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INTOSAI

SYMPOSIUM ON THE APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN THE AUDIT OF E-GOVERNMENT: A STRATEGY FOR EFFICIENCY, TRANSPARENCY AND ACCOUNTABILITY

Report on the 18th UN/INTOSAI Seminar
on Government Auditing

Vienna
18 – 22 April 2005

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INTOSAI

EXPERIENTIA MUTUA OMNIBUS PRODEST

Division for Public Administration and Development Management

Department of Economic and Social Affairs (DESA)

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I. INTRODUCTION

The interregional seminar "Symposium on the Application of Information and Communication Technologies (ICT) in the Audit of e-government: A Strategy for Efficiency, Transparency and Accountability" which was jointly organized by the United Nations (UN) and the International Organization of Supreme Audit Institutions (INTOSAI) was held from 18 to 22 April 2005 in Vienna, Austria. This event was the 18th interregional seminar organized by the UN Division for Public Administration and Development Management (DPADM), Department of Economic and Social Affairs (DESA) in conjunction with INTOSAI (18th UN/INTOSAI Seminar).

In the past, DESA had initiated several training programmes, designed to support developing countries in strengthening their government audit systems. As part of these training activities, the United Nations, together with INTOSAI, organized international training programmes on government audit in at least biennial intervals. In the past 33 years, seventeen such events took place, dealing with the following topics:

1. General principles, methods and goals of government audit and related institutional problems (1971)
2. Techniques and methods used by Supreme Audit Institutions (SAIs) with a view to improving financial and performance auditing (1973)
3. Public budgeting and accounting, the position of SAIs in the modern state, audit of public enterprises (1976)
4. Principles of audit, organisation audit, performance audit and state audit of public enterprises (1979)
5. Concepts of audit, audit of tax receipts, audit of government financial institutions for development and audit of performance in public enterprises (1981)
6. Nature and scope of internal management control systems; Role of internal audit in internal management control systems, Internal management control systems in developing countries (1984)
7. The audit of major development projects (1986)
8. Application of audit standards in the public sector (1988)
9. Accounting and auditing of foreign aid programmes and EDP audit (1990)
10. EDP Auditing - Sharing experiences, opportunities and challenges (1992)
11. The role of SAIs in the restructuring of the public sector (1994)
12. The role of SAIs in fighting corruption and mismanagement (1996)
13. The role of SAIs in auditing public works (1998)

14. The audit of public-health care systems by SAIs (2000)
15. The role of SAIs in agricultural auditing (2002)
16. The role of SAI in the audit of funds in the field of education (2003)
17. Symposium on SAI Independence.

The most recent seminar (2005) was dedicated to the Application of ICT in the Audit of E-Government.

A total of approx. 60 delegates attended the event, among them members of SAIs from developing countries. Speakers came from the United Nations, the World Bank and the SAIs of Argentina, Canada, India, Oman, South Africa and Austria. A staff member from the SAI of the United Kingdom acted as technical chair (for a list of participants please refer to the Attachment).

The seminar was inaugurated on 18 April 2005 in a plenary and ended on 22 April 2005 after a total of fifteen plenary sessions, four working group meetings, and one excursion.

The following topics were the subject of lively and in-depth discussions at the 18th UN/INTOSAI Seminar:

Auditing e-governance as a tool for enhancing transparency and accountability

1. Legal provisions and audit mandates in auditing e-government;
2. Status and future aspects of e-government;
3. Risks of e-government;
4. Auditing e-government on-line;
5. Challenges when auditing e-government; and
6. E-procurement.

In addition, the SAIs of Algeria, Bhutan, Bolivia, Chile, Denmark, the Dominican Republic, Ethiopia, Fiji, Israel, Jamaica, Japan, Kuwait, Lesotho, Libya, Lithuania, Malawi, Mongolia, Namibia, the Netherlands, Tunisia, and Venezuela, reported on the application of ICT in the audit of e-government in their countries. In their country reports, the seminar participants provided valuable insights into the organisation of their SAIs and shared information on future development trends with regards to e-government and e-governance, and on the potential for improving the audit thereof.

The discussions following the main presentations provided the participants with an opportunity for a lively exchange of ideas and an identification of key aspects of e-government. Several working groups then offered the participants a setting for exchanging their experiences in a smaller forum, addressing the issues which had been

brought to their attention during the discussions at greater detail, and arriving at conclusions and recommendations. Refer to section III.1 of this report for a summary of the results of the group work.

The participants highlighted the following points.

1. All countries agreed that SAIs should play a proactive role in promoting e-government as it can lead to more transparency and better services to citizens. However SAIs have some challenges in terms of their mandates, for example:

2. Not all SAIs are fully independent from government. The SAIs budget may be approved and even managed by government. Staff may be recruited and remunerated by government.

3. Countries are at different points on their journeys along the e-government road and SAIs face quite different styles of implementation and maturity of solutions. The maturity of the SAIs in auditing e-government is generally proportional to the level of e-Government rollout in those countries and the skills in the SAIs themselves. Nevertheless much audit work is already being carried out.

4. SAIs should consider themselves part of the e-government initiative as they also provide services and information to citizens.

5. SAIs face a number of challenges when they tackle the audit of e-Government. These include:

    - Absence of a legal framework
    - Getting access to government systems and data. A lack of IT skills can cause auditors not to pursue their access rights properly
    - Keeping up with the speed of change in ITC
    - Deciding on the appropriate time for audit intervention and convincing auditees of the benefits

6. Despite these difficulties, SAIs have identified many issues with e-Government implementations and have learnt valuable lessons, for example:

    - Departments and agencies have set up websites, simply because it is fashionable, or because of over selling by vendors. The costs of implementing and maintaining the site has outweighed any value.
    - The introduction of e-government can enable countries to achieve benefits in terms of economy, effectiveness, efficiency and transparency.

- SAIs from developed countries face access restrictions on account of privacy and other laws. SAIs of developing countries often enjoy wider access, but face technical problems.

7. All SAIs can audit e-government and not just the technically advanced SAIs. SAIs in developing countries might audit:

- Their country's e-government plan and objectives
- System and hardware development and acquisition (project management and delivering in terms of objectives set). Need to be involved throughout, though keeping independence

However auditors do need basic IT skills to partake in e-auditing, understand the environment they are working in and to interact with IT staff in government. Training for awareness should receive top priority.

II. INTRODUCTORY PRESENTATIONS - SUMMARY

II.1 General Secretariat INTOSAI

The Secretary General of INTOSAI and President of the Austrian Court of Audit, Dr. Josef Moser, welcomed the participants and greeted in particular the Director of DPADM, DESA, Mr. Guido Bertucci, as co-host.

Dr. Moser emphasized the importance of cooperation between the United Nations and INTOSAI as manifested by a long-standing tradition of successful interregional seminars and expert meetings on government auditing, as they contributed largely to achieving INTOSAI's objectives consistent with its motto of "Experientia Mutua Omnibus Prodest" (Mutual Experience Benefits All).

Institutional capacity-building of SAIs through training, technical assistance and other aid measures is one of the major objectives of INTOSAI's Strategic Plan that was unanimously adopted in 2004 in Budapest by the INTOSAI congress.

The application of ICT in the audit of e-government, a strategy for efficiency, transparency and accountability is consistent with the Strategic Plan of INTOSAI. The topic responds to the new challenges government audit is faced with and intends to provide guidance in mastering these challenges.

Moreover, many member SAIs had voiced a vivid interest in the subject and had mentioned it as a topic to be preferentially addressed by INTOSAI.

In recent years, many different resolutions on equal opportunities, poverty eradication, economic growth and social integration have been adopted both at the European level as well as by the United Nations. Their implementation requires efficient, transparent and rational government administrations that use ICT.

Modern government administration must enable interaction between the state and the citizens, private companies, and public institutions, through the use of advanced ICT solutions, in other words, e-government.

E-government cannot be limited to one area of the administration or to one technical field, but widely penetrates all levels of government administration and many disciplines, from engineering to law.

Importantly, approaches to e-government have changed markedly in recent years.

In the beginning, debates focused on the strategic importance and impact of e-government. E-government was widely seen as a driving force behind administrative reforms. Today, e-government is used as an instrument of public management.

E-government has certainly prompted a re-thinking towards "process-oriented government administration".

As ICT are now being used, SAIs are called upon to cope with the new challenges so as to be able to remain abreast of changes.

It is therefore essential to develop new audit techniques and methodologies in order to be able to identify and pinpoint problems related to e-government at greater detail.

Against the backdrop of this crucial challenge, SAIs are to ensure additional training and further education for their staff and to engage in an exchange of know-how between SAIs.

INTOSAI is living up to this requirement within its capabilities. It has established a Committee on IT Audit chaired by the SAI of India which enables government auditors to exchange know-how and experience on how to audit and use information and communication technologies, a case in point being the 18th UN/INTOSAI Seminar.

The expectations tied to the UN/INTOSAI seminar not only concerned the further study of the topic of auditing e-government, but first and foremost an open exchange of experiences, positive and negative, on the practical work of the participating SAIs, that are to result in suggestions on how to improve the audit of e-government by SAIs in all countries. While not being able to exhaustively deal with all aspects, the seminar was expected to provide impetus and direction for the future work of the INTOSAI Committee on IT Audit and will be followed up on by future Governing Board meetings and congresses.

The country papers were to provide an insight into the different organisational set-ups and stages of development with regard to e-government and show that all participants together can contribute to improving the situation of SAIs from which everybody stands to benefit.

By way of conclusion, Dr. Moser thanked the United Nations for the outstanding cooperation in organising this seminar and all those SAIs which had provided speakers to the event; he called on all seminar participants to contribute their technical know-how and experience to the success of the event and thus to improve the governance and accountability in their respective countries.

II.2 United Nations

Mr. Guido Bertucci, Director of the Division for Public Administration and Development Management (DPADM), Department of Economic and Social Affairs (DESA), United Nations (UN), co-chaired the opening session with Dr. Moser.

He welcomed on behalf of the United Nations DESA the distinguished participants to the Eighteenth Joint UN/INTOSAI Seminar on Government Auditing. He stated that the theme of the conference, "Symposium on the Application of Information and Communications Technologies (ICT) in Audit of E-Government: A Strategy for Efficiency, Transparency and Accountability", is a timely and important topic for consideration by the auditing profession in a setting like this seminar, which brings together a group of most senior audit officials from around the globe, as well as keynote speakers from international organizations and other distinguished guests and observers.

Mr. Bertucci stated that the UN attaches great importance to its cooperation with INTOSAI and its commitment to provide technical assistance and capacity-building to Supreme Audit Institutions (SAIs). He commented that although the mandates and legal status of SAIs vary from country to country, these institutions have nevertheless been able to come together under the common umbrella of the INTOSAI to formulate common codes and standards which they can collectively and individually adopt. He also found it remarkable that the march toward globalization has allowed INTOSAI and its regional groups to explore and share views over the years - through different forums - on a variety of topics relevant to the strategic and operational functioning of SAIs, notwithstanding variances such as size and age of their respective institutions.

Managing the public sector in today's environment of constant change has become a demanding challenge for policy makers, civil servants, service delivery managers and the audit community – a challenge that is especially daunting for those in developing countries and countries with economies in transition. For over 50 years the United Nations, through its Programme in Public Administration and Development, has assisted Member States in their efforts to strengthen, improve and reform their governance systems and institutions particularly those that contribute to transparency and accountability of public sector expenditure.

DPADM/DESA, which currently implements the Programme, has been entrusted with the responsibility of ensuring that the public economic, administrative and financial institutions of developing countries and countries with economies in transition function in a sound, participatory and transparent manner. By disseminating information and knowledge, delivering technical assistance and providing an international forum for the exchange of national experiences, DPADM assists

Governments in strengthening their policy-making systems, reinforcing their human resources capacity and improving the overall efficiency of their governance systems and institutions.

It is in this context that the United Nations DESA has since 1971 organized jointly with INTOSAI capacity building programmes designed to support developing countries and countries with economies in transition in strengthening their governance through auditing.

Dr. Adil Khan, Chief of the Socio-Economic Governance and Management Branch of DPADM/DESA introduced the theme of the seminar from the United Nations perspective. The topic of ICT and e-government is important to the UN as these tools and the audit thereof could greatly assist SAIs in their endeavour to further accountability and transparency for public expenditure and related activities. Furthermore, the use and audit of these tools could also improve the SAIs' respective governments' role in contributing to the achievement of the socio-economic development goals of their respective countries including the United Nations Millennium Development Goals (MDGs).

In recent years the DESA/DPADM has been endeavouring to promote citizen-based auditing as a means of empowering people to achieve social change. ICT is being regarded as one of many tools that can be used to contribute to the information accessibility and empowerment of citizens. DESA has also promoted in various fora and through pilot projects an increased interest and role for SAI in furthering the MDGs through results-based auditing. Annual reports by the United Nations on e-government show that it comes with many promises. The UN World Public Sector Report of 2003, e-government at The Crossroads, details how e-government has the potential to offer new possibilities for meeting public governance goals and for responding to new political challenges. E-government seems ideally suited for revamping the organization and practices of government at all levels.

For SAIs, the increased use of ICT by governments has the potential to increase openness and participation in auditing and as a consequence, enhance the cost-effectiveness and timeliness in auditing. Moreover, through the application of ICT the SAIs are expected to gain the possibility to make audit results more readily available to citizens and thus empower them to ensure better compliance and quality in the use of public resources.

To strengthen the capacity of SAIs in auditing e-government it is important to examine the accrued benefits of e-initiatives at the operational level. The participants of the Seminar will have the opportunity to look at the issues of cost-effectiveness,

quality and timeliness in the delivery of services, goods, human resource capacities and indeed, the sustainability of e-initiatives.

Dr. Khan proposed to the participants to include in their deliberations in the course of the week the possibilities of adopting the United Nations agenda of promoting e–government as a tool towards transparency, participation and greater cost-effectiveness in public spending, especially in socio-economic areas. Any important recommendation arising from the Seminar will be brought to the attention of the relevant intergovernmental body of the United Nations, the ECOSOC (Economic and Social Council).

Ms. Esther Stern, Interregional Adviser, Public Financial Management, DPADM/DESA, made a presentation on auditing e-government as a tool to empower citizens and further socio-economic and human development. (Refer to section IV.1 of this report for the main paper by the United Nations)

II.3 Technical Chair
Emerging Themes from the Audit of E-Services in the United Kingdom - The NAO Experience

Scope of this Paper

This paper describes the background to the development of e-government in the United Kingdom (UK) and the approach that the National Audit Office (NAO) has taken to undertaking value for money (performance audit) work in this area. It summarises the main audit topics the NAO has undertaken to date and provides a more detailed case example to illustrate the audit issues and methodology for a study on the accessibility of e-services to older people. Finally, the paper identifies the main themes and lessons emerging across the range of our reports.

Objectives and Development of E-Government in the United Kingdom

Since the 1990s, the UK government has recognised the growing use and value of ICT in enhancing the efficiency of business operations and services to the citizen. It has defined an e-government agenda that focuses on making the full range of government activities – internal processes, development of policy and services to citizens – available electronically. Increasingly this involves the use of web-based technologies for service delivery.

The underlying premise for this commitment is that e-government can help to deliver efficient, high quality public services that meet the needs of citizens. Equally importantly, e-government is seen to have the potential to increase choice, offer ease of use, better quality and more innovative services and help reduce government costs. In addition, the development of electronic public services plays an important role in making the UK a favourable environment in which e-businesses and e-commerce can develop and prosper.

The government has committed substantial sums of money to achieve electronic service delivery and develop e-government. In 1997, the Prime Minister pledged that by 2002 a quarter of transactions between citizens and government should be capable of being conducted electronically, either over the phone or fax, using computerised payments, or via the internet with people using PCs. And, following the landmark White Paper on ‘Modernising Government’ in March 1999 which set substantially more ambitious targets for raising the proportion of e-services, the Prime Minister finally announced in 2000 that all public services should be made available on-line by 2005.

The 'Modernising Government' White Paper set out a radical programme of reform in the way government conducts its business. The focus was on improving the quality, co-ordination and accessibility of public services for citizens, and a prominent part of this agenda was the better use of information and communication technologies. The programme included the establishment of the Office of the e-Envoy, the key central agency responsible for promoting e-government and providing technical support to departments. Important aspects of the e-Envoy's role are to establish the ITC infrastructure in which e-services can become established and developed and to monitor and report on what has been achieved, including progress towards government targets.

The NAO's Approach to Auditing E-Services

As external auditors of government departments, the NAO has played a key role in the development of e-government, a role which has a dual focus: to support and encourage the movement to e-government; and at the same time to hold departments to account by reporting to Parliament on what works well and what aspects of e-services need further development. Our strategy to discharge both aspects of this role has been to encourage and broadcast successful initiatives, identifying the factors behind success and disseminating good practice, whilst also spelling out the lessons learned. Our unique ability to look across government and draw independent conclusions allows us to identify emerging themes and issues which inform the progressive development of e-services in all sectors.

The NAO has published several value for money (VFM) reports on aspects of e-government, including:

1. Government on the Web 1 (1999)[1] and II (2001)[2]
2. E-revenue (2002)[3]
3. Better public services through e-government (2002)[4]
4. NHS direct in England (2002)[5]
5. Using call centres to deliver public services (2002)[6]

1 http://www.nao.org.uk/publications/nao_reports/990087.htm

2 http://www.nao.org.uk/publications/nao_reports/01-02/0102764.pdf

3 http://www.nao.org.uk/publications/nao_reports/01-02/0102492.pdf

4 http://www.nao.org.uk/publications/nao_reports/01-02/0102704-I.pdf

5 http://www.nao.org.uk/publications/nao_reports/01-02/0102505.pdf

6 http://www.nao.org.uk/publications/nao_reports/02-03/0203134.pdf

6. Transforming the performance of HM Customs and Excise through electronic service delivery (2003)[1]
7. Unlocking the past: the 1901 census online (2003)[2]
8. Progress in making e-services accessible to all – encouraging use by older people (2003)[3]

Four of these reports (at 1, 3 and 8) have taken a generic cross-government view of what departments were doing with respect to e-services. In particular, they focused on the progress against the target that all government services are available electronically, and the impact of this migration on the users of public services, with a particular emphasis on potentially disadvantaged groups. The reports have highlighted lessons for all public sector agencies in the development of e-government, e-services and web-based facilities and have made recommendations on the construction and management of external websites and intranets.

In particular, the first two studies, 'Government on the Web (I and II)', established a baseline for monitoring the future progress of e-government by:

- Taking a census of all central government websites;
- Using case studies of major departments;
- Analysing UK government departments' web traffic;
- Comparing against private sector organisations and overseas governments.

Other reports (2, 4, 5, 6-7) have focused on the effectiveness of ICT-based delivery on specific groups of citizens (the elderly) or services (tax returns, census). These reports have identified wider lessons for departments implementing and managing IT-based service delivery and websites. The example below describes our study on the use of e-services by older people to illustrate the scope, audit issues and mix of methods we have used to undertake this type of work.

Progress in Making E-Services Accessible to All – Encouraging Use by Older People

This report examined progress against the government objective, to ensure that everyone who wants to can access e-services by 2005. It focuses on older people, who to date have been low users of such facilities, looking at:

1 http://www.nao.org.uk/publications/nao_reports/02-03/02031267.pdf

2 http://www.nao.org.uk/publications/nao_reports/02-03/02031259.pdf

3 http://www.nao.org.uk/publications/nao_reports/02-03/0203428.pdf

- *What government has done to extend opportunities for older people to access a range of electronic media?*
- *What departments and a range of other bodies are doing to ensure government e–services are accessible to older people?*

The report collected evidence to address the following audit issues:

- *What are the barriers to take-up of e-services for older people and other low users groups?*
- *What is the impact of the introduction of e-services on older people and other disadvantaged groups?*
- *How successful has the Government been in overcoming the barriers to take-up of e-services generally (not purely those provided by government departments)?*
- *What progress has the Government made in ensuring the accessibility of its websites and what represents good practice in this area?*

To achieve this, the study used a range of audit methods, including:

- *A literature review;*
- *A survey of 100 central government departments and agencies to gather information on how organisations research customer needs, provide e-services for older people, overcome barriers to accessibility and promote take-up of e-services;*
- *Focus groups of older people to discover their attitudes to e-services. This included exposing the groups to 4 typical government websites to stimulate discussion of what qualities they would look for;*
- *Audit of government websites to test accessibility;*
- *Case studies of initiatives designed to make e-services more accessible;*
- *Overseas benchmarking;*
- *Consultation with departments, stakeholders and independent experts.*

The report concluded that Government departments and agencies need to be more proactive to tackle the dangers of a 'digital divide'. While 94 per cent of 16 to 24 year olds have used the internet, only 17 per cent of those over 65 have. While this may be changing slowly, barriers to increased use include the physiological effects of ageing, lack of confidence or familiarity with new technologies, cost, location and a belief by older people that e-services are of no relevance to them.

The report made several specific recommendations on how departments and agencies should encourage older people and other low users to use the internet.

Key Themes to Emerge from the E-Government Studies

We have identified, through our VFM work on e-government, some key issues and lessons learned, grouped around the following broad themes:

- Promoting, target setting and monitoring;
- Providing the services customers want and need;
- Encouraging take-up;
- Managing the risks;
- Taking a wider look at how e-government impacts on how services are provided.

Promoting E-Government, Target-setting and Monitoring

Our reports have recognised the importance of active leadership and coordination from government. Setting targets for departments is important but is not enough. In the UK, the establishment of the Office of e-Envoy was a critical step to provide leadership on the e-government agenda, to promote the vision, champion e-services and provide the technical support and infrastructure. However, our early work identified areas in which the e-Envoy's work needed to be extended and developed. For example, the reports on Government on the Web recommended that there was a need to establish an effective monitoring device for central collection of data on website usage, which would help to provide information on what works – and what doesn't work – for citizens using on-line government services.

Providing the Services Customers Want

We found that whilst the push from government to promote e-government led to a mushrooming of department web sites, these were often not sufficiently customer-oriented in the early stages. The best web sites are designed specifically for users of the department's services and provide a means to access a particular service, such as applying for and getting a driving licence or claiming and receiving benefits. Therefore, in planning implementation of e-services, departments have to consider the key services for on-line delivery. This involves identifying which services people will want to access on-line. In general, those services which are information and transaction-based are those that are best suited to electronic delivery.

