



Ghana Government Enterprise Architecture Monitoring & Evaluation

ABBREVIATIONS

Term	Definition
GGEA	Ghana Government Enterprise Architecture
EA	Enterprise Architecture
MDA	Ministries Departments and Agencies
GICTeD	Ghana ICT Directorate
GoG	Government of Ghana
CIO	Chief Innovation Officer
QAC	Quality Assurance Committee
RFP	Request for Proposal
CMM	Capability Maturity Model



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1. Introduction

This document defines the monitoring and evaluation of the impact Enterprise Architecture implementation on the Ministries, Departments and Agencies (MDAs). In order to optimise the business value of ICT, it is essential that the performance of the ICT organisations in the MDAs is measured and the associated metrics driven from key strategic goals. The measures must be cascaded down through all levels of governance. An ICT Performance Management framework is defined for the monitoring and evaluation process, which is derived from the business objective measures that enable appropriate and timely decision making; understanding the capability of the ICT processes to enable ICT transformation and continuous process improvement. This approach is a continuous cycle: as processes are continuously improved and strategic goals are attained, business priorities may shift, thereby necessitating realignment of goals and measures etc.

The primary users of the Monitoring and Evaluation process are the MDAs' ICT Directors and the central government agency responsible for monitoring the role of ICT in the MDAs. Other senior personnel in the MDAs such as Chief Directors may also find the performance management process very useful in assessing the role of ICT and the justification of funds for projects. The scope of the ICT Performance Management framework is the Business Architecture Reference Model (BARM), which identifies the measurement areas and the process of defining the metrics.

2. The ICT Performance Management Model

For the purposes of monitoring and evaluating the performance of the ICT function in the organisation the ICT Performance Management Model (PMM) has been developed to measure the impact of ICT services on the overall MDA performance.

The PMM is designed to serve three main purposes, which are;

- ☐ Develop an ICT performance reporting mechanism to justify expenditure on IT projects;
- ☐ Demonstrate the contribution of IT to the delivery of MDA's operations and services;
- ☐ Identify areas to be earmarked for process improvement.

The PMM is designed to demonstrate the relationship between input, quality of operations and service delivery. This linkage is critical for ICT Directors, programme managers, and key decision-makers to understand how and to what extent technology is enabling progress towards operational efficiency and enhanced service delivery. The PMM has been designed to support the Ghana Government Enterprise Architecture (GGEA) framework, which consists of the Business, Data, Services and Technical architecture reference models.

2.1 THE STRUCTURE OF THE PERFORMANCE MANAGEMENT MODEL

As illustrated in figure 1 below the PMM is structured around Measurement Domains, Measurement Sub-Domains, and Measurement Indicators.

