

*Building
a Better
Citizen
Experience*

e-Government ✦ *Road Map*

2021-2025

 conexion



Table of Contents ✦

Foreword 4

How to read this document 6

SECTION 1

Introduction 8

- Introduction
- Main Challenges
- Why a digital government?

SECTION 2

Executive Summary 16

SECTION 3

Approach 18

- e-Government Committees
- Development Process and Key Milestones

SECTION 4

e-Government Road Map 22

- Aruba's e-Government Vision
- The three phases of digital transformation of government
- Aruba Government Digital Transformation Policy Framework
- Strategic Objectives and Desired Results
- Ten steps to achieving digital transformation of government
- Implementation Strategy
- Timeline



Foreword ✦

For a nation to be resilient, its economy must be resilient. But a nation is not comprised of an economy, it is comprised of a population of people.

It is through the continued focus on keeping people at the center of our thought and action that ensures the implementation of this e-government road map will deliver the desired benefits for our citizens.

The e-government road map is not only about technology. It is about what technology will enable our people, inside and outside government. By providing flexible service delivery through digitization, we are creating the enabling infrastructure for adaptability, flexibility, and responsiveness. This is the architecture of resilience.

We cannot expect our nation to transform if its government is not leading by example. As Aruba's government, we are fundamentally here to stabilize, protect, and enable the citizens we serve. To do so in an effective way, we need to match the demand and desired flexibility of our citizens. This document is the road map that describes how we are going to do that.

I am proud of the work the e-government team and committees have done in getting us on the right track and I am excited about the possibilities this work will then enable for Aruba's future.

The implementation of this road map is a shared responsibility of the public and private sectors and of our community at large. Our nation is called upon to embrace a new way of thinking. I am confident that we can count on our people to be the driving force of change.

EVELYN WEVER-CROES

Prime Minister of Aruba

From the CIO

One thing that 2020 has taught us, is that almost everything can be done digitally. Service delivery expectations of citizens have gone up as a result of this year's events.

We have also learned we need to be ready for uncertain, complex, and volatile events. The best way to be ready for such events is to have a government that is supported by an enabling infrastructure to allow them to respond quickly, securely, and effectively.

This e-government road map is more than a digitization strategy. It is a strategy about meeting the needs of people within a service model that is fit for the demands of the 21st century.

The successful implementation of this e-government road map will enable the following outcomes for Aruba:

1. It underpins the successful implementation of Aruba's master plan for economic recovery and resilience.
2. It strengthens Aruba's institutional quality and capacity.
3. It creates the ability for government service delivery to be in a state of constant evolution, which is the most resilient stance a government can take.

I have learned that to innovate government you must be prepared to be vulnerable. Innovating how we work requires internal work to cultivate a culture of innovation and risk-taking. I look back at the past two years with great admiration for those that show up every day because they believe in a cause larger than themselves.

We had the privilege of working with global leaders in the digital transformation of government services like Estonia's e-Governance Academy to ensure we leveraged their wisdom, experience, and lessons learned. Those who participated in this project have contributed to something that will alter the DNA of how this government will deliver services to its citizens well into the future.

As Buckminster Fuller said: ***"You never change things by fighting against the existing reality. To change something, build a new model that makes the old model obsolete."***

VARELIE CROES
Chief Innovation Officer



How to read this Document ✦

This report is a dynamic policy framework based on 10 key strategic objective building blocks that jointly form a road map setting the direction for Aruba's e-government agenda. The publication of the road map marks the culmination of the government's preparatory work, review of government practices, internal assessments, as well as consultations with private sector, civil society, governmental and academic stakeholders.

This road map is a key step in institutionalizing the digital transformation of the Aruba Government and outlines the general principles for achieving its vision of becoming: **a pro-active government that anticipates the citizens' needs by 2030.**

For the purposes of this road map, **digital** stands for using technology as an enabler to better serve the Aruban citizens rather than using it to drive innovation. Notwithstanding the references to the e-government program and/or strategy within this report, it is important to note that e-government is a multi-year journey that transcends changes in government leadership. In this context, **digital transformation** is the process of becoming a digital government and building a better citizen experience over time.

This report focusses on the key actions to be taken in the next five years to establish a robust foundation for e-governance in Aruba. The key actions summarized in each section are meant to provide a general overview of the priority actions during the 2021 – 2025 start-up phase. Some of the actions listed are already being implemented and additional actions may be added as the projects evolve. As a next step, the actions included in this report will be converted into concrete implementation plans (in collaboration with the respective implementation teams) using an agile approach.

SECTION 1 - Introduction

This section includes an overview of the government's decisions and actions leading up to the development of this road map, a summary of the main challenges of delivering a better citizen experience, and an explanation of the purpose of e-government.

SECTION 2 - Executive Summary

This section contains a high-level summary of the vision, main ambitions and strategic objectives of e-government, including a timeline with key milestones for the period 2021-2025.

SECTION 3 - Approach

This section introduces the approach taken to develop the road map and provides a high-level overview of the steps taken during the design phase preceding this document.

SECTION 4 - e-Government Road Map

This section introduces the Aruba Government Digital Transformation Policy Framework and presents the road map setting out the key building blocks to develop a robust e-government model. This section further sets out the key desired results to be achieved by 2025 and describes the implementation strategy and high-level timeline to achieve the intended milestones.

e-Government empowers a better quality of life for Aruba's citizens

1.1 Introduction

Background

We are now at the onset of what the World Economic Forum has termed the 'Fourth Industrial Revolution'. Today's rapidly changing consumer landscape and the accelerated pace of technological advancement create an opportunity for governments to build stronger and more effective institutions. It is no secret that strong and effective human-centered institutions are the backbone of economically resilient nations. The concept of economic resilience in small island economies goes beyond the traditional understanding of resilience as the ability to absorb shocks and recover from disturbances. *The Fostering Economic Resilience* report, published in 2019 by the Central Bank of Aruba, defines economic resilience from the perspective of adaptability and transformability, emphasizing the ability to anticipate and accelerate economic growth after recovering from economic disruption.

The Government of Aruba believes that the implementation of a digital transformation strategy is not only fundamental, but a catalyzing factor to achieve economic resilience as a small island nation.

Our citizens expect governments to be able to accommodate their changing needs and to deliver core services digitally, 24/7, securely, and on any device. To ensure its institutions can remain relevant in this new era, preserve democracy and continue to fulfill the government's mission of being a strong and effective human-centered institution, the Aruba Government identified improvement of its service delivery through digitalization as a key agenda priority in its national government program, *Hunto Pa Aruba 2017-2021*.

The e-government agenda was later confirmed through the annual budget approval process and policy objectives set by the Ministry of General Affairs in 2018.

The e-government agenda is the Aruba government's most ambitious cross-ministerial project to date. To action the government's agenda, a Chief Innovation Officer (CIO) was appointed and given the mandate to develop an e-government strategy in collaboration with stakeholders, i.e., a digital transformation policy framework and an e-government road map.

e-Government Road Map - building a better citizen experience

The e-government road map focusses on what needs to happen in the start-up phase for the Aruba Government to improve public service delivery. It is the first report in a series of reports expected to be published by both the government and stakeholders over the next decade about Aruba's national digital transformation journey.

The road map provides guiding principles and actions to develop a robust e-government model, to empower citizens, and give public employees the necessary skills to help transform government and design a better citizen experience. The focus of this report is on government actions. The included summary of actions in each section provides an overview of the priorities in the start-up phase.

An agile approach will be taken to implement the coordination and actions of the government's ongoing digital transformation efforts, including the coordination and management of limited resources.

The road map provides both a framework for gradually increasing the provision of digital services and a framework for identifying key

Introduction 1.1

public and private digital initiatives for the next 10 years. The main focus is to ensure the best possible use of digital technologies for the benefit of the Aruban people.

SMALL STEPS, LASTING CHANGE

National digital agenda

A key follow-up study and report is the development of a single joint strategy around national digitalization. This impacts all policy areas, from health to education to safety to infrastructure, to private sector re-skilling. In other words, a comprehensive, societal digital transformation strategy, namely a national digital agenda. The development of a national digital agenda was identified as a priority project in the *Repositioning Our Sails* master plan for economic recovery and innovation published in November 2020 by the Aruba Government. A national digital agenda would encompass all sectors and may take up to a year to develop.

The development has to be led and carried by key national stakeholders, including private sector, public sector, academia and civic society. This e-government road map is a key component of such a national agenda and a first step towards a national digital transformation strategy.

Preparatory work during design phase

To kick off the e-government strategy design phase, a government-wide, quick scan digital assessment was performed in 2018 to assess the state of the government's IT infrastructure and organization. The primary purpose of the digital assessment was to detect quick wins and to guide mid-term and long-term scoping of digital initiatives, with the long-term transition to e-government in mind. The scan was the first significant step towards crystalizing the government's vision and asserting its commitment

to transform its delivery of public services.

The findings of the scan were documented in the Ministry of General Affairs' Digital Assessment Report August 2018. The report described the initial strategic objectives of digital governance in Aruba and formed the basis of the government's policy objectives for the transition to e-Government as described in the government's annual budget.

One of the key findings of the initial digital assessment was that digitization projects were mostly executed by individual departments. A formal, common IT or digitalization strategy was missing and generally there was no consideration of cross-departmental integrations. This created unnecessary layers of complexities or resulted in ineffective legacy systems. A clear takeaway from the 2018 assessment was that a long-term integral plan was needed: an e-government strategy.

Two-track approach

A two-track approach was taken to develop the e-government strategy over time, while at the same time continuing the path of prioritizing digitalization projects across government with a long-term transition to a robust e-government model in mind.

Since the government committed to developing a cohesive e-government strategy in 2018, numerous milestones and quick wins were achieved, while a long-term plan was being designed in close collaboration with key stakeholders. This two-track approach allowed the e-government team and committees to define the core problems across government and gather insights on how to solve them, while simultaneously:

(i) building consensus around the e-government vision

SECTION 1

e-Government empowers a better quality of life for Aruba's citizens

(ii) learning about the prerequisites and resources (human, financial, regulatory, infrastructure and tools) required to become a digital government
 (iii) addressing quick wins with a long-term transition to an e-government model.

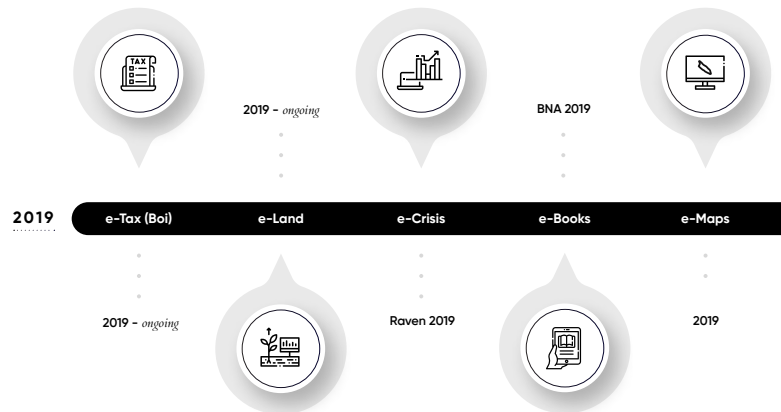
Notable quick-wins during the design phase 2018-2020

- Alignment of key stakeholders towards a common vision
- Alignment of core national policies
- Infrastructure (hardware and software) investments were made to maintain and secure day-to-day IT operations for departments supported by the government's IT department, DIA, including upgrades/ replacement of critical IT infrastructure at DIA and at key departments
- Centralization of certain critical software that led to cost savings and increased efficiency
- Setup of a national cybersecurity office (NCTVI)
- Internal cybersecurity awareness campaigns
- Transition to digitally enabled council of minister meetings and decision-making through the introduction of e-Cabinet
- Development and implementation of value-add digital services at department level. Refer to the overview of key digitalization milestones.

The approach taken to develop the e-government road map is described in more detail in section 3.

Digitalization milestones

The below list highlights key digital initiatives developed in the design phase period (2018 – 2020) and is not meant to be exhaustive. New initiatives will be added to the road map on a rolling basis, as the implementation journey is a dynamic ongoing process.



Policy coherence

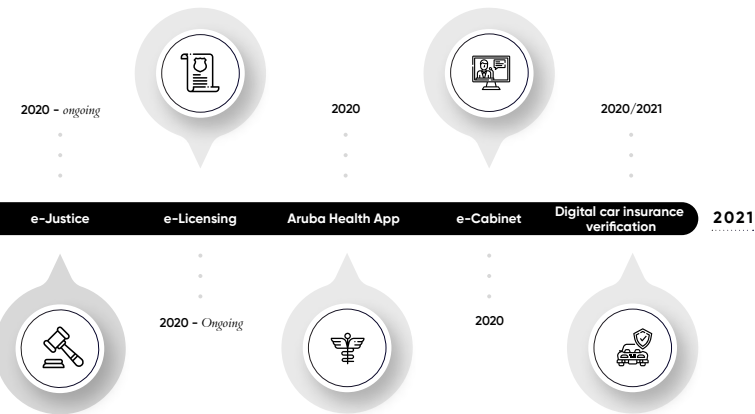
Digital transformation of government has been identified as a priority project in *Aruba's National Strategic Plan 2020-2023, Nos Plan Nos Futuro, to achieve the U.N. 2030 Sustainable Development Goals (SDGs)*.

This was later confirmed through the national coordinated effort to develop a master plan for economic recovery and resilience to help Aruba bounce back from the Covid19-crisis. *The Repositioning Our Sails Master Plan: Aruba's mission-driven model for economic recovery & resilience*, is anchored in eight national missions.

One of those national missions is focused on structural reforms for transforming the public sector of Aruba into an agile, lean, trusted and value-added public service provider. In this regard, the e-government program has been identified as one of the top five accelerator projects to achieve the overarching goal of economic resilience set by the master plan.

The acceleration of the e-government program is imperative to the success of the Repositioning Our Sails master plan. Transforming the Aruba Government into a high-performing and effective service-centered organization will not only facilitate the (i) elimination of red-tape

Introduction 1.1



and (ii) enable tax reform, but will also enhance (iii) legislative capacity and (iv) accelerate labor market mobility, which are the other four accelerator projects identified in Aruba's master plan for recovery and resilience.

This is also in full alignment with the National Strategic Plan's program to strengthen institutional quality and capacity.

This road map is a key milestone in establishing the foundation for strengthening Aruba's institutional quality and capacity by investing in digital transformation of government.

For completeness, the road map is also aligned with the priority themes of the *Landspakket Aruba* as prepared by the Dutch Government, specifically, condition B.11 regarding a digital government and digital services.

In this regard, this road map forms the starting point for the development of an implementation agenda for meeting condition B.11 of *Landspakket Aruba*. This document further provides a clear path to action for achieving the national mission of transforming the public sector into an agile, lean, trusted and value-added public sector provider, thus accelerating the implementation of the U.N. 2030 SDGs, in particular goals 8, 9, 10,

11, 16 and 17.



It is expected that the national planning unit SDP-DEACI of the Department of Economic Affairs will lead the process of monitoring and reporting on the implementation of the NSP and of the Master Plan (which includes this road map), while linking all priority projects to the NSP-SDG indicators for reporting purposes.

This will ensure policy coherence and resource optimization at government agency level.

Currently, SDP-DEACI is developing a monitoring and evaluation process and framework based on this integrated monitoring and reporting strategy.

SECTION 1

'Business as Usual' is not an option

1.2 Main Challenges

During the government-wide 'quick scan' digital assessment in 2018 to assess the state of IT infrastructure and organization, several challenges and opportunities for improvement were identified. Some were quick wins and have been addressed since the scan. Others were structural changes required to the IT organization and infrastructure, which will be absorbed by the e-government program.

Since the initial digital assessment, numerous stakeholder sessions, summits and workshops were held to further define the core challenges when it comes to digitalization projects and service delivery, both from a government perspective and from a private sector stakeholder or citizen perspective.

