E-government Challenges and the Role of Political Leadership in Indonesia: the Case of Sragen

Furuholt, Bjørn
University of Agder, Norway
E-mail: Bjorn.Furuholt@uia.no

Wahid, Fathul
Islamic University of Indonesia
E-mail: fathulwahid@fti.uii.ac.id

Abstract

In general, developing countries are lagging behind in e-government adoption compared to developed countries. Within Indonesia, there is a huge disparity in e-government implementation between districts. This study presents e-government challenges and the role of political leadership in the rural district of Sragen, one of the leading districts in implementing e-government in the country. The study focuses on the supply-side of e-government, and categorises the challenges in three main areas; management, infrastructure, and human factors. Initiatives taken to deal with these challenges are presented and strong political leadership is found to play an important role.

1. Introduction

During the last 10-15 years, governments from all over the world have tried to take advantage of information technology (IT) in general and the Internet in particular to improve governmental administration and communication with their citizens. IT offers the opportunity for the government to better deliver its information and services and to interact with all its citizens, businesses, and other government partners in a more effective manner [5]. E-government offers the potential to bring citizens closer to their governments, and regardless of the type of political system in the country, the public benefits from interactive features that facilitate communication between citizens and governments [34].

Adoption of e-government has increased in most countries but at the same time the rate of adoption varies from country to country. Generally, developing countries, including Indonesia, are lagging behind in e-government adoption compared to developed countries. Based on a global e-government survey conducted in 2006, Indonesia was 183rd out of the 208 surveyed countries [34]. The United Nations' Global e-Government Readiness Report put Indonesia on 97th place among the 191 surveyed countries. The readiness incorporates Web measure, telecommunications infrastructure, and human capital indices [31]. However, the disparity in e-government implementation between districts in Indonesia is huge due to a number of reasons, including management, infrastructure, and human factors that vary across this large and heterogeneous country.

Various sources point to strong political leadership as one important determinant of e-government success (i.e. [28]). In a society with a culture of great power distance, like Indonesia, where inequality in power distribution is accepted and, in some cases, expected by less powerful people, leaders play a very important role in deciding "to go" or "not to go" [14]. Strong leadership can ensure a long-term commitment of resources and unify different fractions so that they collaborate and support e-government initiatives.

The research questions addressed in this paper are: (a) what are the challenges of e-government implementation in a developing country, and (b) how are political leaders meeting these challenges. Sragen, one of the leading districts in e-government implementation in Indonesia, is our research site for this study.

The remainder of this paper is organized as follows. Section 2 describes the study's context, followed by a literature review presented in section 3. Our research methodology is described in section 4, while section 5 discusses the research findings. Section 6 brings this paper to a conclusion by discussing implications of our findings.

2. The study context

Indonesia is still recovering from a severe economic and political crisis and was hit hard by the biggest natural disaster in recorded human history in 2004. At the same time Indonesia is undergoing major changes to a

1530-1605/08 $25.00 © 2008 IEEE

decentralized system of governance, and weak public institutions have resulted in significant governance challenges.

The Corruption Perception Index from Transparency International ranking Indonesia as number 130 out of 163 countries, shows that the country has severe problems regarding corruption and transparency of public services and information [30]. E-government was introduced by Presidential Instruction No. 3/2003 in July 2003, with the objectives of supporting the government's change towards democratic governance practice, to facilitate communication between central and local governments, to improve transparency, as well as to control and ensure accountability towards implementation of good corporate governance, and to enable a transformation towards the information society era [9, 15].

The Presidential Instruction contains a national policy and strategy pertaining to e-government development in Indonesia. Before the introduction of this instruction local governments had taken initiatives to develop e-government without any guidelines from the central authority. Development of national e-government solutions in Indonesia is managed by the Ministry of Communication and Informatics. The Ministry has reported that the adoption of e-government by local governments has been slow. The data shows that local governments, which include province governments and district/city (kabupaten/kota) governments, account for 49.9% of the total number of e-government solutions. At the central/state government level, 90% of the institutions have implemented e-government for a variety of functions [2].

The use of the Internet is increasing rapidly in Indonesia. The number of users rose by more than 1400% during five years, from 1.9 million in 2000 to 11.2 million in 2004 and reached 16 million in 2005 [3, Jakarta Post, Jan 27, 2006]. Widespread public use of the Internet explains the much faster growth of Internet users than number of subscribers. Today two thirds of Internet users gain their access through Internet cafés. These are concentrated in the larger cities, however, and in the whole population, the density of Internet users is still as low as 7.0%, which is well below the average user density in the world, 14.6%, and in Asia, 8.9% [16].

