OECD Digital Government Studies

Digital Government Review of Morocco

LAYING THE FOUNDATIONS FOR THE DIGITAL TRANSFORMATION OF THE PUBLIC SECTOR IN MOROCCO

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Foreword

Morocco is taking steps to establish an open and responsive government. Its new constitution, approved in 2011, lays the foundations for a culture of openness in the economy, society and the public sector. Over the past two decades, the government of Morocco has progressively integrated the use of digital technologies in its internal processes to become more agile and functional, and to improve service delivery. Substantial progress has been made in the digitisation of public services and in raising public awareness about the opportunities created by digital technologies. Nevertheless, in a context of rapid technological change, where citizens and businesses increasingly expect simplicity, efficiency and openness when interacting with the public sector, Morocco faces the challenge of integrating digital technologies more coherently and sustainably. As highlighted by the OECD Recommendation on Digital Government Strategies (2014), the challenge today is no longer to introduce digital technologies into public sector activities, but to integrate and embed them right from the start into government efforts to modernise the public administration in all policy areas and at all levels of government.

This *Digital Government Review of Morocco* was undertaken to support the digital transformation of the country's public sector. The review was prepared by the Reform of the Public Sector Division of the OECD Public Governance Directorate, within the framework of the OECD Country Programme for Morocco. The review's recommendations provide insights on important policy areas.

These include:

- the governance of digital government
- the use of digital technologies to support an open and user-driven culture in the public sector
- the strategic management of information and communication technology (ICT) projects to ensure that the benefits of digital transformation are sustainable, coherent and spread across all sectors and levels of government
- the development of digital skills.

The review recognises the progress made in Morocco in the last decade in integrating digital technologies in government processes and service delivery, and highlights the efforts and commitment of the Moroccan government to seize the opportunities and mitigate the risks brought about by digital technologies. The new *Maroc Digital 2020* strategy and the creation of the Digital Development Agency fully reflect the government's commitment. Nonetheless, Morocco should capitalise on the current momentum to make further progress in establishing an adequate governance framework as well as mechanisms for co-ordinating digitalisation efforts across the public sector. Morocco should also build on current efforts to create an "ecosystem" of digital government stakeholders able to participate and collaborate in the digital transformation

of the public sector, ensuring that both public servants and citizens have the skills and means to implement and benefit from digital government.

This *Digital Government Review of Morocco* builds on the OECD 2015 *Open Government Review of Morocco* and the OECD 2017 Digital Government Study, *Benchmarking Digital Government Strategies in the MENA Countries*. The review is based on the analytical frameworks for digital government, open government data and data-driven public sector provided by the OECD Recommendation on Digital Government Strategies (2014).

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This review was prepared by the Directorate for Public Governance (GOV) of the OECD. The mission of the Public Governance Directorate is to help governments at all levels design and implement strategic, evidence-based and innovative policies to strengthen public governance, respond effectively to diverse and disruptive economic, social and technological challenges and deliver on government's commitments to citizens.

This *Digital Government Review of Morocco* was produced under the supervision of Barbara-Chiara Ubaldi, heading GOV's work on Digital Government, Open Government Data and Data-Driven Public Sector. Strategic directions were provided by Edwin Lau, Head of the Public Sector Reform Division in GOV, and Marcos Bonturi, Director of the Public Governance Directorate.

Chapter 1 was written by Alison Rygh, Digital Government Secondee, Public Sector Reform Division of GOV. Chapters 2, 3 and 4 were written by Rodrigo Mejía-Ricart, Digital Government Junior Policy Analyst, Public Sector Reform Division. All chapters benefited from contributions and revisions provided by Barbara-Chiara Ubaldi and João Ricardo Vasconcelos, Digital Government Policy Analyst in the Public Sector Reform Division. João Ricardo Vasconcelos served as the overall lead co-ordinator of the review.

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Executive summary

Digital technologies are increasingly pervasive in society, profoundly affecting social interactions and dynamics. In this context, governments need to rethink their role, scope of action and ways of working to adjust to changing expectations and needs. Digital technologies should be considered a core element in the design and delivery of public policies and services. This is particularly true as governments develop new ways of interacting with citizens and businesses, including working together to create public value by using "government as a platform". The digital transformation of the public sector implies a shift from e-government, or the digitisation of paper-based business and service-delivery processes, to a "digital by design" re-engineering of services and processes. This transformation requires governments to take a user-driven approach, empowering citizens and business to interact and collaborate with the public sector to determine and address their own needs.

Morocco's new strategy, *Maroc Digital 2020,* reflects the government's commitment to digitally transform its economy, society and government. Strong leadership will be needed to ensure that the strategy is centrally steered and strategically linked to all public sector modernisation plans. The government will need to establish a governance framework for co-ordinated implementation of the strategy across all sectors and levels of government. The creation of the Digital Development Agency is an important step in this direction. The agency, which is responsible for optimising and modernising digital government platforms and practices, will require a strong mandate and sufficient resources and means to provide oversight, promote uptake, monitor and evaluate progress in implementing *Maroc Digital 2020*.

Government data is a strategic public asset for developing a citizen-driven government, and its value needs to be recognised and enhanced. Appropriate governance arrangements, infrastructure and human capacity are also needed to fully reap its benefits. Digital technologies can support the proactive publication of public sector information that government, citizens and business can re-use to develop new services and products. The Moroccan government should harness the momentum for digital government to develop a comprehensive open government data strategy. This would help lay the foundations for a data-driven government, and would also allow the government to build effective feedback loops for policy monitoring and permanent adjustment.

With the new Moroccan Constitution, approved in 2011 and the process of "advanced regionalisation" implemented since 2015, reforms allowed the central government but also empowering local authorities to make public policies and services better tailored and more responsive to citizens' and business' needs. According to statistics on mobile subscriptions in Morocco, the majority of the country's population, both rural and urban, have access to mobile phones and smartphones. Technology can be used to bridge regional differences and help unify the population. For example, a national digital identity for citizens and businesses would provide the technical backbone for the digital transformation of public services in Morocco. Moving to a user-driven administration

would require central and subnational governments to increasingly adopt a citizen-driven digital service delivery policy, supported by data interoperability.

Morocco's ability to use digital technologies to modernise the territorial administration of the country and support a more homogeneous distribution of development outcomes will depend on its institutional capacity to prioritise, plan, manage and monitor information and communication technology (ICT) investments. Finally, the digital transformation of the public administration, across all levels and policy areas, requires new talent and skills to cope with the complexities of the new policy environment.

Main policy recommendations

- Develop an autonomous digital government strategy and action plan to complement the *Maroc Digital 2020* strategy, reinforcing the focus on digital government policies, involving all digital government stakeholders and developing an impact assessment methodology.
- Establish a national chief digital transformation officer (CDTO), with a clear mandate, political support and an institutional basis, to be a champion of the digital transformation of the Moroccan public sector.
- Strengthen the mandate of the Digital Development Agency, reinforcing its financial and human resources and attributing monitoring and co-funding authority.
- Establish an inter-ministerial committee responsible for the oversight and co-ordination of digital government initiatives.
- Develop institutional instruments to streamline digital technology investments across the public sector, namely a budget threshold for *ex ante* evaluation, a business case mechanism and a standardised project management model.
- Continue efforts already mede to promote openness, transparency and accessibility of digital services to reinforce trust in government and create a more transparent and accountable public sector.
- Restructure public service delivery around citizens' needs, through the development of a centralised policy on open government data and digital platforms to capture user feedback.
- Create positions of chief security officers across sectors and levels of government to co-ordinate and implement cybersecurity policies.
- Develop and promote the uptake of digital government enablers across the public sector, such as a digital identity system, a digitised civil register and an effective interoperability framework.
- Develop a mechanism for evaluating ICT investments, establish an ICT commissioning policy and consider developing an open source and open standards policy.
- Develop digital skills among Moroccan public officials, identify the skills needs of civil servants and leaders, and consider creating specific policies to retrain, attract and retain qualified ICT professionals among the public sector workforce.

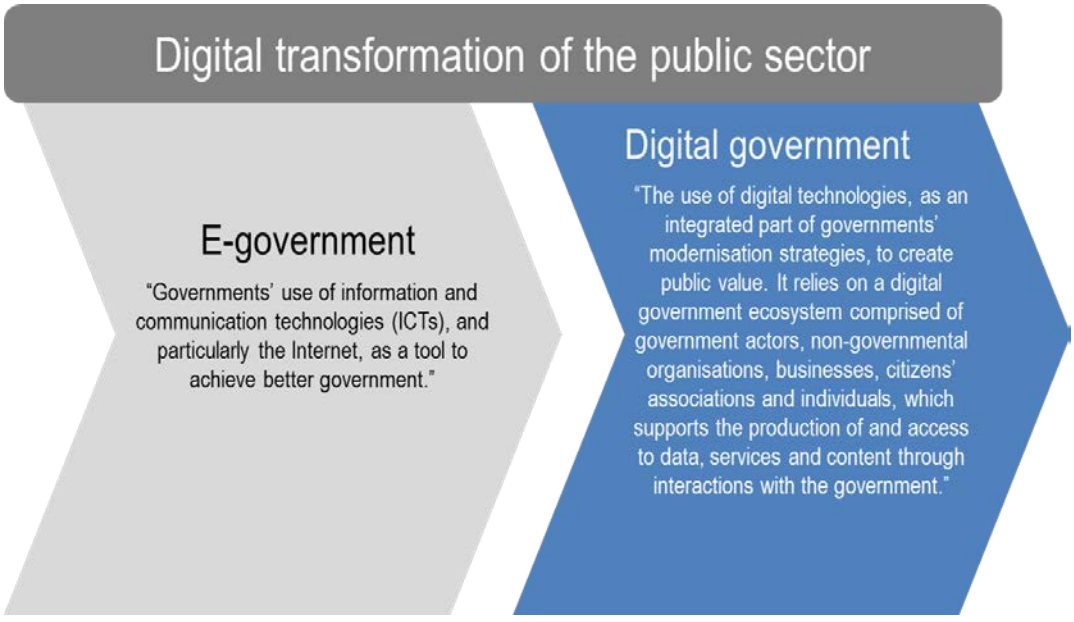
Assessment and recommendations

Governance: From e-government to digital government

The rise of digital platforms and networks, cloud computing, mobile technology, artificial intelligence and Internet of Things are rapidly transforming economies and societies, with enormous implications for governments' daily operations. Failure to adapt public sector capacities, workflows, business processes, methodologies and frameworks to this new and changing environment exposes governments to significant risks, such as unsatisfactory service delivery, poor performance in public spending, privacy and security breaches and diminishing trust in government.

One of the key challenges that even the most digitally committed governments face today is the shift from e-government to digital government. This shift is, in fact, the central message of the OECD Recommendation of the Council on Digital Government Strategies (see Figure 0.1).

Figure 0.1. Digital transformation in the public sector: From e-government to digital government



Source: Based on OECD (2014), "Recommendation of the Council on Digital Government Strategies", OECD, www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm.

The modernisation of the public sector in Morocco should be developed bearing in mind this important shift. Its implications in terms of information and communication technology (ICT) governance in the public sector are considerable.

Morocco can opt to focus on adopting a full digital government policy that would allow the country to leapfrog some development stages, already putting in place sustainable policies that can guarantee short and medium-term, efficient and effective outcomes. Morocco can now benefit from the opportunity to adopt more mature approaches right from the inception of its policies and initiatives.

Leadership and vision: Clarifying roles and streamlining priorities

Large consensus regarding the importance of digital government policies can be found today across the Moroccan public administration. The benefits and the potential of ICT use within the public sector are seen as unquestionable, so substantial support exists to develop relevant policies.

The national strategy for the information society and the digital economy, *Maroc Digital 2013*, launched in 2008 and implemented from 2009 to 2013, was clear proof of the government's commitment in these areas. The document established several priorities and led to the mobilisation of efforts from all sectors of the government, assuming ICT as a central instrument of change for the public sector. *Maroc Digital 2013* was cited by all public entities as the central co-ordination policy instrument for the development of ICT use in Moroccan society, including and particularly, in the public sector.

A new strategy, *Maroc Digital 2020*, is now in place, streamlining new priorities for a digital economy, society and government. The Government of Morocco set the goal of delivering 50% of the public services on line by 2020. The creation of the Digital Development Agency, with cross-cutting responsibilities, including in digital government domains, is major progress foreseen by the new Moroccan action plan.

A new strategy is always a good opportunity to improve policy co-ordination practices. In this sense, the alignment of *Maroc Digital 2020* with other national strategies underway (e.g. public sector reform, open government) should be assumed as a priority. The alignment with the United Nations Sustainable Development Goals is also an opportunity not to be missed.

A new strategy, like *Maroc Digital 2020*, is an opportunity to involve and engage all kinds of stakeholders in its development. From private partners to the academia, from territorial communities to civil society organisations, securing wide co-operation with the digital government ecosystem of stakeholders is a fundamental lever to change the institutional dominating culture and boost the transformation of the public sector. Public entities should be committed to an **openness-by-default** imperative and mobilise citizens to actively participate in this public effort. Morocco is the first non-member to adhere to the OECD Open Government Recommendation of the Council, which among other things provides the characteristics of how stakeholder engagement can be done.

Governance matters for the effective and efficient design and implementation of digital government policies, even more so in the case of digital government. As a matter of fact, the OECD Recommendation on Digital Government Strategies underscores the importance of having a governance framework (encompassing policy tools as well as institutional set-ups) that supports co-ordination rather than discussing alternatives of centralisation vs. decentralisation. Therefore, a clear scenario of "who is who" and "who does what" together with appropriate mechanisms for co-ordination, co-operation and shared accountability, active participation of the stakeholders (e.g. ministries, other levels of government), can facilitate the decision-making process and the effective adoption of agreements, decisions and guidelines related to digital government.

Clear leadership for digital government in Morocco is commonly recognised as an area to be improved. The creation of the Digital Development Agency is a clear positive response to this perceived need. Some gaps and overlaps seem to have existed until now between the Ministry of Industry, Trade, Investment and Digital Economy and the Ministry of Reform of the Public Administration and Civil Service. With the establishment of the new agency, a clarification of roles to sustain effective co-ordination and articulation on digital government-related matters should be assumed as a priority.

Policy levers: Securing coherence, impact and sustainability

OECD member and partner economies around the world commonly recognise the silo-based culture of their public administrations as one of the central problems for digital government development. Morocco is not an exception in this regard. In this sense, identifying policy levers is critical to creating coherent approaches across the administration that can help boost impacts and secure the sustainability of individual initiatives.

Bearing in mind the opinions and suggestions provided by several public sector stakeholders in Morocco during the peer review mission, the following levers should be clearly considered and reinforced:

1. **Political support**

   Empowering the public body in charge of co-ordinating the digital government agenda, and/or strategy, and raising the recognition of the strategic importance of digital government for the overall modernisation of the public sector. Political support is a fundamental requisite to aggregate willingness and secure tangible and specific commitments in support of the digital transformation of the public sector.

2. **Financial mechanisms**

   Supporting strategic investments in these areas and securing coherence between all the public sector investments. The mobilisation of financial resources should be considered a priority and the public body that co-ordinates the digital government agenda should have a clear role in managing, approving and monitoring the deployment of those resources.

3. **Inter-ministerial collaboration (networks)**

   Fostering co-ordination of policy areas and promoting the joint ownership of the digital government agenda is critical. The existence of a body – e.g. the equivalent of a steering committee - that can very regularly bring together the stakeholders from across the government (policy makers) and the public sector (high-level civil servants as well as those with more operational tasks) and strengthen the common contribution in the implementation of the digital government agenda is a major prerequisite for the efficient and effective achievement of the objectives set in the agenda.

The new strategy *Maroc Digital 2020* represents an extraordinary opportunity to follow up on several observations listed above with concrete actions.

Proposals for action	Level of priority
In light of the key assessments exposed above, which draw on the main findings and analysis included in Chapter 2 of this review, the Moroccan government could consider implementing the following policy recommendations.	
1. Consider the development of an autonomous digital government action plan, to complement the strategy *Maroc Digital 2020* with more relevant specific objectives and actions to the public sector. This would enable the Government of Morocco to reinforce the recognition of the political relevance of the digital transformation of the public sector across different sectors and levels of government. An action plan could bring numerous benefits, namely through: a. The **reinforcement of the focus** on specific actions needed to achieve the goals and target the priorities set in the strategy, while guaranteeing the proper alignment with goals set by other relevant strategies, such as on administrative modernisation, digital economy and national development. b. The opportunity to better **involve the digital government ecosystem** in the design, development and implementation of actions needed to deliver the results and monitoring achievements. c. The establishment of a specific **impact assessment methodology**, as a policy tool complementing the digital government strategy and action plan, would reinforce the capacity to monitor the strategy, the transparency of the process - based on estimated outputs, outcomes and impacts - and the overall and shared accountability of the digital government policy.	Short term
2. Consider establishing a national chief digital transformation officer (CDTO), with a clear mandate, backed up by the needed political support and institutional basis, to be identified as a champion leading the development of the digital transformation of the Moroccan public sector. The CDTO should be responsible for co-ordinating the implementation of the specific digital government strategy and action plan, being able to mobilise and involve the ecosystem of public, private and civil society stakeholders. Given the specific context of Morocco, the Government of should in particular: a. consider establishing the post of **CDTO in the office of the *Chef du Gouvernment***, assuring a ranking position able to report directly to the minister and securing a strong articulation with the Ministry of Industry, Investment, Trade and Digital Economy, and the Ministry for the Reform of the Public Administration and Civil Service as in the case of OECD member countries such as Australia and Mexico where the position of CDTO, reports to the Head of Government. b. envisage creating an agile and **small unit working as a support office to the CDTO** acting as a secretariat to facilitate the co-ordination of the implementing of the digital government strategy and action plan in collaboration with different sectors and levels of government c. assign the mandate to **lead the national digital service delivery policy** to the CDTO who would be responsible for improved, tailored and citizen-driven approaches to public service delivery.	Short term
3. Strengthen the mandate of the Digital Development Agency, with a fundamental supporting role in the implementation of the digital government action plan through the following actions: a. assuring the capacity and mandate of the Agency to provide the administrative, operational, technical **support to the CDTO** b. allocating to the Agency **adequate human and financial resources**, enabling the Agency to lead the development and implementation of the digital government strategy and support the implementation of the associated action plan c. assigning to the Agency the role to **develop and oversee the enforcement of technical guidelines** that can guarantee coherent, strategic and sustainable digital government development across the public sector (e.g. interoperability, digital identity) (see Recommendation 10 c.) d. attributing the clear responsibilities to the Agency to **monitor** the implementation of the strategy and associated action plan e. establishing **co-funding mechanisms** managed by the Agency for the development of digital government projects, in order to assure the strategic alignment with the digital government strategy and the take-up of technical guidelines for digital government development as with the OECD country, Portugal on the adoption of co-funding mechanisms by the Agency of Administrative Modernisation (see Chapter 2, Box 2.7)	Long term
4. Consider establishing an inter-ministerial committee responsible for the oversight and co-ordination of the actions, projects and initiatives under the recommended digital government action plan. Based on OECD countries' digital government experiences (e.g. Denmark and Mexico), the following model should be considered**:** The committee should be chaired by the CDTO (position to be established in the office of the Chef Du Government), which would play the role of Secretariat of the Committee and would secure the articulation with the Digital Development Agency. The Inter-ministerial Committee would have the following particularities: a. A **high level** of the Inter-ministerial Committee would bring together political representatives (e.g. Ministerial or secretary of state level representatives) to discuss and steer the adoption of key strategic decisions concerning the overall goals included in the Strategy and as well as the implementation of the digital government action plan. This would help securing the necessary political support across policy areas and different levels of government. Regular meetings should be held (e.g. frequency once every six-months). b. An **executive and operational level** of the Inter-ministerial Committee bringing together high level representatives from different public administration institutions (Presidents, CIOs or similar positions) should be charged to take operational decisions aimed to align and synchronize actions and projects, and identify and leverage possible synergies across areas and institutions. This level of the Committee should also be chaired by the CDTO with the support of his office operating as Secretarial. Regular meetings should be held (e.g. every two months).	Short term
5. Develop institutional instruments to streamline digital technology investments in the public sector, namely through[1]: a. Creating a **budget threshold** for the *ex ante* evaluation of digital technology investments, able to promote coherence, encourage synergies and avoid gaps and overlaps. Above a pre-determined budget/value to be	Medium term

defined, ICT investments of the central government should be pre-evaluated by the Digital Development Agency.

b. Establishing a **business case** mechanism to be applied coherently and consistently across the public sector to all digital technology investments above the mentioned budget threshold. The business case mechanism should assure more strategic planning and an improved cost-benefit analysis across the central public administration.

c. Institutionalising a standardised digital technology **project management** model able to foster technical, financial, legal and institutional requisites to secure the quality and sustainability of digital technology project results.

Openness and engagement: Changing the culture

The new Moroccan Constitution, approved in 2011, guarantees new rights for civil society participation in public governance. Openness and engagement are now assumed as cross-cutting priorities by the Moroccan government and are reflected in Morocco's participation in the Open Government Partnership (OGP), its OGP Action Plan and adherence to the OECD Recommendation on Open Government. Digital technologies are considered major enablers of this vision. This trend, reflected namely in *Maroc Digital 2020*, is in line with progress across governments around the world, as they look strategically at the full potential of digital technologies to regain or reinforce public trust and confidence.

Emerging technologies and related trends - like social media, mobile communication and other technology-enabled approaches, such as open government data - allow for more direct public sector interactions with citizens and businesses. But a culture of openness also raises key challenges, like the management of citizens' increasing expectations, side by side with growing requisites in terms of security and privacy protection.

Transparency and engagement: A digitally open government

The development of more participatory democracy is a key challenge being embraced by the Moroccan government. The materialisation of some constitutional principles in effective rights is being carried out using digital technologies as key enablers of this change.

The existence of the ministry in charge of the relations with the parliamentary and civil society is a clear sign of the Moroccan government's commitment to the openness of its administration and to the development of more participatory and inclusive governance. A public website was launched in 2017 to improve the transparency of the public financial support given to civil society organisations. Furthermore, the Ministry of Reform of the Public Administration and Civil Service is taking a leading role coordinating work for the Open Government Partnership (OGP). On the other hand, the organic laws (loi 44-14) defining the conditions to present petitions, namely in electronic means, to public authorities and to the Parliament, are also good examples of the openness and engagement culture being fostered in Morocco.

The national open data portal of Morocco (www.data.gov.ma) was launched in 2011, placing then the country in the forefront of international developments in this area. The platform was upgraded in 2014 to use the CKAN software, similarly to a number of OECD member countries' national open data portals. Dozens of datasets are now presented on the national open data portal. However, the need for a more coherent and streamlined approach in relation to open data developments is commonly recognised by several public institutions. The adoption in 2018 of the Access to Information law (loi N°31.13), including open data, is a positive public response to the increasing demands in these domains.

Open data is generally seen as a transparency mechanism by several Morocco public entities. It is a central part of the country' open government commitment. However, the focus on reuse of public sector information for value creation is still low. Efforts should be mobilised to create a sustainable open data ecosystem, involving public entities, academia, companies and civil society organisations in open government data reuse.

Important progress in terms of participatory democracy enabled by and based on digital technologies are today visible in Morocco, but further efforts are necessary to really promote engagement, collaboration and co-production with the public sector.

Digital inclusion: A pillar of change

Illiteracy levels in Morocco vary from region to region and based on gender however overall, remain high compared to OECD countries (almost 30% of youth 15 years and older) (UNESCO, 2015). Since literacy is one of the biggest requisites for digital inclusion, it represents a natural challenge to the universal reach of digital government policies. Although the population's illiteracy levels shouldn't be considered an insurmountable obstacle for digitally oriented policies in the public sector, multichannel approaches (maintaining also face-to-face service delivery) should always be considered to guarantee the universal right of access to public services.

The high penetration of mobile phones in Morocco – 126% of individuals between 12 and 65 years old in 2017, according to the Moroccan Observatory of Information Technologies - can be seen as an opportunity to include large segments of the population in the digital transformation of the public sector. In fact, governments around the world increasingly use mobile technologies to better reach and serve citizens and companies. This dynamic can be found not only in the most digitally advanced countries, but also in countries that are committed to using mobile technologies to leapfrog some structural ICT infrastructure deficiencies.

A data-driven culture: Fully reaping the benefits

Data is increasingly recognised by governments as a strategic asset. The rapid expansion and uptake of digital technologies across public sectors have increased the capacity to produce, collect, store, process and share data. A data-driven public sector, supporting the management of the data value chain processes throughout the policy cycle and improving service design and delivery approaches, is at the core of the more forward-looking digital government advancements across OECD countries.

Considerable amounts of data are being collected and stored as a result of the progressive digitalisation of government processes underway in Morocco. Several good examples can already be found on using data to better inform policy making and policy decision at ministerial level. The system of indicators used by the Ministry of National Education and Professional Training and the database of Human Resources of the Ministry of Civil Service and Modernisation of the Administration are clear cases where a data-driven culture is already emerging.

The challenge faced by the Moroccan government at this stage is to have a policy of open access to public sector data and to start reaping the full benefits of all the data that is already being produced and/or collected by the public sector. Enabling data access and boosting data processing, exchange and reuse across all the Moroccan public institutions can improve public sector intelligence, allowing for more informed policy decisions and implementation processes, as well as more citizen-driven approaches.

Privacy and security: A digital prerequisite

To improve citizens' trust, governments need to balance openness and engagement with adequate levels of security and privacy protection. Citizens need to be certain that their data are being rightly managed, securing their privacy as well as its security. Since security and privacy breaches lower citizens' trust in the public sector, they also potentially reduce the ability of governments to sustainably lead the digital transformation.

Since the launch of the national strategy for the information society and digital economy, *Maroc Digital 2013*, a broad framework regarding security and privacy was put in place. Many legal regulations and organisational structures have been developed and created. A cybersecurity strategy for Morocco was approved as well as a National Information Systems Security Directive, and new regulations for personal data protection, electronic data exchange, cyber consumer and cybercrime protection were released.

The framework underway seems to follow all the major international trends in the fields of privacy and security. But the big challenge underlined by several Moroccan public bodies is the follow-up on the implementation of the regulations in place. Its transversal appliance throughout the public sector is one of the key challenges faced right now.

Proposals for action	
In light of the key assessments exposed above, which draw on the main findings and analysis included in Chapter 3 of this review, the Moroccan government could consider implementing the following policy recommendations.	**Level of priority**
6. **Continue efforts to advance openness, transparency and accessibility of digital services** in an effort to maintain public trust in the government. Morocco has progressively strengthened the policy framework for civic participation, transparency, accountability and for supporting the fight against corruption in the public sector. However, transparency and accountability should, for example, go beyond enhanced traceability or access to information procedures, as a broader understanding and approach can help create a user-driven and data-driven public sector. To continue these efforts, the government can consider the following: a. Establish **policy and guidelines around accessibility** to build a digitally inclusive society, namely the mandatory accomplishment of level AA of the World Wide Web Consortium (W3C). The involvement of public, private and civil society stakeholders in service design can ensure that different needs and visions will be reflected in the strategy and will also reinforce the commitment, sense of ownership and the development of a system-thinking culture. Key to this recommendation is thorough testing of services. b. Ensure that **solutions are digital by design** which would promote data access, interoperability, exchange and data re-use across and within public sector institutions. For example, eliminate complex paper forms by leveraging digital technologies to have, where possible, pre-filled fields based on the reuse of public sector data. This is to not only recognise the power of digital technologies in establishing more efficient processes in the public administration but also to serve as a building block for a more transparent and accountable public sector. For example, incorporate proactive publishing of information and open government data (OGD) on a central government portal into the design of digital solutions, which will, in turn, raise the level of trust between citizens and the government, and impact public procurement process for ICT. c. Deliver **benefits of the digital transformation to the least advantaged segments of the population** through mobile government applications and solutions, bringing more convenience and simplicity of services thanks to their design for mobile devices. Inclusive design can facilitate the engagement of more citizens and can help leverage technology to deliver services to less advantaged citizens. Existing digital divides do not mean the digital transformation of public services cannot bring substantial benefits to citizens. The penetration of mobile technologies in Morocco is high, and this provides a propitious context for the development of mobile government applications and solutions that increase access to services. Furthermore, development of "Short Message Service" or SMS as a medium for service delivery would have a very broad and inclusive access by all mobile devices. It is suggested that the government prioritise the creation of mobile applications when considering digital service delivery as well as providing citizens a	Short term

	mobile applications service catalogue of all services that a citizen can access via mobile technology. In order to avoid generating new forms of digital exclusion, initiatives on mediated access to digital services should also be considered following some OECD Countries experiences (e.g. Citizen Spots in Portugal[2]).	
7.	**Consider the restructuring of public institutions' service delivery approaches** around citizens' needs and preferences in order to strengthen accountability, access the potential strategic use of data for improved delivery and provide an environment for innovation to improve public sector performance. To nurture a more strategic approach to transparency and accessibility, the government should consider the following: a. Develop a **centralised policy on open government data** (OGD) to strengthen cohesion and co-ordination of the release of open government data to the public. A common policy will concentrate efforts to secure political support and resources for OGD, build a common vision with strategic objectives and invest in public sector capabilities to engage with the public. This would help strengthen the focus on engaging the ecosystem in the reuse of OGD. b. Create **digital platforms to capture users' feedback**. In the use of a digital feedback loop, the response time to user requests can be shortened and will allow citizens to see that their comments are being processed in real time, which will strengthen trust. It facilitates public participation in the institutional decision-making process. In turn, services can be tailored and will be more convenient to users' needs based on their feedback. In view of the fact that some electronic feedback platforms are already operational (e.g. Chikaya.ma), the challenge is to generalise this practice across public institutions and accord the proper governance over the platforms to ensure the proper capturing and follow up to the feedback. c. Create **spaces for collaboration and co-creation** by re-engineering the government machinery and architecture to allow for the establishment of an open dialogue between the public, private, civil society and academia sectors, which provides for a relevant flow of ideas around policy issues and the constant improvement of public sector performance bringing institutions closer to citizens and businesses. An agile and iterative approach towards the deployment of technology, and public engagement to crowdsource feedback would enable this open dialogue.	Medium term
8.	**Continue establishing and strengthening the coordination of chief security officer positions** (i.e. with the responsibilities of **senior information risk owners**) within individual ministries, and/or public institutions, and also at the subnational level of government, which would improve the administration's ability to co-ordinate and implement cybersecurity policies. This effort would allow the government to: a. **Continuously assess** existing systems and infrastructures to strengthen the capabilities of the overall administration to contribute to cybersecurity efforts and objectives. b. **Develop and deploy a network** of **points/centres of cybersecurity** that can manage the daily operations, lead information systems assessments and improvement projects. This approach should be developed and deployed based on institutional capabilities, resources as well as systems' risks and exposure. This network could also facilitate stronger linkages between departments and collaboration with intelligence agencies within the Moroccan public sector to strengthen overall capacity to address vulnerabilities and cauterise damages.	Short term

Making it concrete and effective: Digital government and regionalisation

The shift from e-government to digital government (which captures the essence of the digital transformation of the public sector) around the world normally follows a certain pattern: administrations start using ICTs to make their processes more proactive, open, participatory and inclusive, and subsequently scale the improvements in terms of efficiency and effective delivery of public value. In the shift, the frontiers between the front office and back office of public sectors' processes blur and are therefore progressively brought to the digital age in which they are more than ever connected and integrated, as they are increasingly **digital by design**. Some quite clear dynamics and tendencies can be found during these stages:

1. **Lack of adjustment of the supportive legal and regulatory frameworks**. Even when the updating processes are relatively quick, the take up of the new practices and adjustment to the new legal requirements takes time.
2. **New digital processes reproduce previous paper-based logic, approaches and circuits**. Business process re-engineering is applied in a limited away, not taking full advantage of opportunities brought about by the digital technologies to rethink and reorganise processes, tasks and interactions.
3. **Each public institution makes its own path**, e.g. developing or individually deploying software, hardware and information technology (IT) services, applying different norms and standards, developing its own monitoring systems. Communication and data sharing are limited within the public administration.
4. **Limited planning for IT systems' deployment**, generating a quick rise of IT-related costs, duplications of investments, inefficient spending and difficulties in calculating the real benefits.
5. **Duplication of efforts** start emerging, and opportunities for efficiency and scaling up remain untapped as common IT needs are met in an individual way.

Due to the lack of articulation and co-ordination, the typical silo-based approach is reproduced in these early stages of the digital transformation. Hence, gaps and overlaps between ministries tend to persist, as well as weak multilevel governance. Governments start facing the challenge to fully capture the benefits of sharing systems and capacities for better reuse and co-operation and to sustainably boost the digital transformation of the public sector across all levels in order to bring equal benefits to the entire citizenry across the country.

Considering the heterogeneity of the Moroccan public sector, due to diverse backgrounds, different needs and varied capabilities, strong co-operation frameworks need to be established to support a sustainable digital transformation of the public sector. The sharing of experiences, solutions and methodologies across the different levels of government is a fundamental enabler to generate capacities at territorial level.

Smart cities for decentralised digital government development

While cities are confronted with outstanding challenges, emerging digital technologies open new and unprecedented opportunities to reinvent cities, enabling more agile and smarter governance arrangements to support more sustainable and innovative service delivery in urban areas. Tools like the Internet of Things, as well as new and increasingly affordable sensors, allow cities to capture real-time data on pollution levels, human behaviour relevant to health, energy consumption, land use, climate, traffic and urban mobility. Coupled with increasingly sophisticated data-processing techniques, such as big data analytics and machine-learning algorithms, cities are drawing insights to enhance quality and efficiency of transportation and energy services, healthcare and education, and to improve data-driven urban planning.

Moroccan cities currently lack the technological maturity and the human and financial resources to effectively use such tools. During the OECD peer review mission, several Moroccan stakeholders underlined that the digitalisation of public services in the majority of Moroccan cities has barely started and critical registries and archives are still paper-based. Yet, cities in other emerging economies have shown how they can leapfrog in this regard by partnering with the central government, international organisations, the private sector, academia and other development partners.

Key enablers: From interoperability to electronic identification

The development of common IT key enablers for the public sector is a fundamental requisite to shift from e-government to digital government. Most Moroccan public bodies underline several recent ICT developments in the public sector, but also identify the need for national key enablers that can support the digital transformation of the public sector. The following were broadly highlighted:

1. **Interoperability**: The effective applicability of interoperability guidelines, namely the ones foreseen within the *Cadre Général d'Interopérabilité* (2012), presents an urgent need to structure a more coherent and interconnected public service.
2. **Building blocks and shared services**: Respond to common needs and considerably reduce the risk of duplication of efforts and the effect of "reinventing the wheel", providing rationality and economies of scale (namely through the use of the possibilities offered by cloud computing approaches). Contributes also to engaging entities of government at all levels, particularly facilitating the engagement of those with fewer resources (human, economic, technical, and located in remote areas), reducing the gap with more advanced entities.
3. **eID and digital certificates**: Commonly identified as fundamental resources to support the development of online public services and higher integration within governments.
4. **Digital civil registry**: Fundamental step to guarantee the proper digital management of citizens' needs and the relationship with the Moroccan Public Administration. A digitalised civil register, able to be properly shared and reused by all public administration bodies, is an essential public asset.
5. **Intra-ministerial network**: Able to support in a sustainable and secure way the regular exchange of data, information and knowledge in the public sector.
6. **Public data centre**: Capable of storing and processing public information, as well as supporting the delivery of common IT building blocks (e.g. e-authentication, e-forms, etc.). A government-private cloud is also a natural alternative to be considered.

All the above-mentioned key enablers should be used across the central government, but should also be mobilised to support and strengthen the relationship between the different regions in Morocco. ICT can indeed strengthen the co-ordination between different levels of government, with clear benefits in terms of public sector management. ICT can also render the relationship with citizens and businesses more coherent and better articulated.

With the recently launched strategy *Maroc Digital 2020*, which takes into consideration several of the previously mentioned key enablers, Morocco now has an excellent opportunity to reinforce the digital transformation of the public sector in a sustainable way.