Key takeaways from the initial digital assessment and stakeholder feedback gathered during the strategy design phase

- Lack of standard best-practice security policies and procedures, and largely undocumented procedures across government
- Outdated IT infrastructure in some instances and no consistency at department level
- No consistency amongst centralized IT units managed by DIA, the government's IT department, and decentralized units as to purchasing IT hardware and software
- Lack of government-wide standards
- Understaffed and underbudgeted IT teams
- Digitalization projects largely executed on an individual basis by departments
- No formal common strategy
- People working in silos
- Complex systems

The lack of a common strategy was also evidenced by the below average government spend on IT. The annual global benchmark for IT spending per employee is estimated at \$20,000 for the government sector. The Aruba Government spent on average \$2,500-\$3,500 per employee in 2016-2018, approximately 85% less than the global average.

Opportunities identified through the digital assessment

- Clearly articulating a vision and policy objectives at ministry level (*beleidsvoornemens*) can help get the government back on track and start aligning projects with the broader e-government vision
- Effective central IT coordination, with clear and common protocols between centralized and decentralized units, can support a sustainable IT strategy and ensure a common vision across government
- Reclassification of how IT related financial data is registered in the Department of Finance's information system can enable a granular view of spend and enhance budget planning
- Development of a centralized IT procurement process for standard infrastructure components supported by automation (e.g., servers, laptops, operating systems, productivity tools etc.) can increase efficiency and maximize cost-benefit
- Centralization of IT purchase enables enterprise licensing, e.g., benefit of dedicated account manager and training, etc.
- Alignment of government standards with globally accepted standards (e.g., GDPR and ISO27001) can ensure quality and effective

control systems

There is a clear gap between the current state and the e-government ambitions. To close this gap, the public sector workforce needs to approach its work in a new way. This is critical to achieve the e-government vision of becoming a resilient, future-proof nation. Many governments around the world are adopting this new way of thinking.

“We cannot solve our problems with the same thinking we used when we created them.”

– Albert Einstein

To achieve successful digital transformation, all those involved need to be in a state of constant evolution. A strategy to achieve continuous improvement should be the new normal.

That said, some changes are gradual. A number of small steps will drive us toward the end goal. It took a digital leader like Estonia over 30 years to be where they are today.

If we maintain status-quo	If we achieve our e-government goals
• Bureaucracy	• Simplified and seamless citizen experience
• Operations-centric departments	• Service-centric departments
• Government as customer	• Citizen as beneficiary
• Data protectionist culture	• Open data culture
• Policymaking	• Human-centered policymaking
• Short-term politically driven decision-making	• Agile future-focused leaders
• Use of technology to drive innovation	• Design for user needs with technology as an enabler
• Paper-enabled opaque government transactions	• Transparent and traceable digital transactions
• Assumption based and/or politically influenced policymaking	• Evidence-based (data-driven) policymaking

“We have witnessed great enthusiasm and skills, which in combination with the struggles, success stories and ambitions form the basis of the [Aruba e-Government Mission] report.”

– e-Governance Academy Estonia’s observation on their Aruba Mission February 2019.

SECTION 1

*A digital government improves the lives of the citizens of Aruba***1.3 Why a digital government?**

Administrative simplification comes from the widely recognized reality that there is high redundancy of information provided by citizens to governments.

Repeated requests by different agencies for the same information place an administrative burden on citizens who waste time repeatedly compiling data and filling in forms with the same information.

Citizens and businesses should be able to understand government processes and they should have the right to track administrative procedures that involve them.

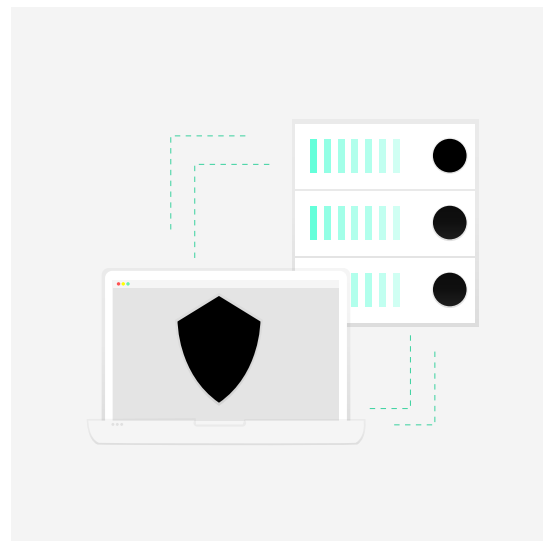
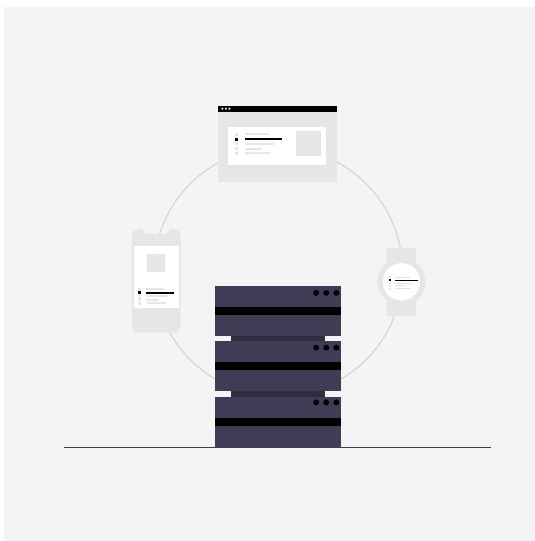
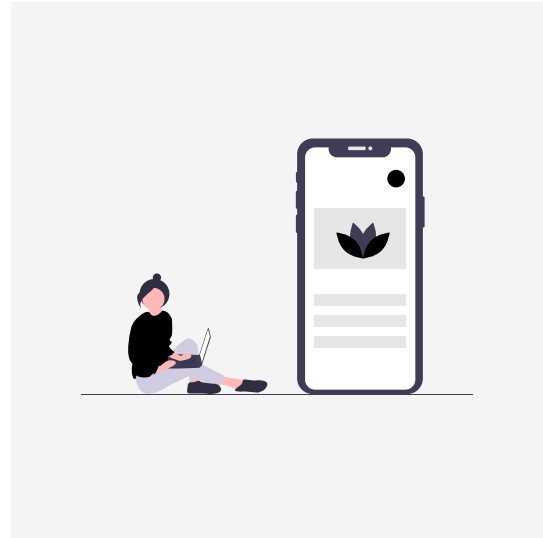
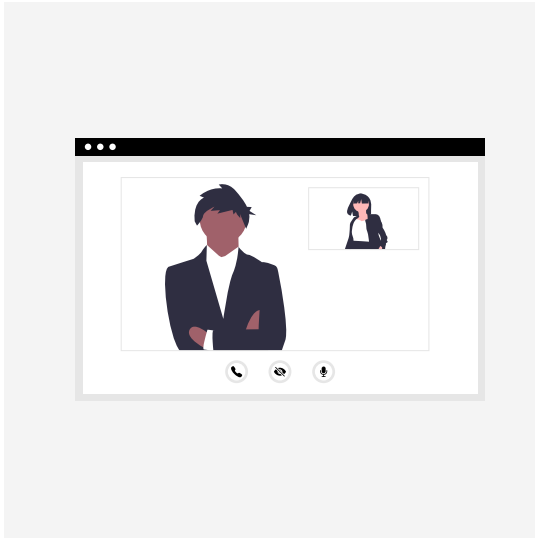
- Using technology and business process reengineering, the aim is to reduce bureaucracy and implement leaner processes to offer better customer experiences.
- At the same time, digital natives have greater expectations of public services and demand new forms of governing, including more agile, transparent and seamless service offerings.

Introducing digital technologies into the work processes of government, will help Aruba transform into an information society. A digital government supported by an enabling ecosystem (page 64), investment in **human ability** (page 52), and designed with certain **foundational features** (page 32):

- Increases effectiveness of government services
- Leads to massive efficiency gains by transforming legacy systems into simplified paperless systems
- Saves money and time:
 - Faster service delivery

- No more waste and redundancies
- Less travel to and from government offices
- Less paper, printing and other resources
- Less cars, gas, maintenance and parking space needed
- Creates significant GDP savings
- Provides better and faster access to government services, better service quality and seamless citizen experience
- Brings government closer to the citizens establishing the foundation to become an anticipatory government. Better data and analytics allow government to detect potential problems before they occur, from spotting fraud to combatting a potential surging pandemic, to anticipating an individual's need to apply for a particular social program
- Creates transparency and new opportunities for enhancing democracy
- Mitigates corruption
- Offers enormous socio-economic leapfrog opportunities (approximately 50% of new software is developed only for the cloud)
- Supports an integrated national agenda – the *National Strategic Plan*
- Enhances national competitiveness, sustains economic progress and enables economic re-activation through elimination of red-tape
- Creates equal opportunity for all citizens regardless of their socio-economic background or physical (dis)abilities

Technology and big data create opportunities to spot irregularities in real time and to bust corruption!



INSIGHT:

In a recent report Deloitte estimated that introducing artificial intelligence in government work processes could increase efficiency and free up to 30% of government worker's time, saving up to \$41.1 billion per year for governments worldwide. The time and money saved could then be invested in other areas such as healthcare and education, therefore ultimately benefiting citizens.

SECTION 2

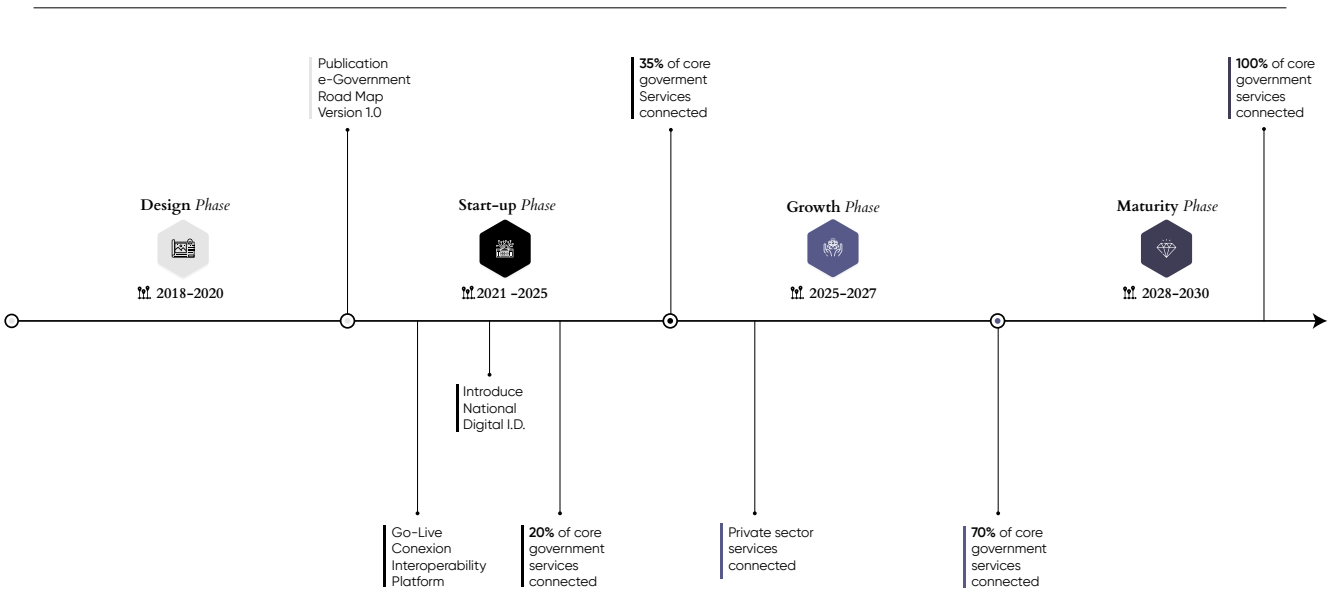
Executive Summary

e-Government Vision

In 2030, the Aruba Government is a pro-active government that anticipates the citizens' needs.

The e-Government road map's vision can be translated into the following **3 main ambitions**:

1. The Aruba Government is an effective service-centered organization.
2. Citizens of Aruba can seamlessly and securely access government services digitally at all times.
3. e-Government creates a pathway to unlock new economic value and opportunities created by the digital economy.



E-GOVERNMENT VISION

*In 2030, the Aruba Government is a pro-active government that anticipates **the citizens' needs**.*

THEMES



**Becoming
a Digital Government**

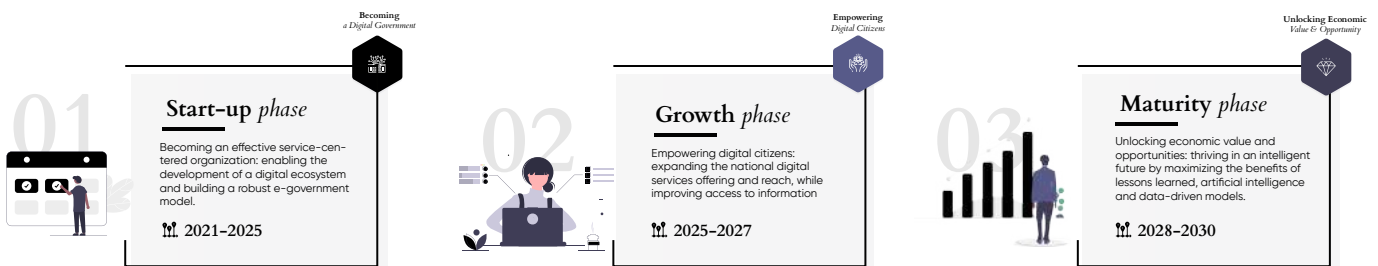


**Empowering
Citizens**



**Unlocking Economic
Value & Opportunity**

STRATEGIC OBJECTIVES OF THE E-GOVERNMENT ROAD MAP



STRATEGIC OBJECTIVE 1
Build an integrated e-government system



STRATEGIC OBJECTIVE 2
Introduce a national digital identification



STRATEGIC OBJECTIVE 3
Develop a clear regulatory framework



STRATEGIC OBJECTIVE 4
Simplify and digitize core government services



STRATEGIC OBJECTIVE 5
Ensure a robust data privacy and cybersecurity model



STRATEGIC OBJECTIVE 6
Invest in readiness of public sector workforce and citizens



STRATEGIC OBJECTIVE 7
Design an inclusive e-government awareness campaign



STRATEGIC OBJECTIVE 8
Institute an effective e-government coordination structure



STRATEGIC OBJECTIVE 9
Set up a sustainable financial and procurement model



STRATEGIC OBJECTIVE 10
Create an enabling ecosystem



STRATEGIC OBJECTIVE 11
Optimize the digital education leap program introduced in the start-up phase



STRATEGIC OBJECTIVE 12
Enhance digital inclusion based on lessons learned in the start-up phase



STRATEGIC OBJECTIVE 13
Launch a citizen-centric digital and regulatory innovation sandbox



STRATEGIC OBJECTIVE 14
Declare internet access and access to information a human right



STRATEGIC OBJECTIVE 15
Capitalize on the benefits of open data and artificial intelligence to drive accelerated inclusive economic growth



STRATEGIC OBJECTIVE 16
Launch a good governance center of excellence for the region

This road map was developed in an open and coherent manner from June 2018 through December 2020, while addressing and executing quick wins. The Ministry of General Affairs' main role in the development of this road map is that of facilitator and enabler, while involving public and private stakeholders through transparent cooperation. As it stands today, Aruba does not have the required (or sufficient) expertise to develop and execute a comprehensive digital transformation agenda without external support. Following an analysis of global e-government leaders and

benchmark studies, it was decided to partner with Estonia's e-Governance Academy (eGA) to develop the capacity required for the design of a robust e-government model for Aruba. The recommended model, together with findings from previous local studies and input from various stakeholder platforms, and recommendations from the e-government committees platform, form the basis of this e-government road map.

The findings and recommendations of eGA are summarized in its report: Aruba Mission Report, April 2019.





Approach - SECTION 3

SECTION 3

Approach

3.1 e-Government Committees Platform

The government established a platform of committees to advise on the development of the e-government strategy. The committees, consisting of a technology committee, a legal committee, a digital identification committee, and a steering committee led by the CIO, were established on a temporary basis as described in the Ministeriële Beschikking MB # 4836 dated 14th of October, 2019. The tenure of the committee platform will conclude upon achieving the following key milestones and are expected to be dissolved once the e-government coordination structure (in section 4) is in place. Various members of the committees will however continue to be involved as part of the implementation teams in the operational phase.