The district of Sragen is one of 440 districts/cities in Indonesia. It is located in Central Java and has a population of 850,000. The economy of Sragen mostly relies on agriculture and 8,105 registered small and medium-sized enterprises (SMEs). The use of information technology (IT) in the public sector in Sragen started in 1998, but the adoption rate is still low due to a general lack of competence. To cope with this problem, regular training courses have been conducted since 2002, with the aim of improving the staff's IT skills. E-government implementation in Sragen is managed by the *Bagian Penelitian, Pengembangan, dan Data Elektronik* (Litbang dan DE, Section for Research, Development, and Electronic Data).

In October 2002, Sragen opened a so-called *Kantor Pelayanan Terpadu* (KPT, One-Stop Services) to provide the public with a simpler process to get certain permits and licences. In the beginning, the KPT had authority to issue 17 types of licences, such as building permits, restaurant licences, etc. When issuing the permits, the KPT coordinated their work with other governmental offices, and thus simplified the bureaucratic process considerably. During the last five years, their authority has been extended to 52 types of licences, where 16 of them are delegated to sub-district offices, and nine to village offices. Until 2005, the KPT had issued a total of 12,601 permits, most of them related to economic activities. Sinombor and Taslim [27] show that the introduction of the KPT has had an obvious impact on the number of investments in the district. From 2002 to 2005 the value of investments increased by 61.3%, from IDR 592 billion (USD 65 million) to IDR 955 billion (USD 105 million).

In 2006, 52 offices were connected to the computer network and the Internet, including, 21 working units at district level, 20 sub-districts (*kecamatan),* and 11 offices (*dinas*). The LAN (local area network) is used to connect all the offices. During the next three years, starting from 2007, a further 208 village offices will be connected to the Internet. Even if the Sragen district has been leading in e-government implementation, the public can still not access the provided services directly through the Internet. The citizens have to physically visit the service points set up at the sub-district offices; an adjustment to fit the local context. Heeks (2002) termed this kind of adaptation as local improvisations.

3. Literature review

3.1. What is e-government?

According to Kumar and Best [18], e-government can be defined broadly as the use of information and communication technologies in the public sector to improve its operations and delivery of services. Although e-government encompasses a wide range of activities and actors, three distinct sectors can be identified. These include government-to-government (G2G), government-to-business (G2B), and government-to-citizen (G2C). Some observers also identify a fourth sector, government-

to-employee (G2E). Since G2E operations tend to focus on internal, administrative activities, they can be considered a subset of the G2G sector [26].

In many respects, the G2G sector represents the backbone of e-government. It refers to the standard processes that different government agencies use in order to communicate with each other and streamline processes, and some observers suggest that governments at all levels must enhance and update their own internal systems and procedures before electronic transactions with citizens and businesses can be successful. G2B initiatives receive much enthusiasm from the private sector because of the potential for reducing costs through improved procurement practices, increased competition, and streamlined regulatory processes. G2C initiatives are designed to facilitate citizen interaction with government, which is what some observers perceive to be *the primary goal of e-government* [26].

The literature offers a number of models presenting the development of e-government. Some of these (e.g. [7, 8, 19, 20, and 24]) describe e-government as an evolutionary phenomenon, starting with presence on the web, providing the public with relevant, basic information. The development is then described in a number (typically 4) of levels, from (1) *web-presence* through (2) *interaction* and (3) *transaction* levels, to the (4) *transformation or horizontal integration* level, where all government information systems are integrated across departments. This highest level is usually a long-term objective where e-government is offered as "seamless" on the "one-stop-shop" principle. The stages are explained in terms of measurements of costs, time, complexity, levels of integration and constituency value.

Kunstelj and Vintar [19:133] have found that most countries reach the second level of development. This level is relatively easy to achieve, as supplying information, application forms and e-mail addresses online involves no great effort or any change in existing operations. The development of the real transaction services (or vertical integration), enabling all phases of back-office processes to function electronically, however, requires intervention also in back-office systems. At this level development starts to significantly slow down, even in the developed world, where only 10 percent of websites surveyed in the EU countries had at least one level-3 service.