Initially, few public services that were provided on-line allowed citizens to carry out transactions with departments electronically – in the early days as few as one in seven government websites allowed users to fill in and submit forms on-line, but this has now increased substantially. Our work has also shown that the individual will only use e-services if they are convinced of the value and benefits they bring. All websites need

to be well-designed, up-to-date, accurate and reliable and provide forms and/or regulations in an easily accessible way so that all potential users are catered for.

Encouraging Take-up

Early experience in the UK showed that making e-services available was not enough in itself, and that there needed to be strategies to encourage take-up by all key user groups. Our reports have highlighted that web provision for public services needs to be actively managed to encourage citizens to access websites rather than continue to seek information from traditional sources, such as visits, letters or phone calls.

A range of strategies have been used to attract different users and there are important differences between user groups to be recognised. Our work has shown, for example, that citizens and businesses have different incentives and respond very differently to the provision of e-services. Financial incentives, however, can be a means to encourage both people and businesses to use on-line services. For example, some of the cost savings from electronic transactions can be passed on to users, or services can be provided free on-line where there is a charge for accessing the service by alternative means.

Combining different services on-line is one way to increase awareness and take-up. It is important that people for whom access to a computer is difficult have alternative means to access the service, and that they are not disadvantaged by being excluded from the benefits of e-government such as greater choice, convenience, speed and accessibility.

Initiatives to resolve accessibility problems will inevitably be needed, especially for socially disadvantaged groups and older people. The NAO's studies on Better Public Services through e-government and Call Centres found that:

- Far fewer people in the lowest income group had internet access compared to those on higher incomes. Only 7 % of those in the lowest income group had internet access compared to 71 % of those on higher incomes.
- 60 per cent of the public were willing to get advice and services by phone, compared to 40 per cent who said they were willing to use the internet.

Managing the Risks

We have found that there is much good practice to be learnt from the private sector. In the UK, the Inland Revenue applied a number of good practices in areas such as identifying and addressing the risks of implementation, using a "build and learn"

approach to development, solving potential problems promptly, and marketing services only when they are demonstrably fit for customers' needs.

Problems that act as disincentives on internet use typically include technical problems with software, public concerns about security in internet transactions, and a failure to communicate any clear benefits from using the electronic service. For these reasons, the take-up from business of the Inland Revenue's facility for submitting self-assessment returns over the internet was initially lower than expected, despite strong interest in the service from the business community.

Departments need to have ways to predict and monitor the demand for e-services. The Public Records Office website, for example, collapsed through too much demand when the 1901 census findings first became available in 2002.

Taking a Wider Look at how E-Government Impacts on the Way Services are Provided

In our reports we have observed that successful e-government requires a fundamental change in the way departments operate. Introducing e-services should involve taking a fresh look at how services are delivered more widely and business processes should be re-engineered accordingly. This needs strong leadership and high quality training to help secure the benefits of new technology.

It is dangerous to assume that introducing e-services will reduce running costs in the round. Transaction costs should be reduced (the Inland Revenue estimates that it saves £3 each time a taxpayer uses its internet service, for example), but there is almost always a need to provide alternative ways for people to receive the service, such as through paper-based systems or telephone call centres. In particular, this helps to ensure that socially disadvantaged groups and older people are adequately provided for.

Rather than save money, e-services are more likely, therefore, to increase customer choice about how to access a service, and to improve its quality, speed and accuracy. The Inland Revenue's on-line tax self-assessment service, for example, provides the taxpayer with assurance that the return is arithmetically correct, and allows for the faster processing of refunds.

Future Direction of the Audit of E-Services

As this paper demonstrates, the NAO's approach has combined general reviews of government progress with a focus on specific services. As e-channels are increasingly integrated with other service delivery methods, we have refined our approach, focusing on challenges to the use and uptake of e-services, specifically accessibility and equity issues.

The NAO forward programme includes a proposed VFM study on 'Delivering services to hard to reach citizens'. Should we proceed, this would involve looking at the extent to which new forms of service delivery (including the internet) are able to satisfy the needs of "hard to reach" groups of citizens compared with the general population. It would include a focus on how increasingly sophisticated ICTs impact on the equity and effectiveness with which potentially disadvantaged groups receive services, in particular lower socio-economic groups and the elderly.

Increasingly, the greater integration of electronic forms of delivery with the core provision of public services means that we are perhaps less likely to examine e-government issues in isolation, but rather as part of a broader analysis of the effectiveness of departments' activities. Already, the majority of NAO reports cover some aspect of electronic service delivery and, as this becomes standard practice, one would expect the number of studies that explicitly address the development of e-government to diminish. Despite this, our early work in this area has provided some very good analysis and expert knowledge of the risks and issues to be managed when placing greater reliance on ICTs to deliver core services to citizens.

III. SUMMARY OF THE OUTCOME OF THE SEMINAR

III.1 Summary of the Results of Group Work

What is E-Government?

(1) The INTOSAI Standing Committee on IT Audit defines e-government as: "the online exchange of government information with, and the delivery of services to, citizens, businesses and other government agencies".

(2) E-government seeks to improve both the quality and cost of government by using ICT as a key enabler. E-government has the power to:

- Inform citizens in a speedy and transparent manner,
- Empower citizens' participation in government,
- Improve economy, effectiveness and efficiency while meeting the needs of society as a whole,
- Improve accountability, and
- Improve quality and timeliness of government decisions.

Progress

(3) Clearly countries are at different points on their journeys along the e-government road and SAIs face quite different styles of implementation and maturity of solutions.

(4) Some countries use a wide definition of e-government, to include all electronic delivery of services not just those using the Internet. Government services in developed and developing countries may be delivered by telephone, fixed line and mobile, and thus help to bridge potential digital divides.

(5) Alternative service delivery includes access points at post offices, self-service kiosks and internet/cyber cafes. Other technologies such as mobile phones have been used to provide citizens with access to information.

(6) Countries have variously adopted a centralised or devolved model of service provision.

(7) The INTOSAI Standing Committee on IT Audit defines four levels of e-maturity:

- **Publication** of information only.
- **Passive interaction.** Transactions can be initiated but cannot be completed electronically.
- **Active interaction.** Where citizen and government are able to complete basic transactions electronically.
- **Seamless e-government** where government and citizens obtain optimal value from their electronic interaction.

(8) At one end of the spectrum, the governments of some developing countries are not fully computerised yet at the other developed countries (e.g. Austria) have a sophisticated, integrated e-government programme well under way. The majority are still rolling out e-government strategies. The rest are already supplying e-services to the extent of publication of information and passive interaction. There are some examples of active interaction in the areas of tax returns, customs, E-payment etc, and some governments have a single portal, but this was not always very sophisticated.

(9) SAIs should consider themselves part of the e-government initiative as they also provide services and information to citizens.

Audit Issues

What has been done

(10) It is up to governments to set a strategic policy on e-government and the SAIs to evaluate its implementation.

(11) The maturity of the SAIs in auditing e-government is generally proportional to the level of e-government rollout in those countries and the skills in the SAIs themselves. Nevertheless a much audit work is already being carried out, for example:

- Financial audits on the procurement of hardware or as part of the regular review of expenditure and revenue systems.
- Information system (IS) audits, including general control audits, security audits, application control audits, network audits, and risk reviews.
- Performance audits (VFM or efficiency audits) on e-government initiatives, looking at the costs and benefits. Even if they themselves were not carrying out performance audit, SAIs felt that e-government should be subjected to performance as well as IT audit.

- System development life cycle (SDLC) audits.

(12) The concept of e-auditing has been widely accepted by SAIs as a computerised government provides SAIs with many opportunities to perform more efficient audits with readily available information. Very many SAIs use Computer Assisted Auditing Techniques (CAATs), for example

- AIMS and TeamMate for managing and documenting audits and
- IDEA, Audit Control Language (ACL) and SSP for data analysis, as well as
- Internally developed tools.

Practical problems

(13) SAIs face a number of challenges when they tackle the audit of e-government. These include:

- Absence of a legal framework;
- Limited availability of information on the auditing of e-government, it is a new area of auditing and unique to the public sector;
- Getting access to government systems and data. A lack of IT skills can inhibit auditors pursuit of their access rights;
- Keeping up with the speed of change in technologies;
- Deciding on the appropriate time for audit intervention and convincing auditees of the benefits.

Issues raised

(14) Despite these challenges, SAIs have already identified many issues with e-government implementations. For example:

- Departments and agencies have set up websites, simply because it is fashionable, or because of over selling by vendors. The costs of implementing and maintaining the site has outweighed any value.
- Performance audits have found that services are developed before objectives are defined by the government.
- Services have not been publicised, resulting in under use.
- Governments have become over reliant on external consultants, often resulting in governments being locked to a single supplier.
- Governments lack the skills to manage and monitor consultants. As a result there are even situations of having consultants monitoring other consultants.
- Outright failure of ICT projects, not just in developing countries.

- No legislation to regulate electronic transactions and signatures, or even basic issues like archiving electronic information.
- Lack of coordination and interoperability between systems leading to duplication of systems and effort, wasting time and money.
- Weak IT controls in security and change management, impacting the reliability of systems.
- Poor business continuity planning.
- No match between actual business processes and those in the IT system employed. Efficiency savings are lost as departments work "around the system".

Lessons learnt

(15) From their practical experiences of auditing e-government, SAIs have learnt some lessons:

- The introduction of e-government can enable countries to achieve benefits in terms of economy, effectiveness, efficiency, transparency, etc.
- Although information site benefits may be not be amenable to measurement, they can usually be quantified by direct and indirect cost savings (reduced postage and printing and saving trees).
- Transactional services can produce direct cost savings but often the initial cost will far exceed the benefit (e.g. filing electronic tax returns will save $4M (2M X $2) but requires a $40M capital investment). Sometimes this can be off set by indirect benefits.
- SAIs from developed countries face access restrictions on account of privacy and other laws. SAIs in developing countries often enjoy wider access, but face real world technical problems.
- SAIs may perhaps reduce their audits of developing e-government systems for practical considerations like the availability of IT expertise. However if e-government initiatives succeed, then SAIs face the possibility that paper trails for important transactions may disappear IT Audit becomes inevitable. SAIs need to start planning and training early.
- The move to electronic documents has created some problems in terms of storage and archival. Paper documents can be accessible after numerous years and will still be readable. Electronic documents may be unreadable due to the lifespan of the medium (diskettes, CD, DVD, digital tape) and the read/write interface. Reading software may no longer exist (commercially) and subsequent versions of the same software may not be backwards compatible.
- SAIs need to develop the ability to communicate with their auditees, providing a high level explanation of observations and recommendations (preferably in plain

language and with adequate examples) but also providing technical explanations so that technical support will also have sufficient information to act on.

- In the most advanced countries, the authorities in charge of establishing the normative basis for the development of e-government have failed to apply it in all sectors of government and even in their own development.
- The risk of failure of e-government is especially high in regions far away from urban centres and without basic services, and for those social strata in which these technologies have no or very little impact as a result of economic, social and cultural factors.
- Isolated initiatives taken without coordination with national plans, or in the absence of such plans, can lead to failure.

Audit Organisation

Mandates

(16) All countries agreed that SAIs should play a proactive role in promoting e-government as it can lead to more transparency and better services to citizens. However SAIs have some challenges in terms of their mandates:

- Not all SAIs are fully independent from government. Their budgets may be approved and even managed by government. Staff may be recruited and remunerated by government.
- SAIs in developing countries do not always have a mandate to audit donor funds. Many IT initiatives in these countries are financed by means of donor funding.
- Although SAIs' mandates are clear on the access to information in documentary form, it is not always that clear on access to electronic information. This might not be a real problem, but rather a ploy to stall the auditor, especially as electronic data is often more complete, revealing and auditable than paper-based evidence.
- SAIs are also experiencing difficulty in getting access to data held by outsourcing companies.

(17) SAIs recognise the need to maintain a good balance in their relationship with government. A good relationship where auditees understand and agree on the benefits of an audit increases the success of audits. However at times it is required to "carry a big stick" and demand whatever is required to perform audits in line with the SAI's mandate.

(18) In developing countries, mandate, laws and regulations are more generic and comprehensive, causing little limitation to auditing e-government by SAIs, while developed countries are experiencing some difficulties when specific laws do not permit cross-utilization of electronic information (e.g. tax laws and social programmes).

Methodologies, standards, tools

(19) SAIs use audit methodologies such as regularity audits, pre-audits and organizational audits, performance and management audits, using existing normative frameworks as well as best practices.

(20) Taking account of standards such as COBIT and ISO 9000 as well as the citizens' perspective, the focus is on the principles of usability, accessibility, content, traffic audit and security.

(21) SAIs in the region use standard software such as ACL, IDEA for Windows and TAW as well as developing their own local applications.

Building Skills

(22) SAIs agreed that the emphasis should be on government rather than e.

(23) All SAIs can start to audit e-government and not just the technically advanced SAIs. SAIs in developing countries might audit:

- Their country's e-government plan.
- System and hardware development and acquisition (project management and delivering in terms of objectives set). Need to be involved throughout, though keeping independence.

(24) However SAIs do need auditors with basic IT skills to partake in e-auditing, understand the environment they are working in and to interact with IT staff in government. Many SAIs have strategies for developing such staff. This includes:

- Providing IT awareness for all staff.
- Providing basic skills for all auditors in PC and CAATs usage, also the risks in IT environments.
- Growing good auditors into IT auditors by providing them with training and appropriate experience, leading to CISA or equivalent qualification.

(25) Retention becomes a problem as IT Auditors become a valuable resource and are often recruited by outside organizations.

(26) Contracting outside experts should be necessary only in exceptional cases, when an audit requires highly specific skills. It is best to avoid over dependence on external experts. To liaise with such experts, auditors will need sufficient IT audit skills themselves. Such experts should be bound by a proper confidentiality clause. A better source of such experts would be from other SAIs who have experience and expertise in auditing e-government.

(27) Outsourcing IT audits whole or in part can be a good strategy. But there are risks in this area and it can be difficult to ensure work is carried out in accordance with the objectives and standards of the SAI.

Recommendations

for UN-DESA

- Play a more proactive role in getting both SAIs and governments together to discuss the importance of e-government as an agent of social change (by bringing in a more responsive and transparent governance) and the importance of audit in evaluation of e-government.
- Provide assistance to SAIs in developing countries to be on a similar level of technology as their auditees. This includes not only hardware and software, but also training in basic computer skills.

for INTOSAI

- Keep up the good work done by INTOSAI and its working groups in this area.
- Provide benchmarking information (i.e. what does a good model for e-services look like) plus audit programmes and procedures.
- Encourage information sharing between SAIs for audit of e-government, for example a message board on the INTOSAI website for exchange of ideas.
- Determine basic IT audit skills in relationship to e-government audits.
- Revise IT training material to include the audit of e-government.
- Encourage and enable SAIs to provide e-services to their citizens by placing reports on the web.
- Develop and agree on storage and retrieval criteria for electronic media (including audit files).

for governments

- Give priority to areas where the highest return on investment can be made, for example by computerising internal processes before providing e-services, by providing e-services to businesses before citizens.
- Ensure that e-government initiatives are co-ordinated with clear-cut outcomes and performance measures. Have a vision and strategy that takes into account defined priorities.
- Ensure that citizens are aware of technology by training them in the use and advantages of it; providing them with affordable access and knowledge of services available.
- Ensure IT skills are available in government to at least effectively manage and monitor outsourcing relationships.
- Be very clear on the ownership of systems, processes and data, protecting the interest of the government and provide for penalties etc.
- Manage relationships with suppliers through detailed service level agreements and clear monitoring mechanisms.
- Ratify the recommendations of INTOSAI concerning the autonomy and independence of SAIs.
- Have clear policies for e-government with SMART objectives (that is, Specific, Meaningful, Agreed, Realistic and Timeframed).
- Employ SAIs to carry out risk evaluations.

III.2 Evaluation by Participants

It was one of the fundamental aims of the seminar to provide a forum for discussing best-practice approaches, deficits and problems in the areas of auditing e-government and to enable a broad-based exchange of experience between SAIs of developed and less developed countries, as well as between SAIs that belong to different audit systems (court system and audit office system).

At the end of the seminar, the participants were asked to complete a questionnaire that was to provide information as to how far the above objectives had been met.

All participants completed and returned the questionnaire (response rate: 100 %). Analysis of the responses yielded the following:

(1) Altogether, 86 % of all respondents stated that they were highly satisfied with the seminar, 14 % were satisfied.

(2) For 97 % of all respondents, the theme addressed was highly relevant to their SAI, 3 % stated that the theme was of lesser relevance.

(3) 69 % of the respondents stated that the know-how they acquired was highly useful for their work, 31 % said it was useful.

(4) 56 % of the respondents stated that, on the technical level, they could derive a very high benefit from the seminar, 38 % said the benefit was high and 6 % stated that they derived little benefit from the subject matter.

(5) 81 % of the respondents stated that the structure of the seminar consisting of technical presentations, discussions, country reports by selected participants, group work and an excursion was excellent, 19 % rated the structure as good.

(6) 94 % of the respondents rated the group work as highly useful, 6 % said it was useful.

(7) 97 % of the respondents rated the practical organisation of the seminar as very good, 3 % said it was good.

The participants were also asked to make suggestions for future seminars. The following proposals were made:

(1) By all means continue to organise this type of event as it was the only technical forum for SAI heads;

(2) Organise more (frequently) seminars that would better account for the different stages of development;

(3) Allow more time for the presentation of country reports;

(4) Allow more time for debate after presentations.

(5) The following topics were suggested for future seminars:
- The relation of SAIs and the media.

The organisers of the seminar concluded that the objectives that had been set for the seminar had been met to a very high degree and that there was a high rate of acceptance among the seminar participants. The wish expressed by the participants to allow for more time for debate and an exchange of experience clearly reflects the high level of commitment on the part of the participants, their readiness to learn from one another, and to build a network of mutual information sharing and support.

IV. MAIN PAPERS

1. United Nations
Auditing E-Government as a Tool to Empower Citizens and Further Socio-Economic and Human Development

1. Introduction

The UN World Public Sector Report of 2003, E-Government at the Crossroads, and a 2004 follow-up report state that e-government has the potential to offer new possibilities for meeting public governance goals and for responding to new political challenges. E-government seems ideally suited for revamping the organization and practices of government at all levels. The World Summit on Information Systems (WSIS) 2003 Action Plan reflects this conviction: "To maximize the social, economic and environmental benefits of the Information Society, governments need to create a trustworthy, transparent and non-discriminatory legal, regulatory and policy environment. Actions include: governments should foster a supportive, transparent, pro-competitive and predictable policy, legal and regulatory framework, which provides the appropriate incentives to investment and community development in the Information Society; and, governments need to formulate national strategies, which include e-government strategies, to make public administration more transparent, efficient and democratic".

The UN global measurement of e-government demonstrates that as far as transparency, accountability and participation is concerned, the promise of e-government has not delivered as yet. The reason for this is not so much on the technical side, but rather on the side of the political, social and cultural context into which ICT is being introduced in government operations. By itself, ICT digitizes what exists, even the most corrupt, non-transparent and unaccountable reality. It also opens opportunities for which many societies and governments are not ready, especially from the transparency, accountability, and participation perspectives. Across the world only 11 percent of countries allow and facilitate through e-government applications feedback on policies and encourage on-line debate. In most cases, effectiveness of such measures is still unknown. However, this cannot and should not mean that discarding ICT as a vehicle for deepening participation and democracy is advisable.

On the positive side, the conclusion from the UN research is that it is possible to bring promise and reality together and that it is possible to bridge the tension between new

technology (ICT) and society to bring about e-participation and ultimately e-democracy.

For SAIs, the increased use of ICT by governments has the potential to increase openness and participation in auditing and as a consequence, enhance the cost-effectiveness and timeliness in auditing. Many SAIs have carried out audits of e-government to assess the accrued benefits at the operational level, such as cost-effectiveness, quality, integrity, reliability and timeliness in the delivery of services and goods. Many have also made inroads in the auditing of e-procurement and public bidding and in e-taxation.

Much however remains to be done to promote the audit of the real or potential benefits of e-government in terms of transparency and accountability to the public, citizen empowerment and the furthering of socio-economic and human development.

In recent years the United Nations DESA' Division for Public Adminstration and Development Management (UN-DESA/DPADM) has been endeavouring to promote citizen-based auditing as a means of empowering people to achieve social change. ICT is being regarded as one of many tools that can be used to contribute to the information accessibility and empowerment of citizens.

This paper proposes that SAIs not only focus on the highly complex technical ICT audit issues and trends concerned with e-government, but also on the advantages of e-government in creating "public good" and in furthering human development and other socio-economic goals encapsulated in the United Nations Millennium Development Goals.

In the context of auditing e-government as a tool to empower citizens and further socio-economic and human development, following are some suggested areas for audit:

- The audit of current approaches and techniques in the use of ICT in various public processes as a tool to enhance participation, transparency and citizen empowerment (e-participation);

- The audit of current approaches and techniques in the use of ICT in various public processes as a tool to increase the cost-effectiveness, quality, integrity, reliability and timeliness in the delivery of services and goods, and human resource capacities;

- The audit of e-management of development assistance and socio-economic programmes;

- The audit of e-government as it relates to humanitarian affairs e.g. relief efforts for the Tsunami disaster;

- The audit of e-government as a tool towards greater cost-effectiveness in public spending and related disclosure and reporting;

- The audit of the national e-government strategy;

- The audit of e-government readiness;

- The audit of the feasibility, cost-effectiveness and sustainability of e-initiatives in developing countries;

- The audit of the e-government system as a tool for auditors and citizens to verify if funds earmarked for a specific purpose were used for the intended purpose;

- The audit of the e-government system as a tool to minimize the risks of corruption; and

- The audit of misuse or abuse of the e-government e.g. showing erroneous or inflated operational and financial results or using it as a propaganda tool.

2. The Potential Contribution of ICT to the Mission of SAIs

Public expectations of government are changing, with demand of zero tolerance for corruption and a desire for enhanced and demonstrated results, and improved responsiveness. The current trends and challenges to which governments have to respond and that have no boundaries include: long-term fiscal imbalance, national security, global interdependence, changing economy, demographics, science and technology, quality of life and environment, and last but not least governance.

