GAUTENG PROVINCIAL GOVERNMENT

Framework for monitoring and evaluation:

information society and e-government in Gauteng

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List of Abbreviations

CIO	-	Chief Information Officer
ICT	-	Information and Communication Technology
ICT4D	-	Information and Communication Technology for Development
GDF	-	Department of Finance
GDFSSD	-	Gauteng Department of Finance Shared Services Division
GITOC	-	Government Information Technology Officer's Council
GPG	-	Gauteng Provincial Government
GWEA	-	Government-wide Enterprise Architecture
IMS	-	Information Management System
IS	-	Information System
IT	-	Information Technology
NPV	-	Net Present Value
SCOA	-	Standard Charter of Accounts
SMMEs	-	Small, Medium and Micro Enterprises

TABLE OF CONTENTS

Introduction

The *Framework for monitoring and evaluation: information society and e-government in Gauteng* (hereinafter referred to as the Framework) was designed as an instrument to observe, monitor and evaluate a very complex and dynamic phenomenon – information society and e-government emergence. A set of 130 indicators were identified, formulated and in some cases selected out of many more possibilities, to describe the developments, trends and issues emerging in Gauteng. In order for these indicators to remain current, a process of regular review should be institutionalised as part of the implementation of the Framework.

Four data collection instruments were developed and tested for the purposes of generating the data required to prepare a report card on the evolution of the information society and e-government in Gauteng. The Framework proposes that several other data collection instruments be developed to generate the data required for providing a comprehensive assessment of developments in Gauteng over the next five to ten years.

This work is the outcome of a 20-month research and design project undertaken between 2008 and 2010 in partnership between the Gauteng Department of Finance's Shared Services Division (GDFSSD) and the LINK Centre of the University of the Witwatersrand. The project was initiated at the behest of the e-Government Unit within the GDFSSD, acting on the mandate of the Chief Information Officer (CIO) Council, the provincial oversight body established to guide information and communication technology (ICT) and e-government project implementation in the public service of Gauteng. The e-Government Unit established a partnership with the LINK Centre, to undertake the design of the Framework and at the same time build the knowledge base, skills and capacity in this emerging field.

The background to the design of the Framework is provided to create a context for its use. The document describes key elements of the Framework in terms of levels of analysis, dimensions, indicators and data collection instruments. The Framework concludes with proposals for its institutionalisation.

Background to the development of the monitoring and evaluation framework

Three recent developments informed and shaped the development of the Framework. The process of continued public service reform provides a driver for the increasing importance of monitoring and evaluation as an integral part of good management, which in turn has been necessitated by the expansion of the e-government programme in Gauteng.

Continued public sector reform

The development of the Framework should first and foremost be seen in the light of the continued process of public service reform that seeks to bring about a shift away from "inward-looking, bureaucratic systems, processes and attitudes" to a "search for new ways of working, which put the needs of the public first and are better, faster and more responsive to the citizens' needs" (DPSA, 1997). The Medium Term Strategic Framework (The Presidency, 2009) calls for the further strengthening of state capacity to enable it to improve the delivery and quality of public services; promote a culture of transparent, honest and compassionate public service; build partnerships with society for equitable development; and strengthen democratic institutions. Monitoring and evaluation are expected to play an important role in bringing about these outcomes, since performance information is "key to effective management, including planning, budgeting, implementation, monitoring and reporting" (National Treasury, 2007, p. 1) and providing feedback for improvement.

Operationalising public sector monitoring and evaluation

Monitoring and evaluation have been identified as critical foci for improving public sector performance. Over the last four to five years several major milestones have been achieved in the process of establishing the policy framework, conditions and capacities for effective monitoring and evaluation within the public service. These milestones include those presented in Table 1:

Table 1: Milestones in Public Sector Monitoring and Evaluation in South Africa and Gauteng

Milestones	Description
Draft National Guiding Principles and Standards from Monitoring and Evaluation of Public Policies and Programmes in South Africa (DPSA 2006)	Sets out principles and standards in the context of the Government planning cycle and policy commitments. Provides for the systematic monitoring and reporting of all programmes and projects, and for selective evaluation based on scale of resources and nature of development intervention. Describes six guiding principles for evaluation.
Framework for Managing Programme Performance Information (National Treasury 2007)	Clarifies definitions and standards for Performance Information (PI), and its role in planning, budgeting and reporting. It provides guidance on the management of PIs, in terms of roles and responsibilities; structures and systems; capacity; publishing and reporting. Places emphasis on "Value for Money", efficient and economic delivery of services, and subscribes to the "Managing for Results" approach.
Policy Framework for the Government-wide Monitoring and Evaluation System (The Presidency 2007)	Provides an integrated framework of M&E principles, practices and standards to be used throughout government. Mandates every government department to formally adopt M&E strategy and emphasises the role of M&E in evidence-based decision-making and increasing the effectiveness of Government through quality planning and implementation.
Report on the Audit of Reporting Requirements and Departmental Monitoring and Evaluation Systems -Central and Provincial Government (Public Service Commission 2007)	Provides an assessment of existing monitoring, evaluation and reporting systems within departments. Found that it is driven by compliance requirements, with a limited focus on tracking of results, and that the establishment of M&E units and capacity is in its infancy. Made recommendations for improving capacity.
South African Statistical Quality Assessment Framework (StatsSA 2008)	Provides a flexible structure for the assessment of statistical products. It covers the quality aspects underpinning the statistical value chain and certifies national statistics. It describes eight dimensions of quality.
Improving Government Performance: A Policy Document (Presidency 2009)	Minister for Performance Management Monitoring and Evaluation published a discussion document on its approach to monitoring performance. It provides for the development of performance agreements with Ministers and MEC's, Sector Delivery Forums and Agreements.
Gauteng Province-wide Monitoring and Evaluation Framework (Office of the Premier 2010)	Adoption of an M&E policy framework for the province that positions M&E within the strategic management cycle and provides guidance on strategies for M&E and institutional arrangements. Emphasis is on embedding M&E in a provincial context.

Investment in information society and e-government formation in Gauteng

The development of the Framework was further necessitated by the growth in the e-government project portfolio, and provincial ICT expenditure of about 31% per annum over the last three financial years (2006/7 to 2008/9) to more than R1.3 billion in the 2008/09 financial year (KPMG 2010). Given this considerable investment, it is of critical importance to establish the extent to which the intended public sector outcomes are achieved and the impact of such outcomes on the social and economic landscape of Gauteng. Moreover, performance information generated through effective monitoring and evaluation practices is essential for improving the design, planning and implementation of e-government projects (Bovaird, 2005).

Goal and objectives of the monitoring and evaluation framework

The central goal of the Framework is to provide an organising frame to measure, monitor and evaluate the development of the information society and e-government in the Gauteng city-region. The Framework provides the basis for the development of the measures, methods, tools, guidelines, practices and capacities for monitoring and evaluation of the information society and e-government in the province. The implementation of the Framework furthermore seeks to achieve the following strategic objectives:

- promote accountability in government through producing the information and evidence on performance and outcomes of information society and e-government initiatives; Compliance with national frameworks and standards.
- enable strategic leadership through producing the information and evidence required for setting strategic direction, conceptualisation, planning and implementing information society and e-government projects;
- support learning through producing the information and knowledge on successful and unsuccessful information society and e-government policy, programmes and projects;
- structure monitoring and evaluation activities related to information society and e-government formation in Gauteng.

Key elements of the monitoring and evaluation framework

The Framework is an organisational means for integrating diverse activities related to the monitoring and evaluation of information society and e-government emergence into a coherent and structured process and set of capacities. The Framework recognises that information society and e-government emergence is a complex phenomenon that is difficult to define, operates at multiple levels and is both qualitative and quantitative in nature.

Thus, the Framework draws on various theoretical and conceptual foundations drawn from the emerging field of information and communication technologies for development (ICT4D) and the discipline of public and development management. The Framework is conceptualised to monitor and evaluate developments at the *macro, meso and micro levels of analysis*. Within each level of analysis, several units of analysis have been identified as the main focus against which information society and e-government developments are to be monitored and evaluated. A set of *indicators* for each of the units of analysis have been selected against which information society and e–government developments are monitored and evaluated. Individual indicators are clustered into logical groupings that provide descriptions for changes taking place in regard to specific *dimensions* of information society and e-government formation. *Data collection methods* used draw on specific *conceptual basis* and public sector management techniques. The Framework identifies the locus of *responsibility*, describes the *institutional arrangements* and highlights the *capacity development* requirements for the successful implementation thereof. The key elements are represented in Diagram 1 and are described in more detail overleaf:

Diagram 1: Monitoring and Evaluation Framework for the Information Society and e-Government in the Gauteng City-Region

Results Chain	Levels of Analysis	Unit of Analysis	Dimensions and Indicators	Conceptual Basis	Data Collection Methods	Responsible
Outcomes/ Impacts	Macro	e-Society e-Business e-Government	Access, Usage and Impact Indicators	Information Society and ICT4D	Surveys Secondary Data Collection of Quantitative and Qualitative Data	e-Government Unit GCRO
Outputs/ Outcomes	Meso	Citizen Perspective Operational Excellence Public Value Learning and Innovation	Citizen, Operational, Financial and Learning Value Indicators	Balanced Scorecard and Public Value	Web Assessment e-Government Interoperability Review, Innovation Studies, Financial Expenditure Reviews	e-Government Unit Department/ Agencies Projects
Outputs	Micro	Social Benefit User Benefit Agency Benefit	Efficiency and Effectiveness Indicators	Benefits Realisation and Project Monitoring and Evaluation	Project Reviews Mid-term Reviews Project Evaluations	e-Government Unit Department/ Agencies Projects
	Institutional Arrangements					
	Capacity Development					

Levels of analysis

The macro, meso and micro levels of analysis have a long history in social theory (Smith, 2006). Structures of society and patterns of development are conceptualised at the macro level. Macro-level analysis aims to describe the structures and patterns of societal change. Macro research focuses on structures that are durable and longer lasting and includes larger groupings of people in larger spatial entities. The meso-level analysis describes the organisational and institutional structures within society. Micro analysis refers to the individuals, their relationships and the factors that influence their behaviour. It should be noted that the distinctions in practice are not clear-cut, since they are placed on a continuum along the dimensions of time and space (Collins, 1981).

For the purposes of this framework the macro, meso and micro levels of analysis refer to changes and patterns observed at the level of society and economy, at the level of government institutions and organisation and at the level of information society and e-government programmes and projects respectively.

Unit of analysis

The unit of analysis refers to the objects or items whose characteristics are to be described or explained and about which the data are obtained (Monetter, Sullivan & De Jong, 2002). Society, business and government are the key units of analysis at macro level. Performance at the meso level of analysis focuses on the delivery of e-government services and thus on the citizen perspective, the achievement of operational excellence, financial performance, learning and innovation, and governance as the key units of analysis. At the micro level of analysis, the focus is on social, user and agency benefit as well as ICT project management and governance, as the key units of analysis.

Dimensions and indicators

A review of literature, an analysis of previous surveys both internationally and domestically, as well as an examination of existing indicator sets from a range of sources formed the basis for the selection and, where required, formulation of indicators within each unit of analysis. The general criteria used in the selection of indicators are its appropriateness for comparing data, the extent to which it provides a general picture, ease of use and understanding and its suitability for use in policy formulation and implementation. Each indicator is clustered into a logical grouping consisting of dimensions that are able to provide a more complete picture of the issue under surveillance.

Conceptual basis

The conceptualisation and framing of the key objects, trends and issues for measurement at each level of analysis draw on a distinct theoretical and conceptual basis. Theories of the information society and knowledge economy, as well as the emerging field of ICT4D form the backdrop to selection of units of analysis and indicators within the macro level of analysis. Concepts such as *public value* and *balanced score card* within the discipline of public and development management form the basis for the units of analysis and indicators within the meso level of analysis, while the concept of *benefits realisation management* underpins the micro level of analysis.

Data collection and instruments

Both quantitative and qualitative data collection methods are proposed in the Framework. Data collection at the macro level of analysis is dominated by quantitative data collection methods since these are more appropriate to the collection of data from large numbers of respondents, while qualitative and quantitative data collection methods are used at the meso- and macro-level units of analysis. In Table 2 overleaf, the following data collection instruments have been developed, with additional data collection instruments being proposed as well:

Table 2: Completed and Proposed Data Collection Instruments

Data Collection Instruments Completed	Data Collection Instruments Proposed
e-Society survey questionnaire	e-Government interoperability review
e-Business survey questionnaire	e-Government service innovation studies
e-Government survey questionnaire	ICT financial expenditure reviews
e-Government website maturity assessment index	e-Services satisfaction survey
	Project mid-term reviews
	Project evaluations
	Project reviews

Locus of responsibility

The locus of responsibility indicates which unit, department or agency within the Gauteng Provincial Government is primarily responsible for the collection of the data, analysis and publication thereof as part of the implementation of the Framework.

The institutional arrangements describe the implementation architecture and support required to implement the Framework. This involves the governance and management of the implementation process, funding, implementation procedures and partners, as well as the effective review of the process. The capacity development requirements for growing and sustaining the implementation of the Framework are noted.

Macro level monitoring and evaluation

The macro level of analysis is concerned with information society and e-government formation in Gauteng. A conceptual framework was developed to guide the measurement, monitoring and evaluation of developments within society and the economy in Gauteng. Dimensions and indicators describe various aspects important to information society and e-government formation in the province. These dimensions and indicators have been formulated with reference to the policy and strategic outcomes the Gauteng Provincial Government (GPG) seeks to achieve in view of the Gauteng Employment, Growth and Development Strategy (GEGDS) for the province. In addition, it was informed by trends and progress made internationally in respect of measuring the development of the information society and e-government.

Dimensions and indicators

A diversity of dimensions is employed internationally to monitor and evaluate information society and e-government formation. A detailed analysis of 27 studies, measurement frameworks and models reveals four broad dimensions used at the macro level of analysis:
Information society development comprising e-government, e-business and e-society;
(1) Information and communication technology network infrastructure;
(2) Leadership, policy and regulatory environment; and
(3) Human resource development.
(4) Continuous learning and innovation.
(5) Effective governance through democratic participation.

Table 3: Macro-Level Monitoring and Evaluation Dimensions

Dimensions	Studies and Reports
Information society: e-society	IDC (1995-2008); EIU (2001-2009); WEF (2001-2009); SIBIS (2003); BISER (2004); ITU (2007); Esselaar & Gillwald (2007); UNDERSTAND (2005); OECD (2009); UNCTAD (2009)
Information society: e-business	UNDERSTAND (2005); OECD (2009); UNCTAD (2009); Bui, et al. (2002); EIU (2001-2009); WEF (2001-2009); Esselaar & Gillwald (2007); UNDERSTAND (2005); ESCWA (2005); BISER (2004)
Information society: e-government	UNDERSTAND (2005); ESCWA (2005); BISER (2004); EIU (2001-2009); WEF (2001-2009)
Information and communications technology network infrastructure	IDC (1995-2008); EIU (2001-2009); UNDP (2001); WEF (2001-2009); Sciadis (2003); SIBIS (2003); BISER (2004); ITU (2003); ITU (2004); CID (2002); ITU (2009); UNDERSTAND (2005); Esselaar & Gillwald (2007); UNCTAD (2007); UN (2008); (OECD) 2009; UNCTAD (2009); UNCTAD (2006); Bui, et al. (2002); Walcott, et al. (1996); CSPP (1998); Schulz & Olaya (2005)
Enabling policy and regulatory environment	EIU (2001-2009); WEF (2001-2009); CID (2002); Esselaar & Gillwald (2007); Schulz & Olaya (2005); ESCWA (2005); Bui, et al. (2002)
Human resource development	EIU (2001-2009); UNDP (2001); WEF (2001-2009); IDC (1995 – 2008); Sciadas (2003); CSPP (1998); SIBIS Consortium (2003); ITU (2009); UNDERSTAND (2005); UNTAD (2008); OECD (2009); Esselaar & Gillwald (2007); Schulz & Olaya (2005); ESCWA (2005); BISER (2004); Bui, et al. (2002)

The concepts of "e-readiness" and the "digital divide" are common to many of the studies undertaken to measure and monitor information society and e-government formation. e-Readiness as mentioned, refers to the "degree to which a country, nation or economy may be ready, willing or prepared to obtain benefits which arise from ICTs" (Dada, 2006, p.1). Not all countries are in a position to reap the benefits of ICTs optimally or equally. The extent to which this is possible is conditioned by a range of factors such as access to and use of ICT infrastructure, skilled and knowledgeable people, and a favourable policy and market environment.

The term digital divide "refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities" (OECD, 2001, p.5). Although access to basic telecommunications infrastructures is fundamental in terms of defining the digital divide, it is broader in scope and should be defined as a continuum of multi-dimensions that include hardware, software, mode of Internet content, skills, literacy, mental access, and types of usage. Both these concepts inform our understanding of how countries and communities are able to take advantage of ICTs.

In the framework presented below in Diagram 2, the e-readiness and digital divide concepts, and thus e-development is applicable to the measurement of the Human Resource Development, Information and Communication Technology Network, and Policy and Regulatory Framework dimensions. These dimensions relate to the inputs into the development of the information society. The digital divide concept is applicable to the information society dimension, which comprises e-society, e-business and e-government since it relates to the outcome of information society development. This is illustrated in the conceptual framework in Diagram 2 overleaf.

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The conceptual frame for monitoring and evaluating information society and e-government formation comprises four major dimensions:

Diagram 2: Conceptual Framework for Macro-Level Information Society and e-Government Monitoring and Evaluation
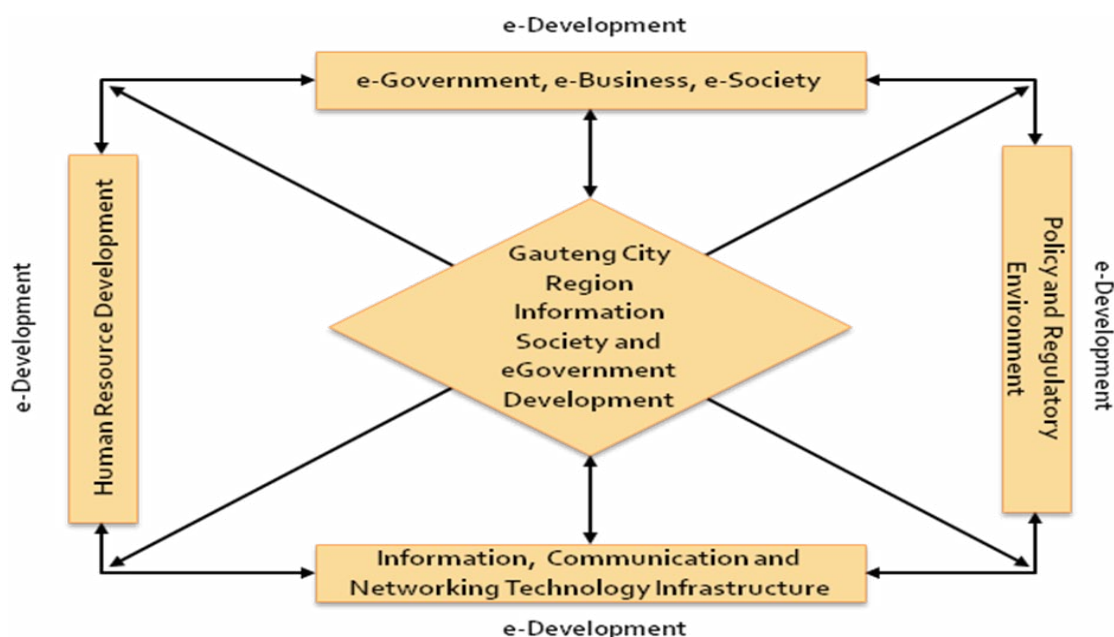
Adapted from: Hanna & Qiang, 2010

e-Society

Participation by communities and individuals in the information society is in many ways conditioned by their access to and use of ICTs. Demographic characteristics such as age, gender, income, race, geographic location are determinants of access and use, and thus the level of participation in the information society (Akhter, 2003; Hoffman and Novak, 1998). Table 4 provides the list of e-society indicators clustered into specific dimensions.

Table 4: e-Society Dimension and Indicators

Dimension	Indicators
e-Society	
Access	1. Percentage of households with access to radio/ television/ VCR- DVD/ computer/ Internet 2. Percentage of households with fixed telephone line 3. Percentage of households with mobile phone 4. Type of Internet connectivity
Usage	5. Individual usage of devices including: computer, radio, television, mobile phone, Internet 6. Regularity of individual usage
Impact	7. Perceived impact on income/ or income potential 8. Perceived impact on current/ prospective employment

e-Business

ICT adoption in the business sector is motivated by a wide range of business benefits. At enterprise level firms benefit from technologies that improve communication within the firm and with suppliers and customers. Business process efficiency can be improved through the seamless sharing of electronic files and networked computers. Different applications such as customer relationship management, enterprise resource planning and knowledge management systems are increasingly being adopted to improve marketing, planning and knowledge sharing functions within the business (OECD, 2004). The extent to which these benefits can be exploited in the business sector depends on the capabilities of enterprises to adopt and effectively utilise ICT. Table 5 provides the list of e-business indicators clustered into specific dimensions.

Table 5: e-Business Dimension and Indicators

Dimension	Indicators
e-Business	
Access	9. Percentage of business with computers/ fax/ post box/ email 10. Percentage of business with access to the Internet 11. Percentage of business with web presence 12. Percentage of business with access to the Intranet 13. Percentage of business with broadband Internet connection 14. Percentage of business with LAN 15. Percentage of business with Extranet
Usage	16. Levels of usage of devices including: computer, radio, television, mobile phone, Internet
Impact	17. Perceived impact on ability to compete 18. Perceived impact on enterprise productivity 19. Impact on sales 20. Impact on customer relationship management 21. Impact on enterprise resource planning 22. Impact on supply chain management

e-Government

The success and contribution e-government makes towards information society development depends on how readily accessible government is through the Internet and other ICT-enabled channels, the extent to which citizens and business make use of these services, and how such services meet their needs. The e-government indicators surveyed are awareness, use and demand for e-government services among citizens and business, while data on the organisation, supply and usage of electronic delivery of information and services need to be collected. Access to and usage of online government information and services are also key indicators of the digital divide. Table 6 provides the list of e-government indicators clustered into specific dimensions.

Table 6: e-Government Dimension and Indicators

Dimension	Indicators
e-Government	
Access	23. Percentage of municipalities with a website 24. Number of Internet connected PCs installed and functioning 25. Average number of PCs 26. Percentage of government with Intranet 27. Average number of employees who have access to the Internet 28. Percentage of government with broadband connection
Organisation	29. Percentage with documented and approved IT/ICT strategy 30. Percentage with documented and approved e-government strategy 31. Percentage with specific function dedicated to e-government
Supply	32. Percentage with a website 33. Percentage offering interaction via website 34. Percentage offering transactions via website 35. Percentage offering online consultation 36. Percentage offering electronic channels other than walk-in 37. Percentage that delivers services jointly with other departments or agencies
Awareness	38. Percentage aware of online government (provincial, local and agencies) information and services 39. Attitude to online information and services 40. Perception of trustworthiness of online government information and services 41. Perception of security of online government information and services
Usage	42. Use of online information and services 43. Experience of online information and services 44. Page views since 1 January 2010

Policy and regulatory environment

An effective and appropriate policy environment is important for fully capturing the benefits of technology and mitigating the risk it presents. The policy environment should provide a favourable climate for investment in the information and communication technology sectors. It should establish the conditions that promote competitiveness in terms of bringing down costs and improving quality. Moreover, the policy environment should promote universal coverage and service. Indicators of *access* and *affordability* within the broader community, business and government sectors provide an indication of the effects of the policy and regulatory environment. Although the telecommunications policy domain is largely a national government competency, the provincial government can, through the strategies it implements, either hinder or enable investment and growth, which in turn influences access and affordability. A secondary analysis is undertaken to provide an overview of the key policy and regulatory outcomes that need to be achieved. Table 7 provides the list of policy and regulatory indicators clustered into specific dimensions.

Table 7: Policy and Regulation Dimension and Indicators

Dimension	Indicators
Policy and regulation	
Policy and regulatory Assessment	45. Market entry and competition 46 .Pricing 47. Licencing 48. Investment 49. Regulation (transparency, etc) 50. Universal service obligations 51. Access to scarce resources 52. Strategic alignment

Information and communication network infrastructure

Information and communication technology network infrastructure refers to computer networks, telephone lines, fibre-optic networks, wireless networks and the devices that facilitate access to these networks. This infrastructure provides the means over which large parts of economies are enabled. The availability of, and access to, these infrastructures are highly dependent on the development of the market for the supply thereof, which is in turn influenced by market structure and performance, supply of goods and services and growth in the industry. Table 8 provides the list of ICT network infrastructure indicators clustered into specific dimensions.