3.2. E-government in developing countries

According to Heeks [10], e-Governance lies at the heart of two global shifts: the information revolution and the governance revolution. Both shifts are changing the way society works and the way that society is governed. But it is the few who have access to ICTs, to digital information and knowledge, who benefits from reforms in governance. We can thus talk of an 'e-Governance Divide' that is increasingly separating developed and developing countries, and elites and ordinary citizens within developing countries. This growing divide must be addressed if the poor in developing countries are not to fall even further behind.

There are, however, a great number of e-government projects in developing countries to address this divide. Many of these projects are supported by international organizations, such as the UN, the OECD, and aid agencies from developed countries, or by national and regional development funds. We find a variety of both academic and practitioner oriented literature covering such projects. Grönlund et al. [8] gives a broad overview of literature sources covering e-government projects and research in developing countries in general.

Some literature has dealt with the opportunities and challenges of e-government in developing countries. The main opportunities for e-government in general, like cost reductions, improved efficiency, and quality of services, will also apply to projects in developing countries, but some motivation seems a stronger and more important factor for transitional democracies and developing economies. For example, mature democracies, which generally have their legitimacy well established with internal and external constituencies, may be driven more by an interest in enhancing internal efficiencies and instituting marketization practices. In contrast, transitional democracies with newer governments may perceive a need to improve openness and citizen opportunities to solidify their legitimacy, and may thus emphasize reforms such as transparency, increased citizen participation and attracting economic development [26].

The Asia Foundation [28] reports that, in Asia, there is growing recognition that e-government has the potential to improve government transparency dramatically by increasing accountability and reducing opportunities for corruption. Based on their studies from India, Kumar and Best [18] state that e-government is increasingly being seen as the answer to a plethora of problems that the governments or public agencies in general face in serving their constituencies effectively. These include a means to save costs, improve quality, reduce response times, and allow access to services, and as a tool to increase transparency in administration, reduce corruption, and increase political participation.

To be effective, e-government projects, like information systems in general, must focus on the social contexts into which IT is introduced. This is even more

important in developing countries, many of them African or Asian countries, with great cultural differences from the "western" world where the technology and systems normally are designed and developed. Heeks [12:5] put it in this way: 'New Delhi is not New York, and Lusaka is not London. So there is often a large design-reality gap when you try to introduce in a developing/transitional country an e-government system designed in and for an industrialised nation'.

A common theme, however, in most literature dealing with e-government in developing countries, is the focus on transparency and fighting corruption. It seems this is the main difference between developed and developing countries in this regard. Grönlund et al. [8] have studied a selection of handbooks for managing e-government projects in general, and for developing countries in particular, and found that, apart from a particular focus on corruption in the developing countries, these handbooks are strikingly similar.

3.3. E-government – success or failure?

Despite benefits and some initial success, e-government has yet to prove successful in, or even affect the vast majority of governments in developing countries. E-government initiatives face serious challenges which are described in a number of articles (e.g. [4, 7, 8, 12, 18, 21, 26]). Broadly speaking, these challenges seem to fall into three categories: *management*, *infrastructure*, and *human factors*. While the first category is solely linked to the supply side, the infrastructure and human factors belong to both the supply and demand side, i.e. citizen issues.

Few projects meet these challenges, and the failure rate is high. According to Gartner [7], more than 60 percent of all e-government initiatives either fail or fall short of expected outcomes. Heeks [12] has analyzed more than 40 e-government-for-development projects in developing/transitional countries and estimates that 35% of these were total failures, while 50% partially failed, and only 15% were successes. These figures indicate that the failure rate is even higher in developing countries. Heeks states that partial or total failures are the frequent result when you try to introduce an e-government system designed elsewhere in a developing country.

Central to e-government success and failure is the degree of change needed to take us from 'where we are now' to 'where the e-government project wants to get us'. 'Where we are now' means the current realities of the situation. 'Where the e-government project wants to get us' means the model or conceptions and assumptions built into the project's design. E-government success and failure therefore depend on the size of the gap that exists between 'current realities' and 'design of the e-government project' [12].

A number of success and failure criteria have been described in literature. In line with the challenges (above), the success and failure criteria can be grouped into the same three main categories: *management*, *infrastructure*, and *human factors*. The *management* category deals with strategic issues, change management, political leadership, institutionalizing, and continuous monitoring and evaluation of the projects. *Infrastructure* is ICT infrastructure, legislation and financial resources, while *human* factors include competence and skills, training, and trust.