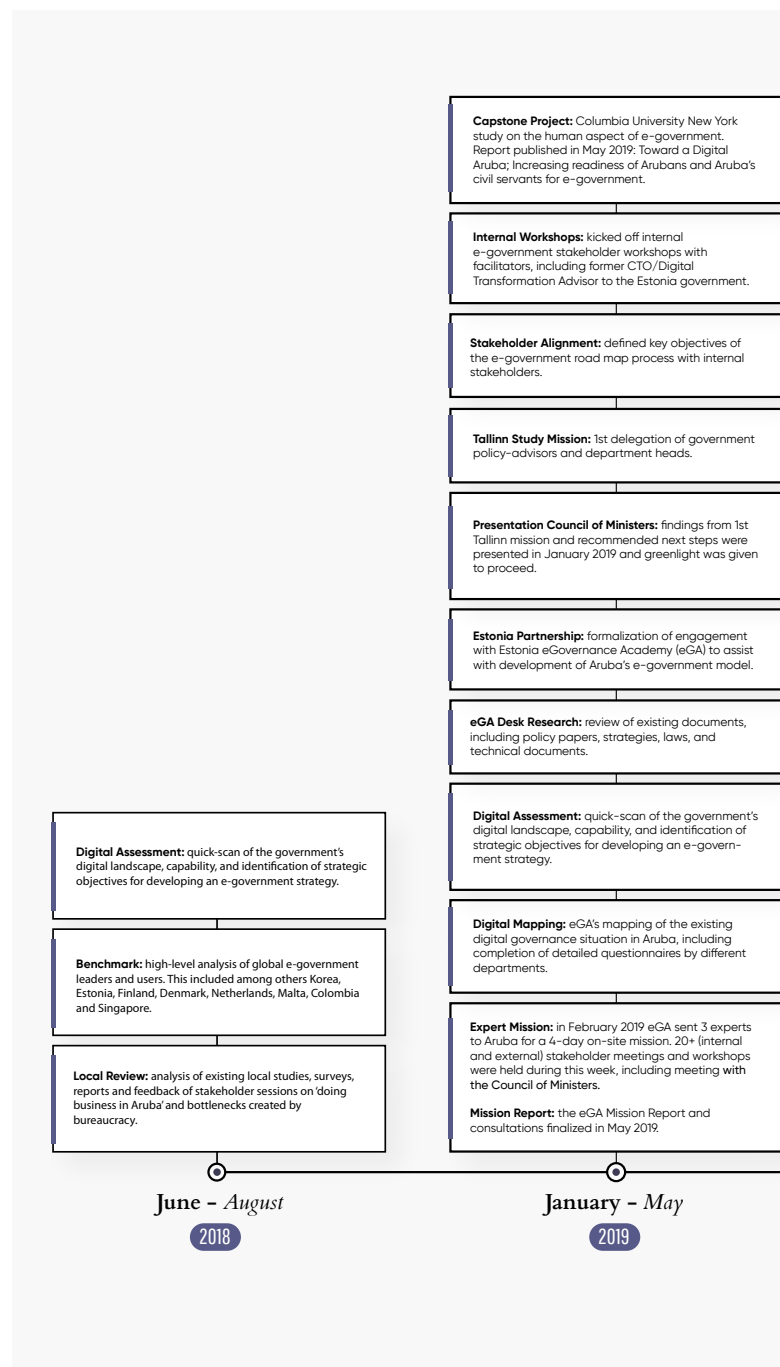
Key milestones:

- Finalization of e-Government Road Map;
- Advice on the implementation of a unique identification number and a digital ID strategy; and
- Preparation of a transition plan with action steps following the implementation of the pilot of the Conexion Interoperability platform.

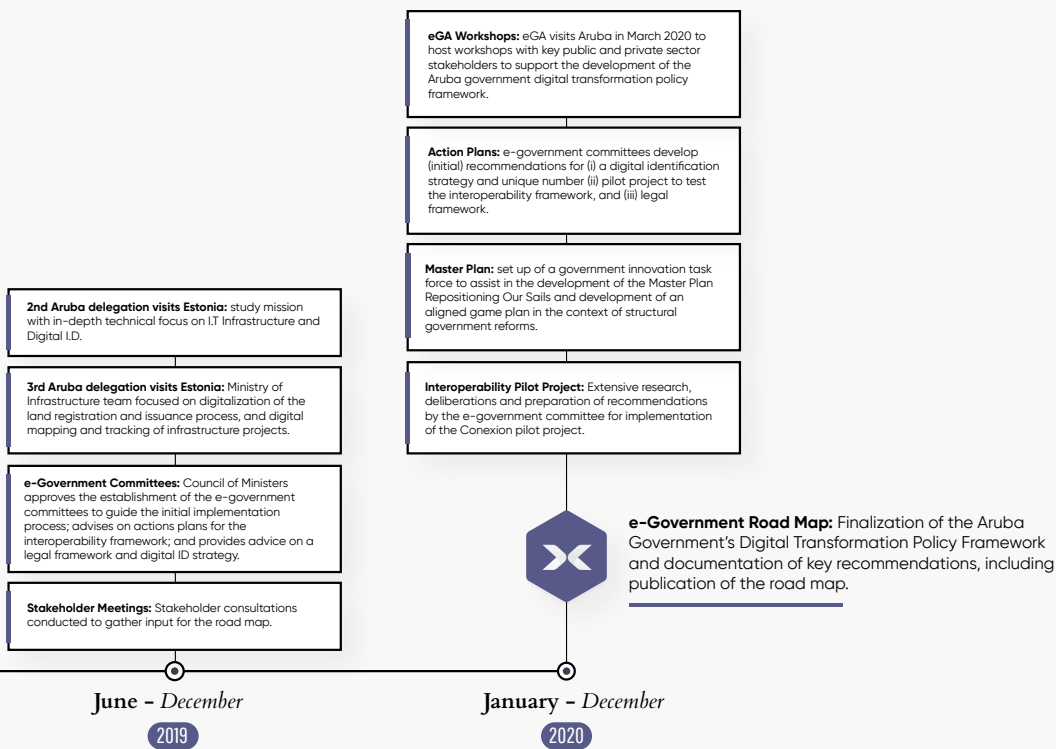
3.2 Development Process and Key Milestones

Road map design and development timeline

The following key steps were taken in designing and



developing the e-Government Road map:



This e-Government road map includes an implementation strategy to achieve Aruba's e-government vision by 2030. It articulates a journey of "a thousand small steps" towards a resilient digital future.

The e-government goals in this road map can only be achieved through careful planning to manage complexity and resource constraints.

This is why the implementation plan has been broken down into **3 manageable phases**, each with its distinct timeline, objectives and milestones that are aimed at achieving the overarching e-government goals:

1. **Start-Up Phase**
 2. **Growth Phase**
 3. **Maturity Phase**
- 

e-Government Road Map SECTION 4

SECTION 4

e-Government Road Map

4.1 The Aruba e-Government Vision

In 2030, the Aruba Government is a pro-active government that anticipates the citizens' needs.

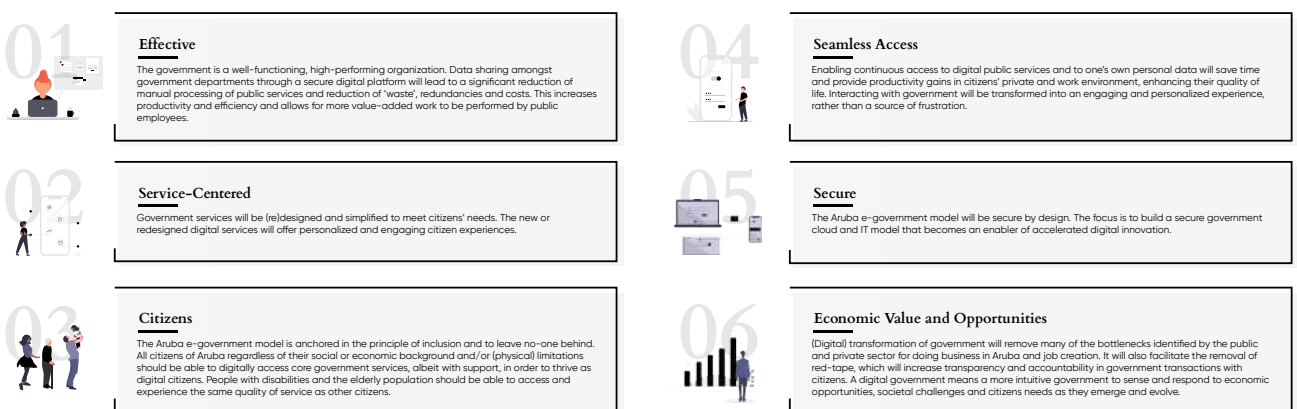
The e-government road map's vision can be translated into the following 3 main ambitions. This phased approach sets the direction for becoming a pro-active government that anticipates the citizens' needs.

- **Phase 1:** The Aruba Government is an effective service-centered organization.
- **Phase 2:** Citizens of Aruba can seamlessly and securely access government services digitally at all times.
- **Phase 3:** e-Government creates pathways to unlock new economic value and opportunities created by the digital economy.



The main ambitions serve as an umbrella for the strategic objectives of each stage. The theme of each ambition is the focus of each phase. The phases may overlap in terms of actions and projects that support more than one phase.

However, the focus or ambition of each phase will determine the priorities and actions to be taken within each timeframe.



4.2 The three phases of government digital transformation

The first phase of government digital transformation is the Start-Up Phase. Once the key milestones for the Start-Up Phase are achieved and the foundational Strategic Objectives are sufficiently anchored into the fabric of Aruba's e-government system, the implementation process can move onto the Growth Phase and subsequently the Maturity Phase. This road map covers the Start-Up Phase and priorities will be revisited with stakeholders at least quarterly, based on an agile way of working.

The main ambitions serve as an umbrella for the strategic objectives of each phase. The theme of each ambition is the focus of each phase.



*The three phases of government digital transformation is inspired by the Korean e-government journey.

**Certain actions identified for the Growth Phase and/or Maturity phase may already start taking root in the Start-Up Phase. The phases identified are important to focus resources and the approach allows flexibility to accommodate overlaps where needed. The actions set out in this road map focus on the strategic objectives and related milestones to be achieved by 2025, i.e. the Start-Up Phase.

***Aruba's e-government model will be built to enable and optimize data-driven models from the outset; however, it will take time for these models and intelligence applications to mature and to build the required human capability to maximize their potential benefits.

SECTION 4

e-Government Road Map

4.3 Aruba Government Digital Transformation Policy Framework

E-GOVERNMENT VISION

In 2030, the Aruba Government is a pro-active government that anticipates the citizens' needs.

THEMES



Becoming
a Digital Government



Empowering
Citizens



Unlocking Economic
Value & Opportunity

THREE MAIN AMBITIONS FOR THE PERIOD 2021-2030



Start-up phase

The Aruba Government is an effective service-centered organization.

The Aruba government is experienced as one entity from the citizen's perspective and continues to make everyday citizen interactions with government more personalized, seamless, and efficient. The government cultivates and retains effective teams driven by a culture of integrity, service and inclusivity.



Becoming
a Digital Government



Growth phase

Citizens of Aruba can seamlessly and securely access government services digitally at all times.

The Aruba Government anticipates the citizens' needs through human-centered design and data intelligence. It provides a seamless and secure digital service experience by keeping citizens at the heart of policy, program, process and service design. This results in a better quality of life for the Aruba citizens.



Empowering
Citizens



Maturity phase

e-Government creates pathways to unlock new economic value and opportunities created by the digital economy.

The Aruba government's default way of working is through open and collaborative partnerships that benefit the Aruba citizens. This creates new trust in the public sector, attracts investments and talent to the island, and it allows Aruba to stay at the forefront of digital transformation in the region.



Unlocking Economic
Value & Opportunity

What does the future look like if the main ambitions are achieved?

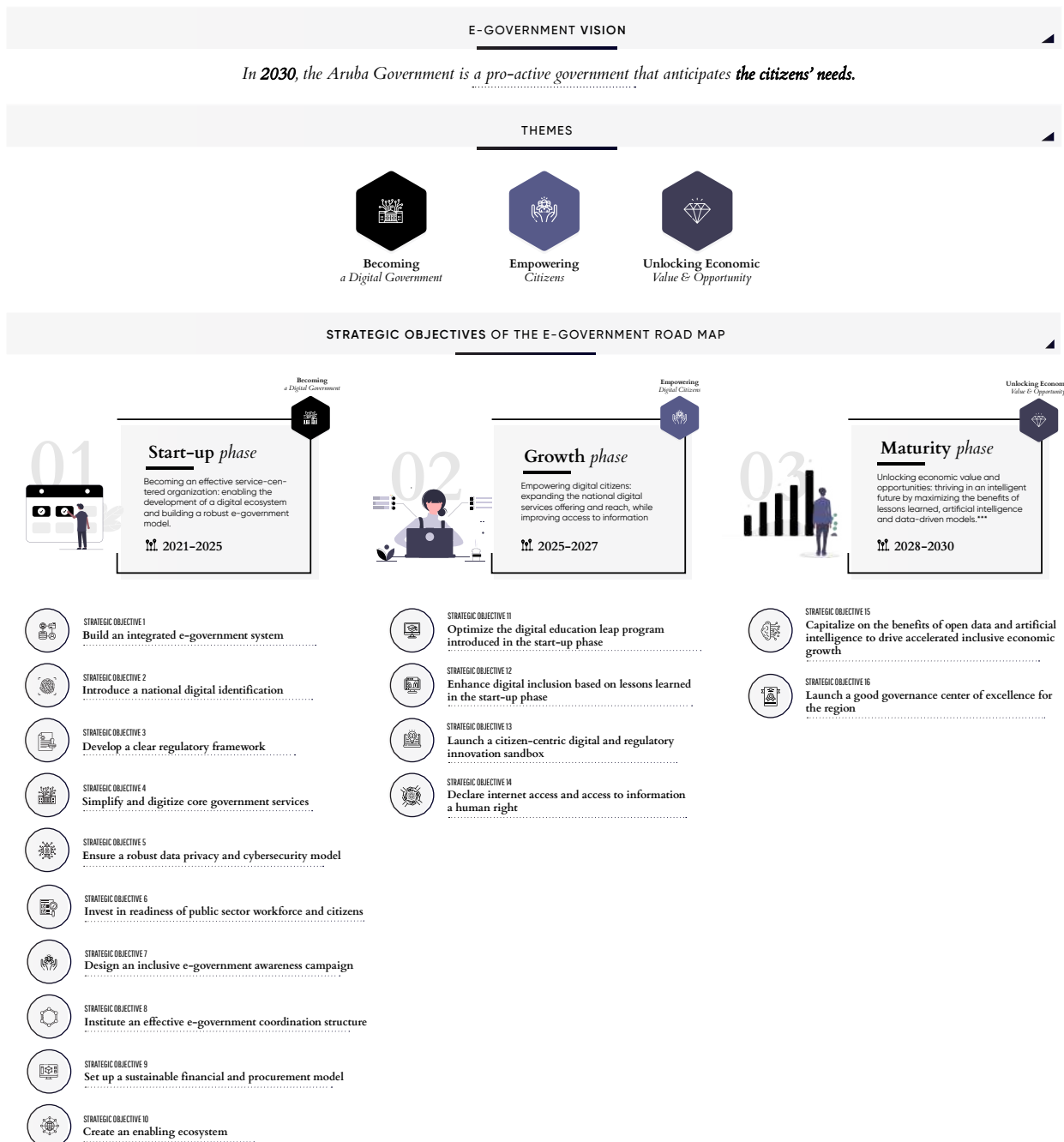
The ambitions are achieved when all citizens, regardless of their economic and personal situation and/or (physical) limitations are able to securely and easily access critical public services online at any time and from any device. For this to become a reality, the government must continuously live up to the trust confided in it. This requires a high level of engagement of public sector change-makers to drive sustained change and it demands the government becomes a learning organization: continuous reflection, iteration, and adaptation in designing new policies and services. This road map provides direction on how to do that.

SECTION 4

e-Government Road Map

4.4 Strategic Objectives and Desired Results

This road map is meant to be a living document. The key actions set out in this road map focus on the strategic objectives and related milestones (Key Results) to be achieved by 2025, i.e. the Start-Up Phase. The key actions to achieve strategic objectives in the subsequent phases (2021-2030) will be agreed with stakeholders upon completion of the Conexion Interoperability Pilot project described in Strategic Objective 1 on page 32.