Table 8: Information and Communication Network Infrastructure Dimension and Indicators

Dimension	Indicators
Information and communication network infrastructure	
Market development	53. Market structure – ownership and concentration 54. Market performance 55. Growth in goods and services (ICT sector)

Human resource development

Knowledge is the main source of productivity in the information society (Castells, 1996), creating new and constantly changing demands on education, skills and training. In addition to more general educational attainment and skills, the importance of basic, intermediate and advanced ICT skills acts as an interface between individuals and their environments at home and at work, in which ICTs are increasingly embedded. These indicators used for the purposes of the survey will provide basic information on the state of human resources and e-readiness to take advantage of ICT-related opportunities. Table 9 provides the list of human resource development indicators clustered in two dimensions.

Table 9: Human Resource Development Dimension and Indicators

Dimension	Indicators
Human resource development	
ICT expertise	Percentage who feel confident using email
	Percentage who feel confident using a computer to type a letter or a CV
	Percentage who feel confident identifying the cause of computer problems
	Percentage who feel confident obtaining and installing software
	Percentage who feel confident making a call over the Internet
	Percentage who feel confident communicating over the Internet
	Percentage who feel confident identifying sources of information
	Percentage who feel confident using the Internet as a search engine
Skills	Participation in ICT related training
	Participation in ICT related self-learning
	Use of e-learning in enterprises
	Enterprises supporting ICT training
	Percentage of government who offer ICT training to staff
	Percentage staff who have received ICT training
	Percentage of governments that use e-learning to provide training

Wherever possible, the selection of indicators was undertaken to ensure consistency with the Core ICT Indicators developed by the United Nations Partnership on Measuring ICT for Development (ITU, 2010). This is to ensure comparability across regions and countries. However, this set of indicators goes beyond access and usage and incorporates impact indicators where possible.

Data collection and data collection instruments

Primary data from the general community, business and government sectors are collected through quantitative surveys. Three separate quantitative surveys are conducted, aimed at the community, business and government segments within Gauteng.

Community household survey

According to Statistics South Africa the Gauteng province has an estimated population of 10.5 million in 2009 (StatsSA, 2009), consisting of a total of 3.1 million households situated in 449 wards (Stats SA, 2007). A total number of 384 households have to be interviewed to achieve the requisite criteria of representivity and validity. All surveys are completed on a face-to-face basis.

Business (small, medium and micro enterprise) survey

It is estimated that there are about 1.6 million small, medium and micro enterprises in Gauteng (African Response, 2006). Of this number, it is estimated that 860 000 enterprises are informal, while close to 200 000 are formal SMMEs. A sample size of 384 informal enterprises and 383 enterprises is necessary to achieve a confidence level of 95% and an error rate of 5%. However, oversampling can be a valuable technique. In the 2010 sample survey, a total of 843 enterprises, including 440 formal and 401 informal enterprises (and 2 indeterminate) were surveyed. While the focus of this Framework is on SMMEs it is acknowledged that large businesses play an important role in stimulating the development of the ICT sector through the adoption of the latest ICTs in its management and operations. Given the available resources, it was, however, decided to focus on SMMEs in this study since government policy recognises that such firms are under-developed and under-resourced and as such require specific support measures to ensure that this sector exploits the benefits of ICTs.

Government survey

A comprehensive list of provincial and local government departments and agencies is compiled for the purposes of the government survey. The list of organisations constitutes the sample used for completing the survey. Interviews are undertaken either telephonically or face-to-face.

The total sample size for the business, community and government surveys is shown in Table 10 below:

Table 10: Sample Size and Method

Population	Sample size	Method
Community	384	Quantitative face-to-face
Government	40	Quantitative face-to-face and telephonic
Business	767	Quantitative face-to-face and telephonic
Informal	384	
Formal	383	

Close-ended questionnaires are used in the surveys and are administered either face to face or telephonically (in the case of government and formal SMMEs). The instruments were designed using a modular structure illustrated in Diagram 3:
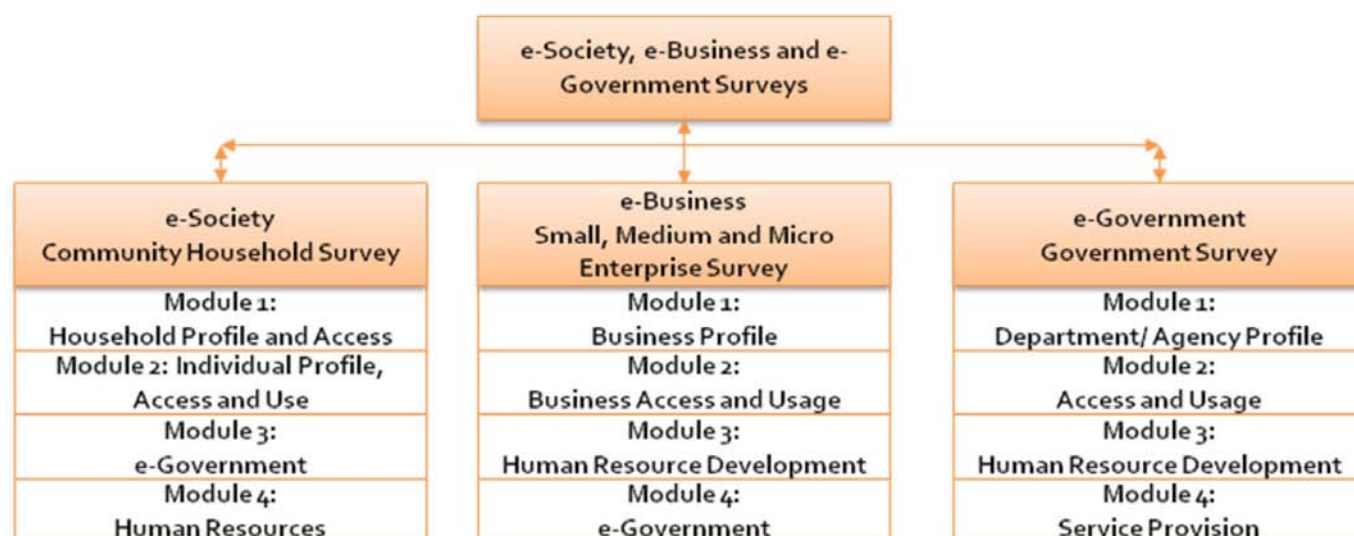
Meso-level monitoring and evaluation

The meso-level analysis has as its starting point the policy outcomes government seeks to achieve in view of public service reforms, the development of the information society and e-government. A set of indicators were selected with reference to these goals, as the key measures against which the implementation of the GPG's information society and e-government policies, strategies and programmes should be measured. The concept of Public Value is introduced to embody the value to citizens and stakeholders represented by the achievement of these outputs and outcomes by Government.

Dimensions and indicators

Five key policy outcomes were identified in an analysis of the national and provincial public sector reform, information society and e-government policy and programme documentation. These policy outcomes relate to:

(1) Meeting of the needs of citizens

(2) Achievement of operational excellence

(3) Financial cost effectiveness

(4) Continuous learning and innovation

(5) Effective governance through democratic participation.

Table 11: Meso-Level Monitoring and Evaluation Dimensions

Policy, strategy and programme documentation	Dimensions				
	Citizen perspective	Operational excellence perspective	Financial perspective	Innovation and learning perspective	Governance perspective
White Paper on The Transformation of the Public Service, 1995	✓	✓	✓	✓	✓
White Paper on Transforming Public Service Delivery, 1997 (Batho Pele)	✓	✓	✓	✓	✓
Presidential Review Commission Report, 1998 (Chapter Six)	✓	✓	✓	✓	✓
Electronic Government: The Digital Future: Public Service IT Policy, 2001	✓	✓	✓	✓	✓
e-Government Gateway Concept Document, 2002	✓	✓	✓	✓	✓
A Strategy Toward the Development of Overarching Legislation for the Single Public Service, 2006	✓	✓	✓	✓	✓
Towards an Inclusive Information Society in South Africa, 2007	✓	✓	✓	✓	✓
Gauteng Provincial Government: e-Government Blueprint Proposal, 2007	✓	✓	✓	✓	✓

A broad range of frameworks and models from the Information Technology (IT), Information Systems (IS), Information Management Systems (IMS), and ICT for Development (ICT4D) and fields were reviewed to assess their relevance, appropriateness, effectiveness and applicability to measuring, monitoring and evaluating e-government implementation. Furthermore, a number of performance measurement frameworks and models were consulted from the performance management literature. The Balanced Scorecard approach, initially developed as a performance measurement tool (Kaplan & Norton, 1992) and later as a strategy implementation tool (Kaplan & Norton, 2000) for private firms, translates mission and strategy into objectives and measures, organised into four perspectives, ie financial, customer, internal business process and learning and growth. This framework is used to organise the key policy outcomes Government seeks to achieve through its public sector transformation, information society and e-government policy, strategy and programming architecture. The conventional Balanced Scorecard approach is however, expanded to incorporate a fifth dimension to address the method's limitations in regard to the public sector.

The Balanced Scorecard was developed for firms, with defined ownership, in the private sector, that operate under the assumption of profit maximisation. In contrast, government organisations provide public services and do not have identified owners, but rather stakeholders that include the public, constituents, and governing or oversight bodies. In such a context "public managers are seen as explorers who, with others, seek to discover, define and produce public value", and their actions should meet three broad tests aimed at: (1) the creation of something substantively valuable; (2) legitimacy and political sustainability; and (3) operational and administrative feasibility (Moore, 1995, p. 20). The concept of a Public Value Scorecard was advanced as an alternative and more appropriate tool for measuring public value.

The framework for measuring e-government formation at the meso level draws on the underlying techniques of the Balanced Scorecard, incorporates the concept of public value and in so doing establishes a Public Value Scorecard that adds a fifth dimension to the conventional Balanced Scorecard as indicated in Diagram 4.

Diagram 4: Public Value Scorecard Conceptual Framework for Meso Level e-Government Monitoring and Evaluation
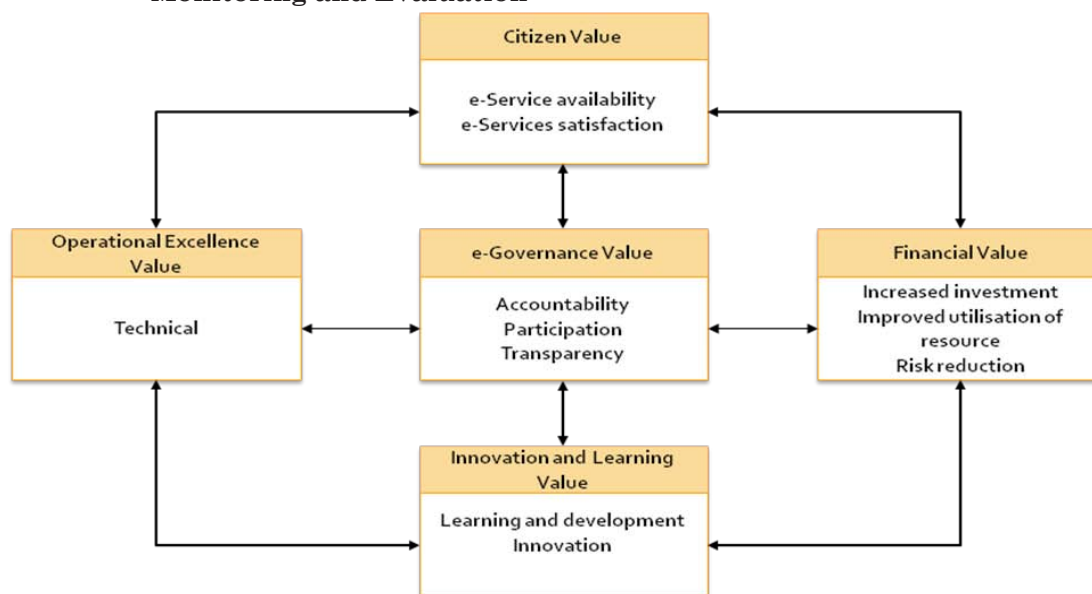
Citizen value

Improving service delivery to citizens is a key driver of e-government. Thus the citizen value perspective monitors and evaluates the range of services that are available electronically, and is concerned with the take-up and levels of citizen satisfaction with such services. The e-government programme of the province emphasises service delivery and the provision of information as key aspects of the programme. More importantly, it seeks to bring about a shift away from inward looking bureaucratic systems and approaches to organising the delivery of services around the needs of citizens. Table 12 lists the dimensions and indicators for the Citizen Value perspective of the Public Value Scorecard.

Table 12: Citizen Value Perspective

Dimension	Indicators
Citizen Value	
Service availability and take-up	71. Level of e-government maturity specific to government websites
	72. Quality of government websites
	73. Range and mix of online services
Satisfaction	74. Percentage take-up of online services
	75. Level of satisfaction with responsiveness in the delivery of the service
	76. Level of satisfaction with reliability of the service accessed
	77. Level of satisfaction with access and facilities for the service
	78. Level of satisfaction with communication in accessing the service
	79. Levels of satisfaction with cost of accessing services

Operational excellence value

Operational excellence consists of the activities, processes and systems required to provide citizens with the range and quality of electronic services to meet their needs. The technical indicators provide a reference for monitoring and evaluating the technical infrastructure required to support the e-government programme for the province and refer to the provision of the required ITC infrastructure, applications, and enabling frameworks required for delivering electronic services. Table 13 lists the dimension and indicators for monitoring and evaluating the operational excellence value perspective of the Public Value Scorecard.

Table 13: Operational Excellence Value Perspective

Dimension	Indicators
Operational excellence perspective	
Technical	80. Effective implementation of Service Oriented Architecture
	81. Implementation of effective security policy and practices
	82. Development and implementation of effective identity management policy and practices
	83. Back office transformation through service integration and automation

Learning and innovation value

Improving service delivery and transforming the relationship between citizens and governments are fundamental goals of e-government, which requires changes to the way in which government is organised and delivers its services. Innovations could include service, process, administrative, system or conceptual innovations (Kock & Haukness, 2005). The development of specific skills and resources is required for developing institutional innovation capability (Deloitte, 2009). In addition, opportunities for learning through establishing metrics to assess performance, benchmarking, undertaking evaluations and establishing processes for capturing knowledge about innovations are required (Mulgan & Albury, 2003). Table 14 lists the dimension and indicators for monitoring and evaluating the learning and innovation value perspective of the Public Value Scorecard.

Table 14: Learning and Innovation Value Perspective

Dimension	Indicators
Learning and innovation value	
Innovation	84. Percentage of staff trained in ICT-related training 85. Policies for rewarding innovation
Learning and Development	86. New online services introduced 87. New electronic service delivery processes introduced 88. New organisational structures related to e-government introduced 89. New management techniques introduced 90. New electronic service / process innovations adopted across the GPG

Financial value perspective

Evaluations with a view to eliminating ineffective programmes and generally improving value for money will become a regular feature in public sector spending (Gordhan, 2010). In the case of the public sector, the financial value perspective focuses on the ability to finance programmes and the operations necessary to deliver those programmes on a sustainable basis. A number of traditional ICT evaluation techniques such as return on investment (ROI), net present value (NPV) and cost benefit analysis are well established methods for calculating the financial gains from ICT investments. In this instance, the financial value perspective incorporates three indicators. Firstly, it is recognised that the expansion of service provision will require substantial investments into ICT-related information society and e-government programmes and projects to expand and sustain electronic service delivery. Secondly, efficiency involves the better utilisation of the resources invested. Thirdly, the high failure rates of information society and e-government projects internationally (Heeks, 2003), necessitates the implementation of effective risk reduction measures to ensure that such investments achieve the intended policy and strategy outcomes. Table 15 lists the dimension and indicators for monitoring and evaluating the financial value perspective of the Public Value Scorecard.

Table 15: Financial Value Perspective

Dimension	Indicators
Financial value	
Efficiency	91. Percentage increase in ICT, information society and e-government investment 92. Improved utilisation of resources 93. Risk reduction

Governance value perspective

According to UNESCO (2005), e-governance is the "application of ICT to the system of governance to ensure a wide participation and deeper involvement of citizens, institutions, non-governmental organisations, as well as private firms in the decision-making process". e-Governance places emphasis on interactions among stakeholders which are electronically mediated. According to United Nations (2007), governance is good when governments efficiently provide public goods of the requisite quality to citizens and, in so doing, efficiently allocate and manage resources to respond to collective problems. The essential dimensions of good governance include accountability, transparency, equity and participation (UNDP, 1997; UN, 2009). Accountability focuses on the mechanisms by which the performance of government can be evaluated; transparency emphasises the availability and clarity of information provided by government and access to such information by citizens; while participation encourages greater levels of involvement of and consultation with citizens. Table 16 lists the dimension and indicators for monitoring and evaluating the governance value perspective of the Public Value Scorecard.

Table 16: Governance Value Perspective

Dimension	Indicators
Governance value	
Accountability	94.Provides a central contact or complaints facility, with a description of how the complaint will be dealt with, how long it will take to respond and who the specific contact person is handling the complaint 95.Existence of and access to formal publication of contracts, tenders and budgets and accounts 96.Existence of a signed published statement of the standards of conduct that citizens are entitled to from their elected officials and local government staff
Particiopation	97.Provides tools for online citizen participation and publishes results of citizen participation 98.Citizens are consulted in the design and delivery of electronically mediated services
Transparancy	99.Information about functions and services provided are available for all of the departments/ business units/ functions within the department/ agency/ or local government 100.Provides information about policies, procedures and rules for accessing or engaging with the department/ agency/ or local government in respect of most of all the services and functions it renders 101.Lists staff telephone numbers and emails for all departments/ business units/ functions by service or task, for citizens to contact staff 102.Provides information brochures and documents such as research reports, annual reports, briefings, strategic plans, performance reports, minutes of public meetings

Data collection and data collection instruments

A number of instruments are required to collect the data specific to the indictors necessary for monitoring and evaluating developments at the meso level of analysis in terms of the Public Value Scorecard, including the Web Assessment Index, e-Services Citizen Satisfaction Survey, e-Government Service Innovation Case Studies and ICT Financial Value Expenditure Reviews.

e-Government Web Assesment Index

The purpose of the e-Government Website Assessment Index is to assess the level of e-government maturity specific to government websites, following the e-Government Maturity Model described in the e-Government Blueprint Proposal (2007). At the same time it provides government departments and agencies with an opportunity to benchmark their progress against each other and against themselves over time. It further seeks to describe the online services and information provided, and serves to highlight emerging trends and practices.

The approach to the conceptualisation of the e-government web assessment model acknowledges that e-government is more than just making information and services available online – it involves fundamental changes, including new channels for accessing government, new styles of leadership, new methods of transacting, and new systems for organising and delivering information and services (LINK, 2008). However, the focus of this Web Assessment Index is limited to the provision of content and services online and the generic quality of the websites. In addition to the dimension of content and services, the generic quality of the websites is measured against three further dimensions: quality and design; organisation and ease of use; and privacy and security.

An overall index score out of 100% is calculated for each website. The dimensions are weighted differently, with content and services accounting for 40% of the overall index, followed by 25% for the quality and design, organisation and ease-of-use dimensions, and finally with 10% for privacy and security. The scoring has a bias towards the content and services dimension since this is considered the primary indication of progress towards moving services online, while the dimensions assessing quality of the site are considered as enabling factors that influence the user experience. In the presentation of the final score, the subtotals of the dimensions are weighted before being added to provide a total score out of the 100 percentage point index.

e-Government Interoperability Review

The seamless exchange of data across many different ICT solutions is a key challenge to e-government implementation. In many cases the digitisation of government information and services tends to reinforce rather than transform processes and systems (UNDP, 2007). The development and implementation of e-government projects often result in ad hoc deployment of ICT systems, which may serve the needs that the projects seek to address, but could in the long term, hinder interaction and the seamless provision of information and delivery of services. Interoperability is important for enabling better coordination and implementation of government programmes and services, improved decision-making and cost savings.

In view of this, the Government Information Technology Officer's Council (GITOC) of South Africa has published the Minimum Information Interoperability Standards (2007), and the Government-Wide Enterprise Architecture (GWEA) Framework (2009). These set out the Government's policies and standards for achieving interoperability and seamless information flow across the public sector and the minimum standard by which to use an enterprise architecture approach to develop and construct ICT Plans and Blueprints respectively. The process of developing an integrated systems master plan for the GPG is at an advanced stage and will make a considerable contribution towards ensuring compliance with the MIOS and GWEA. It is proposed that a review of the progress made in the implementation of the provincial interoperability architecture, based on the principles, norms and standards of the MIOS and GWEA, should be undertaken annually to provide feedback to policy-makers and implementers. The review should focus on assessing the following:

- Review of initiatives and activities aimed at establishing interoperability standards in the province
- Interoperability standards categories and selection
- Interoperability standards implementation and governance process
- Compliance with national frameworks and standards.

e-Services Citizen Satisfaction Survey

The White Paper on Transforming Public Service Delivery (1997) calls for putting citizens at the centre of the service delivery process. The extent to which this is achieved is measured by the extent to which the expectations of citizens are met. Citizen satisfaction is an important indicator of the quality of the service since it provides information on whether the provider delivers what the citizen values in meeting their expectations. Citizen Satisfaction Surveys (CSS) are useful tools that allow for the measurement of the gap between the service experience and the expectations of citizens. Moreover, CSS's are a critical component of the Service Delivery Improvement Plans (SDIP) required in terms of Batho Pele principles, and with specific reference to conducting open, honest and transparent consultation with citizens, involving citizens in the process of service improvement and continuously measuring satisfaction levels to determine the trends and effectiveness of the improvements implemented (Public Service Commission, 2003). It is proposed that a bi-annual e-Services Citizen Satisfaction Survey be conducted to assess the levels of satisfaction of electronic service users among citizens by focusing on the following (Schmidt & Strickland, 1998):

- *responsiveness* and *reliability,* which refer to the way the service provider reacts to the citizen's need and the ability to dependably and accurately provide what was promised;
- *access* and *facilities,* which refer to the approachability and the ease with which the service is provided;
- *communication,* which refers to the provision of accurate, understandable and relevant information to the citizen; and
- *cost of services,* which refers to user fees and value for service provided.

e-Government service innovation studies

Innovation is implicit in the conceptualisation, design and delivery of electronic services. It involves the transformation of existing, and the development of new, services. In addition, it involves the deployment of new channels of service delivery and greater integration of back-office operations for sharing data and resources. All of these processes require the development of new service (or improvement/ transformation of existing) ideas, the selection of the best or most appropriate, the transformation of the service idea into practical delivery of services, and perhaps the diffusion and dissemination of successful services – all of which are basic steps in the innovation process. Although the focus on public service innovation is a recent phenomenon, it has received increasing attention given the importance of the process of public service modernisation taking place across the world (Mulgan & Albury, 2003, NESTA, 2008; Deloitte, 2009). The deployment and adoption of ICTs in the public services and the development of e-government are key drivers of public sector innovation. In turn a structured approach to innovation in the context of e-government implementation can make a significant contribution to the quality of adopting and deploying ICTs for the purposes of e-government. Establishing the capability to innovate in the context of e-government should therefore be a prime focus. For this reason it is proposed that e-government service innovation case studies be undertaken to assess the nature and quality of new online services, electronic service delivery processes, organisational structures, management techniques and the adoption of new service or process innovations across the GPG.

ICT financial value expenditure reviews

Monitoring and evaluating ICT investment in the public sector is constrained by a range of factors. A key limitation is the lack of an ICT Standard Chart of Accounts (SCOA), which results in the misallocation of funds and the inability to effectively track, monitor and evaluate expenditure. The absence of an ICT monitoring framework hinders the systematic tracking of expenditure for purposes of comparison across projects. In order to address these shortcomings it is proposed that an annual ICT financial value expenditure review be undertaken.

The purpose of the review is to collect financial and related performance data on e-government projects in a systematic fashion that provides an indication of whether investment in e-government has increased, the utilisation of resources has improved, and effective risk reduction measures have been implemented. These three indicators should be assessed within the broader context of assessing the relevance of the project objectives, the effectiveness of the projects in achieving the intended objectives, and the cost efficiency of the projects. The relevance of the objectives should determine whether the objectives of the project are valid, compatible with the objectives of the e-government programme, and the strategic alignment to the mandate and objectives of the relevant government agency or department. The effectiveness of the programme is concerned with the extent to which the objectives have been achieved in terms of the outputs and results, while the cost efficiency is concerned with performance assessment in terms of producing outputs and the acquisition and use of inputs.

Micro-level monitoring and evaluation

Micro-level monitoring and evaluation is concerned with assessing the outputs, outcomes and the impacts of e-government projects. The approach adopted recognises that the initial focus of the e-government programme over the last several years has been on establishing the enabling policy and strategic environment, as well as the basic project management infrastructure to implement large-scale and complex e-government projects. The development of the associated monitoring and evaluation functions and procedures within the project management infrastructure lags behind, and can be classified as in its infancy. Data collection for the purposes of evaluation is ad hoc with few stable processes to support it, and the tools, protocols and procedures are yet to be developed. This is in some ways an advantage as the introduction of the conceptual framework for measuring, monitoring and evaluating micro-level e-government formation does not have to compete with pre-existing and well established methodologies.

