MIGRATION MANAGEMENT DIGITAL MATURITY ASSESSMENT REPORT

ARMENIA

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2. EXECUTIVE SUMMARY

The digital maturity assessment for Armenia covered a wide range of topics relevant to digital governance with an emphasis on migration management. The report is one part of the project between The International Organization for Migration (IOM) and the e-Governance Academy, with the aim of creating a set of tools to assess a country's overall digital maturity and digital maturity in migration management. Therefore, the key recommendations are chosen based on what would have the most impact on digitalisation in migration management. These suggestions are beneficial for migration management but can also be used as drivers for e-governance in Armenia in general.

Key recommendations:

1. **Develop implementation plans for the Digitalisation Strategy of Armenia.** Although a governmental strategy exists and includes indicators, deadlines, and agencies responsible, these are outdated and do not reflect the current situation. To plan the next steps in the digitalisation of the public sector, including migration management, the most important thing is to have a detailed plan for adopting policies, mandates, guidelines, and procedures related to digital transformation enablers. The implementation plan must cover the development of government enterprise architecture, data management, cybersecurity, digital services, and digital identity as the key enablers.

2. **Develop a digitalisation strategy for Migration Management.** Set clear principles, mandates, objectives, and direction using all enablers for digitalisation to take migration management to the next level. Combining migration management institutions under the Ministry of Internal Affairs (MoIA) enables the creation of a common vision for digitalisation within the migration field for all stakeholders to follow and develop their own detailed plans and strategies. Workshops and seminars are the best way for engaging stakeholders.

3. **Develop requirements for key roles related to digitalisation and capacity reskilling and upskilling options.** Key roles are CIO, CTO, CISO, CDO and service/product owners, together with development teams. Even if IT-systems programming is outsourced, in-house knowledge about digital services must be in place, and government and migration management institutions must act as smart service/product owners.

4. **Turn the Population Register into a single source for information** about all natural persons in Armenia (citizens, migrants, asylum seekers, etc.). This enables the reuse of already existing registers, technical solutions, and services for managing population information.

5. **Make the ID-card** (digitally functioning for authentication and digital signature) **an affordable mandatory document for citizens and start issuing chip equipped identity documents to migrants (residents),** thus enabling them to access government provided digital services and sign documents digitally. That also includes the hardware (ID-card reader) and software. The already planned redesign of the existing digital identity is a good opportunity to involve migrants and to promote their access, not only to the digital public sector services, but also to the services provided by the banks, telecommunication companies, etc.

6. Make the **Government Interoperability Platform (GIP) the mandatory data exchange** layer for government institutions, including all migration management institutions, and draft a detailed transition plan for institutions still using alternative solutions. Through the GIP data exchange, organizations are required to analyse the quality of their data and make improvements where needed. Better data exchange is important for the long-term sustainability of any digitalisation project.

7. Connect all government-provided services to a **central payment gateway.** Citizens, as well as migrants, should be able to pay state and other fees online. This improves both service quality and speed, but also helps to automate accounting and to prevent misuse of existing processes.

8. **Improve data quality in migration management registers** by moving from scanned pdf-files to machine-readable data management. Based on the policies, guidelines and other documents developed for the government institutions, migration management institutions need to review the quality of the existing data, correct it whenever possible, and agree on a single source of data and services for data exchange via the GIP.

9. Start **publishing general migration-related statistics** regularly, which are automatically generated based on the existing data and published at the websites of the Statistical Committee of the Republic of Armenia (ARMSTAT), Ministry of Internal Affairs and Migration Service. This enables lowering the workload, as it is currently done manually. Also, the government could get more specific data to make data-driven policy decisions to predict workload in border control, healthcare, school attendance for young migrants, migrant's benefits prognosis, etc. When developing a technical solution, it is important to keep in mind that there must be a single source for the statistics, enabling access from different websites using GIP services.

10. **Upskill and reskill officials in user-centric service design.** This includes training of the current service owners in the ministries and migration management institutions, **increasing their service design knowledge** for creating new cybersecure digital public services or reengineering the current services in migration management. Include **skills capacity training (also for the migration field)** into the universities' curriculum and MoIA's training activities; for example, use the Educational Complex of Police of the Republic of Armenia.

11. Increase **cybersecurity knowledge in migration management** organizations. This also includes improving the level of both IT professionals for implementing these to services but also basic cybersecurity training for officials.

12. **Create CISO positions** in migration management institutions supported by cybersecurity units. The CISO should be responsible for developing internal policies and guidelines, monitoring, capacity building, knowledge validation, etc. The cybersecurity unit is responsible for acceptance testing, penetration testing, daily monitoring, and prevention (e.g., Open Web Application Security Project - OWASP - testing)..

13. **Combine all migration-related information** into one online migrant hub to improve awareness and uptake of services that are aimed at migrants. This single source of information and one-stop shop for services can be an already existing government service portal with a separate section for migrants, supporting multi-device use (responsive web) in different languages.

14. Target online **awareness-raising campaigns to integrate migrants into society.** It is important that they are aware of their opportunities and responsibilities in their new home country. This includes work rights, health benefits, education for children, etc.

3. INTRODUCTION

The report provides an overview of Armenia's digital capabilities on the central government level and in the field of migration management and provides recommendations to further the digital transformation of governance and border management processes.

The Migration Management Digital Maturity Assessment Report Armenia is part of the IOM's project "Digitalization for Safe Human Mobility". The report was finalized using the Migration Management Digital Maturity Assessment tool (MMDMA) that was proposed to the IOM by eGA.

As for any other field of life, we can use the same digital enablers also for migration management. Migration management authorities need to deal with planning, coordinating, and financing of their actions and therefore need to be aware of cybersecurity issues and maximise the use of data by guaranteeing good principles for data exchange and the integrity of data. Also, the people working in migration management need to have the necessary knowledge and skills for understanding how they can benefit from digitalisation. Working in migration management means that the service owners need to know and understand the central components of e-governance tools and use them. There are also issues that are specific to migrants and can pose an extra challenge for digitalisation; for example, the use of secure identification and digital signature.

Digital capabilities on the central government level enable digitalisation in all sectors (including migration management) and allow them to benefit from digital development. Therefore, referring to general digital transformation in this report means general principles and enablers for digital transformation across all public sectors. The differentiation between general digital transformation and digital transformation in migration management specifically has two advantages for this report:

1. The separation enables to easily to create e a complete overview of the current situation in the migration management area, its strengths and areas for improvement, and to create an action plan for the next steps or strategy for digitalisation in migration management without focusing too heavily on the central government.

2. It also enables compiling a list of the following steps for digitalisation that are valuable and necessary for the whole public sector if the focus is not only on migration management.

For this migration management digital maturity assessment, a qualitative survey and 11 interviews with key stakeholders took place. It covers 10 e-governance topics that are relevant in Armenia and form a migration management perspective. These are strategic planning, management and coordination, financing model, cybersecurity, data management and secure data exchange, digital identity management, access to public services, digital skills, digital infrastructure framework, and international cooperation. Each of these topics has a general topic overview to describe their relevance in digital governance. All topics have more specific sub-topics. For each sub-topic, the current situation in Armenia is described based on desk research, a qualitative survey and interviews with stakeholders.

Based on that, the experts have evaluated each sub-topics digital maturity level (emerging, developing, established or advanced). The sub-topics distinguish between the situation in the central government and in migration management. In some topics, the level of digital maturity in central government and migration management is on par, and in others, it is different. At the end of each topic paragraph, the experts gave an overall digital maturity level assessment and mapped strengths and areas of improvement for general digital transformation and migration management digitalisation. This ensures that the report considers that its readers might have different backgrounds and knowledge of digitalisation and migration management. Furthermore, the report includes a general country context and an overview of stakeholders, for readers who are less familiar with Armenia, and explanations of the abbreviations and terms used, for ease of reading.

4. METHODOLOGY

For this report, a specific digital maturity assessment methodology was used. The Migration Management focused Digital Maturity Assessment methodology was developed by the e-Governance Academy and the IOM, with the objective to use it to obtain an overview of the current digital government situation in a country with a special emphasis on characteristics important for migration management.

The report was drafted based on desk research, a qualitative survey, and 11 interviews with key stakeholders (October 3rd to 6th 2022 in Yerevan).

The report indicates the level that exemplifies the country's digital maturity in ten different focus areas and provides recommendations for the next steps, offering input for future activities by the IOM or other stakeholders.

Four levels of digital maturity are distinguished:

1. **Emerging:** Most of the digital governance activities are in the inception phase. Although some progress can be noted, areas of significant importance are still under development.

2. **Developing:** Organizations implement digital governance activities based on the level of their internal capacities. There is no clear strategy or coordination in place. The activities are mostly sporadic, and processes are reactive in nature.

3. **Established:** A strategic framework for digital governance is in place and a division of roles exists. Conditions are created to be able to benefit from standardization, coordination and the shared use of digital components and resources; but there are certain shortcomings when it comes to implementation.

4. **Advanced:** Digital governance is a natural part of the operation of the public sector and the society. Public sector and the private sector jointly use digital components to reach the strategic objectives of the country. Processes are controlled and measured, with effective stakeholder involvement and a good balance between the top-down and bottom-up approaches.
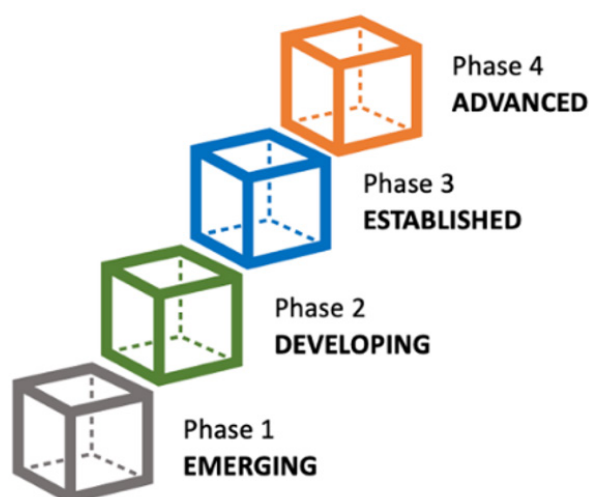
To implement the digital tools of migration management the 'established' level is desired for the country.

5. COUNTRY CONTEXT

5.1 Country overview

The Republic of Armenia is a mountainous landlocked country in the Southern Caucasus region in Western Asia, bordered by Turkey in the West, Georgia to the North, Azerbaijan to the East, and Iran and Azerbaijan to the South. Armenia has a territory of 29.743 square kilometres and a population of 2.97 million (2021)[1]. The capital is Yerevan (Erevan) with a population 1.1 million[2].

The Republic of Armenia is a unitary multiparty republic and a parliamentary democracy that became independent from the Soviet Union (USSR) in 1991. The current Constitution, adopted through a referendum in 1995, establishes the separation of the legislative, executive, and judicial branches. The President of Armenia is the head of state. The Prime Minister is tasked with elaborating the government's policy and coordinating and leading its work. The unicameral legislative branch consists of the National Assembly with a minimum of 101 seats.

The country continues to be seriously affected by the 2020 war in and around Nagorno-Karabakh[3]. The 44-day armed conflict that erupted in September 2020 and the COVID-19 pandemic led to a 7,4 percent contraction of the economy and a sharp increase in poverty levels. The lower middle-income-poverty rate rose from 9,8% in 2019 to 12,5% in 2020[4]. Enduring economic challenges include low agricultural yields, dependence on Russia for exports and remittances, rising inflation, and high oil prices.

Armenia's Human Development Index value of 0.759 places the country in the high human development category, ranking 85th out of 191 countries and territories[5].

In 2021, Armenia's GDP per capita was 4670 USD with an annual growth of 5.7%[6]. The country has a Doing Business ranking of 47 out of the 190 countries documented by the World Bank, where it achieves a top 30 position in starting a business, registering property, and getting electricity[7]. Over the years, Armenia has improved its position in the Corruption Perception Index, ranking 58th out of 180 countries in the Corruption Perception index in 2021.[8]

CONNECTIVITY	IN ARMENIA
Access to electricity	available for **100%** of the population[9]
Use of the Internet	some **77%** of the population (country comparison to the world: 125)[10].
Mobile cellular subscriptions	**118 subscriptions per 100 people**[11]
Fixed broadband subscriptions	**14.52 subscriptions per 100 people** (country comparison to the world: 95)[12].

Figure 1 Connectivity statistics in Armenia

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[1] World Bank, "Total Population", https://data.worldbank.org/indicator/SP.POP.TOTL?locations=AM
[2] World Population Review, "Yerevan Population 2023", https://worldpopulationreview.com/world-cities/yerevan-population
[3] Freedom House, "Armenia" https://freedomhouse.org/country/armenia/freedom-world/2022.
[4] World Bank Group (2021), "Competition and Firm Recovery Post-COVID-19", https://bit.ly/37neUwz.
[5] UNDP, "2022 Human Development Report - 'Uncertain Times, Unsettled Lives: Shaping our Future in a World in Transformation'
[6] World Bank, "GDP per capita – Armenia", https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=AM
[7] Doing Business Archive, "Ease of doing business in Armenia", https://archive.doingbusiness.org/en/data/exploreeconomies/armenia
[8] Transparency International, "Corruption Perception Index - Armenia", https://www.transparency.org/en/cpi/2021/index/arm
[9] World Bank, "Access to electricity – Armenia", https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=AM
[10] The World Factbook, "Country Comparisons – Internet Users", https://www.cia.gov/the-world-factbook/field/internet-users/country-comparison
[11] World Bank, "Mobile Cellular subscriptions – Armenia", https://data.worldbank.org/indicator/IT.CEL.SETS.P2?locations=AM
[12] The World Factbook, "Broadband – fixed subscriptions", https://www.cia.gov/the-world-factbook/field/broadband-fixed-subscriptions/country-comparison

Armenia ranks **68th in the UN's E-Government Development index** (19 positions up from the previous report). Armenia ranks 90th both in the **ITU Global Cybersecurity Index** as well as in the **National Cyber Security Index**. In the latter, it scores **maximum points** in the areas of **protection of personal data** and **fighting against cybercrime** but performs poorly in the areas of cybersecurity policy development, cyber threat analysis and information, protection of digital and essential services, and cyber crisis management[13].