Desired results in the start-up phase

The road map focuses on the milestones to be achieved and key actions to be taken in the start-up phase, 2021-2025. To facilitate a phased implementation strategy, the digital transformation policy framework is anchored in 16 strategic objectives, of which the first 10 strategic objectives are to be the foundational building blocks for developing a robust e-government model for Aruba by 2025.

The strategic objectives are ambitious, time-bound and actionable. This ensures objective grading of options and policy-decisions. The progress of each strategic objective can be measured based on achieved results. The goals are clear and inspiring, ambitious but not impossible. Below is an overview of the key results set to be achieved in the start-up phase:

STRATEGIC OBJECTIVE 1

Build an integrated e-government system

The basic premise of an integrated system, also referred to as the Conexion Interoperability Framework for the purpose of this road map, is the development of a unified system, which combines existing databases and different autonomous digital applications into an integrated e-government system for seamless and secure data-sharing via the internet. Conexion will be the beating heart of Aruba's e-government model.

KEY RESULTS BY 2025

- 1 Complete successful interoperability pilot for the first 3 digital services.
- 2 Build and launch secure interoperability framework and connect 35% of core government services.
- 3 Build secure government cloud that supports 35% of government departments.
- 4 Centralize 80% of most frequently used third-party software and services.

STRATEGIC OBJECTIVE 2

Introduce a national digital identification

Digital identification (or electronic identification) is the process of using a person's identification data in electronic form. Digital identity is the cornerstone of e-government. A national digital identity system can unlock unparalleled access to government services and many other critical private sector services. This will empower citizens and create a pathway for inclusive economic growth.

KEY RESULTS BY 2025

- 1 Introduce national unique identifying number.
- 2 Develop strategy for the development of a national digital identification system.
- 3 Complete successful digital identification pilot in safe test environment with first 100 users.
- 4 Introduce legal framework for digital identification.
- 5 Complete successful implementation of a national digital identification that is used by 40% of the population.

STRATEGIC OBJECTIVE 3

Develop a clear regulatory framework

A clear regulatory framework is required to facilitate the e-government vision and digital transactions. e-Governance does not require a comprehensive system of specialized legislation, with the exception of digital identification and digital signatures. The focus should be on protecting the integrity of citizen data.

KEY RESULTS BY 2025

- 1 Finalize assessment of existing legislation to identify gaps and obstacles that limit electronic transactions or communications.
- 2 Finalize regulatory framework to facilitate e-government and approval of legal road map and prioritization by council of ministers.
- 3 Introduce 80% of key legislative changes required to enable basic digital government services.

STRATEGIC OBJECTIVE 4

Simplify and digitize core government services

Government services should be simple to use and easy to access. A comprehensive process and user-needs mapping is required of existing critical government services and of those core services envisioned in the future. A gradual increase of the provision of digital services is envisioned over the next 10 years. The (re)design of digital government services should be based on the citizens' needs and not to fit government structure or processes.

KEY RESULTS BY 2025

- 1 Undertake a comprehensive process and user-needs mapping of core government services.
- 2 Develop an implementation strategy for digitizing 100% of core government services by 2030.
- 3 Simplify (where needed) and digitize up to 50% of core government services.

SECTION 4

e-Government Road Map

STRATEGIC OBJECTIVE 5

Ensure a robust data privacy and cybersecurity model

The focus should be not only on how to be prepared for and manage incidents, but most importantly, how to make the Aruba e-government model secure by design. The focus is to build a secure government cloud and IT model that becomes an enabler of accelerated digital innovation.

STRATEGIC OBJECTIVE 6

Invest in readiness of public sector workforce and citizens

Investing in human ability accelerates digital transformation. The most advanced technology is futile if people are not ready to adopt it. The focus is to increase the readiness of the public sector workforce and Aruban citizens to adopt digital services, by focusing on their willingness and ability. Facilitate digital skills development, enable learning for community and increase basic digital understanding.

STRATEGIC OBJECTIVE 7

Design an inclusive e-government awareness campaign

Many citizens are not yet aware of the potential benefits e-government can afford them. Community awareness must be created for practical purposes and to also genuinely engage citizens in the journey ahead.

STRATEGIC OBJECTIVE 8

Institute an effective e-government coordination structure

An effective coordination structure helps bring high-level officials closer to citizen needs and public worker needs. Clear lines of responsibility and accountability should be established for implementation. The government's commitment to a flexible mindset and agile approach is required to manage organizational challenges that will appear along the digitalization journey. The emphasis should be on radical collaboration and results.

STRATEGIC OBJECTIVE 9

Set up a sustainable financial and procurement model

A sustainable financial model is needed to develop and implement the e-government model. A multi-annual budget is required to mitigate the risks arising from cyclical planning and leadership changes. To increase transparency and build trust in the process, the government will collaborate with the local IT sector to develop IT procurement guidelines for the development of digital services and related work/purchases.

KEY RESULTS BY 2025

- 1 Conduct cybersecurity baseline assessment of the public sector.
- 2 Develop a national cybersecurity policy framework.
- 3 Introduce general best-practice cybersecurity guidelines to be adopted by critical government departments, agencies and units.
- 4 Develop a specific cybersecurity strategy and best-practice guidelines to enable the chosen e-government model.
- 5 Establish a data protection agency (or unit).

KEY RESULTS BY 2025

- 1 Appoint a digital inclusion champion to ensure maximum inclusion of all programs developed.
- 2 Create and launch a multi-lingual digital library (website/wiki) with simple digital toolkits and basic information on how to use the internet.
- 3 Set up a hybrid (virtual and physical) e-government training hub for public sector employees and reach 3.000 enrollments and skills certifications.
- 4 Develop and launch national Digital Leap program for IT skills in education in collaboration with key education and private sector stakeholders.
- 5 Design digital literacy program and provide basic training for the first 15.000 citizens.

KEY RESULTS BY 2025

- 1 Develop Aruba's unique e-government DNA (brand) story in collaboration with key stakeholders.
- 2 Design communication strategy and launch an awareness campaign to reach 80% of active internet users in Aruba.
- 3 Design and launch an awareness campaign to reach vulnerable groups in Aruba.

KEY RESULTS BY 2025

- 1 Establish an e-government advisory council consisting of subject matter experts.
- 2 Set up a central e-government coordination unit and institutionalize its mandate by law.
- 3 Transform the government IT department into a state-of-the-art IT agency that supports the interoperability platform's technical needs.
- 4 Set up an e-government virtual help desk that provides 24/7 support and can handle up to 500 daily requests or tickets within 24 hours.

KEY RESULTS BY 2025

- 1 Set up and institutionalize a multi-year e-government budget.
- 2 Develop IT procurement guidelines in collaboration with the private sector.
- 3 Consider the set-up of a special purpose vehicle to manage large-scale investments.

STRATEGIC OBJECTIVE 10

Create an enabling ecosystem

Several areas have been identified as critical enablers for the implementation of Aruba's e-government model, a key driver towards achieving national digital transformation. The focus will be on the foundational ecosystem elements, such as: digital payments, design of human-centered policies, political will and leadership, partnerships, blockchain, and open data.

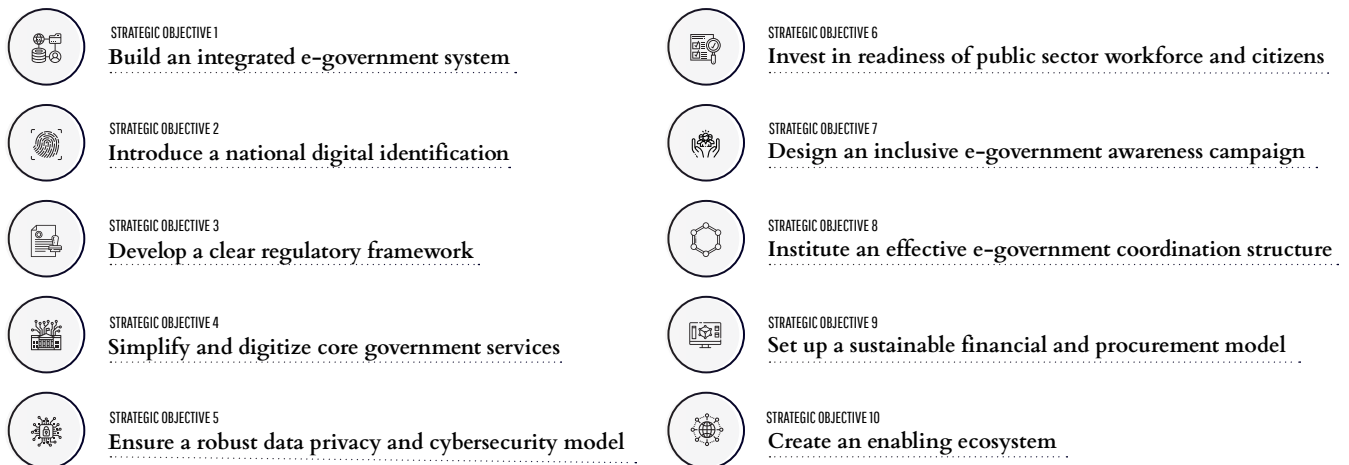
KEY RESULTS BY 2025

- 1 Introduce digital payments for 80% of core government services.
- 2 Develop a digital leadership program and enroll 50% of all political leaders, ministers, and policy advisors.
- 3 Develop a collaboration framework for open data and artificial intelligence.
- 4 Institute a national blockchain coalition consisting of key public, private and academia partners.
- 5 Formalize a public-private collaboration platform and launch 3 collaboration initiatives to support the acceleration of e-government implementation and adoption.

4.5 The 10 Building Blocks to achieving digital transformation of government

The e-government start-up phase can essentially be characterized by 10 building blocks, specifically Strategic Objectives 1 through 10 listed below. Developing a digital governance ecosystem will take time and hence sequencing of the right building blocks is imperative to guarantee success. That said, the actions identified for achieving each objective may overlap, especially during the start-up phase. The model chosen for Aruba is based on best practices observed in Estonia and other leading e-governance nations.

Strategic Objectives: the 10 building blocks of Aruba's digital transformation strategy





STRATEGIC OBJECTIVE 1

Develop an integrated e-Government system

The interoperability platform for secure data-sharing is the beating heart of the e-government program. Implementing this platform as a foundational step will help the Government of Aruba establish a strong foundation, enabling the government to better support the e-government program and more importantly guarantee a rapid deployment of the priority initiatives and actions of the *Repositioning Our Sails Master Plan for Economic Recovery and Resilience*.

Based on the government's policy objectives established in 2018-2019, the interoperability platform will be modelled after Estonia's X-Road and adapted where needed (and possible) to Aruba's needs. Hereinafter we will refer to this platform as: **Conexion**, which means connection in Papiamentu.

Integrated Model

The basic premise is the development of a unified system or Interoperability Framework, which combines existing databases and different autonomous digital applications into an integrated e-government system. In Estonia, this system is known as the X-Road, depicted below. The system consists of reusable components, to which all government departments and approved third parties can connect. This saves money, increases efficiency and improves service quality.



Source: eGA Estonia.

INSIGHT:

The Estonian X-Road has been active for 19+ years with no downtime since 2002, connects 900+ organizations, public registers and databases and runs 500+ million transactions per year – eGA Estonia

In designing a digital government model for Aruba, the following foundational features were used as cornerstones to ensure optimization of the investments to be made today and into the future.

Inclusion and Accessibility

Citizens of Aruba regardless of their social or economic background or physical (dis)abilities should be able to digitally access core government services, albeit with support. Core digital services should be designed based on the principle of openness and inclusiveness and should create equal opportunities for all citizens and businesses. People with disabilities and the elderly population should be able to access and experience the same quality of service as other citizens.

Transparency, Preservation and Tracking

Records and information in electronic form held by government departments and agencies for the purpose of documenting procedures and decisions must be preserved. The legibility, reliability and integrity of digital records should be safeguarded, and as such, records can only be accessed while taking security and privacy into account. In order to guarantee long-term preservation of electronic records and other kinds of information, formats should be selected to ensure long-term accessibility, including preservation of associated electronic signatures and other electronic certifications, such as mandates.

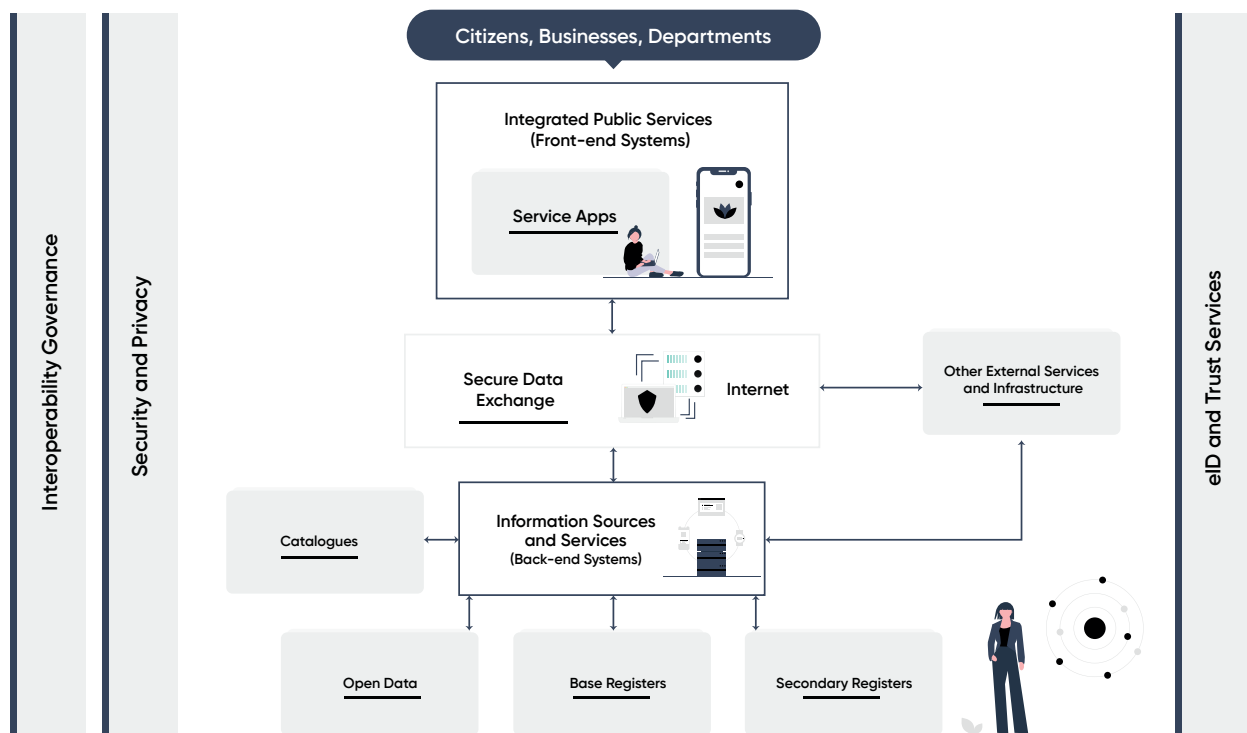
Openness

The willingness of persons, organizations or other members of a community of interest to share knowledge and to stimulate debate within that community of interest. Specifications, software and software development methods that promote collaboration and the results of which can freely be accessed, reused and shared are considered open. Citizens and businesses are allowed to give feedback about the quality of public service delivery, to contribute to their improvement and to suggest the implementation of new services.

Effectiveness and Efficiency

Solutions should serve businesses and citizens in the most effective and efficient way and provide the best value for taxpayer money.

Aruba's Integrated e-Government Model



This model was inspired by the Estonia X-Road model. For more technical detail on the integrated model and interoperability system, consult *eGA Estonia Aruba Mission Report* dated April 2019, available upon request to implementation partners.



