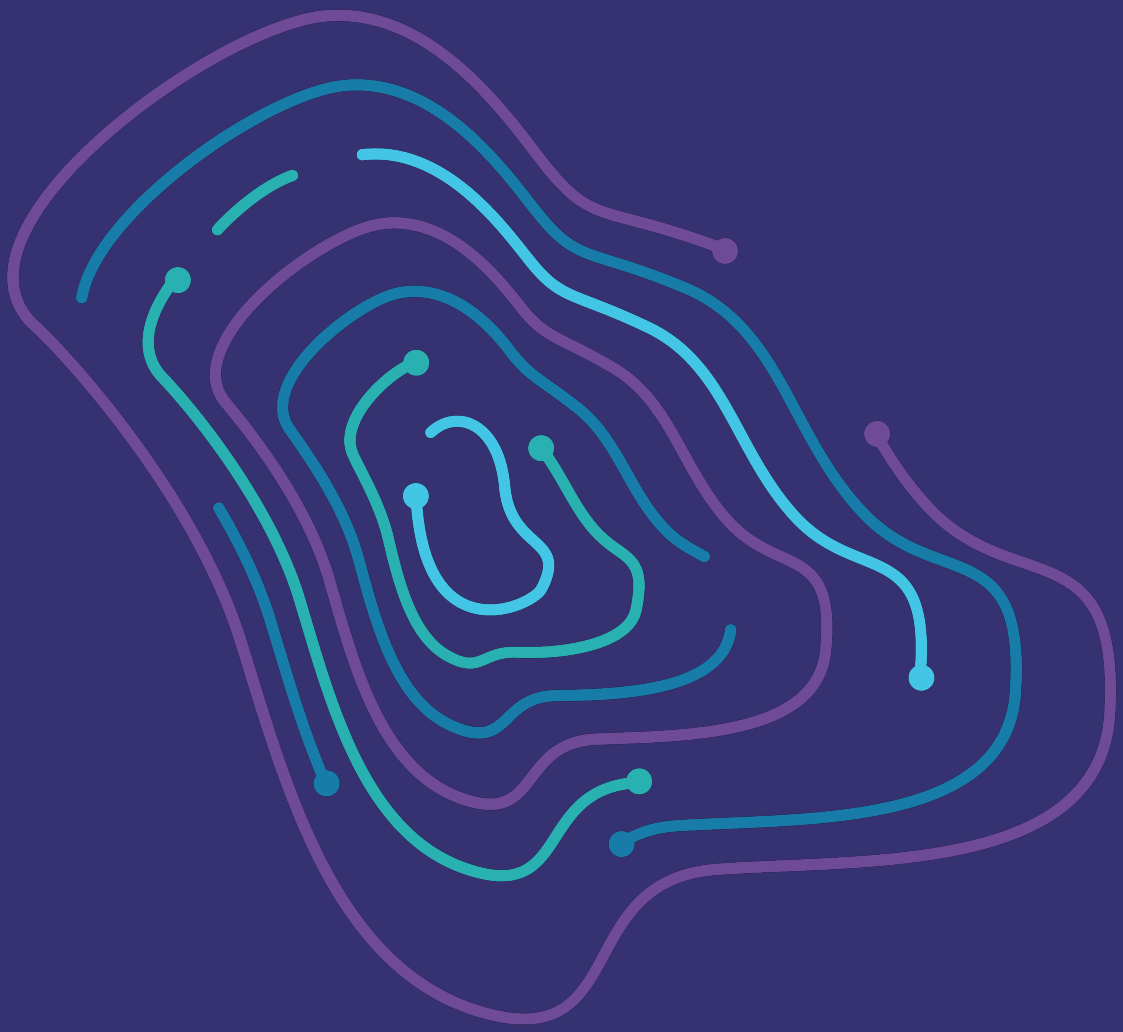
هيئـة الحكومة الرقميـة
Digital Government Authority

Technology Policy



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1. Introduction

The Technology Policy is one of the policies derived from the digital government framework (Figure 1) which is considered as a regulatory tool that adheres to international best practices and aims to unify the concepts of digital government policies, standards and guidelines for government entities to follow during their implementation journey.

Technology policy is one of the five derived polices from the Digital Government Policy that supports and enables government entities in their sustainable digital transformation strategy on the medium and long term. It also helps them to successfully implement the Digital Government strategic directions.