In most cases, the greatest constraints to e-government are non-technical, in the *management* category, such as political opposition, deeply ingrained policies and practices, and internal employee resistance [28]. To overcome these constraints, governments require effective, knowledgeable leaders who can help spur bureaucratic action, and implement strategies that promote sustainable change [28]. A critical pre-condition in successful e-governance for development, thus, is political leadership, or a champion role with the vision to put e-government onto the agenda and make it happen. Conversely, all the operational e-readiness in the world is of limited value if there is no vision and leadership to give direction to e-governance [10]. In addition to this, in UN reports on ICT and e-government projects, institutional weakness and shortage of qualified personnel and training have been identified as core failure factors in developing countries [24].

3.4. Are e-government solutions sustainable?

While some research has been carried out on success and failure of information systems in developing countries, little work has been carried out on sustainability. In other words, how information system projects can be sustained over long periods with appropriate resources, including money and people [33]. In his article on failure and success of information systems in developing countries, Heeks [11] uses his model of design-reality gaps and explains that sustainability failures frequently occur when design and actuality spring apart. Typical examples occur when donor funds are withdrawn, when key IS staff quit and when senior-level champions move on.

Even fewer studies focus on the long-term sustainability of e-government initiatives. Some analysts have noted that e-government projects, like IS projects in general, often fail either totally or partially in achieving

their objectives despite initial successes. Kumar and Best [18] have studied an e-government project in rural India, licensing birth certificates and processing applications for old age pensions. After over one year of successful operation, however, the e-government program was not able to maintain the necessary level of local political and administrative support to remain institutionally viable. As government officers moved from the region, or grew to find the program a threat, the e-government services faltered. They argue that this failure was due to a variety of Critical Failure Factors, and they end with a sustainability failure model with five principal modes of sustainability failures: financial/economic, cultural/social, technological, political/institutional, and environmental sustainability failures. Many e-government projects in developing countries are financially dependent on international organizations, such as the UN, the OECD, and aid agencies from developed countries [8]. This make them particularly vulnerable when the outside funding ends and even more exposed to financial sustainability failure than project in the developed world.

3.5. E-government in Indonesia

The literature we have described so far covers developing countries in general or regional Asian issues. There is a fairly broad selection of works covering e-government cases in some Asian countries, like India. There are, however, only a very limited number of articles dealing with e-government implementations and their challenges in Indonesia. Indonesia's present offer of content and services by the Government via the web is still poor and the country's ranking in terms of governmental Web presence is lower than for most other Asian countries except for Bhutan, Bangladesh and Sri Lanka. This low ranking does not make sense for a national government serving a large country that has a unified language and high rates of literacy and education [29].

Abhiseka [1] reports that, as of March 2003, 369 government offices had opened their own websites, but about 24 percent of the websites failed to maintain their running times. Less than one year later, only 85 (or 23 percent) were still operating with their complete options.

Heeks [13] describes a G2B case, where an online information system was introduced by the Department of Settlement and Regional Infrastructure in Indonesia, to support the process of tendering. It aimed to improve transparency, efficiency and costs of tendering and procurement procedures. He concludes, however, that increased transparency, "at present, (is) more a potential than a reality", and that the system falls in the category of partial success/partial failure overall and is largely unsuccessful so far in addressing corruption, due to staff resistance and a lack of legal infrastructure and broader support. Rose [25] explains the difficulties of implementing e-government in Indonesian regional governments with the following reasons: financing problems, few qualified people, lack of supporting infrastructures, and low attention from regional government offices. The political will, laws and regional regulations are fundamental criteria for successful implementation of e-government.

What is important to achieve sustainable e-government in Indonesia? Heeks [13] points to political support as the critical success factor for sustainability of the described tendering system and Rose [25:224] explains lack of sustainability by the fact that "Governments do not cover routine costs in their budgets for operating and maintaining e-government", and it is also a matter of political leadership. This main issue of political leadership is summed up by Parks [22:8]: "Almost invariably, successful IT projects have been championed by a strong, committed leader, whose vision and ability to build support within government, secure the necessary funding, and manage the project from beginning to end has ensured the success of the initiative."