Dimensions and indicators

The GPG has the second largest share of ICT expenditure after the national government, amounting to R1.4 billion in 2008/09 (KPMG, 2010). There is increasing pressure to demonstrate that the benefits from the investments made are actually realised. A major challenge identified during the development of the Framework is the difficulties experienced in identifying, defining, documenting and tracking the benefits in the life cycle – from conceptualisation to completion – of e-government projects in the GPG. This limits the potential effectiveness of monitoring and evaluation as a strategic management tool, since the criteria against which projects have to be assessed are not clearly articulated.

Several reasons account for the difficulties in identifying benefits of investments in ICT, Information Systems (IS) and Information Technology (IT) projects in the context of the e-government programme. Benefits of such investments may evolve over time and may only be identifiable after the completion of the project. Moreover, the challenge of effectively monitoring and evaluating the benefits of ICT investments depends on a complex set of financial, organisational, social, procedural and technical arrangements, which many organisations either avoid or deal with inadequately (Lin & Pervan, 2001).

Nevertheless, the increasing focus on value for money in the public sector as well as the search for efficiency as a major policy outcome among policy implementers means that a number of methods and techniques have emerged initially in the private sector, and lately in the public sector to evaluate ICT/ IS/ IT investment. A few of these are listed in Table 17.

Table 17: Private and Public Sector Evaluation Methods and Techniques

Private sector evaluation methodologies/ techniques	Description
Return on management	Measure of performance based on the added value provided by management. Management value- add is isolated then by the management cost. This approach attributes surplus value to management, rather than capital, as it is premised on the notion that in the information economy the scarcest resource is management. Not easy to operationalise.
Net Present Value (NPV)	NPV is an indicator of how much value an investment or project adds to the firm, and is a standard method for using the time value of money to appraise projects. It measures the excess or shortfall of cash flows in present value terms. If the value is larger than zero, it is considered to be wise to proceed with an investment.
Information economics	This method seeks to identify and measure the economic impact of the changes in performance as a result of the introduction of a new system. Complements traditional cost-benefit analysis with four additional techniques – value linking, value acceleration, value structuring and innovation value – for establishing an enhanced return on investment. The appraisal of an IT investment proposal takes place in three steps involving financial, business and technological criteria, both positive and negative.
Multi-objective multi-criteria methods	This approach assumes that the value of a project can be measured in terms other than money. It is based on the philosophy that stakeholders may have different ideas about the value of different aspects of a project and that it may not be strictly comparable in monetary terms. The technique allows for different views and values to be investigated.
Assessing returns for government IT investments: A Public Value Framework (2006)	Provides a framework for assessing IT investments on public stakeholders based on existing methods and focuses on six types of impacts: (1) financial; (2) political; (3) social; (4) strategic; (5) ideological; and (6) stewardship. It comprises a combination of individual analysis steps and an overall process for public ROI assessment.
e-GEP Measurement Framework	Provides a measurement framework for assessing the impact of e-government services and incorporates three different areas of impact: efficiency; effectiveness; and democracy.
Economic efficiency assessment (WiBe)	Presents an evaluation concept for the economically efficient use of IT by German public administrators. A decision to employ IT is subject to economic efficiency requirements involving a two-step process of firstly identifying the parameters that have an impact on the economic efficiency of the project, and secondly determining the economic efficiency in the monetary sense and the broader sense.
Framework for e-Government Strategy Assessment (Gartner)	Provides a model for the evaluation of government IT projects. IT strategies are valuated against operational efficiency, constituent service levels and political return.
Value of Investment Method	Aims to evaluate the benefits of IT investments. It can be used to evaluate and calculate costs and benefits of new initiatives, as well as follow up previous investments.

(Based on Berghout & Renkana, 2001; Lin & Pervan, 2001; Remenyi, et al, 2007, and PICTURE, 2006)

One of the major critiques of traditional evaluation methods is that they do little to implement processes and procedures to ensure the management and realisation of intended project benefits over time. This has led to the emergence of benefits management approaches that ensure the realisation and management of expected benefits throughout the life cycle of a project. Thus evaluation is concerned with the methods and processes used to measure the costs and benefits from ICT/ IS/ IT investments, while benefits management is concerned with the

management and delivery of the actual benefits to the organisation. This Framework calls for the integration of monitoring, evaluation and benefits realisation into a seamless approach required to ensure the effective evaluation of projects and at the same time ensure that the expected benefits are identified, defined and achieved (McKay & Marshall, 2001).

The categories of benefits relevant to the Framework are user benefits, including citizens and businesses, government and broader social benefits. An additional dimension focusing on benefits realisation management is included. Since monitoring and evaluation within the e-government programme is in its infancy and benefits realisation management is new, it will be necessary to review the progress made in establishing these capabilities and practices over the next three years. The conceptual frame for monitoring and evaluating e-government emergence at the micro level, based on the benefits realisation management approach, is represented in Diagram 5:

Diagram 5: Benefits Management Conceptual Framework for Micro-Level e-Government Monitoring and Evaluation
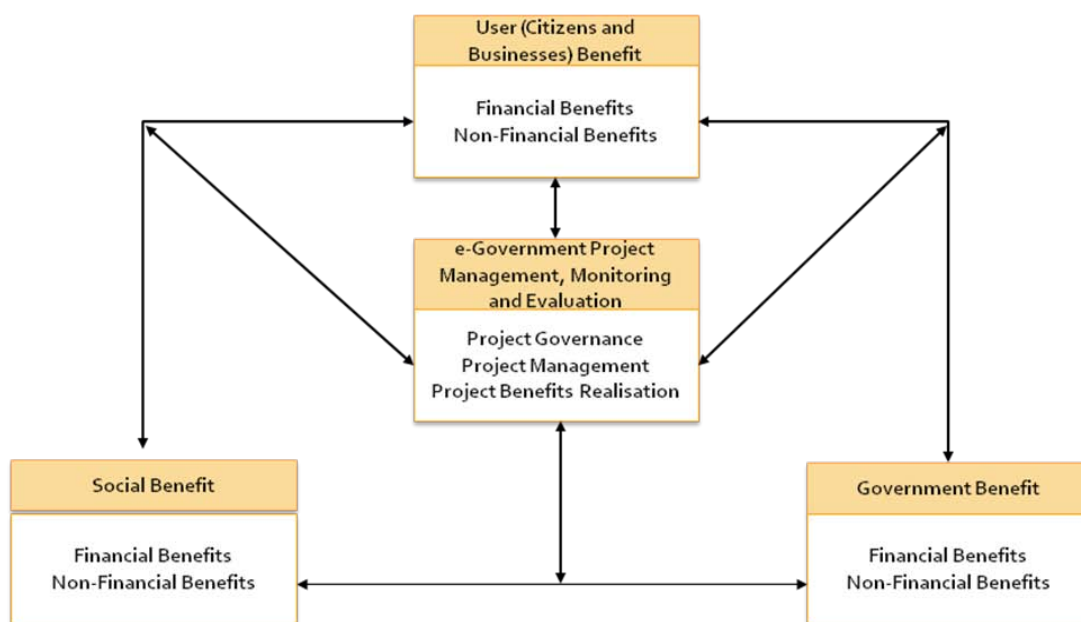
It should be noted that there are many different, and a large volume of, benefit indicators and that the indicators below serve to identify the categories of benefits that apply to the existing list of e-government projects. Benefits should be identified to meet the specific requirements of each project and where new categories of benefits emerge they should be added to the list discussed in this section.

User (citizens and businesses) benefits

Financial and non-financial benefits can accrue to users, both citizens and businesses. An analysis of the current e-government programmes indicates that user benefits in the non-financial category relate to an improvement in *service quality*; *effective service delivery* through reduced turnaround times and faster access to information; a *convenient service experience* through a greater range of

service channels and access points; and a *service experience that builds confidence and trust* in users through, for instance, effective protection of personal data. User benefits in the financial category refer to cost savings through reduced telecommunication cost and time saving. Direct financial benefits are obtained from improvements in service levels, integration and effectiveness associated with e-services.

Table 18: User Benefits

Dimension	Indicators
User (citizens and businesses) benefits	
Financial	103. Cost savings 104. Time savings
Non-financial	105. Improved service quality 106. Effective service delivery 107. Convenient service experience 108. Increase in level of confidence and trust

Social benefit

Social benefit refers to the benefit for the broader community, beyond the immediate recipient of the service. It assesses the impact of service improvements in terms of improving the quality of life in communities, and is measured in terms of service improvements, community skills and capacity development, creation of new business or work opportunities, attracting increased investment, social inclusion through improved participation. Financial benefits refer to the cost savings that might accrue to the community as a whole.

Table 19: Social Benefits

Dimension	Indicators
Social benefits	
Financial	109. Cost savings
Non-financial	110. Community capacity development 111. Economic development 112. Social inclusion

Government or agency benefit

These are the benefits that accrue to the agency implementing the project or the government as a whole. Four major categories of non-financial benefits are observed in the current e-government projects. Firstly, governance and management benefits refer to class of benefits that improve the governance and management function in agencies or government as a whole. Specific benefits in this category include streamlined management processes, improved management reporting, less reliance on vendors, and more effective enterprise architecture and policy. The second category refers to improvements in data integrity, which includes better records management and increased data accuracy. The third category is benefits that accrue from reducing risks and include improved control and security. The final category of benefit is effective service delivery. A whole range of benefits fall within this category and include improved service levels, increased convenience, reduced processing times, improved case

management, better functionality, integration of application, and streamlined business processes. Financial benefits include reduction in the overall cost of the programme, cost savings through automation and reduced labour costs, and improved revenue collection.

Table 20: Government or Agency Benefits

Dimension	Indicators
Government or agency benefits	
Financial	113. Reduction in programme cost 114. Cost savings 115. Improved revenue collection
Non-financial	116. Improved management 117. Improved data integrity 118. Reduced risks 119. Effective service delivery

e-Government project management and evaluation

Effective e-government monitoring and evaluation from a benefits management perspective are dependent on the existence of highly effective e-government project governance, management and benefits realisation processes, and practices and capacities. For this reason, the level of project governance and management as well as benefits management maturity and performance need to be assessed, as this is an important input into achieving the envisaged e-government project outputs and outcomes envisaged. The project governance maturity and performance are assessed against the establishment of clear strategic priorities, effective project selection, resource mobilisation and stakeholder buy-in. Project management maturity is assessed against the project management structures and available expertise, the project implementation cycle and methodology, and change management practices. The benefits management is assessed against the extent to which it is integrated into the project monitoring and evaluation approaches and supporting systems.

Table 21: e-Government Project Management and Evaluation

Dimension	Indicators
Government or agency benefits	
Governence	120. Enabling policy and strategic framework 121. Strategic priority setting 122. Project identification and selection 123. Resource mobilisation 124. Stakeholder buy-in
Project Management	125. Project management structures and expertise 126. Project implementation cycle and methodology 127. Change management practices
Benefits realisation management	128. Benefits realisation integration 129. Benefits realisation processes and tools 130. Benefits realisation reporting and communication

Data collection and data collection instruments

The data collection is primarily concerned with identifying, selecting, monitoring and review benefits aimed at users, society and government. Thus, on completion of every e-government project it should be possible to measure and verify the benefits claimed in the motivation for the project found in the business case, business plan and other related documents.

The adoption of a formal benefits management approach and its integration into the e-government project management, monitoring and evaluation function is required for the effective collection of data on benefits realisation to take place. The benefits management approach typically involves several major activities, which include: identification and structuring of benefits; planning benefits realisation; executing the benefits plan; reviewing and evaluating results; and establishing the potential for further benefits (Ward & Daniel, 2006).

Benefits plan
The benefits plan should be developed alongside the business case for a project. Existing project management methodologies tend only to provide a cursory reference to benefits in the development of the business case. Benefits planning should include the identification of potential benefits, allocation of responsibility to realise the benefits, and the approach to measure, monitor and report the benefits.

Project monitoring reports
There are several major activities that are undertaken in the monitoring process. A review of activity and operational plans is necessary to determine what targets need to be achieved, which in turn informs activity or workplans on a monthly basis. The next major activity is the collection of the relevant information for reporting purposes. This assumes that the necessary information collection processes and mechanisms are in place as part of the project management methodology. Depending on the project, it may involve developing monthly, quarterly and annual reports. In addition, an annual review report should provide more detail that reflects on the performance over the year and incorporates a review of the targets achieved.

Project evaluation reports
Project evaluations are undertaken at the mid-point of the project implementation process, as well as at the completion thereof. The mid-term review is undertaken to determine if any significant changes need to be made, while at the same time exploring issues pertaining to its sustainability, effectiveness and relevance. A post-implementation evaluation should be undertaken as an in-depth evaluation to determine the outcomes and, where possible, impact of the project. The post-implementation benefits review should be incorporated into this process to specifically determine whether the identified benefits have been realised.

Institutional arrangements
Monitoring and evaluating such complex and dynamic phenomena as the information society and e-government are major challenges that no one government department or agency can accomplish on its own. It requires coordination, cooperation and collaboration among different parts of government. The institutional arrangements describe the different roles and responsibilities of the different stakeholders directly involved in the implementation of the Framework.

Roles and responsibilities

The e-government M&E Unit within the Gauteng Department of Finance (GDF), M&E Units in departments and agencies, CIO Council and E-Government Subcommittee, and the Premier's Office, are the key actors involved in the implementation of the Framework.

e-Government M&E unit

The e-Government M&E unit, within the e-Government Business unit of the Gauteng Provincial Department of Finance, is accountable for the implementation of the Framework. This accountability spans strategic, managerial and operational responsibilities.

From a strategic perspective, the e-Government M&E unit is expected to ensure the integration of the Framework into the planning, budgeting and reporting cycle of the GDF, and the GPG as a whole. It involves seeing the framework through the approval processes for it to become a formal instrument within the range of tools used formally in the GPG to monitor and evaluate the performance of government. It requires the allocation of funding to support the monitoring and evaluation activities to be undertaken. Most importantly, it involves generating buy-in within the GPG to ensure that the Framework is used on a sustainable basis.

From a managerial perspective, the e-Government M&E unit is expected to coordinate the different actors and their activities; continuously identify capacity building needs and implement measures to develop the required capacities; and lead the planning and budgeting processes in support of its implementation.

From an operational perspective, the e-Government M&E unit is expected to oversee the different M&E related activities: compiling data, organising analysis and evaluation, generating reports and disseminating findings.

Chief Information Officer council and e-government subcommittee

The Chief Information Officer Council (CIO council) is responsible for providing strategic direction and oversight on e-government formation. The specific responsibility for this rests with the e-government subcommittee specifically established for this purpose. At present, the e-government agenda is thus a component of a broader IT in government agenda. The assumption for implementing this Framework is that the primary focus of the CIO council should be that of steering the e-government agenda and development in the province. In this capacity, the CIO council should be consulted to make inputs into the content and substance of e-government M&E activities in view of the implementation of the Framework. For instance, the CIO council should play an important role in ensuring buy-in for the implementation of the Framework, communicating the importance of assuming responsibility for specific aspects of the Framework within the individual departments and agencies represented by the CIOs, as well as making sure that human and other resources are allocated for M&E activities in departments and agencies.

Gauteng City Region Observatory

The Gauteng City Region Observatory (GCRO) has been mandated to collect data and benchmark the city-region, provide policy analysis and undertake applied research. It is thus ideally positioned to play a role in the collection of data required in terms of this Framework. The GCRO should play an important role of coordinating data collection and research on behalf of the e-Government M&E unit.

Premier's Office

The Premier's Office, in its capacity as the steward for monitoring performance of the provincial government, is a key role player that needs to be informed and consulted, not only on the design and approach to the M&E processes and activities, but also on its results so that this information can feed into the performance monitoring process of the province.

Departmental and agency M&E units

Departments and agencies are gradually putting in place the required M&E capacity in terms of the national and provincial government-wide M&E policy frameworks. The e-Government M&E unit should work closely with these departmental or agency M&E units to coordinate activities. The department or agency M&E units should be consulted, informed and where required should be asked to provide expert resources.

Reporting and publication

A series of reports will be published through the life cycle of the Framework that will feed into the publication of the Information Society and e-Government in Gauteng Report Card. Monitoring and evaluating information society and e-government emergence is a complex task. This Framework represents a starting point – its relevance and usefulness, however, can only be tested through regular use.

Implementation cycle and schedule

The implementation schedule for the Framework is designed along a 30-month cycle that fits into the government's five-year planning, budgeting and reporting cycle. Data and reports will be made available to feed into the major performance review milestones of government such as the annual and mid-term reviews. The dates for the effective implementation of the Framework are 01 October 2010 until March 2013, at which point the cycle commences once more as indicated in Table 22.

Table 22: Monitoring and Evaluation Implementation Cycle

Key activities	Start date	End date	Duration	Accountable	Responsible	Consulted	Informed
Macro							
e-Society survey	01/04/2012	30/06/2012	3 months	e-Gov M&E Unit	GCRO	CIO Council	CIOs/PO
e-Business survey	01/04/2012	30/06/2012	3 months	e-Gov M&E Unit	GCRO	CIO Council	CIOs/PO
e-Government survey	01/04/2012	30/06/2012	3 months	e-Gov M&E Unit	GCRO	CIO Council	CIOs/PO
Meso							
Web Assessment Index	01/09/2011	31/10/2011	2 months	e-Gov M&E Unit	SP	CIO Council	CIOs/PO
e-Government Interoperability review	01/02/2011	31/05/2011	4 months	e-Gov M&E Unit	SP	CIO Council	CIOs/PO
e-Services Satisfaction survey	01/10/2010	31/12/2011	2 months	e-Gov M&E Unit	SP	CIO Council	CIOs/PO
e-Government Service Innovation case studies	Continuous	Continuous	1 month/case	e-Gov M&E Unit	SP	CIO Council	CIOs/PO
ICT Financial Value Expenditure review	01/07/2011	30/09/2011	3 months	e-Gov M&E Unit	SP	CIO Council	CIOs/PO
Micro							
Monthly reports	Continuous	Continuous	Continuous	Depart/ Project	PMO/ PM	Stakeholders	e-Gov M&E unit
Quarterly reports	Continuous	Continuous	Continuous	Depart/ Project	PMO/ PM	Stakeholders	e-Gov M&E unit
Annual Review report	01/02/2011-12	31/03/2011-12	2 months	e-Gov M&E unit	Depart/ project	CIO Council	CIOs
Mid-term review	01/07/2012	31/10/2012	4 months	e-Gov M&E unit	Depart/ project	CIO Council	CIOs
Final Evaluation report	01/01/2015	30/04/2015	4 months	e-Gov M&E unit	Depart/ project	CIO Council	CIOs
Post-project Implementation reviews	Continuous	Continuous	Continuous	e-Gov M&E unit	Depart/ project	Stakeholders	CIOs
Project Evaluation reports	Continuous	Continuous	Continuous	e-Gov M&E unit	Depart/ project	Stakeholders	CIOs

ANNEXURE A: CONCEPTUAL FRAMEWORK FOR E-SOCIETY, E-BUSINESS AND E-GOVERNMENT SURVEY

Introduction

The Gauteng Provincial Government has initiated a project to design and develop a framework for monitoring and evaluating information society and e-government formation in the Gauteng city-region. The design of the framework incorporates three major constituent components. The first component is directed at monitoring and evaluating the outcomes of the provincial government strategy and programme and its associated projects, aimed at promoting information society and e-government formation. The second component is a web evaluation survey that assesses trends in regard to the web presence of provincial and local governments, as well as public sector agencies. The final component is a set of government, community and business surveys aimed at measuring and monitoring several aspects of information society and e-government formation among these groupings in society.

This document describes the conceptual framework that will form the basis for the design and implementation of the community, business and government surveys. A brief description of the information society and e-government is provided that focuses less on a precise definition of these concepts and more on a description of the features that characterise their emergence. A review of information society and e-government emergence in South Africa is provided, followed by a discussion on how these phenomena are measured, monitored and evaluated. Finally, the review provides a description of the key factors that could form the basis for the measurement and monitoring of information society and e-government formation in the Gauteng city-region.

The emerging information society

In order to monitor and evaluate the changes taking place in society, it is necessary to define the information society and e-government and understand the factors that contribute to its creation and development. Defining such a complex phenomenon as the information society is, however, fraught with difficulty. Definitions such as "an information society is a society which makes extensive use of information and communication technologies", that are wrapped in tautology, are not helpful (Menou & Taylor, 2006). For instance, at what point does the threshold of access to and use of information, knowledge and enabling technologies facilitate an information society? Nevertheless, a brief overview of the concept and the key features of such a society are required to arrive at a point at which a conceptual description is possible.

Society, according to some theorists and observers, is undergoing a profound transformation giving rise to a qualitatively different kind of society than before. This society has variably been described as a post-industrial society (Bell, 1973), an information society (Masuda, 1981), a knowledge society (Bohme & Stehr 1986; Drucker, 1993a), a post-capitalist society (Drucker, 1993b) and a network society (Castells, 1998).

There are different views on what conditions or factors bring about the changes in society. Bell (1973, p. 21) identified the change in the character of knowledge, by virtue of "the primacy of *theoretical* knowledge over empiricism and the codification of knowledge into abstract systems of symbols, as the major source of the structural change in society" (italics in original). Theories of the information society appear to extend theories of post-industrialism in a way that emphasises computing and digitisation of information and its role in a range of social, political and economic activities (Barney, 2004, p. 9). In his idyllic vision of the Information Society Plan for Japan, Masuda observed *that the production of information values and not material values will be the driving force behind the formation and development of society* in which the expanding information productive power will make possible *the mass production of cognitive, systematized information, technology and knowledge* (1981, pp. 29 & 31 [italics in original])*.

Although not the cause of the changes taking place, the "availability and use of information and communication technologies are pre-requisites for economic and social development in our world" (Castells, 1999). As such, "the ability to move into the information age depends on the capacity of the whole society to be educated, and able to assimilate and process complex information" since "cultural and educational development conditions technological development, which conditions economic development, which conditions social development, and this stimulates cultural and educational development once more" (Castells, 1998, pp. 3-4).

Those that are theoretically less convinced about the arrival of a new society argue that the arrival of the information society is a self-fulfilling prophecy that has been crystallised into a doctrine with seven beliefs: (1) the world is in a state of fundamental transition/ upheaval; (2) the crucial resource of the new society is information/ knowledge; (3) the primary dynamic force in this revolution/ society is technology development and diffusion; (4) the generation of wealth in the information economy has eclipsed that of material/ manufacturing economy; (5) the social transformation accompanying these technical and economic changes is essentially positive; (6) the information revolution – technical, economic and social – is planetary in scale; and (7) the information revolution is irresistible and irreversible (Dyer-Witherford, 1999, pp. 22-26).

Given these broad assertions described above, what are the key features of this emerging information society and what are the potential consequences and impacts of the changes being observed and analysed? How are these changes observed, measured and analysed?

Digitisation and disembodiment
Shannon and Weaver's work on statistical communication theory (now called information theory) is credited with establishing the theoretical basis for the development of devices containing microprocessors found in digital computers[1]. Digital computers handle digital signals

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1   http://en.wikipedia.org/wiki/Information_theory

that are binary strings of zeroes and ones (Floridi, 1999, pp. 22-23). In this approach information is *defined independent of its content and context*. The data of series of ones and zeros is de-contextualised from any social or economic context, giving rise to disembodiment of the information – that is, the "increasing disconnect between the information itself (a series of ones and zeros) and the body of the information" (Malecki & Moriset, 2008, p.14).

The digitalisation of information has enormous consequences. On the economic front the digitalisation of the economy has given rise to the emergence of e-commerce, the development of new sectors, and an increase in the role and importance of existing sectors such as services. Goods change character as they become more information-intensive, so that they lose their status as products and evolve into services (Rifkin, 2000). Furthermore, digitalisation facilitates the split of the different parts of the value chain into many parts, detached from the process of material production and thus enabling networks of production, control and coordination, which has led to the emergence of new business models appropriate to the digital economy (Malecki & Moriset, 2008; Shapiro & Varian, 1999).

On the social front, the world is virtually at one's fingertips when there is access to a computer that is connected to the Internet. By using voice-over Internet protocols (VOIP) and downloadable software such as Skype, communication is possible with anyone, anywhere. Digitalisation also gives rise to new forms of social interaction through social networking sites such as Facebook and MySpace (Hassan, 2008).

Accelerated technological change

Technological change may be defined as "a temporal and cumulative process that increases the ability or potential of a people or society to solve their social, economic, environmental, and other everyday existential problems or needs" (Parayil, 1999, p. 9). It is a historical account of a technology's, birth, growth and demise. The Information Communication and Technology (ICT) sector in particular has experienced profound changes over the last several decades, and is one of the key features of the emerging information society.