Strengthening capacities: Business cases and project management tools

The use of business case methodologies to better plan ICT investments, as well as the widespread use of project management tools and skills, can be decisive in securing the sustainability of the digital transformation process. The lack of those practices leads to difficulties to argue and explain IT investments, to point to measurable benefits for the public sector, citizens and businesses, to unnecessary and duplicated efforts, compromising projects' efficiency and effectiveness.

Although some Moroccan public bodies underline the general usage of business case methodologies to assess large investments, as well as project management practices to improve the efficiency in how initiatives are run, a consensus seems to exist about the need for a more systematic and streamlined usage of common tools to build stronger capacities more consistently across the public sector.

The development of monitoring, evaluation and measurement mechanisms is also commonly considered as a general practice to be improved. The use of consolidated metrics can help to better follow results and verify impacts of policies underway. Although some interesting and developed cases are in place, this domain can be significantly improved in the Moroccan digital government panorama.

More consistent use of business case and project management approaches and tools can also be useful to better mobilise financial resources for digital government projects, better articulate the diverse financial sources and focus the investments in critical sectors for Morocco (e.g. health, education).

Different institutional tools, frameworks and policy levers can be used to spread these practices in the public sector. The new Digital Development Agency can assume a co-ordinating role in the Moroccan context in the future.

ICT commissioning

The permanent evolution of ICT requires additional efforts to identify common needs across the public sector. It also obliges flexible and innovative contracting rules that can make the IT procurement process agile and effective. Modern ways of deploying technology, such as cloud computing, new forms of PPPs, open source software and service contracts with the private sector demand an adequate procurement system for the public sector, applicable to all levels of government.

Some practices of demand aggregation at ministerial level were generally identified within the Moroccan public administration, demonstrating that the benefits of strategic planning of IT procurement are clear. However, general consensus seems to exist about the need to develop more agile procurement rules.

Digital and leadership skills

Digital skills of different groups of public officers are also a central issue in Morocco. The limited capacity of the public sector to attract and maintain highly qualified IT professionals constitutes a major challenge for the foreseen digital transformation of the Moroccan public administration. On the other hand, the need to continuously improve the basic digital skills in the public workforce is highlighted as an essential issue.

Aligned with this identified need, the new strategy *Maroc Digital 2020* assumes the improvement of digital skills, in particular within the public sector, as one of the central priorities for the next four years.

The permanent reinforcement of the digital skills of the general population, in line with the strategic priorities defined by the Sustainable Development Goals, was considered by several Moroccan stakeholders during the peer review interviews as a requisite for inclusive and sustainable digital government development. In this sense, digital government policies in Morocco should be properly articulated with broader policies and initiatives that envisage the development of digital skills across different segments of the population.

Proposals for action In light of the key assessments exposed above, which draw on the main findings and analysis included in Chapter 4 of this review, the Moroccan government could consider implementing the following policy recommendations.	Level of priority
9. **Support the development of smart cities across the Moroccan territory**, in line with the efforts underway able to take full advantage of digital technologies to streamline city management, improve the relationship with citizens and contribute to more sustainable and innovative urban areas. a. **Consider the promotion of a network of smart cities** that, based on more advanced examples like Casablanca, can spread the concept and foster the development of smart cities' concept across the territory; generate involvement, capture feedback and foster the commitment of local stakeholders; and facilitate the scaling up of initiatives. For example, the use of digital tools to create consultation platforms to solicit residents' feedback about a variety of municipal issues such as budgets, infrastructure (e.g. construction projects, road repairs, etc.) and public transit. b. **Promote the establishment of the position of chief digital transformation officers (CDTOs) at the cities' level** in order to prioritise policies of data use, reuse and value creation at the local level. c. **Explore the potential of the Internet of Things** (IoT) through the proper use of the data collected (e.g. levels of pollution, traffic and urban mobility, energy consumption) for more informed city management. The IoT is also able to generate new opportunities for citizen engagement in the local management of their communities through the sharing of data collected privately (e.g. reuse of information collected through smartwatches).	Medium term
10. **Develop and promote the uptake of digital government key enablers** across the Moroccan public sector, as strategic instruments for the effective, coherent and sustainable digital transformation across sectors and levels of government. In this sense, the Government of Morocco should: a. **Prioritise the creation of a digital identity system** in Morocco, able to facilitate and upgrade the relation between the citizens and the public administration through the use of mechanisms like digital authentications and digital signatures. Given the high penetration of mobile technologies among the Moroccan population, a mobile digital identity solution would increase the potential of uptake of the digital identity solution. On the other hand, and based on OECD countries' experiences (e.g. Denmark, Italy, Norway), the Government of Morocco should consider establishing partnerships with private stakeholders that could allow the reuse of solutions already being adopted by the population (e.g. home-banking authentication). b. **Digitise the civil register**, as a central requirement of a digital identity system and for the exchange of citizens' information across the public sector,in line with the efforts underway of the Directorate General of Local Authorities. The entire public administration should be convinced about the benefits of this process, increasing the relevance of the topic in the political agenda. c. **Update and strengthen the current interoperability framework** in order to assure its applicability across sectors and levels of government to support agile and valuable data exchange in the public sector. The uptake of the interoperability framework should be reinforced by the necessary policy levers (see Recommendations 3 c. and 10a.) d. **Secure citizens' ability to control the use made by public sector institutions of their own data** through a central mechanism that can allow Moroccans to verify the use. This should increase government transparency and empower the citizens to control their personal data. Folllowing OECD country examples (e.g. Netherlands,Spain).	Short term
11. **Promote the adoption of strategic tools to help streamline digital technologies** instruments across sectors and levels of government, namely: a. **Prioritise the development of a mechanism for the evaluation of ICT investments** in line with Recommendation 5, based on a budget threshold and including a standardised business case and project management model. b. **Establish an ICT commissioning policy** that can allow a central co-ordination of ICT investments, guaranteeing demand aggregation opportunities, strategic alignment with the priorities established by *Maroc Digital 2020* and the suggested new digital government strategy, enforcement of technical guidelines (e.g. interoperability, digital identity) and the uptake of more agile partnerships and agreements for collaborations with providers and non-institutional	Medium term

	stakeholders earlier in the procurement process, and iteratively throughout delivery. This would enable the government to better understand, include and address user needs and context, the potential benefits and barriers, and to develop better and more effective solutions.	
	c. **Consider the development of an open source and open standards policy** for the Moroccan public sector, able to generate licencing savings on public ICT investments, stimulating software markets among Moroccan providers (e.g. small- and medium-sized enterprises), and allowing for the reuse of software solutions across different sectors and levels of government.	
12.	**Prioritise the development of digital skills** among the Moroccan public officers able to support the sustainable development of digital government, namely:	
	a. **Map the needs to develop digital and leadership skills among Moroccan senior officials**, in order to allow the public sector to better drive the digital transformation, seizing its opportunities and overcoming its challenges.	
	b. **Promote and maintain updated digital skills of public officers** from different sectors and levels of government, in close collaboration with the authority in charge of public sector human resources development/policies.	Medium term
	c. **Consider the creation of specific policies to attract qualified ICT professionals** to the public sector, offering specific career opportunities that can also help the public sector to better retain these professionals.	

Notes

1. As proposed during the Technical Workshop organised in Rabat in January 2018 dedicated namely to sharing OECD country experiences on Business Cases and ICT Commissioning.
2. For further information on the Portuguese Citizen Spots initiative, please consult www.ama.gov.pt/web/english/citizen-spot.

Further reading

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Chapter 1. Contextual factors influencing the digital environment in Morocco

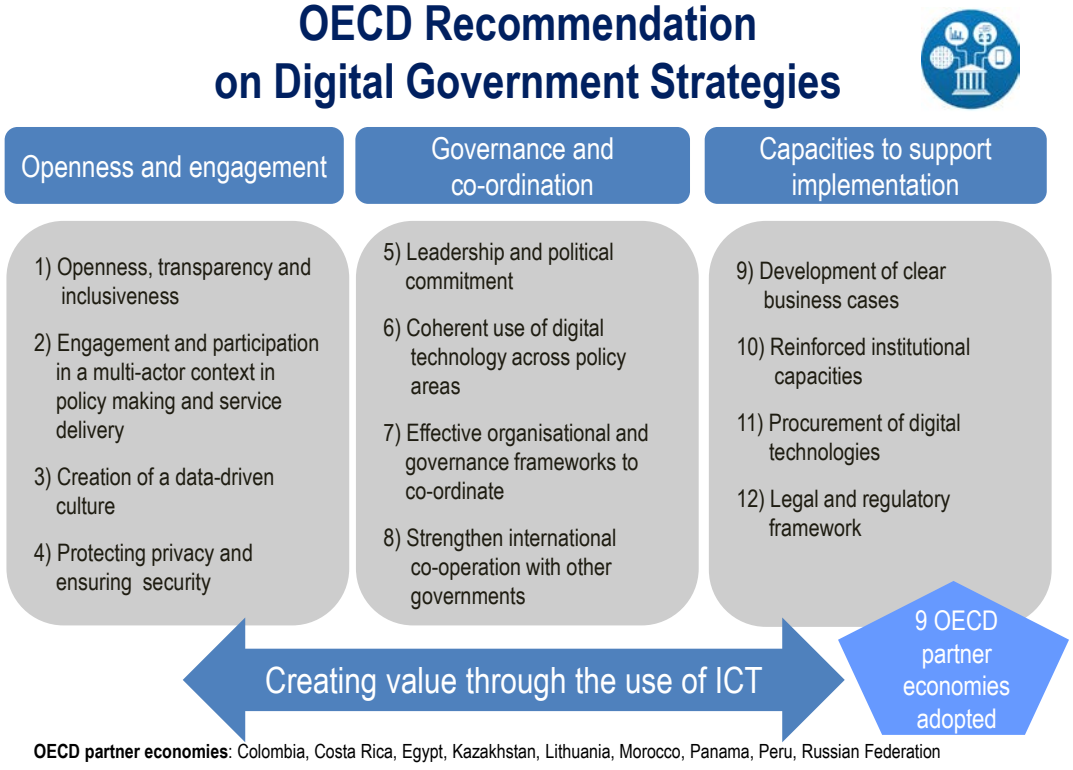
This chapter provides context in two areas: first, the background of the digital government analysis framework used by the OECD and the review itself. It provides information on how this review fits into the overall objectives of the Morocco country programme within the OECD. Second, it introduces the contextual factors that influence the digital environment in Morocco. It takes into consideration both the development of the digital economy of the country and where the government is today in terms of digitisation. An overview of recent economic performance is provided, together with a discussion of the challenges facing the digital transformation of the country.

The framework of the *OECD Digital Government Review of Morocco*

In 2014, the OECD established a new mechanism to support dynamic, emerging economies. Known as country programmes, this mechanism enables some partner economies to leverage OECD expertise and best practices, and build capacity for successful policy reforms, which is hoped to lead to the ability to strengthen institutions in delivering programmes and services. The programme allows countries to access key information and recommendations in order to support strong, inclusive and sustainable growth. This mechanism was designed to be supportive of regional approaches to the extent that partners in country programmes could help disseminate best practices to and bring policy perspectives from, their regions. Building on decades of co-operation within the framework of the MENA-OECD initiative in several policy areas and on the progressive involvement of the country in OECD work, the 2015-16 Country Programme for Morocco was approved on 12 March 2015.

This OECD Digital Government Review is part of the 2015-16 Country Programme for Morocco. The review builds on the experience and knowledge acquired by the Reform of the Public Sector Division of the OECD Public Governance Directorate through similar projects conducted over the past 15 years in a number of OECD member and partner countries. It was conducted in line with the OECD Recommendation on Digital Government Strategies (hereafter, the "OECD Recommendation") adopted by the Council in 2014. The OECD Recommendation comprises 12 separate key recommendations grouped in three axes that support the integration of decisions on digital technologies in the shaping of all-encompassing, overarching strategies in the modernisation of the public sector and public sector reform. The adoption of the OECD Recommendation helps governments to make the most out of technological change and digital opportunities. It promotes a whole-of-government approach that recognises the use of technologies as a cross-cutting agent in the design and implementation of public policies. Morocco adopted the OECD Recommendation in January 2015 and was the first country to request a digital government review based on the framework of analysis provided by the OECD Recommendation (see Figure 1.1).

Figure 1.1. OECD Recommendation on Digital Government Strategies, 2014



Source: Based on OECD (2014), "Recommendation of the Council on Digital Government Strategies", OECD, www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm.

The review benefits from the OECD knowledge base and exchange of best practices, visions and strategies deriving from the work of the OECD Working Party of Senior Digital Government (E-Leaders). The Working Party brings together government chief information officers (CIOs) (or equivalent positions) and senior digital government decision makers in order to discuss and reflect on how to better address the digital transformation of the public sector and create smarter, inclusive, productive, more innovative and responsive governments. Morocco was able to take part in the E-Leaders meetings in Tallinn (2016) and Lisbon (2017) and gained valuable insights from other OECD member countries and partner economies.

The review also benefits from the knowledge contained in the OECD Digital Government Toolkit,[1] developed to support governments in implementing the OECD Recommendation, by providing policy background, operational information, good practices, new trends and a self-assessment model for all 12 key recommendations (see Box 1.1). The Digital Government Toolkit is special in that it marks the collaboration between all countries in the Working Party and highlights practices that provide real-world examples of how the OECD Recommendation can be implemented in the public sector. The toolkit is a living instrument that is being constantly updated by the OECD Secretariat and the member countries and partner economies.

Box 1.1. The OECD Digital Government Toolkit

In 2014, at the request of the Public Governance Committee, the OECD Secretariat started to develop a policy toolkit to support the implementation of the OECD Recommendation on Digital Government Strategies. A draft toolkit was presented at the 2015 meeting of the E-Leaders in Tokyo, Japan.

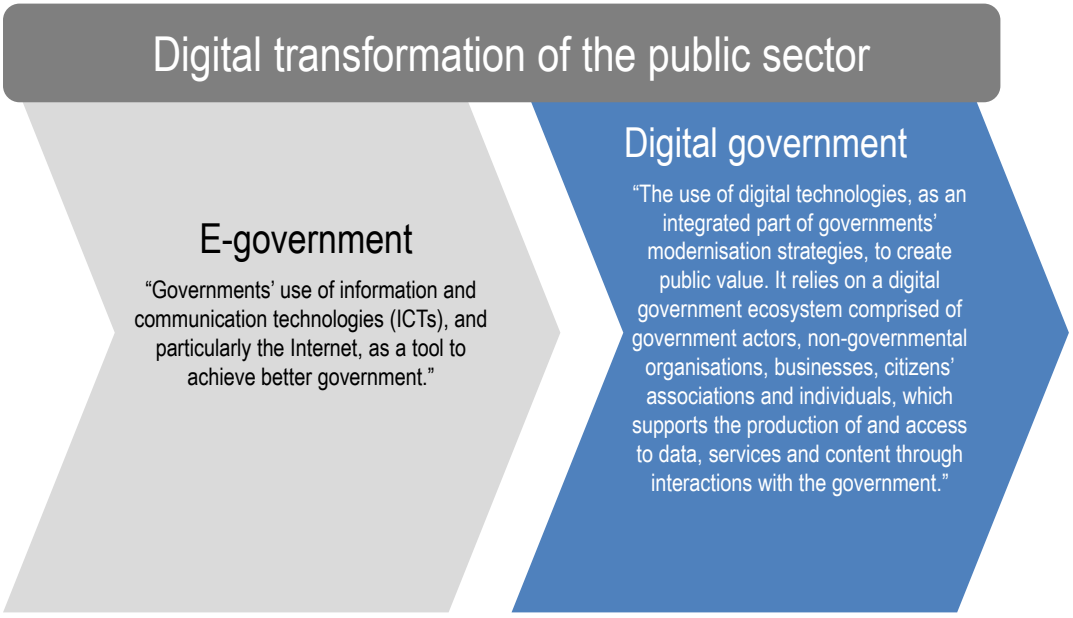
The toolkit centres around the 12 key recommendations of the OECD Recommendation. It highlights relevant trends and issues for the implementation of each key recommendation, indicators, good practices, a self-assessment tool and references for further reading.

"This toolkit is designed to help you implement the OECD Recommendation on Digital Government Strategies. By comparing good practices across OECD countries, this site can guide decision makers in using digital technologies to encourage innovation, transparency, and efficiency in the public sector." - www.oecd.org/governance/digital-government/toolkit/home/

Member countries were actively involved in the process of the elaboration of the Digital Government Toolkit, which is seen as an organisational and international good practice in documents of its kind. Since its launch, adherents have been providing feedback to continuously improve the toolkit, helping identify key trends and issues and good practices, and engaging with the OECD Secretariat in the development of indicators to monitor the implementation of the OECD Recommendation.

The *OECD Digital Government Review of Morocco* will assist the country's government in improving its digital government policies and programmes, providing actionable policy recommendations based on the practices and experiences across OECD countries. The analysis is focused on how to strengthen the efficiency and effectiveness of the digital government policy currently in place, connecting it with broader reform of the public sector policy objectives and programmes. The review will also assist the Government of Morocco in its efforts to shift from an e-government to a digital government approach, treading the path toward the sustainable digital transformation of its public sector (see Figure 1.2).

Figure 1.2. Digital transformation in the public sector: From e-government to digital government



Source: Based on OECD (2014), "Recommendation of the Council on Digital Government Strategies", OECD, www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm.

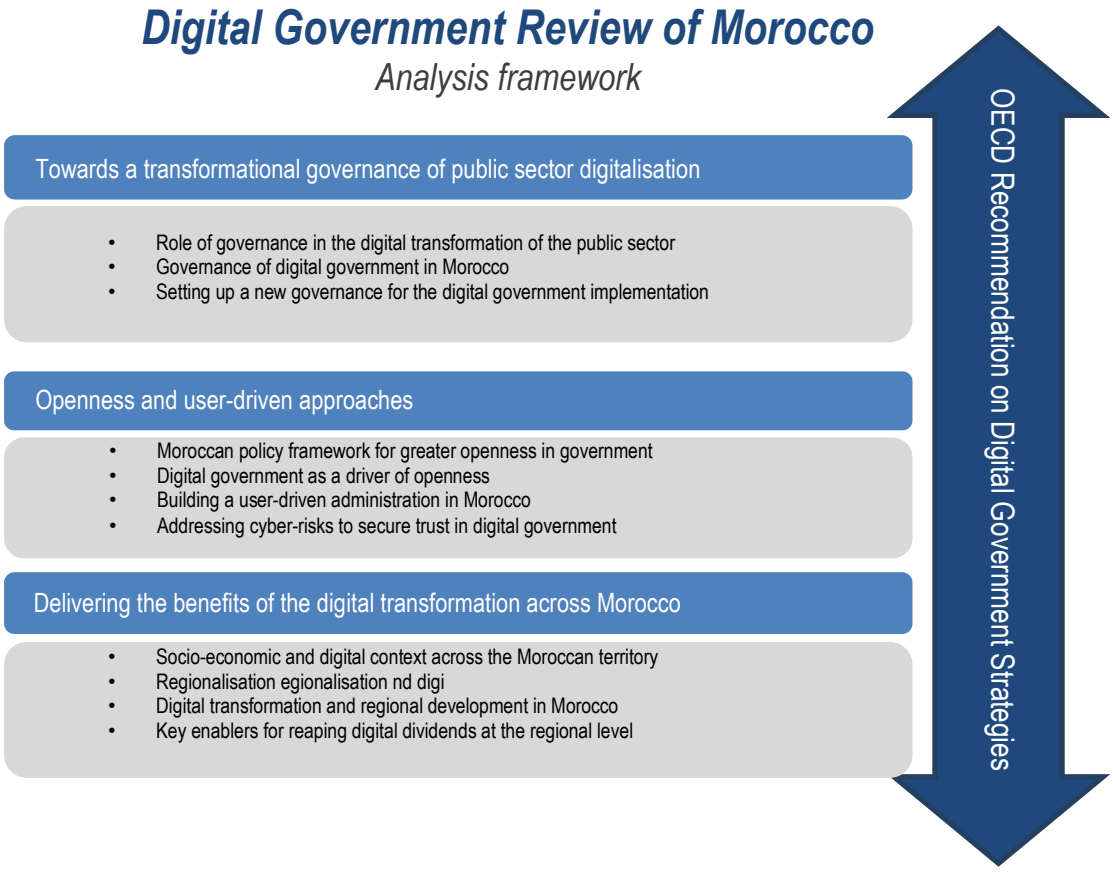
In a context of rapidly changing social interactions and social dynamics, governments should be able to rethink their role, scope of action and ways of working. Digital technologies should be considered in the policy design process as an enabler of a networked society, and be embedded in public sector reform agendas as governments build new ways of interacting with citizens and businesses.

The following analysis framework was applied to assess the level of digital government development in the public sector in Morocco. The analysis framework is focused on capturing the Moroccan digital government context, the policy vision that sustains it, the achievements, implementation gaps and overlaps, and guiding the collection of evidence to support and formulate key policy findings and policy recommendations (see Figure 1.3).

The *OECD Digital Government Review of Morocco* presents the emerging themes and pressure points identified by the OECD Secretariat and peer reviewers that conducted the review.

One of the first important steps for this review took place in June 2016, with the OECD fact-finding peer-review mission in Morocco. The mission involved the participation of peers from Colombia and Spain that, together with the OECD Secretariat, held interviews with public, private and civil society stakeholders to identify opportunities and challenges for digital government development in Morocco. A short, second peer-review mission was held in the first week of September 2016 to interview additional public sector stakeholders.

Figure 1.3. *OECD Digital Government Review of Morocco*: Analysis framework



Source: Author.

In September 2016, after benefiting from comments from the above-mentioned international peers from Colombia and Spain, the preliminary findings of the review were shared at the meeting of the Working Party of Senior Digital Government Officials (E-Leaders) in Tallinn, Estonia. Representatives from the Ministry of Industry, Trade, Investment and Digital Economy and the Ministry of Reform of the Public Administration and Civil Service, as well as from the office of the *Chef du Gouvernment* participated in the meeting and delivered a presentation about the Moroccan experience and the priorities underway for the development of its coherent and sustainable digital government.

Assuming a central role in the methodology of the review for fact-finding purposes, a survey was shared among the digital government ecosystem of public stakeholders in September 2016. The survey provided valuable evidence from central and local government institutions that was used in the drafting of this report.

Several workshops with Moroccan stakeholders were organized. A technical workshop took place in July 2017, in Rabat. Accompanying OECD staff members, three peers from Denmark, Portugal and Sweden, shared their country experiences on specific topics with the participants: governance, co-ordination and institutional setting; strategic information and communication technology (ICT) investments, cost-benefit analysis and business cases; key enablers for cross-level co-ordination. Peer international experts are essential

parts of the Digital Government Review to provide the country being analysed a chance to gain insights and knowledge from their fellow counterparts in other countries. It can also inspire future international co-operation.

Between August 2017 and February 2018, the drafts of chapters of the *OECD Digital Government Review of Morocco* were shared across the Moroccan public sector, providing the public institutions with the opportunity to comment and discuss the central components of the report. The comments received enriched the final report.

A second technical workshop was held in Rabat in January 2018. The main purpose of the meeting was to present a first draft of the "Assessments and Proposals for Action" found in this review to a broad audience of high-level digital government stakeholders. The meeting provided an important opportunity for discussion about the country's priorities, opportunities and challenges. The technical workshop also had two sections dedicated to relevant digital government topics: strategic planning and coherent management of ICT projects; and digital identity as a central key enabler for the digital transformation of the public sector. Following this workshop, the OECD shared the proposals for recommendations for opinion and comments with the Moroccan government in February 2018. Figure 1.4 summarises the timeline of the review.

Figure 1.4. Timeline of the *OECD Digital Government Review of Morocco*

Source: Author.

The Moroccan context

The digital transformation of economies and societies has a significant impact on, and a large role to play in, the digital transformation of government. To truly understand the transformation required of the government of Morocco, it is fundamental to better understand the entire Moroccan digital context, involving an ecosystem created by a convergence of citizen needs, technologies and infrastructures, private and public sectors contexts and priorities. For this reason, it is beneficial to analyse where Morocco stands as a whole, as well as the context that enables the digital economy in the country to exist as it does today, and trace back how such digital maturity was reached, before delving into the Moroccan government's shift from e-government to digital government.

Brief social and economic snapshot of Morocco

With a population of 34.8 million, Morocco ranks fifth largest of the Middle Eastern and North Africa (MENA) countries for population. It is worth mentioning that Morocco, over the last half of the 20th century, evolved into one of the world's leading emigration countries, with the global Moroccan diaspora estimated at around 4 million.

Morocco aims to become a major industrial hub in Africa. The country is poised to become the gateway to fast-growing African markets. In 2010, the Casablanca Finance City was created as a financial centre to facilitate doing business not only in Morocco but the continent of Africa more widely. Only 14 kilometres away from Europe, Morocco's main trading partner is the European Union. In 2017, Morocco once again joined the African Union, which was also punctuated by a tour by the Kings of the African countries of Tanzania, Rwanda, Ethiopia, Madagascar and Nigeria.

Table 1.1 depicts the principal economic indicators of Morocco.

Table 1.1. Principal economic indicators of Morocco

Population (millions, 2014)	33 848	**GDP** (millions USD)	USD 100.36
Unemployment rate	9.4% (2016)	**GDP per capita** (USD, Parity of Power Purchase [PPP], constant 2011 international)	7 146 ()
Employment - population ratio (15 years and over, %, 2015)	43%	**Real GDP growth** (%, 2015)	4.5
Gini index (2014)	40	**Budget balance** (% of GDP, 2016)	-4.3%
Population below the national poverty line (%)	4.8	**Current account** (% of GDP, 2015)	-1.9

Source: OECD (2017b), *Examen multidimensionnel du Maroc: Volume 1. Évaluation initiale*, Les voies de développement, OECD.

The budget balance is negative, therefore denoting a deficit of government spending to revenues. The current account, an important indicator of the economy's health, is the sum balance of the country's trade, and in the case of Morocco it, again, indicates a deficit, meaning the country is a net borrower from the rest of the world. However, the gross domestic product (GDP) growth rate is the most important indicator of economic health and, as shown in the table above, is positive, meaning that the economy is expanding. Also positive is the employment/population ratio, which in conjunction with the unemployment rate, indicates that a high proportion of the working age is employed. It also indicates general positive effects on Morocco's GDP. Though there are areas of deficits, overall the country is shown to be in line with the government objectives of increased economic activity.

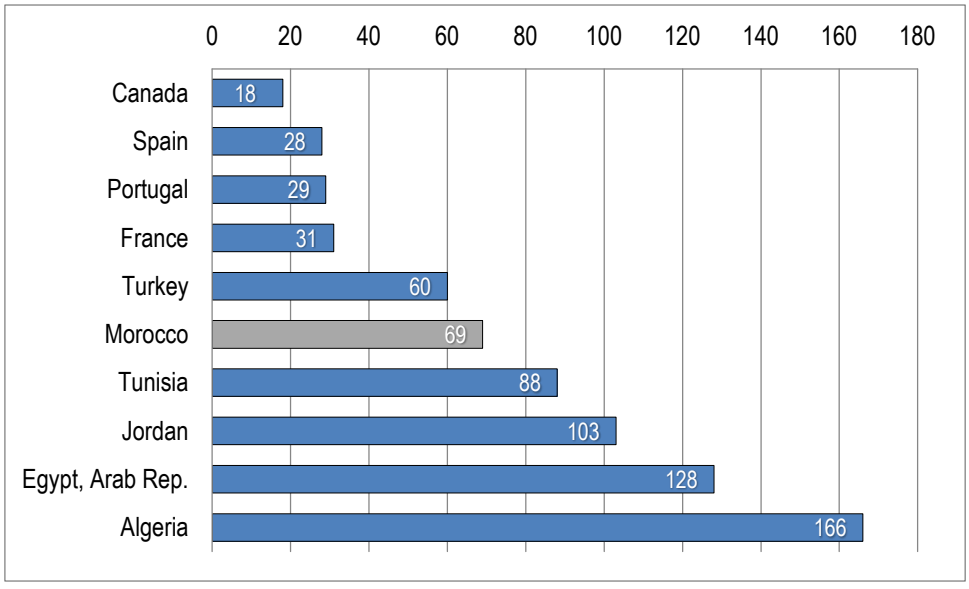
The Gini Index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. An index of 0 will represent perfect equality. At 39.4, Morocco does not appear to be too far away from 0 at a national level. This will be discussed again in Chapter 4 of the current review.

Building the foundations for a digital economy

As governments around the world grapple with the digital transformation of the public sector, it is important to note that in many cases public administrations are trying to adjust their management and service approaches to be up to speed with an economy that went digital long before. A digital government is required to appropriately serve the needs of a digital economy and of a digital society. On the one hand, the Government of Morocco has provided the foundational elements (e.g. through laws and regulations) for the digital economy to take hold, and on the other, it is evident that further advances need to happen in relation to the development of digital government in Morocco for the digital economy to grow. The public sector needs to come up to speed with international developments and standards.

Morocco's *Emergence* plan, launched in 2005, was a national industrial strategy focused on the development of new industries in Morocco. It concentrated on developing seven key sectors: automotive, aeronautics, electronics, seafood processing, agri-business, textiles and offshoring. It was followed up subsequently by the *Pacte Nationale pour l'Emergence Industrielle*. These national plans helped shape the Moroccan economy. Exports by the automotive sector, for instance, increased by 26.2% in 2015, making it the country's leading export sector; exports also grew in the electronics (+26%) and aeronautics (+1.8%) sectors (OECD, 2017a). The current national strategy is the Industrial Acceleration Plan[2] that promotes ten measures to accelerate industrial transformation in Morocco. These key measures are grouped into three classes: industrial ecosystems for a more integrated industry, support tools adapted to the industrial base and stronger international positioning. Governments can shape the economy by providing a regulatory environment conducive to conducting or starting up a firm within the country. Morocco ranks 69th overall in Doing Business rankings (see Figure 1.5), which places it ahead of many of the MENA countries.

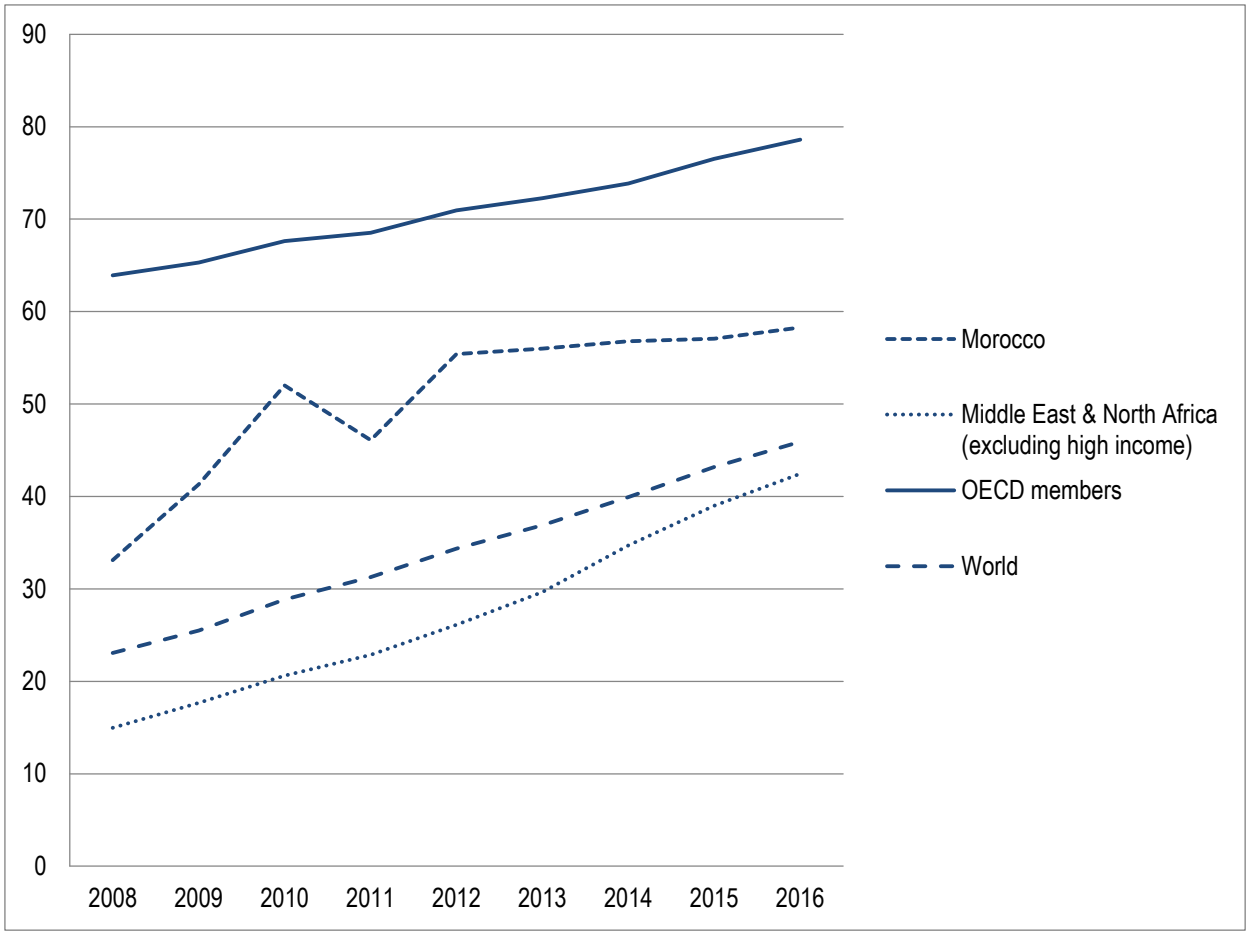
Figure 1.5. Doing Business rankings (2017), selected economies



Source: World Bank (2017), Doing Business (database), www.doingbusiness.org/rankings (accessed on 28 March 2018).

Morocco's focus on government policies to promote the technology and communication sectors stimulates growth across the economy. Since the 1990s, Morocco is one of Africa's frontrunners in using ICT to boost social and economic development. In fact, since then, and in line with the increasing attention that this topic assumed for public sectors worldwide, the Government of Morocco has put significant efforts into integrating ICT properly in its development agenda. The public sector reform was naturally one of the areas that could better benefit from this integration. Many of the structures existing in the government today are a result of wide constitutional changes that came about in reform of the public sector in 2011. As well as implementing the policies and regulations, the government must also monitor the uptake and use of ICTs in the country. Acknowledging and monitoring trends will allow the government to also understand where the biggest need is in terms of ICT governance. For example, in OECD countries prices for fixed-broadband connections show little change; however, prices for mobile services fell markedly between 2012 and 2014 (OECD, 2017b). Internet use rates in Morocco have also shown steady growth (see Figure 1.6), rising from 33% of the total population in 2008 to almost 60% in 2016. Moroccan citizens' Internet usage has constantly remained above the average in the Middle East and North African region. Nevertheless, it is roughly 20% below the OECD average, which demonstrates Morocco's significant potential for improvement in regard to digitalisation and digital inclusion over the coming years.