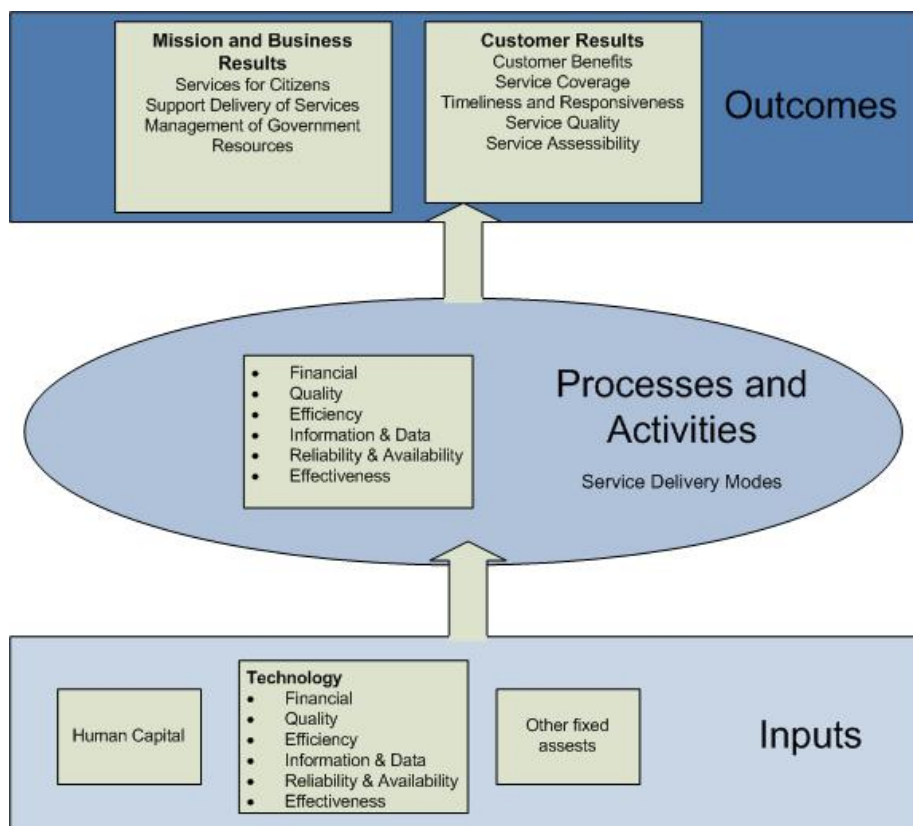


Figure 1: Performance Management Model

- Measurement Areas – The high-level organising framework of the PMM that captures aspects of performance at the input, output, and outcome levels. The PMM includes six measurement areas: Mission and Business Results, Customer (Citizens) Results, Processes and Activities, Human Capital, Technology, and Other Fixed Assets.
- Measurement Categories – Groupings within each Measurement Area that describe the attribute or characteristic to be measured. For example, the Mission and Business Results Measurement Area include three Measurement Categories: Government Frontline Services, Government Services Support, and Enterprise Management.
- Generic Measurement Indicators – The generic indicators, such as delivery time that MDAs take to move into the operational state of their ICT environments.

The PMM is designed to demonstrate the relationship between input, and quality of operations and service delivery. Though this relationship is rarely direct cause and effect, the PMM structure seeks to bring out the contribution that the MDA's ICT initiatives make to improve process and organisational performance.

This “line of sight” is critical for ICT project managers and key decision-makers to understanding how and to what extent technology enabling progress towards operational efficiency and service delivery is. The PMM captures this “line of sight” to reflect how value is created as inputs (such as Technology) are used to help create outputs (through Processes and Activities), which in turn impact outcomes (such as Mission and Business). This structure builds from the concepts of the value chain, programme logic models, and the theory of constraints.



Guiding the entire PMM are “Strategic Outcomes,” which represent broad, policy priorities that drive the mandate of government. Conversely, the ITPMM is also structured to allow the desired outcomes an MDA seeks to achieve to determine the outputs and technology needed.

2.1.1 Mission and Business Results Measurement Area

The Mission and Business Results Measurement Area of the ITPMM are intended to capture the outcomes that MDAs seek to achieve.

To ensure the outcomes that MDAs identify are appropriately aligned to what they actually do, the Mission and Business Results Measurement Area are driven by the MDA’s Business Architecture Reference Model (BARM) of their Enterprise Architecture. More specifically, the PMM’s Measurement Categories are the same as the business domains and functions within the BARM. The Generic Measurement Indicators of the PMM are the same as the Sub-functions of the BARM. These areas of the BARM seek to identify government services. By extension the Mission and Business Results Measurement Area of the PMM seeks to identify the extent to which those services are being achieved.

The Mission and Business Results Measurement Area comprises of the following Measurement Categories:-

- ☐ The Business domains in Government Frontline Services;
- ☐ The domains in Government Services Support;
- ☐ The domains in Enterprise Management.

2.1.2 Citizens Results Measurement Area

The Citizens Results Measurement Area of the IPMM is intended to capture how well the MDA is serving its citizens. This is a critical aspect of successful eGovernment. The Citizens Results Measurement Indicator captured in this Measurement Area will be associated with the most external citizens of the service the IT project supports.

The Citizens Results Measurement Area is comprised of the following Measurement Categories:

- ☐ Citizens Benefit - Citizens satisfaction levels and tangible impacts to citizens as a result of the services provided;
- ☐ Service Coverage - The extent to which the targeted citizen population is being served and citizens are using the services;
- ☐ Timeliness & Responsiveness - Time it takes to respond to citizens inquiries and requests and the time it takes to deliver services;
- ☐ Service Quality - Quality of service from the citizen’s perspective;
- ☐ Service Accessibility - Availability of the services to the citizen and the extent of self-service options and automation.

2.1.3 Processes and Activities Measurement Area



The Processes and Activities Measurement Area is intended to capture the outputs that are the direct result of the process that an ICT project supports. This Measurement Area also captures key aspects of the service that needs to be monitored.

ICT projects are designed to improve a service to the citizen. This is generally where an ICT project's contribution to improved performance can be most accurately measured. Nevertheless there are still many factors beyond the ICT project's control that will determine the level of performance. These factors include staff that manage or execute the process, or inputs to the process such as information from other processes.

The desired outputs for a process or activity should strongly influence:

1. Whether technology is needed to improve or support the process
2. If so, what technology is needed to help the processes or activities achieve the desired outputs?

As with Mission and Business Results, use of the Processes and Activities Measurement Area uses the BARM as the starting point. The BARM includes a Service Delivery Modes Business Area that is designed to identify at a very high level the process that is being used to achieve an intended purpose. The Measurement Indicator(s) MDAs choose should be an extension of the Service Delivery Modes the ICT project aligns with.

The Processes and Activity Measurement Area is comprised of the following Measurement Categories:

- ☐ Financial - Achieving financial measures, direct and indirect total and per unit costs of producing services, and costs saved or avoided;
- ☐ Productivity & Efficiency – The amount of work accomplished per relevant units of time and resources applied;
- ☐ Cycle Time & Timeliness - The time required to execute service;
- ☐ Quality - Error rates and complaints related to the service;
- ☐ Security & Privacy - The extent to which security is addressed;
- ☐ Management & Innovation - Management policies and procedures, compliance with applicable requirements, capabilities in risk mitigation, knowledge management, and continuous improvement.

