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Department:
Public Service and Administration
**REPUBLIC OF SOUTH AFRICA**

# MINIMUM INTEROPERABILITY STANDARDS (MIOS) FRAMEWORK

## For Government Information Systems
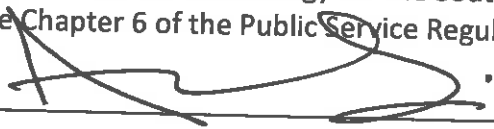
*Revision 6.0*

*November 2017*

# FOREWORD

The Minimum Information Interoperability Standards (MIOS) sets out Government's technical principles and standards for achieving interoperability and information systems coherence across the public sector. The MIOS defines the essential prerequisite for joined-up and web enabled Government. Combined with Information and Communication Technology security, it is an essential component of electronic government.

Adherence to the MIOS is mandatory as set out in the Public Service Regulations, Chapter 6, 97 (1) *The Minister shall issue Minimum Interoperability Standards, (herein referred as the "MIOS") for the public service. (2) The MIOS shall include provision for standards and specifications for – (a) interconnectivity; (b) data integration; and (c) information access. (3)*

Any new information and communication technology system developed or acquired or any upgrade of any existing information and communication technology systems in the public service shall comply with the MIOS. (4) A Head of Department shall – (a) include compliance with the MIOS in the project approval procedure; and (b) ensure compliance to the MIOS in the acquisition or use of information and communication technology.

The objective of achieving interoperability must be managed as an ongoing initiative. In this regard, the Government Information Technology Officers within government departments are crucial and instrumental in carrying these objectives forward and through to implementation.

I, Faith Muthambi, Minister for Public Service and Administration, hereby wish to proclaim that the Minimum Interoperability Standards (MIOS) Version 6.0, November 2017 is the Standard for Information and Communication Technology for the South African Government, as set out in the Chapter 6 of the Public Service Regulations (PSR), as amended in 2016.

**MS A.F. MUTHAMBI, MP**

**MINISTER FOR THE PUBLIC SERVICE AND ADMINISTRATION**

DATE: 2018.02.06

## PUBLICATION ENQUIRIES

The Minimum Interoperability Standards (MIOS) for Government Information Systems has been developed by a Specialist Task Team set up by the Government Information Technology Officers Council (GITOC) and the Office of the Government Chief Information Office (OGCIO) at the Department of Public Service and Administration (DPSA).

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This document will be made available on the DPSA
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# 1 INTRODUCTION

1.1 The Minimum Interoperability Standard (MIOS) will be for use by National, Provincial departments and for those government components set out in the Schedule 3, Part A, of the Public Service Act as updated on the 7th October 2015.

1.2 These institutions are committed to the continuous improvement of public service delivery. Such commitment has become an underlying theme across all departments' strategic and annual performance plans.

1.3 As these Standards impact on the interoperability of e-government systems, we need to outline the definition of Electronic government as set out in the Public Service Act, 1994 - 1 (Proclamation 103 published in GG 15791 of 3 June 1994) –

> 'Electronic government' means the use of information and communication technologies in the public service to improve its internal functioning and to render services to the public.

1.4 To ensure that the commitment to the improvement of public service delivery, Cabinet embarked on an e-Government programme in 2001 by endorsing the policy document: "Electronic Government: The Digital Future – A public service IT Policy Framework.

1.5 This policy aspired to achieve the effective, efficient and economic management and utilisation of Information and Information and Communication Technology Resources in government as illustrated in the Government Information and Communication Technology (ICT) House of Values).
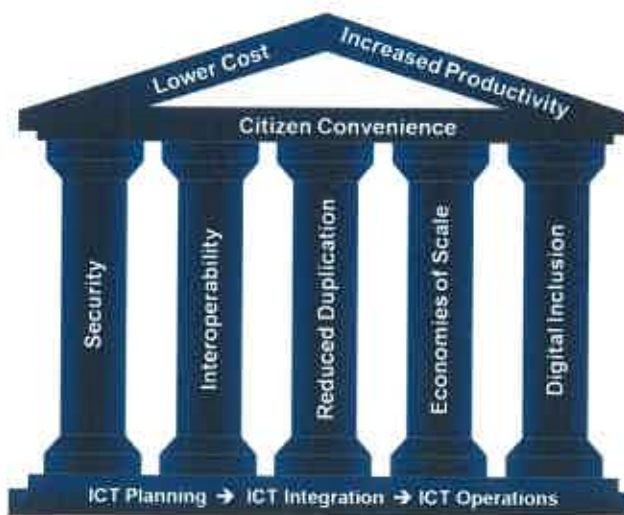


*Figure 1: Government ICT House of Value*

The Information and Communication Technology House of Values serves as a reference to measure the performance of e-Government projects and systems, which includes

interoperability1. The strategic drive to advance the maturity on interoperability not only compels government Information and Communication Technology leaders to collaborate on e-Government initiatives by sharing scarce resources, but it also provides a way for information to be exchanged electronically across traditional government system boundaries in order to improve public service delivery.