Figure 1.6. Percentage of population using the Internet, 2008-16



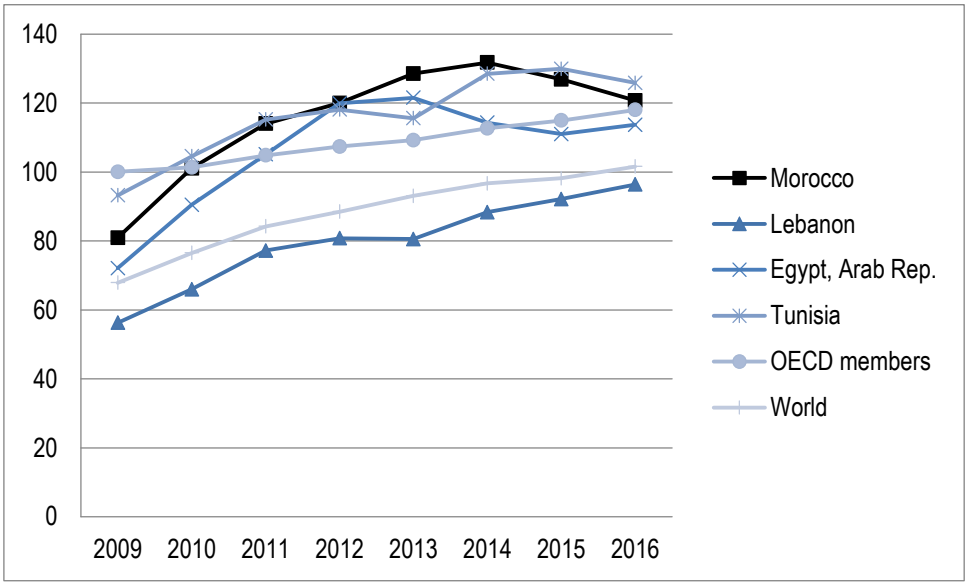
Source: International Telecommunication Union, *World Telecommunication/ICT Development Report* and database, available on World Bank (n.d.), "DataBank, World Development Indicators", http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators (accessed 22 February 2018).

Morocco has been facilitating and incentivising transformation and innovation in the digital economy in many ways already. The *UNESCO Science Report: Towards 2030* notes that through the National Fund for Scientific Research and Technological Development (2001), the government has encouraged Moroccan companies to support research in their sector through the fund. The report states that "Moroccan telecom operators were persuaded to cede 0.25% of their turnover; today, they finance about 80% of all public research projects in telecommunications supported through this fund (Moneef, 2015). Further innovation has been seen in the private-public partnership that has established technoparks in Tangiers, Casablanca and Rabat.[3] They host start-ups and small- and medium-sized enterprises specialising in information and ICTs, green technologies and the cultural industry.

Another example of the efforts of the government to nurture development has been the creation of the Digital Development Agency (Agence pour la Développement Digital). The agency will implement the strategy for the development of investment in the digital economy (*Maroc Digital 2020*) and provide a platform for the development of the digital economy (see Chapter 2).

As with many emerging markets in the MENA region over the past five years, Morocco has experienced a sharp increase in mobile usage, which has plateaued since 2014. On a global scale, this rapid increase is above both the world and OECD country averages (see Figure 1.7). Morocco's telecoms sector experienced substantial growth after the National Office of Post and Telecommunication was privatised in 1998 (Wellenius, Rossotto and Lewin, 2004). Driven by the entry of new operators, Morocco saw a rapid increase in mobile subscribers and rising consumption of voice and data services. Despite the sector's potential, user revenue growth has slowed in recent years due to fierce price competition among the main providers. Operators seeking new springboards for growth are therefore exploring a capital-intensive push towards data offerings (Oxford Business Group, 2016). This increase shows maturity in Morocco's use of ICT and its move towards a networked society.

Figure 1.7. Mobile cellular subscriptions (per 100 people)



Source: International Telecommunication Union, *World Telecommunication/ICT Development Report* and database, available on World Bank (n.d.), "DataBank, World Development Indicators", http://databank.worldbank.org/data/reports.aspx?source=2&country=MAR# (accessed 15 October 2017).

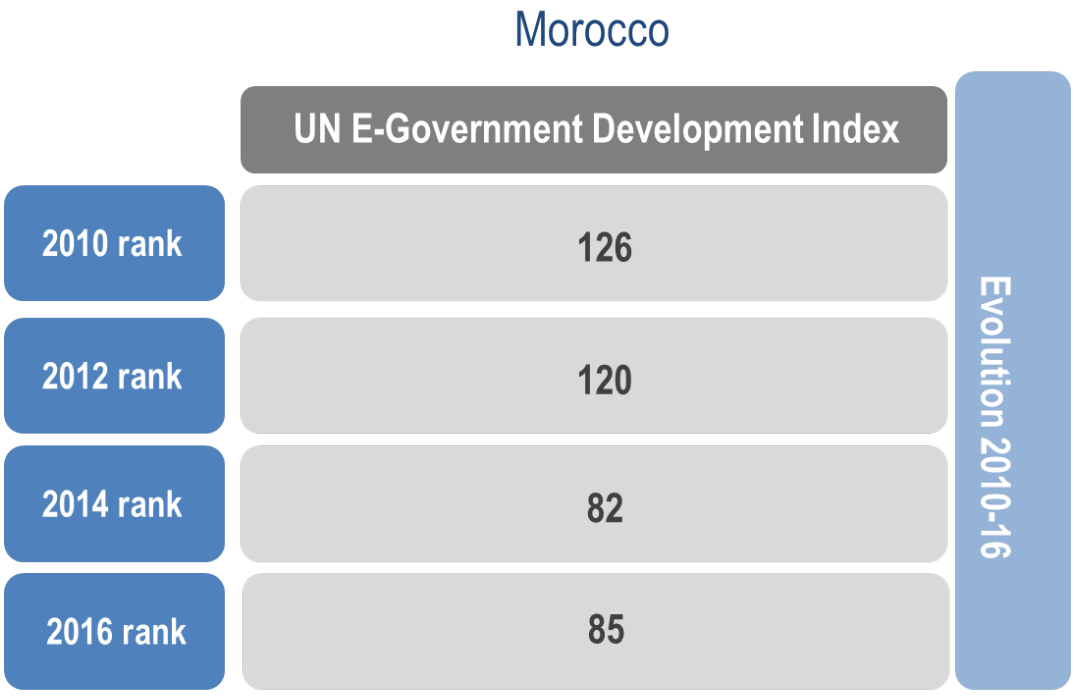
Morocco's path towards digital government

Governments have a crucial role to play in establishing the necessary conditions for the digital transformation of the public sector, the economy and society as a whole. As highlighted previously in this chapter, given the rapid changes in the economy and society in terms of digitisation, the Government of Morocco needs to adapt and meet the challenge that these changes bring in terms of public policy and service delivery.

One of Morocco's primary concerns is whether or not the government is adequately positioned to develop an ICT-skilled ecosystem that can leverage the digital inter-connectedness of its citizens. As per the OECD Recommendation on Digital Government Strategies, the use of digital technologies is an integrated part of governments' modernisation strategies. The government will need to create an ecosystem where co-development and co-creation of digital policies can take place with its digitally savvy citizens. Whereas digital government is a further iteration of e-government, the UN

E-Government Development Index reflects the Moroccan government's commitment to improving the digital modernisation of its public services, as shown in Figure 1.8. As of 2016, Morocco stands at 4th place in the African continent, just after Mauritius, Tunisia and South Africa (United Nations, 2016).

Figure 1.8. Morocco's positions in the UN E-Government Development Index, 2010-16



Source: United Nations (2016), *UN E-Government Knowledge Database*, https://publicadministration.un.org/egovkb/en-us/Data/Compare-Countries.

As Morocco moves to embrace new open policies and strategies to increase economic prosperity and position itself as a major hub in Africa as a whole, the government is focusing its attention on the digital transformation of the public sector. A comprehensive, whole-of-government approach on digitisation, as will be explored in the following chapters, needs to be given careful attention to address the needs and demands of the country's emerging economy and private sector.

Notes

1. See the OECD Digital Government Toolkit at www.oecd.org/governance/digital-government/toolkit/.
2. For more information, see www.mcinet.gov.ma/en/content/industrial-acceleration-plan-2014-2020.
3. For more information, see www.technopark.ma/s/login/?language=fr&startURL=%2Fs%2F&ec=302

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Chapter 2. Towards transformational governance of public sector digitalisation in Morocco

This chapter takes a look at the governance of digital government in Morocco. Using the OECD Framework for the Digital Transformation of the Public Sector, it highlights current trends in digitalisation and how they are expected to impact public sector operations, and the governance of digitalisation more specifically. It considers Morocco's experience with its Maroc Numéric 2013 *strategy, and the shortcomings of its governance processes. It then assesses the new* Maroc Numéric 2020. *Based on OECD country experiences and best practices, the chapter considers different alternatives for new organisational arrangements for digital government, covering the governance of strategic decision making, the governance of ICT projects, monitoring and evaluation systems as well as funding mechanisms for digital government initiatives. The chapter proposes recommendations aimed at strengthening the governance of digital government in ways that ensure effective co-ordination and delivery of digital initiatives and foster collaboration across the public sector.*

Introduction

Digital technologies have made possible unprecedented levels of interconnectedness among citizens, businesses and governments alike. They've taken the shape of smart devices, self-driving cars, smart grids, the Internet of Things and simple sensors that help us capture valuable data in real time. Such trends are rapidly transforming social interaction patterns and models of production with substantial public governance implications. The rapid digitalisation of societies and economies has also seen the rise of networks and data as critical disruptive factors in the decision-making process.

Public governance refers to "the formal and informal arrangements that determine how public decisions are made and how public actions are carried out, from the perspective of maintaining a country's constitutional values in the face of changing problems, actors and environments" (OECD, 2005a). These formal and informal arrangements determine how stakeholders interact in the decision-making process, participate in public policy implementation and deliver public services (OECD, 2011; World Bank, 2017). In this context, the traditional Weberian administrative structures, characterised by top-down approaches and in-house expertise, are being called into question by technologies that can help us achieve policy outcomes more effectively through more distributed and collaborative approaches (OECD, 2017a) (Box 2.1).

Box 2.1. Weberian civil service

Max Weber, a renowned German sociologist and political economist, advanced in his seminal work Economy and Society a now classical classification and description of different types of bureaucracies. In this work, he describes the conditions and characteristics of a modern bureaucracy. In this book Weber points out that as societies become more populated, monetary economies demand a more efficient public administration, technological developments offer new opportunities, and administrative tasks become more complex, and societies tend to move away from administration by notables and see the emergence of more hierarchically structured and technically specialised bureaucracies. This has come to be known as the "Weberian civil service" or "Weberian bureaucracy".

The Weberian civil service is characterised by:

1. a hierarchically -organised structure
2. a clear line of command and authority with neatly delineated jurisdictional areas and scope of responsibilities with a division of work based on specialisation.
3. rules governing the means of ensuring duties are carried out.
4. methodical, rational and legal basis for decision making, instead of emotionally-motivated actions
5. career advancement based on technical expertise.

Source: Weber, M. (2013), Economy and Society, California, University of California Press, California (original version published in 1922).

Citizens' growing expectations are an additional driver of the main implications of the digital transformation of the public sector. Citizens are increasingly becoming accustomed to highly tailored digital services. Today, individuals can conveniently access these services using their phones from virtually anywhere in the world and at any time of day. The more connected citizens and businesses become, the more they expect from government services in terms of quality, accessibility, user experience and responsiveness to their specific needs.

To effectively respond to this new policy environment, governments must become increasingly citizen- and data-driven. A citizen-driven public sector is better able to respond to citizens' expectations and improve service users' overall experience when interacting with the public sector. In addition, the rise of data as a strategic asset in the digital era, along with techniques such as analytics and machine learning, allows governments to increasingly embed data at all stages of the policy cycle, thus enhancing public sector intelligence, in particular in the forms of strategic foresight, delivery of policies and services, and performance management.

Becoming a citizen- and data-driven government is no small feat. It relies on the effective collaboration and resource sharing of a wide variety of stakeholders and a significant cultural shift for the public administration. Re-engineering governance processes to shift from vertical production models of goods and services (silos) to systems approaches demands new frameworks and arrangements as well as the progressive reshaping of incentives, preferences and beliefs across the administration and the broader society as a whole.

The OECD Recommendation of the Council on Digital Government Strategies (2014) recognises the critical role of governance and co-ordination for the effective digital transformation of governments. The second pillar of the OECD Recommendation calls for the establishment of organisational and governance frameworks that secure the necessary political support for digital government strategies, that ensure the coherent use of technologies across policy areas and levels of government, that support effective implementation of digital government strategies and that lead to international co-operation between countries.

The Cour des Comptes of Morocco, the national supreme audit institution, performed an assessment of the strategy *Maroc Numéric 2013* and its implementation (Cour des Comptes, 2014). The report highlighted the governance of the strategy, as well as projects and initiatives linked to it, as a critical factor which helped to explain the shortcomings of its implementation and, in particular, of its e-government axis.

This chapter will provide a general assessment of the governance arrangements of digital government in Morocco, based on which this review will offer policy recommendations to strengthen the organisational and governance frameworks of the digital transformation of Morocco's public sector. This chapter will first provide a general overview of the changing institutional needs of government in the context of the digital transformation of the public sector. It will then provide an overview of the Moroccan experience with the *Maroc Numéric 2013* strategy. The final section of this chapter will provide an assessment of the current situation under the new *Maroc Numéric 2020* strategy and will present OECD data, principles and standards to consider with regard to threats and challenges for the effective governance of digital government in Morocco. This assessment supports the development of fit-for-purpose and actionable policy recommendations reflected in the Assessment and recommendations, found at the beginning of this review.

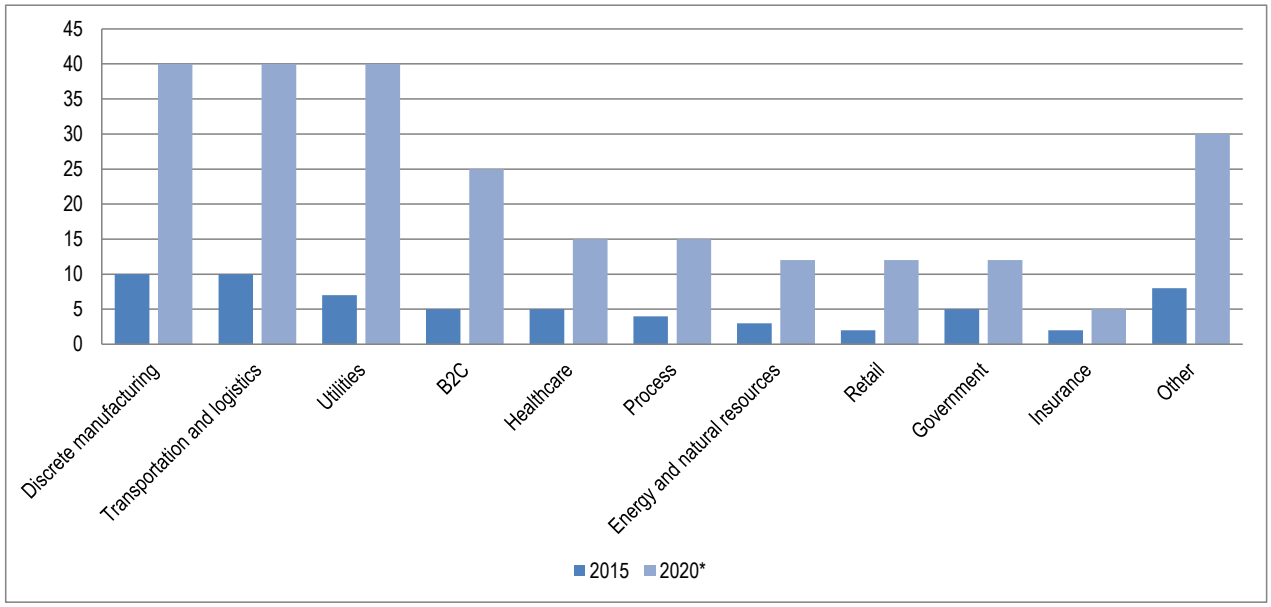
The role of governance in the digital transformation of the public sector

Human societies are experiencing a technological revolution that is unprecedented in its scale, scope and complexity (Schwab, 2016). The rate of Internet adoption speaks to the velocity of this transformational revolution. Whereas it took 46 years for a quarter of the US population to adopt electricity, it took only 7 years for the same share of the population to adopt the World Wide Web (FCC, 2000; Pew Research Center, 2014).

The digital revolution goes well beyond the adoption of the Internet. The revolution is really about how digital technologies have been increasingly embedded into our physical and biological worlds, thus becoming more ubiquitous and changing how individuals relate to one another, how they work and how they live more broadly. The Internet of Things (IoT) is a powerful illustration of this trend. The IoT refers to physical devices (light poles, electric grids, buildings, etc.) embedded with electronics, software, sensors and network connectivity to enable these objects to collect, exchange and process data in real time. The growing presence of digital technologies in our lives is not only driven by IoT but by a wide variety of revolutionary breakthroughs like mobile technologies, machine learning algorithms and artificial intelligence, robotics, 3D printing, nanotechnology, quantum computing and biotechnology, to name a few. Gartner, Inc., a specialised consultancy firm, estimates that by 2017 there will be 8.4 billion computing devices connected to the Internet, up 31% from 2016, and that this number will reach 20.4 billion by 2020 (Gartner, 2016). Governments and the private sector are expected to continue to invest in these technologies as they become more relevant to capture and interpret data, make informed strategic decisions, enhance productivity and to develop more rational and sustainable economic models (see Figure 2.1).

Figure 2.1. Internet of Things spending by vertical market in 2015 and 2020

In USD billions



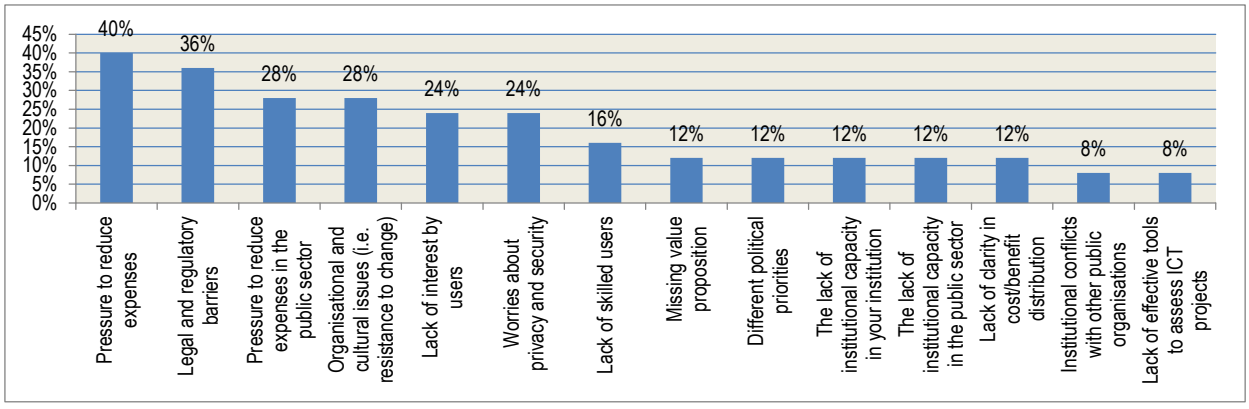
Note: * = Forecast
Source: IDC (2017), "BCG Perspectives forecast", January 2017.

Morocco is familiar with the rapid changes brought about by digitalisation. As of January 2017, 38% of all Moroccans were users of the platform; 70.7% of which were between 15 and 29 years old (Salem, 2017). Between 2014 and 2017, Morocco gained 5.5 million Facebook users, a growth rate of 14.9% for the period. Salem estimates that nearly 20.1% of Moroccans use their Facebook accounts daily (Salem, 2017). Higher levels of connectivity among the Moroccan population, and in particular its youth, is leading to new forms of interaction and allowing for particularly powerful network effects.

As mentioned above, as social, economic and political interactions are reshaped by the digital transformation of society and the economy, governments will be called upon to review their policy-making process as well as their public engagement efforts. Regulators will increasingly need to adapt to the rapid evolution of technologies and find ways to develop regulatory frameworks that respond to the evolving needs, views and preferences of digital societies. To do so effectively, however, governments will have to ensure effective collaboration with both private and civil society sectors, calling into question the traditional top-down bureaucratic structure of the Weberian civil service. Some 28% of Moroccan public institutions recognise organisational and cultural issues as a strong challenge for effective digital government implementation (see Figure 2.2).

Figure 2.2. Main challenges for effective digital government implementation

% of public institutions considering this challenge as strong (on a scale of weak, moderate and strong)



Source: Responses to OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

Solutions that live up to the task of the digital transformation will in most cases require external input in the form of data, resources or implementation capabilities for digital government strategies. Governments that are inward-looking will often prove ineffective and unable to grapple with the complexity of the new policy environment and deliver adequate value.

Since the end of the 1990s, governments and international organisations, including the OECD, have been working on ways to leverage technology to enhance government efficiency, transparency and performance (OECD, 2005b). This first wave of information and communication technology (ICT)-driven reforms came to be known as "e-government". As the power and deployment of new digital technologies continued to progress, they became a game-changer for the way government works and relates to the world. The new technological revolution enables government to adopt new tools to establish more direct and responsive relations with citizens and businesses, to be more

integrated into its service delivery and policy making and to capture data, learn from it, and adapt in real time. Yet, realising these benefits requires that digital technologies and methods be placed at the core of public sector modernisation. The shift towards these new approaches has come to be known as "digital government" (see Box 2.2).

Box 2.2. What is digital government?

Since the end of the 1990s, governments have made efforts to use technology as a driver of efficiencies. To achieve this, they have progressively developed more structured approaches to the use of technologies, steadily putting information on line and creating more transactional online services. This approach came to be known as e-government.

However, as public sector organisations grew in maturity in their use of digital technologies, they realised that despite increasingly relying on the use of ICT to perform their usual activities, government processes had not drastically changed, and back-office procedures had not been made significantly simpler or integrated. Often, paper-based procedures had simply been transferred on line. Moreover, public sector digital activities had become increasingly fragmented as the digitalisation activities of individual agencies were mainly guided by their own priorities, without an overarching public sector rationale. The need to make public services, processes and procedures digital by design became evident. To achieve this, a strategic approach to the use of digital technologies should be embedded in broader public sector reform strategies and efforts, clearly identifying the transition from e-government to digital government.

According to the Recommendation of the OECD Council on Digital Government Strategies (2014), digital government "refers to the use of digital technologies, as an integrated part of governments' modernisation strategies, to create public value. It relies on a digital government ecosystem comprised of government actors, non-governmental organisations, businesses, citizens' associations and individuals, which supports the production of and access to data, services and content through interactions with the government."

Source: OECD elaboration based on OECD (2014), *Recommendation of the Council on Digital Government Strategies*, OECD, Paris, www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm .

The shift from e-government to digital government in such a context demands a government that is able to evolve from vertical production models to one that is increasingly able to cut across silos and adopt system approaches. More concretely, one that is able to leverage new technological trends to benefit from more decentralised and distributed approaches and network effects by sharing data while, at the same time, co-ordinating technological deployment in ways that are consistent with broader policy goals.

A rapidly changing environment requires governments to become more agile and adaptable, making informed policy decisions and being more responsive to citizens' needs. Citizens' rising expectations in a world of increasingly smart technologies are also pushing governments to look for and experiment with new governance arrangements and

ways of interaction with relevant stakeholders. To make decisions that accurately reflect citizens' preferences, public sectors will have to become more sophisticated in their use of data and develop more dynamic feedback loops to continuously improve policy and service delivery.

As such, the paths to the digital transformation of governments has been unfolding as a movement towards a more strategic use of technology and data to create more sustainable and inclusive forms of governance, facilitate more informed decision-making processes and create increasingly tailored services for citizens (see Figure 2.3).

Figure 2.3. The digital transformation of the public sector

Source: OECD (forthcoming), "Digital Identity Scan of Chile", *OECD Working Papers on Public Governance,* OECD Publishing, Paris.

Digital government strategies provide an overall policy framework for the digital transformation of the public sector. They carry a vision for government's transformation and may help steer and structure efforts in ways that facilitate co-ordination, co-operation and alignment among key stakeholders.

The OECD has highlighted that digital government strategies have the potential to become becoming critical governance tools in the digital transformation process (OECD, 2016b). This is only true, however, insofar as the digital government strategy is used to foster the sound prioritisation of investments and efforts and supports a shared vision for how digital technologies can be used in the public sector to achieve greater societal well-being, and deliver public value efficiently and inclusively. The development of the strategy becomes thus a critical stage in helping build ownership and political support from both public and private stakeholders. As a consequence, a participatory and inclusive approach in the strategy development process, ensuring that the views of relevant stakeholders are adequately reflected in the resulting strategic framework, is a necessary element in the construction of a shared vision for the digital transformation of government.

The OECD Recommendation of the Council on Digital Government Strategies (hereafter, the "OECD Recommendation") provides the analytical framework used by the OECD in its Digital Government Reviews. Using this analytical framework, the following section of this chapter will provide an overall assessment of the governance of digital government in Morocco and its experience with the *Maroc Numéric 2013* national strategy, before outlining the overview and assessment of current efforts that will lead to the policy recommendations contained in the Assessment and recommendations section of this review.

The governance of digital government in Morocco

The governance of digital government in Morocco has at least two key players that share substantive responsibilities for ICT policy and project decisions. First, there is the Ministry of Industry, Commerce, Investment and the Digital Economy, which has played a predominant role in the definition, oversight and co-ordination of the implementation of Morocco's digital strategies, including the digitalisation of public services. The Direction of the Digital Economy of this ministry (Direction de l'Economie Numérique, or *)* (DEN), created in 2010, is, in reality, the heir of an effort that has continuously changed shapes and structures since at least 1998. The DEN provides the support and assistance to administrations and public institutions for the development of online services and applications and shared platforms in relation to the e-government programme. The State Secretariat for Telecommunications and Information Technology (SEPTTI, its French acronym) was created in 1998 and substituted in 2002 by the Department of the Post, Telecommunications and Information Technology attached to the Ministry of Industry. In 2004 this department was attached to the delegated ministry responsible for general and economic affairs in the Prime Minister's office only to be brought back to the Ministry of Industry in 2007 and experience an internal reorganisation in 2010. An independent assessment has highlighted that the numerous changes undergone by this structure have had a negative effect on the structure's ability to ensure continuity in efforts (Cour des Comptes, 2014). This assessment also highlights that previous strategies have not been systematically assessed or even completed within their pre-determined periods before new strategies were enacted.

The second significant player influencing the governance framework for the use of technology in the public sector modernisation process is the Ministry for Administrative Reform and Public Service. The ministry is not only responsible for civil service policies and reform but also for administrative simplification and rationalisation, the modernisation of public services and thus participates in the development of digital government. The Direction of Information Systems within the Ministry for Administrative Reform and Public Service provides support to public institutions on the development of shared applications and systems, including but not limited to, civil service management. It also manages the operations of the government's services portal "service-public.ma". This portal should not be confused with the e-gov.ma site that was developed by the Direction of the Digital Economy (DEN) and is dedicated to the Moroccan e-government programme.

The Ministry for Administrative Reform and Public Service works on the adoption of technology by the public sector and prepares an annual cartography with indicators relevant to online platforms in the public sector and digital public services. The ministry also puts a great emphasis on the shared use of technology resources and the development of an adequately skilled civil service. These capacities, along with its mission for modernising public service delivery and administrative procedures, highlight the need for strong collaboration between these two players in the development of digital government in Morocco in order to avoid duplication of efforts and overlaps and reap the benefits of synergies in the nature of both institutions.

Governing the digital government strategy: The experience of Maroc Numéric 2013

Previous experiences with the development, governance and implementation of digital government strategies provide Morocco with invaluable lessons as the country prepares to

launch new and more ambitious efforts. The assessment advanced by the Moroccan Cour des Comptes is a thorough review of Morocco's most recent experience, *Maroc Numéric 2013*, offering an in-depth look into its governance processes and project delivery (Cour des Comptes, 2014).

The evaluation made by the Cour des Comptes suggests that valuable input to understand the needs of citizens, businesses and public administrations was not captured during the elaboration of the digital government strategy, but two years later, it was launched through the introduction of the website www.fikra.gov.ma, a platform that allows individuals to propose ideas to the administration. The experience in OECD countries has shown that the involvement of internal and external parties from the start is an important factor of success. This realisation has led digitally advanced countries like **Denmark** to move from an initial model of top-down, highly detailed and technical strategy development, to a more participative and somewhat less detailed strategic framework. These strategies, though less rich in detail with regard to implementation, can then be operationalised, detailed and structured at the action plan level and periodically revised as priorities and needs evolve.[1] This approach has allowed the Danish Agency for Digitisation to secure the necessary political support and broad ownership to move public sector digitalisation forward while conciliating the need for technical precision in its implementation. Countries with decentralised models, too, have elaborated digital government strategies. Switzerland is one such example (see Box 2.3).

Box 2.3. Switzerland's e-Government strategy

Switzerland's new "e-Government Strategic Plan 2016-2019" is the result of a long process of collective effort in shaping a vision for a digital public administration for the country. As early as 2013, the Swiss Confederation started a reflection on what was it that citizens and lower levels of government expected from it. The purpose was to find a way to get the different levels of government to work closer together on behalf of citizens and businesses, despite their distributed responsibilities.

The Swiss Confederation carried out a long and intense consultation and consensus building process between 2013 and 2015. It established an inter-federal committee, with representatives from the confederation, the cantons and the municipalities.

This inter-federal committee fixed the broad policy objectives for the new strategy:

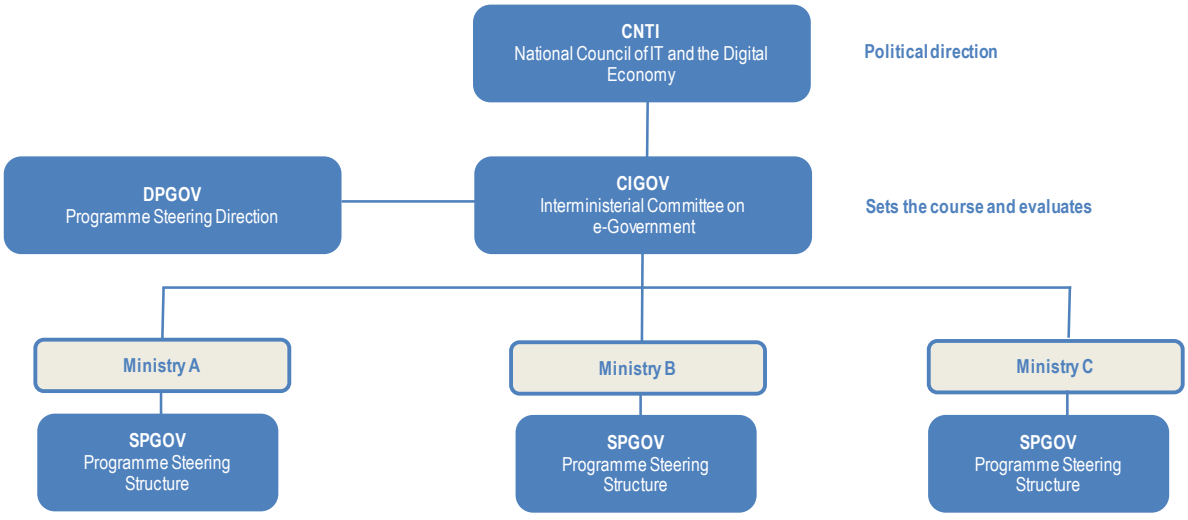
1. easy, transparent and secure administration
2. economic efficiency
3. innovation
4. sustainability of solutions.

This same committee then helped identify strategic projects and operational objectives linked to these broad strategic objectives before opening the strategic plan for consultation. The committee also helped determine the scope of responsibilities of the different actors, establish a governance structure for the strategic plan – both at the political and administrative level – and look for ways to overcome the legal challenges posed by the federal context.

Source: Information collected through an OECD interview with the Executive Direction of e-Government Switzerland.

The Government of Morocco set up a number of governance structures aimed at ensuring the effective delivery of the *Maroc Numéric 2013* strategy (see Figure 2.4). The National Council of IT and the Digital Economy (CNTI, its French acronym), chaired by the Prime Minister, is responsible for setting the broad political and strategic direction for the country's digital development policies, including digital government (Gouvernement du Maroc, 2009).

Figure 2.4. Governance structure of *Maroc Numéric 2013*



Source: egov.ma (2018), "Structure de gouvernance", webpage, www.egov.ma/fr/structure-de-gouvernance.

Under the CNTI lies the Interministerial Committee on e-Government (CIGOV), a structure responsible for the strategic steering and monitoring of digital government initiatives of the *Maroc Numéric 2013* strategy. This structure does not have any real decision-making or arbitration power, as the Decree No. 2-08-444 of 21 May 2009 only granted it with co-ordination and oversight responsibilities. In addition, digital government projects are generally financed by the concerned agencies' budget, over which the CIGOV has no control, which limits its ability to ensure the coherence and continuity of investments and efforts. The CIGOV is chaired by the Ministry of Industry, Commerce, Investment and the Digital Economy and brings together 28 other key institutions of the central government with the aim of ensuring strategic prioritisation of key projects and co-ordination between agencies. The Direction of the Digital Economy (DEN), in the Ministry of Industry, Commerce, Investment and the Digital Economy, serves as the CIGOV's permanent secretariat.

A last layer of governance was created at the ministry; an individual agency level called the Programme Steering Structure (SPGOV). These units, existing in all ministries as well as in large public agencies, such as the public social security and pension funds or tax collecting agencies, are responsible for the co-ordination and delivery of digital government projects of their respective organisations.

Finally, the CIGOV and SPGOVs received implementation support from the digital government Programme Steering Direction (DPGOV), attached to the CIGOV. The DPGOV, a diverse mix of expertise relevant to digital government, provides technical assistance to organisations and helps ensure effective implementation and delivery of

projects through a central project management office (PMO) The DPGOV team sits at the Ministry of Industry. It supported the CIGOV and SPGOVs in the implementation, monitoring and delivery of *Maroc Numéric 2013* and today with other digital government initiatives. Further to a centralisation within the public administration, it is useful to think of including the private sector as well. Denmark established a central project management office taking into consideration expertise from within and external to the public administration (see Box 2.4)

Box 2.4. Danish National Council for IT Projects

Located under the Agency for Digitisation, the Danish Council for IT Projects is composed of roughly 50 highly experienced information technology (IT) project management professionals, half of which come from the private sector. All members of the National Council for IT Projects work pro-bono. All ICT projects over a given budget threshold must undergo a risk assessment by the National Council for IT Projects, and regularly report to it on its progress. These reports continue up to two years after the completion of the project, following up on the benefits realisation. If the project is mildly sidetracked, the General Secretary of the Ministry may be called upon to report on the project. If a project is significantly delayed or sidetracked, the responsible minister may be called upon to report on it.

The National Council is responsible for:

- assessing governmental IT projects
- providing recommendations on minimising risk and requesting external reviews as necessary
- reporting to the government's Economic Committee on ongoing IT projects
- requesting revisions in the current model for IT projects
- ongoing dialogue with IT suppliers and the association of IT suppliers
- revisiting troubled IT projects.

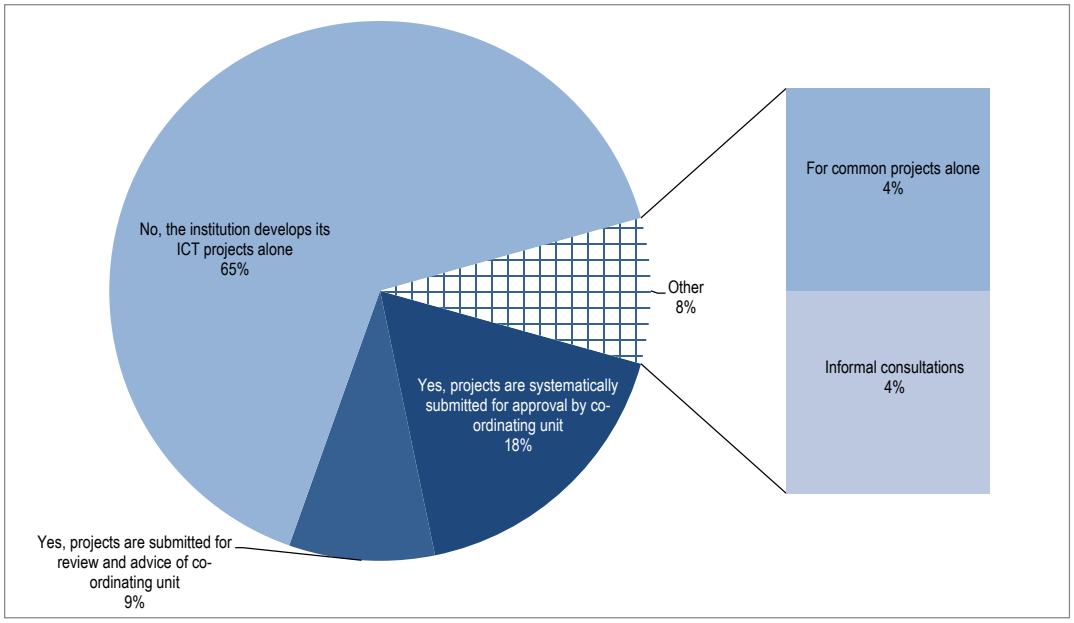
Source: Digitaliseringsstyrelsen (2017), "It-projektrådet", webpage, www.digst.dk/Styring/Itprojektraadet; Wang, Y-J. (2015), "Public Sector Digitisation: The Danish Approach", presentation to the Swedish visiting delegation.