Armenia still faces significant structural challenges, such as the need for further improvement in the business and investment environment, persistently high unemployment, lingering labour skills mismatches, and weak firm competitiveness.[14]

5.2 Migration overview

The Republic of Armenia joined IOM as a Member State in 1993. With a **net migration rate of -4.6 migrants per 1000 people (2021)**[15], Armenia has more emigrants than immigrants. A 2017 report by the OECD noted that **Armenia has one of the highest emigration rates in the world**, with about 30% of the population living outside the country and called for the country to make migration an integral part of its overall development strategies.[16] According to IOM's data portal the international migrant stock as a percentage of the total population in Armenia at mid-year 2020 was 6.4%.[17]

While more than a hundred thousand people left Armenia in 2021 alone, over the past couple of years due to the shrinking economy and a recent conflict with Azerbaijan, the country has welcomed a number of Syrian Armenians fleeing the Syrian civil war.[18]

5.3 Stakeholders

Digital society touches all aspects of a modern life. Different governmental agencies are involved at different levels and responsible for different fields of e-governance. Effective involvement of stakeholders should exist across sectors in policy making and implementation to make the digital society a success. As the digitalisation of society is complex and unique in every country, then also different NGOs, civil society organizations dealing with migrants, vulnerable groups, the society as a whole and educational institutions should be involved. Civil society organisations are valuable partners in upskilling and reskilling capacities of society members, they can assist in trainings and help to build trust towards digital governance.

Vision	Digitalization strategy and financing	Policymakers, NGOs, International partners
Solutions	Technological solutions and cybersecurity	IT agencies, IT companies, IT departments in the public sector
Capacity	Digital services and skills	Public and private sectors, educational institutions and NGOs
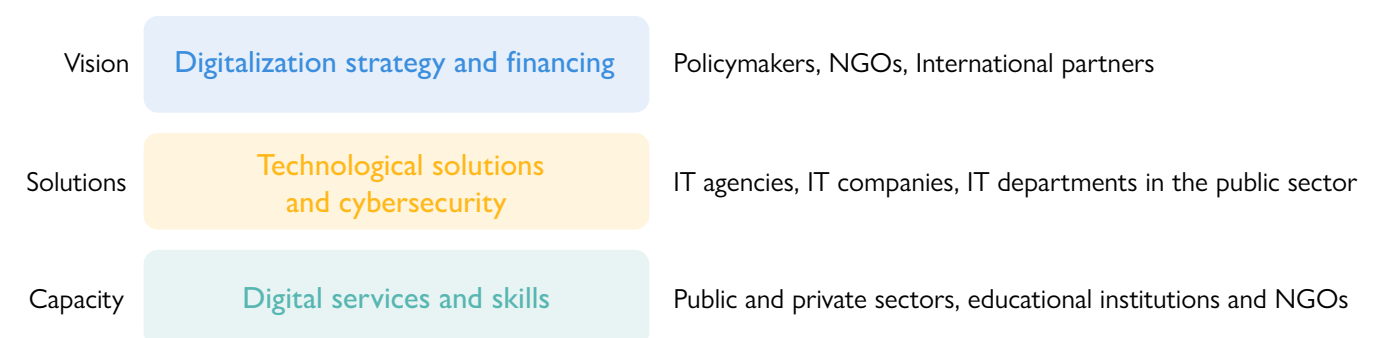
Figure 2 Stakeholders for the general digitalisation process

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13 National Cyber Security Index (NCSI), "Armenia", https://ncsi.ega.ee/country/am/
14 World Bank, "The World Bank in Armenia", https://www.worldbank.org/en/country/armenia/overview
15 UN Data, "Net Migration Rate (per 1000 population)", https://data.un.org/Data.aspx?d=PopDiv&f=variableID%3A85
16 OECD (2017), "Interrelations between Public Policies, Migration and Development in Armenia", https://www.oecd-ilibrary.org/sites/9789264273603-6-en/index.html?itemId=/content/component/9789264273603-6-en#:~:text=Armenia%20has%20one%20of%20the,population%20living%20outside%20the%20country.
17 Migration Data Portal, "Total Number of International Migrants at mid-year 2020", https://www.migrationdataportal.org/international-data?cm49=51&focus=profile&i=stock_abs_&t=2020
18 New Lines Mag (2021), "The Syrian Armenians Who Fled One War Zone for Another", https://newlinesmag.com/reportage/the-syrian-armenians-who-fled-one-war-zone-for-another/

While migration management might seem like only one field of e-governance, it is interlinked with all the different e-governance pillars: from having supportive legislation to upskilling migrants and providing them services or making sure they can access the services that they need. Therefore, it is paramount that the migration management stakeholders work closely together with governmental bodies and vice versa.

Currently, the Migration Service works under the Ministry of Territorial Administration and Infrastructure, but it is in the process of being moved under the new Ministry of Internal Affairs. Closely involved in migration-related matters is the Police and National Security Service (border guard). The biggest organization outside the government sector dealing with migration issues is IOM Armenia, which is also a partner for the government, for example, when issuing work permits.

ISMA*	Ministry of justice	ARMSTAT	NORK	EKENG	High Tech Ministry	Central Bank	Deputy Prime Ministers Office		Migration Service	Police	NSS**	MoTAI***	MoIA****
					√		√	Strategy	√			√	√
					√		√	Management	√				√
					√		√	Finance	√				√
√				√	√	√	√	Cyber	√				
√		√		√	√	√	√	Data					
				√	√	√	√	Identity		√			
√	√	√	√	√	√		√	Services	√		√	√	
√	√	√			√		√	Digital skills					
				√	√	√	√	Infrastructure					
√					√		√	Co-operation	√	√			

Table 1 Stakeholders for digital governance pillars

*ISMA - Information Systems Management Agency (being established)
**NSS - National Security Service
***MoAI – Ministry of Internal Affairs (being established)
****MoTAI - Ministry of Territorial Administration and Infrastructure

6. DIGITAL MATURITY

The country's and migration management's digital maturity (emerging, developing, established, or advanced) is assessed in 10 digital governance categories:

Strategic management	Management and coordination	Financing model	International cooperation	Access to public services
Digital skills	Cybersecurity	Digital identity management	Data management secure data exchange	Digital infrastructure framework
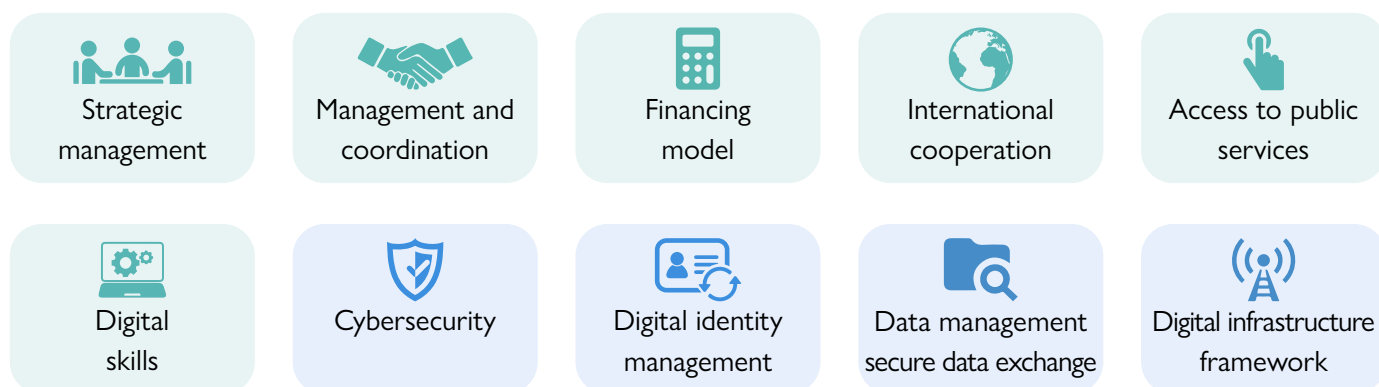
Figure 3 Digital Maturity pillars

1. **Strategic planning** (digitalisation strategy, strategic oversight, legal framework)
2. **Management and coordination** (organization & coordination, structure of the e-government, IT managers' cooperation)
3. **Financing model** (governmental funding, external and donor funding)
4. **Cybersecurity** (policy & strategy, legal framework, operational management)
5. **Data management, secure data exchange** (digital data management, legal framework, access to data, secure data exchange)
6. **Digital identity management** (identity management, digital identification, and signatures)
7. **Access to public services** (information on relevant public services, availability, and maturity of digital services)
8. **Digital skills** (digital skills of public officials, awareness raising and inclusion)
9. **Digital infrastructure framework** (digital architecture, digital infrastructure)
10. **International cooperation** (international and regional cooperation).

Digital governance pillars cover most aspects of modern digital society. The pillars have been defined keeping in mind the focus on migration management. The pillars are presented in no order, they are all equally important, and they are interlinked and sometimes also overlapping in some topics. These topics are intertwined with migration management as it involves different aspects of society and the digitalisation of migration management is like other digitalisation efforts at the central government level.

The results provide suggestions for future improvements, offering input for the following steps and future activities by IOM or other stakeholders in order to use any digital possibilities in migration management.

6.1 Strategic planning

Topic overview: Strategic planning (digitalisation strategy, strategic oversight, legal framework) – helps with evidence-based policies and creates strong institutions to ensure safer orderly regular migration and efficient migration management.

The introduction of digital concepts and tools should be a political priority and agreed upon between all political forces. Political will should be affirmed in a political document, such as a digital agenda or a digital transformation strategy, which would be a guarantee of such will. The government and its leaders must understand that the digital agenda is not a free-standing topic but part of every policy, service, and industry in the country. Political leaders need to stay engaged and commit time, budget, and even political capital to the cause of digital transformation.

6.1.1 National digitalisation and/or e-Governance strategy

The current situation in the central government:
General digital governance priority areas are clearly defined and backed by adopted strategic document(s). (Digital maturity phase: established)

In 2021 the Government adopted the Digitalisation Strategy of Armenia[19], which defines the main areas of focus for the next 5 years. This Strategy is a guide for all implementation activities regarding digital transformation in Armenia.

Armenia's Digitalisation Strategy is designed to contribute to the provision of high-quality public services, the efficiency and transparency of the public administration system, the development of broadband and telecommunication infrastructures, increasing the competitiveness of the private sector, making data-based decisions necessary for economic growth, and developing a workforce with digital skills.

The Government's mid-term program, the Public Administration Reform Strategy[20] includes implications for digital transformation – the strategy states the provision of citizen-centred, universally accessible, and technology-based public services via one portal.

The Ministry of High-Tech Industry, guided by the priorities set by the Government, plans to carry out the digital transformation (digitalisation) of the Government, economy, and society. It is aiming to do so through the introduction and development of innovative technologies, cyber security, data policy, electronic services, and the electronic government system. The scope also includes the digitisation of the state administration system, coordinating processes and the creation of common standards and a digital environment. Their activities also involve the development and implementation of initiatives promoting the use of digital technologies in the private sector, and programs promoting the use of electronic tools by society members.

The current situation in migration management:
Defining migration management digital governance priority areas and/or compiling a migration management digital transformation strategy are underway. (Digital maturity phase: developing)

Migration is not on the government's strategical digitalisation priority list.

6.1.2 Strategic oversight

The current situation in the central government:
Compilation of general digital governance implementation plans is in progress. (Digital maturity phase: developing)

In the Digitalisation Strategy of Armenia, which defines the main areas of focus for the next 5 years, appendix no. 2 Implementation plan - "Outcome indicators of Digitalisation Strategy of Armenia" describes outcome indicators, deadlines and resources needed to reach the strategic goals, and the Digital Council is providing quarterly reports on the progress on activities.

The current situation in migration management:
Compilation of migration management digital governance implementation plans is in progress. (Digital maturity phase: developing)

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[19] Digitalisation Strategy of Armenia, (2021). https://www.arlis.am/documentview.aspx?docID=149957
[20] Public Administration Reform Strategy, (2022). https://www.arlis.am/DocumentView.aspx?docID=162791

The main Government body in charge of migration-related policy in the Republic of Armenia is the Migration Service of Armenia (Migration Service), currently operating within the Ministry of Territorial Administration and Infrastructures. While concrete implementation plans[21] are currently still under development, the assessment team noted that the Migration Service has a vision to include digitalization in ongoing and future reforms.