The Information and Communication Technology House of value, comprises a roof, pillars and foundation, each representing the following:

1.6 The **outcomes** (roof) of the e-Government programme on public sector operations are to:

(i) **Lower cost** of government service delivery operations, by reducing time, complexity, repetition and duplication of tasks.

(ii) **Increased productivity** of government operations, by improving the quality and quantity of traditional public sector outputs or introduce new processes to produce outputs and render services that were previously impossible.

(iii) **Citizen Convenience** when interacting with government, by offering equal access to government information systems and services, provides more and better information, improves information service quality and privacy, provides remedies for failures and offers best value for money[2].

(b) The **value** (pillars) that the e-Government programme contributes to the public sector ICT environment is:

(i) **Security,** by ensuring that information systems and related technologies operate in a maintained security environment.

(ii) **Interoperability,** by ensuring that information systems and Information and Communication Technology infrastructure of government can interconnect and exchange information.

(iii) **Reduced duplication,** by eliminating unnecessary duplications, by promoting sharing and consolidation of Information systems and Information and Communication Technology infrastructure across government.

(iv) **Economies of scale,** by leveraging collective purchasing power of government to lower unit prices from industry.

(v) **Digital inclusion,** by promoting the South African ICT industry, with a particular emphasis on Broad Based Black Economic Empowerment (BBBEE), labour absorption, and stimulation of equitable economic growth and skills development of Information and Communication Technology in South Africa.

(c) The **capabilities** (foundation) by which to achieve the outcomes and values of e-Government are:

(i) **ICT planning,** the capabilities that set direction and standards for Information and Communication Technology, Enterprise Architecture and to validate/certify conformance and performance thereto.

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[1] Interoperability (between information systems) means the ability of two or more information systems or technology components to interconnect and exchange data.

[2] "Batho Pele" (People First) principles for information oriented service delivery

(ii) **ICT integration,** the capabilities that provide and develop Information and Communication Technology Systems and Technology Infrastructure into integrated Information and Communication Technology solutions.

(iii) **ICT operations,** the capabilities to ensure that Information and Communication Technology Systems and Technology Infrastructure are maintained in a reliable, available and secure environment.

(4) The advancement of interoperability in Government is an ongoing process and should be managed as a long-term, dynamic and agile programme. It is therefore incumbent upon the Government Information Technology Officers as heads of Information and Communication technology within each department, under the umbrella of the Government Information Technology Officers Council (GITOC) to promote the objectives of interoperability and to observe the principles and comply with the standards as set out in MIOS during the life-cycle management of IS/ICT in government. It is also essential that MIOS remains updated and that it aligns to stakeholder requirements, changes in legislative environment, so that government can embrace the potential of technological advancement in the market and address the archival issues inherent to the digital age.

*The Minimum Interoperability Standards (MIOS) provides a set of mandatory standards that will ensure the achievement of the interoperability pillar in the ICT House of Value as illustrated in figure 1 above.*

## 2. MANDATE

(1)     Interoperability between Information Systems and Information-and-Communication Technology (IS/ICT) in government is mandated in accordance with the following legislation:

(a) Public Service Act, 1994 (Proclamation 103 of 1994) mandates the Minister of Public Service and Administration ("Minister") to establish norms and standards for Information Management in the Public Service and e-Government respectively;

(b) Public Service Regulations as amended in 2016 –

  (i) Obligates heads of departments to comply with the MIOS.

  (ii) Mandates the Minister for Public Service and Administration to issue the MIOS.

(c) Public Finance Management Act, 1999 (Act 1 of 1999) section 38(1) (b) and (e) holds an accounting officer responsible for the effective, efficient, economical and transparent use of the resources and to comply with audit commitments as required by legislation.

## 3. PURPOSE AND BENEFITS

(1)     The *purpose* of the MIOS is to prescribe open system standards that will ensure minimum level of interoperability within and between IS/ICT systems that are utilised in government, industry, citizens and the international community in support of e-Government objectives.