While seemingly sound in their design, the governance structures of *Maroc Numéric 2013* did not quite live up to expectations, leading to some significant shortcomings. The CNTI, expected to play a major role in securing the much needed political support for the agenda and led by the Prime Minister himself, met only three times over the course of four years according to the report of the Cour des Comptes (2014), instead of at least twice a year, as determined by the Decree No. 2-08-444 of 21 May 2009. The CNTI never clearly defined the internal organisation of work and the permanent follow-up committee was never established as mandated by its decree[2] (for more information, see Cour des Comptes, 2014). Whereas the CNTI could have played a critical role in driving dedicated efforts from the whole public administration in line with the government's overarching priorities, the scarce meetings and lack of a structured follow-up process sent mixed messages regarding the relevance of the overall agenda.

The CIGOV, the decision-making structure responsible for the oversight of the digital government initiatives under *Maroc Numéric 2013*, ran into similar issues. In a total of 11 meetings, the CIGOV had a participation rate of 35% among involved stakeholders, highlighting the low level of engagement with the governance process of the strategy (Cour des Comptes, 2014).

The shortcomings in the governance structures of *Maroc Numéric 2013* translated into unsatisfactory levels of project co-ordination and delivery. The Cour des Comptes report highlights that the CIGOV had limited ability to steer project implementation as projects were substantively planned, funded and carried out at the ministry or agency level, leading to little feeling within agencies that they had to consult or collaborate with the co-ordinating unit. These findings are consistent with the findings of the OECD "Survey to Moroccan public institutions on digital government" conducted in 2016 (see Figure 2.5).

Figure 2.5. Public institutions planning ICT projects in co-ordination with the Central Co-ordinating Unit for Digital Government



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

In addition, the Cour des Comptes report finds that while a wide number of projects and initiatives included in the strategy were linked to pre-existing efforts, their timeline and process for delivery were not adequately streamlined with the goals and timeline of the strategy itself. In the planning process, the scope of the projects was not always clearly defined, nor prioritised. For instance, projects that were considered key enablers impacting the delivery of other projects were significantly delayed, thus affecting the delivery of a large number of projects. This is the case for instance of a single digital identification mechanism for citizens and businesses, which had not been completed by the end of the period of the strategy.

The digital government axis of *Maroc Numéric 2013* included 89 projects,[3] of which 13 were already operational before the launching of the strategy, bringing the total number of projects down to 76 (Cour des Comptes, 2014). By 2014, after the period covered by

the strategy, 38% of these projects were either delayed or at risk, and 22% had not started their implementation. A subset of 13 projects were classified as "**Must Have"** or priority projects, of which 76% were delayed, and 8% had not started at the end of the period covered by the strategy, with only one project being operational (8%) and one on course for implementation (8%) by the end of 2014. While Morocco certainly saw significant progress in the UN's Online Services Index under the period of the *Maroc Numéric 2013* strategy, the shortcomings and weaknesses in the governance of its strategy and ICT projects hindered its ability to deliver the expected return on investments and ensure faster progress towards the digital transformation of government.

Setting up new governance for the implementation of digital government

The Government of Morocco launched in July 2016 its new vision for digital government in *Maroc Numéric 2020,* the country's new digital strategy, which came about as the result of a process that aimed to learn from the experience of *Maroc Numéric 2013* and the report of the Cour de Comptes.

Contrary to *Maroc Numéric 2013*, the new strategy sought to incorporate stakeholders' input from the start. It included a consultative process that brought in the input of central government institutions, technical experts, the private sector, civil society organisations and autonomous regulators through a series of interviews and working groups in the development process. This is in line with OECD best practices in countries such as Estonia and Switzerland, for strategy development, as more participatory approaches tend to foster greater ownership and enhance compliance from the different stakeholders. It is important however to highlight that the subnational levels of government were not part of this consultative process.

In the field of digital government, the recently launched strategy aims to set up a new agency responsible for digital service delivery and uptake as well as the optimisation and modernisation of digital government platforms. The strategy aims to transform government procedures and service delivery across sectors. Implementing such a vision in a new and more complex policy environment will increasingly demand a move towards more joined-up approaches in order to overcome the shortcomings of institutional level initiatives that are not co-ordinated and aligned, which can lead to overlaps and missed opportunities for synergies. A joined-up approach can help tear down silos by creating an institutional environment able to foster collaboration across the public sector. The complexity of the digital transformation of the public sector often entails the use of system approaches – as opposed to institution-based approaches - as a way to deliver on the substantive adaptations required from public institutions.

At the time of writing of this report, the Law No. 61.16, which establishes establishing the Digital Development Agency (Agence pour le Développement du Digital), was adopted by Parliament and published in the Official Bulletin on 14 September 2017. The aim of the creation of this agency is to provide the digital government and the broader digital economy agenda with the same institutional stability and the technical capability achieved in the field of telecommunications as with the creation of the National Agency of Regulation of Telecommunications (ANRT, its French acronym) created in 1998. Indeed, the ANRT is a well-regarded agency due to its expertise and technical capability that have progressively secured the development of a regulatory framework that seeks to enable market conditions for greater access to telecommunications services (mobile phones, Internet, etc.) at affordable prices.

The governance of strategic decision making

With a new decree establishing and setting forth the powers and organisation of the new "Ministère de l'Industriel'Industrie, de l'Investissementl'Investissement du Commerce, et de l'Economiel'Economie Numérique (MIICEN),)", the decree establishing the CNTI is repealed; and therefore, CNTI no longer exists. However, previous OECD work seems to suggest that more robust governance mechanisms for digital government strategies include co-ordination mechanisms at two levels: strategic and operational (OECD, 2016); For example, Spain's ICT Strategy Commission (CETIC, its Spanish acronym) is an inter-ministerial body that meets at the highest political level and is responsible for strategic issues in government ICT, whereas the Committee of the ICT Directorate brings together chief information officers (CIOs) of ministries and public agencies to co-ordinate project implementation (for more information, see Box 2.5). The body in charge of strategic co-ordination relies on mechanisms that enable it to treat the strategy as a living document, adaptable to changing conditions. This mechanism often includes the following characteristics:

- **Periodical revision of priorities**: It gathers once or twice a year and re-examines the priorities set by the strategy and approves annual or biannual action plans to ensure its effective operationalisation and implementation. Such periodical revision mechanisms provide the strategy with often needed flexibility, and the strategic co-ordination function with the ability to reassess, re-prioritise and shift resources to higher impact activities. Such mechanisms also help government readjust its digital government efforts and ensure they are aligned with broader public policy objectives.
- **Support planning and co-ordination unit**: The strategic co-ordination function is often supported by a planning or co-ordinating unit, monitoring the implementation of the strategy, providing useful information and forecasts, which enables the strategic co-ordination mechanism to plan the work ahead and make informed decisions.
- **Holding project delivery to account**: By monitoring the delivery of the strategy, these high-level strategic bodies hold project delivery to account, thus creating incentives for institutions to closely oversee the delivery of ICT projects and initiatives linked to the strategy. Such incentives may substantially contribute to the improvement of project performance indicators.
- **Securing political support**: The strategic decision-making level is often critical in securing political support for digital government initiatives and ensuring the required political legitimacy to drive change. These bodies may take the form of high councils with broad representation of central government institutions such as the CNTI. Yet, other countries have taken approaches that aim to be more agile, yet smaller in terms of the number of institutions that participate in such bodies. ***Uruguay*** is a relevant example, as its Agency for e-Government and Information, and Knowledge Society was set up with a similarly broad mandate and the ambition to provide stability to government's efforts. The Honorary Directive Council of Uruguay, an agency chaired by the Prosecretary of the Presidency in representation of the President of the Republic, thus ensures high-level representation and commitment in the strategic choices relevant to digital government and the information and knowledge society agendas. The rest of the Directive Council is composed by the Executive Director of the agency, and three other members appointed by the President (OECD, 2016b).

Box 2.5. Structures for co-ordination of ICT decisions in Spain

The ICT Strategy Commission (CETIC), an inter-ministerial body at the highest political level comprising senior officials from all ministries, defines the strategy that once approved goes to the Council of Ministries. The CETIC also defines the services to be shared and determines the priorities for the investments, reports on draft laws, regulations and other general standards with the purpose of regulating ICT matters for the general state administration. Furthermore, the CETIC promotes collaboration with the autonomous regions and local authorities for the implementation of integrated inter-administrative services.

The Committee of the Directorate for Information Technologies and Communication includes 25 chief information officers of the different ministries (13) and agencies (12) and the deputy directors for ICTs of all ministries and units. This committee leads the co-ordination of the implementation of ICT projects.

Source: OECD (2010), *Good Governance for Digital Policies: How to Get the Most Out of ICT: The Case of Spain's Plan Avanza*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264031104-en.

The report of the Cour des Comptes (2014) highlighted deficiencies not only on ICT project governance or the capabilities of the authorities responsible for project implementation but also at the level of the strategic decision-making function. As the Government of Morocco considers the establishment of new governance frameworks for digital government, it should develop a view on the necessary set-up for ongoing strategic decision making, knowing that the agenda covered by *Maroc Numéric 2020* goes beyond digital government and covers the whole of the digital economy. To this end, the Law No. 61-16 establishing the Digital Development Agency published in the official bulletin on 14 September 2017, does establish the necessary institutional framework around the governance. The mandate attributed to the agency is broad and encompasses digital economy priorities and objectives beyond digital government. As the implementation of the *Stratégie Maroc Digital 2020* rolls out, reflecting the Government of Morocco'scommitment towards the development of a sustainable digital economy, evaluation and monitoring will be key to assure the proper management of the strategy and necessary accountability towards citizens and businesses. In addition, despite foreseen changes, the Ministry of Administrative Reform and Public Service will remain a critical player in public sector modernisation. Its expected role in the governance and implementation of digital government in the country will benefit from adequate clarification as the country transitions towards a new institutional architecture.

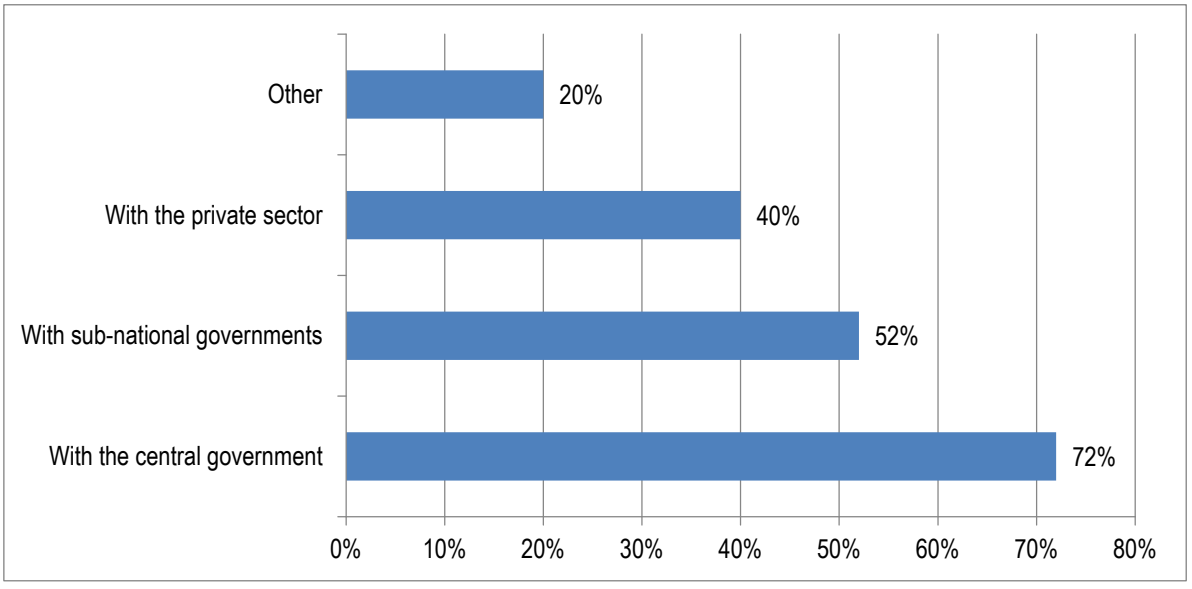
Governance for effective project implementation

The transformative use of technologies in the public sector is likely to challenge existing power structures and mechanisms and disrupt organisational cultures. As such, the Digital Development Agency will have to find ways to overcome potential sources of institutional resistance that may hinder the efficient implementation of digital government initiatives. This is often achieved through steering prioritisation, choice of preferences

and incentives structures in ways that foster greater horizontality, co-operation, and sharing in the public sector. Building on the strong and ambitious goals of the law that foresees the creation of the agency, the Government of Morocco should use the momentum to highlight its full commitment towards an effective, coherent and sustainable digital government policy in the country.

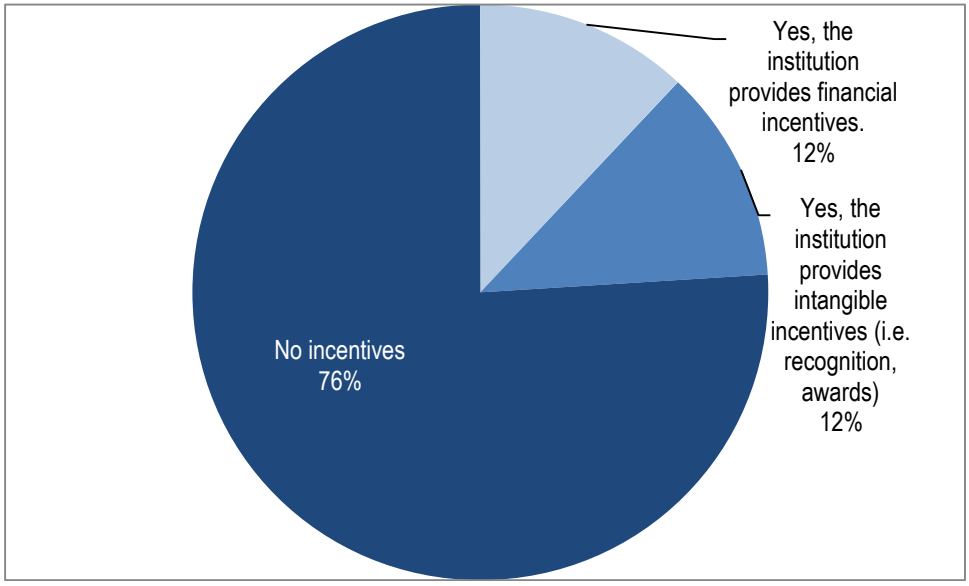
The experience with *Maroc Numéric 2013* seems to suggest that, despite significant participation in co-ordination mechanisms (see Figure 2.6), organisational cultures are relatively inward-looking in their approach to ICT project development and prioritisation, bypassing institutional authorities responsible for ensuring overall co-ordination of public sector ICT initiatives and investments, such as the CIGOV (see Figure 2.5 above). Indeed, the Cour des Comptes highlights that agencies enjoyed significant independence to develop and implement ICT projects without consulting or co-ordinating with the CIGOV. Scarce meetings and low levels of engagement or participation at the CNTI and the CIGOV made these deliberative bodies incapable of effectively building consensus or prioritising government efforts and investments in the digital front. In the absence of functional deliberative bodies, the new Digital Development Agency may benefit from being endowed with policy levers that allow it to determine procedures and ensure effective co-ordination and efficient resource allocation.

Figure 2.6. Moroccan public institutions participating in formal co-ordination processes for ICT projects



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

Figure 2.7. Moroccan public institutions providing incentives for transparency and collaboration with external stakeholders

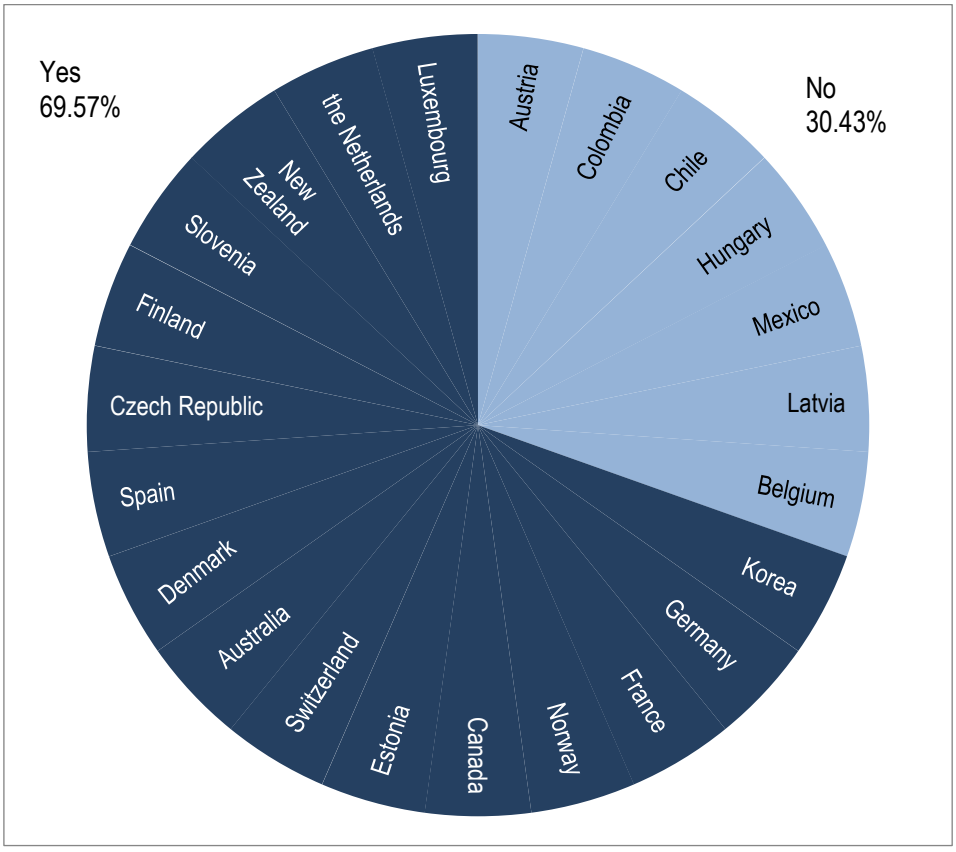


Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

In the past institutional framework, the CIGOV lacked the tools to structure ICT projects across the public sector beyond its on-demand advisory and technical assistance services. As previously explained, given the source of funding for projects, public institutions are largely free to develop ICT projects on their own, unconstrained by legal or regulatory requirements. This situation may lead to the duplication of efforts, inefficient investments for the public sector as a whole and the lack of an overarching vision for direction for public sector digitalisation in ICT project implementation. With the establishment of the Digital Development Agency clearly stated and a commitment towards ensuring its implementation, what will remain is the application of overarching monitoring strategies to ensure it continues to garner adherence towards a coherent and co-ordinated digital government policy.

Adequate governance of ICT project delivery must strike a balance between the centralisation and decentralisation of responsibilities. Most OECD countries have approached this dilemma by the centralised design of procedures, project review and monitoring, with the decentralised implementation of agency projects. Central co-ordinating units are often responsible for government-wide initiatives, such as the national services portals and other forms of shared services (e.g. interoperability platforms, electronic identity systems). Ultimately, the balance is struck between central arbitration of the robustness of project conception and the necessary agility for public sector transformation in a rapidly changing environment. To avoid unnecessarily slowing down the digitalisation process, OECD countries have established ICT project governance models linked to pre-determined budget thresholds, thus helping them manage risks while preserving space for innovation and agility in smaller projects (see Figure 2.8).

Figure 2.8. Use of budget thresholds/ceilings to structure governance processes in OECD countries



Source: OECD (2014), *Survey on Digital Government Performance* (database), OECD Publishing, Paris, www.oecd.org/gov/government-at-a-glance-2015-database.htm.

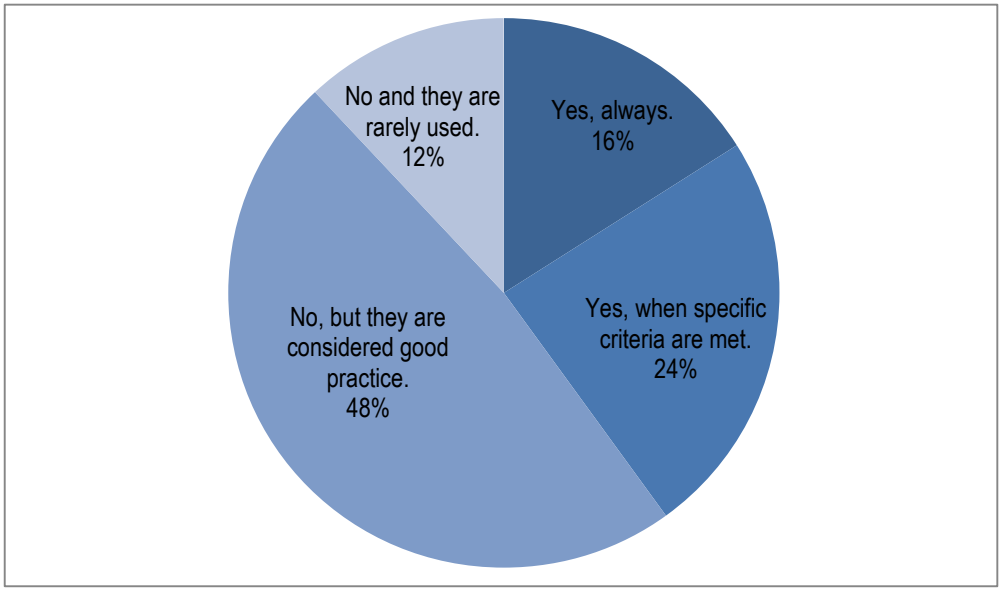
However, the shortcomings of project delivery under *Maroc Numéric 2013* were not only linked to the existence of differentiated governance frameworks for large ICT projects, but to the process of planning and implementation of ICT projects in itself. ICT projects have become increasingly complex in terms of budget size, stakeholders involvement and technological options availability. The use of clear business cases (Principle 9 of the OECD Recommendation) is part of the governance mechanisms for ICT projects and determines the value or benefit being pursued with the investment and clarifies the alignment of the investment with the strategic objectives of the organisation and the public sector more broadly. Clear business cases also help make investment decisions based on a detailed cost-benefit analysis and help identify project risks early on, allowing project managers to develop sound risk management strategies.

Denmark, for instance, has significantly improved its ICT project governance and delivery through the development of standardised business cases and ICT project management models whose use is mandatory across the administration for projects with a budget above DKK 10 million. The Danish methodology allows for the monitoring of the realisation of expected benefits and achievement of pre-established objectives. Based on the objectives established by the business case, the ICT project management model helps follow up and assess the implementation, identify shortcomings and make timely adjustments to the project implementation. Thanks to the different reporting stages in the

management process, these tools are an important source of comparative data, allowing the Agency for Digitisation to spot drivers of success and failures of government ICT projects, thus continuously improving the public sector's capacity to manage projects that are becoming more complex.

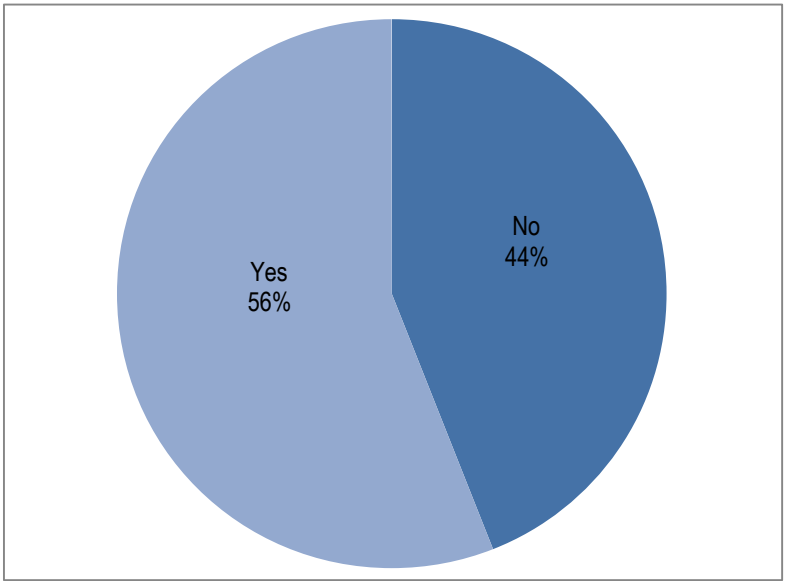
OECD countries increasingly rely on such governance tools. Some 52% of OECD central governments have standardised business cases for ICT projects and 59% use ICT project management models for the central government (OECD, 2014). Morocco has yet to develop such tools at the national level (OECD, 2015), but a number of public institutions have started developing these approaches at the agency levels (see Figure 2.9 and Figure 2.10). The experiences in OECD countries confirm the benefits of such tools in promoting a performance-based culture in ICT project management and supporting the realisation of benefits of ICT projects.

Figure 2.9. Moroccan public institutions using business cases for ICT projects



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

Figure 2.10. Use of standardised ICT project management models at the administration level in Morocco



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

The power to structure tools and frameworks for ICT investments and review or approve ICT projects provides the co-ordinating unit, which has a broader view of public sector digitalisation efforts, with the ability to foster synergies between administration efforts, support the development of joint approaches and promote greater efficiencies while avoiding duplication of efforts or projects (see Box 2.6). The co-ordinating unit can also help ensure adequate project design and conception in ways that comply with norms and standards and determine reasonable scope, scale, timeline and budget for the project.

Box 2.6. The governance of ICT projects in Denmark and New Zealand

Danish ICT Project Management Model

The Danish ICT Project Model provides a standardised way of managing ICT projects across the government administration. With clear reference to the United Kingdom's ICT project model Prince2, it provides guidelines on how to organise and manage ICT projects and delivers concrete templates for all generic products in the process. The overall phases covering all projects are illustrated in the figure below.

Phases of projects in the Danish ICT Project Model

The Ministry of Finance has created a unit establishing good practices on digital government projects, including both mandatory and recommended elements. The model has enabled the establishment of a specific governance structure, for example requiring

the approval of well-developed business cases, as well as ongoing approvals – so-called "stop-go" decisions – each time a project passes from one phase to the next.

Ensuring the strategic alignment of ICT projects in New Zealand

New Zealand has developed a robust and structured approach to the development of business cases for large public investments. The strategic assessment for the typical investment project follows the following steps:

1. Initiate the investment proposal and appoint the Senior Responsible Owner to take the leadership role in the development of the Strategic Assessment.
2. Identify key stakeholders, analyse their interest and influence and complete a stakeholder management plan. This will inform the choice of attendees for the initial stakeholder workshops required to identify investment drivers.
3. Describe the proposal and draft the strategic context. Use this as the basis for briefing workshop attendees.
4. Arrange facilitated workshops with key stakeholders to identify and agree on investment drivers (problems/ opportunities).
5. Finalise the workshop outputs and draft the Strategic Assessment document.
6. Present the final draft Strategic Assessment (and any supporting documentation required) for review, including Gateway review panel where required. Incorporate feedback.
7. Finalise the Strategic Assessment, seek final sign-off from the Senior Responsible Officer and submit for approval to proceed to further business case development.

Source: Danish Digitisation Agency; Digitaliseringsstyrelsen (2016), "Den fællesstatslige it-projektmodel", webpage, www.digst.dk/Styring/Projektmodel; Treasury of New Zealand (2015), "Better Business Cases: Guide to Developing the Strategic Assessment", Government of New Zealand, Wellington.

Monitoring for delivery

Governance for delivery needs continuous monitoring of the progress made in the implementation of the strategy. As such, the definition of key performance indicators associated with the objectives of the strategy is of critical importance. The implementation of *Maroc Numéric 2013* was hindered by the weakness of monitoring and evaluation mechanisms that prevented the Government of Morocco from making timely and evidence-based decisions. In particular, the monitoring and evaluation mechanisms lacked clarity. Furthermore, they were not designed by the oversight committee itself (Cour des Comptes, 2014). Evaluation mechanisms should be put in place to systematically and objectively as possible determine the impact of activities by focusing on progress made towards achieving implementation of the project objectives. As a result, the strategy reached the end of its period in 2013 experiencing significant delays, unable to detect derailed project early on.

The *Maroc Numéric 2013* strategy set specific objectives for its e-government efforts in terms of ranking in international measurements for online service delivery. While this choice of indicators to assess the success of the strategy reveals a national ambition and the will to strive for excellence on the international scene, it may not be the most methodologically appropriate. International measurements for digital government are designed based on analytical frameworks and methodologies that evolve independently from the national strategy, government-determined priorities and national context. As

such, they may not adequately reflect the progress made in the implementation of digital government as conceived by the Government of Morocco. In addition, the data collection and calculations are not in the hands of Morocco, which creates a dependency that is uncalled for, or prioritisation of efforts biased by the methodology underlying the measuring rather than being guided by real country needs.

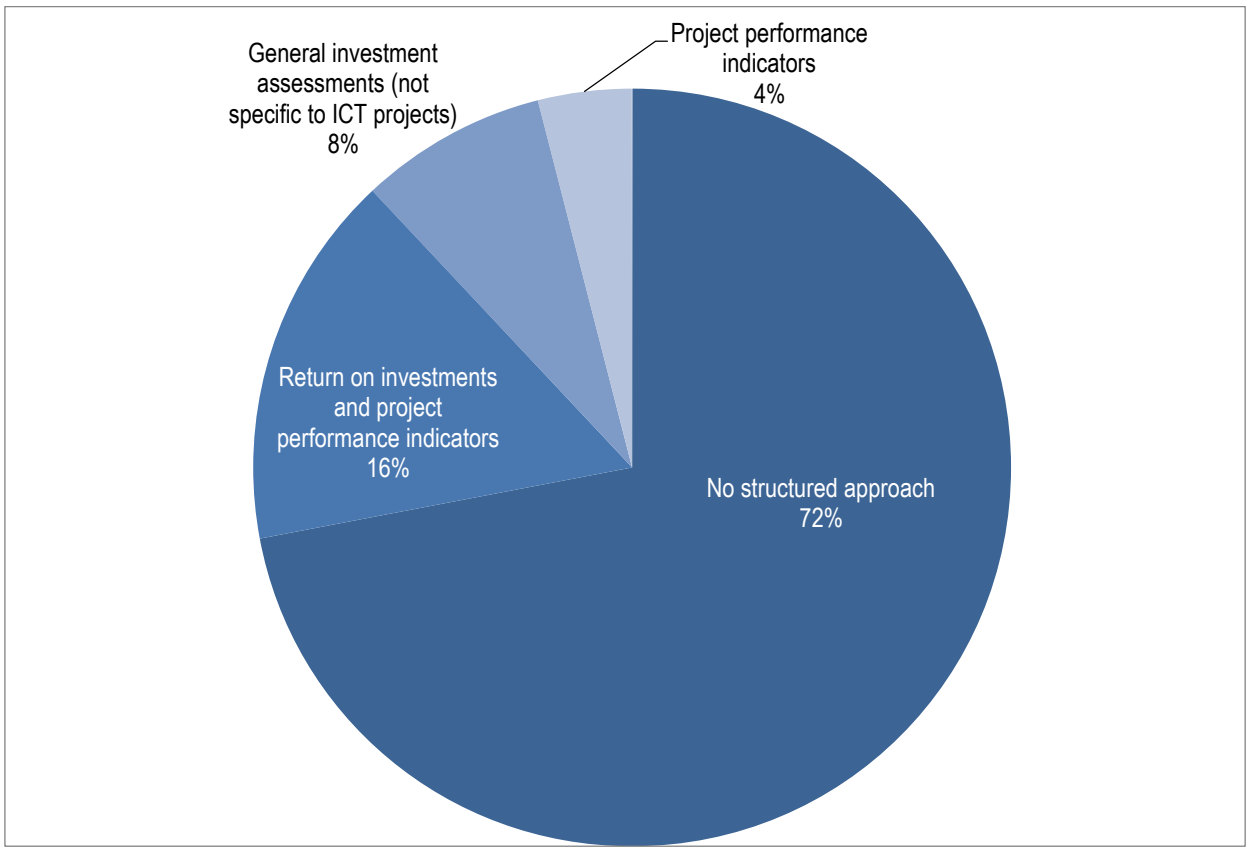
It may thus be more sensible to develop performance indicators at the national level directly linked to the national digital government strategy. ***Colombia***, for instance, offers an interesting experience in this regard with the development of a composite index (the Online Government Index[4]) to assess the progress made by public agencies in the implementation of the national digital strategy. By publishing the results of the index for all public institutions, the unit of the National CIO (the Vice-Minister of Information Technologies) uses a soft lever to create incentives for compliance with digital government norms and standards and the use of technology to modernise public service delivery. The development of a similar monitoring and evaluation tool may contribute to ensuring alignment of efforts at the administrative level with the broader strategic objectives of digital government for the whole-of-government.

In addition to the monitoring of strategy implementation at the macro level, efforts should be made to strengthen the monitoring and evaluation of ICT project implementation. Indeed, the OECD survey reveals that ICT investments at the public institution level are frequently insufficiently monitored and evaluated (see Figure 2.11). The respondent institutions often report lacking a structured approach to ICT investment evaluation or simply verifying project delivery and compliance with the terms of reference. A few agencies reference the general investment frameworks and budget performance assessments performed as part of the annual laws of public finance, while a minority use project performance indicators or report assessing the returns on investments through different methodologies.

The elaboration of a standard approach for ICT project development and management – instead of each agency setting up its own - would greatly facilitate the comparability between projects and facilitate their structured monitoring by the central co-ordinating unit. Robust business cases and project management models would allow the new Digital Development Agency to capture valuable data on project implementation. As in the case of ***Denmark***, the collection of such data would enable the new agency to flag issues and ensure that adjustments are made quickly to put projects back on track, but also to identify the drivers of project failure and success and act upon them. These data would help continuously build and develop the country's knowledge and ability to deliver projects, ultimately leading to greater public sector performance.

Ensuring close monitoring of strategic projects requires dedicated resources, however. In OECD countries, the structure of co-ordinating units often includes follow-up mechanisms on a continuous basis. For instance, the Portuguese Agency for the Administrative Modernisation (AMA, its Portuguese acronym) uses its Project Management Office structure to be continuously informed of developments in the implementation of digital government projects, but most importantly, it allows it to build an invaluable wealth of data that can inform policy decisions. The establishment of a Digital Development Agency may benefit from similar arrangements to strengthen the monitoring and delivery of projects linked to *Maroc Numéric 2020*.