An important objective of some e-government initiatives is the decentralization of decision-making and service provision to sub national levels of government. According to Seifert and Bonham [26], this is more likely to be a goal in countries covering a large geographic area with a heterogeneous population where one-size-fits-all solutions may be less useful [26]. This characteristic applies fully to Indonesia, and together with the country's severe corruption problems, two main objectives of introducing e-government solutions would be decentralisation of governance and increased transparency. According to Haryono and Widiwardono [9], e-government in Indonesia is needed to support the government change towards a democratic governance practice, to support the application of authority balances, to facilitate communication between central and local governments, and to gain openness. A government spokesperson promises that, in the future, the public will have access to look up any government policy with one click of the mouse, signalling a higher standard of government transparency [1]. While this is a noble and ambitious goal, several challenges exist in attaining it. It is to examine these challenges that we conducted this study.

4. Methodology

The district of Sragen was chosen as the research site due to its achievement of winning The Indonesian E-Government Award in 2006. This exploratory study pays attention to the supply-side of e-government, and not to the demand-side. In our study, e-government is seen from the viewpoint of e-government actors and policy makers. Data collection was conducted using semi structured face-to-face interviews and informal focus group discussions with the actors who play important roles in implementing the e-government solutions. Data collection was made in mid October 2006.

The interviews were carried out with the Head of the District (Bupati) and the District Secretary. The focus group discussions were made with the Head of the Section of research, development, and electronic data processing and his staff, with the Head and staff of the KPT, the Head and officers of a Sub-district, and the Head of a Village office with his staff.

The interviews and focus group discussions focused on the participants' experiences with e-government implementation and their opinion about the development of e-government in the region and in Indonesia in general. By interviewing the e-government actors at different levels of governmental offices, we aimed to ensure validity of the information obtained.

As well as these key players, we also interviewed one Head of a Commission in the local parliament, dealing with governmental issues, to obtain his opinion on what the local parliament and the political opposition think about the e-government initiatives taken by the Bupati. This politician was the opposing candidate to the sitting Bupati during the last election. Each interview and discussion session lasted between 60 to 90 minutes.

In addition to the interviews and the focus group discussions, we carried out some field observations from district to sub-district to village levels, to learn about the daily activities and the available infrastructure. Documents such as the grand design of e-government, IT infrastructure architecture design, profile of the KPT, and customer satisfaction report were also analysed. Some of the services at the KPT were also demonstrated to us.

All the interviews and the focus group discussions were recorded and transcribed. The transcripts were then analysed using the content analysis method. Content analysis is "a research technique for making replicable and valid references from data to their contexts" [16]. Based on the theoretical background, and our three groups of e-government challenges, management, infrastructure, and human factors, we developed a pre-defined set of categories. This method is also known as deductive category application [21], and the pre-defined categories were chosen to focus on specific themes. As this is a preliminary research, we coded for existence instead of frequency [6]. A closer investigation will be made in future work, involving quantitative data collection.

5. Findings and discussion

In the following section, the impacts of the Sragen e-government initiative are discussed in the light of the three e-government challenges mentioned above, i.e. management, infrastructure and human factors.

5.1 The management factor

Political leadership with a clear vision is essensial to ensure successful implementation of e-government and efficient change management. Solving organizational and cultural inertia can only be implemented by a strong leadership. The organizational and cultural changes are often more difficult to execute than the technological challenges. The Bupati claimed that:

> *Change management is necessary to make e-government implementation successful*.

In his meetings with the staff, the Bupati often stresses that:

> *Those who are against (the e-government processes) should quit their job*.

This strong political leadership performed by the Bupati has given noticeable results, manifested as support from all levels of the governmental offices and even from his political rivals in the local parliament. The Bupati's background as a successful businessman in gas exploration may have a strong influence on his managerial style. In Sragen, he has experienced that managing civil servants is easier than managing private sector staff.

> *Loyalty and commitment of the civil servants are better than those in the private companies. Hence, it is easier to encourage them. In Sragen, being a civil servant is still a high status position*,

the Bupati asserted.

The Head of the KPT, when asked about the reason behind the establishment of the KPT answered that:

> *The KPT establishment was triggered by complains on quality of public services, often emerged when the Bupati met the public. Especially those complaints related to the process of getting permits that takes a long time, with no guarantee in terms of time limit, no*

transparency as regards service cost, and complicated bureaucracy. ... The Bupati has a good sensitivity to this problem. Fortunately, our Bupati is also a businessman. He understands that the problem is in the bureaucracy.

The e-government initiative in Sragen has received full support from the local parliament. The Head of a Commission in the local parliament asserted:

We, in the local parliament, gave full support to what the government did. We have seen a lot of advantages. Communications among all levels, from district to villages, are made possible by this initiative.