Extraordinary progress in information storage capacity, the power of microprocessors and the bandwidth of data networks are a few examples of the innovation and changes in the ICT sector. These changes propagate throughout the economic and social sectors of society through the increased diffusion and pervasiveness of ICTs in the economy and society. According to Moore's Law (1965) the number of transistors that can be replaced inexpensively on an integrated circuit has doubled approximately every two years, the advancement of which affects the processing speed, memory capacity and sensors of digital electronic devices.

The networking effect is a further important ICT-enabled capability that concerns the consequence that one user of a good or service has on the value of the product to other people. The value of a product or service increases as more people use it[2]. Although highly contested, Metcalfe's Law is one way of formulating the value of the network effect. According to this law, the value of a telecommunication network is proportional to the square of the number of connected users to a system. Hassan (2009, pp. 187-189) argues that railway technologies, telegraphs and

2   http://en.wikipedia.org/wiki/Network_effect

telephones required infrastructure that took time to build so that their transformational effect took time to "ripple out" and connect with other communication systems in developing a national network of railways, telegraphs and telephones. ICTs, on the other hand, are able to take advantage of existing complex communication networks and infrastructures through common computer language protocols. He argues that computer networks utilise, connect and extend the infrastructures that have been built up over hundreds of years and *digitise* them. A case in point is the astonishing penetration of mobile phones which has now passed the four billion sub-scriber mark in 2008 (ITU, 2009).

Network mode of organisation

Networks, as a distinctive form of organisation and coordination, have together with hierarchies and markets been the major modes of organisation in society. Although always present, network forms of organisation are increasingly coming to the fore in the information society. According to Castells (1996, p. 469) "Networks constitute the new social morphology of our societies ..." and the "... new information technology paradigm provides the material basis for its pervasive expansion throughout the entire social structure". Thus a key characteristic of the information age is the spread of networks linking people, organisations, institutions and countries.

It is a communications environment characterised by cheap processing power and a pervasive network of interconnections that enables new types of network organisation and production. On the economic front, the networked information economy is characterised by "new and important cooperative and coordinated action carried out through radically distributed, non-market mechanisms that do not depend on proprietary strategies", and places "the material means of information and cultural production in the hands of a significant fraction of the world's population" (Benkler, 2006, p. 3). On the social front, a key question concerns how network structures reproduce existing and produce new social relations since networks are open structures that are highly dynamic and can expand almost without limit (Wittel, 2001).

Knowledge economy

Evidence of the birth of the information society is also sought in the changing nature of economic activity, the rise of the service industry and the specific features of the network knowledge economy that distinguish it from the industrial economy. The management guru, Peter Drucker, popular-ised the term knowledge worker beyond the confines of academia in 1969 when he argued, "Today the centre is the knowledge worker, the man or woman who applies to productive work ideas, concepts, and information rather than manual skill or brawn …" (cited in Brinkley, Fauth, Mahdon & Theodoropoulou, 2009, p. 10). The growing importance of knowledge as an economic resource is associated with the growing complexity and specialisation that are features of the development of economic and production technologies. This increase in the complexity and differ-entiation in the production system requires a greater communicative effort to manage organisa-tional processes, leading to the demand for informational labour capable of handling, synthesizing and creating new knowledge (Pyoria, Melin & Blom, 2005, p. 60). Consequently, there has been an expansion in especially the managerial, professional and technical occupations. What is specific to the informational mode of development, according to Castells (1996, p. 17), "is the action of knowledge upon knowledge itself as the main source of productivity".

Service functions and activities are regarded as significant enablers of, and at the same time at the centre of, economic processes associated with the emergence of a global economy. Global production processes are directly linked to the service industries of transport, communication, trade, computer and leisure services, education and training (Cuadrado-Roura, Rubalcaba-Bermejo & Bryson, 2002). The services sector now accounts for two-thirds of global economic output and is the fastest growing sector of the world economy (World Bank, 2003). According to Sassen (2002) the expansion of central functions and the demand for specialised services for firms can be attributed to the emergence of global markets for finance and specialised services and the growth of investment as a major type of international transaction. These central functions include the financial, legal, accounting, managerial, executive and planning functions required to manage geographically disbursed corporate organisations operating in multiple countries.

The above review of information society development does not attempt to define the precise nature of such a society, but rather highlights a few of its underlying properties to provide a qualitative description of the changes taking place. It is the combination of these properties of digitisation and disembodiment, accelerated technological change, the network mode of organisation and the knowledge economy and how they coalesce that provides the qualitative character of the emerging information society.

e-Government in the information society

Government is a key role player in the emerging information society and as an institution has significant influence on how information society evolves in a particular country. At the same time, information society development constrains and enables government. The key features described above have associated with them a broad range of both opportunities and challenges that governments are required to understand, shape and influence in order to achieve their development goals in concert with other constituencies in society. Government is profoundly impacted by the increasingly pervasive deployment and use of ICTs, which begs fundamental questions about the very nature of government.

All interactions between governments and their citizens happen through an exchange of information. Whether citizens apply for identity documents or their social grants, information is documented in the application and used as the basis for processing and decision-making. Thus information acquisition, storage, processing and communication are core functions of government and ICTs, as the technology that facilitates these functions is its core technology (Snellen & Van de Donk, 1998).

According to Heeks (1999, p. 16), government is the single largest collector, user, holder and producer of information and is thus very information-intensive with four main formal types of information that can be identified: (1) information to support internal management; (2) information to support public administration and regulation; (3) information to support public services; and (4) information made publicly available. The increasing use of information and communication technologies in the public sector is giving rise to its informatisation.

Informatisation is a complex concept which describes (Snellen & Van de Donk, 1998, p. 6):

- the introduction of information technology in order to take care of or shape the process of information supply by means of automated information systems;
- the arrangements and re-arrangements of flows of information and information relations for the sake of administrative information supply;
- the adjustment or change of the organisational structure in which information technology is introduced;
- the development of information policy as a differentiated policy in the organisation; and
- the introduction of specific expertise in the field of information technology through officials with assignments in the field.

Informatisation of the public sector has extensive consequences and transcends "the mere operational levels of governmental action, and affect the basic legal and organisational doctrines that have guided it so long" (Snellen & Van de Donk, 1998, p. 12). This process of informatisation of government provides the conditions and the basis for the emergence of e-government as part of efforts to modernise, reinvent and transform government. E-government is defined as the use of "modern information and communication technologies, especially the Internet and web technology, by a public organisation to support or redefine the existing and/or future (information, communication and transaction) relations with 'stakeholders' in the internal and external environment in order to create added value" (Bekkers & Homburg, 2005). e-Government is strongly associated with the process of public sector reform, especially reform measures introduced under *new public management* thinking, which places emphasis on establishing a service orientation, productivity, marketisation, decentralisation, reducing public expenditure and improving managerial accountability (Van Duivenboden & Lips, 2005; Bekkers & Homburg, 2005). What are some of the discernible features that characterise these changes introduced as a result of public sector informatisation and e-government, and how do they impact government's role, its relationship with citizens and the delivery of its services? These changes are assessed at the macro, meso and micro levels below.

External change (macro level)

One of the central limitations of the classical Western model of state organisation is its inability to deal with the complex range of challenges faced by governments all over the world. Governments are typically organised into sectors that are concerned with the provision of services to meet universal needs such as education, health and welfare; and support for economic sectors such as agriculture, mining and various branches of industry. This organisation is framed by a reductionist and rationalist world view in which problems can only be understood by reducing them into their elementary building blocks that can be studied independently. Sectoral policy discourses and practices thus dominate government programmes and responses, trapping governments in modes of operation that are confined to narrow sectorally focused approaches to problem solving. This in turn limits the flexibility necessary to respond to continuously changing ways of living and doing business in a globalising context.

The limitations of large-scale rationalised planning and hierarchical regulation as the dominant mode of collective problem solving fuels the growing recognition that no single actor, public or private, has the knowledge, information, and instruments required to

solve the complex challenges faced by society (Kooiman, 2003, p. 11). The consequent re-orientation of the role played by the state in state-society relations and the increasing role of non-state actors in policy-making and implementation signal a shift away from the view that governments have both the authority and capacity to govern effectively. It does however, not necessarily signal a reduction in government, rather the dispersal of government power across new sites of action (Newman, 2001). Nor does it render traditional government intervention obsolete (Kooiman, 2003); rather, it implies a growing awareness of the limitations of the traditional form, function and organisation of government. Governance describes the means by which an activity or ensemble of activities is controlled and directed, such that it delivers an acceptable range of outcomes according to some established social standard (Hirst, 2000). It signals a process of governing beyond the limits of the institution of government.

e-Governance is therefore defined as the "societal synthesis of politics, policies and programs and e-governance is the application of ICT to the system of governance to ensure a wide participation and deeper involvement of citizens, institutions, non-governmental organisations, as well as, private firms in the decision-making process" (UNESCO, 2005). It embodies the characteristics of electronic engagement, electronic consultation, electronic controllership and networking societal guidance. This definition of e-governance also emphasises stakeholder interaction and the consequences for society, except that this interaction now takes places through electronic media.

Internal organisational changes (meso level)

The bureaucratic mode of organisation is characterised by a hierarchical structure of authority; a clear division of labour and a high level of specialisation; a formalised system of rules, regulations and clear lines of authority; employment based on technical qualifications; and impersonality (Cushway & Lodge, 1999). From this perspective public sector organisations operate as autonomous agencies with relatively clearly defined boundaries.

The characteristics of information processing, communication and networking are embedded in ICTs. These characteristics facilitate relations and transactions between organisations. Links are established between organisations (for example, through the exchange of information from a common database), and organisations become connected. The connection in a network creates interdependencies and enhances the possibility for inter-organisational influence and control (Bekkers, 2005). This redefines boundaries and influences a range of issues concerned with organisational boundaries. Where organisations share information and integrate operational and planning processes their organisational boundaries begin to shift or merge. This raises issues pertaining to where authority vests, and where legal and political accountability rest (previously securely tied up in the hierarchical structure of authority and accountability within the organisation's boundary).

Moreover, ICTs are introduced into work processes and reorganising, in some cases transforming, these. Whereas the bureaucratic process is comprised of a sequential series of activities (such as intake, assessment, decision and monitoring) and managed through hierarchy, standardisation and specialisation, new organisational structures resulting from ICT induced change are fundamentally different from the bureaucracy. They are less

hierarchical, more decentralised, less formalised, deskilled, and more organic than mechanistic in character. The fundamental difference is that control is exerted not through the structure of bureaucracy but rather through the use of ICT (Zuurmond, 2005).

Service delivery and the changing government-citizen interface (micro level)

Although defined more broadly than electronic service delivery, e-government initiatives reflect a definite bias toward a narrow service delivery focus. The following types of e-government services have already been identified in practice (Homburg, 2008): (1) *information services* are focused on the disclosure of government information; (2) *contact services* refer to the possibility of contacting government organisations; (3) *transaction services* refer to the electronic intake and further handling of certain requests and applications of personal rights, benefits and obligations; (4) *participation services* provide citizens and interest groups with channels for getting involved in the formulation and evaluation of policy programmes; and (5) *data transfer services* refer to the exchange and sharing of information between government agencies.

ICT in government has the potential to overcome the traditional boundaries of time and place, and to offer a public service to citizens in accordance with their own demands and needs. A range of different initiatives has been taken to achieve this goal. The structuring of information flows is taking place along functional lines that address the life events of citizens. Thus different ICTs such as the Internet and call centres are used to bring together information streams of different government departments at one virtual service counter. Furthermore, data are shared within the functional areas of government through aligning databases of different government departments and organisations. This is done, among other motivations, to achieve broad access to information at a single point of access, prevention of duplication of data, and a reduction of cost in the collection and creation of data. Electronic transactions are introduced that enable citizens to make electronic payments at their convenience. These efforts are geared towards placing the citizen at the centre of the relationship with government. A range of issues are emerging that need to be considered in the evolution of e-government. These include aspects related to data security and privacy, data ownership, legitimacy and accountability (Lips, 1998).

ISAD and e-government formation in South Africa

The information society theme appeared in the South African political discourse in the mid-1990s (Van Audenhove, 2003). In 1995, then President Mandela addressed the ITU TELECOM-95 Conference in Geneva and emphasised the role ICTs can play in eliminating economic and other inequalities between north and south. Former President Mbeki addressed the G7 Summit in 1995 for the inclusion of developing countries in discussions on the information society. The Information Society and Development (ISAD) Conference took place in South Africa the following year.

A series of information society-related reforms were introduced during the mid- to late 1990s that emphasised the diffusion of computer and telecommunications infrastructure as a prerequisite for information society development. The focus was initially on telecommunications and broadcasting sectors, which are critical to the development of the information society given the role these sectors play in establishing the infrastructure, applications and services needed to take advantage of the ICTs.

Rapid technological advancement and convergence were major challenges to policy-makers who sought to create the policy environment necessary for the emergence of a national information and communications infrastructure as the backbone of a modernising and digital economy. Hodge, Lipschitz, Sheik, & Aproskie (2009) divide the policy reform process, which took place under the stewardship of the Department of Communications (DoC), into three phases. The access deficit was the main focus of the initial period from 1994 to 2001, during which Telkom was granted exclusivity conditioned by significant roll-out obligations. This period was marked by a failure to make any significant inroads into the roll-out obligations, while mobile services expanded dramatically. In the middle period from 2002 to 2005

competitiveness became an increasing concern of government, and witnessed the introduction of more fixed and mobile competition. Delays in the introduction of the Second National Operator (SNO), in granting rights to alternative providers and in developing regulation for interconnection and wholesale services meant that the opportunity to enhance competition failed once more during this time. Cost competitiveness remained a major concern in the final phase from 2006 to the present. Telecommunications cost was highlighted as one of the binding constraints, which hampered economic competitiveness and which government sought to address through the ASGISA programme. Government opted for direct investment through the establishment of Broadband Infraco to address the high cost of broadband. Table 23 outlines the policy outcomes and instruments for the telecommunications sector.

Table 23: Telecommunications Policy Outcomes and Measures

Policies and Acts	Major Intended Policy Outcomes	Policy Measures
Telecommunications Act, 103 of 1996	• To promote universal and affordable provision of services • To ensure fair competition • To promote innovation and investment • To promote spectrum efficiency and technical standards • To promote BEE, women ownership and SMME development	• Telkom granted exclusivity period • Roll-out obligations for Telkom-required installation of 2.69 new lines • Granted licence to two Mobile Network operators • Licences • Established Universal Service Agency and Universal Service Fund • Established ICASA as regulatory
Telecommunications Amendment Act, 64 of 2001	• Objectives as above • To bridge the digital divide • To promote convergence	• Telkom exclusivity to end • Neotel granted a licence in 2005 • Sentech granted a multimedia licence
Electronic Communications Act, 36 of 2005	• To promote universal provision of networks, services and connectivity for all • To promote competition and open up telecommunication service and infrastructure market • To promote local ownership • To promote interconnectedness	• Technological distinctions discarded to facilitated convergence • Licences decided by ICASA

These reforms have met with less than optimal success in terms of universal access and cost competitiveness. Regulation remains ineffective in critical areas, there is an increase in concentration of state ownership and there are significant limitations on competitive entry (Esselaar & Gillwald, 2007). The DoC admits that "South Africa's delayed telecoms deregulation has put its telecoms market 10 to 15 years behind its European and US counterparts" (DoC, 2010).

Moreover, fixed-line penetration has decreased to 20% from 30% in 2000, while mobile penetration has increased dramatically to 56%. Access to the Internet has shown limited growth from 5.1% in 2000 to 7.1 in 2007 (Hodge et al, 2009).

The poor outcomes of policy and regulatory intervention at national level have prompted provincial and local governments in Gauteng to initiate their own interventions and investments to increase broadband penetration and reduce the cost thereof. The Gauteng Provincial Government (GPG) has launched the G-LINK Programme which aims to revolutionise broadband capacity, making it cheaper and easily accessible, while the City of Johannesburg launched the Johannesburg Broadband Network Project in 2009, worth an investment of one billion rand, to develop a citywide broadband network.

e-Government emergence has a short history of less than fifteen years in South Africa. The Presidential Review Commission (1998) was appointed to conduct a review of the public service and to make recommendations and proposals for its transformation in line with the White Paper on the Transformation of the Public Service (1995). The Commission made a series of recommendations on the issue of information management, systems and technology (IMST). It proposed the formulation of a coherent and coordinated strategy for IMST, the establishment of a Government CIO Office, and the migration to complete electronic communication.

It took several years for the Department of Public Service and Administration (DPSA), the department responsible for driving the e-government agenda in the country, to issue a Public Service IT Policy (DPSA, 2001). The transformation to e-government then was dominated by an IT perspective and called for a number of technical measures to be implemented. These included achieving interoperability, security, economies of scale and eliminating duplication. This would be the basis for increased productivity, cost effectiveness and improved service delivery. How this was to be achieved was unclear since the measures proposed – development of IT skills, IT research, improved coordination, and defined institutional arrangements – seemed sufficient to achieve the aforementioned outcomes.

The Gateway Concept Document (2002) was the basis for the government's flagship programme for delivering online government. The Gateway Project was designed to create seamless and continuous access (24/7/356) to information and government services. How this would be achieved was spelt out in broad terms, based on a set of implementation principles, technical architecture and an implementation plan. These policy frameworks provided the guidance within which the Office of the Government Chief Information Officer (OGCIO) is to coordinate e-government projects, perform the secretariat function to the Government Information Technology Officer Council secretariat, and provide ICT oversight. The State Information Technology Agency (SITA) was established as the key implementer and provider of IT goods and services.

At provincial level a series of documents set out the vision for e-government in Gauteng. The starting point is the *e-Government Blueprint Proposal* (2007) which sees e-government as enabling "the Gauteng Provincial Government to be open for business from any place and at any time, with one point of entry for all its citizens" (GPG, 2007). The e-government implementation

approach is "predicated on beginning with the end in mind, and then starting with defined, limited-scope projects. When success is achieved in these pathfinder projects, scaling-up will occur rapidly" (GPG, 2007).

The strategic objective set out in the *e-Government Strategy* (Draft Strategy, 2009) for the GPG is "to create value for our stakeholders (Citizens, Business, Government and Government Employees) by contributing to safe and sustainable communities, bridging the digital divide, contributing to economic growth, contributing to administrative excellence, improving the customer's experience of Government Services, deepening democracy and by developing quality people to deliver" (GPG, 2009). This is to be achieved through a focus on:

- building services around citizen's choices
- making government and its services more accessible
- social inclusion
- using information better
- standardised and common infrastructure
- back-office integration
- performance metrics.

A number of projects[3] are being implemented in the province, given the strategic direction set out in the Blueprint and e-Government Strategy. Priorities range from establishing the necessary infrastructure that will provide access to all citizens in the province (G-Link Project); to the development of transversal applications involving several departments (Bana Pele Integrated Database); to providing a single point of entry to Gauteng citizens to interact with the GPG (Gauteng Portal Content Management); to creating an enabling environment for increased service delivery and interaction between government and citizens (Identity and Access Management Project); and to building transactional capabilities of departments (Payment Engine Project).

Individual departments are focusing on establishing a stable and secure ICT environment that ensures uninterrupted operations (Department of Economic Development); automation of business processes (Department of Agriculture, Conservation and Environment); improving management information capacity (Department of Community Safety); and building GIS capability (Department of Transport, Roads and Works).

A common feature in most departments appears to be the development of business intelligence applications for improving planning, decision-making and resource optimisation. This is in addition to ensuring that that the basic infrastructure is in place to maintain and secure operations. At provincial departmental or agency level, projects tend to be conceptualised and conceived in response to the *immediate* needs of business units. Projects are therefore developed to improve management effectiveness, increase process efficiency and resource optimisation, and improve customer service. Examples of such projects include the Integrated Information Management System (IIMS) by the Department of Community Safety, the series of automation projects planned by the Department of Economic Development, and the Public Resource Optimisation System of the Department of Transport, Roads and Works.

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3   Some of which have been suspended due to financial consideration and are subject to a review taking place.

The metropolitan municipalities of Joburg, Ekurhuleni and Tshwane are much more explicit about the conceptualisation and implementation as e-government projects. These municipalities seek to implement projects that will contribute to the establishment of digital or smart cities. The emphasis at present is on the provision of infrastructure and connectivity to citizens. The Ekurhuleni Metropolitan Municipality's broadband connectivity project, implemented as part of its Digital City Strategy, is aimed at providing broadband connectivity to citizens and has already yielded positive results in the areas of e-service enablements such as the online-rate payment systems; free Internet services to libraries; e-health and e-education services pilot projects. In the City of Tshwane, the broadband roll-out programme consists of a fibre optic cable around the city that has already provided connectivity to municipal buildings and which will be rolled out to schools, clinics and small businesses. The City of Joburg has commenced the roll-out of broadband infrastructure to provide connectivity between the city and its agencies and citizens, as well as a platform for e-services to citizens.

The extent to which these portfolios of initiatives are contributing to the transformation of the governments of the Gauteng province remain uncertain. A previous study (Abrahams & Newton-Reid, 2008) found that objectives for e-government are poorly specified or not specified at all, investments and actions are uncoordinated, and that greater attention should be given to building a strategic vision and responsiveness to e-government projects; and greater connectedness needs to be achieved through defining and mapping the respective roles, responsibilities and constraints. Table 24 highlights the e-government policy measures and instruments at national and provincial levels.

Table 24: e-Government Policy Outcomes and Measures

Policies and Acts	Major Intended Policy Outcomes	Policy Measures
Presidential Review Commission Report, 1998	• Review of government IT environment and systems and institutional arrangements	• Proposal of a coherent and coordinated strategy of Information Management, Systems and Technology (IMST • Establishment of a Government CIO Office • Migration to full electronic communication
Electronic Government: The Digital Future. A Public Service IT Policy, 2001	• To achieve e-governance, e-services, and e-business • To achieve interoperability, security, economies of scale, the elimination of duplication • To achieve IT value being increased productivity, cost effectiveness, improved service delivery, and is defined by established economic theories	• Development of IT skills • IT research • Improved coordination • Defined institutional roles and responsibilities • GITOC Council • State IT Agency
e-Government Gateway Concept Paper Document, 2002	• To create seamless and continuous access to information and services (24/7/365) • To develop one overriding e-government implementation framework • To realign and streamline the back office operations of government • To enable the delivery of multiple services through a single delivery mechanism • To enable seamless access to government services by clustering services in terms of key life events	• Implementation principles • Provides a technical implementation architecture • Describes the system components • Provides broad implementation plan
Policies and Acts	**Major Intended Policy Outcomes**	**Policy Measures**
Gauteng Provincial Government: e-Government Blueprint Proposal, 2007	• To enable the GPG to be open for business from any place and at any time, with point of entry for all its clients in order to contribute to faster economic growth, fight poverty and build safe, secure, sustainable communities; develop skilled, healthy and productive people; deepen democracy and nation building; and build an effective and caring government.	• Defines e-government approach • Segments e-government into G2G, G2B, G2C and G2E • CIO Council • e-Government Subcommittee • Provides for an Integrated Master Systems Plan
GPG ICT Strategy, 2007	• To provide long-term goals or a vision on what should be done best to support business objectives through ICT capability while adhering to the values as stated in the e-Government Strategy.	• All departments to adhere to seven values: 1) trusted ICT services within GPG; (2) GPG ICT services supporting e-government values; (3) GPG ICT capability of effectively governed; (4) GPG ICT business process compliance with industry best practice; (5) business system supported with quality information; (6) ICT enabler comprising ICT specialist and specialist technologies; (7) effective collaboration with stakeholders
Gauteng e-Government Strategy, 2009 (Draft)	• The aim of the strategy is to create value for our stakeholders	• A series of interventions are planned and structured into the main segments of G2C, G2B, G2E, and G2G, and Project Alignment

Measuring, monitoring and evaluating information society and e-government emergence

The pioneering study published by Fritz Machlup in 1962 on *The Production and Distribution of Knowledge in the United States* and the work of Mark Porat on the *Information Economy* in the mid-1970s, were the first to categorise knowledge and information tasks separately, measuring and giving them economic value (May, 2002). Since then a global effort has been spawned to define, quantify, measure and compare information society and formation. These include the initiatives undertaken by individual countries, multilateral institutions and global development organisations. It has produced definitions of the information society that address a wide range of dimensions, develop indicators for measurement as well as the tools to do so, and publish rankings of countries.

Measuring progress in the development of the information society is a complex process which is hampered by varied definitions and "considerable debate over the precise nature of the information society" (Steinfield & Salvaggio, 1995, p. 1). Nevertheless, a number of developed countries started initiatives to measure the information society in the late 1990s. The establishment of the United Nations Information and Communications Technologies Task Force (UN ICT Task Force) was one of the first initiatives that provided a platform for discussing international norms, policies and practices, and focused its work on a range of issues which included benchmarking progress in the use of ICT for development (UN, 2005). More specifically, the task force established a working party on ICT indicators and millennium development goals mapping led by Canada, to examine the impact of ICTs in furthering the achievement of the MDGs. A measurement framework was proposed with qualitative and quantitative indicators as the basis for assessing the impact of ICTs on the achievement of the development goals.