Figure 2.11. Approaches to the assessment of ICT investments at the public institution level in Morocco



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

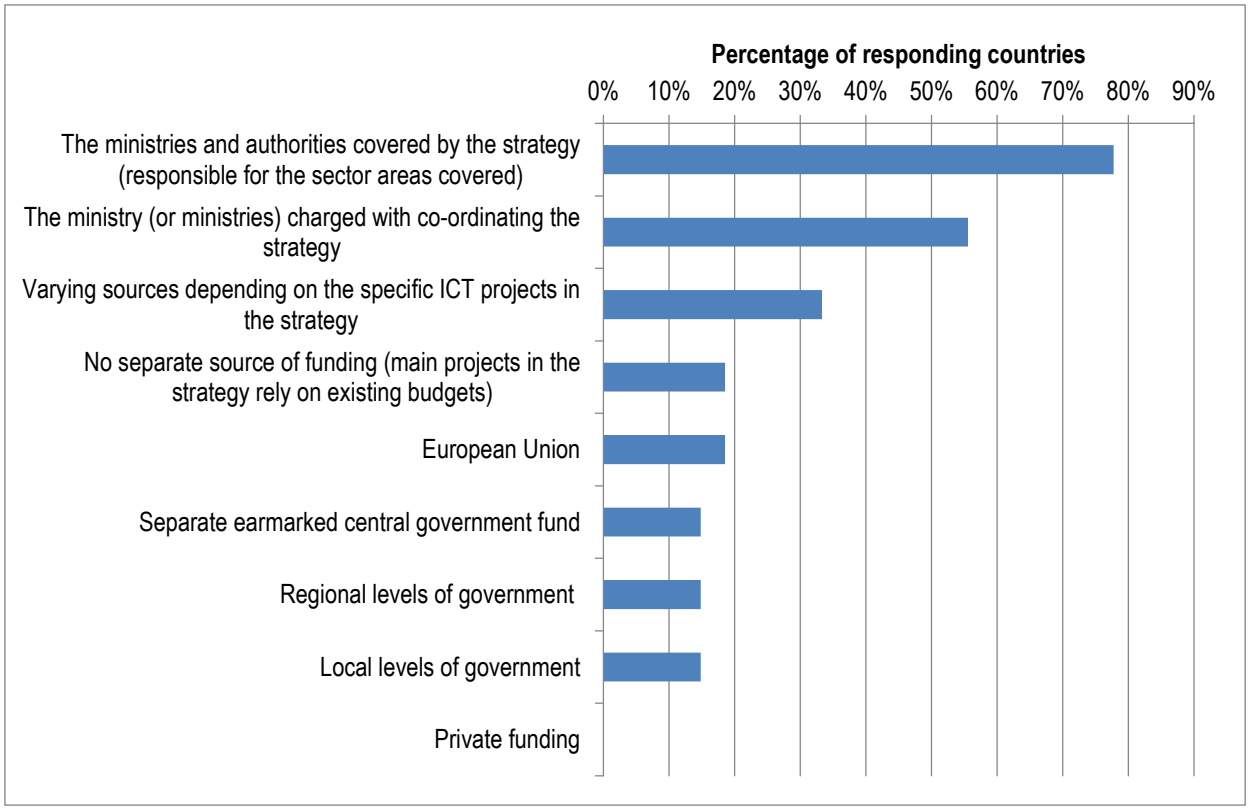
Financing the digital government strategy

Funding models for digital government strategies and functions are critical tools to help structure and make digital government efforts sustainable, but also, as highlighted in the Cour des Comptes report, because they shape the power dynamics in digital government implementation. The entity controlling the budget has greater leverage over investment decisions. The financing of the projects and initiatives under the digital government strategy becomes thus an inherent component of its governance.

Under *Maroc Numéric 2013*, insufficient control over project funding or approval by the CIGOV weakened the governance of the strategy. Projects covered under the strategy were indeed developed in apparent isolation and with insufficient co-ordination between one another, limiting the power of the CIGOC to promote synergies, avoid duplication or inefficiencies linked to poor project design or un-coordinated timelines.

Countries have put in place different approaches to financing the initiatives included in their digital government strategies. The main common sources of funding for strategic initiatives on ICTs come from ministries and agencies concerned by the strategy, the co-ordinating ministry or agency and varying project-specific sources (see Figure 2.12).

Figure 2.12. Main sources of funding of digital government strategies in OECD countries



Source: OECD (2014), *Survey on Digital Government Performance* (database), OECD Publishing, Paris, www.oecd.org/gov/government-at-a-glance-2015-database.htm.

While the use of earmarked funds dedicated to the implementation of the strategy is not as common, ongoing OECD work highlights the role of **centralised ICT funds** to co-finance strategic projects and create incentives that foster compliance with existing norms, guidelines and digital government objectives established by the strategy (OECD, forthcoming). As an example, the ***United States*** instituted the Information Technology Oversight and Reform Funds to enhance investment in federal IT and create value "by making smarter investment decisions and reducing waste, duplication, and inefficient uses of IT through data-driven investment management, deliver digital services to 25 federal agencies, and protect IT assets and information by improving oversight of federal cybersecurity practices" (US Senate, 2016). In a similar way, ***Estonia*** has been able to benefit from the European Union's structural funds to support strategic digital government investments throughout its public administration. These structural funds represent a significant share of the Estonian's government investments in ICT, making them particularly attractive for public institutions (OECD, 2016). This gives the Estonian government CIO strong leverage to ensure compliance with existing policies as well as the strategic alignment of these investments.

Sources of financing and funding models are key levers enabling the successful implementation of the digital government strategy. While it would be hard to justify the centralisation of funding for all ICT projects, the evidence suggests that the co-ordinating unit for strategy implementation would greatly benefit from dedicated funds that would be able to finance strategic priorities for the whole of government or innovative initiatives

contributing to the strategy, but with limited access to funding through line administrations' budgetary appropriations. In addition, centralised funds can help reshape incentives of digital government practitioners, helping accelerate the delivery and implementation of digital government policies (see Box 2.7).

Box 2.7. Financing public sector ICT projects in Portugal

Portugal's Agency for Administrative Modernisation (AMA) is the agency responsible for the Portuguese digital government strategy. It ensures its co-ordination, oversees its implementation, develops key government-wide initiatives and ensures a number of shared services for public agencies.

As it is responsible for the implementation of public sector modernisation efforts, AMA is responsible for the management of the European structural funds dedicated to ICT investments. These funds complement national budgetary appropriations for ICT investments and represent a very interesting source of funding for public agencies' efforts to digitalise. These funds become a powerful lever to prioritise efforts and investments, ensuring their strategic alignment in support of the digital transformation of the public sector. These funds also serve to fund innovative initiatives without access to the needed capital to be scaled up and enhance their impact for citizens, businesses and the public sector.

Source: OECD (2016b), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258013-en.

Notes

1. Based on an OECD interview with Danish delegates.
2. See Article 10 of Decree No. 2-08-444 of 21 May 2009, issued by the Prime Minister of Morocco.
3. Information provided by the Government of Morocco, 2017.
4. See http://estrategia.gobiernoenlinea.gov.co/623/w3-article-7914.html.

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Chapter 3. Digital government as a driver of a culture of openness and user-driven approaches in the Moroccan public sector

This chapter provides a general overview and assessment of the adoption of digital methodologies in the Moroccan public sector and considers how digital government can help create and promote a culture of openness in the public administration. The chapter begins with an assessment of Morocco's use of technology to promote inclusiveness, openness and transparency in the Moroccan government, identifying areas of opportunity. It goes on to assess how technology is currently being deployed and considers how new approaches can help transform public services and the systems, processes, organisations, infrastructure and culture that underpin them so that they can be reorganised around citizens' needs. In addition, the chapter discusses the role of data as an enabling infrastructure for the digital transformation of services, policies and organisations' operations and the current state of data policies in the Moroccan public administration. The chapter closes with a brief evaluation of cybersecurity and privacy policies in Morocco, their roles in securing citizens' trust in government's use of technology, and initiatives for future improvement.

Introduction

Since the early 2000s, Morocco has seen the progressive adoption and implementation of policy and institutional frameworks that reflect the growing demand for a culture of openness in the public sector and a more responsive government. The Government of Morocco adopted a new constitution on 1 July 2011 after being ratified by public referendum. The new constitution established principles of good governance, transparency and accountability in the public service, strengthened human and civil rights, including the right to public information, as well as the role of civil society in public decision making. It also provided a constitutional basis for bodies such as the National Agency of Integrity and the Fight Against Corruption (Instance Nationale de la Probité et de la Lutte contre la Corruption), the Ombudsman (le Médiateur du Royaume) and the Competition Council (Conseil de la Concurrence).

More inclusive, collaborative and transparent relations between governments and their constituencies are expected to deliver greater effectiveness, satisfaction and equity in policy outcomes. Similarly, more direct channels of communication between state institutions and external stakeholders, greater ability to process incoming information and more adaptable and agile institutions enable governments to improve their alignment with citizens' expectations.

New digital technologies offer the opportunity to enhance the transparency and accountability of government operations. Most importantly, the application of digital methods and approaches across OECD countries are helping to bring citizens and businesses closer to governments, making it more open and responsive to citizens' needs and preferences. The use of open standards, open source software, user-driven design techniques and new digital platforms are enabling new forms of partnerships in service and policy development and delivery. The use of such approaches fosters a culture of openness in the public sector. Digital government moves beyond top-down assumptions and inward-looking decision making and enables citizens and businesses to drive government decisions and partner with public authorities in developing solutions. Digital public administrations thus promote the emergence of a new and more innovative ecosystem for public service delivery in which they can tap into to improve government performance. These trends are transforming state-society interactions. This cultural, administrative and political transformation is at the core of the shift from e-government to digital government (OECD, 2014).

However, the digital transformation of the public sector can only take place if certain pre-conditions are met. Re-engineering service delivery to gear it around users' needs and preferences, to eventually move towards a user-driven administration, requires a digital infrastructure and a data-savvy public sector that underpins it. These elements allow the public sector and external stakeholders to capture and re-use data in ways that deliver value for citizens and businesses.

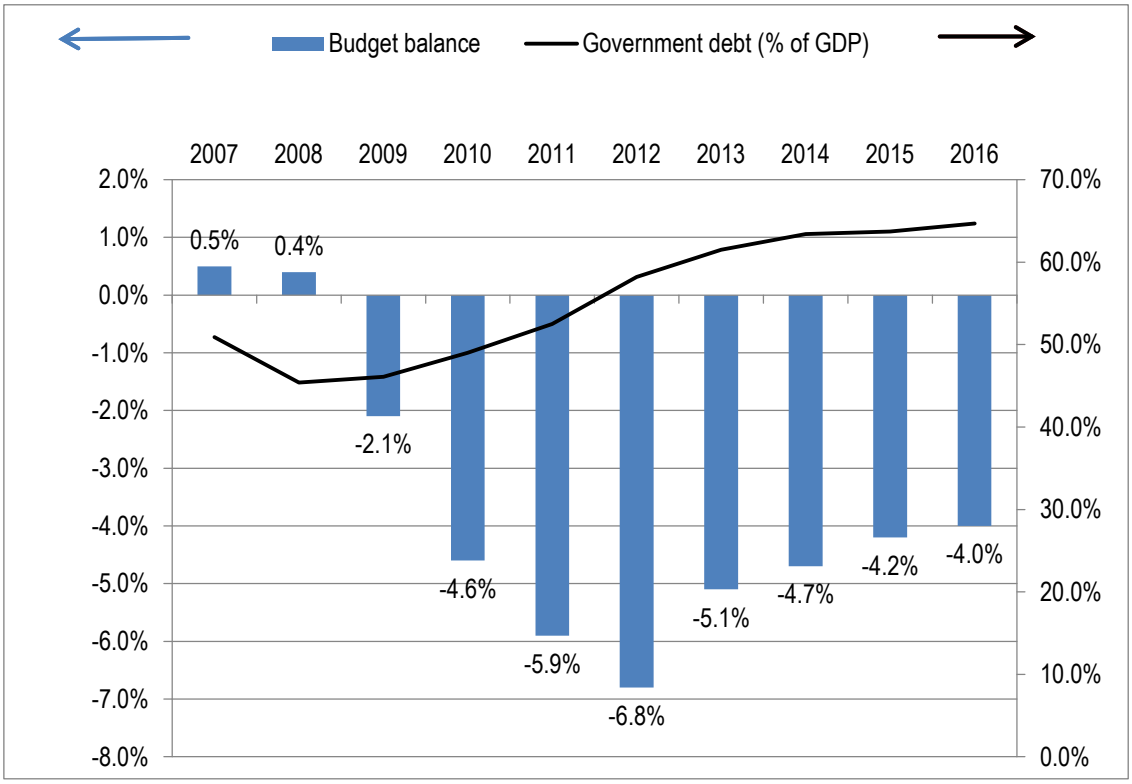
Using digital means to enhance the transparency, accountability and inclusiveness of government operations also demands concrete efforts to ensure the upskilling of the general population and the civil service. Such efforts should not only aim at the strengthening of specific technical skills but also to the progressive development of a new digital, open and data-driven culture in the Moroccan public sector. Finally, the effectiveness of technology deployment in public sector modernisation efforts also relies on citizens' confidence in the security of such systems and their trust that the Moroccan administration will use citizens' data responsibly.

Based on the first pillar of the OECD Recommendation on Digital Government Strategies, this chapter will assess how digital government policies can support efforts made by the Moroccan government to foster greater openness, inclusiveness and public engagement in the public administration and advance its anti-corruption agenda as it strives to achieve better social outcomes for its citizens despite budgetary constraints.

The Moroccan policy framework for greater openness in government

Over the last decade, Morocco has experienced significant socio-economic changes. The government has seen its fiscal balance (budget surplus or deficit) go from +0.8% in 2007 to -5% in 2015, and its public debt soar from 50.9% to 64% in the same period of time (see Figure 3.1). Amid growing budgetary pressures, the government is faced with a citizenry that expects better and more tailored services as well as greater economic opportunities.

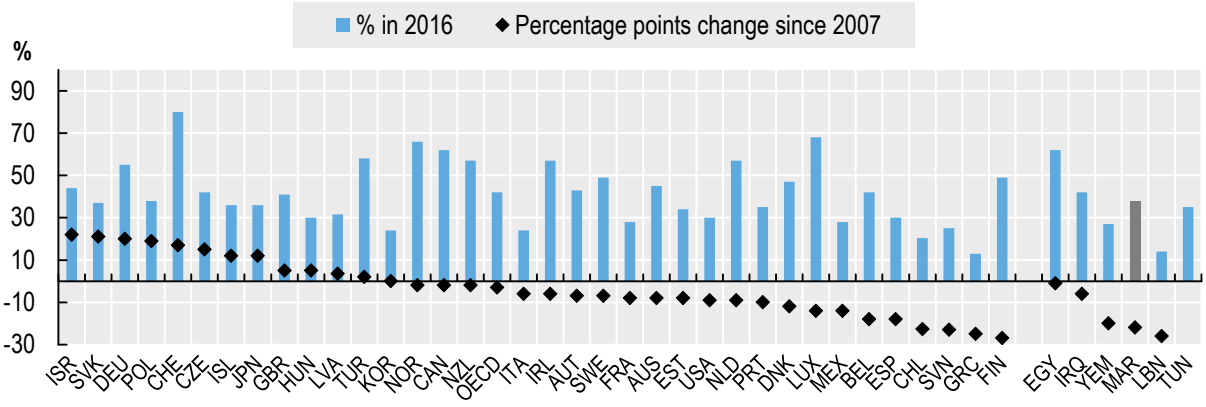
Figure 3.1. Moroccan public finance indicators



Source: Moroccan Ministry of Economy and Finance.

As in many OECD and Middle East and North Africa (MENA) countries, Morocco has seen trust in government decline since 2007, the onset of the international economic and financial crisis (see Figure 3.2). Perception of corruption and insufficient transparency in government are two important factors that can drive public discontent and decreasing confidence in Moroccan public authorities (see Figure 3.3). To secure trust in government, Morocco has progressively strengthened its policy framework for civic participation, transparency, accountability and for supporting the fight against corruption in the public sector.

Figure 3.2. Confidence in national government in 2016 and the change since 2007

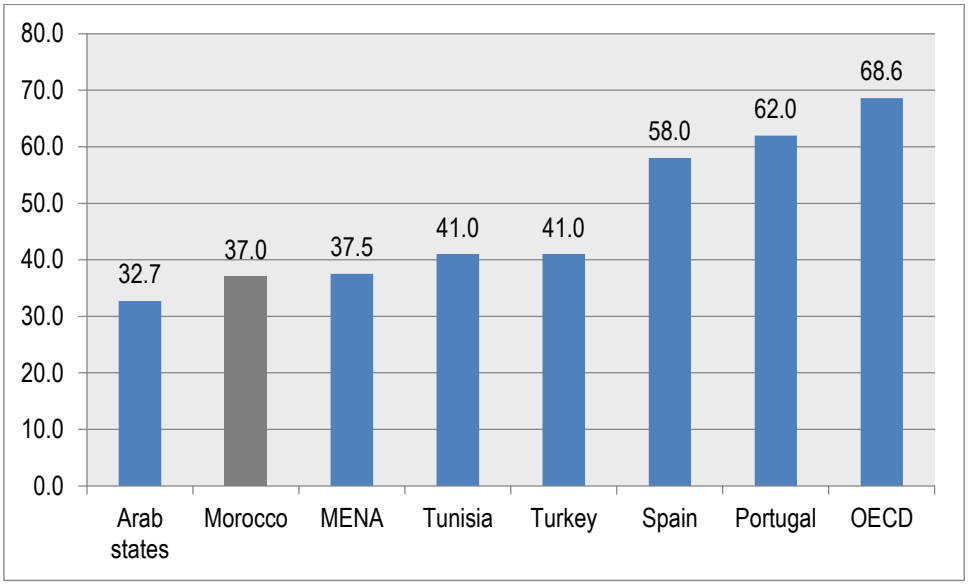


Notes:
1. Data on the confidence in national government for Canada, Iceland and the United States in 2016 are based on a sample of around 500 citizens.
2. Data for Austria, Finland, Ireland, Norway, Portugal, the Slovak Republic, Slovenia, Switzerland and Yemen are for 2006 rather than 2007. Data for Iceland, Iraq and Luxembourg are for 2008 rather than 2007. Data for Tunisia are for 2010 rather than 2007. Data for Egypt and Morocco are for 2011 rather than 2007. Data for Morocco are for 2013 rather than 2016.
3. Information on data for Israel: http://dx.doi.org/10.1787/888932315602.

Source: *Gallup World Poll* (database), www.gallup.com/home.aspx, 2017.

Figure 3.3. Corruption Perception Index 2016

Scale: 0 = Highly corrupt | 100 = Very clean



Source: Transparency International (2016), "Corruption Perceptions Index 2016", TI, www.transparency.org/news/feature/corruption_perceptions_index_2016.

In an effort to respond to citizens' growing demands, the Government of Morocco undertook a constitutional reform that laid the foundations for an open government policy work in the country (OECD, 2015a). The OECD has been working with Morocco to

prepare its accession process to the Open Government Partnership (OGP) which Morocco successfully achieved in April, 2018. The OGP is an alliance of countries launched in 2011 to uphold the principles of transparency, integrity, accountability, citizen participation and improved public services as a way to strengthen democratic governance and ensure greater alignment with citizens' aspirations.

Citizens' push and the Moroccan government's ambition to join the OGP have both become important motivations for the creation of a culture of openness in the public sector. The 2015 OECD *Open Government Review of Morocco* was conceived as a tool to support the development of the OGP Action Plan Morocco is preparing the adequate context for and promoting a constructive policy dialogue between relevant stakeholders. The Moroccan government presented its formal letter of intent to join the Open Government Partnership in December 2016 and was accepted as a member in April 2018.

As part of its efforts to fight corruption, Morocco developed anti-corruption programmes in 2005 and 2010 and ratified the UN Convention against Corruption in 2007. The year 2016 also saw the Government of Morocco launch a new anti-corruption strategy that expects to address the most pressing concerns and risks concerning corruption in the country. The strategy recognises the power of digital technology in building more secure processes in the public administration. The strategy advances 16 axes, and its activities are organised in 10 programmes. These foresee the use of digital technologies to enhance data sharing, improve control and accountability (i.e. better targeting of resources, rationalisation of human resources [HR] and better asset declaration) and the digitisation of sensitive procedures such as payments and all stages of procurement and its supporting information.

By developing digital solutions to digitise administrative procedures considered at risk of corrupt behaviour, the strategy aims to enhance controls in sensitive operations, such as the financial management and the flow of payments. However, the strategy does not look at the full extent of opportunities offered by digital technologies to transform how the public sector operates. The evidence shows that the proactive publication of information and open government data (OGD) can support anti-corruption strategies by enhancing accountability and leveraging the talent of data prosumers inside and outside of the public sector (G20/OECD, 2017), and yet this tool and similar initiatives remain unexplored in the existing anti-corruption strategy. Most importantly, while its projects are all critical building blocks for a more transparent and accountable public sector, it does not fully cover how the rise of a digital government and culture can help dwarf corruption and open up the public sector.

Box 3.1. Contracting 5 (C5)

The governments of Colombia, France, Mexico, the United Kingdom, and Ukraine created the "Contracting 5" (C5) Initiative, committing to ensuring country-level learning on the implementation of open contracting data as well as international knowledge-sharing to support other countries in the implementation of open contracting, open data and open source tools. The C5 countries held an inaugural meeting and issued the C5 Declaration at the Open Government Partnership Summit held in Paris in December 2016. Through the "C5", these countries have committed to:

- **implementing the Open Contracting Data Standard (OCDS)** to the fullest extent possible to create a timely, accessible public record for government,

business and citizens on how public money is spent across the entire cycle of public contracting, from planning to tender to award to the implementation of contracts

- **fostering innovation** through supporting an ecosystem of open source, reusable and shareable tools to improve communication, analysis, data quality and automation of public contracting information
- **contributing to the further development and use of the ODCS** through case studies and analysis of user needs, encouraging extensions and joined-up data including with corporate registries, joining and encouraging its user community and contributing to its further adoption
- documenting the **lessons learned**, and measuring the real-world benefits for government, business, and citizens from the adoption and implementation of open contracting for sharing, learning, and improvement
- **focussing collectively on key user needs and building capacities for opening up, managing and sharing public contracting information** - such as improving value for money, creating a fair and level playing field for businesses, tracking and improving service delivery and upholding public integrity and deterring fraud and corruption - to shape, share and adopt a common methodology for building capacities and measuring impacts from their interventions to refine and share such methodologies globally
- considering, refining and adopting best practices to **engage business and civic organisations** at appropriate points along the entire chain of procurement and to share their approaches, strategies and lessons from C5 countries' efforts to make public contracting more engaging and responsive
- **engaging other countries** in order to adhere to C5's objectives, including through the International Open Data Charter, Open Government Partnership, the OECD, the G20, multilateral development banks, and other relevant international or sector-specific initiatives such as the Construction Sector Transparency Initiative, the Extractive Industry Transparency Initiative and encouraging those countries to embrace and implement open contracting principles
- **engaging international development partners and institutions** in furthering these objectives nationally and internationally, including in priority sectors such as infrastructure and healthcare.

Source: G20/OECD (2017), "Compendium of good practices on the use of open data for anti-corruption", OECD, Paris, www.oecd.org/corruption/g20-oecd-compendium-open-data-anti-corruption.htm.

Digital government as a driver of openness

As explained in the introductory chapter of this review, digital government is different from applying digital technologies over existing structures and processes. As digital technologies become more ubiquitous, radically transforming economies and societies, it becomes evident that business as usual will not be enough for governments to deliver on citizens' expectations and the promise of digital. Networked societies have given rise to truly digital organisations that rely on digital platforms, data and continuous user engagement to build unique digital ecosystems of innovation and service delivery. These new business models have resulted in uniquely convenient and customised services that continuously improve citizens' lives.

So far, however, the unique situation of monopoly in the delivery of critically important public services has shielded the public sector from competition and the need to innovate in its delivery approaches, leading to a slower pace of adoption of these new technologies and approaches. Isolation from such dynamics has generally prevented the public sectors from developing the instincts to continuously adjust and correct how it uses technology to enhance public sector performance (Brown, Fishenden and Thompson, 2014). The digital transformation of the public sector is about re-engineering government systems to organise government service delivery, processes, organisational structures and infrastructure around the users' needs. As citizens' needs and preferences evolve, governments must become more flexible, adaptable and agile to keep pace.

Digital government is to a large extent a matter of cultural transformation. It requires public sectors to move away from top-down assumptions of users' needs and to open up the administration to empower users to drive governments' decisions on service delivery, policy making and operations and to co-create value. This shift relies on a number of basic components, including the deployment of digital technologies in ways that are inclusive, guarantee access to public information to support citizens' educated participation in public decisions, robust data governance and use, as well as secure information systems that protect personal data.

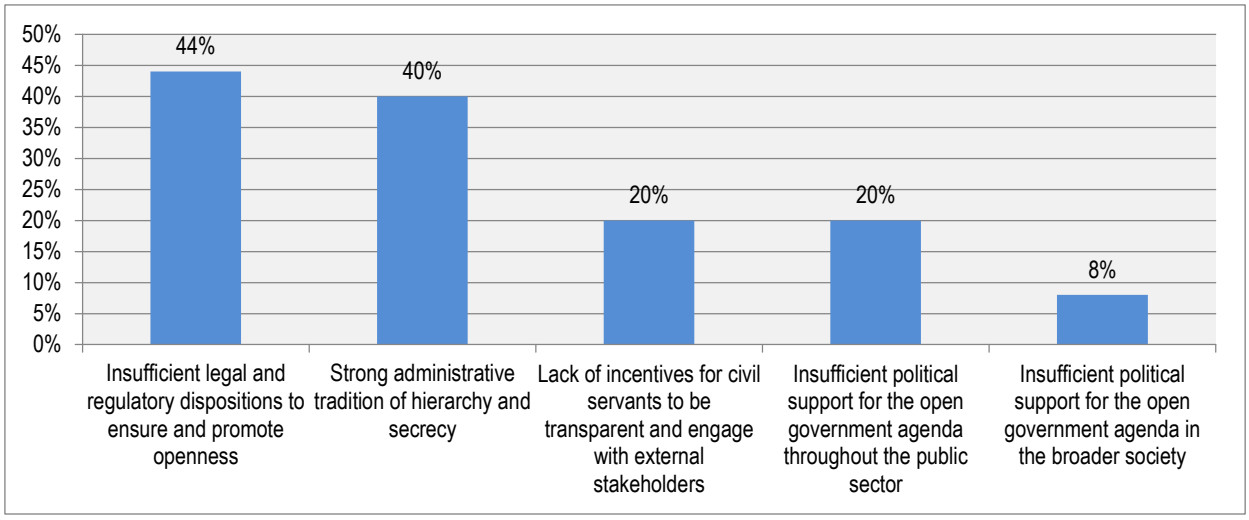
The Government of Morocco has recognised the potential of digital government to bring citizens and businesses closer to government and has developed a digital government strategy with comprehensive policy objectives when compared to other countries of the MENA region (see Table 3.1). Despite such ambitious goals, implementation efforts have yet to translate into the widespread emergence of a digital and open culture in government. Moroccan public institutions most often cite legal and regulatory hurdles as well as the administrative tradition of hierarchy and secrecy as the most important obstacles to cultural change (see Figure 3.4). The following sub-sections will take a deeper dive into Morocco's initiatives to use technologies in ways that support its efforts to promote inclusiveness, openness, integrity and user-driven approaches in the public sector.

Table 3.1. Main objectives of the national digital government strategy in the MENA region

	Efficiency gains in government operations	Make the public sector more transparent and accountable	Improve public sector intelligence for evidence-based decision making	Support more inclusive decision-making processes	Enhance data and information management within the public sector	Strengthen policy design and implementation	Improve public sector co-ordination	Improve public sector agility	Develop services that are better adapted to users' needs
Egypt	✓	✓			✓				
Jordan	✓	✓							✓
Lebanon									✓
Morocco	✓	✓		✓	✓		✓	✓	✓
Tunisia	✓	✓					✓		
UAE	✓		✓		✓				
Total	5	4	1	1	3	0	2	1	3

Source: OECD (2015b), "MENA-OECD Questionnaire on Digital Government", unpublished dataset.

Figure 3.4. Main challenges for Moroccan public institution to create a culture of openness



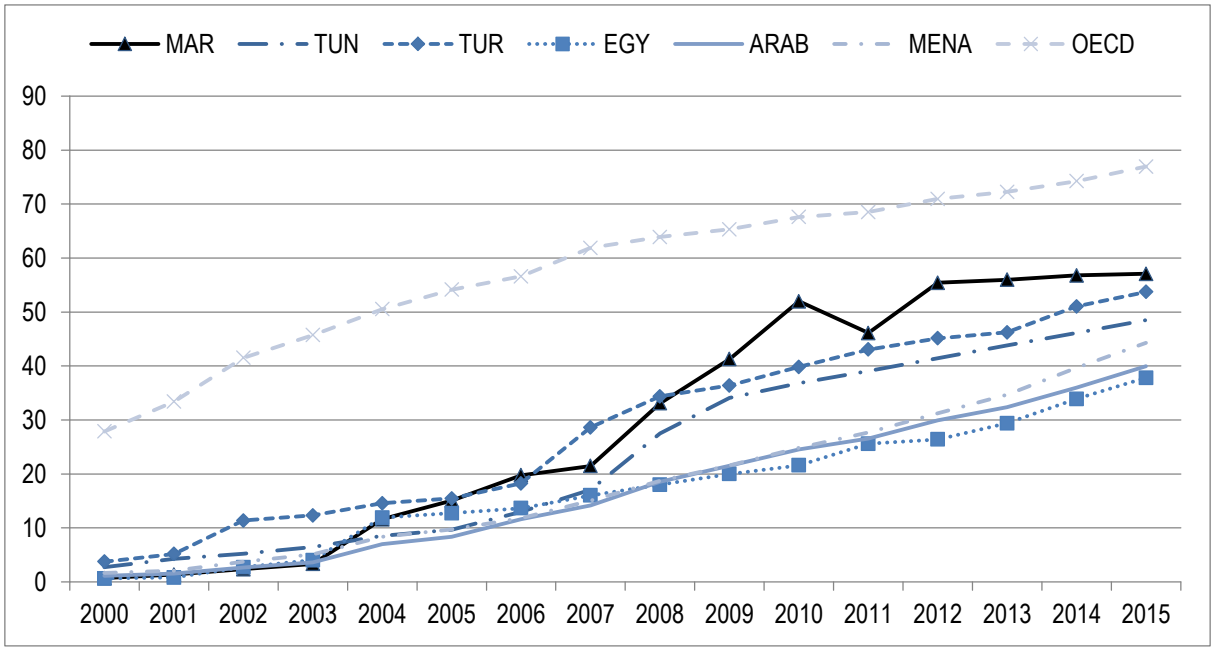
Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

Building a digitally inclusive society to reap the benefits of the digital transformation

The digital landscape of Morocco has changed considerably since the beginning of the 2000s and mostly for the better. The share of Moroccans using the Internet rose from 0.7% in 2000 to well over half the population in 2015 (57% to be precise; see Figure 3.5). The penetration of mobile technologies in Morocco has reached 126.01% according to ANRT / Observatoire de la téléphonie mobile au Maroc Situation at the end of 2017 - with 67% of the population over 12 years old owning a smartphone (ANRT, 2016). The *Maroc Digital 2020* strategy seeks to make Morocco a digital hub in the MEA (Middle East and Africa) outside the Gulf Cooperation Council and non-Maghreb countries by developing its digital economy ecosystem.

While there is an increasingly strong consensus about the opportunities offered by digital technologies to support economic development and growth, how to ensure "digital dividends" are evenly distributed across society remains a common challenge for all countries (World Bank, 2016). Low levels of literacy and educational attainment pose a challenge for the broader Moroccan society to seize the opportunities of the digital transformation. As of 2015, 28.3% of Moroccan adults were unable to read (World Bank, 2017). The use of digital technologies can be a lever for social cohesion namely through the use of applications and solutions that are able to empower disadvantaged social groups. However, the Government of Morocco should consider medium and longer-term policies to ensure a skilled workforce able to readily adjust and respond to the increasing digital demands of its citizens and businesses.

Figure 3.5. Individuals using the Internet (% of the total population)



Source: World Bank (2017), *World Development Indicators* (dataset), http://data.worldbank.org/data-catalog/world-development-indicators.

To continue improving access to telecommunications, Morocco has established the Fund of Universal Service of Telecommunications. This fund helps finance initiatives aimed at enhancing the accessibility of telephone and Internet services. The programme GENIE, established in 2005, is an example of this. It looks to develop digital skills in schools through four major components: infrastructure (connected installations, multimedia environments), training of teachers, digital resources and development of use cases (assistance in the use of digital technologies and the Internet). Similarly, the PACTE programme was developed to provide access to telecommunication services to 9 263 rural communities, covering nearly 2 million residents, considered "white zones" or telecommunications deserts.

But existing digital divides do not mean the digital transformation of public services cannot bring substantial benefits to citizens. As stated earlier, the penetration of mobile technologies in Morocco is high. This context provides a fertile ground for the development of mobile government applications and solutions. Indeed, countries like Kenya have successfully developed mobile government applications with widespread adoption, including in rural areas, despite similar adult literacy rates (78% based on the World Bank's World Development Indicators). Such successes rely fundamentally on the convenience of services and the simplicity of their design.

In addition, the important benefits of good, simple service design go beyond service medium or channel. Analogue and poorly designed services can significantly hinder the accessibility of administrative procedures. Excessively long and complex forms are hard to complete, making access to services and benefits harder to access for citizens and increasing burdens and expenses for businesses. The integration of public sector information systems and the strategic use of public sector data can make the experience much simpler for the user even through face-to-face interactions. In addition, the digital

transformation of public sector systems can liberate resources to provide better in-person support and training to users lacking the necessary digital skills.

Furthermore, even if an individual has the necessary skills to effectively use the Internet, poor or insufficiently inclusive service design can make it hard for the individual to reap its benefits. The inclusiveness of digital government implementation relies on a thorough understanding of the user's needs and journey. The experience of users with specific disabilities or impairments, for instance, can be exponentially improved by the simple application of accessibility guidelines. As such, user research and thorough testing of services are at the core of digital government and user-driven administrations (see Box 3.2).

Box 3.2. Using digital technologies to foster social inclusion

In a context of growing concerns regarding inequality and the potential effects of technology fostering it, it is important to highlight that digital technologies can also be of critical support to efficient and effective welfare services that are responsive to users' needs, helping mitigate the increasingly unequal access to opportunities for personal economic and social growth (OECD, 2016b). New forms of service production and delivery imply a shift towards a demand-driven and data-fostered strategy, calling for new forms of multi-stakeholder partnerships and engagement, new skills and accountability models for the public sector. These approaches offer opportunities to maximise access, reach and quality of public services while empowering beneficiaries and vulnerable communities and improving controls on social expenditures.

In particular, digital technologies can be a significant driver for the improvement of public services to vulnerable groups in societies. For instance, the Danish service, *Ulcer Care via tele-medicine*, provides integrated health and social care to elderly patients. A great number of elderly patients get ulcers that cannot easily be treated and require a lot of repetitive care with a high level of attention to detail. Previously, patients often had to transport themselves to the hospital, where doctors visited them and then instructed a nurse on how to treat the ulcer. Today, the nurses go to the homes of the patients and use web-care records and video links to communicate with the doctors only if necessary, bringing the expert to the home of the citizens as needed. This digital welfare approach enables better management of professionals' time - for example reducing the time doctors spend on unnecessary visits and improving the nurses' efficiencies in attending patients - as well as transportation time for citizens, which ultimately results in ulcers healing faster, and better overall services.

Digitalisation is a key enabler for robust social expenditure oversight, allowing governments to ensure two-way controls and enhanced accountability of service quality and value for money. By improving data management and leveraging new data processing techniques, countries are trying to better tailor welfare benefits. For instance, in India, digital technologies have facilitated a more citizen-driven approach to the auditing of the social assistance programmes of Old Age Pensions, Widow Pensions and Disabled Pension schemes, which is traditionally focused on detecting improper payments to ineligible persons in pension schemes. India's Supreme Audit Institutions has actively invested in data

analytics and leveraged external data to verify whether eligible beneficiaries were excluded, resulting in a performance audit that was considerably more thorough, insightful and oriented towards the needs of the vulnerable groups in question (OECD, 2017b). Similarly, France is using *data mining* to identify and fight fraud in family allowances and social benefits, leading to a 56% increase in fraud detection in 2014 (CAF, 2015).