In 2003, a local government regulation was issued to strengthen the existence of the KPT politically and to ensure its sustainability. This is an important policy in the context of a highly volatile government with high volatility, like in Indonesia, where decisions made by one incumbent are overturned by the next, which may lead to projects being derailed or blocked.

5.2. The human factor

Sragen's vision when implementing e-government is to improve public services. The Bupati pays serious attention to changing the mind-set of the civil servants to being more service-oriented. Clearly, this is not an easy task to undertake. He stated that:

I spent the first six months when I was in the position to do brain washing of the civil servants. The objective is to increase their awareness in improving public service quality.

To improve the public service quality, best practices from private sector are brought in.

We want to make a new paradigm, new working culture, and new norms,

the Head of the KPT declared. During the establishment in 2002, the KPT staff had to participate in several development programs, including service quality training, given by invited professionals. All initiatives were aimed to show a more friendly service atmosphere to the public, and the public service quality is evaluated regularly. The Head of the KPT told us:

In the first semester of 2006, we could process 65% of all requested services in a shorter time, as expected.

During our field observation, we found that the awareness to give a better service to the public is also apparent in sub-district and village levels.

The strong leadership is also apparent when working with the lack of IT literacy among the staff. Regular IT training is set-up by the local government to improve the IT literacy especially for young public servants and key personnel. Kumar and Best [18] indicate that lack of adequately trained personnel is one of the main critical failure factors of e-government implementation.

Young staff and key persons should be able to operate a computer,

stated the Bupati. To further strengthen the competence, the local government also hires professionals to fill in IT-related positions to speed up the e-government implementation. This initiative is in line with Rose's [25: 226] suggestions: "One means of support from the private sector would be providing human resources. Since few local government staffs are experts in digital information technology, the local government could have a joint operation with the private sector."

Now, The Asian Development Bank recommends the KPT as a model for other districts [27], and in addition to serving the internal market in Sragen, the Section for Research, Development, and Electronic Data now also employs their experience to offer consultant services to other districts in Indonesia to implement e-government solutions. This is an answer to the entrepreneurial challenge set up by the Bupati for all the offices. The Bupati asserted:

I challenge all Heads of Office to be able to be consultants for other districts when they have implemented an e-government program in Sragen.

The service fee they charge for this contributes to increase the Pendapatan Asli Daerah (PAD, Real Regional Income) and also gives a small, legal, income to the Sragen staff.

5.3 The infrastructure factor

Despite limited infrastructure and financial support, several e-government initiatives have been taken in Sragen. The Internet bandwidth used is, however, only 128 kbps, to serve all 52 offices. The limited bandwidth is the reasons that they do not offer the e-government services online via Internet, but from service points at the sub-district offices. Head of the section of research, development, and electronic data processing asserted:

Our infrastructure is limited. Our budget is limited. But, we believe that it does not mean that we can not cope with the limitation. We will be always trying to optimize utilization of the available infrastructure.

In order to be able to provide a cost-effective IT infrastructure, the Sragen government have established *Badan Usaha Milik Daerah* (BUMD, a local government owned enterprise). An important additional initiative is

collaboration with private sector. For instance, running the e-government application for processing ID-cards is provided by a private partner using a "profit-sharing" principle. Head of the section of research, development, and electronic data processing argued that:

> *By doing this, there is no need for us to allocate a lot of money to acquire the (information) systems.*

So far, we have studied the e-government in Sragen from the government's side (i.e. the supply side). From 2007 they have planned to connect all 208 village offices in Sragen to the Internet, which is a good starting point for supplying the public with access to the Internet and to study the demand side of the e-government solutions more closely.

6. Conclusions

In this study, we have looked at e-government challenges in developing countries, and found that they can be grouped into three categories, management, infrastructure and human factors. In the light of this, we have analysed a successful e-government initiative in the rural district of Sragen, Indonesia. Literature analysis shows that strong political leadership is one of the most important success criteria for e-government projects in general and in developing countries in particular, even pointed to as the most important criteria by some [e.g. 13, 22]. This has been an obvious finding in Sragen, confirmed by statements we got from both politicians and administrative staff. Strong leadership is important to be able to manage the e-government implementations with the limited resources available, and to generate progress over a period of time. Taking similarities and differences in other district governments into account, we believe that this lesson from Sragen may be adopted both by other district governments in Indonesia and even in other developing countries with similar context.