Consequently, the challenges facing SAIs are also constantly evolving. We have taken note of the excellent work the INTOSAI membership has been doing since its inception to respond to emerging trends, such as creating committees and working groups to deal with auditing of environmental issues, public debt, and indeed IT. The INTOSAI website on the Committee on IT Audit lists audit reports related to IT and includes excellent resource materials such as the IT Journal and capacity building tools and materials.

The emerging issues for public administrations were presented and deliberated on 4 to 8 April 2005 at the Fourth Meeting of the United Nations Committee of Experts in

Public Administration (CEPA), the proceedings and documents of which can be accessed on the DPADM interactive website www.unpan.org. One of the main themes discussed pertains to Integrity, Transparency and Accountability (ITA), a theme which has been at the core of the SAIs' mission for decades. The overarching framework for the discussions was the achievement of the 2000 MDGs by 2015 endorsed by all UN Member states, with a focus on poverty reduction and social orientation to development (7 out of 8 goals), and on partnership for development between the private and public sectors and between Government and the citizen.

The following points deliberated by CEPA are in many ways linked to the theme of the Seminar:

- Citizen demands for better delivery of services and more equity has increased, as has the demand for strong, open and participatory monitoring, evaluation, audit and information sharing;
- Many of the existing standards and norms pertaining to ITA are either outdated or not institutionalized and the flurry of recent national, regional international commitments, conventions and treaties related to ethics, corruption and money laundering and integrity demonstrate the urgency of addressing ITA issues – in many countries the adopted conventions remain to be ratified, implemented, monitored and enforced;
- ICT has created opportunities for information sharing and wider stakeholder response and participation/input in public policy and decision-making.

Against this backdrop it becomes clear that the mission of an independent and responsive SAI has to evolve towards the following roles:

- Assist parliament to carry out its legislative oversight;
- Assist in improving the performance and accountability of government; and
- Contribute to the transparency and integrity of governance taking into accounts the needs and views of the taxpayers.

Adopting such roles necessarily implies that SAIs cannot hide behind the past, and must use their audits of past performance and activities to draw lessons for today and tomorrow. It also implies that in addition to preventing and detecting fraud, waste, and abuse, and assisting the government to become more efficient and effective, SAIs examine the role of government, albeit within the boundaries of their mandate. Some SAIs have already enshrined the latter focus in their legislations, e.g. the newly created Office of the Auditor General of Mali, where one of their main missions is to evaluate government policy.

Moreover, a modern outlook on SAIs' roles would also imply that they lead by example and promote best practices by observing protocols, employ a constructive engagement approach with audited entities, and partner with fellow oversight and accountability organizations as well as with selected "good governance" institutions. Most importantly, to achieve real impact for the benefit of the citizens would imply some degree of engagement of the citizens and their perspectives in the audit processes. However, in the same way that most public administration systems remain introverted and lack inclusiveness in decision-making processes, many audit offices and their operations have remained a mystery and mystique and are shielded from the public eye and scrutiny.

ICT holds the potential to assist SAIs in adopting a more pro-active mission. Indeed, some SAIs have already successfully used ICT in order to become more efficient, more engaging, and more accountable and transparent, or to assist the audited entities to become so.

From an audit perspective, ICT could be discussed or examined along the following three lines:

1. The efficiency of ICT as a support to audit processes;

2. The effectiveness and user-friendliness of ICT to disclose the SAI's mandate, mission, operations, performance, cost and impact, and to seek increased engagement of and interaction with the legislature and the citizens; and

3. The audit of ICT in various public processes through e-government as a tool to

    - Increase the cost-effectiveness, quality, integrity, reliability and timeliness in the delivery of services and goods;
    - Encourage citizen participation in decision-making and scrutiny of public spending;
    - Improve the way public servants use public resources to support the society, and account for them;
    - Strengthen human resource capacities, and increase the transparency and accountability of socio-economic development programmes.

UNDESA proposes to INTOSAI to concentrate on the audit of ICT and e-government not only with a view to promote efficiency of government operations, but equally as a tool to further transparency, participation and accountability of socio-economic development and spending, themes that are at the core of the UN goals.

Besides the highly complex technical ICT audit issues concerned with e-government, UNDESA also proposes that INTOSAI focus on the advantages of e-government in creating ”public good” and in furthering human development and other socio-economic goals encapsulated in the UN MDGs.

3. ICT, Citizen Empowerment and Socio-economic and Human Development

Citizen empowerment and participation are not new themes to the global discussion on public administration and governance, but they have recently acquired new urgency. At the same time, the introduction of ICT to operation of governments (e–government) has promised decisive breakthroughs in this area.

The urgency stems from several reasons.

There is a growing understanding of the pivotal role that governments play in the system of social institutions responsible for human development. For instance, the UN Millennium Declaration (2000) focusing on human development, and especially on poverty eradication, puts solid public administration structures and good governance as the necessary condition to achieve each of the MDGs. The Heads of State and Government pledged in the Declaration “To work collectively for more inclusive political processes, allowing genuine participation by all citizens in all (...) countries”.

On the economic side, today, the three critical roles of a state are to create an enabling environment for participating effectively in a global economy so that all segments of the population are able to benefit from international trade and investment; to focus on pro-poor policies that combat poverty and enhance the capacities of the poor to participate in productive activities; and to strengthen the capacity of public institutions to promote socially equitable economic growth. For a state to achieve the goals of people-centred growth and development, participation of people in governance and transparency that enables good governance seem crucial.

And finally, as we have entered the Age of Knowledge, with all the hopes and concerns that it brings, only genuine participation seems to constitute an adequate tool for demanding and executing the needed transformations of social institutions, so that people and information - two main assets of the Knowledge Society - can develop; and, that the great resource of knowledge is used to support high level of quality and safety of life.

Therefore, the pressure on governments to reform social institutions, to govern in a more participatory way comes from many different directions. Therefore the option of using ICT in various public processes, including those relevant to participation in

decision-making and scrutiny of socio-economic development and spending, holds promises as a means towards reform.

4. Challenges Faced by Governments

Citizen discussions and advocacy affecting policy development and budget formulation are taking place in a number of countries. With the easy access of information and knowledge in the information age, the notion of e-citizen is taking root. Therefore governments have to decide how they will add value through e-government to the daily lives of the citizens.

UN and other studies of e-government suggest that e-government applications have proven instrumental in raising the efficiency and effectiveness of public administration. However, they recommend that much more has to be done to fully realize their promise and potential to deepen deliberative democracy. This particular application of e-government, namely e-governance, remains of great interest to the UN as it is a precondition for good governance and therefore constitutes one of the prerequisites for building a just world conducive to social development, as envisioned in the 2000 United Nations Millennium Declaration.

Governments play a critical role in the development of the online world. WSIS recommended that they develop, incorporate and adapt a national e-government strategy and related technologies if participatory democracy is to be expanded. The challenge for governments is how to meet the needs of this new empowered constituent, and how to move from focusing on service delivery to providing people-centred tools and applications.

SAIs are well positioned to play a role in this respect. They could for example audit whether the following necessary activities have been undertaken by their respective governments in preparation of a national e-government strategy, as well as assess the quality of each of the steps:

- Take stock of the country's e-government programme and projects;
- Undertake an e-government readiness survey;
- Identify e-values that e-government would bring to the people of the country;
- Identify, describe and analyse the operational phases that must be undertaken to make it possible to provide public services based on the wide and effective use of information technologies in government;
- Propose an approach of e-government that could be adopted by the government in such a may as to cover the whole of the citizen's and business' life cycles;

- Propose an outline for the e-government strategy that is in tune with the country's current ICT policy and implementation strategies as well as with any initiatives and strategies for public sector reform in the country;
- Propose an action plan for the formulation of the e-government strategy;
- Discuss the proposed e-government strategy with all stakeholders; and
- Ensure the adoption of the e-government strategy by the government.

5. The United Nations "World Public Sector Report 2003: E-Government at the Crossroads and the 2004 Follow-up Survey

In the World Public Sector Report 2003: E-Government at the Crossroads, "public value refers to the value created by governments through provision of services, the passing of laws and regulations and other actions". "Only the public can determine what is truly of value to society. In a representative democracy, value is determined by people's preferences, expressed through a variety of means and refracted through the decisions of elected politician. (...) Citizen's engagement in public affairs is desirable precisely because it challenges and changes underlying preferences".

From the government's perspective, e-government poses challenges concerning access and integration, information security, privacy and financial resources. From the citizen's perspective, the barriers to e-government continue to be the perception that it is difficult for users to find information that they require in a timely and efficient manner. In countries with low Internet connectivity citizens continue to prefer a human contact when dealing with the government.

E-government readiness profile of UN Member States. Governments have made rapid progress worldwide in embracing ICT technologies for e-government in the past 10 to 15 years. In 2001, the UN E-Government Survey listed 143 Member States as using the Internet in some capacity; by 2004, 93 per cent or 178 out of 191 Member States had a website presence.

Broad trends of e-government development around the world in 2004 reaffirm that political ideology, economic and social systems; level of development; resource availability, human and technological infrastructure; institutional framework and cultural patterns all have a bearing on how, and how well, an e-government initiative is utilized.

Around 85 to 92 per cent of all countries on-line now provide some of its databases and or laws, policies and other documents. However, only about one third of all countries provided public services on-line. Notwithstanding improvement since 2001, a fuller spectrum of transactional services on-line, however, is still scarce and has

remained limited to mostly the developed countries. Whereas more than three fourths of countries (170 countries) allow for down loading of forms for services such as drivers license, etc only 18 percent (32 countries) offer the citizen the facility of making payment by a credit card.

Disparity in access to ICT: The Access-for-Opportunity Framework. Exploring the "access divide" the 2004 report illustrates that the majority of the developing country population of more than 5 billion faces a grave challenge from the technological revolution. Whereas some of the developing countries which have in place the right mix of reforms, institutions and programs will no doubt benefit from ICT, most are likely to be mired in a cycle of low income, poverty and a growing disparity in access to modern technology.

Economic and social empowerment today rests on the ability to access, gather, analyze and utilize information and knowledge to widen individual choices for political, economic, social, cultural and behavioral decisions. ICT is the conduit which transmits information and knowledge. By integrating technology into development planning, more effective and speedy solutions can be found for economic growth and sustainable human development.

The e-government readiness index. The UN Global E-Government Survey 2004 presents a comparative ranking of the countries of the world according to two primary indicators: i) the state of e-government readiness; and ii) the extent of e-participation. Constructing a model for the measurement of digitized services, the Survey assesses the 191 member states of the UN according to a quantitative composite index of e-government readiness based on website assessment, telecommunication infrastructure and human resource endowment.

According to the e-government readiness rankings the United States (0.913) is the world leader followed by Denmark (0.904), the United Kingdom (0.885) and Sweden (0.874). The United States, as also North America, leads the world ranking in delivering information and services through the internet combined with the infrastructure needed to dispense them. It is followed by Denmark, United Kingdom, Sweden and the Republic of Korea. Estonia, Malta and Chile are also among the top 25 e-ready countries. As a region, Europe follows North America while South-Central Asia and Africa rank last.

Notwithstanding much progress in the last one year, there remained wide disparities between, and among, regions and countries in their e-government programme offerings. Governments in the high income countries are far advanced in their provision of public information, on-line services, communications and outreach to

citizens, and overall electronic access to government. The bottom 40 countries show little relative progress.

The e-participation index. The e-participation index assesses the quality, relevance, usefulness and the willingness of government websites for providing online information and participatory tools and services to the people.

In terms of participative decision making, though many countries encourage e-participation a few remained limited in their provision of relevant and qualitative mechanisms tools for user feedback. Forty three member states out of 178, which maintained a government website, had a clear e-government policy statement encouraging people to participate in public policy making; however, only 20 – or 11 per cent – had an actual provision for user feedback on citizen participation. When ranked by e-participation, the United Kingdom was the top followed by the United States, Canada, Singapore and the Netherlands.

- For further details on e-services see the UN Global E-Government Surveys at http://www.unpan.org/egovernment4.asp
- http://www.unpan.org/egovernment3.asp

6. Conclusion

There is no doubt that participation, equal access and transparency are the cornerstones of an effective e-government strategy. ICT has the potential to make e-participation and e-democracy a reality. The UN 2003 survey of 191 Member States and a 2004 follow-up show the resistance by governments to engage citizens online in political debate and decision making. However, as technology becomes more efficient and accessible, governments may well be increasingly forced to engage the e-citizen in all aspects of the governance process including scrutiny of public expenditures as they relate to socio-economic and human development.

UNDESA proposes to INTOSAI to concentrate on the audit of ICT and e-government not only with a view to promote efficiency of government operations, but equally as a tool to further transparency, participation and accountability of socio-economic development and spending, themes that are at the core of the UN goals.

Besides the highly complex technical ITC audit issues concerned with e-government, UNDESA also proposes that INTOSAI focus on the advantages of e-government in creating "public good" and in furthering human development and other socio-economic goals encapsulated in the UN MDGs.

In the context of auditing e-government as a tool to empower citizens and further socio-economic and human development, following are some suggested areas for audit:

- The audit of current approaches and techniques in the use of ICT in various public processes as a tool to enhance participation, transparency and citizen empowerment (e-participation);
- The audit of current approaches and techniques in the use of ICT in various public processes as a tool to increase the cost-effectiveness, quality, integrity, reliability and timeliness in the delivery of services and goods, and human resource capacities;
- The audit of e-management of development assistance and socio-economic programmes;
- The audit of e-government as it relates to humanitarian affairs e.g. relief efforts for the tsunami disaster;
- The audit of e-government as a tool towards greater cost-effectiveness in public spending and related disclosure and reporting;
- The audit of the national e-government strategy;
- The audit of e-government readiness;
- The audit of the feasibility, cost-effectiveness and sustainability of e-initiatives in developing countries;
- The audit of the e-government system as a tool for auditors and citizens to verify if funds earmarked for a specific purpose were used for the intended purpose;
- The audit of the e-government system as a tool to minimize the risks of corruption; and
- The audit of misuse or abuse of the e-government e.g. showing erroneous or inflated operational and financial results or using it as a propaganda tool.

SAIs could play a pivotal role, through the audit of e-government, in the global community's transition to a Knowledge Society with its potential for optimizing service delivery, increasing transparency, encouraging the participation of constituencies, strengthening people-centered governance and transform socio-economic and human development institutions.

2. World Bank
E-Government: Opportunities and Challenges

Introduction

Mr. Carlos Alberto Primo Braga currently the Senior Adviser of the International Trade Department of the World Bank, but previously (until September 2003) the Senior Manager of the Informatics Program, which supported several e-government initiatives administered by the Information Solutions Group of the World Bank illustrated, that the World Bank is an institution that focuses its activities on the fight against poverty.

What has been learned over the years is that programs intended to reduce poverty are not successful unless they are implemented under proper governance arrangements. One of the best investments that societies can make for long-term development is to invest in effective government institutions and transparent processes for governance. e-government can play an important role in this context.

ICT and Development

It is broadly recognized that the world economy is becoming more knowledge-intensive. The proposition that knowledge is at the very core of the emerging "new global economy," however, does not help much our understanding of the phenomenon. After all, throughout history, knowledge has been a critical variable in the structure of power of nations, and a major determinant of economic success.

What is new is the growing influence of ICT in all aspects of economic and social life. This new technological paradigm affects our capacity to create and disseminate information and – more substantively – to foster the transformation of information into knowledge. It is also influencing social structures around the globe – as economies become increasingly services-oriented, companies shift from hierarchical structures to networked modes of production, and the "knowledge worker" emerges as a critical actor in the economies of many countries.

These developments can foster economic and social frictions, as illustrated by the cycles of wealth generation and destruction in financial markets, the "dot com" phenomenon, the impact of new entrants in the media business, and the emergence of anti-globalization networks. They may also become forces of exclusion as those not

properly equipped to take part in these transformations are left behind. This, in turn, is often identified as the problem of the "digital divide."

Polar views dominate the debate about the welfare implications of the information revolution for those who live in the developing world. Some stress ICT as mechanisms for developing countries to "leapfrog" stages of development while others see the emerging global information infrastructure as contributing to even more economic divergence.

It is broadly recognized that the countries which are better positioned to thrive in the new economy are those that can rely on (i) widespread access to communication networks for its companies and citizens; (ii) the existence of educated labor-force and consumers; and (iii) the strength of institutions that promote knowledge creation and dissemination.

By developing a modern information infrastructure, countries can reduce isolation and exclusion, improve environmental monitoring, and enhance transparency in the public sector. It is well recognized, however, that ICT do not constitute a panacea to developmental problems.

Technological developments are rapidly eroding economic and technical barriers to entry into communication networks. Developing countries can, for example, leapfrog stages of development by investing in fully digitized networks rather than continuing to expand their outdated analog-based infrastructure. Wireless technology can also provide affordable connectivity to rural areas in a fraction of the time that was previously required to expand conventional telephone networks. The wireless revolution is rapidly closing the gap between developed and developing countries with respect to access to telephony. While developing economies were home to 17 per cent of the number of phones in the world by 1980, their share is currently 56 per cent (2005 ITU estimates). Needless to say, the gap with respect to access to modern networks (e.g. the Internet) remains significant, although countries like China, India and Russia already appear among the top 10 countries in terms of number of Internet users.

ICT and Good Governance

A modern information infrastructure opens new opportunities for better governance via e-government activities. It should be emphasized, however, that e-government activities often go beyond the goals of increased efficiency and lower costs in the delivery of services. E-government projects can play a critical role in public-sector modernization programs.

Some examples on how ICT can contribute to better delivery of governmental services and better governance:

- First, ICT can contribute to greater efficiency of the public administration by the automation/digitization of administrative functions. This enables governments to deliver most products and services directly, as well as speeding up and simplifying administrative procedures. Consider the example of the Citizen Assistance Service Centers (SAC) in the state of Bahia, Brazil:

  – Bahia's public services traditionally have been delivered by disparate government agencies, at different locations, and with very different service standards. Sometimes, to receive a single service a citizen would have to visit multiple agencies. The state government of Bahia created the SAC that bring together federal, state, and municipal agencies in a single location to offer the services that citizens most frequently need and use. The centers have been placed in locations convenient to the public, such as shopping malls and major public transportation hubs, and benefit from online access to computerized databases. This initiative offers citizens not only significant time savings in finding information and conducting transactions, but also allows tremendous cost savings for the government.

  – Similarly, consider the innovations being made by the Government of Andhra Pradesh in India. Land registration offices throughout Andhra Pradesh now operate computerized counters to help citizens complete registration requirements within an hour instead of several days, as was necessary under the previous system. The lack of transparency in property valuation under the old system resulted in a flourishing business of brokers and middlemen, leading to corruption. In another application, urban information centers provide citizens of Hyderabad, the capital city, with access to computerized, one-stop services, including payment of utility bills; issuance of certificates, permits, and licenses; and facilitation of common transactions such as address changes and transfers of vehicle ownership.

- Second, ICT can create greater transparency and accountability in the functioning of public organizations, and can allow the public sector to extend its role as a client-oriented service provider. This is at the very core of the development opportunities associated with e-government activities.

  – In 1995, the customs authority in Philippines decided to implement a new IT-based system for payment, clearance processing, and shipment release from customs control. The Philippines Customs Bureau has developed an

online system to process clearance of imports, payment of duty, and delivery of release orders for shipments to leave the docks. The new online system has lessened the cost of trade for businesses, reduced opportunities for fraud, and helped the Bureau to maximize revenue collection. The Philippines has adopted a standard software package – Automated Systems for Customs Data (Asycuda) – developed by UNCTAD and now used by over 70 developing countries to manage tariff collection and reduce frontier corruption. Today, no cash is handled by any customs officer and the system also has become nearly paperless. An encrypted file verifying the payment received at banks is sent to customs via a gateway. Customs computers match this information with the amount of duties and taxes payable. The need for a paper order of payment and a customs invoice has been eliminated.

- Third, e-government can also facilitate the involvement of citizens in governmental processes and decision-making, by improving access to, and involvement in, areas such as health care, education, and training.

  – The government of Colombia made a serious commitment to e-government in 2000-01, mandating that all federal government agencies develop an Internet presence, and creating a unit in the Office of the President to assist and monitor their progress. As a result of this initiative, Colombia's citizens now have access to a substantial volume of public information related to budgets, government plans, purchasing, etc. All government regulations since 1900 are available online. In addition, businesses (and citizens) can access government procurement information online.

Through e-government, emerging economies can also create attractive environment for foreign investment by increasing access of international markets to national businesses and vice versa. E-procurement is another important trend among governments worldwide, which can be turned into a strategic driver of public policy and can be a major contributor to anti-corruption campaigns. By allowing tendering, electronic document management, and electronic authentication and logging of all transactions, E-procurement can substantially reduce the opportunities for corrupt practices, and increase the likelihood of their detection and prosecution. From Chile to China, governments are increasingly relying on E-procurement for transactions at all administrative levels.

Stages of E-Government

Implementing any improvement on governance system requires strong leadership and commitment from senior actors. Some countries may choose to have a centralized, well-defined national strategy and others may choose to adopt a bottom-up approach. There are risks and merits of each approach, but strong and forward-looking leadership remains at the core of success.

Second, as different services are being introduced, it is important to have an integration strategy from early on, that is independent of organizational structure. Some countries pursue this via the creation of a one-stop shop or an integrated portal. This approach allows citizens to access services without having to know which department handles the service.

- The Canadian government (www.canada.gc.ca) stands out as a good example of integration from a user perspective. Information and services are not provided along administrative structures, but are instead offered according to user needs. Some important services, for example the electronic tax return, are already offered in a transaction-based form. This one-stop shop vision was achieved by building an infrastructure comprising both shared departmental and government-wide components.

- In contrast, in the case of Argentina the government adopted a bottom up approach to exploit different solutions. Several independent e-government projects were initiated at the level of central administration, and at the level of ministries, provinces, and municipalities. While this approach has encouraged entrepreneurship, it also created a fragmented system, overlapping services, and lack of clarity from the perspective of users.

In short, although a bottom-up approach can be instrumental in giving visibility to innovative ways in the use of the Web for service delivery and in gathering support for e-government, it is important to keep integration in mind in order to develop an effective user-driven e-government strategy.