Figure 1: The Digital Government Regulatory Framework

The Technology policy identify the main technology pillars that government entities should use to support the delivery of digital government services, operations, data management, and innovation in the field of emerging technologies as it sets the directions and general provisions for:

1. Innovation
2. Core Technologies
3. Cloud Computing
4. Emerging Technologies
5. Data Management and Governance
6. Operations and Resilience

2. Policy Objectives

Technology Policy aims to support government entities in achieving the following:

1. Develop innovative and flexible solutions to provide Government Digital Services in line with digital transformation strategic directions and that satisfy beneficiaries' needs and expectations.
2. Provide needed support to help government entities make decisions related to technology investment to ease providing the Government Digital Services, raise its quality, and decrease its incurred cost.
3. Promote data governance to support data-driven decision-making practices to achieve expenditure efficiency and to consider data as a national asset.
4. Enable government digital transformation leveraging standards-based, consolidated community cloud and public cloud.
5. Ensure business continuity and availability of the technologies supporting the Digital Government activities.

3. Policy Scope

This policy covers aspects related to the main technology pillars supporting the Digital Government activities including the Government Digital Services and internal operations, Cloud Computing, Data Management, and Innovation.

4. Policy Applicability

The Technology Policy applies to:

- All government entities
- Private sectors who develop or operate digital government-related activities

5. Policy Statement

5.1 Innovation

Includes aspects related to encouraging government entities to adopt and promote innovation in delivering technology solutions to operate the digital government activities, in alignment with regulations issued by the DGA and the relevant government entities. Government entities should aim to achieve that through:

5.1.1 Prioritizing innovative solutions when developing their Digital Strategy and considering it when choosing technologies related to the digital government activities to enable the government entity achieving flexibility in meeting beneficiaries' needs and priorities.

5.1.2 Promoting a corporate culture that stimulates innovation and encourages employees to initiate, participate, and interact.

5.1.3 Promoting an innovative working environment by ensuring flexibility of legislation and regulations and allocating the necessary human and technical resources required to activate innovation in line with the needs of the government entity.

5.1.4 Activating an approach for innovation to use technologies related to the digital government activities – where possible - , which includes developing methodologies and processes for innovation, to promote integrity and consistency of the Government Digital Services, provide beneficiaries with a seamless experience and achieve the optimal utilization of its available resources.

5.1.5 Building local and international partnerships with universities, research institutions, private companies, and civil society to support and stimulate innovation in the development and usage of technologies related to digital government activities.

5.1.6 Adopting proofs-of-concept, prototypes, and flexible sandbox environment – where possible - in line with the DGA's regulatory directions and governing entities, to provide a safe testing environment for technologies related to digital government activities.

5.1.7 Developing the guiding documents, best practices and success stories that promotes innovation in the field of business process optimization and digital government service provisioning in alignment with the DGA. All content shall be published on DGA E-Services Portal RAQMI in both Arabic and English languages.

5.1.8 Adopting a comprehensive methodology to measure the impact of adopting an innovation approach by analyzing innovation inputs and outputs.

5.2 Core Technologies:

Includes aspects related to designing the technical infrastructure related digital government activities to achieve a better quality of government digital services, enhance beneficiaries' experience, and achieve the optimal utilization of available resources, in accordance with regulations issued by the DGA and the relevant government entities. Government entities should aim to achieve that through:

5.2.1 Developing a strategy for information technology and digital transformation for the government entity that is aligned with the strategic directions of the digital government and supports the implementation of the government entity' business strategy.

5.2.2 Ensuring compliance of the technologies related to digital government activities with all legislative and regulatory requirements and regulations related to its development, data management and governance, transactions and cyber security as issued by the relevant government entities.

5.2.3 Adopting a comprehensive framework to develop technologies related to digital government activities and utilize the Capability Maturity Model Integration, for example: CMMI.

5.2.4 Documenting the results of all development lifecycle stages for the technologies related to digital government activities and keep it as a reference for continuous improvement.

5.2.5 Developing technologies related to digital government activities in a flexible manner that allows alignment with future directions of the digital government.

5.2.6 Adopting open-source software practices as part of the government entity's policies, and digital transformation strategy – where possible - to ensure expenditure efficiency when investing in technologies related to government activities in alignment with the OSS Adoption Strategy published by the DGA.

5.2.7 Managing the technologies related to government activities as a government resource and making them available as shared services that can be reused – where possible - by other government entities.

5.2.8 Working collaboratively with other government entities to achieve integration between digital government activities to align with beneficiaries' needs and expectations and in line with regulations issued by the DGA and does not contradict with regulations issued by the relevant Government Agencies.

5.2.9 Working collaboratively with the DGA to develop an Information Technology resource map at the level of government entities.

5.2.10 Managing technologies related to digital government activities as distinct and valued assets to the government.

5.3 Cloud Computing :

Includes aspects related to making IT investments into co-location infrastructure, cloud hosting, and cloud software to increase economies of scale, increase productivity, increase Digital Government Services agility, scalability and stability, in accordance with regulations issued by the DGA and the relevant government entities Government entities should aim to achieve that through:

5.3.1 Prioritizing cloud over on-premises infrastructure to enable innovation and digitization of government services.

5.3.2 Developing a strategy for Data Center consolidation to community cloud Data Centers or migrating to public cloud.

5.3.3 Implementing cloud fast tracks for the Government Digital Services Portfolio, in order to reduce the single-use, custom-built Government Digital Services, foster its re-use and develop a sustainable strategy to modernize the Government Digital Services.