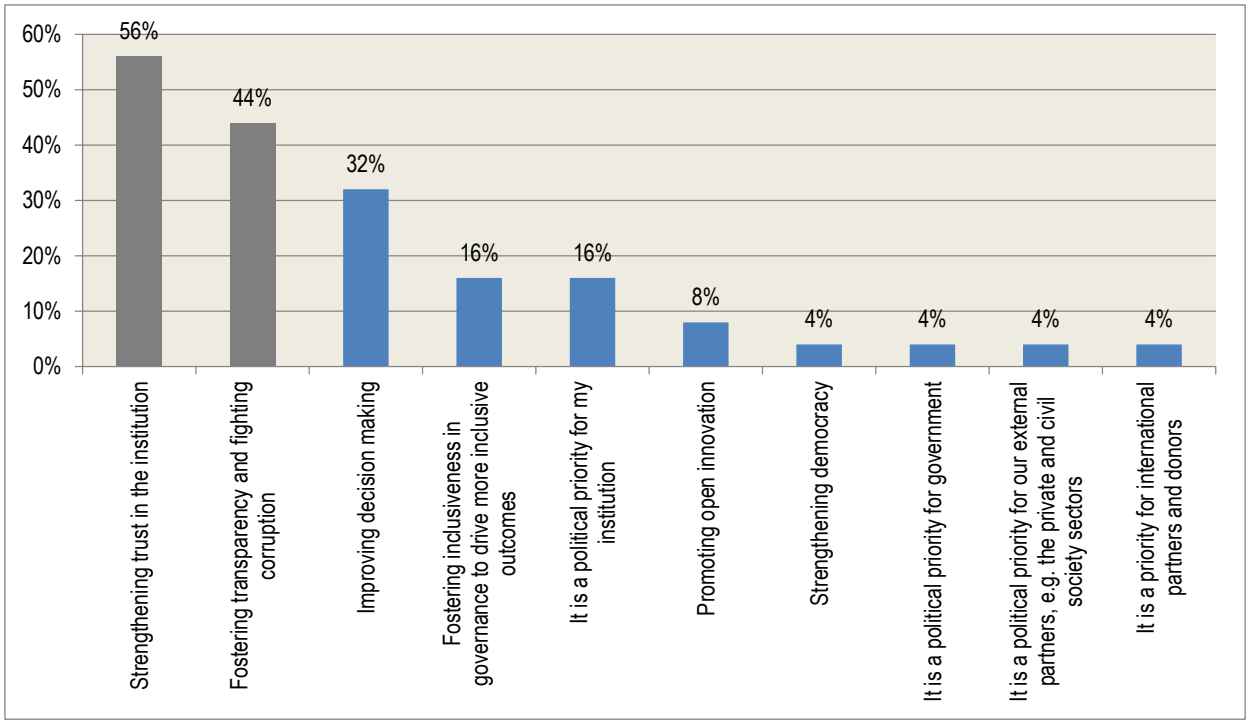
Cine para Todos (Cinema for Everybody), in Colombia, is an initiative developed by the Colombian Ministry of Information and Communications Technologies in partnership with the Foundation Saldarriaga Concha and Cine Colombia that aims to provide new forms of entertainment to individuals with a disability using new technologies. To achieve this, an app has been developed that users can benefit from while watching the film. It includes an accessibility menu that provides different watching options based on the needs of the users. The app allows the visually impaired to access a more complete narrative of the film that provides more context of the scenes, including the environment, colours or movement that take place. This more adapted narrative provides for a more complete experience, making it easier to follow the story. Similarly, subtitles and sign language are made available for those suffering from some form of hearing impairment.

Source: OECD (2016b), "Digital Government Strategies for Transforming Public Services in the Welfare Areas", OECD, www.oecd.org/gov/digital-government/Digital-Government-Strategies-Welfare-Service.pdf; OECD (2017b), "Going Digital: Making the Transformation Work for Growth and Well-Being", report for the Meeting of the OECD Council at Ministerial Level, Paris, 7-8 June 2017, www.oecd.org/mcm/documents/C-MIN-2017-4%20EN.pdf; CAF (Caisse d'Allocations Familiales) (2015) "Lutte contre la fraude: les Caf améliorent leur detection" *CAF.fr blog*, www.caf.fr/vies-de-famille/accident-de-vie-precarite/difficultes-financieres/lutte-contre-la-fraude-les-caf-ameliorent-leur-detection (accessed on 17 January 2017); MinTIC (2017), "Cine para Todos", webpage, www.mintic.gov.co/cineparatodos.

Using digital technologies to enhance transparency and accountability in government

Considering the arguments advanced in the introductory section of this chapter, it is unsurprising that the main reasons driving the efforts to promote openness in Moroccan public institutions are to strengthen public trust, improve transparency and fight corruption (see Figure 3.6). Given the opportunity provided by new technologies to enhance the traceability of government activities and to incorporate controls into the very architecture of government's systems, digital government has become an increasingly important policy area when it comes to efforts to fight corruption.

Figure 3.6. Main reasons to promote openness in Moroccan public institutions



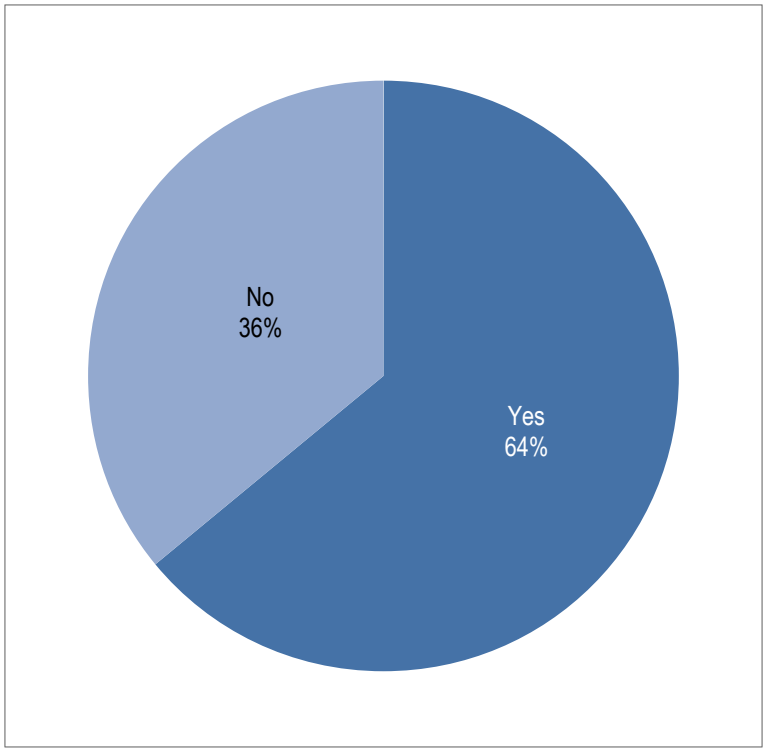
Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

When asked about existing strategies to fight corruption at the agency level, 64% of Moroccan public entities claim they have an institutional strategy to fight corruption (see Figure 3.7). All of these institutional strategies include digital government components or activities. These mostly seek to promote transparency, advance accountability and efficiency in procurement and public financial management and facilitate the disclosure of and access to public information, as well as report corrupt behaviour (see Figure 3.8).

These initiatives play an extremely important role in modernising the Moroccan administrative apparatus, instilling in citizens a greater sense of rights and entitlement with relation to the public administration and holding public authorities to higher standards of transparency and integrity. There is still, however, significant room for improvement.

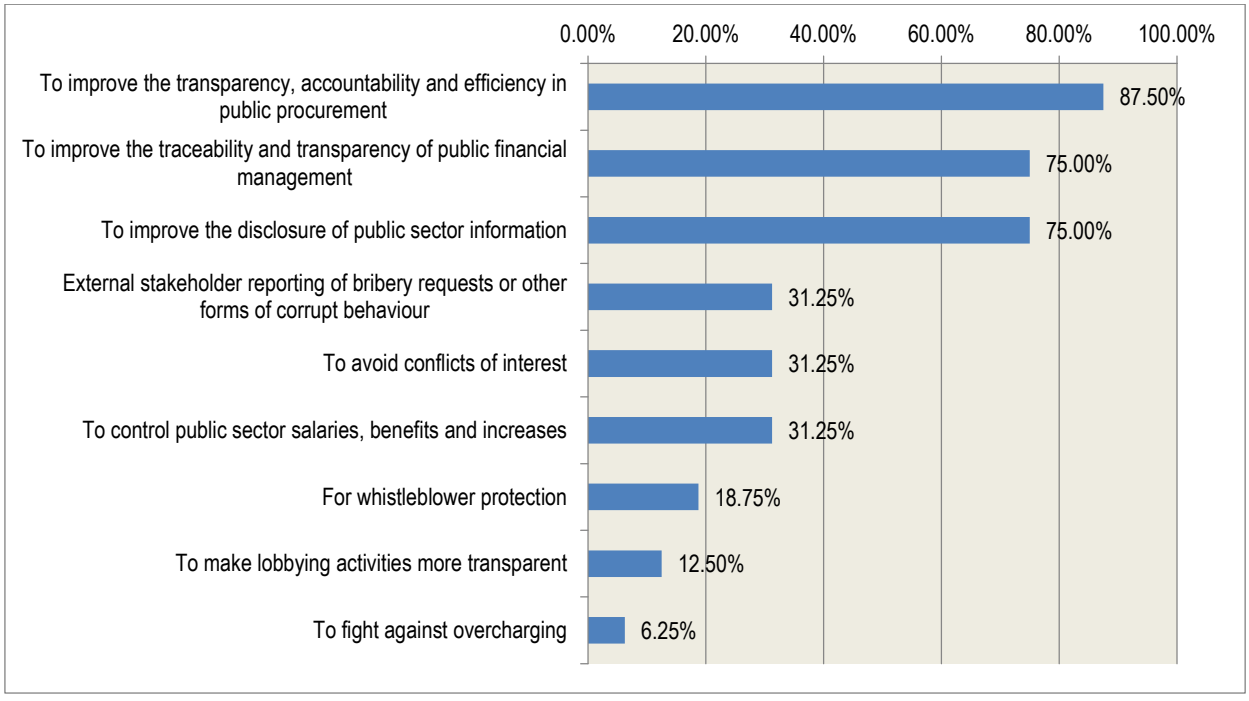
There seems to be untapped potential in the strategic use of data to strengthen accountability and data-driven innovation to improve public sector performance. Transparency and accountability should go beyond enhanced traceability or standard access to information procedures. Access to public information and data enables journalists, audit institutions, the justice system, civil society, the business sector and academia to monitor government performance and activities (Ubaldi, 2013; G20/OECD, 2017). The proactive publication of public sector information and data has been linked to good governance.

Figure 3.7. Percentage of Moroccan public institutions with a strategy to fight corruption



Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

Figure 3.8. Use of digital technologies to fight corruption at the institution level in Morocco



Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

There's documented experience of the potential of using open procurement data and analytics to identify collusive behaviour or lock-in by suppliers (Fazekas and Czibik, 2017). Opportunities for improving social control and public spending performance through the use of open data has led several G20 countries to adopt the Open Contracting Data Standard, thus proactively disclosing data of the whole procurement process in open formats. Morocco has yet to develop the full potential of open government data (OGD) to deliver economic, social and good governance value.

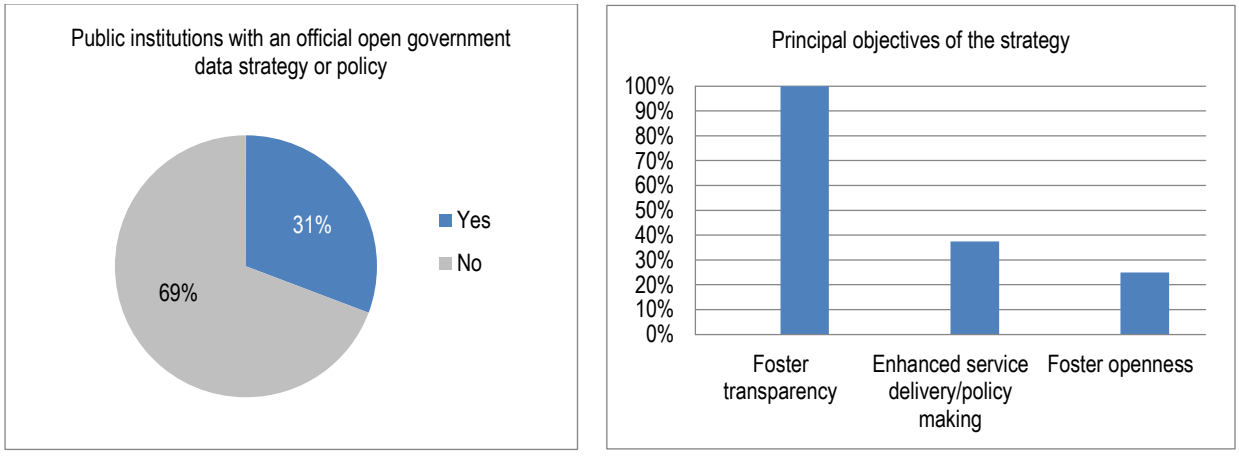
The untapped potential of open government data

While the Government of Morocco has set up an open government data project and portal, it does not have a clearly defined open government data strategy or policy for the central government (OECD, 2015b). This situation is similar to that of other MENA countries, such as Jordan, Lebanon and Tunisia (OECD, 2017c). The absence of a supporting policy framework has prevented a faster development of the open government data supply, culture and ecosystem. Launched in 2014, the national open data portal contained merely 134 datasets at the moment of drafting this report, 21% of which were Word documents, PowerPoint presentations or portable document formats (PDFs). There were no APIs (application programming interfaces) available in the portal to support the development of apps and software.

APIs are important as they enable access to data sources and determine how these can be accessed and processed, which allows data consumers to build new solutions using the data. For instance, it is such services that make it possible for a mobile app to retrieve the postal codes it needs to find a specific location.

The OECD survey that captured data on digital government implementation across the Moroccan public administration shows that only a minority of Moroccan public institutions report having an institutional strategy or policy for open government data (31%). Those that do have a strategy or policy, overwhelmingly see open data as a tool to foster transparency (100%), whereas other objectives such as partnering with internal and external stakeholders for enhanced service delivery and policy making or fostering openness are only considered at a distant second and third place (38% and 25%, respectively) (see Figure 3.9).

Figure 3.9. OGD strategies or policies in Moroccan public institutions



Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

Insufficient awareness of the potential offered by open government data and a vibrant data-driven innovation ecosystem have prevented open data policy from evolving from an ad hoc initiative to a strategic policy lever for public sector modernisation. Open government data is one of the most illustrative components of the digital transformation of the public sector. It enables the government to act as a platform that brings together the state, the private sector, civil society and academia as part of a collaborative ecosystem that co-creates value and services (see Box 3.3).

Box 3.3. Enabling central open government portals as collaboration and data-creation platforms

France

The French national open data portal[1] enables data prosumers to directly contribute new datasets to the portal. In order to publish open data (datasets, APIs, etc.), data contributors are requested to fill out an online form that collects information related to data licensing, granularity, a description of the overall data content, etc. The French open data portal also enables data prosumers to publish and showcase examples of open data reuse (OGD or not) and to monitor the use of the datasets they publish. In addition, the French government used the portal to launch the Base Adresse Nationale project, which is a multi-stakeholder collaboration initiative aiming to crowdsource a unique national address database fed by the data contributions from private, public and non-profit organisations.

Finland

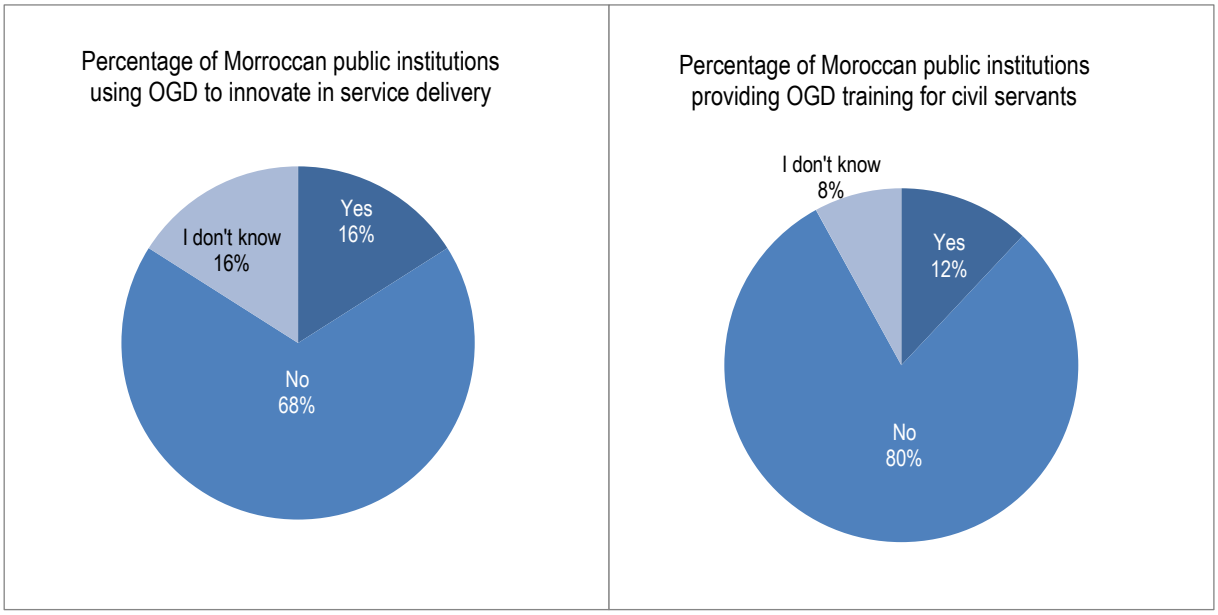
In Finland, the national open data portal[2] has been enabled as a platform where citizens can publish open data and interoperability tools (i.e. guidelines to ease the interaction between users' datasets and other data formats or platforms). Users are required to register on the portal in order to publish datasets. As in France, uploading open data on the Finnish portal requires filling in an online form where users can provide a detailed description of the data. This description includes, for instance, information on the data's licensing model (i.e. Creative Commons), data validity timeframe, etc. Users can also browse the profiles of other users using the portal, to explore their activity and the datasets that other users have published. The portal also provides users with the possibility to subscribe to specific organisations in order to receive updates on new datasets, comments, etc.

1. www.data.gouv.fr/fr/
2. www.avoindata.fi/fi

Source: OECD (2016c), *Open Government Data Review of Mexico: Data Reuse for Public Sector Impact and Innovation*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264259270-en.

In the absence of a central strategy or policy to increase the availability and accessibility of open government data, or promote its reuse, a number of efforts and good initiatives have started to sprout. However, these initiatives have burgeoned as isolated efforts, lacking the coherence and co-ordination required to offset the absence of a more robust policy framework. For instance, only 16% of public institutions report the use of OGD to create innovative services and only 12% have provided OGD training to civil servants (see Figure 3.10).

Figure 3.10. OGD initiatives in Moroccan public institutions



Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

As a consequence of this situation, Morocco is missing out on the opportunities offered by OGD to create a dialogue between the public institutions and data consumers within and outside of the public sector about how best to tackle public challenges and progressively build a culture of openness in the public sector. Morocco is missing the value creation of that OGD can provide (see Box 3.4). To reap the benefits of OGD as a means to foster transparency, accountability and public engagement and participation, Morocco may need to concentrate its efforts in securing the necessary political support and resources for OGD, build a common vision with well-defined strategic objectives and invest in public sector capabilities to engage with the public, collect, disclose, process and manage data strategically.

Box 3.4. Open government data: What value?

Open government data (OGD) initiatives, and in particular the development of OGD portals, have proliferated since the mid-2000s both at the central and local government levels in OECD member and non-member countries. OGD can be used to help the public better understand what the government does and how well it performs, and to hold it accountable for wrongdoing or unachieved results. Increased data transparency provides the basis for public participation and collaboration in the creation of innovative, value-added services.

However, how does a government move from increasing transparency to creating public value? While many accountability and good governance objectives can be served by releasing aggregated data, boosting economic growth may require specific datasets to be released to the business community or apps developers at a more granular level data, in a timely manner and updated regularly to diffuse them widely and rapidly in order to create business opportunities. Likewise, on a

personal level, OGD, and in particular data smart disclosure (i.e. the timely release of data in standardised, machine-readable formats in ways that enable users to make better decisions about finance, healthcare, energy or other personal contexts) empowers citizens to take more informed decisions that can enhance the quality of their lives.

Stakeholder involvement can allow for a better understanding of the context of public demand (e.g. users' needs in terms of data, timeliness of updates, formats) and to craft appropriate strategies that support higher use given the specific context (e.g. prioritise data based on the desired objective, adjust data supply to the needs). As a result, higher and more sustainable value creation can be generated. The real value of OGD is realised when there is interest and the capacity in reusing data exist. Finally, universal participation is essential to reap the value of OGD. Everyone should be able to use, reuse and redistribute without discrimination against fields of endeavour, persons or groups as only these conditions enable real universal participation. For example, "non-commercial" restrictions that would prevent "commercial" use or restrictions of use for certain purposes (e.g. only in education) limit the openness of information.

Source: Ubaldi, B. (2013), "Open Government Data: Towards Empirical Analysis of Open Government Data Initiatives", *OECD Working Papers on Public Governance*, No. 22, OECD Publishing, Paris, http://dx.doi.org/10.1787/5k46bj4f03s7-en.

Building a user-driven administration in Morocco

The digital transformation of the public sector refers to a shift in the focus of government operations to better serve citizens. The implementation of e-government called for the use of technology to improve the efficiency of procedures established in the analogue government era with awareness of the need to move from government-centred to more user-centred approaches in the deployment of technology, with a stronger focus on users' needs. A wide number of services were redesigned and their performance enhanced.

Today, however, user-centred approaches have lived to show their shortcomings. Top-down assumptions of what users need and prefer are bound to miss important dimensions of the experience and have proven to be insufficiently reactive and responsive to adapt quickly in a rapidly changing environment. The digital transformation aims to bring a more radical change in how government operates and policies and services are designed. It shifts the centre of gravity from the government to the citizen. As such, it aims to re-engineer the government machinery and architecture to make it more responsive to citizens' demands and aspirations. The digital transformation is to a large extent about regaining citizens' trust by bringing them into the decision-making process and enabling them to drive decisions about the supply and ecosystem of public services as well as the policies, processes, business models and infrastructure that underpin them.

Such a fundamental shift relies on the establishment of an open dialogue between the public, private, civil society and academia sectors, which provides for a rapid flow of ideas around policy issues and the constant improvement of public sector performance, creating spaces for collaboration and co-creation. To be effective, digital transformation requires the government to significantly increase its ability to capture feedback, process it and adapt to the new digital environment.

This new context demands more than ever that public sectors become more flexible and adaptable, thus overcoming traditional ways of working, which are often slow, risk adverse and excessively hierarchical. This has translated into the digital fragmentation of the public sector and lack of interoperability between systems. Developing business models that cut across silos calls for new organisational arrangements for the digital transformation of the public administration, that restructure government operations around users' needs (see Chapter 2).

In search of greater flexibility, countries like the ***United Kingdom*** have opted for the "Government Cloud" as a means to make the use of technology more adaptable and customised to organisational needs. Brown, Fishenden and Thompson (2014) offer that one of the greatest advantages offered by cloud computing is that it allows for more dynamic relationships in the supply chain and more straightforward ways to look at infrastructure costs (thus reducing uncertainty in service delivery costs). The straightforward cost structure allows governments to better estimate costs for each organisation and delivery approaches. In addition, these costs are flexible and tailored to each organisation's or service workload and can be cut back once restructured. Cloud computing is thus illustrative of the level of flexibility truly digital organisations demand. Yet, while the economic argument for the use of cloud computing in the public sector may be straightforward, a number of other concerns are raised, in particular, those covering the governance of the data, ownership and potential for service lock-in, all of which must be looked at with care.

The need for greater agility, flexibility and adaptability touches all stages of digital government policy making and technology deployment. Digital government projects are opening up from stage one, trying to understand user needs to formulate projects, and are being developed and delivered using agile and iterative approaches to arrive at the best outcomes (see Chapter 4). Agile and iterative approaches enhance flexibility.

The most advanced OECD countries have turned to open standards in information and communication technology (ICT) commissioning and development as a means to respond to users' needs, ensuring flexibility and interoperability in public software, data and documents. Developing standards and their specifications in a fair, transparent and collaborative way, enables the public sector to move away from captures by software suppliers while gaining market support, enabling greater competition and containing costs. In addition, open standards support software flexibility and continuous evolution based on changing user needs.

Similarly, the use of open source software and collaborative development platforms (such as GitHub) has become more widespread. Open source software helps avoid supplier lock-in in proprietary solutions and allows the public sector to nurture and leverage an ecosystem of developers to build and improve their own solutions or reuse existing applications, thus limiting the chances of bugs and errors in technology deployment. The publication of code, however, needs certain precautions, such as the implementation of cybersecurity configurations.

Last but not least, the uptake of cloud computing and open source and standard approaches can help generate uptake of strategic approaches that the government wishes to push across the administration (e.g. open by default), and can facilitate increased reuse and sharing of resources and solutions, thus fostering a culture of sharing and collaboration across the administration. The United Kingdom has developed a short set of standards for digital services (see Box 3.5) applicable across the public administration.

Box 3.5. United Kingdom's Digital Service Standard

The Government of the United Kingdom, through the Government Digital Service in Cabinet Office, has put in place a set of 18 criteria known as the Digital Service Standard. All public facing transactional services must meet the standard to be approved for public use. The high-level criteria are listed below, and more detailed information can be found at the link in the source.

1. Understand user needs.
2. Do ongoing user research.
3. Have a multidisciplinary team.
4. Use agile methods.
5. Iterate and improve frequently.
6. Evaluate tools and systems.
7. Understand security and privacy issues.
8. Make all new source code open.
9. Use open standards and common platforms.
10. Test the end-to-end service.
11. Make a plan for being off line.
12. Make sure users succeed the first time.
13. Make sure user experience is consistent with GOV.UK.
14. Encourage everyone to use the digital service.
15. Collect performance data.
16. Identify performance indicators.
17. Report performance data on the Performance Platform.
18. Test with the minister.

Source: Government of the United Kingdom (n.d.), "Digital Service Standard", GOV.UK Service Manual, webpage, www.gov.uk/service-manual/service-standard (accessed on 9 February 2018).

The Government of Morocco is taking steps towards more user-driven approaches. For instance, in 2011, the Ministry of Industry, Investment, Commerce and the Digital Economy launched the website Fikra – http://fikra.egov.ma/ - to crowdsource ideas about projects to simplify services and the public administration. The website allows users to monitor the progress of their proposals, the support they gain, whether it has already been assessed by the administration, planned or underway, or the project idea is already operational. This tool empowers citizens and allows them to see the concrete effect of their ideas on how the administration works. However, the number of users remains relatively low (3 406 at the time of the drafting of this report). This tool has the potential, however, to significantly change how citizens relate to their administration, which would deserve proactive efforts to promote its use and upscale the project, similar to what Colombia and Latvia have been attempting with their own participation platforms (see Box 3.6 for more details).

Box 3.6. Leveraging digital technologies to empower citizens in OECD and partner countries

Latvia: Leveraging ICTs to bring citizens' voice to Parliament

In 2011, Latvia launched "Mana Balss" (My Voice), a social initiative platform that allows citizens to present finished legislative initiatives and garner support for them. The platform has an integrated secure voter identification mechanism that allows all Latvian citizens over 16 years old to provide legally recognised support to legislative initiatives of their preference. When these initiatives achieve 10 000 signatures and fulfil legal criteria, the initiative is submitted to Parliament for discussion.

Colombia: Creating more accountable and participatory governance

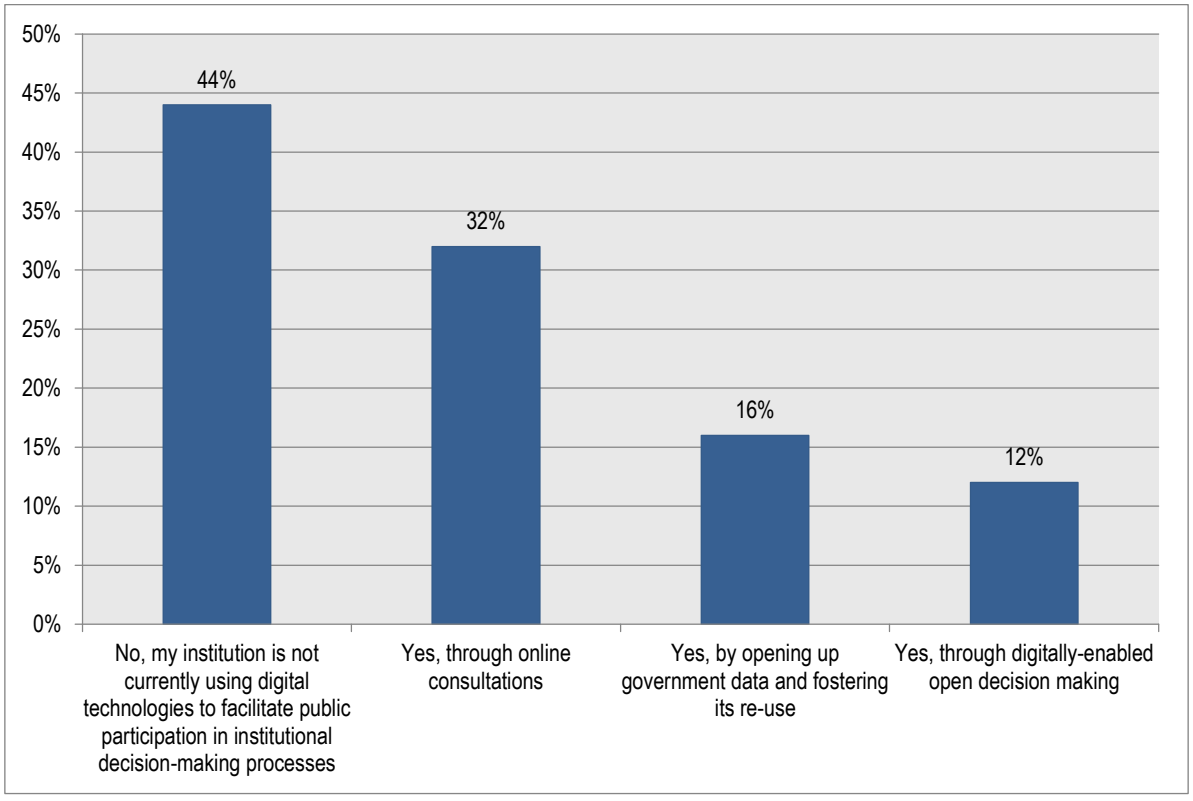
"Urna de Cristal" is a Colombian government engagement and transparency platform. The platform allows citizens to 1) learn about government results, progress and initiatives; 2) communicate to government entities their concerns and proposals; 3) interact and learn about the state's administration.

With the creation of Urna de Cristal, Colombia has taken a concrete step in building the capacity of its government to rethink public engagement using online delivery channels. This initiative, as well as more general use of various social media channels by government officials and departments, have seen favourable levels of public engagement, which is particularly impressive considering some of the unique challenges in Colombia, such as poverty, low levels of trust in government and public institutions, and a political environment still only aspiring to move into a post-conflict era. The relatively strong performance of Colombia's online citizen engagement has been recognised by international indicators. For example, Colombia scores very high on the UN E-Participation Index at 11th overall, with a score of 0.8823.

Source: OECD (2016a), "OECD Digital Government Toolkit", website, www.oecd.org/governance/digital-government/toolkit/.

Despite such innovative initiatives, the Moroccan public administration has numerous areas for improvement on the path to digital transformation of the public sector. Only a minority of institutions is using digital platforms to enable external stakeholders to participate in public decisions (see Figure 3.11) and as few as 36% of Moroccan institutions monitor user satisfaction with digital public services (see Figure 3.12). The lack of widespread use of feedback loops and user research prevents the emergence of more tailored and convenient services that respond to citizens' expectations. In certain cases, institutions report having offline complaint management systems whose results are assessed on an annual basis. Assessing user feedback with a year of delay risks being not reactive enough for today's rapidly changing environment.

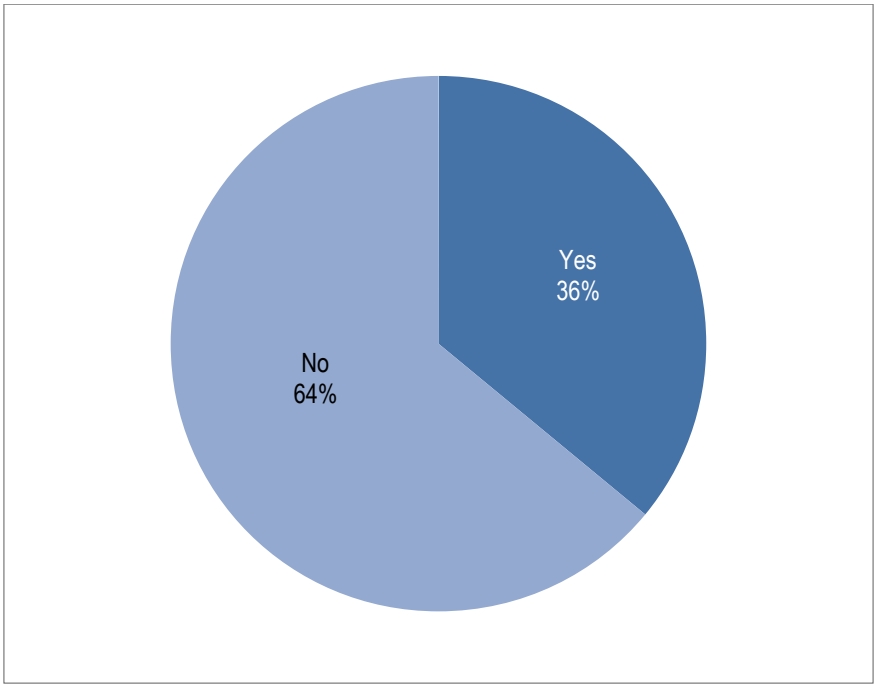
Figure 3.11. Moroccan public institutions using digital platforms to enable participatory decision making



Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

Figure 3.12. Moroccan public institutions measuring user satisfaction with digital government services

Response to question: Does your institution measure user satisfaction with digital government services?



Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

It is ultimately about the culture

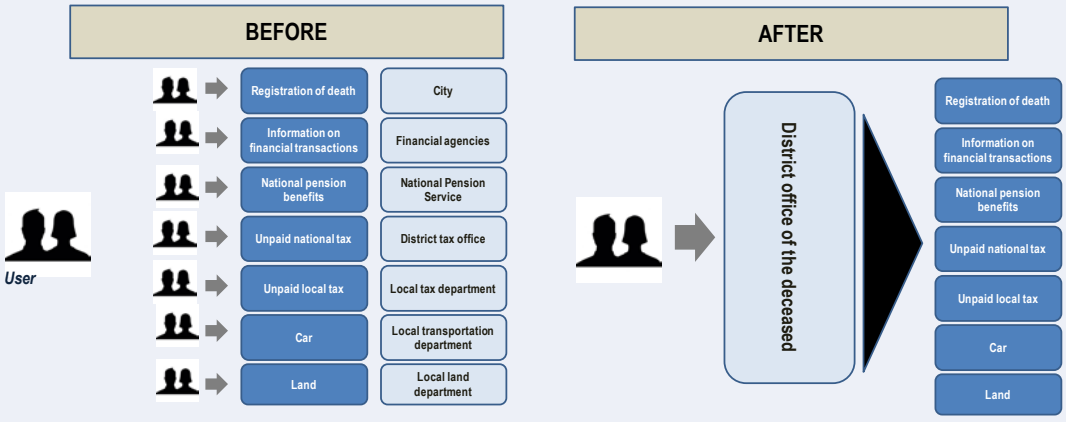
Digital government is ultimately about changing the culture of the public administration much more than it is about technology. It is about setting up a culture that can support the transformation of processes and systems to provide better services and make life easier for citizens, regardless of whether services are accessed through digital means or physical access points. Without this cultural transformation, digital government is used as a buzz word that disguises the application of digital technologies over traditional procedures and structures. Putting the same complex forms on line while the administration continues to misunderstand the user, and public systems continue to be fragmented, is not digital government.