2.1.4 Technology Measurement Area

The Technology Measurement Area is designed to capture key elements of performance that directly relates to the IT project. An ICT project includes applications and infrastructure provided in support of the service. While these IT-specific aspects of performance (e.g. percent system availability) are important, they alone do not truly assess the value of an IT project to overall performance. This is why the Technology Measurement Area is far more relevant when used with other Measurement Areas to get a full and accurate picture of overall performance.

The Technology Measurement Area is comprised of the following Measurement Categories:-



- ❑ Financial - Technology-related costs and costs avoided through reducing or eliminating IT redundancies;
- ❑ Quality – The extent to which technology satisfies functionality or capability requirements or best practices, and complies with standards;
- ❑ Efficiency - System or application performance in terms of response time, interoperability, user accessibility, and improvement in technical capabilities or characteristics;
- ❑ Information & Data - Data or information sharing, standardisation, reliability and quality, and storage capacity;
- ❑ Reliability & Availability - System or application capacity, availability to users, and system or application failures;
- ❑ Effectiveness – Extent to which users are satisfied with the relevant application or system, whether it meets user requirements and its impact on the performance of the services it enables and the citizens or mission results to which it contributes.

MDA's are expected to define the measurement indicators for the following BARM functions:

2.2 GOVERNMENT FRONTLINE SERVICES

This Measurement Category captures the extent to which results related to services that Government of Ghana (GoG) provides both to and on behalf of the Ghanaian citizen are achieved.

Table 1: Measurement Category for Government Frontline Services

Government Frontline Services- PMM				
Index	Measurement Category	Index	Measurement Grouping	Measurement Indicators
0100	Agricultural Services is the promotion and provision of sustainable agriculture and a thriving agri-business environment through research and development of technology as well as support services to farmers and fishermen.	0101	Input Supplies	
		0102	Technical Support	
		0103	Research and Development	
		0104	Promotion	
0200	Arts and Culture refers to the formulation, implementation and enforcement or recognition of policies related to festivals and other traditional activities.	0201	Cultural and Historical Preservation	
		0202	Arts and Culture Promotion	
		0203	Chieftaincy Affairs	
		0204	Religious Harmonisation	
0300	Community and Social Infrastructure Services includes all activities aimed at creating, expanding, or improving community and social development, social relationships, and social services in	0301	Community Development	



	Ghana. This includes all activities aimed at locality-specific or nationwide social development and general social services. This business process includes general community development and social services programmes, as well as earned and unearned benefit programmes that promote these objectives.	0302	Postal Service	
		0303	Social Services	
0400	Disaster Management involves the activities required to prepare for the mitigation, response and repair the effects of all disasters whether natural or man-made.	0401	Disaster Prediction and Monitoring	
		0402	Disaster Planning and Preparedness	
		0403	Disaster Recovery	
		0404	Emergency Response	
0500	Economic Development includes the activities required to promote socio-economic development and to regulate the Ghanaian financial industry to protect investors. It also includes the management and control of the domestic economy and the money supply, and the protection of intellectual property and innovation.	0501	Intellectual Property Protection	
		0502	Financial Sector Oversight	
		0503	Industry Sector Income Stabilization	
		0504	Business Development	
		0505	Trade and Industry Development	
		0506	Revenue	
0600	Education refers to those activities that impart knowledge or understanding of a particular subject to the public. Education can take place at a formal school, college, university or other training program. This business process includes all government programmes that promote the education of the public, including both earned and unearned benefit programmes.	0601	Basic and Secondary Education	
		0606	Tertiary Education	
		0605	Adult Education	
		0602	Technical and Vocational Education	
		0603	Linguistic Services	
		0604	Literature Publication and Management	
0700	Environment Management includes all functions required to monitor the environment and weather, determine proper environmental standards and ensure their compliance, and address environmental hazards and contamination.	0701	Environmental Monitoring and Forecasting	
		0702	Environmental Remediation	
		0703	Pollution Prevention and Control	
0800	Foreign and Diplomatic Affairs involves promoting the interest of Ghana and its citizens abroad and enhancing Ghana's security and economic prosperity through political and economic interactions with the international community.	0801	Consular Services	
		0802	International Development and Humanitarian Aid	
		0803	Trade and Tourism Promotion	