Moreover, a comprehensive e-government strategy is much more complex than simply moving more and more services online. As governments move from a simple Web presence (publishing useful information on the Web) to more sophisticated knowledge-management platforms for service delivery (integrating distinct financial and management databases); to an interactive presence (allowing bi-directional communications between citizens, firms, and different levels of government); and to online transactions (allowing online payment, tax collection, etc.) the challenges go well beyond the existence of a competent IT architecture for e-government. Leadership

at the top, support for change management practices, availability of IT skills in the private sector, efficient and affordable connectivity solutions, and an appropriate regulatory framework (addressing security, privacy, intellectual property rights, etc.) are some of the other critical conditions for success.

Needless to say, low education and literacy levels, and a lack of awareness about the technology represent additional obstacles to the use of ICT even when the physical and institutional infrastructure is available. Therefore, to make effective use of knowledge across economy and society, an education that prepares the workforce to operate in a networked environment becomes increasingly important.

In addition to online delivery of services and dissemination of information, governments can increasingly use the Internet to engage with civil society in ways that contribute to further democratization of the political process. Many governments are now exploring services such as online voting, public opinion polling, and interactive communication platforms with representatives. Accordingly, the e–government agenda is increasingly going beyond e-administration objectives, to address e-democracy goals.

The Role of the World Bank

Recognizing that e-government initiatives have set new opportunities for improved governance, the World Bank has in recent years significantly strengthened its activities in support of better governance through ICT.

Public sector management projects comprise the largest component of the Bank's IT-related portfolio. Most of these projects are concerned with increasing efficiency in the internal operations of governments. There is, however, an increased demand for support to broader e-government activities from our clients. Some examples of our response to these demands are as follows:

- We have been documenting e-government applications from different countries, including many of the examples mentioned earlier. The e-government website of the World Bank (www.worldbank.org/publicsector/egov) presents these case studies in a structured format to convey insights into the design and implementation of e-government applications – for promoting transparency, reducing corruption, empowering citizens, improving access to government services, or building leaner governments.

- We are working closely with several governments - such as India, Mongolia and Ethiopia - to improve public expenditure management and to implement

E–Procurement strategies. In many countries, our efforts include introducing electronic documentation systems, setting up portals for bidding notices and contracts, and supporting the development of E-procurement regulations. And in the case of Sri Lanka, a project was developed with the goal of supporting the design and implementation of a national ICT strategy, including e-government efforts.

- Through infoDev – a multi-donor grant facility managed by the World Bank – we funded several e-government pilot projects designed to promote governance and transparency. Projects along these lines have been supported in Sub-Saharan Africa and in Eastern Europe, facilitating access to crucial information by citizens and improving local services.

- Under the leadership of the World Bank Institute, there are now more than seventy GDLN (Global Development Learning Network) centers in all regions of the world. These centers allow live, interactive video conferencing and online learning opportunities for people working in development. A new center in Rome, established with the support of the Italian government, will focus on delivering learning programs on governance, judicial reform, and e-government.

- The Development Gateway portal (www.developmentgateway.org), an interactive portal facilitating access to information and knowledge on sustainable development, is an important activity of the Development Gateway Foundation supported by the World Bank. The portal includes a global online marketplace providing information on development activities funded by donors and government agencies, as well as procurement opportunities, with a view to foster business prospects and to promote transparency.

Conclusion

In sum, the World Bank is working with renewed dedication on two interrelated areas – supporting efforts by client countries to improve governance, and expanding and deepening the application of the new information and communication technologies in the public sector.

The logic of the networked economy can – and should – be one of inclusion rather than one of exclusion. As technological progress continues to push the cost of ICT down, opportunities for development-oriented applications will multiply. E–Government can play an important role in supporting public sector modernization, promoting more transparency and better governance.

3. Austria
We Live and Work in an Information Society – E-Austria on Top in E-Europe

At the March 2000 meeting of the European Council in Lisbon, the heads of state and government of the European Union adopted a new strategy which became know as the "Lisbon Strategy". The goals set in Lisbon – higher growth, more and better jobs and stronger social cohesion - were and still are ambitious. Information and communication technologies (ICTs) are crucial for reaching these goals.[1] The Kok Report equally confirms the instrumental role played by ICTs.[2]

One, ICT equipment and services are a major economic activity (8 % of the EU GDP); two, ICT are a major driving force in boosting productivity and enhancing competitivity (40 % of EU productivity increases); and three, ICT create impetus for maintaining and promoting European diversity and our cultural heritage.[3]

Within just a few years, the progress of ICT has brought on changes that go far beyond mere technology. The use of computers and the Internet has generated new forms of communication and of how the citizens, companies and government authorities interact, as well as new social and economic structures and new forms of management.

Near 60 % of all Austrians and more than 90 % of all Austrian companies already use the Internet today.[4]

E-Europe Initiative

The European Commission launched its eEurope action programme to create political impetus for the development of the information society. eEurope 2005 is mainly geared to setting up modern public online services (e-government), developing a

[1] Report of the Commission to the 2004 spring meeting of the European Council "Delivering Lisbon. Reforms for the Enlarged Union ", COM(2004) 29.

[2] "Facing the Challenge. The Lisbon Strategy for Growth and Employment", report by the high-level expert group chaired by Wim Kok, November 2004.

[3] "Challenges for the European Information Society", report by the European Commission to the European Parliament, cOM(2004) 757

[4] www.fessel-gfk.at

dynamic environment for electronic business transactions (e-business, and to ensuring a secure infrastructure at competitive prices (broad band).[1]

With economic integration, it must be our aim to ensure equal access to ICT services and general accessibility at reasonable cost. New and complex technologies harbour the risk of not everybody being able to handle them. Inclusiveness in the information society is a concern to be addressed by the national, regional and local levels. The aim is to have a technology that is easy to use and to provide suitable contents and services.

Austria is a country with a vast creative potential and set to using the opportunities arising from new technologies to the greatest benefit.

E-Government in E-Austria

In Austria, an e-government Initiative was launched in the 2003 government programme. An optimal use of resources was realised in a collective effort between the federal, regional, local and municipal levels, as well as business cirles, resources were optimally pooled in a way that was unique at European Union level. Chairing the e-government platform, the federal chancellor Wolfgang Schüssel formed the political level, together with ministers, province governors, the president of the Association of Towns and Cities, the Association of Local Communities, the Federal Economic Chamber, social insurance institutions and the Federal Association of Liberal Professions, in order to identify the aims and objectives of e-government activities, to ensure efficient overall coordination, as well as comprehensive monitoring of progress of the e-government Roadmap. The E-Cooperation Board is responsible for the specific implementation of the projects and assigns responsibilities for elaborating implementing plans in the different areas of e-government.[2]

Customer orientation, efficiency, speediness and transparency are the new features of virtual government administration.

Viable e-government solutions offer the citizens and the economy

- Ready and comprehensive information in all administrative matters,
- Interactive communication and secure transactions,
- Online services at any place and time,
- An opportunity for active participation.

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1 www.europa.eu.int/information_society/eeurope/2005/index_en.htm

2 www.bundeskanzleramt.at

The e-government offensive focuses on three different target groups:

- Citizens (G2C),
- Business (G2B),
- And government (G2G).

Fully electronic administrative transactions – from filing applications to document service – Austria is a trailblazer in Europe

For the fifth time, Capgemini was commissioned by the European Commission to perform a benchmark of basic e-government services in Austria. In 2004, the survey was for the first time conducted in 28 European countries. Published in early 2005, the results confirm that Austria has taken the lead in Europe with its e-government initiative.

In an annual ranking, the EU compares 20 basic e-government services (12 for citizens and eight for companies) in their transaction stage in 28 countries (25 members plus Iceland, Norway and Switzerland). The four transaction stages are (1) web-based information, (2) the possibility to print out forms, and (3) electronic forms. The fourth transaction stage is (4) fully electronic interactive handling.

In the enlarged Europe, 65 % of all public services are available electronically, 40 % can be carried out fully electronically. On average, as many as 53 % of all public services in the ten new member states are online. Estonia has been able to score among the top ten at first go.

Austria and Sweden are the most highly developed countries (more than 80 % of all services online), ahead of the UK, Ireland and Finland. When it comes to fully electronic services, Sweden and Austria are the only two countries which have exceeded the 70 % mark.

Credit for this result must be given to all members of the Austrian e-government initiative. The Austrian formula for success is a cooperative effort between the federal, regional, local and municipal levels, as well as industry, in implementing e-government. In the past two years, the e-government initiative of the federal government that was launched in early 2003 succeeded in implementing almost 100 projects, from electronic filings using the citizen card, electronic payment, internal processing of electronic files or electronic document service. However, the excellent performance in the EU ranking is just a first stride. E-government must be available all over Austria to all citizens and companies down to every local community.

Today, a wealth of information is provided in the world-wide web. The European Commission selected the Austrian government agency help site on the Internet (”*Elektronischer Amtshelfer*, *www.help.gv.at*) as the best information portal winning the eEurope Award 2003. It contains some 1,000 forms for some 200 life events. In January 2005, help.gv.at hit the 300.000 visitor record, with more than 10 million queries. Government administration is progressively making all transactions, from filing applications to handling requests, available online. In the future, forms no longer need to be downloaded but may be filled in on the screen, signed electronically and then sent.

Letters, official notices and other correspondence by government authorities no longer need to be served by postal mail and are being replaced by electronic service, if requested (*www.zustellung.gv.at*). Carrying an official signature, electronic official notices have the same legal validity as their paper-based counterparts. Transparency is a key requirement gaining increasing ground in government administration. In the future, the new electronic procedures will offer a status check. This means that citizens with procedures pending at a government authority can check the progress of their case any time electronically.

The E-Government-Act which entered into force on 1 March 2004 is unique by international comparison. It lays down a legal basis for electronic dealings with government authorities.

”Safety” is an essential feature in the electronic handling of applications. In traditional routines, applicants must prove their identity to the government agency by showing their ID. In the electronic world, the citizen card serves to prove and authenticate the identity of applicants. With a citizen card it is possible to sign applications or collect official notices electronically. By analogy to the paper-based ID, the citizen card has the function of an ”electronic ID”. The citizen card concept defines the requirements that need to be met for the safe electronic handling of administrative dealings.

By the end of 2005, 7 million bank cards will be fitted with a citizen card function (*www.maestro.at/signatur*) in a cooperative effort with the banks (Europay). The citizen card function is also available on medical cards (eCard), student and pupils IDs, as well as on staff and service IDs. Mobile telephones are equally being equipped with a citizen card function. Cooperation with industry enables a free Internet access for e-government applications (those carrying the domaine *.gv.at*) at approx. 400 hotspots (WLANs) and more than 1,500 multimedia phone boxes all over Austria.

Similar to traditional filings, electronic filings may equally generate costs. An EPS E–Payment Standard has been developed in cooperation with the Society for Cooperation in Payment Transactions *(STUZZA*) for easy and convenient electronic

payment. The EPS standard allows integrating payment transactions in on-line procedures and in e-government. Payment can be made via on-line banking, credit cards (e.g. for certificates of good conduct) or cell phone (e.g. for confirmation of registration).

Austria has become an electronic showcase in Europe, with e-government being a much sought-after model abroad.

Since the early 1980s, the Austrian judicial administration has taken on a leading position in e-government, starting with the installation of an electronic Land Register, automated debt-collection procedures and the computerised Register of Companies. Automated procedures in judicial administration back up almost all judicial proceedings and allow for a rapid and ready administration of court proceedings. A system of Electronic Legal Transactions was set up in 1990. Under the procedural code, it qualifies as a means of communication with the parties on an equal footing with paper-based transactions. This has generated savings totalling some 2.5 million euros per year for postage alone. There is an electronic court-order file which stores insolvencies, forced-sale orders for real estate and chattels, and includes a search function of owners in criminal proceedings, as well as company register disclosures (*www.bmj.gv.at*).

Since 2004, the law-drafting process ("*eRecht*") between ministries and parliament is being handled fully electronically. The Law Information System *(RIS)* of the Republic of Austria that is being hosted by the Federal Chancellery since 1997 in the Internet offers search functions for federal and province law, federal and province law gazettes, municipal legislation and court rulings (*www.ris.bka.gv.at*). This joint venture won the 2005 Office Manager Award of the Austrian Federal Economic Chamber and generates savings totalling 1.2 million euros for paper, printing and photocopying costs for the Austrian parliament.

Ever since 1998, chartered accountants, notaries public and attorneys use *FINANZ Online* in their capacity as professional representatives to access client data electronically. In 2003 this service was opened to all citizens and companies. It covers the electronic filing of tax returns or family allowance applications, as well as municipal, income, VAT and corporate tax assessments *(www.bmf.gv.at*). So far more than 7.2 tax returns and applications have been filed on-line. The number of weekly tax file or tax account queries is approx. 150,000.

The Electronic File (*ELAK*) that was introduced government-wide by the end of 2004 is a unique model in Europe, alongside the conversion of the government's financial and payroll accounting system to the standard software application SAP R/3. The introduction of electronic files (with the electronic file, not paper, being the original)

has generated a vast financial savings potential for paper, transport and storage and saves time required for searching, transportation and filing.

At the commission of the federal government, the federal Procurement Board in 2004 finally implemented fully electronic procurement procedures according to the Federal Tendering Act (eTendering). In a collaborative effort with the existing tendering platforms auftrag.at and lieferanzeiger.at – a subsidiary of the *Wiener Zeitung* daily – the Federal Procurement Board (*Bundesbeschaffungs GmbH*) worked out a solution that is consistent with the law and tested it for practical application. This ASP model can meanwhile be used by other agencies that issue tenders. The technology is user-friendly, compliant with the law, technically secure and straightforward, using what is called the digital signature. All transactions, from the electronic commissioning of projects to a legally valid award of contracts, can now be handled electronically at the interface between procuring agencies and tenderers.

Successful European examples of e-government in education are Textbook Online or the Austrian School Net (*www.bildung.at*). The on-line grouping of reading and lending libraries aims at presenting all library catalogues and harnessing synergies by making library data available to the citizens. In higher education, student service cards, smart plastic cards with a chip (digital signature) are already being used (i.a. for grant applications).

MEDUSA is a project aimed at modernising electronic data processing and IT systems in the course of which all Austrian missions abroad were systematically equipped with IT technology, which gives them a leading position in Europe. A framework for electronic voting (e-voting) has been created and tested to enable Austrians abroad to make better use of their democratic rights. (*www.bmaa.gv.at*).

In Austria, the use of e-government applications is gaining increasing ground. In 2003, some 35 % of all Internet users used information from the websites of public agencies. In early 2004, this figure had risen to more than 51 %, as corroborated by a polling survey. 44 % already use e-forms, and 32 % have completed transactions with the authorities in a fully electronic way. In early 2004, 75 % of all Austrian companies use e-government services, one out of five companies have already handled administrative business electronically.

Most contacts between citizens and companies happen at local or district level. The District Administration Boards are therefore called upon to take an active part in the development of e-government. Several e-government projects at municipal and local level are already running with great success, ranging from electronic complaints managements (municipality of Vienna), to electronic filing of applications and checking the processing status (municipality of Salzburg). to the option of active

citizen involvement (municipality of Graz). Several simple procedures (e.g. dog registration, ordering refuse bins) and a number of more complex transactions (e.g. applying for a trade licence, confirmation of residence registration) have already been implemented. Innovative towns and communities such as Kremsmünster or Steyr are already using more than 100 electronic forms. More and more local communities are also making use of the electronic file.

E-government caters to all citizens, regardless of their income or personal circumstances. However, it is vital to safeguard the interests of those who do not partake in e-government. Socially underprivileged groups must not be excluded from government services or their rights curtailed by pushing for e-government. On the contrary, it is important to open up opportunities for all social strata. Technical realisations must therefore take specific account of the needs of disabled persons (WAI).

The challenges for the future are interoperability, the recognition of electronically signed documents in transborder transactions, and organisational reforms such as change management in government administration.

4. Oman
E-Governance Risk Assessment
Alignment of Business Needs and IT Requirements

1 Background

SAI Oman is currently engaged in auditing the e-government initiative of the government of the Sultanate of Oman. This e-government initiative is being spearheaded by a IT Task Force, which produced a comprehensive vsion of the roadmap for introduction of e-government in Oman. SAI Oman desired to commence its audit, with a comprehensive review of the plan and a a risk assesment of the plan to decide on the thrust, scale and timing of its future audits in this area.

This paper is on the theme – "Risk Assessment" and covered the experiences of SAI Oman in assessing the risks involved in such e-government initiatives of the government of Oman, which needs audit focus.

1.1 Scope

In the past decade, e-government has been touted as a panacea against bloated, inefficient and costly governance, and Oman is no exception to this trend, with increasing acceptability and adoption of e-government. However, the benefits have been hyped up on the basis of anecdotal evidence, as no systematic reviews and evaluations have been conducted as yet.

SAI-Oman planned to conduct a systematic review of e-government to validate the benefits and justify the enormous interest and sizeable investments being made in this area. As part of this review, a risk assessment of the e-government process has been conducted, to generate a detailed audit plans, as well as a preliminary audit hypothesis of the e-government initiative.

Our preliminary assessments indicated a mismatch between business needs and IT requirements as one of the major risk areas for the successful planning and implementation of E-Governance. This paper represents the first phase of SAI-Oman's

review of e-government, covering the strategic and policy issues, leading up to a risk assessment.1

We have modeled our audit review of e-government on the basis of a framework, which is depicted below.

2 Introduction

Conceptually, the e-government paradigm may be taken as covering the following:

- **E-government**, which represents the delivery of governmental services electronically (essentially the Internet) primarily to the citizens and residents, but also secondarily to other internal clients within Government

- **E-governance framework**, which covers the legislative and regulatory mechanism to ensure effective and secure delivery of e-government services; and

- **Digitally-enabled and connected society**, with easy and affordable access to such e-government delivery systems to all sections of society

These three aspects dynamically interact with each other at any point of time. It has been the objective of all countries including Oman to ultimately achieve a digital society, with increased connectivity, enabling e-government and e-commerce under a tested regulatory framework.

3 Development Approach to E-Government & Digital Society

Web-enabling or computerizing existing government applications is often mistaken for e-government. In fact, this has to be only a part of an integrated strategy for e-government.

3.1 Strategic Aspects

A successful e-government initiative and ultimately a digital society in a third world country would involve profound strategic shifts, which are as follows.

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[1] Since the SAI's audit mandate precludes it from making its audit findings publicly available, we are constrained in our ability to provide details of findings. We are therefore concentrating on the audit methodology and strategy, rather than on details of individual findings.

Vision	Developing a vision for bovernment as a whole
E-Government Services Delivery Model	Design a model for e-government services delivery crossing traditional departmental boundaries.
E-Governance Framework	Develop an e-governance framework, covering legislation, regulations, standards, and infrastructure for supporting e-government services delivery.
Socio-Economic Initiatives	Develop socio-economic initiatives for universalizing affordable digital access for all.
Organisational Structure	Put in place an organizational framework cutting across departmental silos for planning, implementing and managing e-government.

3.2 Operational Aspects

In order to implement the strategy, the following operational aspects should be considered:

Detailed Plans	These strategies have to be translated into clear measurable deliverables, involving development of applications and provision of infrastructure, which should be supported by detailed analysis of business needs, re-engineering of business processes and cost-benefit analysis.
Organisational Design Issues	From an organizational perspective, decisions have to be taken on assignment of responsibilities, and degree of centralization and integration and interface between Departmental systems. The Communities of Interest (COI) approach enables such integration to facilitate a one-stop shop for the users of government services.
Implementation, Management and Co-ordination	The above plans for application and infrastructure development will have to be implemented and managed effectively, with co-ordination across departments. Key decisions would include centralized procurement, software licensing, outsourcing, and maintenance.

4 The Omani Perspective

The Government of Oman is committed towards developing a digital society, and providing e-government services. In fact, it considers development of a digital society, as an important aspect of the socio-economic development of the country. Several key initiatives have been taken up towards achievement of this objective, including the setting up of a Ministerial IT Committee, supported by a high-level Task Force, with representation from top management in different Departments.

The government commissioned a leading international IT consultancy firm to develop a strategy for e-governance; this was further extended to cover the strategy for development of a digital society. As part of this study, a detailed readiness survey of all Government entities was also carried out.

4.1 Pre-existing IT Systems

The Government of Oman has a centralized IT system for payments and accounting, as well as basic personnel functions like payroll; this is supported by a robust computing infrastructure and dedicated telecom links in all government offices throughout the country. All payments and receipts are made and accounted centrally, and the payroll for the entire government is managed centrally.

This application is a legacy application on an IBM mainframe systems on a DB/2 database, but has been running efficiently for the last two decades. Transaction processing is very effective, with MIS functionality being somewhat limited. While there are other IT systems in individual government departments, almost all of them are confined to organizational boundaries.

The other significant features include

- Networking and computing infrastructure in government departments is widespread and is not a bottleneck for e-government initiatives.
- Government departments have computerized almost all their administrative functions, and in many cases their core business and support functions.
- Almost all departments have a presence on the web, providing varying degrees of information.
- Web-based querying facilities have been provided on certain key systems to the public.
- In a few cases like electricity and water billing, the third-party billing agent has link-ups with commercial banks for internet-based payments.

There is no IT Law in place, and paper documents are necessary for validation, and supporting applications for Government services.

4.2 E-Governance Plan

A strategic plan for e-governance was finalized in end-2002, covering the following components:

- Digital Society Readiness
- E-Government Architecture
- IT infrastructure
- Applications and Communities of Interest (COI)
- Telecommunications, Networking and E-Payment Infrastructure
- Quick-win applications
- Budgeting
- Implementation Structures
- Security, PKI, Audit and Business Continuity Planning
- E-Legislation
- Education and Development

5 SAI's Risk Assessment

The SAI commenced its evaluation of g-governance in Oman, by reviewing the strategy for E-Governance as well as the status of implementation of the strategy. We identified the following key risk areas for e-government, based on our review:

Lack of Clarity of Vision	The business section of the strategy documents were focused on theory and methodology, rather than on identification of specific issues in the Omani context. However, in our view the strategy should have commenced with an analysis of: • The important services or categories of services, presently being rendered by government departments, as well as those planned to be rendered • The current mode and processes of such service delivery for a few key services • An economic model to justify the movement of IT-enabling these services • A strategy for review of all services from a BPR perspective – before IT enabling, combined with an actual review for a few key services

	• A migration strategy for IT enabling services
Communities of Interest Model for Oman not developed	The study focused on the business case for COIs, rather than developing COI models specifically for Oman. The study focused a framework for classifying COIs, rather than developing actual COI models for Oman. There was a brief listing of suggested COIs. However, there is no discussion of the benefits arising from breaking down departmental barriers for the suggested COIs, let alone an analysis of the existing systems within the suggested COI boundaries and a plan for migration of these systems and data to the integrated COI-based applications.
Lack of Business Focus	The study did not adequately analyse existing business processes and the scope and need for Business Process Re-engineering (BPR). All its studies focused on the technical aspects of computerization, but totally ignored the business aspects.
Lack of Economic Cost-Benefit Analysis	We recognize that introduction of e-government would result in both direct and indirect benefits to individual Government Departments as well as the country as a whole. However, like any other developmental project, it is necessary to quantify or estimate the indirect benefits as a whole. This may also be done taking the Community of Interest as a base. Instead, the strategic documents used anecdotal evidence from Ireland and case studies in the USA to support the business case for introduction of e-government. While it is instinctively felt that e-government will facilitate economic development, an economic impact study is important requirement to deploy valuable financial and human resources on such a project, as well as to decide the prioritization and timing of various COIs.
Lack of Integrated Approach	Despite a centralized strategy, the e-government task force could not force an integrated approach for quite some time. The Task Force was not suitably empowered to enforce its decisions on various government departments. When this task was delegated to the Task Force, the government departments had already moved on, leaving Task Force to play catch up.