STRATEGIC OBJECTIVE 1

Develop an integrated e-Government system

The Aruba Conexion Interoperability model will be built upon the following guiding principles:

1. **A shared platform:** we work together based on radical collaboration across and within a department or agencies, to reduce cost, to streamline agendas and align policies, apply consistent standards, ensure consistency in how we deliver on the vision, create and manage services and information across government agencies, share more effectively, make the most use of our resources, share tools knowledge, "innovate with less".
2. **Once-Only:** the key concept of the presented approach is the single data collection 'once-only' principle. Information is supplied to information consumers only once from the source responsible for handling the information and there is no other information source for the same information.
3. **Customer-Centered:** the model is based on government as a customer-centered organization. All the activities of government departments and officials and software/information systems are viewed as services. End users see services from a single window (portal). This influences how we design services, websites, apps, and also how we communicate with citizens. Human-centered design of services is key.
4. **Separated Systems:** in public sector information systems, front-end and back-end systems should be clearly separated architecturally.
5. **Reuse Components:** a full component-based service model for public administrations allows the establishment of public services by reusing, as much as possible, existing service components.

6. **Digital Information Assets Management:** a digital information assets management system will be established as part of the integrated interoperability model. Digital information assets include information about: (i) databases (registries), (ii) services, and (iii) user rights.

INSIGHT:

24 of 28 EU member countries have begun implementing the Once-Only initiative, which is expected to save 885,000 hours for citizens and 11 billion euros for businesses annually – European Commission 2018, "EU-wide digital Once-Only principle for citizens and businesses: Policy options and their impact."

Benefits for the Government of Aruba and citizens

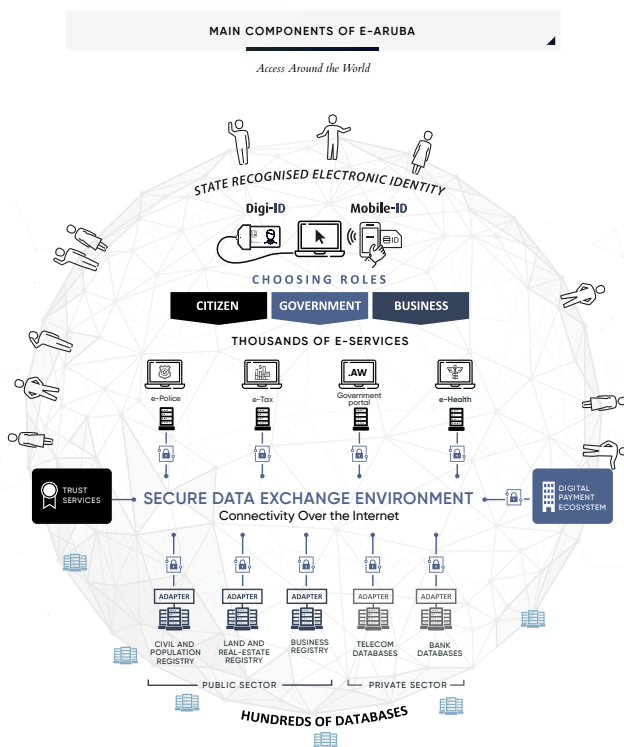
One of the main enablers of digital transformation is secure data exchange.

However, the broader objective of the interoperability framework is to make the operation of the public sector more effective by improving services offered to the Aruban citizens.

The interoperability platform is the invisible yet crucial environment that allows government services, databases, both within the public sector and with the private sector, to link and operate in harmony.

It will not only enable different governmental entities to better understand each other and collaborate, but it will act as the central backbone from which new public services will be launched to the Aruban community.

The envisioned architecture of Conexión - Aruba's Integrated e-Government Model can be seen as given on the figure below:



By harnessing the potential of the interoperability platform and delivering new digital services, the government will drastically improve and transform the relationship between citizen and state.

The Aruba Government will benefit among others as follows:

1. Data sharing through Conexión amongst government departments will lead to a significant reduction of manual processing of public services and reduction of 'waste' and redundancies.
2. Data sharing through Conexión (and the cloud) will prompt a reduction of costs associated with running public services

such as hardware IT infrastructure, paperwork, printing, non-value add human capital, and maintenance costs. For example, in Estonia, connecting thousands of departments' databases, saves approximately more than 820 years of working time for the state and citizens annually. In addition, at least 2% of state GDP is saved due to collective use of digital signatures. Less developed countries (from a digital government perspective) have seen savings up to 15% of GDP.

3. Data sharing through Conexión will lead to a decrease of unnecessary interactions between government officials and Aruban citizens and enable more value-added work to be performed by government employees.

The Aruba citizens will benefit among others as follows:

1. Digitally enabled public services will save citizens time and provide productivity gains in their work environment and enhance their quality of life.
2. Conexión will remove many of the bottlenecks identified by the public and private sector for doing business in Aruba and will also facilitate the removal of red-tape at an accelerated pace.
3. Conexión will increase transparency and accountability in government transactions with citizens.

INSIGHT:

The United Kingdom tax authority has claimed an additional £ 3 billion in tax revenue since 2008 by linking data items from various sources.



STRATEGIC OBJECTIVE 1

*Develop an integrated e-Government system***Conexion - Interoperability platform pilot**

In order to test and develop the necessary in-house knowledge to operate the system, an interoperability pilot project will be implemented as a first order of business. The primary goal is to launch a pilot of the interoperability platform, Conexion, as a first phase of the e-government road map with an initial list of five stakeholders (government departments).

The pilot will allow testing of the diverse technical aspects of the platform and will give stakeholders the possibility to connect their information systems via highly secure and scalable methods to the interoperability backbone and to offer end-users access to services.

Timeline interoperability platform pilot

MONTH 1 (Expected to kick off January 2021)	MONTH 2	MONTH 3 AND 4	MONTH 5
<ul style="list-style-type: none"> • Preparations of hosting environment for installation • Installation of UXP components 	High level stakeholder workshops, systems assessment and business use case description	<ul style="list-style-type: none"> • Training for administrators • Training for developers 	Technical consulting & support for the service development & integration

Key actions start-up phase 2020-2023

- Complete successful interoperability pilot
- Develop digital information asset management system
- Build and launch secure interoperability framework and connect core public services
- Develop a cloud strategy and build secure government cloud
- Centralize the most frequently used third-party software and services
- Consolidate email systems, productivity tools and communication tools into a single government-wide cloud enabled system
- Introduce a "no legacy" policy stipulating that government information systems should not contain elements older than for example 5-7 years (tbd)
- Develop common government technology standards





STRATEGIC OBJECTIVE 2

Introduce a National Digital Identification

National Digital Identification (Digital ID)

The Government of Aruba is committed to enabling a national (universal) digital identity (hereinafter: Digital ID) system fit for Aruba's economy and citizens' needs.

Recent data breaches in Aruba and across the globe have been a resounding wake-up call to the fact that new and secure methods are necessary to validate a citizen's identity.

To put a data breach risk into perspective, in 2017, identity theft cost Americans \$16+ billion and in just one data breach 140 million Americans had their social security numbers exposed, highlighting a fatal flaw in how citizens are identified.

Data and security breaches are not unique to developed economies, small island economies are prone to similar, if not greater risks.

The main objective of a digital ID is to facilitate and enhance authentication security while making the adoption and use of a digital identity a simple and seamless user experience for citizens.

Users should be able to access critical government services digitally knowing their data is safe and being used in the right way.

INSIGHT:

"In an era where personal information is no longer private, and passwords are commonly reused, stolen or cracked with various tools, the traditional scheme of accessing data and services by username and password has repeatedly shown to be inadequate." – IBM Security: Future of Identity Study 2018.

Guiding Principles

Digital identification (or electronic identification) is the process of using a person's identification data in electronic form, uniquely representing either a natural or legal person or a natural person representing a legal person.

Digital identity is the cornerstone of e-government. When well-designed, a digital identity can unlock unparalleled access to government services and many other critical services.

This will not only empower citizens, but it also creates a real pathway for inclusive growth.

According to a recent study by McKinsey Global Institute; *Digital Identification: A Key to inclusive growth*, April 2019 report: a good digital identity requires the following four attributes:

1. Verified and authenticated to a high degree of assurance
2. Unique
3. Established with individual consent
4. Protects user privacy and ensures control over personal data

The digital identification model to be chosen for Aruba will be based on the above attributes.

Once in place, citizens should be able to carry out secure electronic transactions and take full advantage of digital government services.

Benefits of a national digital ID

- It cuts out the paperwork and creates massive efficiencies
- Government services become increasingly flexible and convenient
- It allows for better internal tracking of expenditures, helping to counter improper use of government funds
- It is a tool that can be used to align public sector departments and their stakeholders, that currently have varying identity protocols (e.g., persoonsnummer, AZV nummer, SVB nummer etc.), into one unified system
- Security and privacy concerns are reduced as citizens can use their digital ID to access services and transact with the government online
- It is a tool to combat corruption as all transactions are verified, recorded and timestamped
- Private sector efficiency and productivity gains are significant
- Aruba can unlock value equivalent to 3 to 13% of GDP by 2030 as the use of a national digital ID increases

INSIGHT:

A strong digital economy requires a robust digital infrastructure, with digital money and payments, and identity being ubiquitous enablers required for the transformation for an industry or society – *Citi Digitizing Government Report 2019*.

Key elements of a national digital ID system

Unique identification number for Aruba

The government is evaluating different options for launching a new unique identification numbering system and its associated digital ID platform.

As a first step, the government will implement a national unique identification number based on the Nationaal Uniek Persoonsnummer (*NUP*) format.

The chosen digital ID format will be incorporated as part of the logical framework design of the interoperability platform. The goal is to have the unique identification number in place before the roll out of the final Conexion interoperability platform mid 2021.

Digital ID strategy

Choosing a format for the digital ID is the first step in developing a national digital ID system.

A comprehensive digital ID strategy needs to be developed, taking into account the legal and technical requirements of the implementation of a unique identification number in combination with a national digital id system (*NUP-stelsel*).

The national digital ID strategy will be completed prior to the 'go-live' of the interoperability platform.

Trust services infrastructure

A national digital ID system requires a trust service infrastructure, which is recommended to be designed and built in partnership with private stakeholders (e.g., certification authority) and public stakeholders (ministry



STRATEGIC OBJECTIVE 2

Introduce a National Digital Identification

of General Affairs and ministry of Justice, national population registry, e-Gov Coordination Unit, national security office, national cybersecurity office etc.). The creation of infrastructure for the Aruba national digital ID and trust services (in line with European eIDAS) will not happen overnight.

However, the government may leverage existing 'tried and tested' platforms that meet the necessary security requirements as a transitory solution, while developing its own digital ID ecosystem over time.

Benefits at scale

A key takeaway of a national digital ID is that banks, financial institutions, insurance companies, telecommunication companies and other key private sector institutions should use the same infrastructure for identification and digital signatures as the government and citizens to reap maximum benefits of such an ecosystem.

Timeline for implementation

Universal implementation and acceptance of a digital identification and signature will take time. On average, a nation-wide adoption could have a 5 to 10 year horizon depending on various factors, including available financial resources and political will. As the acceptance rate of a digital identity increases, the use of digital services will also increase. The more digital services are used, the higher the potential GDP savings.

Risk factors

A digital ID ecosystem does not come without risk. A thoughtful system design with built-in privacy provisions backed by a robust regulatory framework and governance is necessary to guard against potential risks.

Further detail on the recommended Digital ID infrastructure is included in eGA's Aruba Mission Report, April 2019, available to implementation partners upon request.

Benefits of a national digital ID in numbers

- Introducing a digital ID could unlock the economic value equivalent of 3%-13% of GDP by 2030 making it a powerful tool for inclusive growth – *McKinsey Global Institute, Digital Identification: A key to inclusive growth, April 2019 Report*
- Using a digital ID saves Estonia 2% of GDP annually and contributes to Estonia having one of the highest rates of tax compliance worldwide
- A digital ID can save every citizen 5 working days per year. Expected annual saving is 1-3% of GDP, based on available benchmark studies and once a critical threshold of 40% of population is using a digital I.D.

INSIGHT:

The bottom line: introducing a national digital ID can save Aruban citizens between Afl. 59 million and Afl. 177 million annually based on the Central Bank of Aruba's 2019 nominal GDP projection.

Key actions for start-up phase

- Formalize decision on digital ID format
- Introduce national unique identifying number (NUP)
- Develop strategy for the development of a national digital identification system
- Complete successful digital identification pilot in a safe test environment
- Introduce digital identification legislation
- Complete successful implementation of a national digital I.D.



STRATEGIC OBJECTIVE 3

Develop a clear regulatory framework

Developing a clear regulatory framework

A clear regulatory framework is required to facilitate the e-government vision and digital transactions. As a general matter, e-governance does not require a comprehensive system of specialized legislation, with the exception of digital identification and digital signatures. Too much specialized legislation or over-regulation may pose the risk of creating parallel systems of governance and may also lock in the application of certain technologies. The latter should be avoided in order to facilitate the long-term sustainability of investments. The focus should be on protecting the integrity of citizen data.

Law and technology should work together. Flexibility is key in developing a legislative framework for e-government!

Approaching legislative changes

At the drafting of this report, Aruba is missing key legislation that is needed to support a digital services ecosystem. The e-Government Legal Committee, based on an analysis and benchmark of legislative frameworks (including, Estonian and Dutch laws), recommends focusing on enabling new technologies based on (amended) existing legislation. There is a need for some new legislation, for example on the use of a digital ID, but in most cases, the focus will be on amendments to existing laws rather than creation of new laws, to avoid parallel structures.

To highlight where legal changes may be needed in order to transition to e-governance, a comprehensive analysis of the existing legislation is required. This work is being carried out at the same time as the planning of the technologies to be used, as

the technology and law should complement one another.

Behavioral science - nudging

Policy making in the age of wicked problems requires systems thinking, sense-making and rethinking traditional ways of doing things, especially as it concerns humans. An important element to support the legal framework is the development of a digital-first strategy to incentivize citizens to access public services online and use of "nudges" to encourage positive behavior (instead of making it mandatory). The legal framework should gently nudge people into using digital services and not punish them for not using them. This transition to digital will happen naturally if you require citizens to sign up for a digital I.D. to communicate with government online.

Nudging has become a commonly used tool in governments around the world to influence certain positive behaviors of citizens and accomplish effective policy outcomes rather than penalizing 'bad' behaviors.

The Organisation for Economic Development and Cooperation (OECD) published a global collection of behavioral insights case studies from around the world and key lessons for public institutions.

– Behavioural Insights and Public Policy, Lessons from Around the World 2017.

What should a digital legal framework do?

- Address the nature of transactions
- Tackle the sensitivity of the data
- Protect citizens' rights
- Gently nudge citizens into using digital services

Regulatory Priority Areas

Four regulatory priority areas were identified to support Aruba's e-government ambitions.

1. Institutional responsibility

To ensure a successful transition to e-governance, there should be clear rules on which institution is responsible for different aspects of e-governance. There should be a clear point of responsibility with the adequate competence to enforce coordination and the competence must be set out in law to avoid disputes and lack of clarity.

2. Interoperable databases

There should be rules on the establishment of databases and interoperability of data. Rules on the harmonization for the interoperability framework to function are needed to enable e-government and sharing of information based on a need-to-know basis and the only-once principle.

3. Data protection

Data protection provisions should be in place and implemented. A system ensuring the enforcement of such rules is crucial. Data protection should relate to the content of the data rather than to its form (electronic or not). It is important to highlight how law and technology can work together to strengthen data protection, for example with features such as a "footprint" being left every time an authority accesses personal data. Even if it is possible to protect data through different laws or other legal acts, a designated data protection law adds security and clarity.

4. Digital identification

In order to undertake secure transactions in the electronic world, it is essential to have some form of digital identity. The type

of digital signature or similar should be adapted to the situation in which it is used, which needs to be properly designated by law and the liability and responsibility of actors needs to be regulated by law.

5. ICT law

It is essential to have proper access to internet nation-wide under reasonable conditions. Special legislation on critical infrastructure protection may be needed, given the importance of internet. An analysis of existing relevant legislation (sector-specific ICT law or general competition, state aid and procurement law plus critical infrastructure protection legislation) is needed with possible amendment proposals.

The overview on page 44 summarizes the most relevant areas of law to facilitate e-government (columns 1 and 2) and the corresponding Aruban legislation or regulation (column 3). The overview also includes preliminary findings of actions (column 4) to be taken in the start-up phase.