The focus on measuring the information society was given a significant boost as a result of the two World Summits on the Information Society (WSIS) held in Geneva (2003) and Tunis (2005). The *Plan of Action* from the Geneva summit called for "A realistic international performance evaluation and benchmarking (both qualitative and quantitative), through comparable statistical indicators and research results, should be developed to follow up the implementation of the objectives, goals and targets in the plan of action, taking into account different national circumstances" (ITU, 2005, p. 52). This aim was reinforced at the summit in Tunis, *Agenda for the Information Society,* which noted that, "Appropriate indicators and benchmarking … should clarify the magnitude of the digital divide … and keep it under regular assessment, and track global progress in the use of ICTs to achieve internationally agreed development goals and objectives, including the Millennium Development Goals" (ITU, 2005, p. 94).

The establishment of the Partnership on Measuring ICT for Development gave further impetus to international efforts to generate comparable and reliable data and indicators. This is an international, multi-stakeholder initiative to improve the availability and quality of ICT data and indicators, with a special focus on developing countries. The objectives of the Partnership on Measuring ICT for Development are to: define and analyse internationally

comparable statistical ICT indicators and develop methodologies to collect these indicators; to assist in building statistical capacity in developing countries; and set up a global database on core ICT indicators. A core list of indicators has been developed by the Partnership and endorsed by the UN Statistical Commission in 2007. A revised list was presented to the UN Statistical Commission in 2009.

The motivations for establishing these international and national information society measurement systems and initiatives are manifold. They have been aimed at assessing the ability of countries to create and diffuse technology as a reflection of their participation in technological innovation in the network age (UNDP, 2001), as well as that of countries' performance and prospects to measure progress in building the information society (ITU, 2004). In addition they have been used for benchmarking purposes (BISER, 2004), as well as the provision of guidelines to enable the collection of internationally comparable statistics (OECD, 2009).

Many of the reports and studies produced during the last decade focus on assessing the levels of e-readiness and measuring the digital divide. The initial focus of many studies was on determining the level of readiness of countries to participate in the information society. Readiness refers to how ready a country is to gain the benefits offered by ICT in terms of policy, infrastructure and ground level initiatives (bridges.org, 2005) or the degree to which a community is prepared to participate in the networked world (CID, 2002). An evolution from measuring the penetration of information and communication technology as a measure of e-readiness to assessing the level of intensity, that is, the level and volume of ICT use, can be observed (ITU, 2009; BISER, 2004; SIBIS, 2004).

The conceptual approaches underlying these initiatives and studies consider different factors in the processes of establishing the measuring systems to assess information society developments. The diversity in the approaches and definitions make the categorisation of these dimensions into logical clusters difficult. A detailed analysis of 27 studies, measurement frameworks and models reveal four broad factors used for measuring information society and e-government formation. These factors are:

    (a) Information and communication technology network infrastructure;
    (b) Leadership, policy and regulatory environment;
    (c) Human resource development; and
    (d) e-Development comprising e-government, e-business and e-society.

Table 25: Categories, Studies and Reports

Dimensions	Studies and Reports
Information and Communication Technology Network Infrastructure	IDC (1995-2008); EIU (2001-2009); UNDP (2001); WEF (2001-2009); Sciadis (2003); SIBIS (2003); BISER (2004); ITU (2003); ITU (2004); CID (2002); ITU (2009); UNDERSTAND (2005); Esselaar & Gillwald (2007); UNCTAD (2007); UN (2008); (OECD) 2009; UNCTAD (2009); UNCTAD (2006); Bui, et al (2002); Walcott, et al (1996); CSPP (1998); Schulz & Olaya (2005)
Enabling Policy and Regulatory Environment	EIU (2001-2009); WEF (2001-2009); CID (2002); Esselaar & Gillwald (2007); Schulz & Olaya (2005); ESCWA (2005); Bui et al (2002)
Human Resource Development	EIU (2001-2009); UNDP (2001); WEF (2001-2009); IDC (1995 – 2008); Sciadas, (2003); CSPP (1998); SIBIS Consortium (2003); ITU (2009); UNDERSTAND (2005); UNTAD (2008); OECD (2009); Esselaar & Gillwald (2007); Schulz & Olaya (2005); ESCWA (2005); BISER (2004); Bui, et al (2002)
e-Development: e-Government	UNDERSTAND (2005); ESCWA (2005); BISER (2004); EIU (2001-2009); WEF (2001-2009)
e-Development: e-Society	IDC (1995-2008); EIU (2001-2009); WEF (2001-2009); SIBIS (2003); BISER (2004); ITU (2007); Esselaar & Gillwald (2007); UNDERSTAND (2005); OECD (2009); UNCTAD (2009)
e- Development: e-Business	UNDERSTAND (2005); OECD (2009); UNCTAD (2009); Bui, et al (2002); EIU (2001-2009); WEF (2001-2009); Esselaar & Gillwald (2007); UNDERSTAND (2005); ESCWA (2005); BISER (2004)

The dominant mode of measuring information society development used in the studies reviewed is through the construction of a composite index as a single statistical value consisting of different dimensions and indicators that can be measured and compared over a number of years. (Orbicom, 2003; ITU, 2009). A major problem identified with this approach is that the relative standings of countries are dependent on which indicators are included and excluded – choices that are made on a subjective basis. For instance, a country will score lower if it performs well in developing its information society, despite low levels of income per capita, but that the inclusion of low income per capita as an indicator may lower the ranking of a specific country (UNESCO, 2006, p. 48). Moreover, there are a range of other critical issues that beset data collection efforts, such as unreliable, inconsistent or irrelevant data, especially in developing countries. Webster (1995) also cautions that the use of a quantitative approach to a qualitative problem (that of describing the qualitative transformation of society) runs the risk of discarding the meaning of information in order to produce quantitative data as evidence of its growth and existence of the information society.

Moreover, the concepts of e-readiness and the digital divide are common to many of the studies undertaken to measure and monitor information society and e-government formation. E-readiness as mentioned, refers to the "degree to which a country, nation or economy may be ready, willing or prepared to obtain benefits which arise from ICTs" (Dada, 2006, p.1). Not all countries are in a position to reap the benefits of ICTs optimally or equally. The extent to which this is possible is conditioned by a range of factors such as access to and use of ICT infrastructure, skilled and knowledgeable people, and a favourable policy and market environment. The term digital divide "refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their

opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities" (OECD, 2001, p.5). Although access to basic telecommunications infrastructures is fundamental in terms of defining the digital divide, it is broader in scope and should be defined as a continuum of multi-dimensions that include hardware, software mode of Internet content, skills, literacy, mental access, and types of usage. Both these concepts inform our understanding of how countries and communities are able to take advantage of ICTs.

The e-readiness concept is applicable to the measurement of human resource development, information and communication network technology, and policy and regulatory framework factors. These factors relate to the inputs into the development of the information society. The digital divide concept is applicable to the e-development factor, which comprises e-society, e-business and e-government since it relates to the outcome of information society development. This is illustrated in the conceptual framework in Diagram A below.

Diagram A: Conceptual Framework for Information Society and e-Government Formation
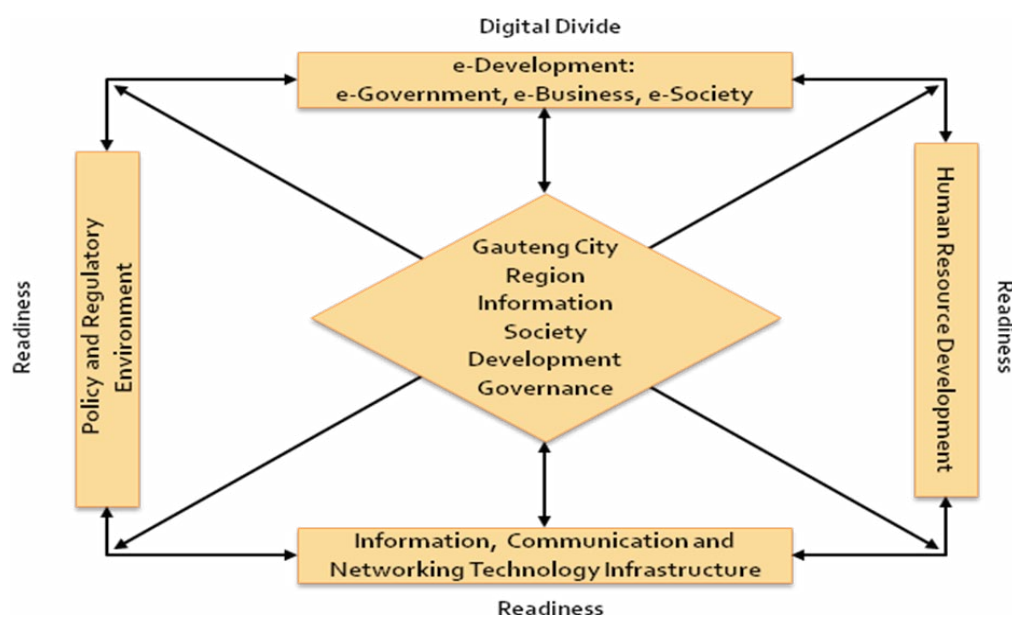
Adapted from: Hanna & Qiang, 2010

Enabling policy, regulatory and strategic environment

An effective and appropriate policy environment is important to fully capture the benefits of technologies and mitigate against the risk they present. The policy environment should provide a favourable climate for investment in the information and communication technology sector. It should establish the conditions that promote competitiveness in terms of bringing down costs and improving quality. Moreover, the policy environment should promote universal coverage and access. The effects of the policy, regulatory and strategic environment will be measured by the extent to which there is access and how affordable this is through the survey process. However, a more detailed secondary analysis should be undertaken to augment the data that will be generated through the survey process.

Information and communication technology network infrastructure

Information and communication technology network infrastructure refers to computer networks, telephone lines, fibre optic networks, wireless networks and the devices that facilitate access to these networks. This infrastructure provides the means over which large parts of economies are enabled. The availability of, and access to, these infrastructures are important indicators of e-readiness and the extent to which the digital divide exists in countries and communities.

Table 26: Information and Communication Technology Network Infrastructure Indicators

Infrastructure			
	e-Society	e-Business	e-Government
Access	• Percentage of households with access to radio/ television/ VCR-DVD/ computer/ Internet • Percentage of households with fixed telephone line • Percentage of households with mobile phone • Type of Internet connectivity	• Percentage of business with computers/ fax/ post box/ email • Percentage of business with access to the Internet • Percentage of business with web presence • Percentage of business with access to an Intranet • Percentage of business with broadband Internet connection • Percentage of business with LAN	• Percentage of municipalities with a website • Number of Internet connected PCs installed and functioning • Average number of PCs • Percentage of government with Intranet • Average number of employees who have access to the Internet • Percentage of government with broadband connection
Barriers	• Perceived barriers to computers • Perceived barriers to fixed-line phone • Perceived barriers to mobile phone • Perceived barriers to the Internet	• Perceived barriers to computers • Perceived barriers to the Internet • Perceived barriers to the broadband Internet connection	• Perceived barriers to the computers • Perceived barriers to the Internet • Perceived barriers to the broadband Internet connection
Investment	• Current and planned investment (costs) in computers • Current and planned investment (costs) in fixed line phone • Current and planned investment (costs) in mobile phone • Current and planned investment (costs) in Internet	• Current and planned investment (costs) in computers/ fax/ post box/ email • Current and planned investment (costs) Internet • Current and planned investment broadband Internet	• Current and planned investment maintenance/ upgrading computer and network infrastructure • Current and planned investment (costs) Internet • Current and planned investment broadband Internet

Human resource development

Knowledge is the main source of productivity in the information society (Castells, 1996). Bell (1973) views theoretical knowledge as an axial principle in the post-industrial society for its primacy over empiricism. New and constantly changing demands on education, skills and training are key features of the information society, in addition to more general educational attainment and skills, the importance of basic, intermediate and advanced ICT skills as an interface between individuals and their environments at home and at work in which ICTs are increasingly embedded. There is a broad set of indicators that provide an indication of the level of information society development, which include ICT provisioning in the educational system, digital literacy, adaptability of the workforce, tertiary education attainment. The indicators that

will be used for the purposes of the survey, however, are more modest and will focus on ICT proficiency, skills and investment at home, at work and in government. These indicators will provide basic information on the state of human resources' e-readiness to take advantage of ICT-related opportunities.

Table 27: Human Resource Development Indicators

Human Resource Development			
	e-Society	e-Business	e-Government
ICT PROFICIENCY	• Percentage who feel confident using email • Percentage who feel confident using a computer to type a letter or a CV • Percentage who feel confident identifying the cause of computer problems • Percentage who feel confident obtaining and installing software • Percentage who feel confident making a call over the Internet • Percentage who feel confident communicating over the Internet • Percentage who feel confident identifying sources of information • Percentage who feel confident using the Internet as a search engine	• Percentage of staff who feel confident using email • Percentage of staff who feel confident using a computer to type a letter or a CV • Percentage of staff who feel confident identifying the cause of computer problems • Percentage of staff who feel confident obtaining and installing software • Percentage of staff who feel confident making a call over the Internet • Percentage of staff who feel confident communicating over the Internet • Percentage of staff who feel confident identifying sources of information • Percentage of staff who feel confident using the Internet as a search engine	• Percentage of staff who feel confident using email • Percentage of staff who feel confident using a computer to type a letter or a CV • Percentage of staff who feel confident identifying the cause of computer problems • Percentage of staff who feel confident obtaining and installing software • Percentage of staff who feel confident making a call over the Internet • Percentage of staff who feel confident communicating over the Internet • Percentage of staff who feel confident identifying sources of information • Percentage of staff who feel confident using the Internet as a search engine
ICT SKILLS DEVELOP-MENT	• Participation in ICT-related training • Participation in ICT-related self-learning	• Use of e-learning in enterprises • Enterprises supporting ICT training	• Percentage of government who offer ICT training to staff • Percentage staff who have received ICT training • Percentage of governments that use e-learning to provide training
IMPACT	• Perceived impact on income/ or income potential • Perceived impact on current/ prospective employment	• Perceived impact on ability to compete • Perceived impact on enterprise productivity	• Perceived impact on service delivery • Perceived impact on organisational productivity

e-Development: e-government

As noted earlier, the pervasive dissemination of ICT in government is impacting on government at the macro, meso and micro levels. The survey is concerned with the micro level – the point of service delivery and the interaction between the citizen and government. The main goals of e-government include improving the efficiency of public administrations, cutting costs, increasing transparency and participation, and making services easily accessible online (Baptista, 2005). The success and contribution e-government makes towards information society development thus depends on how readily accessible government is through the Internet, the extent to which citizens and business make use of these services, and how such services meet their needs. The indicators for e-government that will be surveyed are awareness, use

and demand for e-government services among citizens and business, while the survey for government will aim to collect data on the organisation, supply and usage of electronic delivery of information and services. Access to and usage of online government information and services are also key indicators of the digital divide.

Table 28: e-Government Indicators

e-GOVERNMENT				
	e-Society	**e-Business**		**e-Government**
AWARENESS	• Percentage aware of online government (provincial, local and agencies) information and services • Attitude to online information and services • Perception of trustworthiness of online government information and services • Perception of security of online government information and services	• Percentage enterprises aware of online government (provincial, local and agencies) information and services • Attitude to online information and services • Perception of trustworthiness of online government information and services • Perception of security of online government information and services	ORGANISATION	• Percentage with documented and approved IT/ICT Strategy • Percentage with documented and approved e-government strategy • Percentage with specific function dedicated to e-government
USAGE	• Use of online information and services • Experience of online information and services	• Use of online information and services • Experience of online information and services	SUPPLY	• Percentage with a website • Percentage offering interaction via website • Percentage offering transactions via website • Percentage offering online consultation • Percentage offering electronic channels other than walk-in • Percentage that delivers services jointly with other departments or agencies
BARRIERS	• Perception of barriers to online information and services	• Perception of barriers to online information and services	USAGE	• Visitors to the website • Page views since 01 January 2010

e-Development: e-society

Participation by communities and individuals in the information society is in many ways conditioned by their access to and use of ICTs. Demographic characteristics such as age, gender, income, race and geographic location are determinants of access and use, and thus the level of participation in the information society (Akhter, 2003; Hoffman & Novak, 1998). In addition, the cost of access tends to correlate negatively with the use of ICTs. The community survey will explore how demographic factors combine to produce specific usage patterns and how they influence perceptions of barriers.

Table 29: e-Society Indicators

	e-Development: e-Society

Demographic Informaation	• Usage of devices including: computer, radio, television, mobile phone, Internet
	  o Time spent
	  o Frequency
	  o Cost and affordability
	  o Acquisition
	  o Level of use
	  o Purposes
	  o Location
	  o Needs being met

Usage	• Usage of devices including: computer, radio, television, mobile phone, Internet
	  o Time spent
	  o Frequency
	  o Cost and affordability
	  o Acquisition
	  o Level of use
	  o Purposes
	  o Location

Impact	o Impact on income earning potential o Impact on employment o Impact on job search

e-Development: e-business

ICT adoption in the business sector is motivated by a wide range of business benefits. At enterprise level firms benefit from technologies that improve communication within the firm and with suppliers and customers. Business process efficiency can be improved through the seamless sharing of electronic files and networked computers. Different applications such as customer relationship management, enterprise resource planning and knowledge management systems are increasingly being adopted to improve marketing, planning and knowledge-sharing functions within the business (OECD 2004). The extent to which these benefits can be exploited in the business sector depends on the capabilities of enterprises to adopt and effectively utilise ICT. This in turn is influenced by a range of factors that include the sector within which the firm operates (high or low-technology sector), the size, level of education of the firm management, or whether it is serving the domestic or international market. The business survey will explore how the enterprise profile influences the adoption and use patterns, as well as the impact in business organisation and process.

Table 30: e-Business Indicators

e-Development: e-Business	

Enterprise
Profile
	• Enterprise profile in terms of:
	  o Sector
	  o Period in operation
	  o Size
	  o Markets
	  o Firm management

Usage	• Usage in regard to
	  o Information about goods and services
	  o Providing customer service online
	  o Delivering products online
	  o Online procurement
	  o Online payments
	  o Online banking
	  o Frequency
	  o Cost and affordability

Impact	• Impact on sales • Impact on customer relationship management • Impact on enterprise resource planning • Impact on supply chain management

Conclusion

The conceptual framework and indicators above will form the basis for the design of a community, business and government survey. The survey design will employ a quantitative research design. A sampling framework for all three communities will be constructed for the purpose of the surveys. It should be noted that information society and e-government formation are complex phenomena that could be monitored and measured in many different ways. This conceptual framework implies making choices about how this task should be undertaken.

Annexure B: e-Society, e-business and e-government survey methodology

Introduction

The Gauteng Provincial Government has initiated a project to design and develop a framework for monitoring and evaluating information society and e-government formation in the Gauteng city-region. The design of the framework incorporates three major constituent components. The first component is directed at monitoring and evaluating the outcomes of the provincial government strategy and programme and its associated projects, aimed at promoting information society and e-government formation. The second component is a web evaluation survey that assesses trends in regard to the web presence of provincial and local governments, as well as public sector agencies. The final component is a set of government, community and business surveys aimed at measuring and monitoring several aspects of information society and e-government emergence among these groupings in society. This document outlines the research design and presents the main survey instruments for the Community, Business and Government Survey. It should be read together with the Community, Business and Government Survey Conceptual Framework that sets out the conceptual basis for undertaking and interpreting the findings of the three major surveys.

Research design

The purpose of the research is to determine the scale and scope of ISAD and e-government formation in the Gauteng province, with specific reference to assessing the state of e-readiness and the extent of the digital divide. The survey will be aimed at measuring these developments within households, businesses and governments in the province. Moreover, the survey seeks to achieve two important outcomes. Firstly, it seeks to establish some level of baseline data that could aid the Gauteng Provincial Government (GPG) with the design and planning of future strategies and programmes for realising the goals ISAD and e-government. Secondly, it seeks to validate the conceptual framework and test the data collection instruments designed as part the broader monitoring and evaluation framework established for this purpose of measuring, monitoring and evaluating ISAD and e-government in the Gauteng city-region.

A cross-sectional quantitative survey design will be employed as the most effective and appropriate way to draw inferences that can be generalised to the population of Gauteng on the key measures of access to and usage of ICTs. This approach will ensure that these inferences can be drawn from surveying the attributes, experiences, views and attitudes of a sample of the business, government and community segments of the population. The research design is described in terms of the methodology, sample and survey instruments.

Methodology

Three separate quantitative surveys will be conducted aimed at the community, business and government segments within the Gauteng population. A descriptive approach will be adopted to summarise the characteristics and experiences, as well as measure the attitudes and opinions toward specific measures related to ISAD and e-government formation. Each survey will be statistically valid and representative, as it will be based on a multi-stage random sampling approach that will take into account the design effect of two cluster samplings. The confidence level is set at 95% and the error rate at 5%. The three surveys will run concurrently to ensure that fieldwork is completed within the allocated time-frame.

Sampling

A multi-stage random sampling approach will be used to construct the samples for the surveys. Multi-stage sampling is a form of cluster sampling, a method in which the total population is divided into groups evident in the population. More specifically, geographic cluster sampling will be used to identify clusters on an area basis so that respondents within local areas will be treated as a cluster. The multi-stage sampling will be undertaken in accordance with the following stages for each of the surveys:

Community household survey

According to Statistics South Africa (2009), the Gauteng province has a population of 10.5 million[4], consisting of a total of 3.1 million households[5] situated in 449 wards. A total number of 384 households will be interviewed to achieve the requisite criteria of representivity and validity. Twenty-four wards will be randomly selected during Stage One of the sampling process. Stage Two will involve determining the number of households in a ward and utilising the interval system, making a selection of 25 households within the ward. Stage Three will employ the quota system to ensure gender representivity. All surveys will be completed on a face-to-face basis.

Business (small, medium and micro enterprise) survey

It is estimated that there are about 1.6 million small, medium and micro enterprises in Gauteng[6]. Of this number, it is estimated that 860 000 enterprises are informal, while close to 200 000 are formal SMMEs. A sample size of 384 informal enterprises and 383 enterprises is necessary to achieve a confidence level of 95% and an error rate of 5%.

The sample will also be drawn from the 24 wards during Stage One of the multi-stage random sampling strategy. Stage Two will comprise a scan of the ward to create a record of all known SMMEs in the area. The "snowball" effect will be used to compile this record. Twenty-five informal enterprises will be randomly selected in each ward. The quota system will again be used to account for gender representivity. All the surveys will be completed on a face to face basis.

In the case of the formal enterprises, a purposive sampling strategy will be adopted to identify the wards in which SMMEs, representing all sectors, are concentrated. Fifteen wards will be

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4　Statistics South Africa (2009) Mid-year Population Estimates 2009. Statistical Release P0302. Government Printer: Pretoria.

5　Statistics South Africa (2007) Community Survey, 2007, Basic Results Municipalities. Statistical Release P0301.1. Government Printer: Pretoria.

6　African Response (2006) FinScope Small Business Pilot Survey in Gauteng 2006. Prepared for FinMark Trust.

identified in this way, in which 25 formal enterprises will be selected in Stage Two. In Stage Three, a key representative of each formal enterprise will be selected to complete the questionnaire based on their knowledge and availability. Interviews will either be completed telephonically or face to face.

Government survey

A comprehensive list of all government, provincial and local government departments and agencies will be compiled for the purposes of the government survey. The list of organisations will constitute the sample that will be used to complete the survey. Interviews will be undertaken either telephonically or face to face.

The total sample size for the business, community and government surveys is listed below in Table 31 as follows:

Table 31: Minimum Sample Size and Method

Population	Sample Size	Method (interviews)
Community	384	Quantitative face-to-face
Government	40	Quantitative face-to-face and telephonic
Business	767	Quantitative face-to-face and telephonic
Informal		
Formal	384	
383		
TOTAL	1 191	

Survey instruments

Close-ended questionnaires will be used in the surveys that will be administered either face to face or telephonically (in the case of government and formal SMMEs). The design of the survey instruments was done in accordance with the conceptual framework and the list of indicators identified to measure ISAD and e-government formation in Gauteng. The development of the survey instruments were informed by several international, regional and national survey instruments developed for measuring various aspects of ICT access, usage, and impact. These include:

Box 1: Model Survey Instruments Consulted

- Eurostat (2008). Eurostat Model for a Community Survey on ICT Usage and e-Commerce in Enterprises 2008. Model Questionnaire Version 3.3. Accessed 02 November 2009 from http://ec.europa.eu/enterprise/sectors/ict/files/2008-ict-entr-survey-model-questionnaire-v-3-3-2007-04-16_en.pdf
- Nordic Council of Ministers (2003). ICT Usage in the Public Sector – A Nordic Model Questionnaire. Accessed: 02 November 2009 from http://www.danmarks-statistik.dk/upload/ictusagepublic.pdf
- OECD (2003). Measuring ICT Usage and Electronic Commerce in Households/ By Individuals. A Model Questionnaire. Working Party on Indicators in the Information Society, DSTI/ICCP/IIS(2002)1/REV2. Accessed: 02 November 2009 from http://www.oecd.org/dataoecd/3/3/20630152.pdf
- OECD (2005). ICT Access and Use by Households and Individuals: Revised OECD Model Questionnaire. Working Party on Indicators in the Information Society, DSTI/ICCP/IIS(2005)3/FINAL. Accessed: 02 November 2009 from http://www.oecd.org/dataoecd/58/27/35937246.pdf
- OECD (2006). ICT Use BY Business: Revised OECD Model Survey. Working Party on Indicators in the Information Society, DSTI/ICCP/IIS(2005)2/FINAL. Accessed: 02 November 2009 from http://www.oecd.org/dataoecd/58/7/35867672.pdf
- UNCTAD (2009). Manual for the Production of Statistics on the Information Economy. United Nations Publications: New York and Geneva
- UNDERSTAND (2005). Methodology Handbook. Version 2. European Regions UNDER Way towards STANDard Indicators for Benchmarking the Information Society.