6 Further Action

Our review of the Government of Oman's e-government strategy revealed several risk areas related to non-alignment of business needs and IT Requirements. This review also enabled us to identify entities/subjects for detailed audit.

The second phase of our review will comprise IT audits of selected IT applications forming part of the e-government framework. In order to carry out such audits, SAI Oman has formed a strategic audit team and equipped it with sufficient expertise to carry out this task. This team is planning audits in the second half of 2005 to cover critical high risk areas already identified. Detailed audit plans, based on the risk areas and entities/ subjects identified by the SAI in the first phase, are being prepared by the Strategic Audit Team.

5. Canada
Auditing E-Government: Government On-Line

Introduction

A summary of the Canadian experience in auditing e-government issues was prepared to share with other Supreme Audit Institutions (SAI's) our experience in auditing online services.

In this paper, we present the Canadian Government On-Line (GOL) initiative at a glance; we discuss our recent experience in auditing GOL using concepts and approaches developed for this specific audit; we identify some good practices and lessons learned that, in our opinion, add value to those SAI's that are planning similar audits in the future; we present our findings and what the Government of Canada has done to-date to address our recommendations; and we present additional potential lines of audit enquiry that we feel are important when auditing online services.

The approach to auditing government services on-line is not the same as auditing a major IT project. The technological aspects of offering services online are often the easiest ones to address, therefore it is important that SAI's do not treat this as primarily a technology driven project. While IT knowledge will be required by the audit team, auditors must assess the transformation of government services on-line as a new channel for delivering services in addition to the traditional ones: i.e. mail, telephone, and in-person.

In our view, the discussion of this subject is very timely. In Canada, GOL has been identified as a major initiative and significant funding has been allocated to it. This paper forms a basis for an interesting and informative discussion at the 18th UN/INTOSAI seminar on how best to improve government procurement of electronic services to its citizens and businesses.

1 What is GOL for Canada?

1.1 GOL at a Glance

In the 1999 Speech from the Throne, the government of Canada stated: "By 2004[1], our goal is to be known around the world as the government most connected to its citizens, with Canadians able to access all government information and services on-line at the time and place of their choosing." The government believed that this vision, although ambitious, was achievable.

The overall objective of the GOL initiative is to increase the availability of on-line federal services. The approach is both citizen/client centred and "whole-of-government". In practical terms this means improving citizen/client satisfaction by designing services in response to their needs, rather than those of government organisations, while increasing the efficiency of service delivery. From the government's perspective, the overall objective of the GOL initiative is service transformation—to fundamentally change the way the government itself operates and to deliver better service to Canadians.

The Government of Canada has identified 130 information and transaction services from 30 departments and agencies that are considered key services to Canadians, businesses, non-Canadians or of intergovernmental nature. Of these, 63 (48 %) are informational and 67 (52 %) are transactional. It is expected that the services will become highly interactive in 2005. The exhibit below provides the number of services for each type of service model and the evolution in the on-line capabilities for both the informational and transactional services.

Government On-Line services are offered in varying levels of maturity, depending on the service and type of transaction. The information service model maturity levels vary between a simple Web presence to acquiring information through multiple levels of information where customers may select a level appropriate to their needs. The transactional service model also varies from a simple Web presence to a capability of processing transaction in real-time with immediate confirmations. GOL services are provided in varying levels of functionality and the government aims to shift most of its services to the higher progression levels by the end of 2005.

[1] The 2004 date was subsequently changed to 2005 after September 11, 2001 to re-evaluate the impact of the projects on national security.

1.2 Canada Compares Favorably on the International Scene

A number of international studies by private and public sector organizations have been released in the past few years that have assessed both the progress that several countries have made in providing services via the Internet, and their capacity to sustain on-line development.

For example, one study published in May 2004 by a private sector firm ranked Canada in first place for a fourth year in a row, ahead of Singapore and the United States. Another study by an international organization in November 2004 ranked Canada in seventh place, behind Singapore and the United States.

Canada's ranking as per two major international studies

Country	Ranking	
	Accenture (1)	United Nations (2)
Canada	1	7
Singapore	2	8
United States	2	1
Australia	4	6
Denmark	4	2
Finland	4	9
Sweden	4	4
France	8	24
Netherlands	9	11
United Kingdom	9	3

(1) Source: Accenture, The Government Executive Series - 2004 Report, eGovernment Leadership: High Performance, Maximum Value, Country Reports

(2) Source: United Nations, Department of Economic and Social Affairs, Division for Public Administration and Development Management, UN Global E-Government Readines Report 2004: Towards Access for Opportunity

During the audit we were conscious of the enviable worldwide reputation of the Canadian GOL initiative. We were concerned that negative comments by the Auditor General of Canada could tarnish this reputation.

2 How and Why We Selected the Scope of the GOL Audit

In a performance audit, given multiple possible areas for examination, the audit team must concentrate on areas that are significant to the auditee (Parliament and the

Canadian taxpayer) and are auditable. An organization's well-developed audit methodology is key to achieving a successful audit product.

The OAG audit process involves setting priorities, developing strategic and long-range plans, submitting chapter proposals, rationalizing resources, and assessing whether anticipated audit value has taken place. In selecting audits, audit management uses their preliminary knowledge of the subject area to form a reasonable basis for determining that the audit can be completed in accordance with the performance audit policies.

At both the planning and examination phases of a performance audit in e-government, critical questions must be successfully addressed and resolved. For example, at the planning stage: Is the area for audit within our mandate and is it auditable? During the examination phase: Is the evidence sufficient and appropriate? Are issues significant and are they appropriately addressed?

We started out by learning about the Canadian GOL initiative and other governments' GOL efforts. Here is a sample of our initial procedures:

- Reviewed newspaper articles;
- Visited Canadian government web sites;
- Reviewed third party reports specifically related to the Canadian GOL effort, such as United Nations and Accenture, noting scope and conclusions;
- Reviewed other countries' related audit reports to determine scope and conclusions. These included the National Audit Office (UK); New South Wales; Australia; and General Accounting Office (US);
- Conducted general overview interviews with key central and departmental government officials:
  - For the central agency we asked critical questions such as: what are your overall objectives? How do you know that the initiative will be a success? What are the major risks and how are these being addressed?
  - Government departments: what support are you getting from the central agency? How are your objectives aligned with the overall objectives? What are your particular major risks and how are these being addressed?
- Requested authorized access (read-only) to restricted electronic databases which may include critical GOL information such as current status of on-line projects;

lessons learned; organization charts; minutes of key executive committee or working group meetings.

Benchmarking for e-government should be approached with caution. We discussed as a team: Is there a need to benchmark against the Canadian initiative? If so, what should be benchmarked? Horizontal sectors? Individual projects? Due to Canada's advanced standing compared to other foreign jurisdictions, we decided not to benchmark. However, we did conduct interviews at both the audit and operational offices in the UK since they also had a similar time deadline and their National Audit Office had already conducted three recent audits in this area. We wanted to understand both the operational and audit risks, how these were addressed, and lessons learned.

Given our limited resources (6 full-time staff auditors and a small consultant budget), we had to focus on examination areas, or lines of enquiry, that would be of most significance to Parliament and the Canadian taxpayer.

3 Lines of Audit Enquiry

In this section, you will find the lines of audit enquiry that were retained for our audit of GOL. In the next section, you will also find other lines of audit enquiry that were considered but were not considered as important at the time we did the audit.

3.1 Strategic Planning

This is considered an abstract area, so auditors must ensure that the audit objectives and criteria are auditable. Consequently, we limited our audit objective to assessing whether the government had established adequate plans and strategies to achieve its GOL objectives for 2005. The government did have a well-developed vision "all government information and services on-line at the time and place of their (Canadians) choosing". The government subsequently set out service transformation as the overall GOL objective. We therefore expected specific outcomes to be set to follow up on the vision and overall objective. Our preliminary interviews with the central agency revealed that the government believed that this was not achieved mainly due to the evolving nature of this initiative. Outcomes indicated were therefore vague and difficult to measure, thus making it possible for the government to declare victory by the initiative's 2005 deadline. To assess whether the government's rationale was consistent with best practices, we would require the opinion of an expert in this field. At the same time, the government had also issued a methodology on reporting strategic outcomes for horizontal initiatives such as the Government On-Line initiative.

The credibility of this expert was recognized by the auditee and was crucial in clearance of our findings and recommendation. The consultant's conclusions supported our findings: a lack of detailed expected outcomes for measuring progress and performance. The government had set a main objective, over two years into the initiative, to have the 130 most commonly-used services on-line and had developed a self-assessment model for departments to predict the services' on-line progress. However, this model failed to include an assessment of progress toward achieving the overall GOL objective of full service transformation.

The government agreed with our observations and explained that due to the unique nature of the GOL initiative, the level of precision in defining the results has necessarily evolved over time – as has been the case in other countries. It concurred that for any future broader service transformation objective, the government should develop a comprehensive strategic plan and implementation targets.

3.2 Funding

The Office views program or initiative funding as part of government policy so a performance examination in this area is limited to assessing whether the funding (program policy goals) is being implemented and whether the policy goals are being achieved. Our audits do not question the merits of the government's programs and policies. The merits are for Parliament to review and debate. If audit findings throw a government policy or legislation into doubt, caution is necessary as the auditor may become involved in a partisan political debate.

For the above reason, we did not specifically include audit objectives or criteria related to funding, except as part of our audit objective to assess whether appropriate accountability and reporting mechanisms have been established. We noted that the full cost of the GOL initiative will be much greater than the $ 710 million (US) funds allocated to the central agency, based upon our examination of overall cost estimates. Although we did find that these funds were well-managed, we are concerned that no new funding has been allocated over the last two years.

The government agreed with our recommendation to provide more complete information to Parliament. Such reporting will include objectives, results expected and achieved, and costs, and will include performance improvement as well as related issues and risks.

3.3 Pathfinder/Pilot Projects

We looked at nine GOL projects to assess the extent to which they contributed to the government's overall GOL objective. Specifically, our review included examining departmental strategic plans, project business cases, and other relevant documents to assess progress toward meeting the overall GOL objective of service transformation. We also assessed take-up rates for new on-line services and the benefits in terms of cost savings for the government and better service to the public. The GOL projects that we reviewed were aligned with the government's overall GOL objective. However, our review of these projects showed that the GOL initiative faces major challenges such as maintaining financial sustainability, transforming services, and marketing on-line services to encourage the public to use them.

3.4 Governance

The GOL initiative, due to its horizontal nature, is a complex project. The government had appointed an external senior Advisory Panel who concluded in the fall of 2001 that the objectives of the GOL initiative will not be met through the current governance structure. We recommended that the government strengthen its current GOL governance structure to provide greater direction over all aspects of government services and their delivery, as well as common service infrastructure, to achieve full service transformation. The government agreed with the recommendation and responded that should the GOL initiative be extended beyond 2005 to achieve full service transformation across government, the government should explore ways to strengthen its current governance structure.

3.5 Common Secure Infrastructure

The Secure Channel project is a multi-departmental effort led by the Treasury Board Secretariat. Its primary goal is to provide highly secure, responsive and economical access to government services by citizens and businesses. This secure infrastructure is the foundation for government electronic service delivery and is considered a key component of GOL by the Government of Canada. The government believes that Canadians will do business with it only if they trust that all transactions will be secure and private.

The Secure Channel is expected to cost about $ 500 million (US). This highly complex and costly project is one of the world's first such services for mass use by individuals that incorporate the "digital signature certificate" concept. This concept provides a unique means of verifying the identity of everyone who carries out a transaction with a government department or agency. Because the Secure Channel was initially

classified as a concept, the decision to build it was not based on a comprehensive business case. The government is now developing such a business case.

We concluded that the success of the Secure Channel is at risk from a number of factors, including the absence of a comprehensive business case that includes an objective, options analysis, costs, benefits and risks, and an implementation plan; legal and privacy issues that must be resolved such as the inability to share personal information could make on-line transactions less convenient; no complete plan that addresses the risks and costs of the transition to the Secure Channel for all appropriate applications; and technology has not yet been exposed to live, sensitive, high-traffic conditions.

We recommended that the government address the key risks and challenges it faces by finalizing a comprehensive business case for the Secure Channel project, addressing its long-term financing, establishing mechanisms to encourage the adoption of Secure Channel by departments and agencies, businesses and Canadian citizens, and addressing the current legal and policy frameworks, including the inability to share personal information. The government generally agreed with the recommendation and stated that a consolidated business case was to be prepared shortly.

4 Other Potential Lines of Audit Enquiry

In addition to the lines of Audit Enquiry we looked at during our audit, there are a number of others that are unique and/or typical of auditing on-line services. We believe it is important to assess the audit risks related to each of these during the planning phase of the audit. You will find below a short description of the most important risks.

4.1 Digital Divide

The 'digital divide' creates the risk of creating new forms of social exclusion. A society that does not offer equal access to the Internet to all of its citizens will create a 'digital divide' between those that can access and use the on-line services and those that cannot. This divide can stem from multiple sources ranging from geography, to income, to years of schooling or any other dimension that could impact the equal access to on-line services required for an equal and wired society.

In Canada, the government has invested in telecommunication infrastructure projects to reduce the 'digital divide' between urban and geographically challenged locations (rural and northern communities).

4.2 Take-up

Low take-up by citizens or businesses of on-line services is a risk. The objective of the GOL initiative is not just to increase the number and the functionality of federal services available on-line. It is also to develop services that individuals and businesses will want to use, and that will increase satisfaction with federal service delivery (incentive).

Growth in the number of Internet users in Canada is starting to slow down. According to a recent Statistics Canada survey, almost 62 % of Canadian households had at least one regular Internet user in 2002, up significantly from 42 % in 1999 but up only slightly from 60 % in 2001. Education and income continue to influence the take-up of on-line information and services. Interestingly, however, the number of Internet users aged 55-64 grew more than any other age group in 2002 (Household Internet Use Survey, 2003).

It is worth noting, however, that a majority of Canadians still say that the purpose of their visits to federal Web sites is to obtain information (GOL Internet Research Panel, 2004). One continuing challenge is to address barriers to higher take-up of transaction services, such as perceptions of the security and privacy in transacting on-line.

Increasing the awareness and use of on-line services available to individuals and businesses will be key goals for the GOL initiative in 2005 and beyond.

4.3 Client Satisfaction

Low take up because of poor client satisfaction is also a risk. Two key determinants of satisfaction with on-line services are ease of access and quality of information. Almost all services which departments and agencies are developing as part of the GOL initiative list ‘easier access’ as an intended client benefit; and almost half list ‘better information leading to either increased educational or increased business opportunities’. Feedback to date has been positive; suggestions for improvement include more help in filtering on-line content, additional plain language formats, and information on a greater number of topics.

With regard to the general credibility of the federal Web presence, more than three-quarters of Internet users think that the federal information available on-line is up-to-date and there is an interest to a greater quantity of information put on-line.

4.4 Capital Investment and Human Resources Costs

The actual cost of delivering a broad range of on-line services, as articulated in the Government On-Line vision, will be much greater than anticipated, given that departments are spending large amounts of money on their own internal on-line projects. Early adopters have had to absorb unanticipated effort to make their applications work properly with the newly developed complex security features.

Existing systems will also need to be transformed in order to fully offer automated on-line services to individuals and businesses. These back-end modifications require much effort in order to achieve seamless integration.

4.5 High Costs of Multi-channel Services Provision

Failure to persuade citizens and businesses to migrate to on-line services may force governments into maintaining the original service channels in addition to the new one provided over the Internet.

4.6 Privacy and Security Issues

While Canadians clearly support the move to providing more services on-line, they are also concerned with how governments will address the issues of security and privacy. It is well understood that these two issues are linked - privacy can only be safeguarded if appropriate security measures are in place. If the Internet is to become the primary channel for dealings between Canadians and the Government of Canada, high standards of security and privacy must be met and strong mechanisms for protecting government networks against intrusion must be put in place.

4.7 Authentication/Identification Issues

The identification of users becomes a major issue when the government is increasingly called upon to offer interactional, transactional and integrated services in a virtual world where services are delivered remotely and where there is no physical interaction, a secure identification mechanism for users is essential to ensure that the person sitting at the computer is eligible for and entitled to receive an on-line service. The actions taken must prevent identity impersonation, although without infringing on the right to privacy. It should also be noted that the current privacy legislation discourages the creation of identity sharing mechanisms between government organizations unless specifically permitted by law.

4.8 Legal Environment not Evolving as Quickly as the Technology

The current legislation may prohibit information sharing between departments, agencies and governments which would effectively prevent any true service transformation initiatives from succeeding.

6. India
Challenges When Auditing E-Government

The INTOSAI Standing Committee on IT Audit Task force defines e-government as "the online exchange of government information with, and the delivery of services to, citizens, businesses and other government agencies". In other words this encompasses interactions between Government and citizens (G2C), Government and business (G2B) and inter government dealing (G2G).

The last few years have seen many success stories in the field of e-governance in India. Some of the these projects include eSeva project in the provinces of Andhra Pradesh, Bhoomi project in Karnataka, Customs and Central Excise gateway, eCops project in Andhra Pradesh, Tax collection at checkposts in Gujrat, Gyandoot in Madhya Pradesh, Online Passenger reservation/information system of Indian railways etc. Till date the IT Audit wing of SAI India has cleared the IT Audit reports of 14 e-governance projects, the important ones are eSEVA, eCOPS (AP), Computerization of land records (Mahrashtra and Tamil Nadu), Computerizations in Municipal department Chennai, Computerization of transport departments (Delhi and Jharkhand) and Integrated Bus Reservation System in Maharashtra. This paper is presented based on the experiences gained from audit of these initiatives. This paper does not limit itself to what is reported in the CAG's report, but covers the entire gamut of issues and problems faced during the audit.

E-government is capable of enhancing the quality of public services for citizens and businesses by making information services more accessible (24X7), transparent and convenient to use. E-governance can enable agencies to process transactions more accurately and at a lower cost, and can make it easier for government and non-governmental organisations to share information with one another. As audit of e-governance initiatives is technically challenging and a developing area audit can function as an agent to see that Governments should make e government part of a wider agenda for change, and not simply superimpose it on existing, perhaps inefficient, services.

An e-governance project on the face of it implies removal of the human interface and substituting it with electronic means of getting information and facilitating transactions. Use of a web-based system for dealing with public is the most common mode, though there are other models also for delivery of services. However, considering the low level of internet penetration in India, most of the e-governance projects involve large-scale use of IT kiosks. Eventually most of the projects aim at becoming

completely internet based in the times to come when internet connectivity becomes available to the majority of people. But till that time the traditional modes of interaction have to remain operational to serve the public.

These developments in the country opened a new area of professional audit in form of IT audit of e-governance initiatives. Most of the e-governance projects involve huge investments. They require Business Process Reengineering in the government. Security concerns – confidentiality, integrity and availability of data are of paramount importance. The extent to which these projects achieve their objectives needs to be evaluated by an independent audit. The implementing departments often engage IT specialists to comment on technical security/weaknesses; academic and research agencies are also employed to conduct citizen surveys to gauze satisfaction of services. These frameworks for assessing e-governance are often based on survey methodology and always leave an element of uncertainty due to issues regarding sample size/type selection and questionnaire methodology and documentation of responses. But at the same time this also gives important insight into the satisfaction level of the users, an important parameter by which an E-Governance initiative should be evaluated. All these are piece-meal efforts and not comprehensive evaluations of all technical, safety, cost and performance parameters to present an overall perspective and suggest organization level improvements. Audit by SAI fills in this much felt gap and provides executive agencies with an overall evaluation and an assurance to the legislature regarding proper utilization of tax payer's money. Evaluation by SAI gives credibility to the E-Governance project and confidence to the citizens transacting with government through this new media.

Audit of e-governance initiatives is not just an audit of technology used. The scope of audit of e-governance initiatives by SAI is very wide. It is also the audit of way government seeks to work. It involves audit of business process reengineering. It is also a value-for-money audit for the investment made. At the core of the audit is the IT security features built into the project. Considering these diverse aspects, this paper is divided into six broad sections:

1. Business case for e-governance
2. Acquisition process
3. Implementation issues including quality of service
4. IT security
5. Data analysis
6. Reporting parameters

1 Business case for E-Governance

1.1 Conceptualisation of Project

The first question is whether Information and Communication Technologies (ICT) are a solution for the problems in governance. E-governance projects are by nature huge and complex. Such a decision needs to be taken on careful analysis of cost and benefits of the project. The auditors challenge in this area is due to the fact that the decision making process is not documented in most of the cases and inferences may have to be drawn from actual results of implementation of project.

1.2 Feasibility Study

Auditor faces with the dilemma as to whether (s)he should insist on a well-documented feasibility study, User Requirements and System Requirement Specifications. As e governance is in itself at a nascent stage, it is quite likely that the auditor faces with a situation where no such documents are available. (The government replied to an audit query in case of eSeva stating that had they kept working on a detailed feasibility study, the project would have never seen light of the day). In such a situation, it would be reasonable to depend on files and other documents to understand whether adequate thinking has gone into before taking the decisions. In all probability most of the problems in development and implementation would be a direct consequence of inadequate feasibility study etc and would become basis for comments on inadequate planning and evaluation.