Other important lessons to learn from the Sragen case are involvement of all stakeholders from the beginning, exhaustive training and motivating of the human resources and partnership with external parties. To ensure that the e-government implementation meets the expectation, regular evaluations should be performed, to provide necessary feedback for improvement.

Despite the positive picture we found in Sragen, some areas for improvement were also identified. Two important challenges have to do with the G2C aspect. The first one is a combination of an infrastructure and a management challenge. So far, service provision is not fully online and accessible through the Internet. The electronic communication ends at the sub-district level, where the offices serve as service points. In the future, they should expand this further, not only to the village level, but make the services accessible through the Internet, anytime and anywhere. To make this possible, the IT infrastructure has to be improved, for example by involving external investors, to overcome financial constraints. Another G2C issue, which is entirely a management challenge, is to develop and implement routines for taking better care of the direct communication with the citizens. There is a need for procedures to track and respond to suggestions, critique, and complaints, to encourage the citizens and to increase the degree of participation in policy making and development.

Another managerial issue is to improve the G2G aspect by ensuring data integration and integrity vertically and horizontally between government agencies. Better data quality will in turn improve the quality of decision making.

The e-government initiative in Sragen is to a high degree based on external competence. The solution will remain vulnerable if the internal human resources are not strengthened, either by competence transfer to permanent employees or by recruiting civil servants with necessary IT skills.

Though considerable attention has been focused on how e-government can help public agencies improve their services, there are relatively few studies so far, that focus on the impacts of these services on users themselves (citizens and businesses), in particular in developing countries [8,12,18]. In other words, historically, focus has been placed on the supply-side of the e-government, both from the governments themselves, and from the research community. The demand side is almost neglected. Our next step will be to study the existing and potential users and their external pressure as a drive for increased efforts from the government.

In the context of Indonesia, Internet cafes may be used to support the demand-side of e-government. In Indonesia, two-third of users accesses the Internet through Internet cafes [32]. Along with other initiatives, like setting up public community telecentres or connecting schools to the Internet, this is expected to maintain a demand-side sustainability of e-government. This is an interesting direction for future research. Of Kumar and Best's [18] five types of sustainability, the first four relate to supply-side, while the last one is mainly a demand-side issue. Our next research will focus on the demand-side, and we suggest introducing a sixth type: demand sustainability.

7. References

[1] Abhiseka, A. "E-government to Be Launched to Promote Good Governance," The Jakarta Post, January 15, 2003.

[2] Ahmadjayadi, C. "Peluang dan Tantangan E-Government di Era Otonomi Daerah," Paper presented at the Seminar Peluang dan Tantangan E-Government di Era Otonomi Daerah, Yogyakarta, 2003.

[3] APJII (Indonesian Internet Service Provider Association), (2005). 'Statistik APJII'. (In Indonesian). URL (consulted December 2005): http://www.apjii.or.id/ dokumentasi/statistik

[4] Backus, M. "E-Governance in Developing Countries," IICD Research Brief, No. 1, March, 2001.

[5] Chen, H. "Digital Government: Technologies and Practices," Decision Support Systems, 2002, 34, pp. 223-227.

[6] Colorado State University. "Content Analysis," 2007, URL (consulted June 11, 2007): http://writing.colostate.edu/guides/ research/content/index.cfm

[7] Gartner. A Majority of E-Government Initiatives Fail or Fall Short of Expectations, Gartner, Inc.'s Executive Programs, San Diego, April 2002.

[8] Grönlund, A., Andersson, A., and Hedström, K. "NextStep E-Government in Developing Countries," Project Report, Örebro University, Sweden, 2005.

[9] Haryono, T. and Widiwardono, Y. K. "Current Status and Issues of E-Government in Indonesia," 2003, URL (consulted February 14, 2007): http://www.aseansec.org/ 13802.htm

[10] Heeks, R. "Understanding E-Governance for Development," iGovernment Working Paper Series, Institute for Development Policy and Management, University of Manchester, UK, 2001.

[11] Heeks, R. "Information Systems and Developing Countries: Failure, Success, and Local Improvisations," The Information Society, 2002, 18, 2, pp. 101–112,

[12] Heeks, R. "Most E-Government-for-Development Projects Fail: How Can Risks be Reduced?," iGovernment Working Paper Series, Institute for Development Policy and Management, University of Manchester, UK, 2003.