The instruments were designed using a modular structure illustrated below:

Diagram B: Modular Structure of Survey Instruments

e-Society survey

The e-society survey is aimed at both households and a randomly selected household member. The survey is comprised of modules focusing on the household profile and access, individual profile, access and usage; e-government; and human resource development. The primary focus of the survey is to assess the degree of access from a digital divide perspective.

Diagram C: e-Society Survey Modules
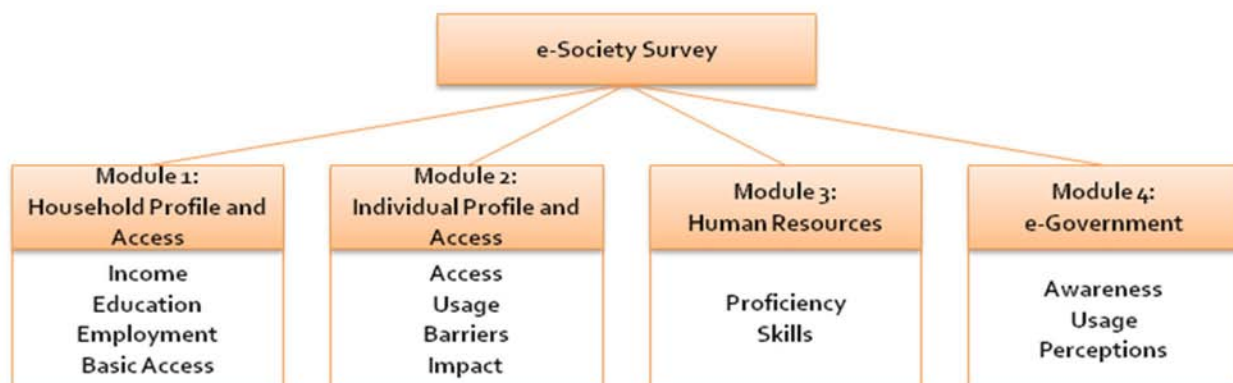
e-Business survey

The e-business survey is aimed at formal and informal SMMEs and comprises four modules. Module 1 gathers data on the profile of the business. The literature reveals that enterprise profiles, with specific reference to their degree of formality, level of education of the owner, size and sector are factors which predict the access to and intensity of the usage of ICTs. It is therefore important to generate the data to test these assertions. Moreover, this approach also recognises that the SMME sector is not homogeneous and that the degree to which enterprises are able to access and use SMMEs are a function of their profile. The survey will therefore also explore the major differences in the access and usage among different SMMEs by virtue of their profiles.

Module 2 collects data on the degree of access, intensity of the usage, barriers faced and the impact of ICTs on the enterprise. The questions in this module are designed to provide an assessment of the extent of the digital divide in the SMME sector of Gauteng. Module 3 investigates the level of ICT proficiency and the ICT skills within the business. Module 4 is aimed at establishing the level of awareness of online services, usage of these services and the perceptions of users regarding its usefulness and quality.

Diagram D: e-Business Survey Structure
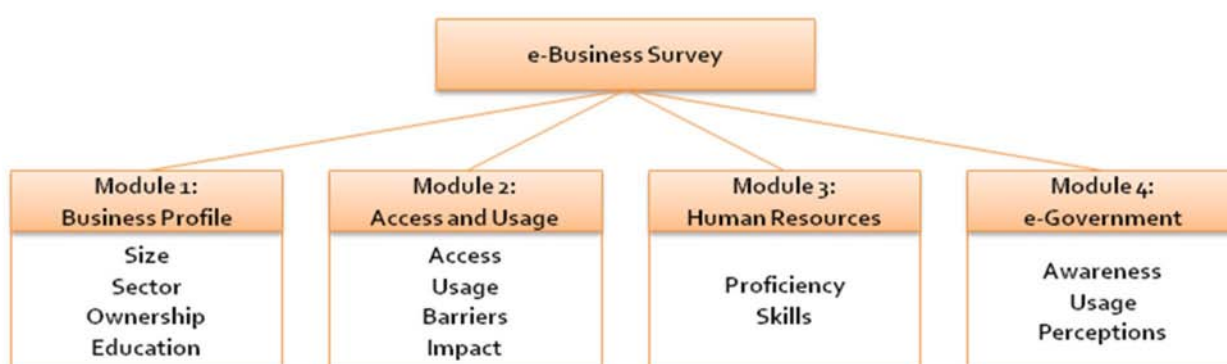
e-Government survey

The e-government survey seeks to establish the degree of access and use of ICTs in government, as well as the range of content and services provided online. The survey consists of four modules focusing on the profile of the government organisation, access, usage and investment in ICTs; human resource development related to ICTs; and services provided via electronic means.

Diagram E: e-Government Survey Structure
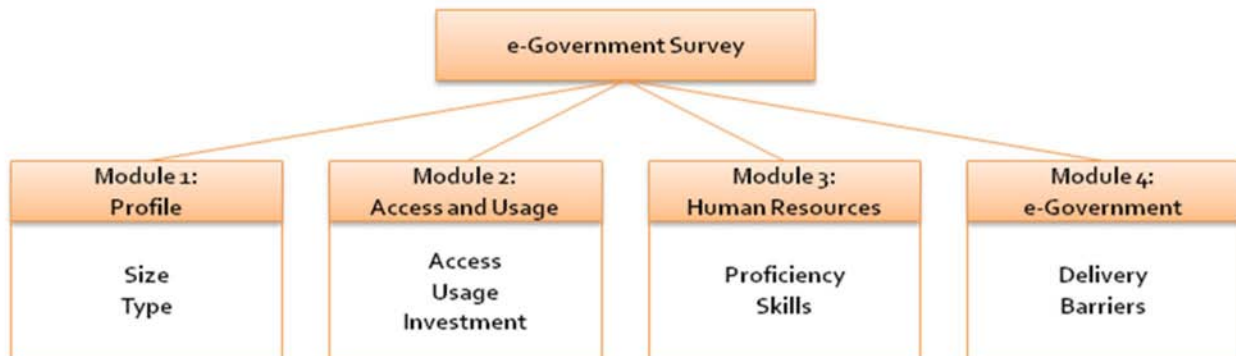
Data collection and capture

A number of preparatory steps need to be undertaken before the data collection and capture process can commence. These include the piloting of the questionnaire and the training of fieldworkers.

Pilot

A pilot for each questionnaire will be conducted. Piloting allows for the testing of instruments. Some important reasons for testing instruments are:

- To ensure that response categories are mutually exclusive
- To ensure that questionnaires are standardised
- To ensure that respondents understand the questions in the way they were intended by the researchers
- To ensure that the questions are appropriate and that they do not need to be altered or supplemented
- To ensure that response categories are mutually exclusive
- To identify likely errors or potential fieldwork challenges and to address these a priori

A pilot phase of three to four days will be undertaken to ensure that the survey questionnaires are adequately tested. Between 10 and 40 survey questionnaires will be completed during the pilot. Should the instruments require significant changes, the pilot surveys will not be included in the project sample. The field managers who are selected to conduct the pilot will also be the field managers on the main study. This ensures maximum project relevant skills development.

Fieldworker training

Comprehensive training sessions attended by regional managers, research assistants, field workers, field managers and quality control managers and staff will be conducted prior to the study. Research staff are briefed on the objectives of the study and are trained to use the relevant research instruments. Research ethics are also taught. Training manuals are written for each project. During training, these manuals are discussed in detail. Administrative and logistics planning also takes place during the training phase. The training sessions comprise the following topics:

- A presentation and discussion on the background and objectives of the study
- Sensitivity and ethics training
- Methodology training
- Instrument training
- Role play
- Question and answer sessions
- In-field practice
- Feedback sessions
- Follow-up training.

Detailed discussions on fieldwork procedures for the survey will be incorporated and will include the selection of starting points and the household selection interval; the number and nature of call-backs per address before the address is excluded; the etiquette that the fieldworkers use when introducing themselves and the survey to prospective respondents; and the levels of supervision and quality control during the fieldwork. Teams will be selected to be culturally and linguistically representative. Sensitivities pertaining to age and gender are also taken into account.

Quality control

A range of quality control measures meeting the best of national and international best practice will be utilised. These include:

- In the field, fieldworkers check completed questionnaire schedules immediately after interviews to ensure that all questions are answered and relevant steps are followed.
- The checked questionnaires are then handed to field or office managers who, whilst in field, perform a second quality check on each questionnaire. They focus on skip patterns, as well as ensuring that answers correspond with previous responses and follow a logical process.
- On completion of each survey area to the satisfaction of team leaders, questionnaires are submitted to the Operations Room at the LINK Centre.
- Dedicated quality control teams check every questionnaire upon delivery to the regional office.
- At the satisfaction of the Quality Assurance manager the questionnaires will then be transferred to data capture department.

In addition, Quality Assurance personnel will also conduct random call-backs on 10% of the questionnaires – this check process allows for greater accuracy in the results and provides an opportunity to collect feedback from a sample of respondents.

Data capture and analysis

Included in the data management process is the tracking of all fieldwork tools. Question-naires received will be catalogued. Dedicated teams of data capturers will ensure efficient capturing and logistics will re-file all questionnaires systematically.

Every questionnaire is uniquely numbered for database reference purposes and each ques-tionnaire (as stated) is validated by the interviewer, the field manager and a quality control person, to ensure that questionnaires are complete and correct prior to the commencement of data capture.

Finally, an overall validation of the entire database will be conducted on final output tables to verify quality and consistency. The full data set will be available in SPSS, Excel or an appropriate or usable format reasonably expected by the client. A final "data report" is gener-ated allowing easier analysis thereof.

Conclusion

The research instruments provided in the annexures will be piloted before being refined as part of the overall range of instruments that will be used in the Framework to monitor and evaluate information society and e-government formation in the Gauteng city-region.

ANNEXURE C: E-SOCIETY SURVEY QUESTIONNAIRE

Good day. My name is _____. I represent the Gauteng Provincial Government, which is conducting a survey to determine the degree of access to and use of information and communication technologies (ICTs) in your community. _____ (name of the organisation) has been contracted to undertake the fieldwork for the study.

You have been randomly selected to participate in the study. Please note that the questionnaire is anonymous and the report will be compiled in such a manner that no information can be traced back to any individual.

You have been randomly selected to participate in the study. Please note that the questionnaire is anonymous and the report will be compiled in such a manner that no information can be traced back to any individual.

Record of visits to selected firm:					
	Date	Selected respondent not available	Refusal	Interview complete	
First visit		1	2	4	
Second visit		1	2	4	
Third visit		1	2	4	

FOR SUPERVISOR / OFFICE USE ONLY:				
Name of supervisor		Date checked [dd/mm/yy]		
Selected for call-back	1=Yes 2=No	Call-back record number		
Name of quality controller		Date checked [dd/mm/yy]		
Name of capturer		Date captured [dd/mm/yy]		

Enumerator Decleration
I declare that I have asked this entire questionnaire as it is laid out and as I have been briefed. I declare that all the responses and answers recorded by me in this questionnaire were given to me by the correct respondent. This questionnaire has been fully checked by myself.

PLEASE PRINT:

First name	
Surname	
Signature	
Date	

Module A: Household profile and access

HM	Name (only first name)	Gender	Year of birth	Population group				Educational level (completed on 31/12/09)	Employment
				A	C	I	W		
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									
11									
12									
13									
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24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									

Codes

Employment

1 = Student
2 = Employee
3 = Self employed
4 = Family worker
5 = Child not yet at school
6 = Unemployed
7 = Retired/ Pensioner
8 = Disabled

Codes

Educational level

0 = Did not complete any
1 = Nursery school
2 = Primary school
3 = Lower secondary (G8-10)
4 = Upper secondary (G11-12)
5 = Tertiary (non-university)
6 = University
7 = Post- graduate degree

Codes

Population group

A = African/ Black
C = Coloured
I = Indian/ Asian
W = White

Household income (net monthly income)			
Less than R500		R10 001 – R20 000	
R501 – R2 000		R20 001 – R30 000	
R2 001 – R5 000		R30 001 – R50 000	
R5 001 – R10 000		More than R50 000	
Don't know		Refuse to answer	

[Please circle the name of household member in the HM column who is being interviewed]

1. **OBSERVATION Can you please describe the type of house the respondent lives in (tick only one of the following boxes for each):**

Type of roof	Thatch	Tin	Tiles	Plastic sheet	Other
Type of floor	Earth	Cement	Tiles	Wood	Other
Type of walls	Mud	Cement blocks	Bricks	Metal sheet	Other

2. **Does your house have the following in working condition?**

a) Protected water (piped or protected well)	Yes		No	
b) Electricity	Yes		No	
c) Radio	Yes		No	
d) Television Set	Yes		No	
e) VCR/ DVD	Yes		No	
f) Desktop computer	Yes		No	
g) Portable (laptop) computer	Yes		No	
g) Portable (laptop) computer	Yes		No	
i) Handheld (palmtop) computer	Yes		No	
j) Refrigerator	Yes		No	
k) Scanner	Yes		No	
l) Game consol	Yes		No	
m) Fax machine	Yes		No	

Mobile phone

3. **Does anyone in the household own a mobile phone?**

Yes (continue to next question)   No (if No, go to Q6)

4. **How many of you living in the house own mobile phones?**

[_____] (number of people with mobile phones living in the house)

5. **When did this household first acquire a mobile phone?**

a) More than three years ago [_____]

b) Three years ago [_____]

c) Two years ago [_____]

d) Within the last 12 months [_____]

Landline telephone

6. **Does your house have a landline telephone?**

[_____] Yes (continue to next question) [_____] No (if No, go to Q6)

7. **Can any family member in the household use the landline telephone?**

[_____] Yes [_____] No

8. **Who uses the landline telephone most (select only one answer)?**

a) Head of the household [_____]

b) Wife/ husband [_____]

c) Own child or grandchild [_____]

d) Other relative [_____]

e) Other non-relative [_____]

9.   How frequently is the landline telephone used?

a) Never

b) Seldom

c) Frequently

d) Always

e) Other non-relative

10.   Is the monthly line rental of your landline telephone (monthly subscription):

a) Very low

 b) Low

c) Ok

d) High

e) Very high

f))Don't know

**11.   Have you ever applied for a landline telephone and not received it?
          (Answer only if No in Q6)**

Yes   No

12.   Does this household have access to the Internet at home?

Yes (continue to next question)   No (If No, go to Q15)

13.   What type of Internet connection is this (more than one answer possible)

a) Modem dialup

b) ISDN dialup

c) ADSL

d) Leased line

e) Wireless

f) Broadband

14.   On which of these devices is the Internet accessed at home (more than one answer possible)?

a) Desktop computer

b) Laptop computer

c) Handheld computer

d) Mobile phone

e) Other (specify):_____

15.   What are the reasons for not having access to the Internet at home (more than one answer possible)? Only answer this question if No in Q12

a) Have access to the Internet elsewhere

b) Don't want Internet (because the content is harmful)

c) Don't need Internet (because not useful, not interested, etc)

d) Equipment cost to high

e) Access cost too high (telephone, etc.)

f) Lack of skills

g) Physical disability

h) Privacy and security concerns

i) Other (Specify):_____

Module B: Individual profile, ICT access and use

Respondents are randomly selected from the household members (must be older than 18 years).

Personal questionnaire   HM Number:

All subsequent questions refer only to the individual being interviewed.

16.   What is your marital status?

a) Currently married

b) Cohabit

c) Single

d) Widow/ widower

e) Divorced

f) Separated

17.   What was your main activity during the last 6 months

a) Disabled cannot work

b) Full time scholar/ student/ pupil

c) Housewife/ unpaid work

d) Retired/ pensioner

e) Unemployed

f) Employed all year: full time

g) Employed all year: part-time

h) Employed occasionally/ seasonally

i) Self-employed all year: full time

j) Self-employed all year: part-time

Self-employed occasionally/ seasonall

18.   Which of the following statements best describe you?

a) I can read a letter or a newspaper in English with ease

b) It is difficult from me to read a letter or a newspaper in English

c) I cannot read a letter or newspaper in English at all

19.   Which of the following statements best describe you?

a) I can write a letter in English with ease

b) It is difficult for me to write a letter in English

c) I cannot write a letter in English at all

20.   Do you belong to any groups or social networks (more than one answer):

a) Producer groups		b) Lobby groups
c) Church/ religious		d) Reading clubs
e) Trade unions		f) Internet groups/ discussion fora
g) Sports clubs		h) Cooperatives
i) Savings clubs		j) Burial clubs
k) Radio clubs		l) No (if No, go to Q22)
m) Other (specify): _____		

21.   Indicate which of the following methods of communication do you use and not use to communicate with your social network(s). Rate these methods according to the most preferred to the least preferred methods.

	Methods used	Most preferred	Preferred	Least preferred	Methods not used
a) Face to face					
b) Telephone					
c) Mobile phone					
d) Email					
e) Internet					

Television access and usage

22.   Do you watch TV?

a) Yes, occasionally   (go to the next question)

b) Yes, regularly   (go to the next question)

c) No   (if No, go to Q25)

23.   What programmes do you watch mostly (select only one answer)?

a) Entertainment

b) Politics

c) Educational pro-grammes

d) Sports

e) Local news

f) Anything that is being broadcasted

g) International news

h) Other (Specify):_____

24.   Which of the following needs does TV cover (more than one answer possible)?

a) Market information

b) Health information

c) Weather information

d) Agricultural information and advice

e) Job opportunities

f) Local government information

g) Entertainment

h) Other
(Specify):_____

25.   If you don't watch TV, why not (more than one answer possible)?   Only answer this question if No in Q22.

a) Not interested

b) Cannot afford a TV set

c) House has no electricity

d) Cannot afford TV licence

e) Other (Specify):_____

Radio Access and Usage

26.   Do you listen to the radio?

a) Yes, occasionally

(go to the next question)

b) Yes, regularly

(go to the next question)

c) No

(if No, go to Q30)

27.   Do you own a personal radio you can use anytime?

Yes

No

28.   What programmes do you listen to mostly (select only one answer):

a) Music

b) Politics

c) Educational programmes

d) Sports

e) Programmes on local
issues

f) Anything that is
being broadcasted

g) News

h) Business purposes

29.   Which of the following needs does radio cover (more than one answer possible):

a) Market information

b) Health information

c) Weather information

d) Agricultural information and advice

e) Job opportunities

f) Local government information

g) Entertainment

h) Other (specify):_____

30.   If you don't listen to the radio, why not? Only answer this question if No in Q26.

a) Not interested

b) I don't like listening to the radio

c) I can't afford one and no-one I know has one

d) Other (specify):_____

Public Phone access and usage

31.   Have you used a public phone in the past six months?

Yes (go to the next question)

No (if No, go to Q34)

32.   How often do you use a public phone?

a) Once a day

b) More than once a day

c) Once a week

d) More than once a week

e) Once a month

33.   What are the main reasons for using public phones (more than one answer possible)?

a) Do not have landline phone at home

b) Do not have a mobile phone

c) Because it is cheaper

d) Easier than having to recharge mobile

e) Other (specify):_____

34.   Why have you not used a public phone for the last six months (more than one answer possible)? Only answer this question if No in Q31.

a) Too inconvenient to use

b) Prefer to use my phone at home

c) Not safe to use at night

d) Prefer to use fixed-line phone at work

e) Too expensive

f) Prefer to use my mobile

g) Other (specify):_____

Mobile phone access and usage

35.   Which of the following statements best describe you? (Note to Interviewers – check for consistency with Q3)

a) I have an active SIM card and own a
   mobile phone   (go to the next question)

b) I have an active SIM card, and
   although I don't own my own mobile
   phone I have access to one   (go to the next question)

c) I neither have an active SIM card nor
   a mobile phone   (if c), go to Q43)

36.   How many ACTIVE mobile phone numbers (SIM cards) do you have?

(provide a number of active SIM cards)

(This question is aimed at establishing how many active mobile phone numbers the individual respondent has)

37.   Is (are) your active mobile phone number(s) prepaid or postpaid (contract) phone(s)?

a) Prepaid

b) Postpaid (contract)

c) Both (have multiple)

38.   What do you use your mobile phone for?

Yes	No		Yes	No	
		Receiving phone calls			Sending emails
		Sending SMS			Receiving emails
		Receiving SMs			Using as a diary
		Taking photos			Keeping time
		Taking video clips			Conducting my banking
		Sending MMS			Playing games
		Receiving MMS			Sending faxes
		Listening to music			Downloading music
		Sending BEEPs, FLASHs, BUZZ, MISSED CALLS or PLEASE CALL ME			Social networking (Facebook, etc)
		Receiving BEEPs, FLASHs, BUZZ, MISSED CALLS or PLEASE CALL ME			

39.   Tick the 3 most frequent uses of your mobile phone

Tick		Tick	
	Making phone calls		Sending emails
	Receiving phone calls		Receiving emails
	Sending SMS		Using as a diary
	Receiving SMS		Keeping time
	Taking photos		Conducting my banking
	Taking video clips		Playing games
	Sending MMS		Sending faxes
	Receiving MMS		Downloading music
	Listening to music		Social networking (Facebook, etc)
	Sending BEEPs, FLASHs, BUZZ, MISSED CALLS or PLEASE CALL ME		
	Receiving BEEPs, FLASHs, BUZZ, MISSED CALLS or PLEASE CALL ME		

40.   How did you get your current (latest) mobile phone?

a) Got a new mobile phone when I signed a contract

b) Bought a second-hand phone

c) Got a new phone from family or friends

d) Got a second-hand phone from family or friends

e) Bought new phone at shop

f) Other (Specify):_____

41.   What is the name of your current provider(s) (more than one answer possible)?

a) Cell C

b) MTN

c) Virgin Mobile

d) Vodacom

42. **I'm going to read out some statements. Please tell me if you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree.**

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
a) Using a mobile phone makes my life easier					
b) Using a mobile phone saves me travelling time and costs					
c) Using a mobile phone helps me to stay informed about the latest news					
d) Using a mobile phone helps me to socialise					
e) Using a mobile phone helps me to find jobs					
g) Using a mobile phone helps me to run my business					
f) Using a mobile phone provides me with a sense of security in the case of emergency					
h) Using a mobile phone is fashionable					

43. **Why don't you have your own active SIM card?** Only answer this question if you answered Q35.c).

a) Cost of buying a SIM card

b) Cost of calls

c) No access to a handset in which to use the SIM card

d) No mobile coverage where I live

e) I don't have anyone to call

f) I use a fixed-line phone

g) I use a community public phone

h) Other

44.   Do you plan to get a mobile phone for your own use for the future?

Yes (go to the next question)   No (if No, go to Q46)

45.   When do you expect to make this purchase?

a) Within the next three months

b) Within the next six months

c) Within the next 12 months

d) Within the next two years

Computer access and usage

46.   When did you last use a computer?

a) Within the last six months   (go to next question)

b) Between six months and a year   (go to Q49)

c) More than a year ago   (go to Q49)

d) Never used one   (go to Q49)

47.   How often on average have you used a computer in the last six months?

a) Every day or almost every day

b) At least once a week (but not every day)

c) At least once a month (but not every week)

d) Less than once a month

48. **Where have you used a computer within the last six months?**

a) At home

e) Internet Café

f) At place of work (other than home)

g) At another person's home

h) At school

i) At tertiary educational institution

j) Other (eg public library, airport) specify: _____

Internet access and usage

49. **Have you ever used the Internet?**

Yes (go to the next question)   No (if No, go to Q60)

50. **When did you last use the Internet?**

a) Within the last six months   (go to the next question)

b) Between six months and a year ago   (go to Q60)

c) More than a year ago   (go to Q60)

d) Never used it   (go to Q60)