6.1.3 Legal framework

The current situation in the central government:
Legal framework supporting digital governance is at a minimum level and incompatibilities are identified. (Digital maturity phase: developing)

The main strategic digital governance topics covered by the legislation are:

- Government's decision to add general requirements for the security, interoperability and technical requirements of electronic systems used for providing electronic services or performing operations by state and local self-government bodies (2015)[22].
- Government's decision on approving the procedure for electronic exchange of personal data processed in the databases of state and local self-government bodies (2017)[23]
- Law on Personal Data Protection (2015)[24]. Unique persistent identifier, the legal act relevant to the registration of citizens, Law on the Public Services Code (2011)[25].
- Law on Identification Cards (2011)[26] and Law on Electronic Document and Electronic Signature (2005)[27]

However, the legal acts are largely outdated and need to be revised. The updated legal acts need to take into consideration of the latest technological developments and e-governance visions.

According to the interviewees, a large set of legal amendments are already in process, starting with identity, cybersecurity, and the digital economy. The leading body in the sphere is the Ministry of High-Tech Industry.

The current situation in migration management:
Legal framework supporting digital transformation in migration management is at minimum level and incompatibilities are identified. (Digital maturity phase: developing)

Different stakeholders had a variety of opinions on the current situation. From the migration management point of view, the legislation on administrative proceedings is old and not applicable to digital solutions.

6.1.4 Strengths and areas of improvement

Experts evaluate the overall maturity level of strategic planning in digital transformation as developing.

Strengths in general digital transformation:
- The political willingness for the topic of digital transformation is good, it is in the politicians' agenda.
- The open mindset of the digitalisation stakeholders offers a good opportunity to continue with the digitalisation efforts.

[21] New Lines Mag (2021), "The Syrian Armenians Who Fled One War Zone for Another", https://newlinesmag.com/reportage/the-syrian-armenians-who-fled-one-war-zone-for-another/

[22] https://www.arlis.am/DocumentView.aspx?docID=110384

[23] https://www.arlis.am/DocumentView.aspx?DocID=111991

[24] https://www.arlis.am/DocumentView.aspx?DocID=110606

[25] https://www.arlis.am/DocumentView.aspx?docid=73085

[26] Law on Identification Cards (2011), http://www.parliament.am/legislation.php?sel=show&ID=4348&lang=eng#:~:text=Identification%20card%20is%20the%20property,of%20the%20Republic%20of%20Armenia.

[27] Law on Electronic Document and Electronic Signature (2005), http://www.parliament.am/law_docs/150105HO40eng.pdf

- A large set of legal amendments are already in process, starting with identity, cybersecurity, digital economy.
- The Digital Council is using the strategy and provides quarterly reports on progress.

Areas of improvement in general digital transformation:
1. Review existing and new legislation to ensure it is aligned with the digital government strategy and other digital society aspects. Consider reforming the processes to speed up the changing of the necessary legislation.
2. The current digitalisation strategy implementation plan needs adjustments, as the deadlines have not been met.
3. Conduct a periodic review of the Digitalisation Strategy implementation plan and amend it, if needed, based on the current situation.

Strengths in migration management digitalisation:
- Strong ownership of migration management by the Migration Service of Armenia (Migration Service).
- A strong vision of digitalisation in the migration area by the Migration Service.

Areas of improvement in migration management digitalisation:
1. In cooperation between different migration agencies (governmental and international), define migration management digital governance priority areas - list the systems and services to be digitalised, including the issuance of new secure digital ID-s for migrants. Form a digitalisation strategy for migration management.
2. In cooperation between different migration agencies (governmental and international), give input into migration management strategic documents.
3. In cooperation with different migration agencies (governmental and international), review the existing migration management legal framework, identify bottlenecks preventing digitalisation, and draft and adopt amendments.

6.2 Management and coordination

Topic overview: Management and coordination (organization & coordination, structure of the e-government, IT managers' cooperation) help create effective and functional digital services, including international and cross-organizational services relevant to migration and identity management.

6.2.1 Organization & coordination

The current situation in the central government:
An organization or person is formally designated to oversee the general digital governance development in the country; power and competencies of digital governance coordination are mandated by legislation. (Digital maturity phase: developing)

With the Prime Ministers' decision No. 81-A of January 21st, 2022, an Information Systems Management Board (Digital Council) was created in order to coordinate the reform and programs to implement digital transformation in Armenia[28]. The Chairman of the Digital Council is ex officio the Deputy Prime Minister coordinating the field of digitalisation reforms of the Republic of Armenia (Chief Information Officer, CIO, of Armenia) and the members are Minister of High-tech Industry, Minister of Economy, Minister of Justice, Minister of Finance and Chairman of the Central Bank.

The Digital Council is working on overseeing all digital transformation activity in the public sector, including portfolio management aspects that will be used to rationalise the work being done across departments.

The Central Bank of Armenia (CB) is leading the digital transformation in certain areas in the country by Government mandate, for example: national ID, interoperability, cybersecurity. The CB is among the key players in cybersecurity in

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[28] PM decision No. 81-A of 21.01.2022, establishing Information Systems Management Board, http://www.irtek.am/views/act.aspx?aid=114361

Armenia, highly prioritising the importance of this field. The CB aims to maintain financial stability by developing and implementing a monetary policy. It also ensures the development of a functioning and secure payment and settlement system. Compared to other areas, cybersecurity in the financial sector of Armenia is more advanced and currently the establishment of a financial CSIRT is under preparation.

The Ministry of High-Tech Industry and its Digitalization Department – according to the Law on Structure and Activities of the Government – is the main responsible body for drafting and implementing digitalisation and cybersecurity policies. Established in 2017, the Ministry of High-Tech Industry develops and implements public policy on communications, information technologies, and information security, as well as on postal communication networks. It coordinates digitalisation processes and manages the development of electronic services and systems.

The Nork Social Services Technology and Awareness Center (Nork) is Armenia's leading technology company which designs, creates, implements and maintains information and telecommunication technologies and infrastructures both in public and private sectors. Nork was founded in 2001 under the Ministry of Labour and Social Affairs to ensure maintenance and operation of social assistance databases. Nork designed and developed the 15 information systems currently in operation in the field of social protection in Armenia.

The Ministry of Justice has a main role in developing the legislative framework and the organizational tasks within the government sector regarding legal reforms.[29] The Ministry ensures compliance of national legislation with international principles and regulations and is responsible for personal data protection. The Ministry of Justice participates in cybersecurity issues mainly through its Personal Data Protection Agency. Established in 2015, the Personal Data Protection Agency of the Ministry of Justice is a separate subdivision of the Ministry.[30] The agency maintains the register of personal data controllers

The Office of Implementation of E-Governance Infrastructure (EKENG) is a state-owned company that provides centralized e-governance services and is responsible for the technical aspects of the e-Governance Strategy. The EKENG functions as a significant power nexus working on the consolidation of IT services across the government of Armenia. On February 20th, 2014, Decision 217-A of the Government of Armenia designated the EKENG to operate the state component of Armenia's common infrastructure for electronic documentation. The EKENG manages e-signatures[31], operates the government's interoperability platform for digital services, and hosts most databases.

The National Security Service (NSS) is a state agency of Armenia, whose functions are outlined in article 15 of the law on National Security Service Agencies of the Republic of Armenia. It is formally responsible for cybersecurity policy and the protection of government websites and networks.

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The current situation in migration management:
An organisation or person is formally designated to oversee the digital governance development of migration management in the country. (Digital maturity phase: developing)

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The main Government body in charge of migration-related policy in the Republic of Armenia is the Migration Service of Armenia (Migration Service), currently operating within the Ministry of Territorial Administration and Infrastructures. The mandate of the Migration Service has expanded over time, and, under planned government reforms, will become part of the new Ministry of Internal Affairs (currently in process).

Armenia will have a coordinating body under the Ministry of Internal Affairs, namely the Migration Council, which is currently being formed[32]. The council will bring together representatives of all stakeholders from public agencies, international organisations, civil organisations, and various migrant groups. This is included into Conceptual Framework for Migration Management (May 2021), but not implemented yet.

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[29] https://www.dcaf.ch/sites/default/files/publications/documents/ArmeniaCybersecurityGovernanceAssessment.pdf.
[30] Statute of the Agency for Protection of Personal Data of the Ministry of Justice of the Republic of Armenia.
[31] What is a digital signature and how is it shaped?, EKENG, https://www.ekeng.am/en/sub/digital_signature
[32] https://www.arlis.am/documentview.aspx?docid=152909

6.2.2 Structure of the e-government

The current situation in the central government:
Digital government architecture and interoperability framework are adopted and mandatory to use. (Digital maturity phase: established)

The regulation of the interoperability framework "Government's decision to add general requirements for the security, interoperability and technical requirements of electronic systems used for providing electronic services or performing operations by state and local self-government bodies" was approved in 2015 and the EKENG is the operator of the Government Interoperability Platform.

However, according to the interviewees and received input, the legal acts supporting digitalisation are largely outdated and need to be revised. The updated legal acts need to take into consideration the latest technological developments and e-governance visions. The first activity of the digital transformation teams was to establish the new digital architecture, including the adoption of the Estonian model of interoperability, initial data registers, etc.

Currently, there is an interoperability framework between e-management data systems belonging to different Ministries and governmental agencies, such as the interoperability between e-Civil (Ministry of Justice), e-Health (Ministry of Health), Population Register (Police), as well as partial access to e-Civil's data by public notaries and bank officials.

The current situation in migration management:
Digital government architecture in migration management has not been defined. (Digital maturity phase: emerging)

Currently the only mandatory government rules that apply to digital government architecture are in relation to public sector websites, the structure of website, etc.

6.2.3 IT managers/CIO

The current situation in the central government:
Most ministries do not have persons in place who would oversee digital transformation within the organization. (Digital maturity phase: emerging)

Some ministries assigned CIOs/ IT managers; however, the roles and responsibilities are not clearly defined. Though there are some exceptions: the State Revenue Committee, Ministry of Education, Ministry of Justice, Ministry of Labour and Social Affairs have a designated CIO/IT managers position (a role where the person engages in strategic cooperation in the digitalisation of the public sector).

The current situation in migration management:
Ministries/agencies responsible for migration management do not have persons in place who would oversee digital transformation within the organization. (Digital maturity phase: emerging)

Designated CIOs/ IT managers are not appointed in migration management. There is no joint approach to specific digitalisation processes in Armenia, so every agency is developing its own solutions.

6.2.4 Strengths and areas of improvement

Experts evaluate the overall digital maturity level of management and coordination as developing.

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Strengths in general digital transformation:
- Strong political will and a defined leader at the highest level in the form of the Digital Council at the Prime Minister's Office who cooperates with key stakeholders.
- There is an interoperability framework between e-management data systems belonging to different Ministries and governmental agencies.
- Most of the ministries have CIOs/IT managers in place. Although it is an important first step, clear roles, and responsibilities together with cooperation mechanisms are missing and responsibilities are not always clear.

Areas of improvement in general digital transformation:
1. Develop requirements for key roles in digitalisation and capacity reskilling and upskilling. For example, for CIO, CTO, CISO, CDO and service/product owners together with IT development teams.
2. Create a cooperation model in the form of working group for CIOs to exchange experience and knowhow. For example, organizing and facilitating regular conferences, seminars, and networking events. Cooperate closely with the government sharing best practices and lessons learned. For example, organizing and facilitating regular seminars and networking events and conferences.
3. Define responsible organizations and create work groups that coordinate specific topics (for example interoperability, service design, data digitalisation and management, etc.) on the government level. The number and responsibilities of the main working groups should be defined by the Digital Council, but the working groups do not have to belong to the council due to their specific tasks and topics.
4. Involve representatives of academia, the private sector, and civil society systematically into work group activities to contribute to policy development in the field of digital transformation. Such involvement may include service development, data management, service provision, needs assessment, development of websites etc.
5. Make it mandatory to use the GIP by government institutions to achieve better data quality, interoperability, and cybersecurity.
6. In addition to a mandatory digital government architecture and interoperability framework, define clear rules for the establishment of databases and digital services, and interoperability of data.

Strengths in migration management digitalisation:
- The Migration Service has taken strong ownership of the domain, but lacking resources and funding to run the digitalisation of the migration services in a large scale or coordinate the process.

Areas of improvement in migration management digitalisation:
1. Encourage cooperation between migration management institutions' CIOs and other government CIOs (see recommendation about the cooperation model above).
2. Use the Migration Council (currently being established) to share best practices and lessons learned. For example, organizing and facilitating regular seminars and networking events and conferences.

6.3 Financing Model

Topic overview: Financing model (governmental funding, external and donor funding) – guarantees sustainable long-term financing models for the effective use of funds to ensure the continuing development of e-governance.

For every digital governance solution, the total cost of ownership of the solution must be planned. Sufficient financing should be provided on a medium- to long-term basis, preferably through multi-annual budgeting. For example, in the state financial forecast, a separate budget line is allocated for the development of digital governance. The transparency and accountability of the financial model should also need to be ensured.

6.3.1 Governmental funding

The current situation in the central government:
Total costs and yearly resources for ICT, including basic infrastructure and digital development, are planned at the national level; budget planning principles are developed and enforced by law. (Digital maturity phase: established)

The law on budgeting[33] defines the budget system of the country and regulates the budget process. The budget system is based on the principles of unity, separation of budget inputs and outputs, independence of budgets, balance of budgets, complete (gross) coverage of budget outputs, the efficiency of using budget fundability of budgets, etc. Interviewees pointed out that no centralized, dedicated budget exists for ICT development and maintenance within the government. Instead, each year ministries have to include their ICT costs in their budgetary costs proposals, which are approved at the national level. State budget is approved by the National Assembly.