1.3 Cost Benefit Analysis

Audit faces with a problem of evaluating whether the costs of the project justify the benefits. Firstly, identifying the costs would be an issue in a situation where a private partner gets transaction charges from the government. Secondly, it is very difficult to quantify benefits many of which are like increased transparency, convenience, etc. The auditor has to rely on reasonability in making judgment about benefits. Parameters like quicker service needs to be tested based on examination of recorded average time before and after implementation of project. If the government got prepared a Cost Benefit analysis report like in the form of Pay Back Period or Break Even Point etc the same should be tested for reasonability. Savings in form of diversion of surplus staff due to e-governance to other projects needs to be examined. In most of the cases one would find that the staff strength remains the same even after new technology and systems have come in place.

1.4 Case for Outsourcing

The recent trend in government to outsource IT activities to private sector needs attention of auditor. It would be reasonable to rely on judgment of the executive regarding whether to go in for outsourcing and the form in which outsourcing is to be done viz., software development outsourcing, BOOT basis or public private partnership. The auditor should make sure that well informed decision is made after detailed analysis of alternatives. The auditor should make sure that sovereign duties or statutory functions of government are not outsourced.

1.5 Identification of Services to be Included in E-Governance

The guiding principle should be what the people want to access on-line. The auditor may recommend additional areas that may come to his notice during audit for inclusion. Here auditor can work as a change manager to encourage widespread use of e-governance projects.

1.6 Business Process Reengineering

Introduction of e-governance involves not merely change in technology, but may also require reengineering the business process. This involves redefining the roles and responsibilities of various functionaries. The auditor should evaluate the adequacy of changes in the process to facilitate e-governance.

2 Acquisition Process

2.1 Preparedness of Various Departments/Functionaries

This is one of the most important prerequisites for implementation of an e-governance project. In most of the projects, none of the functionaries/departments are found ready. The databases are not compatible, the hardware and software are not compatible with existing ones. These lead to problems in implementation and eventually increased cost and delays.

2.2 Selection of Vendor of Hardware/Software

The selection of vendor should involve careful examination of capability of the firm. This particularly important if customized software is to be developed by the vendor. The audit can benchmark the acquisition process using globally accepted frameworks.

2.3 Use of Frameworks in Software Development and Project Implementation

The auditor is expected to examine whether the management has used any of the established frameworks like COBIT, CMM etc. If so, (s)he can examine the extent of compliance with the framework. Even if the management has not adopted any specific framework, the auditor can rely on good practices of these frameworks while making examination. SAI India often relied on CoBIT audit guidelines for use as Half Margin memos in conduct of audits; these have to be amended to suit the audit goals in the situation. Initially when we issued questionnaires as it is, the auditee did not even understand how to reply and the replies received did not even reflect actual views of project management. In many cases, the replies were found to be self-contradictory or conflicting with each other. We then carefully amended the questionnaires based on what assurance we were trying to achieve in audit and explained them in detail to the auditee and to get proper response.

2.4 Development of Software

The software methodology should involve an established methodology like SDLC. There should be a right to audit the development firm's work by the acquirer. In the absence of such clause and its effective enforcement, the auditor should seek alternative methods of obtaining satisfaction and may also need to qualify the report. In case of eSeva, the entire development of software was left completely to private firm with no role from Government, which eventually resulted in avoidable problems in the software.

2.5 Contract Document

The contract should be examined from legal perspective to make clear the responsibilities of both parties including incorporation of confidentiality clause. There should be adequate penal provisions on the vendor for poor quality of programme, cost and time overruns, etc. Often it is noticed that though many penal provisions are present in the contract, most of them are never invoked giving unintended benefit to the developer.

2.6 Maintenance Contract

It should be examined in audit whether adequate provisions for post implementation maintenance of hardware and software are provided. In case the maintenance is to be taken up in house or by some other vendor the capability should be examined.

2.7 Acceptance Testing

The auditor should ensure that project (application) is finally accepted after detailed stage wise acceptance testing by various user groups. Inadequate acceptance testing results in many problems at later stages.

2.8 Need for Physical Verification

The IT auditor may on many occasions need to physically verify the hardware. For this (s)he may have to visit various locations and carry out inspections with representatives of the auditee. It was seen in one of the audits that, on physical verification, private partner had not complied with contractual provision to a very significant extent regarding providing hardware and facilities at service centers. Physical verification may also be necessary to evaluate the adequacy of physical and logical access controls. IT audit on many occasions results in findings which exist at a particular moment and no document of evidence except physical inspection by auditor is possible. In such cases, auditor should rely on counter signature of officials of the auditee present at the location as acceptable audit evidence.

3 Implementation Issues Including Quality of Service

3.1 Web-based Services

These should be in such a way that citizens are encouraged to access web services rather than seeking services through traditional methods of visiting offices. While kiosks are a transitory process, real cost savings and convenience can only come through internet based services. The website should be designed in such a way that it provides all information to the user regarding access to services. It should be user friendly. It should give an overview of security like the Digital Certification, payment gateway etc to increase the confidence of the user. It should also be continuously updated. The initial response to web-based services may not be very encouraging due to the public concerns about security in using internet. However, this should not be a reason for not keeping everything accurate and updated on the net. The popularity of web based services increases if the initial visitors to the site get good service. Web services should not be launched without adequate processes and quality services in place from day one. In many cases, the website and services were in place from beginning, but the sites were neither updated nor convenient to use. Lot of procedural requirements including manual intervention by way of follow up letters etc was involved. Eventually when everything was set right, it took time for people to come back and use the web services.

3.2 Quality of Service

The auditor needs to examine the quality of services under e-governance. This is the most important facet of audit of e-governance projects. The parameters are wide and varied. Broadly these include parameters indicating efficiency of project and user orientation. Efficiency can be gauzed from speed, security, superiority over traditional methods, etc. User orientation involves examining how easy is it to access services, extent of clubbing services at single location, user support and problem resolution, local language interface, friendly and supporting approach of staff in kiosks, reduction of need to visit government offices repeatedly etc. It was a major challenge to evaluate projects like eSeva on these parameters. In case of eSeva we relied on a survey conducted by government using certain research and educational institutes. We also used a questionnaire to collect information from citizens present at eSeva centers to supplement the work done by government nominated institutes. In another case the problem was even more complex due to huge resistance within the auditee department against the project and the departmental users were found to paint a grim picture to tarnish the image of the project. This was a clear case where e-governance was being opposed as it would bring more transparency and curb the discretionary powers of the officials.

4 IT Security

4.1 Adequate Physical and Logical Access Controls

These need to be examined keeping in view the risks. This includes all the basic checks to be performed regarding general controls and application controls (Input, output and processing). Most significant part of our time of audit was spent on this area since there were many controls that were absent or insufficient. The data in these projects could be amended at any stage by multiple sources.

4.2 Encryption of Data

Considering the fact that huge and important data travels over the network or internet, it may be examined, depending on the criticality of information, whether data is encrypted. In one of the audit of an online ticketing system being operated by authorized agents there was no token based authentication system to identify authorized ticketing agents which would have served some purpose of compensating controls. The auditor should take into account the risks and established compensating controls before forming an opinion.

4.3 Use of PKI

Public Key Infrastructure and use of Digital Signatures has legal validity under IT Act 2000 enacted by the Government of India. Auditor should evaluate the extent PKI has been adopted depending on the nature of the project.

4.4 Penetration Testing of Website

Ethical hacking or penetration testing has been one of the accepted practices of IT audit. The auditors should decide on these tests taking into account their own competence and whether any such tests are conducted by project management. In all cases, the auditor should take prior approval of the auditee before conducting any such tests.

4.5 Source Code

The auditor should see whether the package used open source system. The auditor should ensure that source code of the package is available with responsible government official. In case of eSeva it was noticed that private operator bluntly refused to share the source code with the government and the government got the same only at the instance of audit.

4.6 Segregation of Duties

This is one of the significant areas which is likely to be found lacking. Auditor should not merely check for clubbing of incompatible functions (database administrator and systems administrator) but should see it in overall context in relation to existence of any compensating controls before forming an opinion.

4.7 Protection Against Viruses, Worms etc.

Auditor should examine the project for adequacy of protection against Trojan horses, viruses, worms etc. A successful DoS attack on a well established E-Governance project leads not only to inconvenience but also severely affects the public confidence in the system.

4.8 BCP and DRP

Since most of e-governance projects are critical and huge in nature, the plans for Business Continuity and Disaster Recovery should be reviewed by the auditors.

Auditor should also examine the arrangements of Hot site, Warm site or Cold site as part of BCP. For example in one of the online ticketing projects entire data beyond a certain date was lost and could not be recovered due to absence of backup.

4.9 Use of Outside Expertise

Since SAI may sometimes be lacking in core technical skills like conducting network testing, website ethical hacking (penetration testing), testing firewall configuration etc, it is accepted practice to use outside experts. However, care should be taken to ensure that the outside expert agency does not misuse access to data and system. Proper confidentiality clause should be incorporated in the contract with the outside expert(s) for this purpose. The concerns of the auditee should also be taken into account in this regard.

4.10 Program Change Controls

This is an important area of concern for auditor particularly in a project of E-Governance. Most of the time, it may be noticed that program changes are made based on discussions of programmers with users without any documented approval procedure. This can lead to serious risk of unauthorized program changes.

4.11 Security Over Monetary Transactions

In e-governance initiatives involving eCommerce, security over monetary transactions becomes very important. Auditor should ensure that adequate control exists to account for the collection of money, prevent misuse of credit card information, etc.

5 Data Analysis

5.1 Use of Audit Tools

Auditor may use tools like IDEA, MS Excel, SQL, MS Access etc to analyse the data. When e-governance integrates data between different departments etc, data transfer and integrity are of paramount importance. These tools can throw light on serious discrepancies in the database. Based on data analysis auditor can form an opinion as to whether the information generated from the e-governance project is reliable. Data analysis also helps auditor in forming opinion about various application controls like input controls, processing controls, output controls etc. In most e- governance audits many of our audit results were collaborated by data analysis using IDEA and SQL.

5.2 Use of Embedded Audit Module

In case the auditor is associated at the stage of development itself, (s)he can ask for an embedded audit module which copies exceptional data to a separate audit file for review by audit. Audit should also insist on adequate audit trails to be built in the application at the developmental stage.

6 Reporting Audit Findings

6.1 Balanced Reporting

Use of e-governance leads to increased transparency and helps further participatory democracy. Most of these projects have the capability of altering the power base in favour of people by helping curb corruption and misuse of power by the executive. These will always be many individuals who would like to see that these projects fail as they threaten the existing power structures. Auditor should be cautious to ensure that audit reports do not result in giving means to unscrupulous elements to kill the project. The reports should be balanced with recommendations. They should also reflect the efforts and success of government in implementing the projects. While performing IT audit of e-governance projects, the role of SAI is not only to bring lacunae to notice of legislature, but also to help project management improve the project.

6.2 Impact of Individual Observations on Overall Project

Auditor should take into account the impact of individual weaknesses on the overall project. Auditor need not report weaknesses for which adequate compensating controls exists. The report should clearly indicate the impact on overall project so that legislature/executive can decide on the need for corrective action.

Conclusion

E-governance is most of all about people, it is an enabler of change rather than an end in itself. On the issue of e-governance it is often seen that it is not the government which sets the agenda but the enlightened citizenry, and credible organizations have an important role to play. SAIs can play an important part in this process by auditing these e-governance initiatives in a constructive manner. This will not only help in assuring the legislature about the usefulness of these initiatives but also lend credibility and create trust amongst citizens for these services. E-governance

seeks to completely change the way we perceive the government. Here the role of audit is to give an opinion about processes ensuring the security of sensitive data, and creating trust among citizens and businesses that may be understandably nervous about transacting business on-line. Development of e-governance is at incipient stage in India. Our reports should therefore ensure that they are balanced with sufficient coverage of achievements of the project management. Extremely critical reporting from SAI without coverage of positive achievements would hamper the development of e-government. Therefore, auditor should ensure that the reporting is balanced and constructive.

7. Argentina
Experiences in Auditing E-Government

1 Introduction

1.1 Background

In recent years the need has emerged for a frame of reference to be devised for auditing management strategies based on information and communication technology (ICT) which have become known as "e-government". The reasons are easy to understand: the Internet has generated a globalized information society in which data travel across boundless networks, a fact which makes it possible to conceive of administering State-citizen relationship issues in real time, handling huge volumes of data. This has given rise to new problems, such as:

- A trend towards major change in organizations, taking advantage of the opportunities offered by the new technologies;
- Greater dependence on information and on the systems that provide it;
- Increased vulnerability of organizations to a wide range of threats, such as computer crime;
- The scale and costs of current and future investments in information systems that are constantly growing;
- Pressure from social actors for every organization to handle ICT-based services such as Web pages.

The whole of society is involved in this situation. However, it is possible to identify two distinct areas, which, while having similar problems, present significant differences of approach, i.e. private organizations and State agencies.

Private organizations define within the elements of their strategy the target which they wish to reach with their products and, from there, determine their Internet communication strategy. For example, a firm selling expensive cars will aim its Web page at a segment with strong purchasing power and may infer that that sector will have latest-generation access systems. Similarly, it will be able to post on its Web page advertisements and offers that will focus the user's attention and shape the profile of the information which it wishes to transmit.

By contrast, State agencies must necessarily address society as a whole, which means not ignoring the technology gap among citizens. All their designs have to be conceived with this objective. Web pages should be free from elements that distract attention, so that the user will focus directly on their objective, and they also have to provide full information with no restrictions other than those stemming from the law.

In short, while private sites serve a specific interest (commercial, educational, informative, etc.), government sites have a public purpose, which is concerned not only with improvements in governments' administration but, more especially, with basic principles of the democratic system, such as the publicizing of acts of government, transparency, education, etc.

It is with this aim that a large number of Web sites have been developed as an effective tool for communication between the public and the State in such areas as tax payments, inquiries, reporting and information on State administration, in other words "e-government".

1.2 Consequences in the Field of Audit

One consequence of this technological progress has been the need to incorporate new control matrices aimed at the governmental sphere, in particular for checking the efficiency and effectiveness of sites in ensuring proper and transparent state-citizen relationships.

For supreme audit institutions (SAIs), whose function as external auditing bodies accountable to Parliament is known, the audit approach must not overlook the fact that the outcome of their work, i.e. the audit report, will, because of its independence of opinion and technical basis, become a valuable tool for governmental agencies to carry out their e-government initiatives successfully.

In order to contribute to this, the Auditoría General de la Nación (AGN) has adopted a philosophy based on five principles, whose development was presented at the EUROSAI/OLACEFS conference in May 2004, to which we will refer, with details of information technology (IT) auditing tools.

For the sole purpose of examining the elements to be used in developing an audit example, we will summarize the basic definitions of all the concepts, as explained in London, and would point out that each one gives rise to audit procedures aimed at ascertaining the extent of application in each case.

It should in addition be stated that the audit programme design also incorporates recommendations by specialized international bodies, which constitute a set of good practices in this field. Of those sources the main ones are cited at the end of this document as an annex.

1.3 Fundamental Principles

1.3.1 Usability

Usability means that users of a site can perform the proposed tasks in a simple and effective manner.

It is based on the use of a series of rules that ensure this facility. Among these we can mention the following: speed and reliability, security, absence of errors, simplified and optimized design, absence of unnecessary distracting elements and user-friendly content.

1.3.2 Accessibility

This means designing sites and implementing technologies to allow interaction with a maximum number of users irrespective of the different connection devices that may be employed and their degree of advancement, for example by permanent accessibility solutions so that old technologies function properly, and with access mechanisms for people with special needs.

1.3.3 Content

Its purpose is to communicate information effectively. That objective is achieved through the use of techniques for agency identification that ensure and include essential information for the home page. Among other more obvious aspects, the following should be emphasized owing to their importance: the need for links to full pages that display the agency's missions and functions, its structure and the legislation applicable to it, complaints procedures, privacy policy and links to related agencies.

1.3.4 Traffic audit

This provides key information for sizing the system and thus evaluating its efficiency and effectiveness. It is necessary to use an audit methodology based on procedures that allow historical and real-time monitoring in order to ensure appropriate checks and balances.

1.3.5 Security

The purpose of security is to protect resources regarded as important within the organization where the system operates. This requirement sometimes imposes certain demands on users, which must always be acceptable and not constitute an excessive burden. The system's protection has to have a bearable cost. The aspects to be evaluated in this area are user identification procedures, network intruder detection and, most especially, risk analysis.

2 Audit Model for an E-Government Web Site: Control Objectives

2.1 Legal Aspects

As an external public sector oversight body, AGN has to undertake regulatory audits as part of its work, and e-government auditing is not exempt from this. Consequently, in addition to the technical checks referred to below, controls to ensure compliance with the law also have to be carried out.

There is a set of regulations that auditors have to take into account when conducting their examinations and which encompasses, inter alia, the following issues stemming from current legislation: (1) management of information and IT; (2) transparency in the administration of public resources; (3) personal data protection and (4) intellectual property.

With regard to the management of information and IT, it will be necessary to check for compliance with the Financial Administration Act (Law No. 24156), which indicates the following as ICT objectives: the standardization of operations for programming, managing and evaluating national public sector resources; the development of systems to provide timely and reliable information on the financial conduct of the national public sector; and the guarantee that comprehensive, reliable and timely information is provided to the public on a periodic basis.

Law No. 25152 is concerned, among other aspects, with the question of transparency in the administration of public resources and it lists the documentation that has to become public information and be freely accessible to any person wishing to obtain it, e.g. statements of resource and expenditure budget execution showing final breakdowns, purchase orders, payment orders, human resource data, details of the regulation and control of public services and status reports on the public debt, among other information. In order to comply with this Law, the Ministry of Economic Affairs has set up an inquiry site, on which all information is gathered and which has undergone

an audit of both its technological aspects and its content by AGN. The report generated has provided useful recommendations for the audited agency, which will contribute to the process of continually improving the site.

As regards personal data protection, the Habeas Data Act (Law No. 25326) refers to the comprehensive protection of personal data entered in files, records, databanks or other technical data-processing media, whether public or private, in order to safeguard individuals' right to privacy and the right of access to any information recorded on them, in accordance with the provisions of the National Constitution.

The audit objective in this case is to check that agencies responsible for personal data files have adopted the necessary technical and organizational measures to guarantee their security and confidentiality in order to prevent their adulteration, loss or unauthorized processing or consultation, whether the risks arise from human action or from the technical means employed.

With regard to intellectual property, Law No. 25036 requires that, in the case of every software development, checks be made for compliance with the provisions relating to copyright protection in respect of source and target computer programs, data compilations and licence contracts for the use or reproduction of programs.

2.2 Technical Aspects

The auditing of Web sites is carried out by means of procedures designed to check for compliance with the five principles referred to above and other relevant objectives. Law No. 24156 specifies that AGN's functions include the formulation of external auditing standards to be used by the institution.

To that end AGN has prepared an IT audit manual containing the procedures that must be applied in audits of this type. It incorporates the international good practices in this field: the COBIT, INTOSAI, etc. standards.

The manual sets out control objectives in line with the fundamental principles referred to above, rating them according to risk level and maturity so that each finding can be clearly weighted.

Some concept and examples of them are outlined below.

2.2.1 Administration of the web site

a) Defining a development plan

A technology infrastructure plan has to exist and be updated periodically. The plan must include aspects such as systems architecture, technology management and information strategies.

Within this aspect the following must be guaranteed:

- Technology infrastructure planning;
- Monitoring of future trends;
- Evaluation of technology infrastructure risks;
- Hardware and software acquisition plans;
- Definition of technology standards.

In order to check the attainment of this objective, we have to:

- Assess whether there is proactive monitoring of technological changes with a view to identifying threats and opportunities, with clearly assigned responsibilities and a defined procedure, supported by confirmed and reliable resources;
- Analyse whether a research, prototype formulation and test centre has been established in order to demonstrate the return on investment and identify limitations and threats;
- Check whether infrastructure planning is reflected by plans for acquisition of technology and for selection and training of personnel, taking into account rules and policies concerning the use of such technology;
- Ensure that blueprints and migration strategies exist to bring the agency from current to future ICT infrastructure status;
- Analyse whether ICT infrastructure and planning assumptions undergo independent re-evaluation at appropriate intervals;
- Check whether ICT is evaluated periodically in order to monitor risks;
- Assess whether open exchanges on new technological developments and good relations with suppliers and third parties encourage a benchmarking process.

b) Monitoring changes

Sites should introduce a change management system that makes it possible to analyse, implement and follow up all changes requested and undertaken within the existing

ICT infrastructure. For that purpose there should be specific procedures to deal with requests for changes and systems maintenance.

In order to audit this control objective, we have to explore whether a methodology exists for prioritizing requests submitted by users and is being employed; whether procedures for emergency changes are covered in the operating manuals; whether monitoring changes is a formal procedure for user and development groups; and whether the change control record guarantees that all changes entered have been dealt with.

c) Usability

On the Web page itself it is checked that, from the user's position, the page delivers the requested information without major effort, is fast rather than visually attractive, reliable rather than modern and also error-free so that reliability is not lost (which can give rise to loss of the user).

d) Managing content

Managing content

The audited site should provide for adequate content management based on studies of visitor demand and available resources. The content and services generated should be in line with existing Web site regulations produced by superior bodies. Controls should be designed for site publications.

To check this objective, procedures should be implemented for the purpose of ascertaining whether a response to each request received is guaranteed and whether the visitor's impressions are summarized as useful data for making improvements in content, services and design.

Institutional image

It is checked that the designs of government sites are mutually consistent with a view to facilitating citizens' use.

e) Accessibility

Accessible design standards

It should be checked that generally accepted national and/or international site design practices that are advocated by recognized institutions, in particular the practices recommended by the World Wide Web Consortium (W3C), are followed.

Among other issues, it should be ascertained that the use of frames is minimal; that access is possible irrespective of the input device that may be used: keyboard, mouse or voice recognition, among others; that pages developed with new technology are always accessible, even by users that do not have it; that accessibility is also ensured in cases where scripts, applets or other objects are turned off or not supported; and that every non-text element (images, symbols, animations, applets, buttons, video, sounds) has text equivalence.

f) Physical security

This is a key point given the attraction of government sites to persons with malicious intent. The approach to this issue can be divided into three areas: systems security, basic software security and physical security of the Web server.