51. **On average, how often have you used the Internet in the last six months?**

a) Every day or almost every day

b) At least once a week (but not every day)

c) At least once a month (but not every week)

d) Less than once a month

52.   Where have you used the Internet in the last six months (using a computer or any other means)

a) At home

b) At place of work (other than home)

c) At place of education

d) At another person's home

e) At other places:

i.   Public library

ii.   Post office

iii. Community centre

iv.   Internet Café

v.   Government office

53.   What type of Internet connection is this (more than one answer possible)?

	Yes	No
a) Modem dialup		
b) ISDN dialup		
c) ADSL		
d) Leased line		
e) Wireless		
f) Broadband		
g) Don't know		

54.   Would you say that compared to six months ago, the time you spent on the Internet has

a) Stayed the same

b) Decreased

c) Increased

55. **For which of the following activities did you use the Internet in the last six months for private purposes (as opposed to for work purposes)?**

Communication, Information search and on-line services	Yes	No
a) Sending and receiving emails		
b) Finding information about goods and services		
c) Using services related to travel and accommodation		
d) Downloading software (other than games software)		
e) Reading or downloading online news/ newspapers/ news magazines		
f) Looking for a job or sending a job application		
g) Seeking health-related information		
Banking, selling of goods or services		
h) Internet Banking		
i) Selling of goods or services		
j) Buying goods or services		
k) Paying online using credit cards		
Training and education		
l) Looking for information about education, training or course offers		
m) Doing an online course (in any subject)		
n) Consulting the Internet with the purpose of learning		

56. **For which of the following advanced services did you use the Internet in the last six months for the following communication activities?**

	Yes	No
a) Telephoning over the Internet	☐	☐
b) Video calling (via webcam) over the Internet	☐	☐
c) Using services related to travel and accommodation	☐	☐
d) Posting messages to chat sites, newsgroups or online discussion fora	☐	☐
e) Using instant messaging	☐	☐
f) Reading weblogs or blogs	☐	☐
g) Creating and maintaining own weblog or blog	☐	☐
h) None of the above	☐	☐

57. **Do you have an email address?**

☐ Yes (go to the next question)   ☐ No (if No, go to Q61)

58. **Which of the following email facilities do you use?**

a) Personal subscription ☐

b) Personal free account (eg Hotmail, Gmail) ☐

c) Work subscription ☐

d) Combination ☐

e) No email ☐

59. **What are you using email for (more than one answer possible)**

a) Socially communicating with friends and family ☐

b) Communicating with colleagues for work purposes ☐

c) Communicating with fellow students for study progress ☐

d) Interacting with local government ☐

e) Business purposes ☐

f) Other (specify):_____ ☐

60. What are the reasons that you do not use the Internet? Answer only if No in Q49

a) I do not have access to a computer

b) I do not know how to use a computer

c) I do not want to use the Internet

d) I have no one to email

e) I do not have access to any Internet facilities

f) I can't read/ write

g) Other (specify):_____

61. Is there a community centre within walking distance from where you live?

Yes (go to the next question)   No (if No, go to Q63)

62. Which of the following are you able to access from the community centre (more than one answer possible)

a) Computer

b) Internet

c) Radio

d) Television

e) Landline telephone

f) Email

g) Mobile phone

h) Printer

i) Fax

j) Photocopier

k) Other: (specify)_____

Module C: e-Government

63.   **Do you know that there are government services available on the Internet?**

[ ]   Yes   [ ]   No

64.   **Have you visited the National Government Web Portal (http:www.gov.za)? Only answer this question if you answered Yes in Q49.**

[ ]   Yes   [ ]   No

65.   **Have you visited the Provincial Government Web Portal (http:www.gauten-gonline.gov.za)? Only answer this question if you answered Yes in Q49.**

[ ]   Yes   [ ]   No

66.   **Have you visited the website of your municipality? Only answer this question if you answered Yes in Q49.**

[ ]   Yes   [ ]   No

67.   **Indicate which of the interactions with government you have had via the Internet by ticking the Yes or No columns. For each of the Yes answers, also rate your degree of satisfaction in each case.**

	Yes	Very satisfied	A bit satisfied	Satisfied	Not satisfied at all	No
a) Find information about public services						
b) Download and print forms						
c) View personal data from administrative systems/ databases						
d) Submit personal data using web form to update administrative systems/ databases						
e) Full electronic case handling (full service solution with electronic decision, ie automatic and released by citizen enquiries)						
f) Online payments through the website (eg by credit card)						

68. **What is the main reason why you chose not to use the Internet for dealing with public services or administration in the past 12 months? (For those respondent who did not provide any Yes answers in Q67)**

	Yes	No
a) Personal contact is missing		
b) The procedure cannot be completed via the Internet		
c) Immediate response is missing		
d) Concerned about protection and security of personal data		
e) The services provided are not user friendly		
f) Phobia in using the Internet		
g) Have never used the Internet		
h) Other, please specify_____		

Module D: Human resources

69. **When did you last take a computer course on any aspect of computer use?**

a) Within the last six months	
b) Between six months and a year ago	
c) More than 12 months ago	
d) Never taken one	

70. **How confident are you that you are able to carry out the following tasks?**

	Very confident	Confident	Neither / nor	Not very	Not at all confident
a) Obtain and install computer software onto a computer					
b) Identify the cause of computer problems					
c) Use email to communicate with others					
d) Participate in online discussion fora on a topic of your interests					
e) Make a call over the Internet					
f) Use the Internet as a search engine					
g) Complete invoices, orders, price lists and quotes using a computer					

ANNEXURE D: E-BUSINESS SURVEY QUESTIONNAIRE

Record Number: {Office Use}		Questionnaire No:	
INTRODUCTION:			
Good day. My name is _____. I represent the _____(name of the organisation), conducting a survey on behalf of the Gauteng Provincial Government to determine the degree of access to and use of information and communication technologies (ICTs) in businesses and SMEs. Your business has been randomly selected to participate in the study. Please note that the questionnaire is anonymous and the report will be compiled in such a manner that no information can be traced back to any individual.			
A.1 Firm name:		A.2 Name of respondent:	
A.3 Firm street address:		A.4 Position of respondent:	
A.5 Firm postal address		A.6 Phone number of firm	
A.7 Email address of respondent if willing			
A.9 Name of interviewer		A. 10 Date of interview [dd/mm/yy]	

Record of visits to selected firm:

	Date	Selected respondent not available	Refusal	Interview complete
First visit		1	2	4
Second visit		1	2	4
Third visit		1	2	4

FOR SUPERVISOR / OFFICE USE ONLY:

Name of supervisor			Date checked [dd/mm/yy]	
Selected for call-back	1 = Yes		Call-back record number	
	2 = No			
Name of quality controller			Date checked [dd/mm/yy]	
Name of capturer			Date captured [dd/mm/yy]	

ENUMERATOR DECLARATION

I declare that I have asked this entire questionnaire as it is laid out and as I have been briefed. I declare that all the responses and answers recorded by me in this questionnaire were given to me by the correct respondent. This questionnaire has been fully checked by myself.

PLEASE PRINT:

First name	
Surname	
Signature	
Date	

Module A: Profile

I'd now like to ask you some questions about your business so that we are able to classify your answers for the purposes of analysis. I will ask questions about the firm's ownership, industry sector and size.

1.   How long has the business been in operation?

	Less than 1 year		6 – 10 years
	1 – 2 years		11 – 15 years
	2 – 3 years		16 – 20 years
	4 – 5 years		More than 20 years

2.   In which of the following industry sectors does your business operate?

	Agriculture, forestry and fishing		Construction
	Mining and quarrying		Wholesale and retail
	Manufacturing		Transport and communication
	Electricity, gas and water		Services

3.   What type of premises do you operate your business from?

	Formal business premises		Home
	Industrial park		Stall or table in trading area
	Container		Other:_____ (specify)

**4.	What type of ownership structure does your business have?**

	Informal		Partnership
	Sole proprietor		Cooperative
	Manufacturing		Close corporation
	Pty Ltd.		Other:_____ (specify)

**5.	Is your business registered with the Companies and Intellectual Property Registration Office (CIPRO)?**

| | Yes (go to the next question) | | No (if No, go to Q7) |

**6.	Are you registered to pay tax?**

| | Yes | | No |

**7.	How many people work in the business including yourself?**

	1		6 – 20
	2		21 – 50
	3 – 5		51 – 200

**8.	How many owners does the business have?**

| | Men | | Women |

9.	To what race group(s) do the owners of the business belong (expressed in percentage)?

	African		Asian
	Coloured		White
	Other:_____ (specify)		

10.   Who manages the business (more than one answer possible)?

	Owner		Family member

	Full-time manager		Other:_____ (specify)

11.   What is the highest level of education achieved by the business owner(s)?

	Did not attend school		Tertiary diploma

	Grade 1 – 11		Tertiary degree

	Grade 12		Post-graduate degree

	Tertiary certificate		Other:_____ (specify)

12.   What was the main reason that motivated the owner to start the business?

	Was retrenched		Could not find another job

	Saw an opportunity		Had the right skills

	Always wanted to have my own business		Other (specify):_____

13.   Could you please give me an estimate of the annual turnover for the business?

(Provide a number in Rands)

Module B: ICT access, usage, barriers and impact

14.   Does your business have a working landline telephone?

| | Yes (go to the next question) | | No (if No, go to Q17) |

15.   What are the two main reasons that you have a fixed-line telephone in your business?

	To communicate with customers/ clients		To communicate with employees
	To communicate with suppliers		To order supplies
	To get new business		Other _____ (specify)

16.   Please rate the importance of a fixed-line telephone to your business?

	Critically important		Not important
	Very important		Not important at all
	Neither/ nor important		

17.   Why do you not have a fixed telephone line in your own business? Only answer this question if No in Q14

	Too expensive		Waiting period is too long
	I don't need it in my business		No electricity
	I have applied, but I'm still waiting		Can't connect a fixed-line telephone to my business

18.   Does your business have a working mobile cellular telephone(s) dedicated to business purposes only?

| | Yes (go to the next question) | | No (If No, go to Q21) |

19. **What are the two main reasons that you have a dedicated mobile cellular telephone for your business?**

	To communicate with customers/ clients		To communicate with employees
	To communicate with suppliers		To order supplies
	To be available at all times		Other _____ (Specify)
	To get new business		

20. **Please rate the importance of a mobile cellular telephone to your business?**

	Critically important		Not important
	Very important		Not important at all
	Neither/ Nor important		

21. **Why do you not have a mobile cellular telephone in your own business?**
Only answer this question if No in Q18

	Too expensive
	I use my personal mobile phone for business purposes
	I don't need it in my business
	Other _____ (specify)

22. **Does your business have a working fax dedicated to business purposes only?**

	Yes (go to the next question)		Yes (go to the next question

23. **What are the two main reasons that you have a dedicated fax line for your business?**

	To communicate with customers/ clients		To communicate with employees
	To communicate with suppliers		To order supplies
	To get new business		Other _____ (specify)

24. **Please rate the importance of a fax line to your business?**

	Critically important		Not important
	Very important		Not important at all
	Neither/ nor important		

25. **Why do you not have a fax in your own business? Only answer this question if No in Q22**

	Too expensive
	Can't get a telephone line
	I don't need it in my business
	Other _____ (specify)

26. **Does your business have a working computer and please indicate how many?**

	No (if No, go to Q 29)
	Yes, ____ desktop computers
	Yes, ____ laptop computers

27. **What percentage of people employed in your business routinely use a computer at work?**

	Less than 5%		26 – 50%
	5 – 10%		51 – 75%
	11 – 25%		76 – 100%
	None		

28. **Please rate the importance of a computer to your business?**

	Critically important		Not important
	Very important		Not important at all
	Neither/ nor important		

29. **Why do you not have a working computer in your own business?** Only answer this question if No in Q26

| | Don't need a computer(s) | | Can't afford a computer |

| | Don't know how to use a computer | | No electricity |

| | Other _____ (specific) |

30. **Do you have the following devices in your business**

a) Printers   Yes

b) Photocopiers   Yes

Advanced ICTs/ networking technologies

31. **Which of the following information technologies does your business have, if any (more than one answer is possible)?**

| | Intranet within your business | | Voice over IP |

| | Local area network (LAN) | | Wide area network (WAN) |

| | Extranet between your business and other organisations | | None |

32. **Does your business use the Internet?**

| | Yes (go to the next question) | | No (if No, go to Q38) |

33. **How does your business connect to the Internet?**

| | Analogue modem (dialup via standard phone line) | | Wireless connections |

| | ISDN (Integrated Services Digital Network) | | Broadband |

| | DLS (ADSL, SDSL, VDSL, etc) | | Leased line |

34. **What percentage of people employed in your business routinely use the Internet at work?**

☐	Fewer than 5%	☐	26 – 50%
☐	5 – 10%	☐	51 – 75%
☐	11 – 25%	☐	76 – 100%

35. **How frequently do you use the Internet for business purposes in your business?**

☐	Every day	☐	At least once a month
☐	At least once a week	☐	At least once every three months
☐	At least once every two weeks	☐	At least once a year

36. **Has the Internet usage in your business increased/ decreased or stayed the same over the last six months?**

☐	Increased	☐	Decreased
☐	Remained the same		

37. **Please indicate how you make use of Internet in business operations?**

	Yes	No
a) Does your business place orders (make purchases) for goods and services via the Internet?	☐	☐
b) Does your business receive orders (make sales) over the Internet?	☐	☐
c) Does your business make online payments?	☐	☐
d) Does your business receive online payments?	☐	☐
e) Does your business use the Internet for staff recruitment?	☐	☐
f) Does your business use the Internet to provide customer service?	☐	☐
g) Does your business use the Internet to do market and product research?	☐	☐
h) Does your business use the Internet to do Internet banking?	☐	☐
i) Does your business use the Internet for sharing or distribution of information with other organisations?	☐	☐
j) Does your business use the Internet to undertake marketing of your company?	☐	☐
k) Does your business deliver products and services online?	☐	☐

38. **Does your business have a website?** Only answer this question if No in Q32

| | Yes (go to the next question) | | No (if No, go to Q40 |

39. **Does your business have an online catalogue of your products and services?**

| | Yes | | No |

40. **Does your business have a business email address?**

| | Yes (go to the next question) | | No (iI No, go to Q42) |

41. **How is the business email hosted?**

a) Self hosting	Yes		No	
b) Business specific email address	Yes		No	
c) Generic hosted email address	Yes		No	

42. **What is your preferred method of business communication?**

	Email		Mobile phone
	Internet		Fax
	Fixed-line telephone		Other: _____ (specify)

43. **In your view, what is the most cost-effective method of business communication?**

	Email		Mobile phone
	Internet		Fax
	Fixed-line telephone		Other: _____ (specify)

44.   Does your business make use of the following business tools?

☐	Customer Relationship Management (CRM) to organise data about your customers
☐	Supply Chain Management
☐	Enterprise Resource Planning
☐	None of the above

Barriers

45.   Could you please tell me whether you agree completely, agree somewhat, do not agree or don't know for each of the following statements. (All respondents should answer this question)

	Agree completely	Agree somewhat	Do not agree	Don't know
a) The Internet requires advanced computer skills				
b) The Internet is not easy enough to get access to				
c) The Internet is too time consuming				
d) The Internet is too expensive to use				
e) The Internet lacks useful or interesting information				
f) The Internet is not something for me				
g) The use of the Internet leads to serious data security concerns				

Impact

46.   Could you please tell me what the impact of ICTs has been on the following aspects of your business? Could you tell us whether the impact made has been critical, important, no impact at all or indicate if you don't know?

	Critical	Important	No impact	Don't know
a) Impact of ICTs on the efficiency of business processes				
a) Impact of ICTs on internal work organisation				
b) Impact of ICTs on the procurement of goods and services				
c) Impact of ICTs on quality of products and services				
d) Impact of ICTs on the productivity of your business				
e) Impact of ICTs on the marketing of your business				
f) Impact of ICTs on the quality of your customer service				
g) Impact of ICTs on the administration and financial management				
h) Impact of ICTs on the education and training of employees				

Investment

47. **Could you please give me an estimate of the share of your ICT budget, including hardware, software, services and personnel, as a percentage of total company cost for the previous financial year?**

[   ]   (in percentage; range from 0-100)

48. **In the next financial year, will the ICT budget for your business increase, decrease or will it stay roughly the same?**

[   ]   Increase   [   ]   Decrease

[   ]   Stay roughly the same   [   ]   Don't know

Module C: Human resource development

49. **How confident are you that your business is able to perform the following tasks using the Internet or computers?**

	Very confident	Confident	Neither / nor	Not very	Not at all confident
a) Obtain and install computer software onto a computer					
b) Identify the cause of computer problems					
c) Use email to communicate with customers					
d) Participate in online discussion fora on a topic of your interests					
e) Make a call over the Internet					
f) Use the Internet as a search engine					
g) Capture and store business information					
h) Complete invoices, orders, price lists and quotes					
i) Undertake business administration tasks such as record keeping					
j) Keep and manage employee records					
k) Keep financial information and reports					
l) Keep inventories					
m) Maintain debtor information					

50. **Does your business employ someone that is dedicated to managing your IT function?**

[   ]   Yes   [   ]   No

51.   Does your business provide the employees with ICT training?

	Yes		No

52.   Does your business use e-learning to train staff?

	Yes		No

Module D: e-Government

53.   For each of the activities below, is it possible for you to use the Internet for this?

a) Payment of UIF	Yes		No		DK	
b) Corporate tax declaration	Yes		No		DK	
c) Submission of data to statistical offices	Yes		No		DK	
d) Obtaining online permits	Yes		No		DK	
e) Online participation in public invitations to tender	Yes		No		DK	

54.   Please indicate whether you agree with the following statements regarding online public service provision

a) Are not useful enough	Yes		No		DK	
b) Are faster than the traditional way	Yes		No		DK	
c) Require that you install special equipment or software	Yes		No		DK	
d) Reduce the number of mistakes public authorities make	Yes		No		DK	
e) Do not seem as safe as the traditional way	Yes		No		DK	
f) Make accessing public services more convenient	Yes		No		DK	
g) Make the delivery of services more transparent	Yes		No		DK	

55.   Does your business use the Internet for dealing with government organisations?

	Yes (go to the next question)		No

56. **For which of the following purposes does your business use the Internet for dealing with government organisations?**

a) Obtaining information from government (eg via websites or via email)   Yes [   ]   No [   ]   DK [   ]

b) Downloading or requesting government forms   Yes [   ]   No [   ]   DK [   ]

c) Making online payments for government organisations   Yes [   ]   No [   ]   DK [   ]

d) Participating in public invitations to tender   Yes [   ]   No [   ]   DK [   ]

e) Other dealings with government (please specify): _____   Yes [   ]   No [   ]   DK [   ]

f) Did not use the Internet for dealing with government organisations   Yes [   ]   No [   ]   DK [   ]

Thank you very much

ANNEXURE E: e-GOVERNMENT SURVEY QUESTIONNAIRE

Record Number: (Office Use)		Questionnaire No: (to be completed by fieldworker)	

INTRODUCTION:

Good day.   My name is _____ (name of fieldworker). I represent the _____(name of the organisation) which is conducting a survey for the Gauteng Provincial Government to determine the degree of information society and e-government evolution in the Gauteng province. e-Government concerns the use of ICT by governments to enhance operations, deliver public information and services and promote civic engagement and public participation. You have been selected to participate in the survey based on your leadership position in the ICT Division/ Department of the _____(name of the organisation). I would like to ask you some questions related to the ICT adoption and usage, human resources capacity and the delivery of electronic information and services. I would like to start by asking you a few questions about your department/ municipality/ agency so that we are able to classify your answers for the purposes of analysis.

Please note that the questionnaire is anonymous and the report will be compiled in such a manner that no information can be traced back to any individual.

A.1 Organisation Name:		A.2 Name of respondent (if willing):	
A.3 Organisation street address:		A.4 Position of respondent:	
A.5 Organisation postal address		A.6 Phone number of organisation	
A.7 Email address of respondent if willing			
A.9 Name of interviewer		A. 10 Date of interview [dd/mm/yy]	

Record of visits to selected organisation:				
	Date	Selected respondent not available	Refusal	Interview complete
First visit		1	2	4
Second visit		1	2	4
Third visit		1	2	4

FOR SUPERVISOR / OFFICE USE ONLY:				
Name of supervisor			Date checked	
Selected for call-back	1=Yes		[dd/mm/yy]	
	2=No			
Name of quality controller			Call back-record number	
Name of capturer			Date checked	
			[dd/mm/yy]	
			Date captured	
			[dd/mm/yy]	

ENUMERATOR DECLARATION

I declare that I have asked this entire questionnaire as it is laid out and as I have been briefed.
I declare that all the responses and answers recorded by me in this questionnaire were given
to me by the correct respondent. This questionnaire has been fully checked by myself.

PLEASE PRINT:

First name	
Surname	
Signature	
Date	

GAUTENG PROVINCIAL GOVERNMENT

Module A: Profile

1.   Please indicate the type of institution?

☐   Provincial Government   ☐   Metropolitan Municipality

☐   Provincial Government Agency   ☐   District Municipality

☐   Local Government Agency   ☐   Local Municipality

☐   Other (please specify):
       _____

2.   What is the total number of employees in your department/ municipality/ agency?

☐   (Provide a number)

3.   Please indicate whether department/ municipality/ agency has the following in place

a) ICT Strategy	Yes ☐	No ☐	DK ☐
b) E-Government Strategy	Yes ☐	No ☐	DK ☐
c) ICT Steering Committee	Yes ☐	No ☐	DK ☐
d) Open Source Software Policy	Yes ☐	No ☐	DK ☐
e) IT Security Policy	Yes ☐	No ☐	DK ☐
f) Disaster Recovery/ Continuity Plan	Yes ☐	No ☐	DK ☐
g) Master Systems Plan	Yes ☐	No ☐	DK ☐

Module B: Access and usage

4.   What percentage of the department/ municipality/ agency staff have access to their own computers at work?

☐   Less than 5%   ☐   26 – 50%

☐   5 – 10%   ☐   51 – 75%

☐   11 – 25%   ☐   76 – 100%

☐   None

5. **How many installed and functioning personal computers are connected to the Internet**

[ ] (Provide a number)

[ ] Don't know

6. **Does your department/ municipality/ agency have an Intranet?**

[ ] Yes   [ ] No

7. **Does your department/ municipality/ agency have an Internet connection?**

[ ] Yes (go to the next question)   [ ] No (if No, go to Q15)

8. **Is the Internet connection provided by a public body (such as the provincial government), by a private Internet Service Provider (ISP) or by other public networks (tick all that apply)?**

[ ] Public Administration   [ ] Private ISP

[ ] Other Public Networks   [ ] Other (specify): _____

9. **Does this happen via the following technologies (more than one answer possible)?**

[ ] Analogue modem (dialup via standard phone line)   [ ] DLS (ADSL, SDSL, VDSL, etc) >2 Mbit/s

[ ] ISDN (Integrated Services Digital Network)   [ ] Wireless connections (eg satellite)

[ ] DLS (ADSL, SDSL, VDSL, etc) <2 Mbit/s   [ ] Other Broadband connections

[ ] Government Common Core Network   [ ] LGNet

[ ] Leased Line   [ ] Other: (specify) _____

10. **What type of network technology does your department/ municipality/ agency use (more than one answer possible)?**

[ ] Local Area Network   [ ] Intranet

[ ] Virtual Private Network   [ ] Wide Area Network

[ ] Extranet   [ ] Government Shared Network

[ ] Other: (specify) _____

11.   What percentage of the department/ municipality/ agency staff have their own email address at work?

	Less than 5%		26 – 50%
	5 – 10%		51 – 75%
	11 – 25%		76 – 100%

12.   What percentage of the department/ municipality/ agency staff have share an email address at work?

	Less than 5%		26 – 50%
	5 – 10%		51 – 75%
	11 – 25%		76 – 100%

13.   What percentage of the department/ municipality/ agency staff have access to the Internet at work?

	Less than 5%		26 – 50%
	5 – 10%		51 – 75%
	11 – 25%		76 – 100%

14.   Does your department/ municipality/ agency offer facilities for remote/ mobile/ home working?

	Yes		No

Investment

15.   Could you please give me the total ICT budget for the department/agency/ municipality for this previous financial year (2010/11)?

	(number in Rands)
	Don't know

16.   In the next financial year, will the ICT budget for your business increase, decrease or will it stay roughly the same?