The current situation in migration management:
Migration management has a designated ICT and digital development budget. (Digital maturity phase: developing)

Migration Management institutions are included in governmental budget planning (Law on budgeting). The government supports migration management digitalisation projects and programs in general, but governmental funding is mainly for the ICT/computer software and hardware (basic infrastructure systems) and maintenance of ICT systems.

Allocation of governmental funding for developing digital services is ad hoc and a lot of international funding is used for digital development, including service development.

6.3.2 International funding

The current situation in the central government:
International funding for ICT and digital development across the government is coordinated from the perspective of a single organisation (in silos). (Digital maturity phase: developing)

government has a good dialogue with development partners and international financial institutions - many international donors (see also "International cooperation") are providing on spot assistance to create different digital services, platforms etc. On the one hand, this allows public institutions to find expertise and funding to digitalize services. On the other hand, according to the interviews, the projects are not synergized, activities and/or projects are double funded to some extent and the standards and quality of implementation are varied.

The Digital Council is planning to coordinate the international funding of digital governance projects.

The current situation in migration management:
International funding for ICT and digital development in the field of migration management is coordinated from the perspective of single organizations (in silos). (Digital maturity phase: developing)

International funding plays a key role in migration and migration management digitalisation, and the EU is considered the main and biggest donor for migration digitalisation projects and programmes. Digital products and services are being developed mainly due to the financial support of international organizations such as IOM, The International Centre for Migration Policy Development (ICMPD) and UN Refugee Agency (UNHCR); for example: Work permit[34],[35],[36].

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[33] Law, The budget system of Armenia, 1997. https://www.arlis.am/documentview.aspx?docid=75497

[34] Work permit platform, "Who runs this platform?" https://workpermit.am/am/about

[35] The European Union for Armenia, "Strengthening Migration Management Capacities in Support of Government Reform Agenda in Line with CEPA", https://eu4armenia.eu/projects/eu-project-page/?id=1677

[36] The European Union for Armenia, "EU for Increasing Migrants' Potential to Act for development of Armenia – EU for IMPACT Armenia", https://eu4armenia.eu/projects/eu-project-page/?id=1509

6.3.3 Projects and funding

Considering the limited budget allocated by the Government, public institutions reach out to international donors for additional funding.

Getting international funding for digital platforms and services or digitalisation projects is considered easy by the interviewees, but they also referenced that it can be more challenging depending on the area of intervention. According to the interviewees, getting governmental and international funding for digitalisation projects in general is not the main challenge for digital transformation.

6.3.4 Strengths and areas of improvement

Experts evaluate the overall digital maturity level of the financing model as developing.

Strengths in general digital transformation:
- Total costs and yearly resources for ICT for the public sector are established.
- The government has good relationship with international organizations and manages to obtain international funding.

Areas of improvement in general digital transformation:
1. The Digital Council should take the role or appoint a designated authority/body to coordinate the international funding in digital transformation areas (ICT and digital development priority), and to set the priority areas in digital transformation, including procedures for applying, using, and monitoring the funding.

Strengths in migration management digitalisation:
- Cooperation with international institutions is established.

Areas of improvement in migration management digitalisation:
2. Total costs and yearly resources for migration management related digital development are planned at the national level.
3. International funding for ICT and digital development in the field of migration management should be coordinated by a designated authority/body, including procedures for applying, using, and monitoring its use.
4. Include the MoIA as key stakeholder gathering all financial needs for migration management and submitting them to the state budget. The MoIA should set priorities and decide how finances are divided, both internal and international funding.

6.4 Cybersecurity

Topic overview: Cybersecurity (policy & strategy, legal framework, operational management) – ensures the protection of individuals organizations and the state in cyberspace. Adequate cybersecurity is crucial for the healthy functioning of the digital society.

The growing cyber threats in the world require public administrations to focus on security measures in digital governance. A coordinating institution is required to organize the development, monitoring and supervision of relevant information security rules and measures. A designated organization in the form of a CERT/CIRT (computer emergency response team/computer incident response team) should be established. Also, proper audit processes should be established, and all ministries and authorities should be aware of and use adequate ICT security measures. The cybersecurity framework and the system of ICT security measures should be established by legislation.

6.4.1 Policy & strategy

The national cybersecurity strategy is missing or in the initial phase (Digital maturity phase: emerging).
Some cybersecurity requirements are set at the government institutions level (Digital maturity phase: developing).

In 2017, a draft cybersecurity strategy was created by the former Ministry of Technology and Communication, but it was never adopted or implemented due to the conflict and the need to focus on its consequences.[37] Cybersecurity is considered a part of the national strategy as proved by the National Security Council of the Republic of Armenia which states the importance to develop information security and to set a goal to improve cybersecurity by developing state information, technological, and cybersecurity policies and strategies, as well as introducing comprehensive mechanisms for the management of the sector by establishing national cybersecurity centre and computer emergency response team. Furthermore, based on the interview, Armenia will develop an information security strategy. [38]

Armenia's Digitalization Strategy 2020-2025 sets a goal to develop cyber security standards and verification of their compliance with state platforms, expert advice, monitoring of the level/state of cyber security, but these are yet missing. Some agencies have adopted and follow their own cybersecurity requirements, including the EKENG and Nork Technology Center (NORK). In addition, the Ministry of Transport, Communications, and Information Technology has developed some policies to protect the critical infrastructure (for example: railway, airway, roadway), but there is no centralized and coordinated approach.

When talking about cybersecurity awareness raising, the NORK, together with the Data Protection Agency, provides lectures about cybersecurity and cyber protection and conducts awareness-raising campaigns together with the Ministry of Education.

The current situation in migration management:
Institutions in migration management deal with ICT/cybersecurity issues reactively and independently, cooperation with other migration management institutions and/or CERT/CSIRT is missing. Some cybersecurity requirements are developed and followed at the migration management institutions level (Digital maturity phase: developing).

Cybersecurity policies and standards implemented in migration management institutions differ, some have their own standards and requirements, while others follow those set by the EKENG or the government. In some cases, cybersecurity-related activities and processes are purchased from the private sector. A different approach to cybersecurity management is related to the different level of readiness, capacities, and knowledge of the public sector institutions towards cybersecurity.

6.4.2 Legal framework

The current situation in the central government:
The basic legal framework for cybersecurity is adopted (Digital maturity phase: developing).

There are several key documents like the Concept of Information Security, Armenia's Digitalisation Strategy 2021–2025, and the 2018–2030 Digital Transformation Agenda of Armenia, in addition to the national security strategy; but legislation defining key cybersecurity principles, roles, responsibilities, and tasks for the protection of Critical Information Infrastructure (CII) and guidance for international cooperation in the field of cybersecurity is missing. The already adopted Law on electronic communications and electronic signature, the Law on the Protection of Personal Data, and the Criminal Code of the Republic of Armenia[39] cover only very narrow areas. In addition, Armenia has signed the Budapest Convention on Cybercrime. [40]

[37] Armenpress (2017), Armenia's cybersecurity strategy document is ready", https://armenpress.am/eng/news/905468/armenia%25E2%2580%2599s-cybersecurity-strategy-document-is-ready.html
[38] Armenpress (2022), "Armenia develops information security strategy", https://armenpress.am/eng/news/1094372.html
[39] Criminal Code of the Republic of Armenia: http://parliament.am/legislation.php?sel=show&ID=1349&lang=eng#9
[40] Chart of signatures and ratifications of Treaty 185 https://www.coe.int/en/web/conventions/full-list?module=signatures-by-treaty&treatynum=185

Regarding the future, a law on cybersecurity is currently being drafted including the activities of the soon to be established Information Systems Management Agency by the High-Tech Ministry and Central Bank.

There is no specific regulation covering cybersecurity requirements, procedures, and other aspects in the field of migration management.

6.4.3 Operational management

The current situation in the central government:
The CERT/CSIRT function is in place but focusing only on the government institutions; cooperation with the private sector and cybersecurity awareness raising for the public and private sector is missing (Digital maturity phase: developing).

The Computer Security Incident Response Team of Armenia is operating under the management of the Internet Society of Armenia, a non-governmental entity. The CERT.AM/AM NREN CSIRT collects and analyses computer incident cases which everyone can report via a web form (https://cert.gov.am/en/), email or phone call. The CERT.AM cooperates with the National Police of Armenia in handling cybersecurity incidents and provides support in cybercrime cases.

There is no public sector-wide cooperation in the field of cybersecurity, and government institutions operate in silos, although there is a plan for future central coordination. Currently, there is no designated authority responsible for the coordination of cybersecurity, including cooperation with the private sector. As previously mentioned, the Ministry of High-Tech Industry is preparing to set up a National Cybersecurity Centre responsible for coordinating cybersecurity-related activities.

In addition to the main stakeholders related to digital transformation, the National Security Service is responsible for protecting the government websites and networks, and the Criminal Police Headquarters together with Prosecutors Office for fighting against crime.

The current situation in migration management:
The person responsible for cybersecurity management (CISO) in migration management institutions is missing (Digital maturity phase: emerging).

Although the interviewees mentioned that most government institutions have appointed CIOs, the concept and position of CISO in each organisation, together with the cybersecurity unit managing cybersecurity incidents proactively using national standards and procedures, is missing, and cybersecurity incidents are dealt with reactively. The interviewees mentioned that the NORK provides lectures on cybersecurity together with the Data Protection Agency, but a centrally coordinated and focused approach to cybersecurity-related capacity building or knowledge testing, together with technical testing of information systems, is missing.

6.4.4 Strengths and areas of improvement
Experts evaluate the overall cybersecurity digital maturity level as developing.

Strengths in general digital transformation:
- Cybersecurity is considered an important cornerstone of the digital society and digital governance; development of an information security strategy is one of the key priorities for the government.
- Some government institutions responsible for managing critical infrastructure such as the Government Interoperability Platform (GIP) have developed their own requirements and internal procedures to ensure the integrity of data and information systems.

Areas of improvement in general digital transformation:

1. Develop and implement a national cybersecurity strategy and its implementation plan, including concrete steps on how to achieve desired goals, specific tasks and timelines, policies related to cybersecurity by government authorities, setting up of an institutional cooperation framework, cybersecurity governance model, mandates, guidelines, and procedures, together with financial resources. This is an input for the next activities and projects for ministries and other government institutions to develop or adjust related internal procedures, including activities in the field of migration management.

2. Develop tools for supervising the implementation of the national cybersecurity strategy. These tools enable to monitor and test the readiness deal with cyber incidents. For example, a tool can be a website indicating all strategic tasks and their status (e.g., to do, in progress, done). In addition, there must be tools enabling to make penetration tests for checking vulnerabilities, recommendations to test the cyber hygiene of users, etc.

3. The action plan that will be developed should contain concrete steps on how to achieve the desired goals, including specific tasks, entities responsible for the execution of these tasks, and relevant timelines. The action plan should also involve the necessary financial and other resources to implement the strategy. It is preferable that the strategy defines performance indicators or metrics that allow tracking the implementation progress, and a clearly defined accountability mechanism, such as regular implementation reviews

4. Develop national information security standards, baseline requirements, and procedures to be implemented by the government and by the private sector together with the monitoring system and implementation plan (including capacity building). Standards help to avoid the reinvention of the wheel, to harmonize and reuse the procedures and requirements, and to start implementation of requirements right away.

5. Allocate the budget to ensure the development and implementation of the cybersecurity action plan (e.g., separate program for government institutions, including in the field of migration management). Specially allocated budget supports and helps to achieve the desired readiness in the field of cybersecurity faster than through ordinary ICT funding.

6. Adopt cybersecurity regulation defining key cybersecurity principles, roles, responsibilities (including Critical Information Infrastructure (CII)), guidance for international cooperation and setting procedures for reviewing and monitoring. Supports and enforces implementation of cybersecurity standards, requirements etc.

7. Establish clear ownership and governance of the critical information infrastructure both in the public and private sectors. Assess and introduce (e.g., through study tours to EU competent authorities, workshops etc.) methods and approaches for identifying critical infrastructure entities, based on the best practices of the EU Member States. This enables to set clear responsibilities and to plan focused finances and monitoring activities.

8. Support the development of cyber incident response capabilities to improve Armenia's incident management by sharing international best practices about the operation of a unified platform of CERT. The development of specific and audience focused capacity building programs for public and private sector enables faster implementation standards, requirements, and procedures. This can be supported by publishing cybersecurity related standards and requirements for everyone to follow.

9. Create collaboration models to communicate with private sector representatives, both nationally and internationally, to exchange experience and information. Exc

Strengths in migration management digitalisation:

- Migration management institutions acknowledge the importance of cybersecurity and have expressed their plans and readiness to focus more on implementation of standards, requirements, and procedures.
- Since some of the information systems are only used in a closed environment, the possible threats are smaller.

Areas of improvement in migration management digitalisation:

1. Assign CISOs in each migration management institution and develop a capacity building plan for CISOs and its implementation. A person responsible for the implementation of cybersecurity requirements and procedures enables faster adoption and proper monitoring.

2. Form cybersecurity units in each migration management institution and develop a capacity building plan and its implementation. Enable a proactive approach to cybersecurity incidents and support their prevention.

3. Develop a capacity building plan for the staff of migration management institutions and its implementation (each level, from top management to the officials).
4. Develop migration management specific cybersecurity requirements in addition to soon to be developed national requirements and standards, focusing on the physical and technological threats occurring in the migration management field. Enable to reuse area specific requirements and harmonise the approach across the sector.