Systems security

In a systems security audit it is checked that a strategic security plan exists covering centralized administration and control of information systems security; that a clear pattern of responsibilities exists; and that formal procedures exist for resolving problems concerned with system access and centralized administration on password policies.

Auditing of firewalls occupies a crucial position since its purpose is to determine whether all incoming and outgoing traffic crosses the firewall, it being pointed out that only authorized traffic can pass, the firewall itself remaining immune to penetration. Procedures will be carried out to ascertain that the firewall architecture combines control measures both at application level and at network level, generating alarms in the event of suspicious activities (intruder detection system (IDS)).

Basic software security

Appropriate procedures should exist to record changes in the configuration of communications equipment.

Critical updates of the operating system as recommended by the product manufacturer and/or supplier should be provided for in order not to jeopardize the system's security and performance.

Physical security of the Web server

Monitoring access to the server room

It should be checked whether appropriate measures are established for monitoring access to IT facilities in accordance with the general security policy, including the use of information devices outside the premises. Access should be restricted to authorized persons.

Protecting the room against environmental factors

It should be ensured that sufficient protective measures are established and maintained against environmental factors (e.g. fire, dust, electricity, excessive humidity or heat). Specialized devices and equipment should be installed to monitor and control the atmosphere.

3 Examples of Audit Findings

AGN's experience in auditing Web sites is producing important findings, which are applicable to specific cases, for example:

Regarding system administration and strategy:

- Absence of technical studies to determine the IT infrastructure necessary for continuous improvements required by the site;
- Lack of development of the site since its creation;
- No initial project life-cycle documentation, including a technical and economic feasibility study of the site (audience, content and functionality, visual design, usability tests and prototypes), surveys and administration of the project;
- Lack of proper planning of the server audience peak in order to carry out a procedure laid down by law, with the result that the site was virtually inaccessible during working hours;

Regarding the user interface:

- Lack of procedures for recording visitors' impressions, which can be of use in making improvements to the content, services and design of the site;

- No detailed analysis of the audience or preferences of users of the site;

On the technical aspect:

- Administration of site improvements or requirements was not incorporated in the change management tool used by the agency for its other applications, with the result that control in the development of each of the life-cycle stages was lost;
- Absence of documentation on procedures for updating data warehouse data;
- No recording of requests for changes to parameters in communication devices (such as the firewall) in the area responsible for requests, with no possibility of identifying formal procedures for monitoring such configuration changes;

As regards usability:

- Little consistency with the design of related sites or even between different sections of the site itself;
- No links to other government sites;
- Absence of identifiers showing who publishes the Web page;
- Images with links without their text equivalence;
- Graphics with links that cannot be accessed using input devices other than the mouse;
- No search results obtained for words with a tilde, even though they exist in the site dictionary;

Regarding security:

- Generic accounts were found in the operating system;
- Default accounts were found in the operating system;
- Generic users were found with roles equivalent to DBA;
- The operating system and the Web server did not have the latest security patches installed.

By generalizing the findings, we observed that, with regard to content, more than half the sites surveyed did not include key data on the agency's organization, almost no sites presented data on their budget or their purchases and procurement, and the majority displayed different addresses, news items and publications.

As regards basic facilities, few sites have site maps, search engines or sections on frequently asked questions (FAQs).

Concerning accessibility, it was found that almost none had text to explain images or graphics but eight in every ten had a design that facilitated reading.

The incorporation of interactive forms differs.

4 Final Remarks

We have attempted to examine the background against which e-government is emerging as a modern expression of government administration, the challenges that this fact poses for public auditing, the philosophy and practices that we are adopting to confront this issue at AGN and some partial results, which are the outcome of our work in the field. This is a new area of action, where we are learning every day and making use of international experiences to that end.

As can be seen, we have discovered shortcomings of various degrees, which appear as observations in our reports. However, we also found that thousands of transactions and inquiries are made every day by electronic means and via Web pages. Governmental agents, often under pressure through the need to show results, are proceeding in a disorderly fashion. In view of this, efforts are being made to achieve consistency in site developments through the National Information Technology Office, which was recently audited by AGN and whose sphere of activities includes such important issues as the modernization plan or the establishment of digital signatures, which has been mandatory for all agencies in the national public administration since the enactment of the related law, in 2001, albeit still with a degree of experimental implementation.

Therefore, the audit findings, rather than discredit site administrators, alert us to the responsibility of SAIs on this matter. That responsibility can be seen in the need to maintain ongoing updates in order to produce timely and effective reports that will help administrators manage reliable, safe, readily accessible and useful sites. Also, given their institutional status, SAIs have a role to play as key actors in the field to ensure the attainment of the public aims present in e-government initiatives.

Reference materials

- World Wide Web Consortium (W3C), an organization dedicated to promoting the WWW and the design and standardization of Web technologies.
- Secrets of Successful Web Sites: Project Management on the World Wide Web, by David Siegel.
- Common Sense Approach, Steve Krug, reference material on usable design philosophy.
- Internet Legal Forms for Business, by the Cyberspace and New Media Law Center.
- Graphics and Web Design Based on Edward Tufte's Principles.

- What is the Rational Unified Process? by Phillip Krutchen, Rational Software Canada.
- The Twenty Most Critical Internet Security Vulnerabilities (Updated): The Experts' Consensus, Version 2.504, 2 May 2002. Copyright 2001-2002, produced by the SANS Institute.
- An Introduction to Data Warehousing, by Vivek R. Gupta.

8. South Africa
E-Procurement

Introduction

Today, governments in both developed and developing countries are following the 'new economy' transformation of manufacturing and service industries. Governments are moving away from the bureaucratic organisation around agencies operating like 'stove pipes' and are streamlining their functions according to the needs of the citizens. At the same time, governments are striving to dramatically improve their internal efficiency and effectiveness – both the cost and the quality of governance.

Information technology (IT) plays the role of a key enabler of this modernisation of government. It allows both individual citizens and companies to be offered the opportunity of interacting (and even conducting business) with government seven days a week and 24 hours a day, and to do so using different means of communication: desktop and handheld computers, telephones and cellphones, self-service kiosks and ATMs.

IT also offers endless possibilities for improving the internal operational and support functions within the realm of government.

In this presentation I will focus on:

- The use of e-business, and in particular e-procurement in these 'back-office' improvements taking place within governments;
- The many benefits e-business could have for government, businesses and, indirectly, the citizens;
- The risks related to the implementation of this technology that we, as auditors, should consider;
- Best practices and controls to address these risks that auditors should recommend and, finally
- The challenges facing auditors where e-procurement is implemented at our auditees.

The South African government has taken its first tentative steps towards e-government. Throughout the presentation, I will refer to these endeavours, particularly in the field of e-procurement.

E-Business and E-Procurement

Let's start off with the concepts of e-business and e-procurement.

The term e-business is used by different parties to mean different things. The Information Systems Audit and Control Association (ISACA) defines e-business as the processes by which organisations conduct business electronically with their customers, suppliers and other external business partners, using the Internet as an enabling technology. It therefore encompasses both consumer-to-government and businesses-to-government transactions.

The consumer-to-government relationships refer to the provision of services and government information to citizens. This relationship is regarded as the main focus of e-government initiatives.

The business-to-government model covers all transactions between business and government organisations. In many countries, including South Africa, electronic interchanges between these parties have already been implemented in areas such as VAT returns and the payment of corporate taxes. For purposes of this presentation, we will focus on the application of the model in the field of public procurement, termed E-procurement.

E-procurement is the term used to describe the use of electronic methods in every stage of the purchasing process from identification of requirement, tendering, through to payment and, potentially, to contract management.

The business process that would be followed in e-enabled purchasing would, in its simplest form, entail the following:

All requisitions are created electronically. An automated approval process transforms the requisitions into purchase orders. The approved orders are electronically routed to the government suppliers who, in turn, ship the goods and send the invoices back to the government organisation, possibly electronically. The invoices are paid electronically.

In instances where government suppliers have not been identified, the process will also include an electronic tender process. In addition, such a process will typically also include the updating of inventory and asset registers with the goods received, based on which the system will 'allow' the payment of the invoice to take place.

The process described is based on the procurement of goods, but is as applicable to the delivery of services to government by suppliers.

While governments have been understandably slow in the implementation of these technologies, E-procurement has been credited with providing significant benefits to the private-sector companies who 'adventured' into them.

Benefits of E-Procurement

The benefits of e-procurement include:

- Improvement of efficiency (the way people work)
- Reduction in administrative costs
- Shortening of order fulfilment cycle time
- Improved commercial relationships with suppliers
- Lowering of inventory levels and the price paid for goods
- Reduction of costs for suppliers dealing with government
- Opening up of the government marketplace
- Improvement in management of the supply chain

In short, the overall reduction of costs and thereby making the tax revenue go further, is the ultimate driver for E-procurement projects.

Some big private-sector companies are now achieving annual savings in the region of 20 % by putting their supply chain on the Web. If government services in South Africa could replicate that, they could save around $ 500 million on the procurement of materials and services on national level alone. $ 500 million in South Africa is enough to pay for 125 000 houses to replace part of the 1 million informal structures, termed shacks, that poverty stricken communities are living in.

According to the Economist, an indirect benefit of government implementing E-procurement is the catalytic effect it would have on business in general. Just as Ford and General Motors can push their suppliers into doing business with them through online exchanges, so can governments, thus galvanising thousands of small firms into becoming e-businesses. By harnessing the inherent efficiency, transparency and accountability of the Web to improve all aspects of business-to-government transactions, a tremendous economic boost could be initiated.

Throughout this discussion on the benefits of E-procurement, reference has been made to supply chain management because E-procurement is expected to be integrated into the trend towards computerised supply chain management which, in South Africa, has been the case.

Supply Chain Management in South Africa

The South African government introduced its procurement reforms in 1995. These reforms were directed at two broad focus areas, namely the promotion of principles of good governance and the introduction of a preference system to address certain socio-economic objectives. The procurement reform processes were supported by the introduction of a number of legislative measures. However, as the procurement reform measures in the national sphere of government were replicated by the other organs of state, very divergent interpretations of government's procurement objectives and strategies emerged.

In response, government adopted a strategy in 2003 to promote uniformity in the procurement reform processes. Some of the initiatives thus introduced were the concept of supply chain management and the uniformity in the implementation thereof, as well as enforced minimum norms and standards.

The elements of government's supply chain management processes include:

- Demand management, which basically relates to the determination of a needs assessment.
- Acquisition management, the stage where bidding and contract administration is done.
- Logistics management, which includes the placing of orders, receipt and distribution, coding and warehouse management, as well as the activation of the financial system to generate payments.
- Disposal management, which is self-explanatory.

Following on the adoption of the strategy, the National Treasury commenced with the development of a systems master plan for an integrated financial management system that would conform to all requirements. This master plan was to include the systems requirements, including the requirements for e-procurement, to fully support the adoption of the proposed integrated supply chain management function. The development of the integrated financial management system with its e-procurement capabilities is currently at proposal stage. If all goes well, the Treasury is expected to commence with the project within the next year. The new system and its E-procurement capabilities will be implemented in phases.

The integrated financial management system to be used for national and provincial government has been on the horizon for a number of years. As auditors, we have been concerned that Treasury might be also be walking into the trap of adopting new technology to address deficiencies in its processes and control environments.

Our office has often seen government organisations developing and acquiring systems (mostly ERP) as a result of persuasive sales talk by IT consultants. These systems were hyped to streamline processes and improve control and monitoring. In many cases these systems, when implemented, not only resulted in an overdependent and very expensive relationship with the consultants concerned, but also in many cases further weakened the control environment of the entity.

However, in the case of the integrated, e-enabled system being developed by Treasury, the cautious approach of first putting some uniformity, standards and norms in place across the various spheres of government, before attempting to implement a complex E-procurement system, could increase their possibility of success.

In addition, the development of a new system instead of trying to integrate E-procurement technology with existing legacy systems might also in the long run prove to be the right, although expensive, decision. Studies have shown that e-procurement initiatives sometimes fail when companies jump onto the E-procurement bandwagon without fully understanding the complexities of integrating these technologies with existing systems.

The risks of an e-procurement project such as the one South Africa is undertaking would be similar to those of any other e-government initiative and would impact on the economy, efficiency and effectiveness of the investment being made.

I want to, however, focus on the specific risks relating to the use of e-business for government procurement.

Risks of E-Procurement Systems

E-procurement depends on a level of trust existing between two parties. The Internet presents the following challenges:

- Proving to buyers that the sellers are who they say they are;
- Proving to buyers that their personal information will remain confidential and that
- The seller will not be able to refute the occurrence of a valid transaction.

Some of the most important elements at risk are therefore:

- **Confidentiality** – Within the business environment, potential consumers are, for a number of reasons, (rightly) concerned about providing unknown vendors with personal, sometimes sensitive, information. These reasons include the possible

theft of credit card information from the vendor following a purchase. Connecting to the Internet via a browser requires running software on a computer that has been developed by someone unknown to the organisation. Moreover, the medium of the Internet is a broadcast network, which means that whatever is placed on it is routed over wide-ranging and essentially uncontrolled paths.

The risk will be less pronounced in the business-to-government interactions as unknown vendors are rarely used by government. It is also expected that the contract arrangements with the approved suppliers will include specific provisions in terms of confidentiality and security. In addition, very little credit card purchasing takes place in the government environment as payment is usually effected by way of electronic funds transfer. However, the transfer of any information across the Internet remains a risk.

- **Integrity** – Data, both in transit and in storage, could be susceptible to unauthorised alteration or deletion through hacking or viruses. The e-business system itself could also have design or configuration problems.

- **Availability** – The Internet holds out the promise of business being done on a 24-hour, seven-days-a-week basis. Hence, high availability is important and any system failure would become immediately apparent to business partners and might result in delays and costs.

- **Authentication and non-repudiation** – The parties to an electronic transaction should be in a relationship that involves a high degree of familiarity and trust, which should, furthermore, require that they prove their respective identities before executing the transaction to prevent man-in-the-middle attacks (i.e. preventing an impostor from posing as the seller). After the transaction, there should be measures for ensuring that the transacting parties cannot deny that the transaction was entered into and to confirm the terms on which it was completed.

There are advantages for us, as government auditors, in government coming late to the Internet. In the private sector, these risks have been around for a number of years and best practices and good control frameworks have been developed to address these risks. I will briefly take you through a number of best practices that can be recommended by us as auditors and which are also used as a yardstick in determining the maturity of the entity in addressing the risks associated with E-procurement.

E-Procurement Best Practices

When reviewing the adequacy of controls in e-procurement applications, we should assess the application of the following:

- A set of security mechanisms and procedures which, taken together, constitute a security architecture for e-business (e.g. Internet firewalls, PKI, encryption, certificates and password management)

- The firewall mechanisms that are in place to mediate between the public network (the Internet) and the private networks of government

- A process whereby participants in an e-business transaction can be identified uniquely and positively (e.g. the process of using some combination of public and private key encryption and certifying key pairs)

- Digital signatures with which the initiator of an e-commerce transaction can be uniquely associated

- An infrastructure to manage and control public key pairs (i.e. public key infrastructure – PKI) and their corresponding certificates, which would include a certificate authority (CA), possibly a registration authority, a certification revocation list and a certification practice statement, which is a detailed set of rules governing the certification authority's operations.

- The procedures in place to control changes to an e-business application and architecture

- Logs of e-business applications, which should be maintained by responsible personnel. Such logs would include operating systems logs and console messages, network management messages, firewalls logs and alerts, route management messages, intrusion detection alarms, application and server statistics and system integrity checks

- The methods and procedures for recognising security breaches when they occur (network and host-based intrusion detection systems),

- The features in e-business applications that enable the reconstruction of the activity performed by the application, i.e. the audit trails,

- The protection measures in place to ensure that the data collected with regard to the parties to the transactions would not be disclosed without their consent nor used for purposes other than that for which it was collected,

- The means of ensuring the confidentiality of data communicated between government and vendors (safeguarding resources, e.g. by way of an encrypted secure socket layer),

- The mechanisms for protecting government's private networks from computer viruses and for preventing them from propagating viruses to suppliers,

- The features within the e-business architecture that prevent components from failing and, should they fail, allow them to repair themselves,

- A plan and procedure for continuing e-business activities in the event of an extended outage of resources required for normal processing,

- A commonly understood set of practices and procedures to define management's intentions regarding the security of e-business,

- A shared responsibility within an organisation for e-business security,

- Communications to suppliers about the level of security in an e-business presence,

- A regular program of auditing and assessment of the security of e-business environments and applications to provide assurance that controls are present and effective.

Many of these areas of auditing are part of the normal general control audits performed by information systems (IS) auditors. However, the architecture used for e-business and the risks associated with transacting via the Internet increase not only the scope of a normal general control audit, but also the complexities of such computer audits. Which brings me to the challenges we as auditors face in performing our financial, computer and performance audits in an e-business environment.

Challenges Ahead

I have attempted to keep the presentation as non-technical as possible. It is, however, inevitable that the auditing of e-enabled procurement processes will present us with a number of challenges.

In an e-procurement environment, reliance on IT systems and controls is essential, as there is little or no original paper evidence against which to check transactions. In terms of our auditing standards we are required to ensure that within our audit teams we do have the required skills and knowledge to perform the necessary computer audits. The financial audits in an e-procurement environment will, however, also require some basic IS auditing skills as the business processes will be fully computerised and more use will, for example, be made of computer assisted auditing techniques (CAATs).

In the South African audit office we have been building up the IS audit skills of staff within a specialised unit. Our staff are trained, developed and provided with support to qualify as Certified Information Systems Auditors (CISAs). The certification is done by the Information Systems Audit and Control Association (ISACA) and staff registered with the association is required to undergo continued professional education.

Although moderate success has been achieved in growing competencies, the high demand for IS auditors is South Africa has resulted in a relatively high turnover of staff. We have also been struggling with the decentralising of the IS audit component, which would constitute a move closer to empowering the financial auditors with the required skills.

Financial auditors are still hesitant to tread into the domain of computerised systems as it is seen as a highly specialised environment. It is, however, foreseen that this reluctance might disappear in future as university curricula introduce IS audit courses and the younger generation become more comfortable with all things computerised.

The auditing of any Internet-enabled systems remain a challenge, however, even to the qualified IS auditors. The auditing of networks, which include firewalls, routers, switches and encryption, is extremely technical and requires the use of technological tools and methodologies we currently do not possess.

In the South African office, we have met with some success in this area of auditing by contracting in technical network specialists. These people are not audit qualified but have the up-to-date knowledge on the threats and vulnerabilities within different networking environments. They also have the expertise to recommend applicable technical measures based on industry best practises to the system administrators in government, providing them with value for their audit money.

Yes, we are concerned about being ready for the big ‘E’. Continued training and education, collaboration with network specialists and knowledge sharing between SAIs can ensure that we become competent and confident in addressing the challenges.

Conclusion

In conclusion, successful implementation of procurement processes, integrated with supply chain management and systems enabled by the Internet will benefit citizens since they will have assurance that their administrations are spending taxpayers money in a more cost-effective way.

E-procurement, even most than other e-government initiatives, is, however, still in its infancy in most countries, especially in the developing countries.

We as SAIs therefore have the opportunity to prepare ourselves to ensure that we understand the risks related to the use of this technology, can recommend best practices and controls and have the appropriate skills, methodologies and tools to perform the required IS, financial and performance audit work.

V. REPORTS OF THE WORKING GROUPS

1. Report of Working Group 1 (Report of the English Working Group 1)

The Working Group chaired by India comprised delegates from Denmark, Lithuania, Malta, Mongolia, The Netherlands, Poland and Slovakia.

1 The Definition: What is E-Government

The group agreed with the INTOSAI definition of e-government. Netherlands and Poland, however, had a view that any electronic means of communication between government and citizens can be considered as e-government.

2 Audit Issues

a) The issue of centralized versus decentralized systems was hotly debated. Countries like Malta and Netherlands felt that "one stop shop" approach to deal with e-government is better, considering the size of the country and the population. India felt that in a highly centralized system audit has to focus on redundancy plans including business continuity and disaster recovery.

Denmark stated that the Ministry of Finance has a framework for e–governance and implementation and funding is mainly controlled by state institutions and the local authorities. Lithuania stated that the government has an e-government strategy and the audit office evaluates the implementation of this strategy annually.

The group, as a whole, felt that the governments should set a policy on e-government and the issue of centralization should be left to the respective governments.

b) Audit of system under development for e–governance was seen as a risk area and there was a divergence of opinion. Malta, Poland, India and Denmark agreed that audit should be associated with the under development projects especially at

the design and acceptance stages. Denmark however stated that capacity problems at SAI must be addressed in order to tackle this problem.

A lack of clearly defined measurable objectives by the government for the e-government was seen as a weak area of implementation of e–governance. This also made it difficult for the auditor to evaluate the benefits of e-government.

c) All countries felt that in order to take full advantage of e-government the citizens should be spared the effort of submitting the same information to different departments. This could be addressed by having a unique identification number. Moreover India felt that audit will be required to look into data security and privacy issues in such cases.

d) All countries agreed that the main objective of e-government is to have a better, more efficient, responsible and transparent government. Cost benefit was seen to be an important but secondary issue to improved governance. However Denmark in view of demographic profile of its population felt that cost benefit was the most important issue of e-government (better service with lesser resources).

The group also felt that the experiences regarding audit of e-government should be shared by INTOSAI members using the INTOSAI website. This should not only cover the findings but also the methodology and the challenges faced.

Regarding the issue of citizen satisfaction it was felt that survey methodologies should be employed. Some countries felt that this technique is acceptable in principle, but surveys do not form a part of audit methodology in their respective SAIs.

3 Audit Organisation

All countries agreed that SAIs should play a proactive role in promoting e–governance as it leads to more transparency and better services to the citizens.

All countries except one SAI did not have any problem regarding the mandate. One participant stated that his SAI has difficulties in obtaining soft copies of the data. This severely hampered the audit function.

4 Types of Audit Undertaken

All countries felt that e-government should be subjected to performance as well as IT–audits.

5 Building Skills

All the countries unanimously felt that auditors should be trained in different IT-skills. To conduct IT-audits of e-government, the auditors will need to be imparted with skills in information security audits, Computer Assisted Audit Techniques (CAATS) etc.