	Increase		Decrease
	Stay roughly the same		Don't know

17. **What percentage of your ICT Budget is spent on the following (provide percentages)?**

Personnel costs	Software
Network	Maintenance
Equipment	Telecommunications expenses
Other	

Module C: Human resources

18. **Does your department/ municipality/ agency provide support for ICT-related training of staff?**

Yes (go to the next question)   No (if No, go to Q21

19. **What type of ICT training does your department/ municipality/ agency provide for (more than one answer possible)?**

Use of new technologies	Use of applications
Upskilling of general staff	Technical training of staff
Other (specify):	

20. **Does your department/ municipality/ agency use e-learning to provide training (not only ICT related training, but on any subject)?**

Yes   No

21. To what extent are the following ICT functions of the organisation handled by external suppliers and/ or own staff

	Only external suppliers	Mainly xxternal suppliers	Largely equal distribution	Mainly internal staff	Only internal staff	Not relevant
a) Project management at ICT acquisition						
b) Development of ICT strategy						
c) Design of technology solutions						
d) Maintanance of security						
e) Operation of servers						
f) Operation of PC environments						
g) User training						
h) User support						
i) Development of applications						
j) Website development						
k) Website maintenance						
h) User support						
i) Development of applications						
j) Website development						
k) Website maintenance						

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Module D: Services

22.   Does your department/ municipality/ agency have its own website?

Yes (go to the next question)	No (if No, go to Q26)

23. Are any of the following possibilities available from the department/munici-pality and agency website?

	Available today	Planned for the future (one year)	Not available
Content			
a) Basic information such as address, telephone numbers, and contact persons are provided for a central point of contact for the department/ agency/ or local government.			
b) Information about functions and services provided are available for all of the departments/ business units/ functional within the department/ agency/ or local government			
c) Information about policies, procedures and rules for accessing or engaging with the department/ agency/ or local government in respect of most of the services and functions it renders.			
d) Staff telephone numbers and emails for most departments/ business units/ functions for citizens to contact staff.			
e) A central contact or complaints facility and description of how the complaint will be dealt with.			
f) A news facility to inform citizens of the latest developments within the department/ agency/ or local government.			
g) Information on events.			
Interaction			
h) Ordering of written material from the organisation, eg brochures, local plans, etc			
i) Downloading and printing of forms			
j) Viewing of personal data from administrative systems/ databases			
k) Submission of personal data using web form to update administrative systems/ databases			
Transaction			
l) Full electronic case handling (full service solution with electronic decision, ie automatic and released by citizen enquiries)			
m) Online payments through the website (eg by credit card)			

24. **How many visits (without considering the identity of the user) did your website have from 1 June 2009 to 31 December 2009?**

Number

Don't know

25. **How many page views did your website have from 1 June 2009 to 31 December 2009?**

Number

Don't know

26. **Does your department/ municipality/ agency provide any interactive services to citizens and enterprises via: (Tick all that apply)**

a) Mobile technology – SMS	Yes		No		DK	
b) Mobile technology – WAP/GPRS/ UMTS	Yes		No		DK	
c) Call Centre/ Telephone	Yes		No		DK	
d) Digital TV	Yes		No		DK	
e) Telematic kiosk	Yes		No		DK	

27. **Does your department/ municipality/ agency provide facilities to consult with citizens via the Internet?**

Yes   No

28. **Does your department/ municipality/ agency monitor access for citizens' services**

Yes (go to the next question)   No (if No, go to Q30)

29.   If Yes, please indicate the channels that apply:

a) Website	Yes	No	DK	
b) Phone	Yes	No	DK	
c) Face to face with IT support	Yes	No	DK	
d) Email	Yes	No	DK	
e) Fax	Yes	No	DK	
f) Mobile phone (SMS)	Yes	No	DK	

Barriers

30. Could you please tell me the extent to which you agree or disagree with each of the following statements regarding the barriers to e-government formation

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Disagree strongly
a) Access to the Internet by citizens and business limits the potential for e-government formation					
b) Resistance to change within the administration					
c) Lack of political will and drive					
d) Limited availability of financial resources					
e) Citizens' responsiveness					
f) Difficulty to recruit and retain qualified ICT staff					
g) Department/ municipality does not have e-government strategy					

Thank you for your time

Annexure F: e-Government Website Maturity Assessment Index Guide

Introduction to the e-Government Website Maturity Assessment Index

There are several major initiatives under way in the Gauteng city-region (GCR) that can contribute in significant ways to the development of an Information society in the province. The Gauteng Shared Service Centre (GSSC) is leading the development and implementation of the G-Link initiative, which seeks to provide affordable broadband access to 95% of Gauteng's people within the next five years. The formulation of the Gauteng Provincial Government (GPG) Information Society and Development (ISAD) Plan and the province's e-government strategy and programme are further commitments to using information and communication technologies as tools for development.

More specifically, GPG's e-government programme seeks to enhance the relationship between citizens, business, governments, and employees through integrated, effective e-government applications and services and in so doing, introduce vast improvements in service delivery across provincial and local governments. The GPG Chief Information Officers (CIO) Council has approved the implementation of a project to develop an e-Government and ISAD Monitoring and Evaluation Framework to intensify efforts to quantitatively state objectives and measure results of investments. The project is expected to develop a measurement framework that will be used to continuously monitor and evaluate the implementation of the GPG e-government programme.

The e-Government Website Assessment Maturity Index manual was developed as part of the efforts to define, assess and benchmark the progress made by both provincial and local governments and agencies in taking information and services online as part of efforts to build e-government. The e-Government Website Maturity Assessment Index is a ratio that measures e-government progress against four dimensions comprising 31 items. The e-Government Website Maturity Assessment Index manual provides an overview of how to use the index and gives a description of its main design features.

Purpose of the e-Government Website Maturity Assessment Index

The word "index" is derived from Latin and means a pointer, sign, indicator, list or register. In the context of the e-Government Website Maturity Assessment Index, it is a ratio that measures the level of e-government maturity of government websites against four dimensions. The index is expressed as a percentage of a base value. It provides a measure against which to track changes over time. Thus, the purpose of the e-Government Website Maturity

Assessment Index is to assess the levels of online content and services provision, together with the general quality of the websites. Furthermore, the assessment is aimed at providing government departments and agencies with an opportunity to benchmark their progress against each other and against themselves over time.

The e-Government Web Maturity Assessment Index is aimed at e-government personnel, web administrators and those responsible for IT in public agencies and provincial and local governments in the Gauteng province.

Design and use of the e-Government Website Maturity Assessment Index

The design of the e-Government Website Maturity Assessment Index incorporates the assessment model and the administrative components of the tool.

e-Government Website Maturity Assessment Model

A wide range of approaches have emerged in recent years to evaluate or measure e-government progress. The first category e-government assessments use is an index or benchmark that yields a score that can be used to rank governments against each other or within themselves over time. These studies are often criticised for lacking in meaning and usefulness and suffer from problems with geographic coverage, methodology, bias or a lack of transparency. The second category assesses the supply of e-government applications; the success of a country's e-government is measured by counting the number of visible applications. The third category evaluates the demand side of e-government and measures success in terms of the actual levels of usage or levels of customer satisfaction with online services. In a fourth category criteria and indicators are sought and proposed for measurement of e-government (Abrahams & Newton-Reid, 2008).

Many such studies are underpinned by a model that measures progress against stages of maturity. The e-government maturity models represent progress according to different phases, which start with publishing government information on the web, increasing the quantity, quality and value to the citizen over time. This is followed by the addition of interactive features for users, moving progressively towards offering full transactional capabilities. Although slightly different names have been given to the phases, they all have the same basic structure as indicated in the table below (Abrahams & Newton-Reid, 2008):

Phase	Description
Phase 1: Presence	Information dissemination, usually government-to-citizen (G2C), eg publishing policy or tender documents, regulations, promoting transparent government. Effective content management is essential from Phase 1 through all phases.
Phase 2: Interaction	Moves from publishing to interaction with citizens and businesses, enabling communication and feedback and processing of forms. Uses electronic data interchange (EDI) and email capability.
Phase 3: Transactions	Offers services and financial transactions capabilities, such as license renewals, payment of fines. Features include electronic filing, digital signature, information security. Requires interoperable technologies, typically Internet-based.
Phase 4: Integration	Services are integrated across departments and levels of government for multi-channel, "one-stop" service delivery, enabling greater responsiveness from all parties. Requires the integration of back-office systems.
Phase 5: Political participation	Promotion of channels for citizen participation, for example, voting online, public for a and opinion surveys.

Source: Gartner, 2000

The particular maturity model adopted in the e-Government Blueprint is the e-Government Maturity Model developed by Gartner (2000). According to this model e-government maturity reflects the increasing capability of e-government solutions progressing from information delivery through interaction and transaction to transformation. Each stage of the progression delivers more value to users, while at the same time experiencing increasing costs and complexity.

Figure 10: e-Government Maturity Model
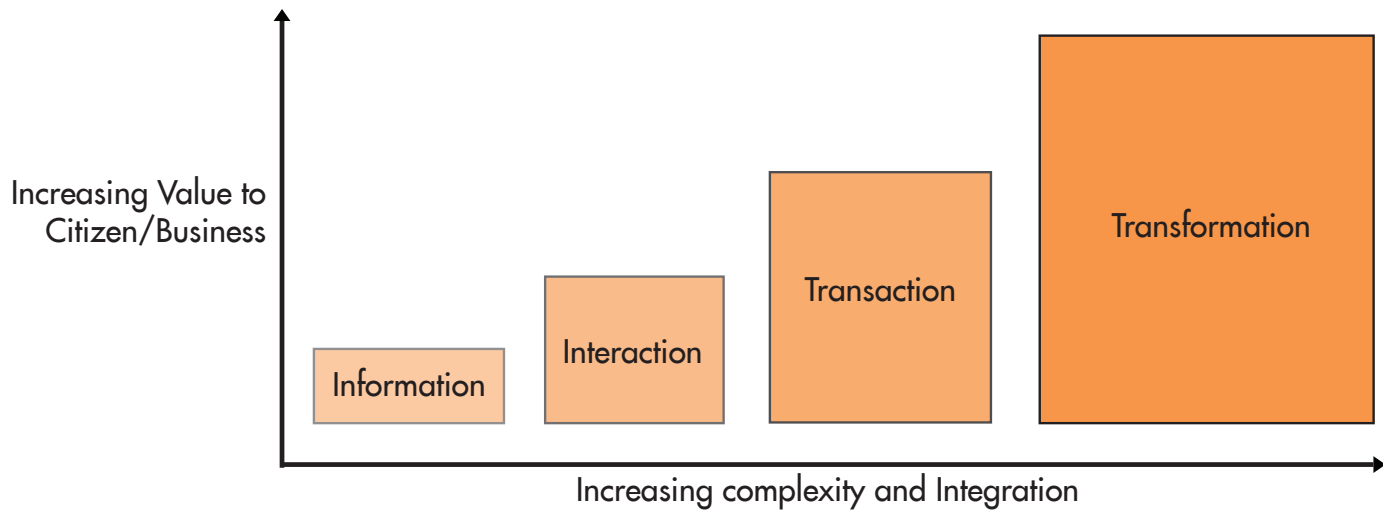
Source: Gartner, 2000

The approach to the conceptualisation of the e-government web assessment model, acknowledges that e-government is more than just making information and services available online – it involves fundamental changes including new channels for accessing government, new styles of leadership, new methods of transacting, and new systems for organising and delivering information and services (Abrahams & Newton-Reid, 2008). However, the focus of this e-government web assessment is limited to the provision of content and services online and the generic quality of the websites. In addition to the dimension of content and services, the generic quality of the websites is measured against three further dimensions: quality and design; organisation and ease of use; and privacy and security.

Figure 11: e-Government Website Assessment Model
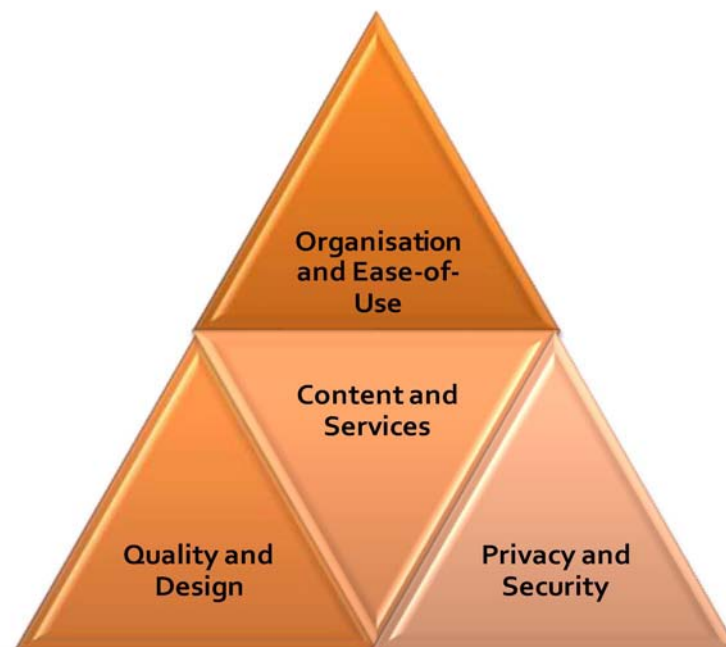
Adapted from: Abrahams & Newton-Reid, 2008

The dimensions of the web assessment model are briefly discussed below:

Content and services

Content and services on government websites provide the most important dimension of assessment, given that the more efficient and effective provision of online information and services is a fundamental goal of e-government. This dimension is given a higher weighting than the other three dimensions, as it is viewed as the central tenet for making e-government work. This dimension assesses whether basic information on the department and its functions is provided and especially whether contact information is provided to enable citizens to contact the relevant person within the department or agency. It further assesses whether latest news is provided, and if information on events and access to current and archived departmental documents are provided. The level of interaction possible through the website is assessed against whether it provides a facility to lodge a complaint, complete forms, transact, make payments, and the extent to which citizens are able to participate in the activities of the department.

The specific items that are assessed are as follows:
- Information to orient the user
- Information about functions and services
- Information about how to engage with the department
- Contact information
- Complaints facility
- News on latest developments
- Access to documents
- Information on events
- Access to online forms
- Access to archived documents
- Online services delivery
- Provision of a number of different services
- Transaction facility
- Payment facility
- Online citizen participation.

Quality and design

Content quality deals with the characteristics of the website content and the design criteria deal with the design features that attract users and encourage them to use the site. Content quality and design can make a significant contribution to building trust among citizens. Ensuring that information is up-to-date, correct and trustworthy is an essential feature of website content quality and design. The specific items that are assessed here are:
- Up-to-date information
- Correctness and trustworthiness of information
- Clarity of content
- Compatibility
- Attractiveness.

Organisation and ease of use

This dimension is concerned with the categorisation and structure of website element in a manner that assists users to find the required information easily and quickly. It assesses the extent to which the site can be easily navigated. Basic properties such as working website links, ability to search the site effectively and ability to interact with the site are some of the key features of this dimension. Specific items include:

- Index
- Links
- Logo
- Search Engine
- Interactive features
- Multilingual facility
- Access to the disabled
- Help

Privacy and security

Privacy and security for websites and e-government services are fundamental requirements for the proper functioning of government websites. Citizens have clear expectations that their privacy will be respected and their security guaranteed against additional technology risks. It is therefore necessary to ensure that websites cannot be manipulated illegally, and sensitive content can be shared confidentially between citizens and the department or agencies. Specific items assessed:

- Privacy policy
- Security policy

The use of the e-Government Website Assessment Index is explained in terms of the instrument used in the assessment process, its administration, the assessment report and scoring.

Instrument development

An Excel spreadsheet was developed with an initial list of questions that were grouped into the four categories of the e-Government Website Maturity Assessment Model described in the previous section. The list of questions formed the basis for the development of an instrument that was used to assess four departmental websites during the pilot process. The assessment instrument was consolidated into four dimensions with 31 items. The grouping of the items was informed by previous studies, with additional questions that were added after the pilot process.

Administration

The e-Government Website Maturity Assessment Index will be administered by the e-Government unit within the Gauteng Shared Service Centre. The administration of the index will form part of the activities that are aimed at monitoring the progress of e-government in the Gauteng city-region. The index will be used annually to assess the progress governments and agencies in the province are making towards providing information and services online to citizens. An annual report with the results of the survey will be made available to all participating departments and agencies as part of the report on the status of e-government in the province.

Scoring and weighting

The assessment of websites covers 31 items grouped into four dimensions. Each item is scored using scales that vary from 0-3 to 0-8. An overall index score out of 100% is calculated for each website. The dimensions are weighted differently, with content and services accounting for 40% of the overall index, followed by 25% for the quality and design and organisation and ease-of-use dimensions, and finally with 10% for privacy and security. The scoring has a bias towards the content and services dimension since this is considered the primary indication of progress towards moving services online, while the dimensions assessing quality of the site are considered as enabling factors that influence the user experience.

The weighted scores for each dimension and the Total Index score are provided in graphic format below.

Graph 1: e-Government Website Assessment Index
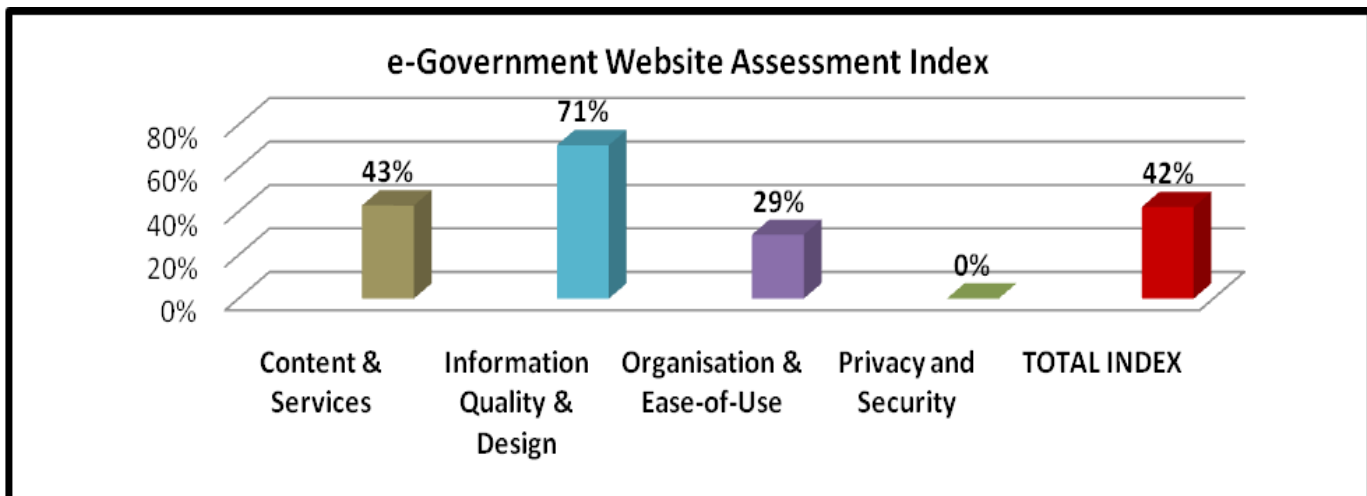
In the presentation of the final score, the subtotals of the dimensions are weighted before being added to provide a total score out of a 100 percentage point index. Benchmarks have been established as a feedback mechanism to provide departments with feedback on overall progress and areas for improvement. The benchmarks are as follows:

Table 32: Index Benchmarks

Total Index	Benchmark
80-100%	**Transformation stage:** In this stage the automation and digitalisation processes influence the way in which governments/agencies/municipalities deliver services. The integration of services across different internal and external departments and the provision of seamless services through a single and unified portal become the ultimate goal. This stage is often characterised by re-engineering of existing processes to reduce or remove bottlenecks.
60-81%	**Transaction stage:** This stage enables users to conduct online transactions. This includes processing claims applications or registration; accessing private information online; accessing departmental data systems; making payments, buying items or making donations; and electronically requesting and receiving information.
40-79%	**Interaction stage:** At this stage, the websites provide simple interaction between the departments/agencies/municipalities and the users or citizens. These interactions include basic search engines, email and official forms available for download. The stage is regarded as a transaction phase towards transaction capability development.
0-39%	**Information stage:** This stage is characterised by departments/agencies/ municipalities publishing information to the web and creating a presence on the Internet. The format is similar to that of a brochure or leaflet, explaining what functions and services are provided. The information tends to be static, and as the e-government capability advances the information becomes more dynamic and is updated regularly. At this stage, governments only provide information and the website offers no interaction. The benefits are that government information is publically accessible, processes are described and government becomes more transparent.

Conclusions and recommendations for further development

At present there are no government website development guidelines to support the development of web content, set standards in regard to accessibility, usability, information provision of service delivery against which to assess website development. The development of website development guidelines should therefore be an immediate priority.

ANNEXURE G: POLICY ANALYSIS MATRIX

	Goals	Service perspective	Operational Excellence Perspective	Financial perpective	Innovation and Learning perspective	Democratic and Participatory Perspective
White Paper on the Transformation of the Public Service, 1995	Aims at establishing the policy framework for new policies and legislation to transform the public service.	"…provision of services of excellent quality to all…"	"… performance oriented …' '… integrated, coordinated and decentralised."	"… efficient and cost effective …"	"… effective training and career development …" "… responding flexibly, creatively and responsively to the challenges …"	"… open to popular participation, transparent, honest, and accountable …" "… consultative and democratic …"
White Paper on Transforming Public Service Delivery, 1997 (Batho Pele)	Prescribes eight principles for transforming service delivery.	"…consulting users of services…' 'setting service standards…"	"… adopting efficient and customer-focused working practices …"	"… services should be provided economically and efficiently …"	"… to identify new ways of delivering services". "… search for new ways of working that put the needs of people first.."	"Openness and transparency at the hallmarks of a democratic government and fundamental to the public service transformation process."
Presidential Review Commission Report, 1998 (Chapter Six)	Comprehensive review of IM, IS and IT environment, systems and institutional arrangements in Public Service and proposal of the development of a coherent and coordinated strategy, establishment of a GIO Office and migration to complete electronic communication.	"…allows citizens broader and more timely access to information and services through efficient, customer-responsive processes, thereby creating a fundamental revision of the relationship between government and everyone served by it."	"… provides operational effectiveness." "… maximise application inter-operation and integration." "… make the integration of information technology into all facets of the public service …"	"… leverages economies of scale. … obtain value for money."	'… rationalises the skills set.'	
Electronic Government: The Digital Future: A Public Service IT Policy, 2001	Aims at providing a framework for the provision of e-governance, e-services and e-business. Focused on issues such as interoperability, security, economies of scale and elimination of duplication. Defines IT value in terms of cost effectiveness, improved service delivery and increased productivity.	Achieves "Cost Effectiveness – due to reduction in time duration, complexity or possible repetition/ duplication of tasks."	Achieves "Improved Service Delivery – achievement of the Batho Pele objectives for offering equal access to government services, more and better information, choice of level/ quality of service and guaranteed standards (including privacy) remedies for failures and ultimately, value for money."	Achieves increased Productivity – better output in terms of the quantity and quality of traditional results, or the performance of previously impossible tasks	"Skills development in IT must no longer be left to chance by the government machinery."	
e-Government Gateway Concept Document, 2002	Provides a description of South Africa Online, a single gateway facilitating access to all information about, and services provided by, the government. It represents the primary implementation mechanisms for the e-government vision and policy. Set out a number of objectives that define the changes and value the Gateway seeks to achieve.	"… delivers of multiple services through a single delivery mechanism, in ways that are appropriate to the customers requiring that service …" "… enables access through multiple channels …" "… enable seamless access to government services …"	"… realigns and streamlines the back office operations of government, in order to facilitate integrated and simplified service delivery …"	"… develops a model of sustainability that will allow sufficient revenue generation to develop and improve the services offered …"	"… demonstrates significant, but incremental improvement to citizens"	"… create a framework of accountability and transparency with regards to the delivery of services …"

	Goals	Service perspective	Operational Excellence Perspective	Financial perpective	Innovation and Learning perspective	Democratic and Participatory Perspective
A Strategy Toward the Development of Overarching Legislation for the Single Public Service, 2006	Provides the basis for the design of the framework legislation necessary to establish a Single Public Service.	Legislation should "ensure a consistently high standard of service …"	Legislation should facilitate "more coherent, integrated planning, budgeting, implementation and monitoring and evaluation …" "… need for an integrated architecture of government information systems …"	"… creates government institutions that are … efficient.and. sustainable …"	Legislation should provide for a "human resource development strategy...and the development of an integrated skills database …"	"… create government institutions that are … accountable …"
Towards an Inclusive Information Society in South Africa, 2007	Purpose is to articulate a vision, and provide a roadmap for building an Inclusive Information Society.	"… ensures access to basic services through ICTs …"	"… deployment of effective governance structures and processes."	"Deploys cost-effective and timely technology based solutions that enable public service delivery …" "eliminate unnecessary expenditure in ICT systems …"	Recognises "the need to produce people with the relevant skills and knowledge to participate meaningfully in the Information Society."	The mission is to "… entrench democracy and respect for human rights …"
Gauteng Provincial Government: e-Government Blueprint Proposal, 2007	Represents the GPG's approach to implementing its e-government programme by defining e-government, segments and describes the institutional arrangements established to support e-government programme implementation.	'Building services around citizen's choice.' '..the expectations of citizens as the chief design principle of all government programmes, solutions and initiatives." "Simplifying and unifying service delivery."	'Changes in back-office processes and the ways in which they are supported by technology will be key to improving service levels and operational efficiency". "… governments should focus on metrics that demonstrate their operational efficiency and value to citizens".		"The primary goal of the e-government office is to serve as an entrepreneurial unit within the government that is capable of planning and implementing enterprise-wide innovation."	"… make real democracy possible for all citizens everywhere …"

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