6.5 Data management, secure data exchange

Topic overview: Data management, secure data exchange (digital data management, legal framework, access to data, secure data exchange) – ensures cross-border and cross-organizational cooperation that is necessary for migration management related services. These are relevant to immigration and border management.

A data management strategy (mapping the information assets and the level of digitalisation of data) is one of the enablers for digital governance. Data management is supported by the legal framework so that digital data can be exchanged, and electronic records kept. The digitalisation of public services means that ministries and government agencies capture and process data in a machine-readable form. It is important for a citizen-centred and service-oriented state to make sure that different organizations and information systems can work together and exchange information following principles like digital first and once only. Authorities need to take advantage of the data that the state has already collected from the citizens and businesses and not burden them with asking for the same information several times, or have citizens request information from one public authority simply to hand it over to another public authority. Hence, digital databases and secure data exchange between those are needed. The modern digital governance model is a component-based service model, allowing the setting up of public services by reusing, as much as possible, existing service components. Public administrations should agree on a common scheme to interconnect loosely coupled components and put in place the necessary infrastructure.

6.5.1 Digital data management

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The current situation in the central government:
Inventory about governments databases and other information assets is planned or underway (Digital maturity phase: developing).
Data management (governance) processes/policies/strategies are being developed in government level but is not yet fully implemented, data quality issues are faced but not systematically addressed (Digital maturity phase: developing).

....

Government institutions are currently conducting an inventory of the databases and overall data mapping, together with describing datasets, to create a unified list of information assets and databases owned by the government. This initiative is related to the implementation of the once only principle, stating that there should be only one original source of information reused by others. In addition, all new digital services are being encouraged to embark on data mapping activities as part of their new service design.

Some government institutions like the EKENG and NORK have developed and implemented their own data management processes and requirements, but a standard at the government level is planned to be developed in the future. This also includes the development of a centralised approach to classification and data descriptions, including data quality rules.

In addition to the stakeholders mentioned in section 5.3, the Personal Data Protection Agency monitors the use of personal data by governmental institutions.

The current situation in migration management:

Inventory about MM databases and other information assets is planned or underway.

Up to 50-75% migration management registers, databases and services are digitized.

Government data management (governance) processes/policies/strategies are not yet fully implemented in migration management institutions, data quality issues are faced but not systematically addressed. (Digital maturity phase: developing).

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As previously mentioned, an inventory of migration management databases is ongoing under the initiative of the central government and implemented by the EKENG. Before that, some institutions like the NORK managed their own datasets or list of databases, independently based on internal policies and requirements.

The level of digitalisation differs in migration management institutions and digitalisation of both data and services is ongoing.

6.5.2 Legal framework

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The current situation in the central government:

The legal framework supports the use and exchange of digital data in government institutions, reuse of data is mandatory (Digital maturity phase: established).

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Decision number 1093-N of the Government of Armenia on Prescribing the security, interoperability and technical general requirements for the electronic systems used by state and local government bodies for electronic service provision and operation sets requirements for interoperability, emphasising the importance to use open standard solutions like CSV, HTML, ASiC, SOAP, XML etc. The previously mentioned legal act also states that before creating any kind of database or changing the content of data collected in an existing database, the government institution must conduct a study to determine whether the data necessary for its purposes already exists or has been collected in the database to be created or changed. If it turns out that the necessary data are missing in the existing state databases or the content of the data collected in the existing database needs to be changed, only then registration documents for establishing a new database can be prepared. If it turns out that the necessary data have already been collected in an existing database, it is mandatory to the state body responsible for the database with a request to ensure access to that data.

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The current situation in migration management:

Legal framework supports use and exchange of digital data and documents in some areas of the migration management (Digital maturity phase: developing).

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Although the legal framework enables the exchange of digital data and supports the once-only principle, migration management-related legislation has not been updated and regulates paper-based processes. As said during the interviews, there is an urgent need for legislation updates to support the transition from paper-based processes to digital ones. For example, the Law about Foreigners only refers to the possibility to submit electronic entry visas and work permits, but in all other cases, procedures are still paper-based starting from the submission of application.

6.5.3 Access to data

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The current situation in the central government:

Up to 75% government registers are in digitalised and accessible via digital channels (Digital maturity phase: established).

A technical solution for secure exchange of digital data between government institutions is deployed, linking a significant number of government registers and databases (Digital maturity phase: established).

Government's open data is available in some sectors and/or access is limited (Digital maturity phase: developing).

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The overall digitalisation level of the government registers is good, but interlocutors mentioned that in some cases digitalisation may only mean scanned documents without additional metadata in machine readable format. The document management system is an example. Nevertheless, the core registers like the State Population Register, Cadastre and Company Register are digitalised. A unified e-Civil Register was launched in 2014 and all civil records have been in digital format since (old data is still in paper format).

The Government decision of the Republic of Armenia No. 1093-N establishes the general security, interoperability, and technical requirements for the Government Interoperability Platform are managed and operated by the EKENG. Data exchange between the central government and the local government via the GIP can be called a real success story, enabling institutions to access information free of charge. The number of requests sent via the GIP confirms it, as seen in the table below:

YEAR	NUMBER OF DATA REQUESTS
2017	219,785
2018	1,150,754
2019	15,307,946
2020	27,982,990
2021	56,286,228

Table 2 Number of requests exchanged via GIP 2017-2021 provided by EKENG.

The e-Civil register of the Ministry of Justice and the Population register of the Police of Republic of Armenia exchange data on daily basis and are just some of the examples. Public notaries and bank officials have also partial access to the marriage and divorce data of the citizens, showing that in the cases prescribed by law, the private sector also has access to government data, either via web applications or the GIP, as a user, not a provider.

The open data policy is currently being drafted, meaning that Armenia does not have an open data portal providing all information in one place, but governmental institutions provide statistical information on their websites. For example, the Central Bank of Armenia offers information about financial organisations, the real estate sector, interest rates, etc.

....

The current situation in migration management:
Up to 50% migration management registers are accessible via digital channels in cases prescribed by law.
Migration management institutions and/or government institutions exchange digital data at some level, but it is not coordinated or standardized.
Migration management institutions open data is available in some sectors and/or access is limited.
(Digital maturity phase: developing).

....

Five institutions in total manage migration-related registers:
1. Migration Service
2. Police of Armenia
3. Ministry of Foreign Affairs
4. Ministry of Social and Labour Affairs
5. National Security Service

Due to limited access rights, not all migration management registers, information systems and databases can be accessed by others or only limited access is granted. For example, the Migration Service has limited access to Border Management Information System (BMIS) or its information. Although data exchange via the GIP is strongly recommended, other means are used as well. Different technical solutions may have been developed before the implementation of the GIP or because of internal policies.

When talking about the digitalisation of data, about 80% of Migration Service's managed data is in digital format, while all information managed by the National Security Service is only in digital format.

The open data concept is not known in the migration management field and like other government institutions, statistics are offered. The Migration Service, for example, offers information about provided asylum, residence status holders, issuance of residence status, readmissions, and limitations, but this data is not machine-readable.[41]

ARMSTAT, responsible for providing migration related data for the government and the public, mainly prepares reports manually. The governmental institutions forward them data using specific paper forms based on what reports are generated monthly, quarterly, or yearly. Due to the manual work, the preparation of reports takes time and, in some cases, provided information may already be outdated. The same applies to the statistics provided to the public.[42]

6.5.4 Strengths and areas of improvement

Experts evaluate the overall data management and secure data exchange digital maturity level as developing with the strong tendency towards established.

Strengths in general digital transformation:
- Data management and the digitalisation of data are stated as key priority areas in government's digital transformation plan; the inventory of governmental databases has started.
- The GIP, a data exchange platform mandatory for all government institutions, supports the implementation of once only and digital first principles. In addition, it also enables private sector service providers to request information from registers managed by the governmental institutions.

Areas of improvement in general digital transformation:
1. Use the Population Register as a single source for information for all natural persons (that includes citizens, migrants, asylum seekers, etc.) to enable to reuse of already existing registers, technical solutions, and services for managing population information.
2. Finalise inventory of government databases and publish information about datasets, their descriptions, data owners, provided services and service owners in the www.e-gov.am website.
3. Develop the government's data management policy and technical solution enabling to update information about datasets and provided services easy and fast. At first, this technical solution may be a website for service owners to enter relevant information, but in the future, it could be an AI-based automated solution registering all changes in the datasets like it is planned in Estoni[43].
4. Develop an action plan for all government institutions to start exchanging data only using the GIP. Make the GIP the mandatory data exchange layer for government organizations, including migration management institutions.
5. Map use cases where government entities still exchange information on paper or on other information carriers beside the GIP and make it mandatory to start using the GIP for data exchange.
6. Promote the use of governmental data via the GIP in private sector; identify 2-3 use cases where the private sector needs government data and develop respective services.
7. Conduct analysis among the private sector to identify open data sets needed the most and make them publicly available.

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[41] Migration Service of Armenia, "Statistics", https://migration.am/statistics
[42] ArmStatBank, http://www.armstatbank.am/pxweb/en/ArmStatBank/?rxid=2d41494d-be29-4b21-8fed-db7036ca8083
[43] Technical specification about RIHAKE: https://koodivaramu.eesti.ee/e-gov/rihake/

Strengths in migration management digitalisation:

- The digitalisation of migration management databases is ongoing and, in some cases, supported by the legislation.
- Migration management institutions have developed their own requirements, processes, and standards for data management.
- Positive use cases in the field of data exchange via the GIP exist and it is possible to reuse information from other government registers.

Areas of improvement in migration management digitalisation:

1. Improve the data quality in migration management registers. For example, moving from scanned pdf files to machine-readable data management and agreeing on a single source of data and services for data exchange via the GIP.
2. Finalise the migration management databases' inventory and implement the once only principle. This means that there must be only one source register for relevant migration related data reused by other migration management institutions.
3. Finalise the digitalisation of migration management data.
4. Audit the migration management related legislative framework and prepare changes supporting the gathering of digital data, data exchange and processes, including proactive services and automated decisions.
5. Develop services providing automated reports of migration-related information (both for the government and the public) to be published at the websites of ARMSTAT, the Ministry of Internal Affairs and the Migration Service. Digitalization of such lists demands an analysis of the business needs, but the first suggestions for the government would be monthly reports about foreigners crossing the border based on their nationality, entering country, age, gender, way of entering Armenia, frequency; issued residence permits, including those related to studying; issued work permits based on the nationality, age, gender, country of origin, education, occupation etc.; granted asylums and citizenships. For the public, monthly general information about issued citizenships, asylums, border crossings, and issued residence permits could be provided. While developing a technical solution, it is important to keep in mind that there must be a single source for the statistics, enabling access from different websites using the GIP's services.

6.6 Digital identity management

Topic overview: Digital identity management (identity management, digital identification, and signatures) – provides better and safer services based on strong identification services and the use of digital signatures.

For digital governance services to be useful for all types of governance tasks, it is essential that the users can identify themselves in a secure manner. This requires the development of a digital identity concept and tools. This can include digital ID or mobile ID solutions, together with a digital signature. Digital signatures must be secure enough to be recognized as evidence in court or in similar situations.

6.6.1 Identity management

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The current situation in the central government:

A unique persistent personal identifier mechanism (national ID number) created by the government is in place and is used in government registers (Digital maturity phase: developing).

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All Armenian citizens are registered in the State Population Register after their birth and are given a unique public service number/identification 10-digit code generated automatically based on gender, birthday, month, year, an auxiliary

consecutive three-digit number and one adjusting digit. It is mandatory for the public sector to use unique identifier in their systems for identifying persons.[44]

The unique identifier together with a personal email address are also entered in the ID-card with the readable chip, but since the card itself is not mandatory, it is mainly used in the public sector.

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The current situation in migration management:

A unique persistent personal identifier for migrants, issued by the government, is missing (Digital maturity phase: emerging). MM officials have access to migrants' digital personal data in some cases (Digital maturity phase: developing). Regulation, policy, and procedures for migrants' personal data protection are in place, incl. institution-based monitoring and supervision (Digital maturity phase: established).

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Migrants do not get unique identifiers unless they are granted citizenship and registered in the State Population Register.

Although migrants' information is not entered into the State Population Register, migration management institutions exchange data and have access to personal data stored in the national registers, if stated in the applicable law.

The Law of the Republic of Armenia on the Protection of Personal Data[45] does not differentiate between citizens and migrants, and states that personal data means any information relating to a natural person, which allows or may allow for direct or indirect identification of a person's identity. It also states that personal data must be processed for legitimate and specified purposes and may not be used for other purposes without the data subject's consent.

When looking at the migration officers' access to migrants' personal data, it exists, but not always through the GIP. For example, the National Security Service manages the fully digital BMIS, using hard copies, and the Migration Service , has only very limited access to BMIS information as an API ensuring a direct link with the GIP is lacking. The establishment of such an API connection would enhance the ease at which Migration Service can search a person's information in the BMIS database

The National Police of Armenia intends to implement biometric passports, but since the 2022 state budget did not allocate any funding for the upgrade, the plan is on hold. Meanwhile, there is a plan for the transition period stating that new non-biometric passports will only be issued with the validity period of two years, before the start of the issuance of biometric passports with the standard validity period. Based on the government's calculations in November 2021, 3,190,000 citizens of Armenia have passports for a ten-year period, of which 2,386,000 are still valid. [46]

As previously mentioned, the UNCHR and the Armenian Government started a cooperation project in 2015 to issue biometric documents to people recognized as refugees and granted asylum in the Republic of Armenia, in line with the requirements of Articles 27 -29 of the Convention on the Status of Refugees. This project aims to help refugees to have more protected documents in line with international standards and will continue until 2023. [47]

6.6.2 Digital identification and signatures

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The current situation in the central government:

Secure government issued digital identity is used in some public services and digital signature is recognised by law as handwritten signature (Digital maturity phase: developing).