		0804	International Law and Order	
0900	General Science and Innovation includes all Government activities to meet the national need to advance knowledge in this area. This includes general research and technology programmes that have diverse goals.	0901	Scientific and Technological Research and Innovation	
1000	Good Governance involves improving the effectiveness, efficiency, accountability and transparency of information and transactional exchanges within Government, Government to Government, MDA's, local levels, Citizens and Businesses and to empower Citizens through accurate and timely access to information and Government services.	1001	Electoral Participation	
		1002	Rule of Law	
		1003	Promotion of Transparency and Accountability in Government	
1100	Health involves Government programmes and activities to ensure and provide for the health and well being of the public. This includes the direct provision of health care services and immunisations as well as the monitoring and tracking of public health indicators for the detection of trends and identification of widespread illnesses/diseases. It also includes both earned and unearned health care benefit programmes.	1101	Access to Care	
		1102	Health Care Research and Practitioner Education	
		1103	Health Care Administration	
		1104	Health Care Delivery Services	
		1105	Food and Drugs Standards Control	
1200	Judicial Activities refers to activities relating to the administration of justice.	1201	Judicial Hearings	
		1202	Legal Defence	
		1203	Legal Investigation	
		1204	Legal Prosecution and Litigation	
		1205	Conflict Resolution Facilitation	
1300	Law Enforcement involves activities to protect people and property from criminal activity resulting from non-compliance with Ghanaian laws. This includes patrols, undercover operations, response to emergency calls as well as arrests, raids, and seizures of property.	1301	Criminal Apprehension	
		1302	Criminal Investigation and Surveillance	
		1303	Citizen Protection	
		1304	Crime Prevention	
		1305	Leadership Protection	
		1306	Property Protection	
		1307	Substance Control	
		1308	Correction and Rehabilitation	
1400	Manpower is the promotion of sustainable employment opportunities through management and skills development,	1401	Training and Employment	



	training, retraining, safe and healthy working environments with harmonious industrial relations.	1402	Trade Unions	
		1403	Health and Safety	
		1404	Youth Development	
		1405	Women Empowerment	
1500	National Defence and Security includes all activities involved in the effective formulation, co-ordination, monitoring and evaluation of defence policies and programmes as well as maintaining military forces in a high state of preparedness for national and international engagements in the promotion of peace and stability within Ghana and its sub-regions.	1501	Operational Defence	
		1502	Border Security and Immigration Control	
		1503	Intelligence Operations	
1600	Natural Resources includes all activities involved in conservation planning, land management, and national parks or monuments tourism that affect Ghana's private and public natural and recreational resources.	1601	Natural Resource Management	
		1602	Conservation and Preservation Management	
		1603	Tourism and Recreational Resource Management	
1700	Public Utility is the provision of basic amenities such as electricity, water and drainage for public use.	1701	Utility Supply	
		1702	Utility Conservation	
		1703	Utility Resource Management	
		1704	Utility Production	
1800	Social Welfare includes activities designed to ensure that members of the public are provided with the necessary means – both financial and otherwise – to sustain an adequate level of existence. This includes all benefit programmes, both earned and unearned, that promotes these goals for members of the public.	1801	Food and Nutrition Assistance	
		1802	General Retirement and Disability	
		1803	Children's Homes	
		1804	Survivor Compensation	
1900	Sports involve the policies and activities to promote and accelerate sports development for the welfare of Ghanaians in order to achieve human development, good health, national integration and international recognition.	1901	Sports Development	
2000	Transportation involves all Government supported activities related to the safe passage, conveyance, or transportation of goods and/or people.	2001	Air Transportation	
		2002	Road Transportation	
		2003	Rail Transportation	
		2004	River and Marine Transportation	



2.3 GOVERNMENT FRONTLINE SERVICES

This Measurement Category captures the extent to which intermediate outcomes related to the delivery of services are achieved.

Table 2: Measurement Category for Government Services Support

Government Services Support - PMM				
Index	Measurement Category	Index	Measurement Grouping	Measurement Indicators
4100	Controls and Oversight ensures that the operations and programmes of the government and its external business partners comply with applicable laws and regulations and prevent waste, fraud, and abuse.	4101	Programme Monitoring	
		4102	Programme Evaluation	
		4103	Corrective Action	
4200	Executive Functions involve the general overhead costs of the government, including legislative and executive activities; provision of central fiscal, personnel, and property activities; and the provision of services that cannot reasonably be classified in any other business domains.	4201	Governance Functions	
		4202	Executive Functions	
		4203	National Strategic Planning	
		4204	Central Personnel Management	
		4205	Accountability	
		4206	National Records and Statistics	
4300	Risk Management involves all activities relating to the processes of analysing exposure to risk and determining appropriate countermeasures.	4207	Micro-credit and Small Loans	
		4301	Contingency Planning	
4400	Legislative Relations involves activities aimed at the development, tracking, and amendment of public laws through the legislative branch of the government.	4302	Recovery of Community Services and Infrastructure	
		4401	Legislative Tracking	
		4402	Legislative Testimony	
		4403	Proposal Development	
4500	Finance is concerned with resource allocation as well as resource management, acquisition and investment. While Administration is concerned with the activity of a MDA'S in the exercise of its powers and duties.	4404	Parliamentary Liaison Operations	
		4501	Budget Formulation	
		4502	Capital Planning	
		4503	Enterprise Architecture	
		4504	Strategic Planning	
		4505	Budget Execution	
		4506	Human Resource Planning	
		4507	Management Improvement	
		4508	Budget and Performance Integration	
4600	Public Affairs involve the exchange of information and communication between government agencies, citizens and stakeholders in direct support of	4509	Economic Planning	
		4601	Customer Services	
		4602	Marketing and Information Services	



	citizen services, public policy, and/or national interest.	4603	Public Relations	
4700	Regulatory Development involves activities associated with developing regulations, policies, and guidance to implement laws.	4701	Policy and Guidance Development	
		4702	Public Feedback	
		4703	Policy Regulations	
		4704	Policy Publication	
4800	Revenue Collection involves ensuring successful management and sustainable development of revenue collection in Ghana through such agencies as VATS, IRS, LTU and CEPS.	4801	Debt Collection	
		4802	Government Facility Revenue	
		4803	Divestiture of Government Assets	