Additional guiding principles for developing Aruba's regulatory framework for e-government

- There should be no obstacles to using electronic format(s) for administrative acts
- Electronic acts should have the same legal force as traditional acts
- It is essential to make an overview of existing laws to make sure e-governance methods can be used (looking at the definition of documents and signatures – can they include electronic ones?)
- The question of responsibility for carrying out reforms, for controlling the quality and accessibility of services and for receiving complaints is important and



STRATEGIC OBJECTIVE 3

Develop a clear regulatory framework

should be set out in law

- Information and communication technology (ICT) law as well as competition law (sector specific and/or general) is important to ensure that proper access to internet is secured, including how to avoid a digital divide due to lack of equitable access

Areas	Significance	Current regulation*	Needed actions
Government structure and responsibilities	Delineation of responsibilities	Staatsregeling, Lv instelling ministeries, bestuursrechtelijke bevoegdheden, zelfstandige bestuursorganen	(1) Strategic policymaking stays within Govt, (2) create new independent authority responsible for ICT implementation and supervision, (3) MOUs between different public stakeholders
Access to (public) information	Promotion of transparency of government actions	Lv openbaarheid van bestuur	Amendment of Lv openbaarheid van bestuur
Data protection / Digital Signatures / Certification	Protection of rights and freedoms of natural persons with regard to their personal data / regulation of dig. signatures and cert.	Lv persoonsregistratie / Ontwerp wijziging Boek 3 BWA (elektronische handtekening) / N.a.	Amendment of Lv persoonsregistratie or draft new legislation / Amendment of Boek 3 BWA
ICT	Regulation of provision of information and communications technology services to the public	Telegraaf- en telefoonverordening	Modernizing of this legislation or draft new one
Electronic commerce / Consumer protection	Regulation of electronic commerce / protection of consumers	N.a. / Boek 7 (Consumentenkoop)	Draft new legislation, draft new legislation for consumer protection
Competition law / Procurement law	Ensures effective and fair competition / Ensures fair and equal treatment of participants in govt procurements	Ontwerp Mededingingsverordening / Comptabiliteitsverordening 1989 en nieuwe Aanbestedingsverordening	Enact Mededingingsverordening / Introduce Aanbestedingsverordening
Cybercrime	Combat cybercrime	N.a.	Amendment WvSr

Additional areas of law to consider when developing a legal framework

Digitalization of information and data of government and developing a legal framework for e-government, require consideration of existing laws on governmental information. The Landsverordening bescherming Staatsgeheimen, which paved the road for the protection of classified governmental information, and the *rubriceringswetgeving* are key legal instruments to be included in the framework. Further, the *archiefwet* is also relevant for purposes of introducing a 'no legacy' policy on the 'age' of government information.

Key actions for start-up phase

- Finalize assessment of existing legislation to identify gaps and obstacles that limit electronic transactions or communications
- Finalize regulatory framework to facilitate e-government and approval of legal road map and prioritization by council of ministers
- Prepare proposals for key legislative changes (in the form of laws and/or regulations, decrees, instructions and so on) during the interoperability pilot project phase
- Decide on the date from which existing information/documents are digital ("digital is original")
- Enable contracts to be digital in format from the outset
- Work with stakeholders to have a process whereby new laws, once enacted, are digital by default
- Introduce required legislative changes to enable basic digital government services
- Introduce a government point of contact where entrepreneurs and businesses can report regulatory bottlenecks and obstacles to innovation in policy and legislation, including legal barriers to developing digital services using future-focused technologies such as blockchain and artificial intelligence
- Set up a regulatory sand box in collaboration with key partners to run pilot projects



STRATEGIC OBJECTIVE 4

Simplify and Digitize Core Government Services

A common challenge with e-government implementation is that projects tend to be too focused on technology implementation. To succeed at digital transformation, implementation teams should place effort and focus on organizational setup, business processes and regulatory development. One of the bottlenecks identified in Aruba is that departments and stakeholders are running their own digitalization projects and are not communicating enough in the early design stages, creating redundancy and inefficiencies.

Eliminating complexity in government processes

Government organizations are inherently complex and have become mazes over the years due to additional layers of built-in complexity and legacy systems. The Aruba public sector is no exception. Well-intended solutions to societal challenges and the need to introduce new services, many times at short notice, have left us with a complex and opaque organization. The more complex an organization and its service layers are, the less transparency there is and the more unclear (political) accountability is.

A collaborative e-government approach helps navigate and cut through the complexity. This approach also helps the government apparatus move towards a culture of customer service. To become an effective government organization that caters to citizens' needs, the new systems and simplified processes need to start absorbing the complexity of government on behalf of the citizens. **Government services should be simple to use and easy to access.** To this effect, a comprehensive process and user-needs mapping is required of existing critical government services and

of those core services envisioned in the future. Process mapping is key to building a service that truly centers around the people that will be using it. Before connecting government departments onto the Conexion interoperability platform, the new process for accessing data needs to be mapped. In addition to those responsible for the processes, mid-management and front-line staff should also be involved since they are the experts on their own workflows.

The mapping exercise should be part of a broader business model review to identify which services are core to the government function and which ones can be merged, discontinued and/or outsourced (*organisatie doorlichting – National Mission 1, Project 1 in the Repositioning Our Sails master plan*).

Developing citizen-centric services

A gradual increase of the delivery of digital services is envisioned over the next 10 years. The (re)design of government services should be based on the citizens' needs and not to fit government structure or processes. In this regard, the general European principles of good administration that are relevant to the process of establishing public services are also relevant to Aruba. For purposes of developing a robust e-government model for Aruba, good administration of public services will be aligned with the government's good governance and integrity policies and will be based on the following guiding principles:

- Subsidiarity and Proportionality
- User-Centricity
- Inclusion and Accessibility
- Security and Privacy
- Multilingualism
- Administrative Simplification
- Transparency and Integrity
- Preservation and Tracking of Information

- Openness
- Reuse
- Technological Neutrality and Adaptability
- Effectiveness and Efficiency

A detailed description of the interoperability framework components and principles are included in eGA's Aruba Mission Report, March 2019, available to implementation partners upon request. In this report, we would like to highlight one specific mission critical principle, namely **User-centricity**. Public services are provided to serve the needs of citizens and businesses. Those needs determine which public services are provided and how public services are delivered.

Best-practices in user-centricity

The government should build services that meet the citizens' need to make the delivery of policies and programs more effective:

- Understand the user's needs (a human-centered approach). The design of digital government service should be based on the citizens' needs
- Address the complete user/customer experience from start to finish
- Ensure that accessing and using digital public services are simple and intuitive
- Include both government employees and citizens in the services design process from the outset
- Test digital services continually with the citizens who use the services
- Make sure everyone can use the service (digital inclusion)
- Deliver better digital services at a lower cost
- Track performance and seek feedback from customers

Make the service simple to use.

e-Government website

Existing Aruba Government websites will be made fit for purpose and information and services will be made easy for citizens to find as they need it. Approaching this challenge as one government will enable agencies to focus their time and budgets on developing innovative, human-centered solutions, rather than re-inventing the wheel and/or adding layers of complexity.

The envisioned Aruba Government website and mobile application will be designed to meet the needs of the users. Citizens should be able to access government services through the main gateway - a new Aruba Government website - that in turn redirects the citizens to different portals such as tax department, department of economic affairs, etc. The main government website (and mobile application) will aim to provide seamless, easy to use and personalized experiences for citizens, as they access government services and information using a single platform. Rather than interacting with multiple systems, users can use a 'life events' navigation to access different services. Users typically want to be taken directly to the specific information they are looking for or service they need by using a 'search function'.

A recent study conducted by UNDESA on key government websites and portals around the world and UNDESA's policy brief, written by Public Digital, Building a single government website, lists the following three benefits of designing and building a single government website:

1. Better meets user needs. A consistent design language makes it easier to navigate government information and services online.



STRATEGIC OBJECTIVE 4

Simplify and Digitize Core Government Services

Consistent content design (as stipulated in a published style guide) makes this information easier to understand. Improved search engine optimization also makes it easier for users to find the information they need from search.

2. Reduces cost and complexity. Maintaining a single government website is almost always cheaper than maintaining tens of government websites. It is also easier to maintain and reduces organizational complexity.

3. Presents a single corporate identity for a government to the world. A single brand for a government's digital presence can increase trust in its online content and services, as the brand becomes recognizable. This also reduces the scope for phishing, and fake websites masquerading as government sites to fraudulently gain access to users' information or money.

Key actions for start-up phase

- Undertake a comprehensive process and/or user-needs mapping of core government services
- Develop an implementation strategy for simplifying and/or digitizing of core government services
- Engage with citizens (customers) to identify two existing major customer facing services to jointly (re)design through a human-centered design thinking approach
- Digitize all core government (application) forms for services to ensure they are downloadable
- Simplify (where needed) and digitize core government services
- Create central registry of databases

(meta data and inventory online services). New digital services can only be provided once registered in the central registry

- Design and develop a strong single government; user interface to be designed to follow key life events such as birth, marriage, health, student loan etc.
- Develop a digital services playbook (guidelines) that will function as a service manual and a service standard to help government teams and (private sector) implementation partners create and provide excellent digital public services
- Develop a library of code, tools and both guidance and design & development guidelines to help government teams and (private sector) implementation partners design and build user-friendly government websites and apps to provide consistent digital services
- Identify tools and guidelines for measuring performance and customer satisfaction of digital services
- Implement performance and customer satisfaction measurement tools on all government websites and apps

INSIGHT:

Portugal introduced the Simplex Program to redesign bureaucratic procedures in collaboration with civil society drawing on behavioral insights to nudge gradual changes in the mindset of public servants to place citizens at the center of government.





STRATEGIC OBJECTIVE 5

Ensure a Robust Data Privacy and Cybersecurity Model

Data Privacy and Cybersecurity

Security is a primary concern for data sharing and for the provision of public services. The focus should be not only on how to be prepared for and manage incidents, but most importantly, how to make the Aruba e-government model secure by design. The goal is to build a secure government cloud and IT model that becomes an enabler of accelerated digital innovation.

Further, the growing prevalence of ransomware attacks on governments around the world, including small island states, calls for robust cybersecurity measures and investment in public workers' digital literacy.

Citizens should have the confidence to securely interact with the government and trust that government agencies are in compliance with regulations on privacy and data protection. The privacy of citizens and the confidentiality of information provided by businesses should always be respected.

Cyber resilience is a shared responsibility by all parties involved in a transaction to ensure trust is embedded in every transaction between citizens and public sector agencies.

Secure data exchange model

Data exchange must be done in a secure and controlled way. This component is a crucial factor for the implementation of the model. Government departments and agencies providing services should ensure that:

- the infrastructure and building blocks are secure by complying with the principles of a privacy-by-design approach;
- the services are not vulnerable to attacks, which might interrupt their operation, cause data theft or data damage; and

- the government departments and agencies are compliant with the legal requirements and obligations regarding data protection and privacy (including GDPR where relevant).

Data transactions and information exchange between government departments, agencies, businesses and citizens will be:

- registered and verified: both sender and receiver of the data are registered and verified and authenticated through agreed procedures and mechanisms;
- encrypted: the data exchanged will be encrypted to ensure confidentiality. If somebody tries to steal or copy the data while in transit, it will be unreadable;
- timestamped: a time stamp confirms the time of the data transaction, making it possible to later verify its original state; and
- recorded: electronic records are logged and archived to ensure a legal audit trail. It should always be possible to trace who did what.

No single point of failure

The secure data exchange model chosen for Aruba is based on the principle that data is exchanged directly between the data supplier and the recipient without a central intermediary. Therefore, it does not have a single point of failure. This means there should be no single point of risk for a cyber-attack or system malfunction in the envisioned structure. In case of failure of one component, other non-affected parties can still continue to operate. In addition, this model allows the government to build and expand the ecosystem over time, so departments can be connected to the platform as they reach the required levels of IT maturity and security.

Additional guiding principles for a secure data exchange and cybersecurity model

- An agency needs to have the authority to audit e-government systems and department systems to ensure compliance with standards and authorized data queries of citizens. The necessary capacity should be developed for this. Centrale Accountantsdienst or another agency may be considered for this function
- Each department is responsible for its own database, data quality and data security
- Within the necessary security constraints, citizens should have the right to verify the information government has collected about them and to ensure this information was used for the purposes for which it was originally supplied. This means that, generally, citizens should be able to see who has looked at their data and why (except, for example, ongoing authorized criminal investigations)
- Citizens should be able to monitor their data through a self-controlled system that enhances data quality (e.g., government can send regular emails or 'pop-up' messages to citizens for them to confirm the correctness of their data)
- In time, a Data Protection Agency should be established in parallel with the development of a trust and ID framework. The focus should be on citizen data protection

Key actions for start-up phase

- Conduct cybersecurity baseline assessment of the public sector
- Develop a national cybersecurity policy framework
- Introduce general best-practice cybersecurity guidelines for government departments and agencies
- Develop a cybersecurity strategy and best-practice guidelines to enable the chosen e-government model, including guidelines for government departments and (private sector) implementation partners to develop/architect any new platforms, apps and websites, surveys and digital services with the Privacy by Design principle in mind. This means privacy is the default for users
- Harmonize core data sets and definitions across agencies
- Introduce common standards and protocols for data sharing
- Introduce policy regulating new data to be digital. Digitize historical data sets and secure through a back-up system (parallel effort)
- Conduct cybersecurity and data-protection training for government employees
- Subscribe to the National Cyber Security Index (NCSI) by eGA Estonia
- Establish a Data Protection Agency (or unit of an existing government department)



STRATEGIC OBJECTIVE 6

Invest in Readiness of Public Sector Workforce and Citizens

The digital transformation journey is not only driven by technology and 'going digital'. It is largely about re-inventing public services and transforming the service delivery model. It is about change and more specifically, changing the way government works. It is about people and managing them through this change.

Change-management is about releasing the public sector's employee energy and stimulating their ideas so they can be in the driver seat of re-designing and simplifying existing services. This requires a deep mindset shift, not only at the delivery end (the government workforce) but also on the receiving end of the spectrum, i.e., the citizens (customers).

Aruba's people-centered e-government strategy

Based on data gathered through Columbia University's research, Aruba has a high mobile phone penetration rate, and many people are online, especially Facebook. However, many citizens, including public employees and government staff, do not feel comfortable using computers and productivity software such as Microsoft Office, Jira, Trello, Asana or other commonly used tools. Further, the mixed experiences of various departments that have independently digitized their processes, highlights the necessity to up-skill both public workforce and the wider public.

Aruba's e-government strategy is centered on people, not technology. The most advanced technology is futile if people are not ready to adopt it or if the technology does not solve the root of their actual problems. The goal here is to focus on the human side of the e-government adoption

strategy to become a digital ready public sector. The actions will be geared towards increasing the readiness of the public workforce and of the Aruban citizens to adopt and embrace digital services, by focusing on their willingness and ability. A key strategy is to increase human capability by investing in skills development and enhancing digital mindsets. The higher the level of IT literacy, the more likely citizens and public workers will be inclined to accept and use e-government services.

Investing in human capital accelerates digital transformation.

Government workforce shift

Based on other countries' experiences with digital transformation, no drastic change in government workforce is expected over the next 10 years. Change is a gradual process. In the start-up phase, there will be many new tasks, also at the policy level, that will replace repetitive tasks. There will be a shift in the type of work and how we work, and not necessarily on the volume of staff. However, as it stands today, skills are not evenly distributed throughout the public sector and this is a point of attention.

Readiness and willingness of the government workforce and Aruban citizens

Aside from upskilling the government workforce, the government will also invest in increasing the ability of Aruban citizens to adopt digital services. Aruba has a high mobile phone penetration rate, and many people are online, especially on Facebook. Based on a recent Census 2020 pilot survey conducted by the Central Bureau of Statistics (CBS), 60% of the Aruba 15+ population has skills related to IT, however many Arubans, including public

employees, do not feel comfortable using computers and productivity software such as Microsoft Office, Microsoft 365, Google Drive, or other commonly used tools. The mixed experiences of various departments that have independently digitized their processes highlights the necessity to upskill both the public workforce and the wider public. As indicated by stakeholders during the Columbia University research: "there are a lack of skills to use the internet properly. E-government requires more than logging into Facebook. People need coaches."

Both government employees and citizens need to be familiarized with the optimal use of computers and productivity software. Although most Arubans use smartphones and the internet, it is suspected that many do not yet feel comfortable using computers for productive means, such as online banking, Microsoft Office, or other digital services. There is a significant imbalance of IT maturity.

