghana's blueprint for action Accra*. Ghana: Ministry of Communication.
- Mutahaba, G., & Kiragu, K. (2002). Lessons of Public service reform from five African countries. *Africa Development*, 3&4(XXVII), 48–75.
- Nakafeero, A. (2005). Women and ICTs in Uganda: bridging the gender digital divide. In J. Hellström (Ed.), *ICT – a tool for poverty reduction? Challenges for development cooperation* (pp. 27–32). Uppsala: The Collegium for Development Cooperation. Uppsala University.
- Omosa, M., & McCormick, D. (2004). *Universal access to communication services in rural Kenya. A baseline survey. Final report to the Communications Commission of Kenya & International Development Research Centre*. Nairobi: Institute for Development Studies. University of Nairobi.

- Osiakwan, E. M. K. (2004). Is Africa in a digital quagmire? [ghanaweb.com](http://ghanaweb.com)
- Pitschas, R. (1992). Vom Wandel der Verwaltungszusammenarbeit: Herausforderung an die vergleichende Verwaltungswissenschaft. *Verwaltung*, 25(4), 477–488.
- Reichard, C. (2004). New Public Management als Reformdoktrin für Entwicklungsverwaltungen. In A. Benz, H. Siedentopf, & K. P. Sommermann (Eds.), *Institutionenbildung in Regierung und Verwaltung. Festschrift für Klaus König* (pp. 613–629). Berlin: Duncker & Humblot.
- Republic of Kenya – Cabinet Office – Office of the President. (2004). *E-Government strategy: the strategic framework, administrative structure, training requirements and standardization framework*. Nairobi: Republic of Kenya – Cabinet Office – Office of the President.
- Republic of Uganda. (2004). *E-Government strategy and action plan Kampala*.
- Riggs, F. (1960). Prismatic society and financial administration. *Administrative Science Quarterly*, 5(1 (Special Issue on Comparative Public Administration)), 1–46.
- Riggs, F. (1970). The context of development administration. In F. Riggs (Ed.), *Frontiers of Development Administration* (pp. 72–108). Durham, NC: Duke University Press.
- Schick, A. (1998). Why most developing countries should not try New Zealand reforms. *The World Bank Research Observer*, 1(13), 123–131.
- Schuppan, T. (2003). Ansätze einer Verwaltungsreform in Ägypten. *Welttrends*, 37, 121–138.
- Schuppan, T. (2007). *Accountability modes for informatised public service networks. Paper for IRSPM '07, 2–4 April 2007*. Potsdam.
- Sharma, C. (2004). *ICT for development: case studies from India*. Neu Delhi: National Institute for Smart Government.
- Slater, D., & Kwami, J. (2005). *Embeddedness and escape: internet and mobile phone use as poverty reduction strategies in Ghana*. Adelaide, Accra: Information Society Research Group (ISRG).
- Sorj, B., & Guedes, L. E. (2005). Digital divide: conceptual problems, empirical evidence and public policies. In J. Hellström (Ed.), *ICT – a tool for poverty reduction. challenges for development cooperation* (pp. 9–26). Uppsala: The Collegium for Development Cooperation. Uppsala University.
- Sudan, R. (2005). The basic building blocks of e-Government. In R. Schware (Ed.), *E-development: from excitement to effectiveness. Prepared for the World Summit on the Information Society, Tunis, November 2005* (pp. 79–99). Washington D.C.: World Bank.
- The Republic of Ghana. (2003). *The Ghana ICT for accelerated development (ICT4AD) Policy*. Accra: Republic of Ghana.
- Turner, M., & Hulme, D. (1997). *Governance, administration and development*. Basingstoke, London: Macmillan Press.
- UN. (2005). *The millennium development goals report 2005*. New York: United Nations Department of Public Information.
- UNDESA. (2005). *UN global E-government readiness report 2005. From E-government to E-inclusion*. New York: United Nations publication.
- United Nations-General Assembly. (2000). *United Nations millennium declaration. Resolution A/RES/55/2, 18 September 2000*. New York.
- Van de Donk, W. B. H. J., & Snellen, I. T. M. (1998). Towards a theory of public administration in an information age? In I. T. M. Snellen, & W. B. H. J. van de Donk (Eds.), *Public administration in an information age. A handbook* (pp. 3–19). Amsterdam: IOS Press.
- Wescott, C. (1999). Guiding principles on civil service reform in Africa: an empirical review. *International Journal of Public Sector Management*, 12(2), 145–170.
- West, D. (2005). *Global E-government, 2005*. Providence: Brown University.

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