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ID cards are issued by the Police of the Republic of Armenia for 10 years based on the Law of the Republic of Armenia "On Identification Cards"[54]. The Law states that issued ID cards include the citizen's data, individual cryptographic keys ensuring data protection, certificates for electronic digital signature and identification, and an email.

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[44] On the approval of the State statistical works coordination procedure and the state statistical works program of 1999: https://www.arlis.am/DocumentView.aspx?docid=73085
[45] Law of the Republic of Armenia on the Protection of Personal Data: https://www.arlis.am/documentview.aspx?docID=98338
[46] News.am (2021), "Armenia Police taking active steps to introduce biometric passports", https://news.am/eng/news/670232.html
[47] Global Compact on Refugees, "Biometric passports for refugees in Armenia", https://globalcompactrefugees.org/good-practices/biometric-passports-refugees-armenia
[48] Law of the Republic of Armenia "On Identification Cards": https://www.arlis.am/documentview.aspx?docid=87870

The Law of the Republic of Armenia "On Electronic Documents and Electronic Signature"[49] defines digital signature as a unique sequence of symbols obtained through cryptographic transformations of the electronic digital signature and the information of the given electronic document and represented in electronic form, which is attached or logically connected to the electronic document and is used to identify the signatory, as well as to protect the electronic document from forgeries and distortions. A digitally signed document has the same legal effect as a handwritten signed one. Trust services are provided by the EKENG, currently the only certification authority, which is issuing certificates for digital identification and signatures.

Users also have possibility to register for a mobile ID, currently being offered by two operators.

As previously mentioned, digital identity and signatures are mainly used by the public sector, but only by the management. Banks and other private sector service providers have developed their own solutions. Passwords and usernames are the most common authentication tools. The public sector mainly uses digital identity and signatures for signing decisions, letters, and other official documents. The Tax Office can be mentioned as one of the main service providers using ID-card-based identification.

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The current situation in the migration current situation in migration management:
Government digital services accept only username and password for digital identification of migrants and digital signature is missing (Digital maturity phase: emerging).

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Migrants in Armenia do not get a strong digital identity since ID cards are not issued to them. Password and username are used for authentication (e.g., Work Permit Portal https://workpermit.am/en/register).

6.6.3 Strengths and areas of improvement
Experts evaluate the overall level of digital identity management digital maturity level as developing.

Strengths in general digital transformation:
- A unique identifier is issued to all Armenians at birth, and it is used in government registers and information systems to identify a person. The Unique identifier is also entered into the ID card.
- The legislative framework for digital identification and signatures exists; the digital signature is equal to the handwritten signature.
- There is a strong political will to move towards a single solution for digital IDs by the end of 2023. The Central Bank of Armenia is currently working with the government and private sector stakeholders to set the highest governance and technical requirements for a national electronic identity system. [50]
- With each ID, the government provides a personal email meant for receiving notifications and other information. Although it is not currently used, the solution enables a further development of use cases and solutions.

Areas of improvement in general digital transformation:
1. Promote the use of the single unique identifier both in the private and public sectors.
2. Make ID cards available at an affordable rate and their possession mandatory.
3. Make it mandatory to use a strong digital identity in all government provided services.
4. Make it mandatory to use strong digital signature across the governmental sector when signing administrative or other documents and decisions.
5. Make it mandatory to use strong digital signature in all governmental services when signing is mandatory and needed.

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[49] The Law of the Republic of Armenia "On Electronic Document and Electronic Signature" https://www.arlis.am/DocumentView.aspx?docID=120911
[50] https://www.afi-global.org/newsroom/blogs/digital-transformation-of-armenias-financial-system/

6.7 Access to public services

Topic overview: Access to public services (information on relevant public services, availability, and maturity of digital services) – ensures that the necessary services are used by their corresponding target groups.

To be able to benefit from the advantages that a digital society brings, residents and businesses should be able to access public services online. These should not simply be available, but also easily accessed on different devices and platforms, inclusive and user-friendly.

6.7.1 Information on relevant public services

The current situation in the central government:
Information about many public services and how to use them is publicly available (Digital maturity phase: developing).

Information about digital services provided by the government is available both on the websites of service owners and on the electronic government portal https://www.e-gov.am/en/. The portal currently offers information or access to more than 20 services.

Each government institution is currently following their own service design requirements and methods, but the Ministry of High-Tech Industry is working on an Armenian Digital Service Design Standard. The standard will set guidelines and requirements for public service design and development, including mandatory use of open web platforms, description of common components and toolkits, code repositories etc.

The current situation in migration management:
Online information about migration-related public services is missing or not systematically available. (Digital maturity phase: emerging).

Availability of information about migration related services depends on the service provider.

The websites of the Ministry of Foreign Affairs[51] and the Migration Service[52] provide the most comprehensive information for migrants. While the website of the Migration Service only offers information, the website of the Ministry of Foreign Affairs also provides necessary forms and links.

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[51] Ministry of Foreign Affairs of the Republic of Armenia, "Consular reception", https://www.mfa.am/en/cons_resep/
[52] Migration Service of Armenia, "Helpful Information for Immigrants", https://migration.am/migrant

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The website of the National Police of Armenia[53] allows one to submit a request or application and book a time for a meeting, after user has authenticated themselves by username and password, ID card or mobile ID.

The National Security Service[54] allows to submit an online request, but information about other services is missing. The website of the Migration Service[55] only provides information about services available to returnees to Armenia in the form of referral support and accommodation.

The Ministry of Labour and Social Affairs' website[56] only offers information in Armenian and the authors of this report did not find information about migrant services. The website of the Ministry of Territorial Management and Infrastructure does not provide any migration related information[57].

IOM has developed an app[58] aimed at providing information to migrants in different countries. The app also provides information, for migrants in Armenia, about travel and health regulations, online money transfers and universal doctor service. It also helps migrants to stay in touch with family and friends by letting them know where the person is. For Armenia, general informal information about the country and information about government-assisted programmes is available. Some of the covered topics are border checkpoints, information about administrative fines and international protection (asylum process), visa information, embassies, and consulates in Armenia. From the digital services point of view, it also includes information about the residence permit (the different types and how to apply). Currently, the only option to apply for a residency card is at the passport and visa department. The information is well structured from the migrants' point of view but lacks links to governmental websites for that section of information.

6.7.2 Access to cross-border public services

The current situation in the central government:
Cross-border services are provided or are planned to be provided in one or two specific cases. (Digital maturity phase: developing).

The eSignature pilot under the initiative of the EU4Digital Facility, together with Armenia, Ukraine, Georgia, Estonia, Lithuania and Latvia, is a good example of cross-border interoperability of digital trust services. The pilot focused on technical eSignature interoperability, stating that organizational and legislative frameworks still need to be addressed. For Armenia, the pilot included not only testing the interoperability, but also the development implementation of a new signature container and other technical elements, since before the pilot eSignEkeng only enabled the signing of files. During the project Armenia updated the current solution to XAdES-LT level (signature with a timestamp) which is supported by the ASiC-E container. [59]

The current situation in migration management:
Cross-border services and cooperation is missing (Digital maturity phase: emerging).

There is no information about cross-border services provided to the migrants.

6.7.3 Availability and maturity of digital services

The current situation in the central government:
Up to 50% of digital services provide two-way communication (forms can be filled in and submitted online to trigger the process of public service) (Digital maturity phase: developing).

53 Police of the Republic of Armenia, https://www.police.am/en/home.html
54 National Security Service of the Republic of Armenia, https://www.sns.am/en
55 Migration Service of Armenia, https://migration.am/
56 Ministry of Labour and Social Affairs, https://www.mlsa.am/
57 Ministry of Territorial Management and Infrastructure https://mtad.am/en
58 IOM, "MIGAPP", https://www.iom.int/migapp
59 Funded by the European Union, "EU4Digital – extended eSignature pilot completed", https://eufordigital.eu/eu4digital-extended-esignature-pilot-completed/

Up to 50% of websites and digital services are easy to use with different devices (Digital maturity phase: developing).

Up to 50% of public digital services enable the use of secure digital identity for authentication (Digital maturity phase: developing).

Up to 75% of public digital services enable online payments, and the centralized payment solution is in use (Digital maturity phase: established).

Access to one's personal data in government registers is enabled in one or two cases (Digital maturity phase: developing).

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The Digitalisation strategy 2020-2025 states that from the point of view of ensuring the life cycle of the citizen, there is still a need for complex digitization of services. Digital access to services is a continuous process and their complex digitization significantly increases the efficiency of the process. The registration of birth, marriage, divorce, death, adoption, recognition of paternity and name change are available through the www.e-services.moj.am system.

The e-Cadastre[60], e-Tax service[61], e-Register[62], System for Intellectual Property Applications[63], Unified Portal for Online Requests[64], etc., provide the possibility to submit documents online or to make online inquiries. Websites and digital services are easy to use with different devices.

Although the use of ID cards and mobile IDs for digital identification is not very popular, government services like the e-Cadastre, e-Register, e-Tax service, and Unified Portal for Online Requests offer the respective options, in addition to username and password.

The State Electronic Payment System[65] offers services to pay duties, service fees, fines, taxes and consular services. In addition, online payments services are used within digital services, but in some cases these payments cause delays because the service provider does not get payment confirmation in real time. It was also mentioned during the interviews that payments with foreign bank cards cause problems.

The GIP enables access to personal data in government registries via the https://e-citizen.am/ portal.

Although there are a lot of digital services providing easy access to the data or applications, citizens' lack of trust towards technology and digital services is making it harder for them to start using the digital services. Other obstacles are related to the information in state databases, mismatches in data, still partially digitalized data, the quality of registered information and awareness – citizens are not aware of existing services.

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The current situation in migration management:

Up to 50% of the migration related digital services provide two-way communication (forms that can be filled in and submitted online to trigger the process of public service) (Digital maturity phase: developing).

Up to 50% of the migration related websites and digital services are easy to use with different devices (Digital maturity phase: developing).

The possibility to use secure digital identity for authentication in migration related public services is missing (Digital maturity phase: emerging).

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[60] Cadastre Committee, "E-services platform of Cadastre Committee", https://www.e-cadastre.am/en
[61] e-Tax service, https://file-online.taxservice.am/pages/loginPage.jsf
[62] e-Register system https://www.e-register.am/en/
[63] System for Intellectual Property Applications, https://my.aipa.am/
[64] Unified Portal for Online Requests, https://e-request.am/en
[65] State Electronic Payment System, https://www.e-payments.am/en/all-services/

Up to 50% of migration related public digital services enable online payments (Digital maturity phase: developing).

Access to one's personal data gathered during migration management is enabled in one or two cases (Digital maturity phase: developing).

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Digital maturity of the provided migration services differs based on the services provided and the different types of service providers. The Ministry of Foreign Affairs provides services through three channels – web portal, email, and physical offices. There are services like online visa application[66], which can be used via e-Visa Issuance System. Depending on the service, one must go to the physical office like in case of applying for citizenship or registering a place of residence. Currently, the only option to apply for a residency card is at the passport and visa department. One of the latest services developed in cooperation with the IOM, was the work permit application system.[67]

Like other government websites, migration related websites can also be used with different devices and in different languages. Users can authenticate themselves by username and password, ID card or mobile ID. Currently, username and password are the only options for migrants' authentication since unique identifiers and ID cards are not issued to them.

The online payment option is possible in case of online submission of documents via the State Electronic Payment System[68] using credit cards or the Mobidram payment system.[69]

Once submitted the applications' information, a status of the process can also be seen.

Access to public services during the COVID-19 pandemic:
The digitalisation of public services accelerated during the COVID-19 pandemic as well as the electronic document exchange, online submission of applications and issuance of documents to the citizens. The electronic government portal https://www.e-gov.am/en/ became the main contact point between the government and the citizens. Armenia was praised by the UNHCR for adjusting the asylum procedures to the COVID-19 situation. The Migration Service implemented new procedures clustered into two main principles: securing continuous proper access to individuals seeking international protection in Armenia, while ensuring the enforcement of specific measures aiming at containing the spread of the virus[70].

6.7.4 Strengths and areas of improvement

Experts evaluate the overall access of public services digital maturity level as developing.

Strengths in general digital transformation:
- Information about public services provided by the government institutions can be found on their websites or on the https://www.e-gov.am/en/ portal in different languages and using different devices.
- Cross-border service provision initiatives show the government's interest to provide better services not only to the citizens of Armenia, but also to foreigners, including investors.
- Technical solutions enable to use secure digital identity for authentication.
- Online payments are allowed and used in government provided services.
- https://e-citizen.am/ is a good example of providing information related to a person.