Investing in human ability will boost efforts to transform government

Digital inclusion

In line with Aruba's *National Strategic Plan* and the *Repositioning Our Sails* master plan it is essential that the benefits of a digital government are enjoyed and accessible by every citizen, irrespective of their social status, and limitations. This means that a human-centered approach is to be taken at all times in the (re)design of digital services.

To fully integrate all citizens into a digital society, assistance and training must be provided. The government's aim is to empower citizens with lasting skills that will help them adapt and operate easily in a

digital future. To be effective, the government will provide training and assistance in communal settings that citizens know and enjoy. The trainers should be people they know and trust. The government intends to employ existing infrastructures such as: Centros di barrio, Multi-Functional Accommodations (MFA) and the Aruba National Libraries, to engage citizens.

INSIGHT:

Denmark ranked #1 in the 2018 UN E-Government Survey (from 9th place) due to a progressive law mandating that all citizens access public services online.

Guiding principles for the design of a human capability building program

- Increase ability: upgrading skills are crucial to successfully implement e-government
- Innovation mindset: instill an innovation mindset for public sector employees and government staff through capacity and capability building
- Culture of recognition: design a culture of recognition and celebration of innovations and successes. In this regard, the government launched an Outstanding Innovation Award in 2019 and is expected to resume this program in 2021
- e-Government training hub: design the e-Government Coordination Unit in such a way that it can also serve as an innovation training hub for government employees. Here they can: host hackathons, conduct future mapping and prototyping sessions where public officers can collaborate with citizens to identify challenges and come up with solutions then test them. This can be



STRATEGIC OBJECTIVE 6

Invest in Readiness of Public Sector Workforce and Citizens

- done in collaboration with both local and international innovation labs
- Digital inclusion: run large-scale campaign(s) and outreach programs particularly to vulnerable groups and those who may have difficulty accessing online services
 - Community building: organize digital literacy training for the community in collaboration with NGOs and private sector stakeholders
 - Partnerships: collaborate with private sector to give employees 2-4 hours per month off with pay to complete basic computer skills and digital literacy training in order to use government digital services more effectively. This will increase productivity and benefit the private sector and economy at large
 - Exponential leadership: enable community leaders and government leaders to become designers of the future by imagining and mapping new and better futures for all citizens. Design thinking is a critical skill to help (public sector) leaders expand their thinking and visions in order to generate empathy with citizens and make their policies and actions more impactful. This is not just about digital leadership or IT skills, but mostly about the human factor of innovation

INSIGHT:

Singapore made government innovation go viral by investing in the innovation capacity of its public employees and rewarding those who innovate.

Key actions for start-up phase

- Appoint a digital inclusion champion
- Create and launch a multi-lingual digital library (website/wiki) with simple digital toolkits and basic information on how to use the internet
- Set up a hybrid (virtual and physical) training hub that offers skill-based certifications
- Create a self-assessment tool for public employees to track their skills development, and website to highlight innovation success stories and celebrate achievements
- Develop and launch a national Digital Leap program for IT skills in education in collaboration with key education and private sector stakeholders, with the goal to provide all schools in Aruba with computers, digital literacy (basic IT skills) curriculum and upskilling of all teachers
- Design digital literacy program
- Develop human-centered design-thinking capacity within government
- Develop collaborative training programs with private sector, including (co-sponsored) IT and cybersecurity upskilling and reskilling programs for the general (public and private) workforce
- Empower youth and introduce Digital Citizenship as part of education curriculum, including cybersecurity and equipping teachers, children and youth with the ability to safely use the internet and digital services
- Enable access to internet: free access to wireless internet in public buildings, main public plazas, and key public spaces across the island
- Collaborate with University of Aruba to develop a long-term program for e-government skills and digital leadership





STRATEGIC OBJECTIVE 7

Develop an Inclusive e-Government Awareness Campaign

Establishing the readiness of Aruban citizens first requires increasing their willingness and ability to embrace a digital government.

To implement an e-government-strategy successfully, it is key to achieve quick wins and cement long-term resilience.

e-Government awareness raising

For successful implementation of the e-government strategy, the involvement of civil society and citizens should be encouraged. Citizens should be engaged and trained to enable e-government adoption. This entails awareness-raising about becoming a digital society and general digital literacy development. It is also important to communicate both the possibilities and risks that are linked to a digital society.

To increase the willingness of Aruban residents (including Aruba's public workforce) towards adopting an e-government, the government will communicate the fundamental need for change through three messaging initiatives:

1. The formation of a national narrative
2. A compelling messaging campaign for the general public; and
3. Targeted messaging for public sector employees.

A good national narrative goes beyond everyday discussions about political ideas, and instead offers a long-term vision for Aruba. Based on a study conducted by Aruban students of the Haagse Hogeschool in 2020, 73.3% of participants did not have any or sufficient knowledge of the concept of e-government. This means that many citizens are not yet aware of the potential benefits e-government can afford them.

Community awareness must be created for practical purposes, but also to truly engage citizens in the journey ahead.

The 2020 study by the Haagse Hogeschool students Minor Koninkrijkszaken resulted in a recommendations report, *Vertrouwen in e-government op Aruba*, on ways to gain the citizen's trust with respect to e-government. The findings of this report will be incorporated into a national awareness campaign. This report is available upon request to implementation partners.

Key actions for start-up phase

- Develop Aruba's unique e-government DNA story in collaboration with key stakeholders
- Develop common talking points across ministries and agencies to help communicate the e-government vision
- Design a communication strategy
- Develop and launch an awareness campaign focused on active internet users in Aruba and another one focused on vulnerable groups
- Increase digital awareness among the general population and make e-governance developments sustainable by training different target groups: teachers, citizens, public officials, and also journalists for optimal coverage of the topic of e-governance to encourage citizen readiness





STRATEGIC OBJECTIVE 8

Setup an Effective e-Government Coordination Structure

Building an e-government is not a project but a process that needs coordination. High-level coordination of e-government activities among the various government departments is crucial.

Effective coordination structure

An effective coordination structure helps bring high-level officials closer to citizen needs and public worker needs. Clear lines of responsibility and accountability should be established for implementation. The government’s commitment to a flexible mindset and agile approach is required to manage organizational challenges that will appear along the digitalization journey. The emphasis should be on radical collaboration and results.

Good governance

As a general matter, good governance demands separating the levels of decision-making. In this regard, (i) strategic decisions, (ii) coordination and implementation, (iii) and supervision, will take place in separate agencies with clear roles and mandates.

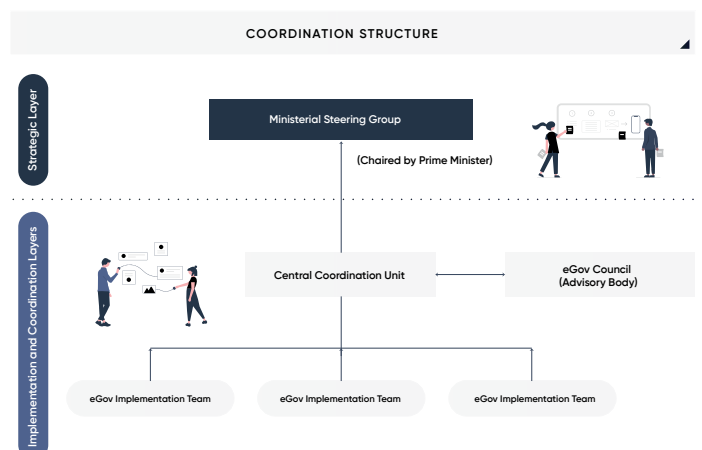
It is envisioned that the government will establish a central coordination agency that will manage the e-government program and provide oversight of the government-wide digitalization efforts. This central coordination agency will initially be set up as a unit of the soon to be established Department of Innovation (Directie voor Innovatie) to optimize resources, with the intention to transition to a stand-alone (new) government agency mid to long-term if resources allow. The central coordination agency, the eGov Coordination Unit, will report to a Ministerial Steering Committee, chaired by the Prime Minister, which is responsible for setting the strategic direction,

approving policies, and monitoring the progress of implementation.

All (future) eGov Project Teams responsible for implementation will report to the eGov Coordination Unit, which will be advised by an eGov Counsel platform consisting of 3 seasoned and respected professionals.

Monitoring of the implementation of legislation and regulations, and of regulatory compliance, will take place through Supervisory Institutions. Their scope of work generally reaches beyond e-government, and they would monitor e-government implementation from their own perspective.

The below chart depicts the organization setup chosen for Aruba to achieve the strategic objectives identified in this road map. The coordination model is inspired by tried and tested models that have worked and are working in Estonia, Korea and other leading digital countries, and adapted to fit Aruba’s unique conditions. The envisioned coordination structure accommodates the start-up phase (years 1 through 5) of implementation of an integrated e-government system and should be re-assessed in consultation with key stakeholders before embarking upon the growth phase.



General considerations of the coordination structure

- The idea of coordination is not to centralize decision-making or technical capacity, but to support innovation and modernization of service delivery across government. Government departments will be assisted by the central coordination unit to achieve IT maturity and security to become part of the Conexion ecosystem.
- Since the Conexion interoperability system is a decentralized model, each government department is still responsible for their own business processes, databases, quality of their data and IT matters, while maintaining compliance with the requirements to be part of the Conexion ecosystem and observing commonly agreed upon principles. Those departments that have their own IT teams (or outsourced IT team), will be supported where needed to make sure they have the resources to comply with the common frameworks. Those departments without their own IT team will be supported by the government's IT department to ensure compliance with the Conexion protocols
- Ministries and departments will own their IT projects. Only shared services will be centrally owned, managed and delivered
- For completeness, the central coordination unit is to be set up as a (new) separate entity from the government's existing IT Department (DIA). DIA's future role was considered during eGA's assessment and by the e-government Committees. The recommendation is to redesign DIAs core functions and build capacity in DIA's team over time to transform it into a state-of-the-art IT agency, so it

can provide technical implementation support to government departments and end-user support teams, and to support the interoperability platform's technical needs. This should happen in parallel with the development of the interoperability system

The below is a high-level overview of recommended core functions by agency or actor(s) to be assessed further in consultation with key stakeholders before deciding on a final governance model before year end 2020.

Main Roles and Responsibilities

eGov Coordination Unit

There must be a coordinating institution in place that is responsible for strategic planning, with a mandate to take on (or coordinate) decisions on e-governance for the administration. Standards, policies and regulations are needed to exchange and reuse data and implement digital identity. Investments in IT infrastructure and solutions must be monitored to avoid duplication.

As a general matter, the central coordination unit is responsible for achieving the Strategic Objectives and milestones in this road map except for those actions/responsibilities that are either shared or specifically assigned to another government department or to a private sector partner. That said, the central coordination unit remains responsible for coordinating and aligning those tasks and actions that are assigned to another party.

Key benefits of a central coordination unit:

- Government is experienced as a single entity from a customer perspective
- Policy coherence due to centralized development of policies and standards



STRATEGIC OBJECTIVE 8

Setup an Effective e-Government Coordination Structure

- Application of common standards
- Re-use of software solutions
- Holistic budgeting, monitoring and reporting
- No duplication of services or over-investment (avoids 'kapitaalvernietiging')
- Coordination of decisions with respect to large-scale investments
- Central secretariat for government-wide digital matters and policy decisions

Key functions of the central coordination unit include:

- Overcoming inter-agency resistance to change
 - Responsible for integral IT strategy and digital policies, planning, implementation and design of supervision processes
 - Manages the interoperability framework and supervises the most important development projects / work of the e-Gov Implementation Teams
 - Anticipates, addresses and resolves inter-agency conflicts
 - Responsible for preparation of the e-government investment budget (*landsbegroting*)
 - Assistance with the development of the annual IT operational budget of the ministries
 - Responsible for general guidance, recommendations and common standards on e-government matters
 - Provides a forum for technical discussions, sharing best practices and coordination of operational matters
 - Collaborates with contact points assigned by the various ministries
 - Functions as primary point of consultation on strategic e-government development issues by the ministries, agencies and teams in charge of implementation
- Assists the ministries and agencies as needed to create IT and/or digital transformation action plans at ministry level and advise on strategic initiatives of the ministry
 - Responsible for coordination of drafting the main IT-related legal acts and has the right to present opinions on e-government related legal acts and/or those legal acts that have an impact on achieving the e-government vision
 - Functions as a digital services innovation center to improve the government's delivery of digital services. The unit will work with agencies to identify, design and deploy shared solutions across government. The innovation center will also support departments lacking the capabilities to design customer-centric digital services
 - Responsible for e-government community awareness programs and digital literacy training, and training of government employees
 - Acts as main point of contact for local partners and stakeholders
 - Manages public relations on e-government and digital transformation topics and acts as main point of contact for local and international press
 - Coordinates international cooperation initiatives in the field of digital transformation with partners (e.g., UNDP, OECD, World Economic Forum and within the Dutch Kingdom)

eGov Implementation Teams

The composition of the eGov Implementation Teams will depend on the nature of each project and may vary on a case-by-case basis. The projects' focus may range from: introduction of an awareness campaign for the general public or digital literacy

training for youth, to development of APIs and implementation of a cloud strategy. It is expected that different project teams, each with their own project manager, will be at work simultaneously during each phase of the e-government journey. In general, an implementation team may consist of an experienced project manager, operational team members, cabinet members, one or more department heads, IT managers from different departments, (private sector) development partners and external subject matter experts and academia members. The eGov Implementation Teams report to the eGov Coordination Unit.

Ministerial Steering Group

To achieve the e-government vision, it is imperative that political leadership is fully engaged and accountable for the success of the program. This ministerial steering group meets on a monthly basis with the eGov Coordination Unit's leadership. The steering group is responsible for ensuring sufficient budget, fast decision making, inter-ministry cooperation and solving coordination challenges at the top leadership level.

eGov Council

The eGov Council is an advisory body for the government and specifically for the eGov Coordination Unit, giving opinions and making strategic recommendations to the government coordination unit. It may also act as a platform for dispute resolution. It is important that members of the council are seasoned, respected and also opinion leaders in their field. It is advisable that council members are politically independent and are appointed by the Prime Minister in consultation with the private sector and civic sector stakeholders. The council may also function as a consultation platform for

stakeholders on major decisions.

Supervisory Institutions

Monitoring of the implementation of legislation and regulations, and of regulatory compliance, will take place through Supervisory Institutions. Their scope of work generally reaches beyond e-government, and they would monitor e-government implementation from their own perspective.

The main supervisory institutions include:

- Data Protection Authority (to be established)
- Consumer Protection Authority (Mededingingsautoriteit – to be established in 2021)
- National Audit Office (Centrale Accountantsdienst)
- Parliament of Aruba
- Integrity Chamber (Integriteitskamer) – to be established

Key actions for start-up stage

- Convene a Ministerial Steering Group
- Setup eGov Council consisting of subject matter experts
- Set up a Project Management Team (PMT) that will function as the temporary central coordination team until such time when the eGov Coordination Unit is established
- Set up eGov Coordination Unit and institutionalize its mandate by law, including making any necessary amendments to existing laws and/or regulations or other sub-legal acts with details about institutional responsibility and procedures for decision-making, consultation and cooperation
- Transform the government's IT department into a state-of-the-art IT department
- Set up an e-Government virtual help



STRATEGIC OBJECTIVE 9

Develop a Sustainable Financial and Procurement Model

desk that provides 24/7 support. A sustainable financial model is needed to develop and implement the e-government model. Based on a 2019 McKinsey report on Digital Transformation, it is suggested that in IT alone, companies with outdated systems may need to double their current spending over a five-year period. The introduction of e-governance will have a cost, even if it will soon lead to savings in other respects, so it is essential there is adequate provision for the necessary funds in a sustainable manner.

The road map provides a multi-year approach where services are gradually added to the digital government platform based on priorities. The strategy is to constantly improve the service offering to citizens and ensure the number of services available online increases over time without a proportionate increase in cost. The interoperability platform will be designed to allow reusability and scalability.

e-Government investment goal

The goal is to bring the total innovation investments/expenditure of the government in line with the global OECD average of 1-3% of GDP. Considering the island's financial reality and the recent economic and financial crisis triggered by Covid-19, reaching the global average of 1-3% is a long-term goal and investments will gradually increase in stages over the next 10 years.