[13] Heeks, R. "More Transparent Tendering for Infrastructure Development for Indonesia," eTransparency Case Study No 8, December 2003, URL (consulted February 14, 2007): http://www.egov4dev.org/indonesiatender.htm

[14] Hofstede, G. Cultures and Organizations: Software of the Mind, McGraw-Hill, New York, 1997.

[15] Indrajit, R. E. Electronic Government: Strategi Pembangunan dan Pengembangan Sistem Pelayanan Publik Berbasis Teknologi Digital, Andi, Yogyakarta, 2002.

[16] Krippendorff, K. *Content Analysis: An Introduction to Its* Methodology, *Sage* Publications, Beverly Hills, 1980.

[17] Kristiansen, S., Wahid, F., and Furuholt, B. "Investing in Knowledge? Information Asymmetry and Indonesian Schooling," International Information & Library Review, 2006, 38, 4, pp. 192-204.

[18] Kumar, R. and Best, M. L. "Impact and Sustainability of E-Government Services in Developing Countries: Lessons Learned from Tamil Nadu, India," The Information Society, 2006, 22, 1, pp. 1-12.

[19] Kunstelj, M., and Vintar, M. "Evaluating the Progress of E-Government Development: A Critical Analysis," Information Polity, 2004, 9, 3-4, pp. 131-148.

[20] Layne, K., and Lee, J. "Developing Fully Functional E-Government: A Four Stage Model," Government Information Quarterly, 2001, 18, 2, pp. 122-136.

[21] Mayring, P. "Qualitative Content Analysis," Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 2000,1, 2, URL: (consulted June 11, 2007) http://qualitative-research.net/fqs/fqs-e/2-00inhalt-e.htm

[22] Ndou, V. "E-Government for Developing Countries: Opportunities and Challenges," Electronic Journal of Information Systems in Developing Countries, 2004, 18, 1, pp. 1-24.

[23] Parks, T. "A Few Misconceptions about E-Government," The Asia Foundation, August 17, 2005, URL (consulted February 14, 2007): http://www.asiafoundation.org/ pdf/ICT_eGov.pdf

[24] Ronaghan, S. A., "Benchmarking E-government: A Global Perspective. Assessing the Progress of the UN Member States", United Nations – DPEPA and American Society for Public Administration (ASPA), New York, May 2002, URL (consulted December, 2006): http://egovaspac.apdip.net/ resources/readiness/undpepa-aspa2001.pdf

[25] Rose, M. "Democratizing information and communication by implementing e-government in Indonesian regional government," International Information & Library Review, 2004, 36, 3, pp. 219-226.

[26] Seifert, J. W., and Bonham, G. M. "The Transformative Potential of E-Government in Transitional Democracies," The International Conference on Public Administration in the 21st Century: Concepts, Methods, Technologies, School of Public Administration, Lomonosov Moscow State University, May 26-29, 2003.

[27] Sinombor, S. H., and Taslim, R. S. "Revolusi Birokrasi Sragen-Parepare," Kompas, December 6, 2006.

[28] The Asia Foundation. "Improving Governance and Reducing Corruption Through E-Government. URL (consulted February 1, 2007): http://www.asiafoundation.org/ICT/e-government.html

[29] The World Bank. "Republic of Indonesia. Information and Communication Technologies for Rural Development: Issues and Options", The World Bank, Report No. 33503-ID, October 2005, URL (consulted February 13, 2007): http://www.e-forall.org/pdf/ICT4RD_October2005.pdf

[30] Transparency International (2006). "Corruption Perceptions Index 2006". URL (consulted February 28, 2007): http://www.transparency.org/policy_research/surveys_indices/cpi/2006

[31] United Nation. "Global E-Government Readiness Report 2005: From E-Government to E-Inclusion", United Nations, New York, 2005.

[32] Wahid, F., Furuholt, B., and Kristiansen, S. "Information Diffusion Agents and the Spread of Internet Cafés in Indonesia," Communications of the Association for Information Systems, 2004, 13, pp. 589-614.

[33] Walsham, G., and Sahay, S. "Research on Information Systems in Developing Countries: Current Landscape and Future Prospects," Information Technology for Development, 2006, 12, 1, pp. 7-24.

[34] West, D.M. "Global E-Government 2006," Report, Center for Public Policy, Brown University, Rhode Island, August 2006, URL (consulted February 13, 2007): http://www.insidepolitics.org/egovt06int.pdf