Areas of improvement in general digital transformation:
1. Consolidate information about all public services in several languages (providers, requested data and documents,

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[66] Ministry of Foreign Affairs Republic of Armenia, E-VISA Issuance System, https://evisa.mfa.am/
[67] Work permit platform, "How does it work?",. https://workpermit.am/en/home
[68] MobiDram, "What is MobiDram?", https://www.e-payments.am/en/state-duties/step3/service=1131/
[69] Ibid.
[70] United Nations Armenia (2021), "The Migration Service of Armenia recognized for good practices in adapting asylum procedures to the COVID-19 situation", https://armenia.un.org/en/125833-migration-service-armenia-recognized-good-practices-adapting-asylum-procedures-covid-19

channels, fees, etc.) into the https://www.e-gov.am/en/ portal or as part of the Migration Service's website. Consider creating a specific landing page for migrants.

2. Connect consolidated information about migration and the IOM MIGAPP to provide an extra channel to access information.
3. Develop unified service design standards, requirements, and visuals for public services; make it mandatory for governmental institutions to follow the Web Content Accessibility Guidelines (WCAG) 2.0 standard and requirements enabling persons with disabilities to access government services; for example, accessibility errors https://www.arlis.am/ (using https://wave.webaim.org/tool): contrast errors, missing alt text, contrast errors etc.
4. Develop service redesign good practices, enabling to provide proactive and personalised services.
5. Develop a devise policy instructing when mobile applications or responsive design should be used.
6. Choose the 2 or 3 most popular complex public services and to re-design them as proactive.
7. Make it mandatory for Armenians to use the ID card for authentication in public services. Mobile ID or other secure identification tools can additionally be used. To reduce possible development and future management costs, develop the government identification portal as a common component managed by the EKENG, enabling a single-sign-on to all services/applications.
8. Make it mandatory to use the centralised payment system developed by the Central Bank of Armenia, and implement unique reference number system.
9. Make it mandatory to provide personal data stored in government registers via the https://e-citizen.am/ portal.

Strengths in migration management digitalisation:
- Information about some migration related public services is available online, enabling to use online forms, submission of documents and payment.
- Websites of migration management institutions can be used with different devices.
- Users can see information about their application status in real time online and submit a complaint or request, if needed.

Areas of improvement in migration management digitalisation:
1. Consolidate information about all migration-related public services (providers, requested data and documents, channels, fees etc.) into one website (an online hub for migrants – Migrant hub) that could be part of the https://www.e-gov.am/en/ portal or part of the Migration Service's website. The page needs regular updating and upkeep and a promotional campaign to make migrants aware of it. Adding different languages (or links about translation programmes) should also be considered. Similar approach has been used by other countries such as Germany[71], Estonia[72] and Sweden[73]. This activity should start with the analysis of the existing information on the websites and the needs of migrants.
2. Interlink the government information page for migrants with the IOM MIGAPP. The migration app can work as an additional communication channel to promote the migrants' website.
3. Identify the languages mostly used by the migrants and provide migration related information in these languages via different channels (paper, via physical channels like border crossing points and local government offices, social media platforms, websites, online communication tools like Skype, WhatsApp, etc). Assign an agency responsible for translation and its updates.
4. Add functionalities to the https://workpermit.am/en/home portal, enabling to apply to study or run a business in Armenia next. In the future, additional functionalities could be added.

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[71] Federal Office for Migration and Refugees, "Integration", https://www.bamf.de/EN/Themen/Integration/integration-node.html

[72] RiigiPortaal, "War in Ukraine", https://www.eesti.ee/en/war-in-ukraine/war-in-ukraine

[73] Migrationsverket, "Private Individuals", https://www.migrationsverket.se/English/Private-individuals.html

6.8 Digital skills

Topic overview: Digital skills (digital skills of public officials, awareness raising and inclusion) – help provide the crucial skills to be able to use services and participate in the digital society. This is relevant to migrant protection and assistance, labour mobility, migration health and social services, and social and cultural integration.

The rapid development of digital technologies requires both public officials and citizens to acquire the skills needed to use the new tools and enjoy the possibilities of a digital society. It is essential to start building digital competencies at the level of general education and to work closely with the private sector so that the latest technologies can be used.

Digital skills of public officials:
- Public officials need digital skills to use digital services themselves and help migrants to use migration-related and applicable digital services (including basic cybersecurity skills);
- Digital government professional skills: professional level skills in the government are needed to develop and maintain migration-related and applicable digital services and re-design non-digital services (service design, business analyst, software developer, IT-administrator, technology architect, data, and technology roles, etc.).

Digital skills of migrants:
- Digital skills needed to find (online) and use migration-related and applicable digital services (including basic cybersecurity skills).

6.8.1 Digital skills for public officials

The current situation in the central government and in migration management:
Digital skills are basic, and users need the training to perform daily operations using digital tools and services. (Digital maturity phase: developing)

Roles and skills needed for digital service development in the government are not defined and training programmes available for reskilling/upskilling are missing. (Digital maturity phase: emerging)

All the interviewees from governmental and migration management institutions pointed out capacity issues in the public sector, especially in the field of ICT and digitalisation roles. There is no central governing body yet to oversee or coordinate digital skills development in the public sector (both basic and professional digital skills) and every public authority is responsible for digital skills development in their own institution. Public sector officials, including migration management, also need digital skills training to use their own public services.

Capacity building, especially in professional digital skills and for IT-experts, is acknowledged, and the Digitalization Department in the Ministry of High-Tech Industry is developing digital skills trainings and offers free of charge trainings for the public sector. The Ministry of High-Tech Industry has embarked on many programs for upskilling in the tech sector, including cybersecurity, digital tech skills and online safety.

The Central Bank is also organizing high-level cybersecurity trainings for telecom operators and banks, but those trainings are not accessible for all who are interested.

The NORK Technology Centre is providing cyber protection lectures together with the Agency for Protection of Personal Data (under the Ministry of Justice) and cyber security awareness campaigns with the Ministry of Education.

There are no migration management or digital migration management specific capacity building existing possibilities at central government level.

[The Educational Complex of Police of the Republic of Armenia](#) is providing degree courses and trainings to the police force in Armenia, but no migration specific or digital governance specific ones.

6.8.2 Awareness-raising & inclusion

The current situation in the central government and migration management:
Digital skills training programmes for migrants are missing or in the initial phase. (Digital maturity phase: emerging)

All the interviewees from governmental and migration management institutions pointed out that there are no centrally organized digital skills trainings or digital skills learning opportunities aimed at migrants.

6.8.3 Strengths and areas of improvement

Experts evaluate the overall digital skills digital maturity level as developing.

Strengths in general digital transformation:
- Capacity building, especially in professional digital skills and for IT-experts, is acknowledged, and training plans are being prepared.

Areas of improvement in general digital transformation:
1. Define key roles (not positions) needed in the government and in ministries/agencies for digital transformation and develop accessible capacity building (skills) training programs.
2. Develop a centralized capacity-building programme framework for the top-level executives in public service about the possibilities, benefits, and opportunities of digital transformation.
3. Develop a centralized capacity-building programme framework for the mid-level managers in public service about implementing digital transformation.
4. Develop a centralized training programme framework for digital public service delivery/reengineering teams – service owners, business analysts, technological/IT roles, and data-related roles. This helps to improve the user-centric service design.
5. Develop and offer basic digital skills learning opportunities for the public sector, both classroom training and online learning opportunities. Topics should include office software, online communication tools and basic cybersecurity.

Strengths in migration management digitalisation:
- Desire to include migrants in society. Strong understanding that digital skills can help both migrants and citizens alike.
- Easy to establish different communication channels for migrants (as they have to apply for a permit, for example, and this could be a place to share information).
- IOM MIGAPP exists as a tool/communication channel for migrants, that can be utilized to give up to date and reliable information.

Areas of improvement in migration management digitalisation:
1. Increase the service design knowledge (awareness) for creating new cybersecure digital public services or reengineering the current services in migration management.
2. Skills training of service (product) owners in the area of migration management (business analysts, service designers, etc.), including how to redesign the service development process from paper to digital.
3. Increase cybersecurity knowledge in migration management organizations. This includes also improving the level of both IT professionals for implementing these to services but also basic cybersecurity training for officials.

4. Include migration awareness and skills capacity training into the university's curriculum and MoIA's training activities; for example, use the [Educational Complex of Police of the Republic of Armenia](#).

5. Create targeted awareness-raising campaigns to integrate migrants into society. For example, inform them how to find useful information and services online.

6. Digital skills could be a crucial part of making migrants who have resettled legally an integrated part of the society. They could participate in the digital society and also use communication technologies to communicate with their family/friends at home in a safe way. For example, having access to tools, such as translation apps, could also be beneficial for migrants.

7. Nominate and empower relevant bodies (public institutions, international organisations or NGOs) who are leading efforts in raising migrants' awareness about digital services and improving their digital skills as part of more general integration into society.

8. Make information (on paper and digital), about useful services and e-services if applicable as part of the integration process, available for migrants.

9. Provide access to free internet connection and devices (computers, laptops, tablets) as there are preconditions for the migrants to use digital services.

10. Run an awareness raising campaign (for example, posters at refugee centres, leaflets, QR codes for easy download of the IOM MIGAPP and the specialized landing page/website aimed at migrants in Armenia) for migrants, providing all the information on where to find help for resettling.

11. Develop and offer free training programmes for using relevant digital services for migrants, as part of services aimed at better integrating migrants into society.

12. Develop and offer free training programmes in basic digital skills/cybersecurity; make them accessible for migrants and their information should be available as part of services provided to the migrants.

6.9 Digital infrastructure framework

Topic overview: Digital infrastructure framework (digital architecture, digital infrastructure) – helps to provide the necessary access to ICT. Without the digital tools, the country will not achieve their digital governance goals.

Access to ICT is essential as a basic prerequisite for digital governance. A minimum level of ICT infrastructure capacity is needed to implement e-governance projects. Communications networks are built by commercial companies, while the state's task is to regulate the development of the networks and provide favourable conditions for residents to access them. In addition, the state must guarantee basic interconnection networks and reliable basic structures within the public sector and between public institutions. It is its responsibility to connect all national and local government agencies, schools, libraries, hospitals and other public authorities, using the existing networks.

6.9.1 Connectivity

....

The current situation in the central government:
4G mobile network covers most of the country (Digital maturity phase: established).
Countrywide fixed broadband or fibre optics is used by most of the government institutions (Digital maturity phase: established).

....

According to the information provided on the website of the Public Services Regulatory Commission, in 2021 the entire territory of Armenia was covered with the 4G+ (LTE Advanced) mobile network technology, and at least one

operator provides 2G and 3G network in inhabited areas.[74] As mentioned by the interlocutors, there is no need for the 5G market at this present moment because the high penetration of mobile broadband services and its low cost make the service accessible for everyone.

Despite the easy access to the mobile networks, only 59% of households with a low monthly income have access to a high-speed broadband internet, which is much less than the high monthly income households (92%).[75] The situation is better with government institutions (including migration management institutions) who have access to the high speed fixed broadband connection and the government network provided by the EKENG, in cooperation with telecommunication companies. Local governments have their own contracts with internet service providers and do not use the government network provided by the EKENG.

....

The current situation in the migration management:
All migration management institutions have access to broadband/fibreoptic services (Digital maturity phase: advanced).

....

All interviewees confirmed that government institutions, including the migration management institutions like the Migration Service, National Police, National Security Service, etc., have access to high-speed secure internet.

6.9.2 Digital Architecture

....

The current situation in the central government:
Digital government architecture and interoperability framework are adopted and mandatory to use in public institutions, incl. there are clear rules for establishment of databases, digital services, and interoperability of data (Digital maturity phase: advanced).

....

The digital government architecture and interoperability framework are defined by the decision number 1093-N of the Government of Armenia on Prescribing the security, interoperability and technical general requirements for the electronic systems used by state and local government bodies for electronic service provision and operation[76]. This includes the Government Interoperability Platform (GIP), i.e., the unified electronic information system, which connects all existing state information systems, and the technical maintenance of the central system of interoperability, of which and its combination coordination is carried out by the operator.

....

The current situation in the migration management:
Digital government architecture vision and interoperability framework are used in some government institutions (Digital maturity phase: developing).

....

The previously mentioned decision, adopted by the Government of Armenia, also applies to migration management institutions whose information systems are connected to the GIP and who can exchange data (or at least make inquiries) with other government information systems. The authors of this report emphasise that although a technical solution for data exchange exists, some migration management institutions (e.g., National Security Service) use their own data exchange solutions since these were developed before the implementation of the GIP and currently have no plans for replacing it.

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[74] https://www.psrc.am/uploads/files/%D4%B7%D5%AC%D5%A5%D5%AF%D5%BF%D6%80%D5%B8%D5%B6%D5%A1%D5%B5%D5%AB%D5%B6%20%D5%B0%D5%A1%D5%B2%D5%B8%D6%80%D5%A4%D5%A1%D5%AF%D6%81%D5%B8%D6%82%D5%A9%D5%B5%D5%B8%D6%82%D5%B6/%D5%91%D5%A1%D5%B6%D6%81%D5%A5%D6%80%D5%AB%20%D5%B0%D5%A1%D5%BD%D5%A1%D5%B6%D5%A5%D5%AC%D5%AB%D5%B8%D6%82%D5%A9%D5%B5-%D5%B8%D6%82%D5%B6/Verlucakan_Texekank%20Mobile.pdf

[75] World Bank (2020), "nternet use in Armenia: How might connectivity shape access to opportunity?", https://blogs.worldbank.org/europeandcentralasia/internet-use-armenia-how-might-connectivity-shape-access-opportunity

[76] https://www.arlis.am/documentview.aspx?docID=110384

6.9.3 Digital infrastructure

The current situation in the central government:

Most government institutions use government data centres, legal framework (incl. secure back-up's) and infrastructure for secure data exchange exists (Digital maturity phase: established).