2.4 ENTERPRISE MANAGEMENT

This Measurement Category captures the extent to which intermediate outcomes related to back office support that enables government to operate efficiently are achieved.

Table 3: Measurement Category for Enterprise Management

Enterprise Management - PMM				
Index	Measurement Category	Index	Measurement Grouping	Measurement Indicators
5100	Administrative Management involves the day-to-day management and maintenance of the internal infrastructure.	5101	Facilities, Fleets and Equipment Management	
		5102	Help Desk Services	
		5103	Security Management	
		5104	Travel	
		5105	Workplace Policy Development and Management	
5200	Audits involve the evaluation of government resources to ascertain the validity and reliability of information provide an assessment of government internal control and to ensure compliance with established policies and operational procedures, and to recommend necessary changes in controls, policies, or procedures.	5201	Internal Audits	
		5202	IT Audits	
5300	Financial Management involves the use of financial information to measure, operate and predict the effectiveness and efficiency of an entity's activities in relation to its objectives. The ability to obtain and use such information is usually	5301	Accounting	
		5302	Funds Control	
		5303	Payments	
		5304	Collections and Receivables	



	characterised by having in place policies, practices, standards, and a system of controls that reliably capture and report activity in a consistent manner.	5305	Asset and Liability Management	
		5306	Reporting and Information	
		5307	Cost Accounting/Performance Management	
5400	Human Resource Management involves all activities associated with the recruitment and management of personnel.	5401	HR Strategy	
		5402	Staff Acquisition	
		5403	Organisation and Position Management	
		5404	Compensation Management	
		5405	Benefits Management	
		5406	Employee Performance Management	
		5407	Employee Relations	
		5408	Labour Relations	
		5409	Separation Management	
		5410	Human Resource Development	
5500	Information and Technology Management involves the coordination of information and technology resources and systems required to support or provide a service.	5501	System Development	
		5502	Lifecycle/Change Management	
		5503	System Maintenance	
		5504	IT Infrastructure Maintenance	
		5505	Information Systems Security	
		5506	Record Management	
		5507	Information Management	
		5508	Information Sharing	
		5509	System and Network Monitoring	
5600	Supply Chain Management involves the purchasing, tracking, and overall management of goods and services.	5601	Goods Acquisition	
		5602	Inventory Control	
		5603	Logistics Management	
		5604	Service Acquisition	



2.5 CITIZEN RESULTS

The Citizens Results measurement categories provide indicators for measuring how the citizen is being catered for by the services being delivered by MDAs.