The group also accepted the possibility of associating external experts in auditing complex e-government initiatives. However it was felt that in order to actively liaison with the experts, the auditors will need to have sufficient IT-audit skills. The importance of proper confidentiality clause while associating the experts was also stressed by the group.

The group also felt that instead of calling experts from the ”market” it would be better to get experts from other SAIs who have experience and expertise in auditing e-government.

6 Recommendations

UN-DESA

The UN-DESA should play a more proactive role in getting both, the SAIs and the governments on the same platform to discuss the importance of e–governance as an agent of social change (by bringing in a more responsive and transparent governance) and the importance of audit in evaluation of e–governance and its benefits.

INTOSAl

INTOSAI should create opportunities for resource sharing between SAIs for audit of e–governance. This should, amongst other things, include creation of a message board on the INTOSAI website for exchange of ideas.

Audit of e–governance should be an area of focus for the training material prepared by INTOSAl.

Government

The governments should have a clear policy regarding e–governance in their respective countries and the objectives should be clearly defined as per the SMART criteria (Specific, Meaningful, Agreeable, Realistic and Timeframed).

Since e–governance brings in new risks the assistance of SAIs can be taken for risk evaluation by the governments.

And Finally

E–governance operates at different levels,

- For the developed countries it means better provision of services in a cost effective manner,

- For the middle income developing countries it means an agent of social change and

- For the least developed countries it represents an opportunity to catch the crest of a wave and install automated solutions integrated with e–governance.

INTOSAI and UN have taken an important initiative and this should be carried over on a much larger scale having representatives from the government as well.

2. Report of Working Group 2 (Report of the English Working Group 2)

The Working Group chaired by South Africa comprised delegates from Bangladesh, Buthan, Ethiopia, Fiji, Israel, Jamaica, Japan, Lesotho, Malawi and Namibia.

The SAIs that were presented in the working group were mostly from developing countries. With one or two exceptions, the governments of these countries have only started taking tentative steps towards e-government. As a result the experience of the SAIs in auditing e-government initiatives and IT audits are limited. Consequently the discussions in the group and this resultant report does not endeavour to address the textbook definitions and practises of e-government, but focuses on the experiences of the SAI and what SAIs of developing countries can do to address the challenges being faced. In order not to again repeat what has been said before the report will only focus on a few issues. The paper provides all the details and expands on these issues and many more.

General Remarks

For purposes of our disucssions e-government was defined as the delivery of services to citizens by making use of IT. This also includes improving internal efficiencies and effectiveness by means of IT. In short improving both the quality and cost of governance by using IT as a key enabler.

Although e-government has many advantages, it should not be viewed as a "destination" for countries. It is also not the mission of SAIs to encourage the adoption of e-government initiatives. SAIs as always should focus on ensuring the government sees the citizens of the country as their primary stakeholders and that they have an "orientation" towards service delivery, by which ever means required or available.

Much has been said about the digital divide, especially in developing countries. It is true that only a privileged few might be able to access the Internet in the comfort of their own homes and make use of the services provided by government. However, in the SAIs' experience governments are using ICT to bridge the divide. Examples are by means of access points at post offices, self-service kiosks and cybercafe's where help is on hand for people that want to make use of the technology even if only for information services. This is in sharp contrast with the better known situation of citizens

having to undertake strenuous journeys and stand in daylong queues just to get information. There are many examples also in the arena of e-learning and fine examples of the use of also other technologies such as mobile phones to provide citizens with access to information.

Mandate

The SAIs have the following four challenges in terms of their mandates:

- Not all SAIs are fully independent from government, which impacts on their ability to outsource IT audits or recruit staff with the required skills.

- SAIs in the developing countries do not always have the mandate to audit donor funds. Many IT initiatives in these countries are financed by means of donor-funding.

- Although the SAIs' mandates are clear on the access provided to information in documentary form, it is not always that clear on access to electronic information. Although the general feeling from the group was that access to information refers to all forms of information, auditees question these mandates and are uncomfortable to provide access to confidential/ private information. This might not be a question of unclear mandates, but rather another ploy to stall the auditor, especially as electronic data is many times more complete, revealing and auditable than documentary evidence.

- As outsourcing has become the norm, SAIs are also experiencing difficulty in getting access to data as they are not the principle auditors of the IT companies. This should not be a problem as government stays the data owners, but the contracts are not always clear on this.

Audits Performed

With regards to audits being performed the maturity of the SAIs in conducting e-government audits are directly linked to the level of e-government rollout in the countries and also the skills levels in the SAIs themselves.

In the group the following audits are being performed:

- Financial audits on the procurement of hardware.

- Value for money/ performance/ efficiency audits on e-government initiatives – limited to the management of funds and projects in these initiatives.

- System development life cycle (SDLC) audits.

- Information system (IS) audits, including general control audits, security audits, application control audits, network audits, risk reviews etc. (mostly by South Africa).

The concept of e-auditing has been widely accepted by SAIs as a computerised government provides SAIs with many opportunities to perform more efficient audits since data/ information is more readily available than in the past. The use of Computer assisted auditing techniques (CAATs) is common within the SAIs. Software is used for managing and documenting audits (e.g. AIMS and TeamMate) and software such as IDEA, ACL and SSP is used for data analysis.

Challenges are being experienced with the availability of skills, but the following difficulties experienced also need to be highlighted:

- Limited information is available on the auditing of e-government initiatives, as it is a new area of auditing and unique to only the public sector.

- Getting access to government systems and data are at times a challenge. Auditees are concerned that the auditors can make changes. Auditors should never be provided with full access to systems, only enquiry functions should be allowed and documentary approval/ evidence of this limited access should be available.

- In the case of access to data, database and system administrators sometimes do not give full disclosure of the data available or gives highly technical reasons for not being able to provide data. Lack of IT skills at times causes the auditor not to pursue the matter further as they are uncertain.

- In the case of IS audits, there are a great number of standards, methodologies, information and frameworks available from the private sector. There is however a lack of information on best practises in the public sector and benchmarking can not be done.

- Keeping up with technological changes remains a problem. Auditees have various systems and require the IS auditor to be proficient in the auditing of different platforms and applications. These systems are frequently replaced by even more sophisticated ones.

- Auditing of system development is not effective when performed after the system has already been implemented. SAIs should consider getting involved earlier in the process. Where this has been done, SAIs however are faced with the problem of losing their independence, whether actual or perceived.

Audit Issues

The following are findings and risks the SAIs in the working group has identified in their countries:

- Departments and agencies have set up websites, as it is the fashionable thing to do. It is a costly exercise not only to get it set-up but also to maintain it and keep it updated and the value it provides is not always evident, especially in developing countries.

- The e-services (and websites for information) available are not communicated widely enough in the communities, resulting in it not being used.

- Government do not have the highly skilled IT resources required and as a result is over reliant on outsourcing (use of consultants). In many countries, these companies that IT functions are outsourced to, have become very powerful and even see themselves as the owners of the data on the systems. As governments can not readily move their business between different suppliers (the cost and effort involved would be too high) they have lost their "consumer rights".

- As a result of the lack of skills in government, they can also not effectively monitor the consultants and their performance. These consultants have in many cases unlimited access to the data of government (including citizens private information) and also have the access to change the data or perform transactions. For government to manage and monitor this risk they need IT skills. As a result there are even situations of having consultants to monitor the other consultants.

- These consultants main aim is to generate profits and as a result sometimes they sell very hard on technologies and developments. Governments often fall into the trap of being "bewitched" by the promises of technology, spending huge

amounts on projects without any returns or even ending up with “white elephants”.

- A high number of IT projects fail, not only in developing countries but even in countries such as the UK and Canada. The developing countries can not afford to waste money.

- The required legislation is not in place. This not only refers to electronic transactions and signatures, but also some basic issues such as archiving of electronic information. The institutions to enact and monitor adherence to laws are also not always in place. For example a regulation might require that all IT plans need to be approved centrally, but the central agency do not function.

- E-government and system development are not always centrally controlled and co-ordinated as a result of the autonomy given to different spheres of government even for each department. It is also a result of again, the lack of resources and skills to manage, monitor and control these efforts. This situation has as an outcome that departments within the same government have different systems and are at different stages of implementing their own e-service. Problems are now being experienced with interoperability of the systems. This issue has now become very relevant as e-government requires systems to “talk” to each other and to provide seamless services to citizens. In addition efforts are being duplicated across the country to provide e-services, resulting in higher costs.

- IT controls have been found to be weak in many areas including security and change management, which has a high impact on the reliability of the data produced by the systems. In addition business continuity and disaster recovery measures needs a lot of attention. All of these controls need to be of a high quality if considerations are given to interacting on the web as the risks will then increase and the vulnerabilities on the systems will be visible and exploitable by a wider “audience”.

- Lastly, control and business processes are defined not by the IT systems that they run on, but by the requirements of public finance management, legislation and the unique nature of government. Where these processes are not well defined the systems employed sometimes do not support the departments in what they need to achieve and it is even found that departments often have to work “around the systems”.

RECOMMENDATIONS TO GOVERNMENTS

Where governments has embarked on e-government the following recommendations can be made:

- Priority should be given to the areas where the highest return on investment can be made. For example to rather give priority to streamlining internal processes by means of IT before embarking on the provision of e-services. In addition it might be more feasible to first provide e-services to businesses (e.g. tax returns) as they might have more access to technology, have the skills required and might be more likely to make use of the service on a regular basis. Citizens might only transact with government at very infrequent intervals.

- E-government initiatives should be a co-ordinated effort with clear-cut outcomes and performance measures. There should be a vision and defined strategy that takes into account the priorities as defined. Being clear about what government need and want also assist in making better decisions in interactions with IT suppliers and consultants.

- The strategy should include a detailed phased approach in the case of providing service to citizens which should include: Making citizens aware of technology; training them in the use and advantages of it; providing them with access to technology and making it affordable and also then making them aware of the e-services available to them.

- The appropriate legislative framework should be in place before embarking on e-government initiatives.

- Government strategies should include ensuring the required IT skills are available in government to at least effectively manage and monitor outsourcing relationships.

- Outsourcing agreements should be very clear on the ownership of the systems, processes and data. The contracts should at all times protect the interest of the government and should provide for penalties etc. The relationships with the suppliers should be managed by means of detailed service level agreements with clearly defined monitoring mechanisms.

Building Skills

Auditors need basic IT skills to partake in e-auditing and understand the environment they are working in; also to interact with IT qualified staff in government.

It is not required that auditors be highly skilled in IT to perform the following audits:

- System and hardware development and acquisition.
- Outsourcing of the IT function by government.
- VFM/ performance/efficiency audits in the implementation of e-government initiatives.
- SAIs in developing countries should focus on these audits.

SAIs have different strategies in growing IT skills, but the most effective way seems to be:

- Identify good auditors and grow them into IT auditors by giving them bursaries to study in this field, providing them with training and a structured approach to ensuring experience is gained.
- These IT auditors should then be available for assistance to other auditors and to perform the required IT audits.
- Provide auditors with access to technology.
- Awareness training for all auditors in terms of risks within the IT environments e.g. hacking and viruses.
- Ultimately the goal of the strategy should be to empower “normal auditors” to also perform basic IS audits (level 1 and 2 audits as defined by INTOSAI) and having a specialised group of auditors to focus only on highly specialised areas of auditing (level 3).

SAIs that have progressed far with this strategy found difficulty in the final stages, as there is resistance from normal auditors to also take on IS auditing.

The outsourcing of IS audits or parts of IS audits have been found to be a good strategy. There is however also risk in this area and SAIs should attempt not to fully outsource IS audits, but to rather get in experts that can join an audit team and work in accordance with the objectives and standards of the SAI.

RECOMMENDATIONS - INTOSAI

Continuation with the good work done by INTOSAI and its working groups in the area of e-government. Further information and knowledge sharing is however required

specifically in the area of benchmarking (e.g. what does a good model for e-services look like), specific audit programs and procedures for IT auditing in the public sector and guidance on the approach to system development auditing.

SAIs should consider following government in their initiatives to provide e-services to citizens. In countries such as Jamaica there is a high demand for information on audits performed and the results there off. SAIs can also provide access to that information by placing it on the web.

INTOSAI and the regions should survey the success of training currently being presented in IT auditing, if training is presented. Based on the results consideration should be given to specific needs driven training.

RECOMMENDATIONS UN-DESA

Provision of assistance to SAIs in developing countries to be on a similar or higher level of technology as their auditees. This includes not only hardware and software, but also training in basic computer skills.

Continue support for training.

3. Report of Working Group 3 (Report of the English, Arabic and French Working Group)

The Working Group chaired by Canada comprised delegates from Algeria, Gabon, Kuwait, Libyan Arab Jamahiriya, Oman, Syrian Arab Republic and Tunisia.

1 What is E-Government

Every SAI must understand what is e-government for its country (e.g. Automated telephone services could be included or excluded). It is recommended that all countries should have an e-government plan at a minimum and with little or no IT audit ressources, every SAI can do an audit of its national e-government strategy. The primary audit goal would be to audit this plan and its implementation. In case there is no such plan, then SAI may recommend such a plan (based on best practices, available UN recommendations).

2 Audit Issues

2.1 Cost/Benefit Analysis

-Informational services

Though informational transaction benefits may not be amenable to measurement, they can usually be quantified by direct and indirect cost savings (reduced postage and printing and saving trees).

-Transactional services

The transactional services type have better opportunities for cost savings but often the initial cost will far exceed the benefit (e.g. filing electronic tax returns could save $4M (2M X $2/report) but requires a $40M capital investment), or look at indirect benefits if possible.

2.2 Lack of Performance Indicators (quantitative & qualitative)

- Stakeholder centric criteria
- Access and use criteria - In the case of access it is recognised that the SAIs from developed countries face restrictions on account of privacy and prohibition of cross use issues. The SAIs of developing countries enjoy wider mandate of access, but it is stymied on account of technical considerations in real terms.

2.3 Value for Money of Offering a Government Service

Have government objectives been defined prior to initiative. Not all services should be offered on-line.

2.4 Audit Timing

- The earlier the better. An early intervention may have a beneficial impact.
- Tell them expectations/best practices.
- Mid term interim audit.

2.5 Prepare Yourself Because You May Not Have A Choice

The present emphasis is on audit of development of e-government systems, where the SAIs may perhaps scale down their audits on practical considerations and availablity of expertise. If such e-government initiatives succeed, then paper trails for important transactions processing systems may not be available and a shift to CAATs may be inevitable e.g. demand for certain electronic services may require an e-government (Electronic Tax Filing). Therefore it is recommended that SAIs commence planning and training in this regard early.

2.6 Security

- Confidentiality (who can view my information)
- Integrity (protecting the data, limiting access and modification privileges)
- Accessibility (accessing the information when needed)

2.7 Perceived Auditor Competencies (by client)

Perception of the auditor by the client plays a significant role in data access. Therefore, all auditors should endeavour to develop domain knowledge at least to a limited extent (this is no different than a performance audit).

To encourage access to the systems, auditors are also required to play within their limitations (hiring professional to perform penetration tests but be able to understand the “What if“ of the results).

2.8 Communication Issues

- Marketing services to encourage take-up,
- Sharing audit experience amongst team members.

2.9 Storage and Retrieval (record keeping)

The move to electronic documents has created some problems in terms of storage and archival. Paper documents can be accessible after numerous years and will still be readable. Electronic documents may be unreadable due to the lifespan of the medium (diskettes, CD, DVD, digital tape) and the read/write interface as well as document readibility since the software used may no longer exist (not available commercially) or subsequent versions of the same software are not backwards compatible.

2.10 Reporting Issues

Ability to communicate the “So What“ to the auditee. Provide a high level explanation of observations and recommendations (preferrably in plain language and with adequate examples) but also provide the technical explenation to the auditee so that the technical support will have sufficient information to act on information provided, but do not assume that the auditee will understand the technical audit report and the potential impacts.

3 Audit Approach

3.1 Strategic Plan

The e-government audit strategic plan should be part of the overall strategic audit plan. It should be noted that should a global strategic plan not be available, a specific e-government audit strategic plan be devised. This plan should include the identification of the following information:

- Risk (high, medium, low)
- Impact (high, medium, low)
- Probability (high, medium, low)

Developing countries expressed the need for a specific e-government audit plan while for developed countries, e-government will probably be included in the overall IT audit plan.

4 Audit Organisation

For developing countries, mandate, laws and regulations are more generic and comprehensive, causing little limitation to auditing e-government by SAI, while developed countries are experiencing some difficulties when specific laws do not permit cross-utilization of electronic information (e.g. tax laws and social programmes).

5 Building Skills and Institutions

5.1 Basic Skills Auditors Needs

- Auditing e-government is not different than conducting another performance audit. Auditors must be able to audit and then must have the IT knowledge.
- Retention becomes a problem as IT Auditors become a valuable ressource and are often recruited by outside organizations.

5.2 Training Needs

- Basic skills for all auditors (PC usage, Excel, Access, Word, Internet/Intranet usage)
- Intermediate (ACL/IDEA for sampling and data analysis)
- Specialists (CISA + other certification, + specific needs as defined by SAI)

5.3 Use of External Experts

When required and based on specific needs but with adequate explanation of impact of recommendations.

6 Recommendations (UN-DESA and/or INTOSAI)

- Determine basic IT audit skills in relationship to e-government audits.
- Develop generally accepted audit criteria for auditing e-government.
- Develop performance indicators for measuring e-government success.

- Develop and agree on storage and retrieval criteria for electronic media (including audit files).
- Develop sharing mechanism for e-government audit material (e.g. observations, recommendations, criterias, reports, etc.).

Appropriate recommendations are available in the sections above, but the following are reiterated:

- E-government audit can be undertaken by all SAIs in a modular fashion and not only the technically advanced SAIs. In this regard, the developing SAIs may audit the e-government plan of the governments, if available or ask for such a plan using available best practices.
- Various audit issues arise in the course of such audit, and the fundamental thread connecting them is requirements for capacity building.
- Training requirements are huge and require the assistance of INTOSAI and its committees including the IT Committee.
- Information sharing through these seminars are very useful, and may be continued.

4. Report of Working Group 4 (Report of the Spanish Working Group)

The Working Group chaired by Argentina comprised delegates from Bolivia, Brazil, Chile, Dominican Republic and Venezuela.

1 What is Electronic Government?

1.1 Aims

- To bring information to the citizens in a speedy and transparent manner
- To give citizens the opportunity to participate in government (empowerment)
- To expedite the provision of public services
- To guide the actions of the State toward achieving economy, effectiveness and efficiency and meet the requirements and needs of society as a whole
- To facilitate an effective relationship between government and society by means of IT.

1.2 Applications

Information on transactions, paying taxes, requests for certificates, purchasing of goods and services, customs procedures, rendition of accounts, judicial services, citizen orientation, integrated communication network services, et cetera.

1.3 Progress

In progress toward e-government, the following stages can be identified:

a) Information to the general public
b) Basic interactive services
c) Partly electronic transactions
d) Fully electronic transactions

2 Audit Issues

2.1 In the most advanced countries, the following problems, among others, have been identified: The authorities in charge of establishing the normative basis for the development of e-government fail to ensure its application in all sectors of government and even in their own development.

2.2 The risk of failure of e-government exists especially in regions far away from urban centers and without basic services, and for those social strata in which these technologies have no or very little impact as a result of economic, social and cultural factors. Isolated initiatives taken without coordination with national plans, or in the absence of such plans, also lead to failure.

2.3 The introduction of e-government enables countries to achieve benefits in terms of economy, effectiveness, efficiency, transparency, etc.

3 Audit Organization

3.1 The SAIs in the region are constitutional bodies. Their mission and functions as well as their powers are laid down in the laws of the respective country. All of these SAIs can carry out audits of electronic government, though these may differ as a result of legislative provisions in each country.

3.2 Methodology and standards for auditing e-government: Audit methodologies in the region range from regularity audits, pre-audits and organizational audits to performance and management audits, using existing normative frameworks as well as best practices.

3.3 Taking account of standards such as COBIT and ISO 9000 as well as the citizens' perspective, the focus is on the principles of usability, accessibility, content, traffic audit and security.

3.4 SAIs in the region use standard software such as ACL, WinIDEA and TAW as well as developing their own local applications.

4 Training, Skills

4.1 The profile of audit staff capable of carrying out audits of e-government includes the following items:

- Knowledge of the legal framework
- Auditing skills
- Knowledge of information technology, depending on the level and type of audit to be carried out
- Basic knowledge of using CAATs
- Knowledge of the standards used by the SAI

4.2 Notwithstanding the requirements listed above, it is considered necessary to build multi-disciplinary teams.

4.3 Contracting outside experts is considered necessary only in exceptional cases, when an audit requires highly specific skills.

5 Recommendations

- Establish uniform indices for measuring the realities in different countries,
- Organize training in different topics for the purpose of improving audit projects, with a focus on specific aspects,
- Disseminate the best practice adopted in the region, of carrying out audits with multi-disciplinary teams,
- Ratify the recommendations of INTOSAI concerning the autonomy and independence of SAIs.

ATTACHMENTS

I. List of Papers

1. Country papers by Supreme Audit Institutions

Algeria	Fiji	Malawi
Bangladesh	Israel	Mongolia
Bhutan	Jamaica	Namibia
Bolivia	Japan	Netherlands
Chile	Kuwait	Tunisia
Denmark	Lesotho	Venezuela
Dominican Republic	Libyan Arab Jamahiriya	
Ethiopia	Lithuania	

2. Presentations by Supreme Audit Institutions

Author	Country	Title
Ing. Ernesto Tomas Casin	Argentina	Experiences in Auditing E-Government
Dr. Ashutosh Sharma	India	Challenges When Auditing E-Government
Mr. Richard Brisebois	Canada	Auditing E-Government: Government On-Line
Mr. Kesavan Srinivasan	Oman	E-Governance Risk Assessment Alignment of Business Needs and IT Requirements
Mr. Christian Rupp	Austria	We Live and Work in an Information Society – E-Austria on Top in E-Europe
Ms. Linda Le Roux	South Africa	E–Procurement
Mr. John Thurley	United Kingdom	Emerging Themes from the Audit of E-Services in the United Kingdom - The NAO Experience

3. Papers by other organizations

Author	Country	Title
Mr. Carlos Alberto Braga	World Bank	E-Government: Opportunities and Challenges
Ms. Esther Stern	United Nations	Auditing E-Government as a Tool to Empower Citizens and Further Socio-Economic and Human Development

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