Some of government institutions use cloud-based solutions, but cloud policy or strategy is missing (Digital maturity phase: developing).

A government data centre is managed and operated by the EKENG as a cloud-based solution. Although some government institutions use the government data centre, some, such as the NORK, prefer having their own data storage solutions.

A legal framework for use of government data centres and secure data exchange platform exists.

In addition, Armenia's Digitalisation Strategy 2021-2025 states that Ministry of High-Tech Industry is responsible for drafting the requirements for data centres, including the usage of cloud solutions.

Although cloud-based solutions exist, a governmental cloud policy is missing and discussions about data residency are ongoing, i.e., commercial cloud solutions are currently not used.

The current situation in the migration management:

Migration management institutions have their own/local data centres and rules for back-ups, basic infrastructure exists for secure data exists (Digital maturity phase: developing).

Some of migration management institutions use cloud-based solutions, but cloud policy or strategy is missing (Digital maturity phase: developing).

Most of the migration management institutions use their own data centres located in physical servers; some of them can only be accessed in internal/closed networks due to security reasons.

6.9.4 Strengths and areas of improvement

Experts evaluate the overall digital infrastructure framework digital maturity level as developing with a strong tendency towards established.

Strengths in general digital transformation:
- 4G coverage and its accessibility deserve recognition.
- All governmental institutions access and use fixed broadband/fibre optics services.
- Data exchange through the GIP is part of the data management success story; it is mandatory to use and most of government institutions are already connected to it. Requirements for interoperability exist.
- A cloud-based governmental data centre is in place and used by governmental institutions, although a national policy is missing.

Areas of improvement in general digital transformation:
1. Enable local governments to use the governmental network to provide secure, harmonized and well operated networked services, and to decrease related costs.
2. Decrease the digital divide regarding access to fixed broadband services in cooperation with private sector.
3. Develop funding projects supporting the private sector's access to fixed broadband services.
4. Enable mobile operators to roll out 5G mobile networks.
5. Adopt rules for the establishment of databases and digital services.
6. Develop a governmental cloud policy, requirements, and technical solutions, together with the private sector.

> Strengths in migration management digitalisation:
> - All migration management institutions access and use fixed broadband/fibre optics services.
> - Data exchange through the GIP is mandatory and most of migration management institutions are already connected to it.
>
> Areas of improvement in migration management digitalisation:
> 1. Develop an action plan for all migration management institutions to connect to the GIP as a single data exchange platform.
> 2. Harmonize existing requirements for the establishment of databases and digital services in the migration management area, with the national ones.
> 3. Develop use cases for piloting cross-border data exchanges in the field of migration management (e.g., issuance of a residence permit and registration of place of residence in neighbouring country and vice versa).
> 4. Promote the use of the governmental cloud.

6.10 International cooperation

Topic overview: International cooperation (international and regional cooperation) – helps to share knowledge and best practices and lays the foundation for international cooperation.

Good local and international cooperation helps to share knowledge and best practices, as well as laying the foundation for productive cooperation. To benefit from the advantages that digital governance can provide for international relations (trade, free movement, research and education, etc.), it is important for states to take part in international cooperation (regional or other). Such cooperation helps states to learn from one another and develop joint projects.

6.10.1 International and regional cooperation

The current situation in the central government:
Representatives of the country take part in international cooperation in organizations and occasional projects. (Digital maturity phase: developing)

Armenia relies on international and regional cooperation in many aspects of the central government and migration management as well. In both areas, the digital society aspect is emphasised, as well as being part of the scope of cooperation.

One of the main donors in Armenia is the European Union. More specifically, the EU4Digital[77] project, which supports the development of trust services in the digital economy, and cybersecurity for improved resilience of critical infrastructure, as essential building blocks for interoperable cross-border e-services in the Eastern Partnership (EaP) region. Activities of the project include the development and implementation of a regional roadmap and national action plans for the mutual recognition of electronic identification in the EaP region, the piloting of an interoperable cross-border eSignature in the region, the development of a regional framework for cross-border eServices, as well as the development of a standard set of cybersecurity guidelines for the EaP region.

Besides direct funding from donors such as the European Union, Armenia benefits from support of other international organizations, targeting various areas of government and contributing to furthering Armenia's digitalization efforts.

To help Armenia boost economic growth and improve the lives of all its citizens, the World Bank Group has developed a new four-year partnership strategy - World Bank Group Country Partnership Framework (CPF) for FY19 – 23. It will

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[77] Funded by the European Union, "U4Digital Facility", https://eufordigital.eu/discover-eu/eu4digital-supporting-digital-economy-and-society-in-the-eastern-partnership/

support the rebalancing of Armenia's economy toward a new growth model, through three focus areas: 1) Boosting export enablers and firm competitiveness, 2) Enhancing human capital and equity, 3) Sustainably managing environmental and natural resources. Under each focus area, the CPF incorporates key elements of good governance and inclusion, public accountability and transparency, citizen engagement, gender equality, spatial equity, and digital connectivity.

The United Nations Development Programme (UNDP), has been on the ground for almost 30 years and provides tangible and people-centred development solutions in Armenia, helping the country to achieve the Sustainable Development Goals. The vision of the country programme is for Armenia to become a more cohesive, inclusive, just and resilient society, supported by governance systems that use evidence, citizen-centred innovation and partnerships to ensure social, economic and environmental sustainability and prosperity for all.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been working in Armenia since the early 1990s. The GIZ is operating in Armenia on behalf of several commissioning parties, including the German Federal Ministry for Economic Cooperation and Development (BMZ), the EU and the Swiss Agency for Development and Cooperation (SDC).[78] In order to boost the country's economic output, the GIZ is assisting the Republic of Armenia in improving the investment climate for local and international investors. It is advising the Armenian government on reforms and helps it foster growth and competitiveness in key employment sectors, such as IT, precision engineering, tourism, and winegrowing. Furthermore, it is increasing private-sector involvement in the vocational education sector to ensure that training is better aligned with job market demands. The GIZ is also assisting Armenia in making advances in good local governance.

Regular meetings and experience sharing with various other countries are taking place. The role of coordinating international funding is taken on by the Digital Council (under the Prime Minister's office).

....

The current situation in migration management:
Representatives of migration management institutions sometimes participate in field related international organizations and cooperation projects. (Digital maturity phase: developing)

....

One of the biggest donors in the migration management area is the European Union.

For example, the latest two-year project, implemented by the International Organisation for Migration (IOM) Armenia and the UN Refugee Agency (UNHCR) Armenia helps national migration authorities meet the obligations of the Comprehensive and Enhanced Partnership Agreement (CEPA) and the government reform agenda. The project focuses in particular on fostering well-managed and secure cross-border mobility in line with the Government's Programme for 2021-2026, with the aim of continuing the strengthening of the migration and asylum systems in Armenia.

International cooperation, especially for funding, is not yet centrally coordinated. Public institutions turn to donors directly and as a result, a central overview of foreign investment into migration-related digital services is missing. There is no overview tool or IT-system that gathers data (and makes it available) to see if a specific migration related project, service or project has already applied for funding. Access to that data would help to avoid duplicating projects and also create more opportunities for cooperation.

6.10.2 Strengths and areas of improvement

Experts evaluate the overall international cooperation digital maturity level as developing.

> **Strengths in general digital transformation:**
> * International organisations are working closely with Armenian public sector/institutions, also in digitalisation/ IT area.

[78] GIZ, "Armenia", https://www.giz.de/en/worldwide/374.html

Areas of improvement in general digital transformation:
1. Create a coordinating unit (with a strong mandate) to help to invest international funding into the priority areas defined by the government, such as digital transformation.

Strengths in migration management digitalisation:
• International organisations work closely with migration management institutions to support digitalisation with experience sharing and funding.

Areas of improvement in migration management:
1. Create a coordinating unit (with a strong mandate), focusing on migration issues, and emphasising the need for digital transformation in migration management. That can help secure international funding into migration management digitalisation.
2. Collaborate with other countries examining their digital transformation projects in the field of migration management.
3. Present the Armenian migration management success stories in the field of digitalisation at international conferences and events.

7. CONCLUSIONS

Based on the assessment, the overall digital maturity of the Government of Armenia is developing, with a strong tendency towards established (data management and secure data exchange and digital infrastructure framework). There is strong political will towards digitalisation. Currently, most public sector organizations mainly implement digital governance activities based on the level of their internal capacities, but organizations could benefit from coordination and the shared use of digital components and resources.

	Emerging	Developing	Established	Advanced
1. Strategic planning		√		
2. Coordination		√		
3. Financing model		√		
4. Cybersecurity		√		
5. Data management, secure data exchange		√		
6. Digital identity management		√		
7. Access to public services		√		
8. Digital skills		√		
9. Digital infrastructure framework		√		
10. International cooperation		√		

Table 3 Overall maturity of digital governance of the Government of Armenia

Migration management institutions like all other government institutions have access to high-speed internet supporting interoperability and the development of effective solutions in the future. Like in the central government, there is a strong will towards digitalisation, but since general components or strategies and policies are underway, migration management cannot advance separately.

Migration management institutions have huge potential in developing digital services and transforming their processes, as seen during the COVID-19 pandemic. They just need a supportive organisational, legislative, and technical framework. Soon to be established, the Ministry of Internal Affairs will play a key role in being an umbrella for all migration related stakeholders and topics including digitalisation projects. As soon as migrants get digital identity, service delivery will bring a leap in the level of digital maturity and will enable Armenia to become a leader of the region in migration management.

	Emerging	Developing	Established	Advanced
1. Strategic planning				
Digitalisation strategy		√		
Strategic oversight		√		
Legal framework		√		
2. Coordination				
Organization & coordination		√		
Structure of the e-government	√			
IT managers' cooperation	√			
3. Financing model				
Governmental funding		√		
International funding		√		
4. Cybersecurity				
Policy & strategy		√		
Legal framework		√		
Operational management	√			
5. Data management, secure data exchange				
Digital data management		√		
Legal framework		√		
Access to data		√		
6. Digital identity management				
Identity management		√		
Digital identification and signatures	√			
7. Access to public services				
Information on relevant public services	√			
Access to cross-border public services	√			
Availability and maturity of e-services		√		
8. Digital skills				
Digital skills of public officials		√		
Awareness raising and inclusive	√			
9. Digital infrastructure framework				
Connectivity				√
Digital architecture		√		
Digital infrastructure		√		
10. International cooperation		√		
International and regional cooperation		√		

Table 4 Digital maturity of migration management by sub-topics

Digitalization recommendations for central government and migration management organizations:

Strategic planning:
- Develop implementation plans for the Digitalization Strategy of Armenia.
- Develop a digitalisation strategy for migration management.

Management and coordination:
- Develop requirements for key roles related to digitalisation and capacity reskilling and upskilling options for the governmental and migration institutions.

Data management:
- Turn the Population Register into a single source for information for governmental and migration institutions.
- Make the GIP the mandatory data exchange layer for governmental and migration institutions.
- Improve data quality in migration management registers.
- Publish general migration-related statistics automatically on the ARMSTAT website.

Digital identity management:
- Make the ID-card (for digital authentication and digital signature) an affordable mandatory document for citizens and start issuing chip-equipped identity documents to residents, including migrants.

Cybersecurity:
- Increase cybersecurity knowledge in migration management organizations.

Access to public services:
- Connect all government-provided services to a central payment gateway.
- Enable migrants to access the central payment gateway.
- Combine all migrant-related information into one migrant hub website.

Digital skills:
- Upskill and reskill officials in user-centric service design increasing their service design knowledge in governmental and migration institutions.
- Run awareness-raising campaigns for migrants.

Based on the assessment of digitalisation of the central government in Armenia and of migration management organizations we can conclude that the digital governance pillars are well established and there is a strong will and interest in moving towards fully digital governance and migration management.

8. ABBREVIATIONS AND TERMS

Acronym	Definition
2G/3G/4G/5G	Second/Third/fourth/fifth generation of wireless mobile telecommunications technology
BMIS	Border Management Information System
CERT	Computer Emergency Response Team
CDO	Chief Digital Officer
CIO	Chief Innovation Officer
CIRT	Computer Incident Response Team
CISO	Chief Information Security Officer
COVID-19	Novel Coronavirus (2019-nCoV)
CSIRT	Computer Security Incident Response Team
CTO	Chief Technology Officer
GDP	Gross Domestic Product
GIP	Government Interoperability Platform
IT	Information Technology

Terms:

Digital first means a shift in government and service development from favouring traditional channels to prioritizing digital ones.

Once only means that government must use and reuse of already collected information or data, and it is forbidden to ask for the same information from the citizen again.

Cross-border services - services provided by the public institutions and either enable owners of foreign digital identity to use the service by authenticating themselves using the same foreign identity tool, and/or are provided based on the data exchanges between different countries.

9. LIST OF INTERVIEWEES

The representatives of the following institutions were interviewed during the digital maturity assessment process:

- EKENG - October 4th 2022
- Nork Technology Centre - October 4th 2022
- Migration Service - October 4th 2022
- ARMSTAT - October 5th 2022
- National Police of Armenia, Visa and Passport Department - October 5th 2022
- Central Bank of Armenia - October 5th 2022
- National Security Service - October 6th 2022
- Deputy Prime Minister's Office - October 6th 2022
- Ministry of High-Tech Industry - October 6th 2022
- Ministry of Justice - October 6th 2022