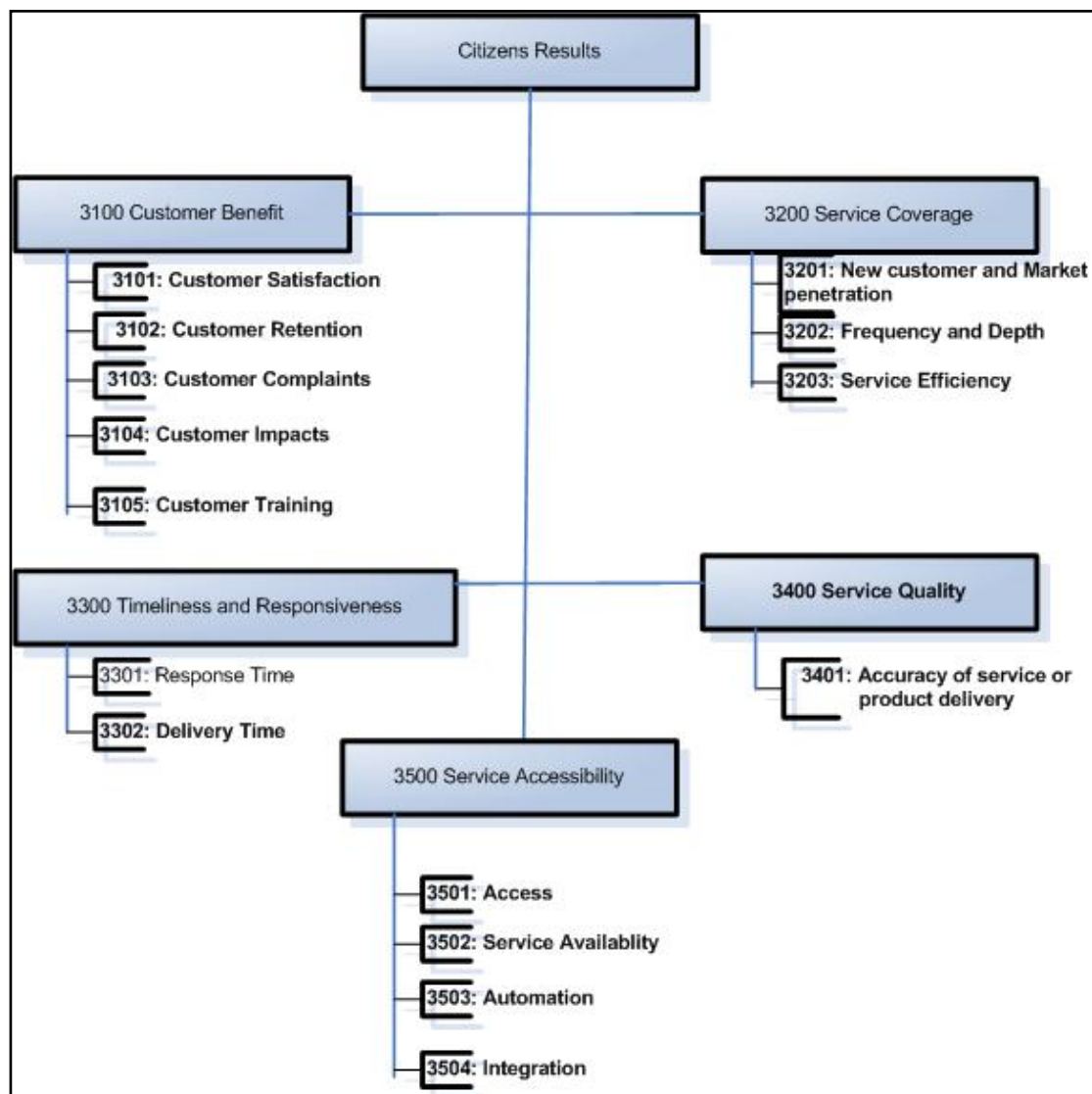


Figure 2: *Citizens Results*



Table 4: Measurement Category for Citizens Results

Citizens Results Measurement				
Index	Measurement Category	Index	Measurement Grouping	Measurement Indicators
3100	Customer Benefit - Customer satisfaction and tangible impacts to customers as a result of the products or services provided	3101	Customer satisfaction	
		3102	Customer Retention	
		3103	Customer Complaints	
		3104	Customer impacts	
		3105	Customer Training	
3200	Service Coverage - The extent to which the desired customer population is being served and customer are using products and services	3201	New Customers and Market penetration	
		3202	Frequency and Depth	
		3203	Service efficiency	
3300	Timeliness and Responsiveness - Time to respond to customer inquiries and requests and time to deliver products and services	3301	Response Time	
		3302	Delivery Time	
3400	Service Quality - Quality from the customer's perspective and accuracy of responses to customer inquiries	3401	Accuracy of Service or Product Delivered	
3500	Service Accessibility - Availability of products and services to customers and the extent of self-service options and automation	3501	Access	
		3502	Service Availability	
		3503	Automation	
		3504	Integration	



2.6 PROCESSES AND ACTIVITIES

The processes and activities measurement categories, measure process outputs that have been enhanced by an ICT initiative. These processes generally impact on the mission and organisational outputs of the MDA.