5.3.4 Utilizing a comprehensive framework to migrate the increasingly standardized Government Digital Services to cloud with a mix of re-hosting, rebuilding, revising or replacement techniques.

5.3.5 Ensuring compliance of Data Center and cloud-related activities with all legislative and regulatory requirements and regulations related to standards, procurement, data classification, as issued by the relevant government entities.

5.3.6 Managing co-location infrastructure, hosting, and cloud software and making them available as community cloud or migrating them to public cloud.

5.4 Emerging Technologies:

Include aspects related to developing and investing in emerging technologies as part of the technologies related to government activities to provide enhanced digital services to beneficiaries and achieve optimal use of the available resources, in accordance with regulations issued by the DGA and the relevant government entities. Government entities should aim to achieve that through:

5.4.1 Ensuring compliance of the emerging technologies related to digital government activities with all legislative and regulatory requirements and regulations related to its development, data management and governance, transactions and cyber security as issued by the relevant government entities.

5.4.2 Developing and implementing – where possible- emerging technologies related to digital government activities in a flexible manner that allows alignment with future directions of the digital government.

5.4.3 Utilizing the emerging technology products and solutions available in the market – where possible- such as Artificial Intelligence, Internet of things, Blockchain, Cloud Computing, Robotic Process Automation, and Augmented Reality, to create, develop and implement digital government activities with the aim of maximizing the expected value, Improving beneficiaries' experience from digital government services, Improving the operational performance of the digital government activities which will result in promoting expenditure efficiency and Avoiding duplication.

5.4.4 Adopting a comprehensive methodology to measure the impact of emerging technologies on digital government activities.

5.5 Data Management and Governance:

Includes aspects related to managing and governing the data generated from technologies related to digital government activities, in accordance with regulations issued by the DGA, and the relevant government agencies. Government entities should aim to achieve that through:

5.5.1 Developing a strategy for data management and data governance to efficiently and effectively manage the data lifecycle and achieve the expected value.

5.5.2 Modelling the data structure of the government entity and developing the data directory as a reference to identify the source and owner of the data.

5.5.3 Classifying the data of the government entity and developing guides on ways to deal with each classification, in accordance with the regulations issued by the relevant government entities.

5.5.4 Promoting data sharing and data exchange with other government entities to facilitate the implementation of digital government activities.

5.5.5 Ensuring free access to data and public information related to digital government entities, in accordance with the regulations issued by the relevant government entities.

5.5.6 Publishing open and shared data and making it available to the public through the Saudi Open Data Portal and the digital platforms available by the government entity.

5.5.7 Adopting a comprehensive approach to data storage, preservation, and monitoring of its quality, uses, and analysis.

5.6 Operations and Resilience:

Includes aspects related to ensuring the continuity and availability of technologies related to digital government activities and its ability to adapt, in accordance with regulations issued by the DGA and the relevant government entities. Government entities should aim to achieve that through:

5.6.1 Identifying and evaluating risks that may affect business continuity and determining the likelihood of its occurrence and the expected impact.

5.6.2 Defining and implementing a business continuity strategy based on the identified risks and identifying precautions and fallback strategies in the event of disruption of the technologies related to digital government activities and preparing the needed reports.

5.6.3 Developing a strategy to deal with natural disasters and cybersecurity risks associated with technologies related to digital government activities, including responses and mitigation plans.

5.6.4 Defining the technical (non-functional) requirements of the technologies related to digital government activities, including for example: availability, response rates, compatibility, security, scalability, data integrity, capacity, and local content.

5.6.5 Adopting the Information Technology Services Management (ITSM) approach and providing technical support to all users of technologies related to digital government activities including government entity employees and beneficiaries.

5.6.6 Choosing digital service tools and technologies that create higher value in a cost-effective way when planning to invest in technologies related to digital government activities.

5.6.7 Developing a comprehensive change management plan for the technologies related to digital government activities and implementing it to support government entities in assessing the extent to which it meets business needs and measuring its impact.

5.6.8 Allocating technology resources and efforts to leverage interoperable open standards to ensure its development and deployment agility.

5.6.9 Conducting regular internal audits on the technologies related to digital government activities as defined by the government entity and in line with the Digital Government strategic directions.