Sustainable financial model

The most common financial models applied in different countries were considered and it can be concluded that a sustainable model should be based on the following principles in the start-up phase:

- A multi-annual investment budget is

required to mitigate the risks arising from cyclical planning

- Investments in government-wide or sectoral digital solutions and technical infrastructure (hardware and software) should be covered by the government's investment budget to be earmarked annually
- Running costs (i.e., maintenance, support, development, licenses) that are agency specific are determined on an annual basis covered from the government's running-costs budget (*landsbegroting*)
- Once the e-government model is in place and data quality reaches a certain maturity level, it creates new business models for the government through the ability to charge private sector for the use or access to certain data sets via queries. The income can be designated to only be used to improve and/or maintain the e-government system if appropriate
- Value-add services provided to private sector via Conexion can be subject to a small service fee per transaction once the platform reaches a certain maturity level

IT procurement guidelines

The government will encourage procurement and use of locally produced technology and related services.

To increase transparency and build trust in the process, the government will collaborate with the local IT sector to develop IT procurement guidelines for the development of digital services and related work/purchases to support the national digital transformation vision.

INSIGHT:

Korea invested 1% of its national budget into e-Government development on an annual basis.

The government will consider the establishment of a special purpose vehicle to provide operational flexibility and a longer-term window of financing projects to ensure sustainability of large-scale IT (private and/or public sector) and skills development programs. A special purpose fund may tap into both public and private sources of financing and any upsides (e.g., profits or returns) can be re-invested in (or to support) the IT sector (e.g., capacity building of the private and public IT workforce and/or STEM in education).

Key actions for start-up phase

- Set up and institutionalize a multi-year e-government budget
- Develop IT procurement guidelines in collaboration with the private sector
- Consider the set-up of a special purpose vehicle to manage large-scale investments
- Maximize opportunities from multiple funding sources, including international development programs and EU programs



STRATEGIC OBJECTIVE 10

Develop an Enabling Ecosystem

Several areas have been identified as critical enablers for the implementation of Aruba's e-government model, a key driver towards national digital transformation. This section covers the foundational ecosystem elements, namely, the essential components of Aruba's Digital Transformation.

Political will and leadership

Sustained high-level leadership and support for digital transformation over the long-term political spectrum is essential. The introduction of e-governance should be a political priority and political leaders must support the necessary e-governance development processes to bring about actual change. Political will includes ensuring high-level political leadership that leads to the adoption and implementation of relevant policies and agendas. For this to have proper effect, it is important to identify roles and determine responsibilities for coordination and implementation, encouraging public-private partnership and close cooperation with academia.

The capacity and availability of local government officials and technical experts is seen as the main critical success factor for the implementation of Aruba's e-government vision. Most of the activities could be started immediately but require certain technical knowledge and availability of staff. This means that priorities for implementation must be set, staff need to be trained, and new staff recruited.

If necessary, external experts can be involved, however it is envisioned that the bulk of the work will be done by local government officials and experts, so that the knowledge will remain within the Aruban public and private sector.

Partnerships

Cooperation and coordination are key to achieving long-lasting effect. Early involvement (including expertise, investments) of the private sector has become an essential prerequisite for impactful projects. Private sector is highly supportive of the e-government goals and expects a strong, sustainable leading role from the government.

It is important to identify roles and determine responsibilities for coordination and implementation, but also encourage public-private partnership and cooperation with academic institutions. Government will work with private sector to stimulate demand for innovative IT and will encourage collaboration between local players. Sector specific IT programs and strategies will be developed in collaboration with experts and key stakeholders. The joint development of a *National Digital Agenda* is key to this effect.

Aruba will further develop and intensify its partnerships with other Caribbean nations and Small Island States, Estonia, the Netherlands (and Dutch Kingdom), the European Union, UNDP, OECD, and the University of Aruba (in particular the SISSTEM faculty and the Aruba Institute for Good Governance & Leadership program), among others. Further, linking Aruba's e-government strategy to the global trend of digital government, as well as the Sustainable Development Goals, will generate a stronger understanding of e-government's necessity.

Digital Payments

Real-time and affordable national payments, settlements and a clearing ecosystem has several amplifying and enabling factors that fuel the digital transformation process.

Having a national digital payment system enables citizens, business and government to complete service and transaction processes in a digital manner.

In order to achieve the e-government mission and to stimulate the economy in the short term, it is extremely important to stimulate and facilitate digital payments.

The first step to further the momentum of the modernization of the payment system and boost digital payments has already been taken by the Central Bank of Aruba (CBA) in collaboration with the local commercial banks.

In 2018, the CBA started the I-Pago project in collaboration with the commercial banks to modernize the payment infrastructure in Aruba. Phase 1 of this modernization project focused on the transition from the former "ACH clearing & settlement" system to the Instant Payments platform, which is based on the ISO 20022 standard. Phase 1 already entered operation in January 2020 and the commercial banks are direct participants in the new CBA Instant Payments Clearing & Settlement Mechanism (IP CSM), also known as I-Pago. After this successful switch, all interbank payments in Aruban florin initiated in Aruba can be processed instantly: 24/7/365.

The CBA plans to work with the commercial banks on phase 2 of the project to modernize the payment infrastructure in Aruba even further. Phase 2 focuses on the potential implementation of several use cases on top of the already existing instant payments via I-Pago, with the aim to have direct and noticeable benefits for consumers, both individuals and businesses. The CBA is in the

early exploratory stages of phase 2. Potential use cases in this phase could include person-to-person (P2P), online, in-store payments and Request for Pay.

The introduction of digital instant payments in Aruba is expected to create great efficiencies based on an assumed fast adoption rate. For more information on this modernization project of the payments infrastructure in Aruba of the CBA, please visit the CBA website: <https://www.cbaruba.org/ipago/>

INSIGHT:

A study by Visa covering 100 cities suggests that the average consumer spends 21 hours per week handling cash, including ATMs, writing/cashing cheques, visiting banks, and paying bills. The cost of cash to businesses and governments is even higher. With the right infrastructure and regulatory framework, digital payments and digital money can lead to enormous advantages for the Aruban economy.

Blockchain

Blockchain can be a great tool to combat corruption and anchor integrity in government transactions such as registering assets and procurement. Many governments around the world are developing proof of concepts from the restitution of land in Colombia to smart contracts in Chile. Having a national blockchain coalition for public-private-academia collaboration will accelerate the identification of potential blockchain projects and maximize their impact on inclusive economic growth.

Open Data

While the government and local businesses collect a wide range of data, this data is not always shared in ways that are easily discoverable, usable or understandable by



STRATEGIC OBJECTIVE 10

Develop an Enabling Ecosystem

the general public. To allow for effective use of data, it must be submitted in a machine-readable format and explicit rules should be established for data recycling. Aruba will build an open data ecosystem to support data sharing in the mid to long term, following enhancement of its national statistical capacity. Digitizing services will lead to generation of large amounts of data that can be mined to generate new insights to inform policymaking. Further, unlocking the power of government data will spur innovation across the island and improve the quality of life through acceleration of the Sustainable Development Goals.

The availability of open data will contribute to:

- Transparency of governance
- Better policy-making
- Empowerment of citizens
- Data for (scientific) research
- Innovation
- Inclusive economic growth

INSIGHT:

Brazil Transparency Ministry was able to detect irregular practices in credit card usage by public officials and social benefits programs simply by cross-referencing government databases.

Artificial Intelligence

Artificial Intelligence (AI) is part of our everyday lives and many of us do not even notice it. AI has the potential to enhance government service delivery and will be the driving force behind the goal to become a pro-active and anticipatory government. That said, to maximize AI's potential, the government needs to have a large volume of high-quality data. This will take time and is part of the overall e-government roadmap.

That said, it is important to design new systems and services with this end in mind. Therefore, developing an artificial intelligence strategy early in the start-up phase will allow Aruba to build the necessary capability and capitalize on the opportunities this breakthrough technology offers in the future.

INSIGHT:

Around 44% is the estimated growth rate for AI spending in central governments around the world through 2022, faster than AI spending in personal and consumer services. Worldwide spending on artificial intelligence systems will grow to nearly \$35.8 billion in 2019 – International Data Corporation

Innovation Labs

Incubators and government innovation labs are crucial to enable innovation, design human-centered services and to accelerate the adoption of digital solutions. These labs create 'safe spaces' for public sector innovation. Regulatory sandboxes are also a great way to allow innovations to be fostered within a safe space.

The eGov Coordination Unit will work closely with both public and private sector innovation labs to co-create digital solutions that are citizen-centric and to test these solutions in a safe and controlled environment before nation-wide deployment.

Key actions for start-up phase

- Introduce digital payments for core government services
- Develop digital leadership program and enroll political leaders, ministers, policy advisors
- Institute a national blockchain coalition consisting of key public, private and

academia partners

- Formalize a public-private collaboration platform and launch collaboration initiatives to support the acceleration of e-government implementation and adoption
- Develop a collaboration framework for open data and AI
- Develop an open data policy framework
- Define a broad AI strategy
- Ensure government data, information and documents are machine-readable by default
- Develop an open data portal/commons
- Develop a framework and action plan to leverage big data and AI to reduce corruptive practices
- Identify the first use case for AI to pilot and develop a long-term plan to scale it
- Build AI talent capacity (both in public and private sector)

SECTION 4

*e-Government Road Map***4.6 Implementation Strategy**

To achieve the e-government vision and main ambitions, all strategic objectives must be met.

Specific goals are set to be achieved in the coming 5 years, starting from 2021. A phased-out approach is necessary in light of resource constraints.

"All of our desk research, comparative case studies, and preliminary hypotheses could not prepare us for the reality of Aruba on the ground. Aruba is a small island with a pioneering vision for the future, matched only by the pride and passion Arubans have for their country. While the common constraints of time, resources, and money apply, as they always do, Aruba and its residents have shown us that they are ready to take on the challenge of molding their future, given the proper encouragement and training. While the premise of a digital government is enticing, in the end, what both public servants and Arubans as a whole seemed to want were simple at their core: the ability to be involved, the option to choose, and the sincere promise of change -- the very human elements that will form a strong foundation for Aruba's new digital government." – SIPA students, *Columbia University New York*

Policy coherence

Policy coherence is a key governance objective of the Aruba Government. It is therefore important to align the e-Government Road Map implementation strategy with the implementation of the *Repositioning Our Sails* master plan for economic resilience and of the *National Strategic Plan* for achieving the U.N. 2030 Sustainable Development Goals. This will be achieved at execution level by streamlining the action plans and the monitoring and reporting thereof.

Mitigating Risk

Managing and executing an ambitious digital transformation program does not come without risk or concerns. Significant

effort was made to map out potential risk factors and existing or potential future concerns of stakeholders, implementation teams and citizens. Below is a summary of some key risk factors and challenges that have been addressed through this road map and will be further mitigated as part of an agile implementation strategy:

- Getting the government workforce ready for digital transformation and a customer-centric mindset
- The growing complexity of technology and widening of the skills gap
- Lack of program funding causing delays
- Cybersecurity and data privacy concerns
- Maintaining political commitment through leadership changes
- Resistance to a new way of working
- Avoiding digital divide

Radical Collaboration

Political leadership and implementation teams (including stakeholders) are jointly responsible for implementation of the road map to ensure collaborative ownership of the actions. Management of the implementation process, including oversight and direction will be delegated to the central e-government coordination unit and dedicated program managers will be assigned to implementation projects.

Agile program management supported through KPI measurement and monitoring is key to ensure accountability. It further ensures a consistent translation of the e-government vision and the corresponding SDG goals across public and private stakeholders.

Measurement and Reporting

The urgency of the road map implementation calls for continuous monitoring and

measurement of performance. The foremost success factor is the achievement of the desired results identified for each phase. The measurement and reporting will be streamlined with the SDG and master plan reporting process. Reference is made to the *National Strategic Plan, Nos Plan Nos Futuro, chapter 7 Measurement and Reporting on page 47.*

A digital dashboard accessible to stakeholders will be developed for transparency and tracking purposes. The eGov Coordination Unit will be responsible for performance (KPIs) measurement and reporting to the SDG/master plan monitoring platform. Key insights and milestones will be updated regularly and posted to a community-focused website.

Overview of key benchmark tools and global indexes to measure and monitor e-government goals

- E-Government Development Index (EGDI) – UNDESA
- ICT Development Index (IDI) – UN specialized agency for ICTs, ITU
- UN e-Government Survey – UNDESA
- e-Government Benchmark – European Union
- National Cyber Security Index (NCSI) – eGovernance Academy Estonia
- The Global Competitiveness Index – World Economic Forum
- The Global Innovation Index – co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations
- Measurement of Customer Satisfaction to improve service delivery (tools to be determined)

Key actions for start-up phase

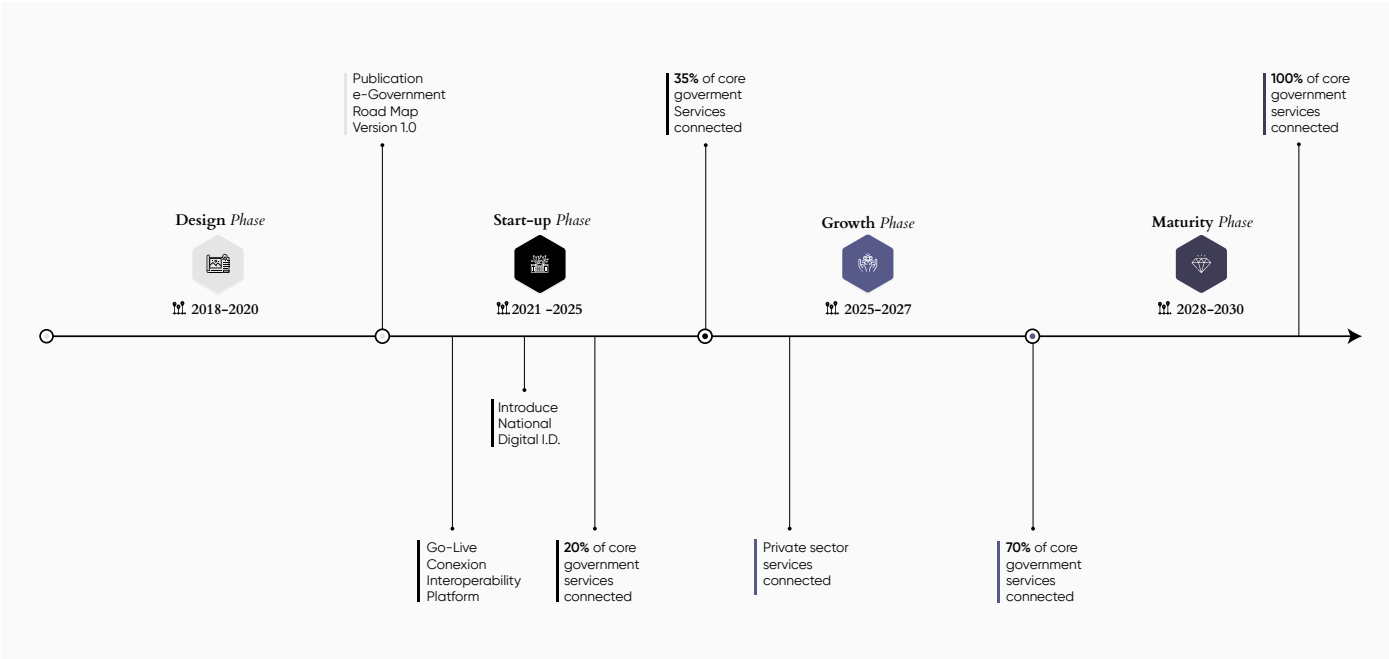
- Setup monitoring and reporting governance structure in collaboration with DEZHI national planning unit
- Design a national digital transformation measurement plan, including measurement strategy for e-government performance with 2021 being a crucial base line year
- Incorporate measurement and reporting of road map actions into SDG/master plan reporting process
- Identify key stakeholders for start-up phase projects
- Appoint and train agile program managers
- Continue sprint planning on a bi-weekly basis
- Develop a digital dashboard to streamline progress reporting across projects and to ensure maximum transparency

SECTION 4

e-Government Road Map

4.7 Timeline

This e-government road map sets out the key milestones to be achieved by 2025.





e-Government + *Road Map*



Government of Aruba