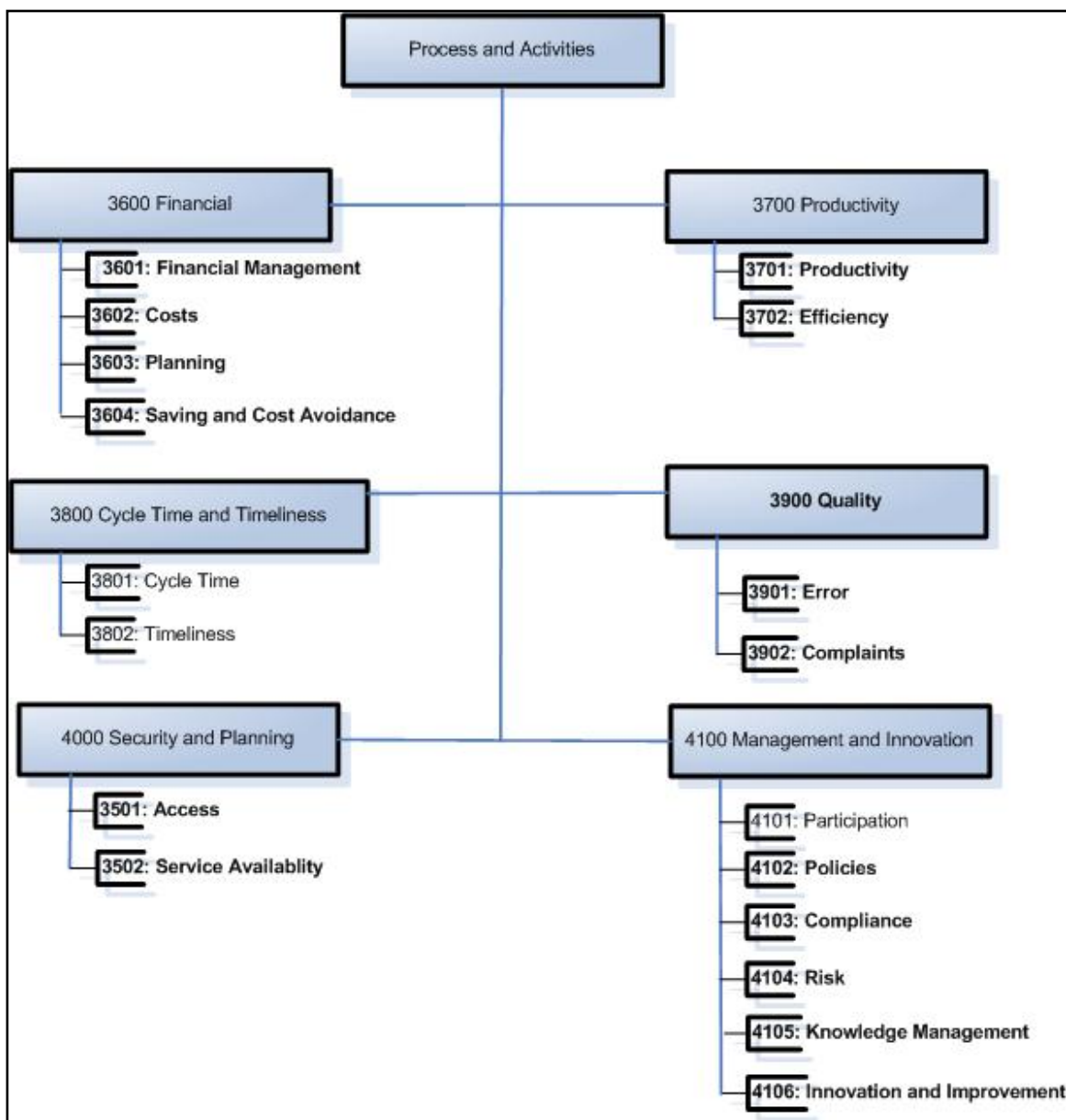


Figure 3: Processes and Activities



Table 5: Measurement Category for Processes and Activities

Processes and Activities				
Index	Measurement Category	Index	Measurement Grouping	Measurement Indicators
3600	Financial - Achieving financial measures, direct and indirect total and per unit costs of producing products and services, costs saved and avoided	3601	Financial Management	
		3602	Costs	
		3603	Planning	
		3604	Saving and Costs Avoidance	
3700	Productivity - The amount of work accomplished per relevant units of time and resources applied	3701	Productivity	
		3702	Efficiency	
3800	Cycle Time and Timeliness - The time required to produce products or services	3801	Cycle Time	
		3802	Timeliness	
3900	Quality - Error rates and complaints related to products or services	3901	Errors	
		3902	Complaints	
4000	Security and Privacy – he extent to which security is improved and privacy addressed	4001	Security	
		4002	Privacy	
4100	Management and Innovation	4101	Participation	
		4102	Policies	
		4103	Compliance	
		4104	Risk	
		4105	Knowledge Management	
		4106	Innovation and Improvement	



2.7 TECHNOLOGY

The Technology measurements categories capture the direct performance of the ICT systems that have been deployed.