5.6.10 Envisioning and executing a comprehensive approach to handle legacy technologies currently and in the future.

6. Table of Definitions

Term	Definition
Authority	Digital Government Authority
Digital Government	Promotes administrative, organizational and operational processes between the various government entities in their transitioning to a comprehensive digital transformation to allow easy and effective access to government digital information and services.
Government Entity	Ministries, authorities, public institutions, councils, national centers including any additional form of a public entity.
Beneficiary	Citizens, residents, visitors, government agencies, private sector, non-for-profit sector, inside or outside the KSA that require to interact with a government entity to receive any of the services offered in the Kingdom.
Digital Transformation	Digitally and strategically transforming and developing business standards and models that would rely on data, technologies, and ICT.
Policy	A Policy defines the course or principles of action to guide and determine present and future actions and it specifies what government entities are required to do. Policies can have related standards that provide more information for entities.
Innovation	An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.
Cloud Computing	A model which enables convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.
Cloud services	Provide ICT services through cloud, this includes storing, migrating or processing subscriber's data in the cloud computing system.
Community Cloud	Cloud computing system provided for the exclusive use of a closed group of subscribers who share some social, business, administrative or other goals.
Public Cloud	Any cloud computing system available for open use by an entity or an individual.
On-Premises	On-Premises means hardware and software that is deployed to a Data Center that is exclusively used by a single Governmental Entity or a Private Cloud.
Off-Premises	Off-Premises means hardware and software that is deployed to a Data Center that is used by a community of Governmental Entities and/or a Data Center that is open for use by the general public.

Term	Definition
Prototype	A prototype is an original model constructed to include all the technical characteristics and performances of the new product
Proof of Concept	The process of testing an idea under development on a small scale to demonstrate its feasibility, impact, and the transition to the initial product stage.
Beneficiary Experience	Beneficiary's perceptions and related feelings caused by the one-off and cumulative effect of interactions with the government entity's employees, systems, channels, or services.
Service Provisioning	Any communication between the beneficiary and the government entity to request or provision service.
Capability Maturity Model Integration (CMMI)	A model that helps identify key capabilities that directly affect business results, return on investment, quality, and performance while reducing costs and time.
Technologies related to digital government activities	Technical solutions that support the implementation of digital government activities, such as customer relationship management (CRM), enterprise resource management (ERP), or any other use that serves the goals of digital transformation.
Emerging Technologies	Modern technologies that support the implementation of digital government activities, which its applications still under development, such as: AI, IoT, Blockchain, etc.
Information Technology Resources Map	Visual representation of non-financial government resources that are used to operate and manage technologies related to digital government activities.
Safe testing environment	A testing environment that supports government entities designing innovative solutions to offer their digital services safely and flexibly; in order to guide decision making and implementation directions.
Main technology pillars	Elements of the technologies related to digital government activities, which include Innovation, Core Technologies, Cloud Computing, Emerging Technologies, Data Management and Governance, and Operations and Resilience.
Legacy Technologies	An information system that may be based on outdated technologies but is critical to day-to-day operations.
Operations	Group of interconnected or interacted activities that are executed through the technologies related to digital government activities.
Open-source Software	The software whose source code is freely available to anyone to access, modify, use and distribute
Civil Society	Non-for-profit entities engaged in social services achieving public interest, such as charities and foundations such as Misk Foundation.

Term	Definition
Artificial Intelligence	It is a branch of computer science concerned with building smart machines capable of understanding their environment and performing tasks that require a certain level of intelligence.
Internet of Things	A network of electronic devices, software and sensors that allow machines to interact with each others.
Open Standards	The standards that are accessible and usable by others, while keeping the ownership to the developing entity and they have the authority to issue terms of use and user rights.
Blockchain	Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network.
Robotic Process Automation	A type of process automation in which software or robot mimics how humans accomplish a task.
Augmented Reality	Additional information or visual images superimposed on the physical world, often through computer-generated graphics and/or sound overlays, to improve the user experience of a task or product.
Data Modelling	The process of building a conceptual representation of data and their relationships to be stored in a database.
Availability	The system ability to ensure access to information, data, systems, application compared to downtime.
Response Rate	Measures the system ability to return results.
Compatibility	Measures the system ability to operate with different hardware, operating systems, and browsers.
Scalability	The system ability to adapt with changing requirements.
Capacity	The system operating capacity at any point of time.
Cloud Software	Software operating in a cloud-based environment.
Co-location	Any Data Center facility that rents out rack space to third parties for their servers or other network equipment.
Rehosting Technique	Strategy, commonly known as lift-and-shift, is a widely chosen strategy due to the relatively low migration effort and the migration speed.
Rebuilding Technique	Strategy that usually leads to the highest transformation cost. However, it allows optimized use of the cloud, leading to cloud-native benefits and making the application future proof.
Revising Technique	Strategy that leads to cloud optimization due to some cloud platform adoption, while keeping the application core architecture the same.
Replacement Technique	Strategy that discards legacy application and develop again using cloud services and features.

7 .Table of Abbreviations

Abbreviations	Description
CMMI	Capability Maturity Model Integration
ITSM	Information Technology Service Management

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