As previously mentioned, digital government is about shifting the centre of gravity of the administration, empowering citizens and about reorganising the way public services function. This is why it is revolutionary, but also why implementing it is hard and produces so much resistance to change. It is about focusing on outcomes, rather than the processes that have been in place for decades, and about moving away from functional business units, silos and fiefdoms to restructure service delivery around citizens' needs and preferences (Brown, Fishenden and Thompson, 2014). For example, it is taking a life event and planning the services around the user experience of it (see Box 3.7).

Box 3.7. Transforming service delivery in Korea

Korea is widely recognised as one of the most advanced countries when it comes to digital and user-driven public administrations. It has achieved this by putting a strong focus on the user's journey and experience and carrying out a comprehensive implementation of a life-events approach.

As an illustration of this, the figure below represents the transformation of the administrative procedures required by heirs when confronted with the death of their parents. Prior to the integration of systems, the mourning heir had to complete seven different procedures: register the death at his/her local government, provide information on transactions to financial agencies, pay national and local taxes and complete the transfer of car and lands. These administrative burdens made the mourning even more burdensome. Today, these procedures can be completed with a single form thanks to the integration and interoperability of systems.

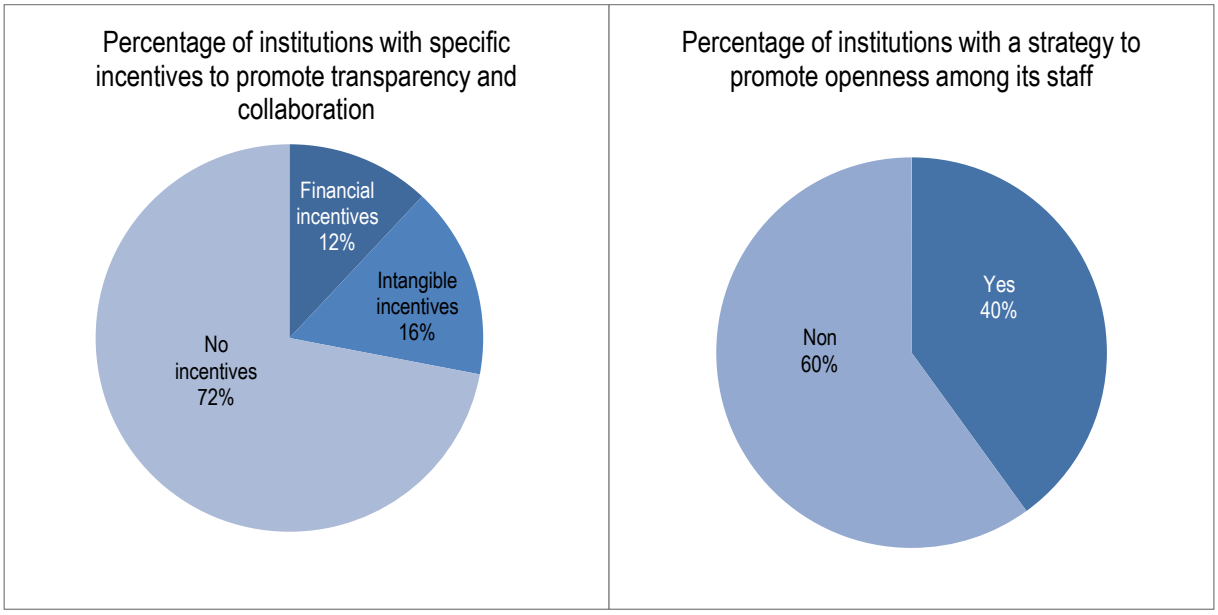


Similarly, today new parents can automatically apply for a wide variety of birth-related welfare services using a single form when registering the birth of the newborn. This is a tangible example of how services can be reorganised around the user's needs by cutting across traditional silos and areas of responsibility.

Source: Ministry of Interior of Korea (2017), "Presentation at the OECD-MENA Working Group II on Open and Innovative Government", Dubai, United Arab Emirates, February 2017.

All in all, the data suggest that more can still be done to promote a digital and open culture in the Moroccan public sector. Figure 3.13 identifies the current state in the public sector. Becoming a digital government is about changing the mindset. To become the backbone of a digital and user-driven administration, the Moroccan civil service must be capable and incentivised to develop the right instincts and reflexes, including working constructively with external stakeholders and, first and foremost, putting the citizen first (see Chapter 4 for more details on skills for transformative civil service in the digital age).

Figure 3.13. Promoting a culture of openness and collaboration in the Moroccan public sector



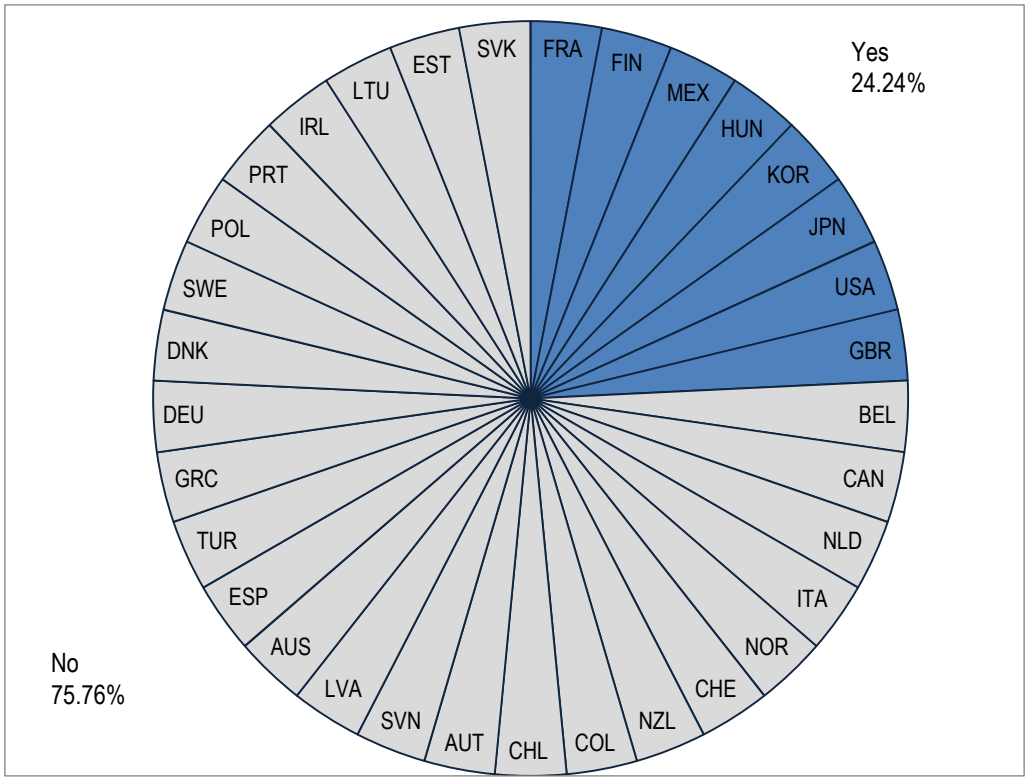
Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

Data as the basic infrastructure for service delivery transformation

The OECD Recommendation on Digital Government Strategies calls for the development of a data-driven culture in the public sector. Implementing truly user-driven approaches requires the Moroccan public administration to recognise the value of data as a strategic asset. Indeed, the ability to collect, produce and process massive amounts of data to draw insights and identify trends is a core characteristic of new digital organisations and business models. It is only by leveraging data from traditional and alternative sources that the public administration can gain a better understanding of users' needs, continuously improve its performance and engage external stakeholders in public value creation.

The recognition of the value of data as a core element of the digital transformation and the opportunities data opens to enhance policy making and service delivery has led trendsetter countries to pay greater attention to data policy. Countries like ***France***, ***Korea***, ***Japan***, ***Mexico***, the ***United Kingdom*** and the ***United States*** have all established a chief data officer or chief data scientists to help the public administration extract the most value out of existing data (see Figure 3.14). They are also usually charged with the development of the public sector's data and analytics capability, maximising the impact of existing data, streamlining data management practices and identifying and filling data needs in the public sector. Other advanced countries, such as ***Denmark***, have established authorities responsible for developing data policy, even if not at a C-suite level.

Figure 3.14. OECD and partner countries with central/federal government chief data officer



Source: OECD (2014), "Survey on Open Government Data".

As data becomes the most valuable resource of the digital economy and one of the fundamental building blocks on which digital government relies, the Government of Morocco has yet to develop a governance framework for public sector data, a specific policy for government data or to proactively seek to build data capabilities across the public sector.

Australia provides a good example of a country that aimed to develop a comprehensive, government-wide programme to prepare its public sector to seize the opportunities of a data-rich environment to support public sector productivity and performance. The programme focuses its short-term efforts on securing the government's leadership support, setting up the programme's governance structure and making strategic partnerships, building public sector capabilities and opening up valuable datasets. Midterm objectives strive to set up a robust, yet simple, policy and governance framework for public sector data, favouring data sharing and reuse, building public trust and fostering public sector data-driven innovation (for more details, see Box 3.8).

Box 3.8. Strategic management of data in the Australian Public Service

In 2015, the Australian Public Service launched the Public Sector Data Management Project after a commissioned study was made public the same year. The report highlighted the strategic value of data and how its sound management and use can lead to better public services and policies as well as greater public sector performance. It also underlined that the private sector's reuse of public data could support economic growth enabling companies to seize new business opportunities offered by the digital and data-driven economy.

The roadmap of the Public Sector Data Management Project comprised an initial phase of six months and aimed at building confidence and momentum. It included the following activities based on the report's recommendations:

1. Secretary and Prime Minister & Cabinet (PM&C) signals data is a priority for the government.
2. Commission several high-value projects.
3. Build external partnerships.
4. Publish readily available non-sensitive datasets.
5. Build data and analytics capability.
6. PM&C co-ordinates projects and progresses in APS data policies and governance (covering Recommendations 7-8).

In parallel, ongoing activities would be developed over a timeframe of 18 months to systematise the use and release of public sector data. These activities included:

7. Implement a data policy framework that includes:
    - a public policy statement
    - a simple governance model for data policy
    - a requirement for evidence-based policy.
8. Build and maintain public trust.
9. Establish an integrated model for sharing integrated data.
10. Create and publish a searchable whole-of-government data catalogue.
11. Develop a Commonwealth Government high-value dataset framework.
12. Publish data management standards.
13. Establish a consistent and transparent approach to user charging.
14. Create a legislative environment that supports data use while maintaining privacy, building on a possible Productivity Commission enquiry.
15. Promote innovation in the public administration.

Source: Department of the Prime Minister and Cabinet (2016), "Public Sector Data Management: Implementation Report", www.pmc.gov.au/sites/default/files/publications/Implementation-Public-Sector-Data-Management-Report_0.pdf.

Addressing cyber risks to secure trust in digital government

The breadth of opportunities brought about by the digital revolution does not come without its challenges. Broad segments of the population in OECD and MENA countries remain concerned with the use of their personal data by private and public sector organisations. Security breaches in government's information systems and critical

infrastructure undermine citizens' trust in government's ability to lead the digital transformation and reduce their willingness to use digital means to interact with government. The fact that no digital systems are perfectly secure adds to the concern. Nevertheless, remaining analogue in a digital world is not a viable alternative. The benefits of new technologies and the costs of not adopting them are too overwhelming.

Still, while remaining off line is not an option, how governments go digital makes a difference. The OECD Recommendation on Digital Government Strategies calls for a risk management approach to tackle digital security and privacy issues and the adoption of effective and appropriate security measures (Principle 4). This requires the evaluation of potential vulnerabilities in critical information systems and infrastructure and the thorough understanding of potential security and privacy issues in the development of new solutions.

Since 2011, Morocco proactively sought to strengthen its cybersecurity capabilities. The General Direction of Information Systems Security (Direction Générale de la Sécurité de Systèmes d'Information, or DGSSI), established in 2011 within the Administration of National Defence, is responsible for the government's cybersecurity policy. The DGSSI launched a national strategy for cybersecurity in 2012 and also manages Ma-CERT, the Moroccan Computer Emergency Response Team which was initially set up by the Ministry of Defence in 2011. The DGSSI also oversees the implementation of data sharing and digital signature regulations, making sure projects and solutions comply with security and data protection policies, which can include certifying devices for creating and verifying electronic signatures and the certification of service providers.

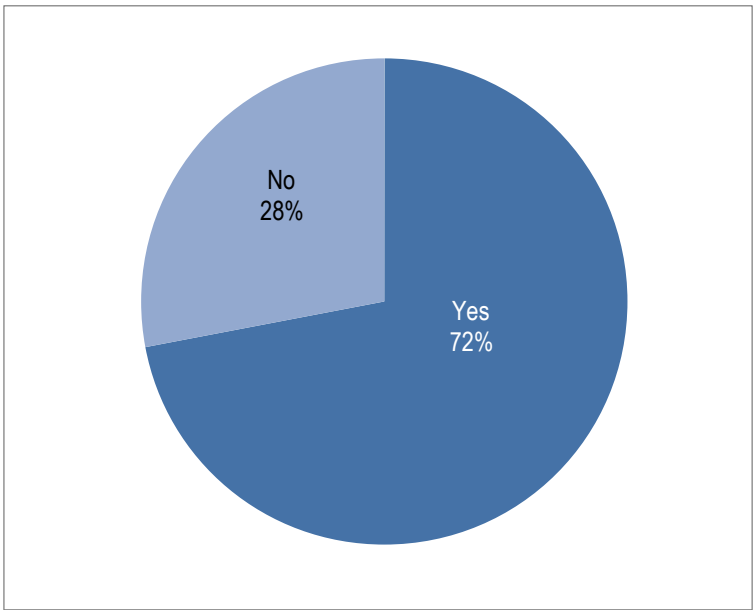
The national cybersecurity strategy lays out four priority axes:

1. the assessment of risks of information systems in the public administration, public institutions and critical infrastructure
2. the protection and defence of information systems supporting public administrations, public organisations and critical infrastructure
3. strengthening of the foundations of digital security: legal and regulatory framework, awareness, training and R&D
4. the promotion and development of international and national co-operation.

These four axes are aligned with the message and spirit of OECD best practices and standards as established in the OECD Recommendation on Digital Government Strategies and the Recommendation on Digital Security Management for Economic and Social Prosperity (OECD, 2015c). The relevance of this policy area has been widely recognised by the administration, leading a majority of public institutions to develop institutional strategies of their own (see Figure 3.15). The first years of the DGSSI have been dedicated to strengthening the policy framework for cybersecurity and the institutional capabilities of the DGSSI and Ma-CERT.

Figure 3.15. Percentage of Moroccan public institutions with a strategy to manage cyber risks

Responses to the question: Does your institution have a strategy for managing cyber risks in terms of information systems' security and privacy violation?



Source: OECD (2017a), "Survey to Moroccan public institutions on digital government", unpublished.

Morocco may benefit from concentrating future efforts in strengthening the capabilities of the overall administration to contribute to cybersecurity efforts and objectives, including the continuous assessment of existing systems and infrastructures. In addition, the institutional framework for cybersecurity policies could be bolstered to improve the administration's ability to co-ordinate and implement cybersecurity policies. Currently, ministries, departments and subnational governments are not required to have senior information risk owners or chief security officers. Neither are they required to have in place operational centres of cybersecurity that can manage the daily operations, lead information systems assessments and improvement projects. Such an approach should be developed and deployed based on institutional capabilities, resources and systems' risks and exposure. The government could also consider alternatives such as shared resources and services.

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Chapter 4. Delivering the benefits of the digital transformation across Morocco in a context of regionalisation

This chapter examines the potential of digital government for regional development in a context of rapid uptake of digital technologies by Moroccan citizens and businesses. The chapter considers the ongoing implementation of the decentralisation and regionalisation reforms and the opportunities and risks they pose to governmental efforts to bring digital dividends across the territory. The chapter discusses how to enhance co-ordination and collaboration across levels of government and proposes an assessment on key basic enablers required to bring about the digital transformation of the territorial administration of the country. The chapter closes with an evaluation of the institutional capabilities of the public sector to implement digital government across Morocco and a consideration of useful strategies to strengthen such capabilities in the short and long terms.

Introduction

Citizens across Morocco are rapidly adopting digital technologies, due to growing access to infrastructure and a significant reduction in costs of devices and services, in particular for mobile phones. Indeed, the adoption of mobile technologies has been the main driver of greater connectivity and access to services such as the Internet. Today, almost all Moroccans own a mobile phone (99.4%), and 50.2% of Moroccan households access the Internet through mobile phones (Observatoire des Technologies de l'Information, 2016). Morocco has thus become a society of growing connectivity, where individuals can increasingly be reached on the go and can progressively access services remotely.

However, a closer look shows that underlying dynamics are more complex. The urban-rural divide remains stark, a self-reinforcing phenomenon that increasingly concentrates people and income around cities. This context brings very specific and contrasting policy challenges to urban and rural areas. High demographic concentration in urban areas puts a strain on public services and poses a series of logistical and organisational challenges to ensure citizens' well-being. The lack of scale and quality of public services in rural areas makes it harder to bring digital dividends to citizens in such regions, or to craft strategies that modernise public services and production processes in rural communities.

Morocco has enacted a series of decentralisation and regionalisation reforms that aim to make the public administration more responsive to the specific needs of their own communities. These reforms are expected to strengthen the role of subnational governments in public governance, service delivery and public investment. As such, the Government of Morocco would benefit from increasingly considering this dimension as part of its public sector modernisation strategies. This is particularly true for digital government, a policy area where much of the benefits come from its coherent implementation across policy sectors and levels of government, as highlighted in Principle 6 of the OECD Recommendation of the Council on Digital Government Strategies.

The purpose of this chapter is to highlight the opportunities offered by digital technologies to modernise the territorial administration of the country, enhance public sector performance across levels of government, and most importantly improve public service delivery and development outcomes for all Moroccans. In doing so, the chapter will consider the main challenges and risks in using digital technologies effectively across administrative levels.

This chapter will first provide an overview of the digital and socio-economic context of the Moroccan territory and advance a general introduction to Morocco's decentralisation and regionalisation efforts. This overview will be followed by an assessment of how the new policy context poses co-ordination risks and challenges for the effective implementation of digital government across the entire territory. The chapter will close by assessing the existence of basic enablers and institutional capacities to ensure the effective transformation of Morocco's territorial administration.

The socio-economic and digital context across the Moroccan territory

Moroccan regions suffer from an outstandingly unequal distribution of economic dynamism and growth, and most importantly an uneven distribution of their associated benefits for the country's population. By way of illustration, the Great Casablanca Region, which barely covers 0.23% of the territory and hosts 20% of the population,

produces around 30% of the country's gross domestic product (GDP) (United Nations, 2015). Despite the general downward trend in poverty rates, it is still six times higher in rural areas (9.6%) than in urban regions (1.6%) (Haut Commissariat au Plan, 2016). In general, economic activity is broadly concentrated across the Atlantic coast and urban regions.

Even though data shows an irrefutable trend towards the reduction of inequality in living standards across regions, the convergence process seems to be too slow and weak to be complacent. The Haut Commissariat au Plan (HCP) estimates that at the current rate it would take 24 years to cut regional disparities in half (Haut Commissariat au Plan, 2016). A closer look at internal dynamics in each region provides a more comprehensive picture of the distribution of economic benefits in Moroccan regions. Casablanca-Setta, Souss-Mass, Marrakech-Safi and Béni-Mellal-Khénifra experienced reductions in the Gini Index, a standard measure for income inequality,[1] whereas in other regions inequality has stagnated (Tanger-Tétouan and Al Hoceima) or worsened (Rabat-Salé-Kenitra and the south of the country) (HCP, 2016). However, these trends, positive or negative, risk being overwhelmingly upended by the disruptive effects of new digital technologies.

The digital transformation of economies and societies is expected to substantially transform production models of goods and services, patterns of social interaction and, as a consequence, the way government operates and interacts with its constituents. Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, suggests in a recent book that current technological trends will give way to a new industrial revolution, unique in its speed, scope and complexity, and characterised by exponential growth in productivity (Schwab, 2016). These changes will dramatically reshape the economic landscape, which will have far-reaching implications for development policies. The dividends of digitalisation will likely not be evenly distributed across countries, regions and cities. Factors such as the level of technological maturity, the quality of their infrastructure, the stock of skilled workers, and the existence of an enabling legal and regulatory framework will all help determine who will be the winners and losers of the 21st century economy. The drastic changes brought about by the digital revolution will redefine the tools and understanding of economic development, reshape economic incentives and the conditions of competitive advantage in global value chains.

The Government of Morocco has correctly recognised the strategic relevance of the digital transformation in its *Maroc Digital 2020* strategy, which aims to make of Morocco a regional digital hub. The objective is to make digital technologies a driver of economic growth and development, opening new economic opportunities for Moroccan citizens and businesses. Indeed, the strategic use of digital technologies by governments is expected to enhance public sector performance and support the creation of more competitive institutions.

Yet, unleashing the full potential of the digital transformation to deliver its expected benefits to all individuals across the Moroccan territory will require that the country overcome significant structural challenges. Morocco still struggles with low literacy rates (71.7% of the population in 2015, compared to an 80.8% average for the whole MENA [Middle East and North Africa] region in 2010 [UNESCO Institute for Statistics, 2017][2]), and a share of the population does not have access to new technologies, such as the Internet. This is particularly true in rural areas, where 39.8% of the Moroccan population lives. While Morocco has also seen a trend towards greater urbanisation, the country hosts a much larger percentage of the rural population than most OECD countries (the

average OECD rural population stands at 19.7% [World Bank, 2017]), a share that is also slightly above the average for MENA countries (35.8%).

The most recent survey on household and individual use of information and communication technologies (ICTs) of the Moroccan Observatory of Information Technologies (ANRT, 2017) reveals that 68.5% of Moroccan households had access to the Internet in 2015 (up slightly from 66.5% in 2015) and 95% of individuals between 12 and 65 years old are mobile phone users (90.7% in rural areas). While the number of mobile phone users has remained relatively stable since 2014, the dynamic growth in the uptake of smartphones has been an important driver of broader access to the Internet, particularly in remote and rural areas. The number of individuals owning a smartphone rose from 38.2% of the adult population in 2014 to 54.7% in 2015 (a 43.2% growth rate) to then 67% in 2016. This means that as of 2016, two-thirds of all mobile phone users own smartphones. The most significant growth was seen in rural areas, which rose from 42.5% to 56%, a 27% growth rate. As of 2016, 26.6% of the rural population state that they own a computer or tablet, which means a far higher percentage of the population is embracing mobile technology. By way of illustration, 89.4% of the rural population uses their mobile to access the Internet.

These encouraging trends first highlight the positive outcomes of government efforts to reduce digital divides, particularly in the form of an enabling regulatory framework for telecommunications after the privatisation of the market and the creation of the Universal Service Fund.[3] Second, these trends also speak to the power of the rapid diffusion of mobile technologies. Just as more convenient and affordable mobile technologies allowed a considerable share of the Moroccan public to jump directly into mobile technologies, thus avoiding the installation of a fixed landline and saving government and operators valuable resources in the form of unnecessary infrastructure investments, mobile technologies are rapidly enhancing the access to the Internet. Indeed, 2015 data shows that 50.2% of Moroccan households have access to the Internet through mobile phones, whereas only 16.3% through fixed Internet connections, such as ADSL or Wi-Fi (Observatoire des Technologies de l'Information, 2016). This trend is opening new channels of communication between the public administration and Moroccan citizens.

Nevertheless, current digital divides are still wide by OECD standards, where 76.9% of the population are Internet users on average, leaving considerable room for improvement and suggesting that Morocco would benefit from doubling down on initiatives for digital inclusion. A majority of the households not having access to the Internet cite the "lack of knowledge or skills to use the Internet" as one of the obstacles preventing them from acquiring access (56.4% of these households), immediately followed by the costs of equipment (33.9%) and the costs of the service (30.1%). Digital skills that are increasingly relevant in today's labour market are still scarce. Only 13.1% of the Moroccan population over five years old is able to use spreadsheets, 8.9% know how to use presentation software, and a mere 1.6% knows how to code. These skills shortages will represent an important obstacle in ICT-driven productivity and Morocco's ambition to become a digital hub for the region. The experience suggests that the inability to create inclusive growth and well-being for the whole country in the age of the digital economy may result in growing territorial fragmentation and social unrest.

Socio-economic and digital inequalities across Morocco's regions have significant implications for modernisation efforts in territorial public administrations. Shortages in technical and organisational capabilities, as well as insufficient financial resources and inadequate administrative culture in the public sector, all limit the subnational

government's ability to use innovative technologies in strategic ways to foster regional development in this new economic context and create public institutions that are more responsive to users' needs. Despite these challenges, since 2011 Morocco has experienced significant efforts to enhance subnational government's capacity through a series of decentralisation and regionalisation reforms, aiming at making the public sector more balanced in its investment across the territory and more responsive to citizens' demand for more and better services. Before moving on to analyse how digital government can enhance public sector performance in this context, the following section will describe Morocco's decentralisation and regionalisation efforts.

Regionalisation: A new policy context

Moroccan regions were created in 1971 as administrative and consultative circumscriptions of limited resources, attributions or capabilities. They were only granted the status of local authority in 1996, with the objective of giving them a greater role in the economic and social development of their territories. Yet, their autonomy was relative given that they operated in a context of relatively weak financial autonomy and highly centralised state operations. Subnational governments' expenditure in Morocco amounts to 12% of total public expenditure or 3.7% of GDP. By comparison, the OECD average stands at 40% of public expenditure and 17% of GDP, and the world average is of 24% and 9% of GDP respectively (OECD/UCLG, 2016).

The 2011 constitution of Morocco, however, became a landmark in the reorganisation of Morocco's territorial administration, entering a new phase of its regionalisation policy. The constitution explicitly states that the territorial organisation of Morocco is "decentralised, based on an advanced regionalisation". The subnational levels of government include the regions, the prefectures (in urban areas) or provinces (in rural areas), and the municipalities. Each administrative level is composed of an authority that represents the central government (deconcentrated authority), as well as from directly elected councils and their presidents (decentralised authority; for more details see Table 4.1).

Table 4.1. Territorial organisation of Morocco

Administration level	De-concentration (Representative of the central government)	Decentralisation
Regions	**Wali** Ensures the effective implementation of laws, regulations and administrative decisions of the central government, administrative control and oversight of regions	**President of the Regional Council (Elected by the Regional Council)** Adopts economic and social development plans for the region, environmental protection and vocational and professional training
Prefectures and provinces	**Governor of Prefecture or Province** Ensures the effective implementation of laws, regulations and administrative decisions of the central government, administrative control and oversight of prefectures or provinces	**President of Prefectural or Provincial Council (Elected by the Council)** Responsible for prefectural or provincial economic and social development plans, road maintenance and public transportation
Municipalities	**Pacha (urban) or Caid (rural)** Ensures the effective implementation of laws, regulations and administrative decisions of the central government, administrative control and oversight of municipalities	**President of Municipal Council (Elected by the Council)** Responsible for urban planning and development, water and sanitation

Source: OCDE (2017a), "Quelle Gouvernance pour un territoire métropolitain compétitif?", unpublished document.

De-concentrated authorities of the central administration are responsible for ensuring the effective implementation of laws, regulations and the government's administrative decisions in its areas of responsibility. In addition, these representatives of the central government carry out administrative control and oversight of decentralised authorities. In turn, decentralised authorities are charged with elaborating and implementing the economic and social development plans of the territories under their responsibility. More specifically, regions are tasked with regional economic and social development, environmental protection and vocational and professional training. Prefectures and provinces are responsible for road maintenance and public transportation, whereas municipalities are charged with urban planning and development, as well as water and sanitation.[4] At the regional level, a number of responsibilities and missions are shared with the central government, including building and maintaining hospitals and schools, investing in infrastructure and delivering a wide variety of social services.

The 2011 constitution establishes the principle of subsidiarity, which states that all activities should be carried out by the administrative level that is best equipped to most efficiently and effectively perform them. The administrative organisation of these tasks should always thrive to be carried out at the closest possible level to citizens. This entails that an important number of activities has been transferred to subnational authorities, as described in the organic laws of decentralisation of July 2015. In particular, the role of regions in the economic and social development has been strengthened as a result. The constitution also mandates that all transfer of responsibilities be accompanied by a transfer of financial resources. It is for this reason that the subnational governments' share of total public investment is expected to grow in the coming years.

The overall rationale of these reforms is to bring the public administration closer to its citizens and make public policies and services better tailored and more agile, but most of all, more responsive to citizens' and businesses' needs and priorities.

Digital transformation and regional development in Morocco

Demographic and economic trends should bring policy makers' attention to two outstanding policy challenges of our time. First, the growing concentration of economic activity and benefits in urban zones has progressively eroded economic opportunities in rural areas. This phenomenon requires that policy makers think carefully about how to increase productivity and enhance living standards in rural areas in order to ensure more balanced and homogeneous development outcomes. This will necessarily include enabling mechanisms for faster dissemination of digital technologies and techniques to modernise both production process and public services in remote areas that have so far been less exposed to the digital revolution, thus avoiding greater territorial fragmentation.

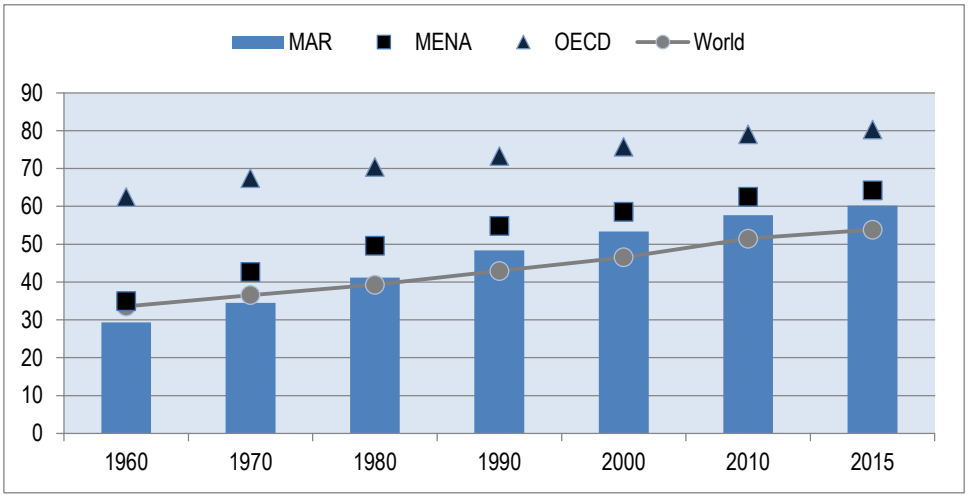
A second policy challenge, related to the first, is the growing urbanisation of the population. Indeed, rural populations have been migrating to urban areas in search of new opportunities. This is a worldwide phenomenon, which has led to the emergence of some of the most important innovation hubs in human history. Indeed, certain cities have become outstandingly competitive economic centres thanks to their superior infrastructure, a high concentration of skilled workers and unique economies of scale. Yet, this trend has also put incredible pressure on public services, city governance, urban environmental hygiene, public safety and security, and the overall well-being of its population.

This section will assess how digital technologies and the transformation of subnational governments can contribute to ensuring an adequate response to these challenges in Morocco, ultimately creating a favourable environment for the regional development in the country, keeping in mind recent decentralisation reforms.

The digital transformation as a driver of smart city governance

In the last five decades, Morocco has experienced a rapid demographic transformation marked by the accelerated growth of its urban population. In 1960, the urban population of Morocco stood at 3.3 million people. By 2014, that number had already multiplied by six, reaching 20.4 million urban dwellers, growing at twice the pace of the national population, which rose from 11.6 million in 1960 to 33.8 million in 2014. This trend is partly explained by economic disparities between urban and rural areas and is consistent with broader global trends (see Figure 4.1).

Figure 4.1. Urban population as a share of total population



Source: World Bank (2017), *World Development Indicators* (dataset), http://data.worldbank.org/data-catalog/world-development-indicators.

These trends translate into both new opportunities and challenges. The new demographic landscape has made cities the most important drivers of world economic growth. Indeed, cities not only host 54% of the world population, but their economic activity accounts for an estimated 80% of the world's GDP (World Bank, 2015). As previously mentioned, the economic output of the Great Casablanca Region alone represents around 30% of the country's GDP. Cities are also a major driver of consumption. Estimates indicate that urban areas account for 60-80% of world energy consumption and nearly 70% of greenhouse gas emissions (UN-Habitat, 2016). By concentrating talent and resources as never before in human history, these trends and pressures have turned cities into dynamic innovation hubs able to achieve important economies of scale and enhanced productivity (OECD, 2013; Fujita, Krugman and Venables, 1999). This phenomenon has made of cities an increasingly important level of governance.

Yet, such drastic demographic changes do not come without challenges for the public administration. To reap the benefits of urban economic potential, city governments must create adequate living conditions for their citizens to enhance their productivity and well-being. This will, in turn, allow cities to become more attractive for skilled individuals,

which allows for greater flow of ideas, cross-fertilisation and innovation. However, the rapid growth of urban populations has put enormous strain on public services and city government's capability. Modern cities require more sophisticated urban planning and technical capabilities to optimise the use of resources and energy in ways that respond to user's needs in sustainable ways. This also entails more efficient transportation systems, greener environments, and better water and sanitation systems.

While cities are confronted with outstanding challenges, new digital technologies open new and unprecedented opportunities to reinvent cities, enabling novel and smarter governance arrangements to support more sustainable and innovative urban areas. The process of creating smart city governance requires investment in new capabilities and tools. Indeed, as cities grow in size and complexity, policy makers will need an improved toolbox for intra-city level policies and services (Andersson and Wernberg, 2016).

Tools like the Internet of Things and new, increasingly affordable sensors are allowing cities to capture real-time data on pollution levels and health, energy consumption, land use, climate, traffic and urban mobility. Coupled with increasingly sophisticated data-processing techniques, such as big data analytics, machine-learning algorithms, and artificial intelligence, cities are drawing insights to enhance transportation and energy efficiency, health care and education enhancement, and data-driven urban planning. Such approaches allow for more accurate and effective foresight capabilities in already stretched urban services. They also allow for greater public safety through better monitoring of public spaces. These approaches allow for the emergence of data-driven public sectors and drive public sector intelligence for smarter governance arrangements.

Moroccan cities currently lack the technological maturity or resources to effectively use such tools. The digitalisation of public services has barely started, and critical registries and archives are still paper-based. Yet, cities in other emerging economies have shown how they can leapfrog in this regard by partnering with the central government, international organisations, the private sector, academia and other development partners.

For instance, the Pulse Lab Jakarta is an initiative that aims to create capabilities in the Indonesian public sector to use innovative data-driven techniques to inform policy making. This initiative is supported by the UN Global Pulse and includes UN staff, the Ministry of National Development and Planning (Bappenas), the Ministry of Health and the Ministry of Communication and Informatics. The Pulse Lab Jakarta focuses on key strategic and impactful initiatives to improve evidence-based decision making that will garner political support (see Box 4.1). In addition, the lab regularly organises thematic data innovation days and training with civil servants to highlight the potential of using big data and other innovative data sources and techniques that can deliver better policy outcomes.