(2)     The *benefits* that MIOS provides to stakeholders are:

(a) To government IS/ICT management communities, it provides a framework to ensure compliance with interoperability stipulations as set out in the SITA Act and Public Service Regulations respectively. It further underpins the collective value of IS/ICT as a strategic resource of government that must be valued, shared and used to improve public service delivery.

(b) To enterprise architects, solution architects, designers and implementers, it provides a basis for designing, using and implementing open standards based solutions to improve interoperability and reduce duplication across government IS/ICT.

(c) To acquirers, it provides the minimum mandatory technical specifications that must form part of all bid documents.

(d) To the Certification Authority, it serves as a baseline by which to verify and certify conformance of IS/ICT goods and services for use in government.

(e) To ICT goods and service providers, it substantiates government's strategic intent towards the adoption of and migration to open standards and that only MIOS compliant products are considered for integration into the Government Information Infrastructure.

## 4. SCOPE

### 4.1 What is included in the MIOS?

The Minimum Interoperability Standard (MIOS) contains the following:

a) The management processes and responsibilities for –

    i) the setting and approval of interoperability standards, and

    ii) the certification of IS/ICT products and services for compliance with such standards; and

b) The set of interoperability standards regarding –

    i) Data format standards to enable exchange of data between government information systems (IS), and

    ii) Technical standards to interconnect, interoperate, access and exchange data among components of government Information and Communication Technology (ICT) infrastructure.

### 4.2 What is excluded in the MIOS?

(a) The MIOS **does not** prescribe any standards relating to business processes of Information Systems and Information Communication Technology Services (IS/ICT) services, except for the processes to **set** the standard and to certify compliance with such standards.

(b) The IS/ICT business process and service standards, such as ICT Governance practice standards, Enterprise Architecture practice standards, Information System Security practice standards, Quality Management practice standards, System Development Life Cycle (SDLC) practice standard, Project Management practice standard and ICT Service Management

standards form part of the prevailing and evolving Government IS/ICT Governance Framework.

## 5. COMPLIANCE

### 5.1 To whom does the MIOS apply?

1. The MIOS is *normative* (it is prescriptive and <u>compliance is mandatory</u>) to

    a) Heads of National departments

    b) Heads of Provincial departments

    c) associated agencies/entities as listed in the Schedules to the Public Service Act

2.The MIOS is *informative*, it is descriptive and compliance but is not yet mandatory to the Heads of Local Government.

### 5.2 How is MIOS applicable?

1. According to the Public Service Regulations, 2016, Chapter 6 Information Management and Electronic Government, Regulation 97:

(2) *"The MIOS shall include provision for standards and specifications for – a) Interconnectivity; b) Data integration; and c) Information access.*

(3) Any new information and communication technology system developed or acquired or any upgrade of any existing information and communication technology system in the public service shall comply with the MIOS.

(4) A Head of Department (HOD) shall –

        (a) Include compliance with the MIOS in the project approval procedure; and

        (b) Ensure compliance to the MIOS in the acquisition or use of information and communication technology."

2.    In the context of electronic government, the MIOS is applicable to all e-government systems throughout their life-cycle.

    a. e-Government system means "any information system in the public service" and the interoperability of e-Government systems (as illustrated in Figure 2: e-Government information exchange scenarios), is described as –

        i. **Government to Government (G2G) information system** – any government information system that interconnects and exchanges information with another government information system (including any two information systems within a department).

        ii. **Government to Business (G2B) information system** – any government information system that interconnects and exchanges information with a commercial or non-governmental business entity; and

        iii. **Government to Citizen (G2C) system** – any government information system that interconnects and exchanges information with a citizen or community.
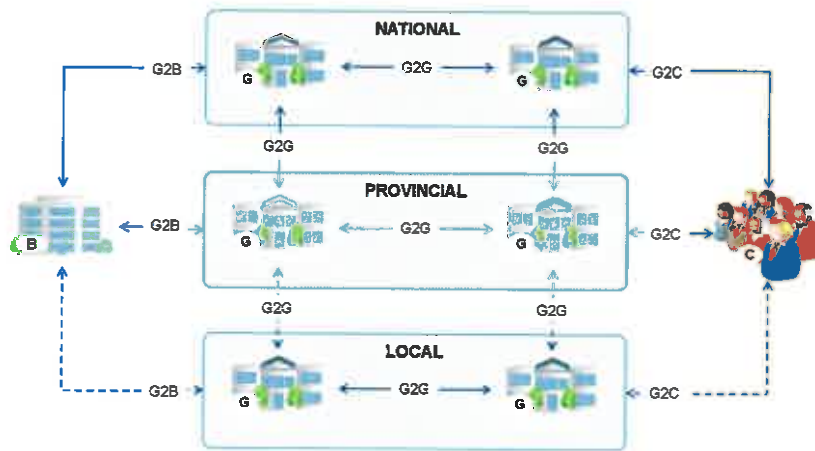
*Figure 2: e-Government information exchange scenarios*