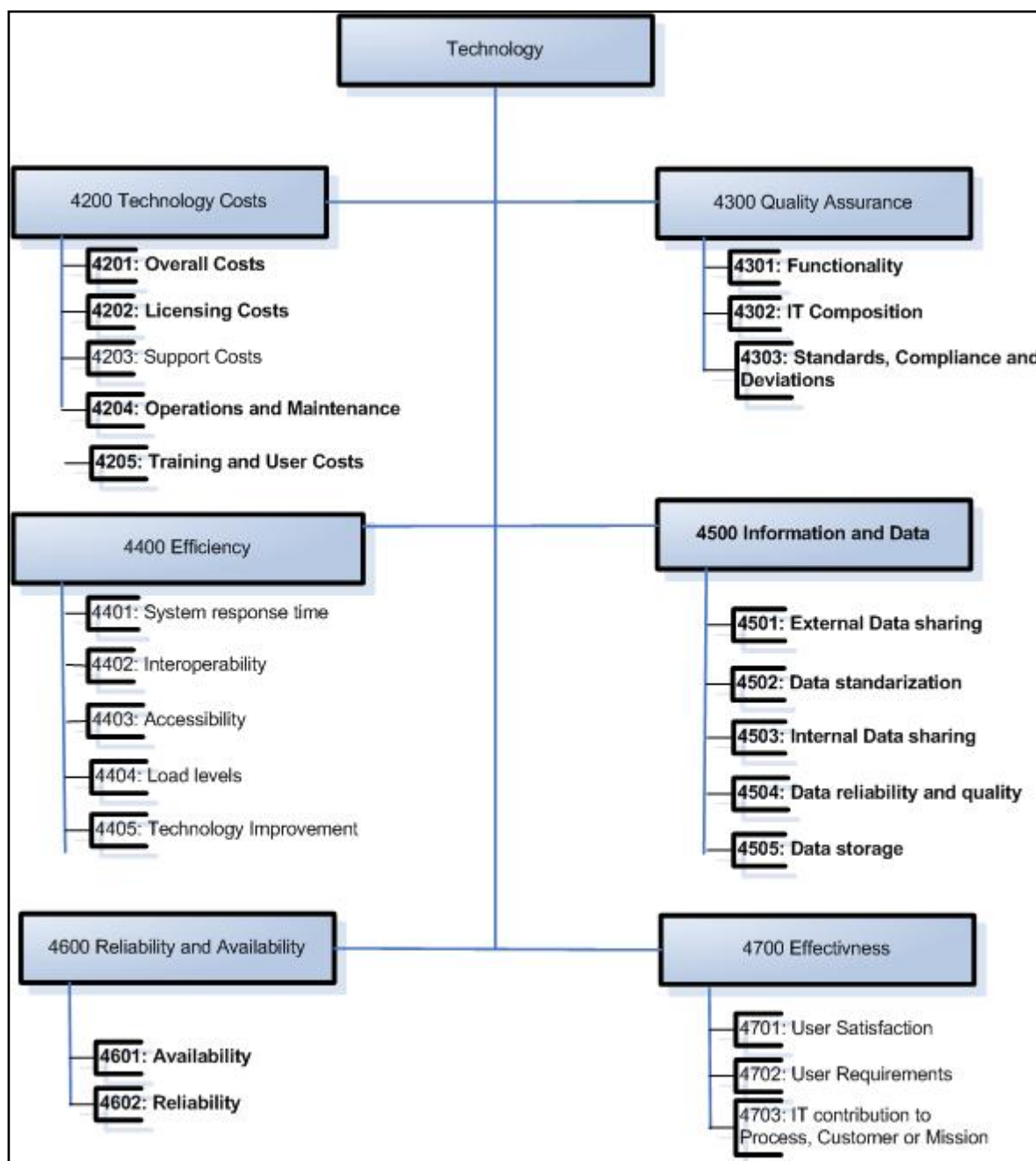


Figure 4: *Technology*



Table 61: Measurement Category for Technology

Technology				
Index	Measurement Category	Index	Measurement Grouping	Measurement Indicators
4200	Technology Costs - related costs and costs avoided through reducing or eliminating IT redundancies.	4201	Overall Costs	
		4202	Licensing Costs	
		4203	Support Costs	
		4204	Operations and Maintenance Costs	
		4205	Training and User Costs	
4300	Quality Assurance - The extent to which technology satisfies functionality or capability requirements or best practices, and complies with standards.	4301	Functionality	
		4302	IT Composition	
		4303	Standards Compliance and Deviations	
4400	Efficiency- System or application performance in terms of response time, interoperability, user accessibility, and improvement in technical capabilities or characteristics.	4401	System Response Time	
		4402	Interoperability	
		4403	Accessibility	
		4404	Load levels	
		4405	Technology Improvement	
4500	Information and Data- Data or information sharing, standardisation reliability and quality, and storage capacity.	4501	External Data Sharing	
		4502	Data Standardization	
		4503	Internal Data Sharing	
		4504	Data Reliability and Quality	
		4505	Data Storage	
4600	Reliability and Availability- System or application capacity, availability to users, and system or application failures.	4601	Availability	
		4602	Reliability	
4700	Effectiveness - Extent to which users are satisfied with the relevant application or system, whether it meets user requirements and its impact on the performance of the process or processes it enables and the customer or mission results to which it contributes.	4701	User Satisfaction	
		4702	User Requirements	
		4703	IT Contribution to Process, Customer, or Mission	



3. Defining the GGEA Metrics for Evaluation

GGEA metrics for evaluation must be fully and clearly defined to ensure the M&E process is effective. The following metrics are provided as a guide for MDAs in the metric definition process. They are mainly related to development process for GGEA.

1. Expected and actual \$ savings for EA based business transformation and continuous improvement activity by MDA;
2. Expected and actual \$ cost and benefits of major ICT improvement projects by approval status;
3. Number of retired applications as a result EA implementation;
4. Number of improvements by business process area;
5. Applications being modernized by status of EA and \$ cost savings - exception report of variance against plan;
6. Application size, complexity, language, platform, function;
7. \$ cost and \$ benefits of strategic projects by approval status;
8. Customer satisfaction metric, by geography and business function;
9. Number and percentage staff trained in new technologies and processes as a result of EA implementation;
10. Percentage projects completed within planned budget and on time;
11. Program risk: cost of transforming ICT;
12. Opportunity risk: cost of not transforming ICT.