b.  The life-cycle stages and conditions when MIOS is applicable, are for –

    i.  A new Government system that is either under development or in acquisition;

    ii.  An Government system that is upgraded in functionality to enable new business processes or that is upgraded in terms of its technology infrastructure (i.e. same business processes and functionality, but new technology infrastructure)

    iii.  An existing (legacy) Government system in operation.

    iv.  All technology stacks currently in use in government are accommodated in this framework. However, all new technologies/software/systems under consideration from the time this framework is adopted must be able to incorporate these standards while ensuring interoperability with legacy systems to ensure investments are protected.

## 6. PRINCIPLES UNDERPINNING MIOS

There are number of definitions of open standards which emphasise different aspects of openness, including of the resulting specification, the openness of the drafting process, and the ownership of rights in the standard.

The following principles shall apply during the selection of interoperability standards for inclusion or amendment to the MIOS:

(a)  **Interoperability:** The standard is designed to advance interconnectedness and data exchange within and between systems.

(b)  **Openness:** the specifications for the standards is open, which is characterised by:

(i) The standard should be maintained by a non-commercial organization.

(ii) The standard development and decision-making processes are inclusive and open to all interested parties.

(iii) The standards development outputs, including documents, drafts and completed standards, are accessible to anyone at no cost or at a negligible fee.

(iv) The intellectual rights required to implement the standard (e.g. essential patent claims) are irrevocably available, without any royalties attached.

(v) The standard must not favour or provide exclusive rights to a particular vendor or product brand.

(c) **Industry support**: the standard is widely supported by the industry, and is likely to reduce the cost of and the risk inherent to systems.

# APPENDIX A- ABBREVIATIONS

| | |
|---|---|
| BBBEE | Broad Based Black Economic Empowerment |
| BPMN | Business Process Modelling Notation |
| EA | Enterprise Architecture |
| GCIO | Government Chief Information Officer |
| GITO | Government Information Technology Officer |
| GITOC | Government Information Technology Officers Council |
| GWEA | Government Wide Enterprise Architecture |
| ICT | Information and Communication Technology |
| IS | Information Systems |
| ISO | International Organisation for Standardisation |
| MIOS | Minimum Interoperability Standards |
| SC-AGC | Standing Committee on Architecture, Governance and Compliance |
| SITA | State Information Technology Agency |
| OMG | Object Management Group |
| TOGAF | The Open Group Architecture Framework |
| UML | Unified Modelling Language |

# APPENDIX B – DOCUMENT HISTORY

**In reverse order**

| Document Name | Revision Authority | Update | Revision Date |
|---|---|---|---|
| MIOS V 6.0 | OGCIO/GITOC/SITA | Policy Framework and MPSA foreword and Catalogue of Standards V1 | Nov 2017 |
| MIOS V5.0 | OGCIO/GITOC/SITA | Policy Framework and Standards<br><br>Not submitted to MPSA in Nov 2011 | Nov 2011<br>Nov 2016 |
| MIOS V4.1 | OGCIO/GITOC/SITA | Minister's foreword and Open Standards Revision | Sept 2007 |
| MIOS V 4.0 | OGCIO/GITOC/SITA | Further revision | August 2007 |
| MIOS V 4 | OGCIO/GITOC/SITA | Included ISO 26300 Open Document Standard format (ODF). Minor maintenance revisions. Reformatted. | July 2007 |
| MIOS V 3 | OGCIO(DPSA) /GITOC/SITA | Split MIOS into 2 parts: Part 1 is Technical Policies and Standards Part 2 is Implementation Support. | April 2002 |
| MIOS V2 | OGCIO (DPSA)/ GITOC/SITA | Workshop with inputs from GITOC | Nov 2001 |
| MIOS V1 | SITA Services Certification Unit | Customisation of MIOS for SA Government (from UK government) | Sept. 2001 |
| e-GIF | | Adopted from UK GOV | July 2001 |