Box 4.1. Pulse Lab Jakarta: Mining citizen feedback data for decision making

The Pulse Lab Jakarta performed a feasibility study on the use of crowdsourcing as a tool to provide real-time data to local governments to support decision making. The UN Global Pulse summarises the project:

> "This feasibility study used crowdsourcing to track commodity prices in near real-time in areas where the availability of other data sources was limited. High resolution and high-frequency food price trends were derived from reports generated by 'citizen reporters'. The study was conducted in Nusa Tenggara Barat, one of Indonesia's poorest provinces, comprised almost exclusively of informal, cash-only markets and stalls. The study involved recruiting a trusted network of local citizen reporters to submit food price reports via a customised mobile phone application. The tested crowdsourcing method could be improved by developing a standardised approach to the 'bunch measurement' of staples so that it could be effectively deployed in locations where standardised weights and measures are absent. Crowdsourcing technologies, which capture high-frequency data on local trends, are best deployed in areas where traditional data collection methods are difficult or costly due to a lack of geographic proximity, high insecurity or high food price volatility."

Source: OECD (2016), "Digital government as an enabler for open government in Indonesia", in *Open Government in Indonesia*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264265905-8-en and United Nations Global Pulse (2015), "Feasibility Study: Crowdsourcing High-Frequency Food Price Data in Rural Indonesia", case study, www.unglobalpulse.org/projects/high-frequency-food-price-data-indonesia.

Cities such as Casablanca that are preparing to roll out smart city initiatives could establish a chief data officer (CDO) and look to build similar partnerships with the central administration and other stakeholders. As the municipality of Casablanca enhances its digitalisation efforts, they could be done in such a way that lay out the foundations for the emergence of data-driven cities by developing the key data infrastructure and architecture, as well as the internal data capabilities.

It is important to highlight, however, that the digital transformation of city governments is as much about new forms of partnering with external stakeholders as it is about transforming internal processes. Indeed, more educated and connected citizens expect to have a greater say in public decisions, especially those that directly impact their lives, such as the organisation of public services. New technologies have become an important driver of more participatory forms of governance. By facilitating the participation of external stakeholders in tackling public issues, digital participation contributes to collective intelligence processes and facilitates the emergence of innovative solutions. Yet, Moroccan cities have been slow to adopt these tools.

As of 2016, most Moroccan cities, including Casablanca, the most important urban economic hub, had no online consultation platform, nor an open government data strategy or platform. Urban areas in Morocco would benefit from policies aimed at nurturing their

urban public innovation environments and promoting more inclusive forms of governance. A critical component, and potentially the most important challenge for smart city initiatives in developing countries, is the creation of enabling conditions, and in particular, setting up the appropriate ecosystem. The establishment of such an ecosystem requires strong, structured and coherent efforts to build trust across social sectors, to create institutional capacities, to overcome strong wage differentials between the public and private sectors and to establish formal mechanisms that support equal opportunity, talent and innovation. Mexico City provides a great example in this regard. Its continuous investment in the urban ecosystem, developing the city's digital and data-driven innovation, and engaging with external stakeholders, has already started to deliver results, progressively improving the quality of life of its citizens (see Box 4.2).

Box 4.2. Hacking insecurity in Mexico City

Taxi service in Mexico City is an unpredictable proposition. Criminals often use vehicles camouflaged to look like licensed taxis to rob customers, with as many as 400 taxi robberies reported in 2013. Passengers have as a result preferred to opt for more expensive transport services. Mexico City's innovation lab, "Laboratorio para la Ciudad", has developed an innovative app using open government data to help tackle taxi users' security concerns. This app allows users to enter the license number on the side of the car or snap a photo of the cab's license plate. The app will then cross-reference with city data to determine whether it is a registered taxi. The app also includes a button that automatically alerts the police department in case the user runs into trouble.

Source: OECD/IDB (2016), "Digital government", in *Broadband Policies for Latin America and the Caribbean: A Digital Economy Toolkit*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264251823-15-en; Arana, A. (2014), "In Mexico City, an 'experimental think tank' for a city and its government", *Citiscope*, http://citiscope.org/story/2014/mexico-city-experimental-think-tank-city-and-its-government.

Leveraging digital technologies for regional and rural development in a digital age

While the potential of digital technologies to enhance productivity and improve social outcomes has been directly experienced in urban areas, bringing the dividends of this new technological revolution to rural areas has been a pervasive challenge, particularly in developing countries. Building the necessary infrastructure is costly, and the sparse distribution of the rural population makes returns on investment hard to ensure. In addition, poor education infrastructure makes for a greater scarcity of the basic skills that support digital competency. As such, infrastructure programmes need to be complemented by digital literacy training and support to make sure that the rural population can make the most of new roads opened by these technologies.

While delivering the benefits to rural areas may be hard, the evidence seems to suggest that carefully planned investments do lead to decisive improvement in outcomes for the communities concerned. In the United States, the research shows that the effect of the diffusion of broadband increased employment rates more in rural areas than in urban ones (Atasoy, 2013). Similarly, greater access to mobile phones induced a boost of 11% in real household consumption between 2004 and 2009 and is associated with a reduction in

poverty of 8% and reduction in extreme poverty of 5.4% (Beuermann, McKelvey and Vakis, 2012). Colombia is addressing the digital divide by not only providing infrastructure, but by providing skills training (see Box 4.3).

Box 4.3. Kioscos Vive Digital delivering digital to remote areas in Colombia

The Government of Colombia is committed to bringing the opportunities of the digital transformation to all of its citizens. However, Colombia covers a large territory (1.142 million square kilometres, nearly twice the size of France), with incredibly diverse geography, which includes the Caribbean and Pacific coastlines, the massive Andes mountain range, as well as the inaccessible and sparsely populated rainforests and inland plains.

To tackle the urban/rural digital divide, the government launched in 2010 the "Kioscos Vive Digital" (Live Digital). These kiosks are located in rural and remote areas and grant distant communities free access to the Internet, phone and other telecommunications services. These facilities also provide citizens with access to training in digital technologies. They also help bring the government closer to citizens by giving them access to digital public services, thus saving citizens from undesirable trips to larger communities to complete administrative procedures. To date, there are 6 885 kiosks in remote communities across the country. This is an outstanding achievement considering the resources that need to be mobilised to install such services in areas with poor access to infrastructure.

Source: MINTIC (n.d.), "Kioscos Vive Digital", webpage, Government of Colombia, www.mintic.gov.co/portal/vivedigital/612/w3-propertyvalue-7059.html (accessed on 9 February 2018).

Most importantly, digital transformation is not a choice. To give an example, agriculture directly accounts for 37.2% of total employment in Morocco. That number is likely higher still if indirect job creation is considered. Yet, the agricultural sector is being transformed by automation, data-driven insights and biotechnology. These changes are driving agricultural productivity in more advanced countries, making low-cost competitive advantage less likely to thrive in years to come. Failure to adjust could have a devastating impact on the Moroccan economy. To thrive in an increasingly competitive global context, all economic sectors and public institutions will have to look for new ways to fulfil their mission.

All levels of government in Morocco, but in particular the central government and the regions should play a proactive role in ensuring that digitalisation materialises as a source of greater well-being for Moroccan citizens through a sound policy framework and proactive initiatives. Digital technologies can be leveraged to enhance the well-being of rural areas through concrete measures in the short, medium and long terms.

In the short term, new technologies can grant rural communities with access to bigger markets and as a consequence improve their income and living standards. Indeed, digital platforms have unprecedented power to connect supply and demand. Good practices in Morocco show these tools can be used to enhance rural productivity and income. Moroccan rural artisans, some of them illiterate (World Bank, 2016), have partnered to set up an online store for their products (Anou) that has attracted customers from all

around the world. This has allowed them to capture a greater share of income by cutting out the middlemen (see Box 4.4).

Box 4.4. Rural artisans and online commerce in Morocco

Anou describes itself as "a community of artisans working together to establish equal access to the free market." By setting up their online shop, they have been able to establish direct relationships with customers, which has resulted in more favourable prices and greater income per unit sold.

The community trains artisans interested in joining the community to enable them to use the Anou platform. The Anou platform is language-free. Using icons and images provides a friendly interface for illiterate artisans. Training is carried out at the artisan's workshop, which allows the community to verify the authenticity of the candidate's work. In this process, new artisans also become familiar with photography and basic online marketing strategies that emphasise the link between the product, the person that made it and the place where it was produced. All pictures are uploaded to the platform by the artisan him or herself. Artisans receive order details through SMS (text message) when a transaction has been made on line, and they use their mobile phones to confirm that the product has been shipped and to provide tracking numbers. A small share of each transaction is set aside to pay for trainers.

Source: Anou (n.d.), "About", webpage, www.theanou.com/about (accessed on 9 February 2018).

Another relevant example can be found in ***Nigeria***, where the government has worked in partnership with mobile operators to use mobile phones to co-ordinate the distribution of seeds and subsidised fertilisers in remote areas through the use of mobile wallets (World Bank, 2016).

Public institutions should play an active role in scaling up and disseminating such good practices to other sectors, including agriculture, working together with the private sector and small farmers to make such initiatives a success.

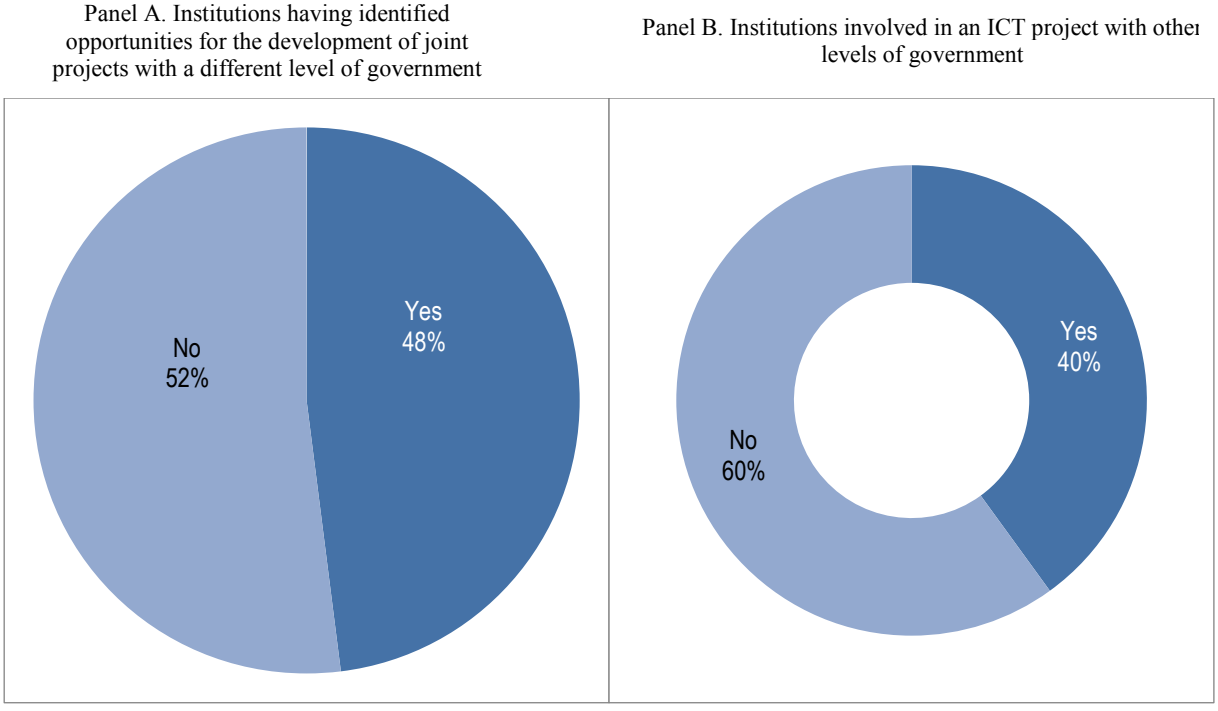
In the longer term, however, these improvements are unlikely to be enough to drive the productivity growth that would make agriculture and other sectors of the economy competitive and sustainable. Large agri-business is making important investments in technology-driven techniques that will deliver greater returns. For instance, large agro-industrial companies have invested in developing large datasets of soil and climate observations that allow them to accurately predict where and when to focus their investments and efforts to ensure a more productive harvest. The Government of Morocco and its regions should play a role as conveners, facilitators and investors to ensure that such tools are available to the Moroccan agricultural sector and that farmers can access such valuable data-driven techniques and insights.

Working better together

As shown in the previous sub-sections, the digital transformation of the public sector can deliver great benefits for both urban and rural areas in the form of greater public sector performance, improved policy outcomes and greater responsiveness to citizens' and

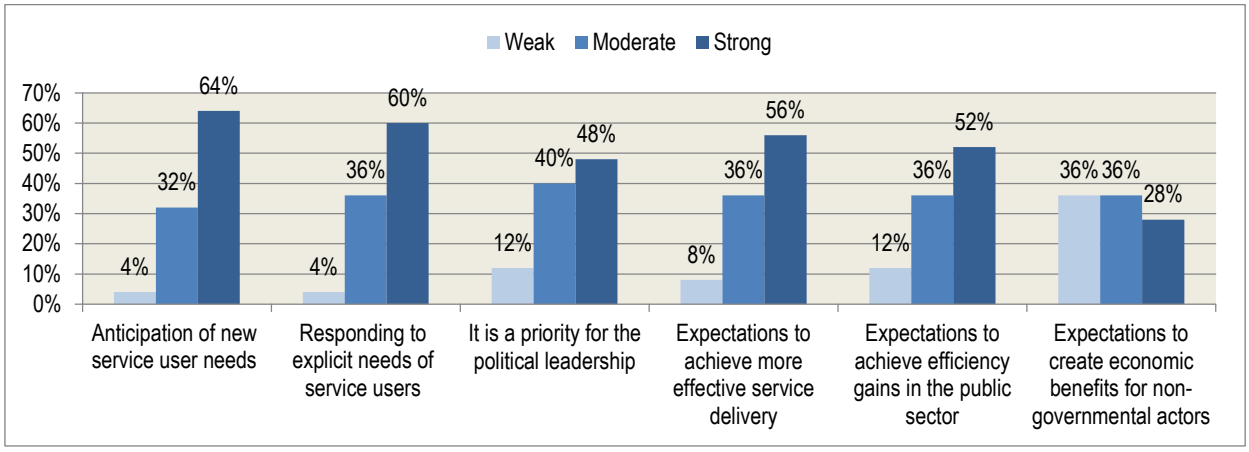
businesses' changing needs. However, the capabilities of regional, provincial and local governments to use technology in sophisticated ways are still limited. In addition, a sound public sector transformation requires some key basic enablers that are best provided by the central government to promote resource sharing and ensure an efficient whole-of-government approach.Both these factors are strong drivers of cross-government collaboration in public sector modernisation and digital government strategies. OECD data shows that as many as 68% of Moroccan public institutions have identified opportunities for the development of joint ICT projects with institutions from a different level of government (see Figure 4.2). Such joint efforts seem to be mainly driven by the desire to better respond to user needs (see Figure 4.3).

Figure 4.2. Opportunities for Moroccan cross-government collaboration in ICT projects



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

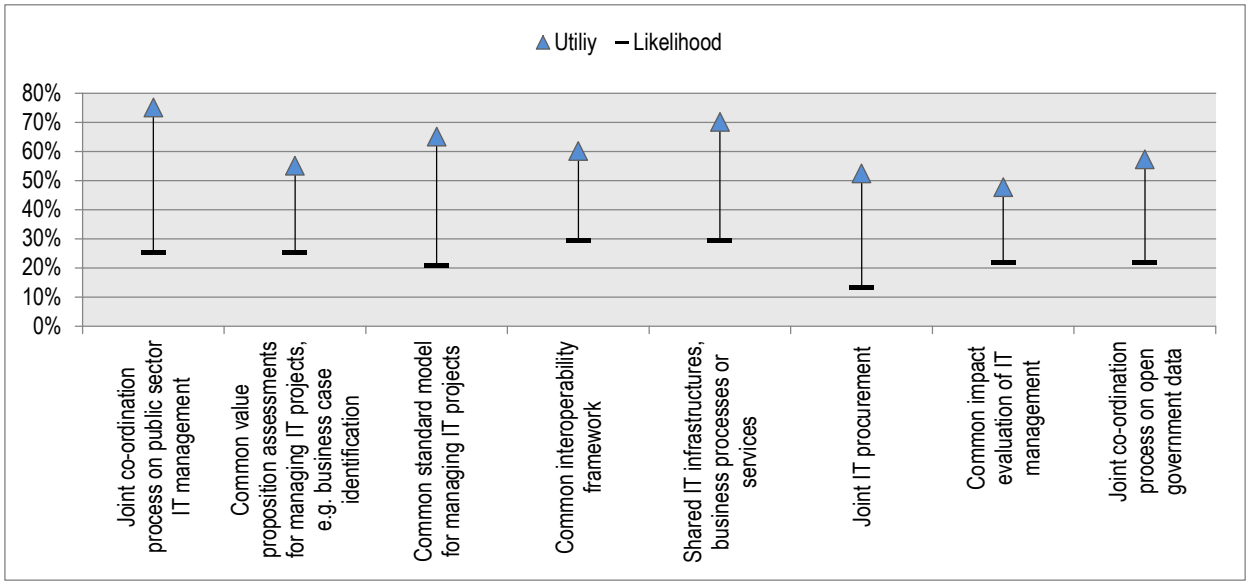
Figure 4.3. Factors driving joint projects and solutions between levels of government in Morocco



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

While Moroccan institutions appreciate the value of some key cross-government digital initiatives and shared ICT resources, these same institutions seem to think that the Moroccan public sector is ill-equipped to make them happen in the near future (see Figure 4.4).

Figure 4.4. Utility of specific shared resources and cross-government initiatives in Morocco and perceived likelihood of their realisation within the next three years



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

The challenges facing Moroccan cities and regions are complex and multidimensional, requiring governance frameworks that facilitate synergies between policies and investments, mitigating the risks for duplication or contradictory efforts. However, such an outcome has become more difficult to achieve. Indeed, the new decentralisation framework has multiplied planning instruments (urban, provincial, regional, national)

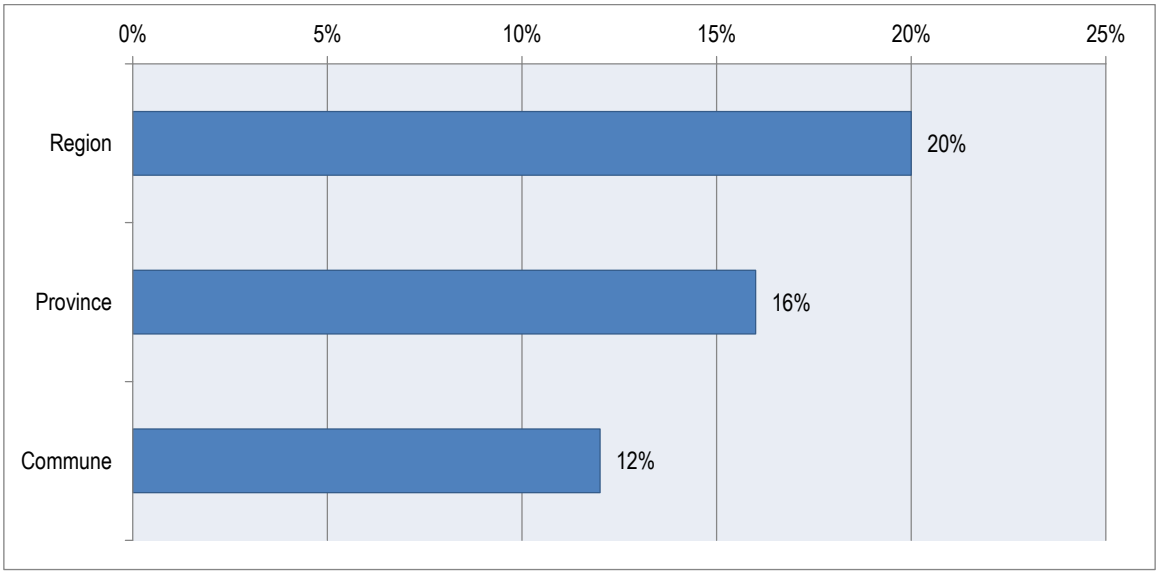
without a clear articulation between them. This may weaken the rationale that territorial development policies will follow, including investments on administrative modernisation and new technologies. It is important to highlight that many of the benefits associated with the use of digital technologies are very much dependent on their coherent use across policy areas and levels of government. Some tangible examples of the benefits of coherent digital government implementation include systems and data interoperability, the achievement of much-needed scale in the use of public sector solutions, the prevention of the unnecessary multiplication of platforms and interfaces, the avoidance of the duplication of investments and the promotion of the reuse of existing solutions.

As such, the digital transformation of Morocco's territorial administration will require coherent policy planning and investment frameworks to align public action. A critical factor contributing to such levels of coherence is the development of a shared vision for a whole-of-government transformation. Such a vision is usually embodied in the country's national strategy for digital government. In 2014, the assessment of the Cour des Comptes on the outcomes of the *Maroc Numéric 2013* strategy raised the point that the regional dimension had been absent from the strategy. And while *Maroc Digital 2020* does foresee the implementation of certain ICT projects to support the digitalisation of subnational governments, these were again kept out of the process of elaboration of the strategy. The exclusion of subnational governments from the process of development and adoption of a strategy raises the risk that the resulting strategy and action plan will not reflect the views, concerns and priorities of subnational actors at a moment where their share of total public sector investment is expected to grow.

Despite newly identified opportunities, few central government institutions currently collaborate or have collaborated with subnational governments on digital government projects (see Figure 4.5). This may change due to the recent adoption of the organic laws relative to decentralisation. Yet, collaboration may benefit from incentives, as well as clear communication and promotion. Most importantly, to drive the digitalisation of the territorial administration of the country, Morocco would benefit from clearer frameworks, planning tools and co-ordination mechanisms.

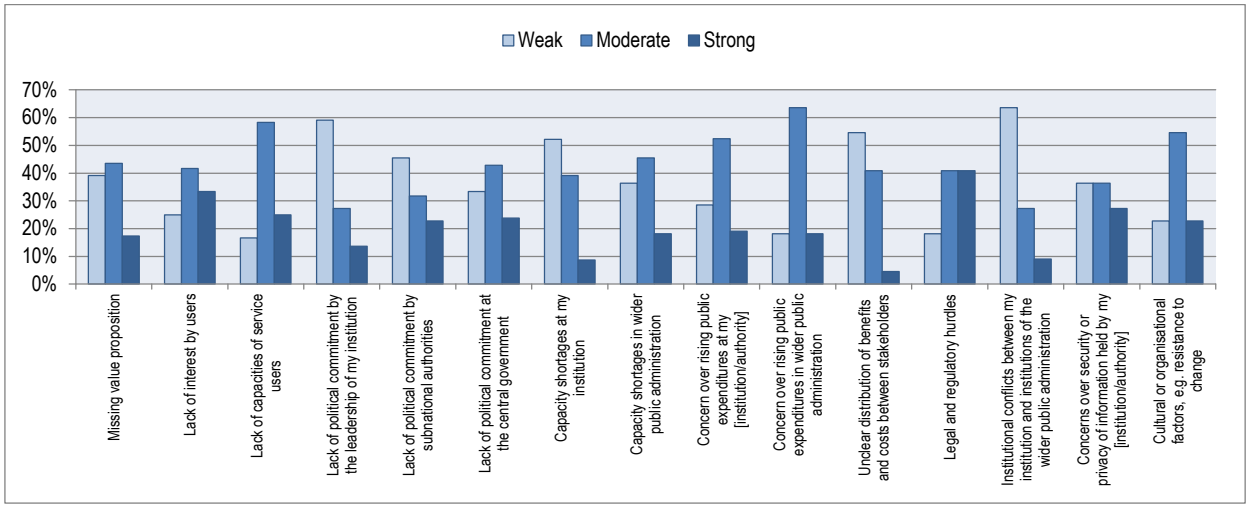
Finally, Moroccan public institutions commonly cite low user capacity, legal and regulatory hurdles, budgetary pressures and resistance to change as important challenges in promoting closer collaboration across levels of government (see Figure 4.6). The following sections will focus on how to strengthen the capabilities of the Moroccan territorial administration through key enablers and shared resources, as well as building capacities within and outside public institutions to use technology and the establishment of common tools to effectively prioritise investments and manage joint ICT projects.

Figure 4.5. Share of Moroccan public institutions that have collaborated, or are currently collaborating, with subnational authorities on ICT projects



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

Figure 4.6. Main challenges to developing joint solutions and approaches across levels of government in Morocco



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

Key enablers for reaping digital dividends at the regional level

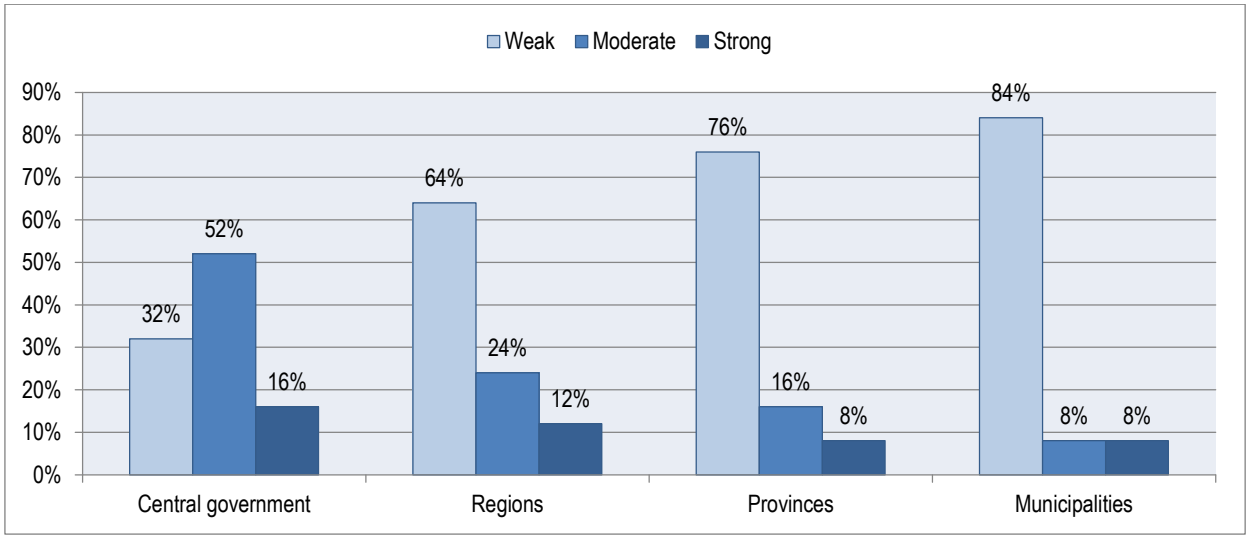
This section will provide a general overview of two key enablers of digital government in the Moroccan public sector: digital identity; and data interoperability and data sharing. These are deemed critical elements for integrated and user-driven approaches in the transformation of service delivery and policy making.

Digital identification mechanisms to support digital transformation

Enabling the digital transformation of the public sector demands reliable digital identification mechanisms that support the enforcement of online legal consent. Such tools also support the development of the digital economy and digital innovation. Secure digital identity tools allow the public sector to confidently establish digital relations with its constituents, accurately determine their individual rights and responsibilities, and increasingly tailor their digital experience and services based on their specific needs. Digital identity is considered a basic infrastructure for the development of digital public services, more efficiently developed at the national scale, rather than having competing solutions across the public sector. This is essential to ensure the digital integration within the public sector that is required for coherent and comprehensive service delivery in the front office. Having a secure and well-established solution that subnational governments can reuse would facilitate the digitalisation of their administrative procedures that would most likely be easier to access and would, therefore, lead to higher uptake by Moroccan citizens and businesses while reducing administrative burdens for economic and social activities.

Morocco currently benefits from a centralised service of digital signature and certificates that allows for the validation of the identity of the stakeholders performing an online transaction or administrative procedure and certifies the integrity of the documents issued. Morocco's post office, Poste Maroc or Barid-al-Maghrib (a state-owned company under the oversight of the Ministry of Industry, Trade, Investment and the Digital Economy) is the only certifying authority for such services. The uptake of these services remains relatively low (see Figure 4.7), in part due to relatively high prices (approximately EUR 60) and a complex procedure to acquire the digital certificates.

Figure 4.7. Assessment of the adoption of digital signature by the different levels of government in Morocco



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

The Government of Morocco may benefit from paying special attention to the modernisation of digital identification and authentication services moving forward, and in particular to bringing down the barriers – both financial and procedural - to entry. In

addition, these services can significantly contribute to a seamless experience of digital public services by moving towards a single digital identity for public procedures. A single digital identity for citizens and businesses provides the technical backbone for the digital transformation of public services. The ability to provide citizens with a single digital identity and personal account drastically enhances the potential for the reorganisation of public services, traditionally structured in ways that reflect more the administrative structure of the public sector than users' needs and life events (see Box 4.5). Access to services can thus be built around the user's needs and expectations, regardless of relatively arbitrary jurisdictional or administrative division of responsibilities. In addition, in the context of Morocco, the development of a mobile ID would enable citizens living in rural areas to complete transactions and procedures remotely, substantially improving the way they interact with the administration.

Box 4.5. Transforming digital service delivery: Life events approaches and mobile identity

Life events approach

The "life events" or "user's journey" approach designs service delivery around the key life events of a user and provides a framework for the government to collect evidence that services are delivered in an effective and fair manner from the user's point of view. First, the key life events of a typical user are selected (e.g. giving birth, graduating from university, or starting up a business). Second, a representative survey identifies how many users have recently experienced a particular life event and how many of them find administrative steps related to this life event complicated (fair, inclusive, etc.). Third, a focus group of users who recently experienced a particular life event goes through a "customer journey mapping" to identify the concrete bottlenecks in service delivery. This approach helps governments to focus resources on the most problematic areas of service delivery, and improve transparency and accountability, especially when done repeatedly.

The life events methodology also has the potential to improve service delivery for disadvantaged groups. In France, for example, this approach has been used to study administrative barriers for recent immigrants. Using the methodology, administrative procedures related to the life event "I am an immigrant (non-EU national)" have been found the most complex of all life events studied. Disabled groups have also been identified as constrained by bureaucracy. Results showed that administrative procedures related to the life event "I'm disabled/one of my close relatives is disabled" are severely complex, which has helped the government to understand the administrative customer's journey as members of these disadvantaged groups.

Mobile identity in Portugal

Portugal has taken a step forward in simplifying and improving access to public services by providing citizens with "Chave Móvel Digital" (Mobile Digital Key), a mobile authentication mechanism that allows citizens to access services without the need of their citizen's card or an e-card reader. By registering on line or at a public service desk, the citizen can receive a temporary password by mobile phone or email that will support the authentication in the course of a transaction. This service follows standards and experiences existing in the country's banking sector, with an important focus on the simplicity of the service without compromising its security.

The Chave Móvel Digital provides access to services namely in the Citizen's Portal, the Entrepreneur's Desk and the Health Portal, and efforts are being made to significantly expand the number of services enabled by this new solution.

Source: OECD (2015), "Policy Shaping and Policy Making: The Governance of Inclusive Growth", OECD, www.oecd.org/governance/ministerial/the-governance-of-inclusive-growth.pdf; Cacador, F. (2015), "Chave Móvel Digital is key to authenticating Portugal's digital services", European Commission, https://joinup.ec.europa.eu/elibrary/case/chave-m%C3%B3vel-digital-key-authenticating-portugal%E2%80%99s-digital-services.

The establishment of single digital identity to support the digital transformation of the public sector in Morocco would entail new data sharing arrangements that are relevant to personal data protection. However, experience shows that enhanced user experience in the public sector can and should be reconciled with privacy and security. A number of OECD countries have made progress in establishing information technology (IT) systems that preserve citizens' control over their own data. These systems guarantee data interoperability and easy sharing between public institutions, but permission must be granted by citizens. Not granting permission for public institutions to access the user's personal data often compels users to provide public organisations with information and documents the public sector already holds. Spain has developed a solution to both grant assurances to citizens about what the government is doing with their personal data as well as ensure interoperability between public institutions (see Box 4.6).

Box 4.6. Carpeta Ciudadana (citizen file): Enhancing data management and service delivery in Spain

The Spanish administration has recently implemented the "Carpeta Ciudadana", or citizen file. The Carpeta Ciudadana provides citizens with a simple and agile single point of access to gain information on their open files and procedures with the Spanish public administration. Citizens can also directly contact the public institutions responsible for following up such files to obtain more information about them.

The Carpeta Ciudadana also provides citizens with information on their personal data currently held by the public administration and what institutions currently have the citizens' consent to use specific data. The platform allows the citizen to trace the sharing of data that concerns him/her between public institutions. As of June 2017, the Carpeta Ciudadana includes the participation of a limited number of services and public institutions, but ongoing efforts exist to significantly increase the number of services included in this platform.

The current version of the citizen file is being reviewed in view of revamping the platform to include new functionalities. In particular, a future version of the citizen file would allow the users to know exactly what their data has been used for.

Source: Government of Spain (n.d.), "Carpeta Ciudadana", webpage (in Spanish), https://administracionelectronica.gob.es/ctt/ccd#.WT6NkG995hE (accessed on 9 February 2018); and internal documents from the 2017 E-Leaders' Thematic Group on Personal Data Ownership and Transparency.

However, as Morocco strives to put in place a digital identification and authentication mechanism for citizens, it still faces a significant challenge in the form of a civil registry that is not yet digitised. The digitalisation of key basic registries, and in particular the civil registry, are essential components of a modern public administration that is able to make efficient and strategic use of the data and information it holds to improve policy making and service delivery. The project has been implemented as a pilot in Casablanca, which has digitalised 4.5 million birth certificates, but the validation of part of the data proved challenging (Cour des Comptes, 2014). The upscaling and generalisation of this effort seems like a critical area of opportunity that promises to deliver positive returns in the form of a more efficient public administration, easier access to public services and

increased ability to use data strategically. Italy and Spain have implemented a digital civil registry (see Box 4.7 and Box 4.8).

Box 4.7. The digitalisation of the Italian National Registry of Resident Population

The Italian government is currently developing a single centralised registry that will simplify all the interactions of citizens with the public administration. The National Registry of Resident Population (ANPR) is a single centralised registry, accessible by an API, which contains the up-to-date information of addresses and civil status of the national population. Instead of having more than 8 000 registries spread over the entire national territory (in every municipality), Italy will finally have a single centralised registry, which will simplify all the interactions with the public administration.

The project will be able in the future to provide municipal administrations with residents' personal data and enable all operations related to the processing of the personal data concerned. ANRP will provide features like updating citizens' residency addresses or allowing the user to download a Family Status Declaration.

ANPR aims to avoid duplication of communication with public administrations, ensuring greater accuracy and quality of the data, and to simplify resettlement, migration processes, census, and more. According to the Italian "Three-Year Plan for the Digitalization of the Public Administration", published in 2017, ANPR is one of the focal enabling platforms at the centre of the promotion of Italy's public digital services.

Source: AgID, Government of Italy, 2017.

Box 4.8. Digital identity in Spain

The electronic identity, and closely linked to it, the electronic signature, has been continuously present in Spanish public policies aimed at the development of the information and knowledge society, as a fundamental element to guarantee confidence in online transactions. The official electronic identification card, known as "DNI electrónico" was launched in 2006. It incorporates a chip in the traditional ID card. The chip, in addition to containing identification and biometric data, contains two electronic certificates, one for authentication and another for signature.

Given the high number of certification service providers existing in Spain, the use of certificates for access to public services posed a practical problem, since each administration had to establish connections with each of the providers. In addition, the variety of existing algorithms and signature formats multiplied the complexity of the management of signed documents. To solve this problem, the @Firma platform was developed, which acts as an intermediary between the administrations and the providers.

The Cl@ve project was launched in 2014 and was aimed at establishing a common platform for identification, authentication and electronic signature through the use of agreed keys. The objective of this system was to unify all the existing solutions for the identification of citizens before the administration, enabling identification systems not based on electronic certificates that could be used in all public services. For this, it relied on two existing systems, one from the Tax Agency, which would lead to the Cl@ve PIN system, and another from Social Security, which would lead to the Cl@ve Permanente system.

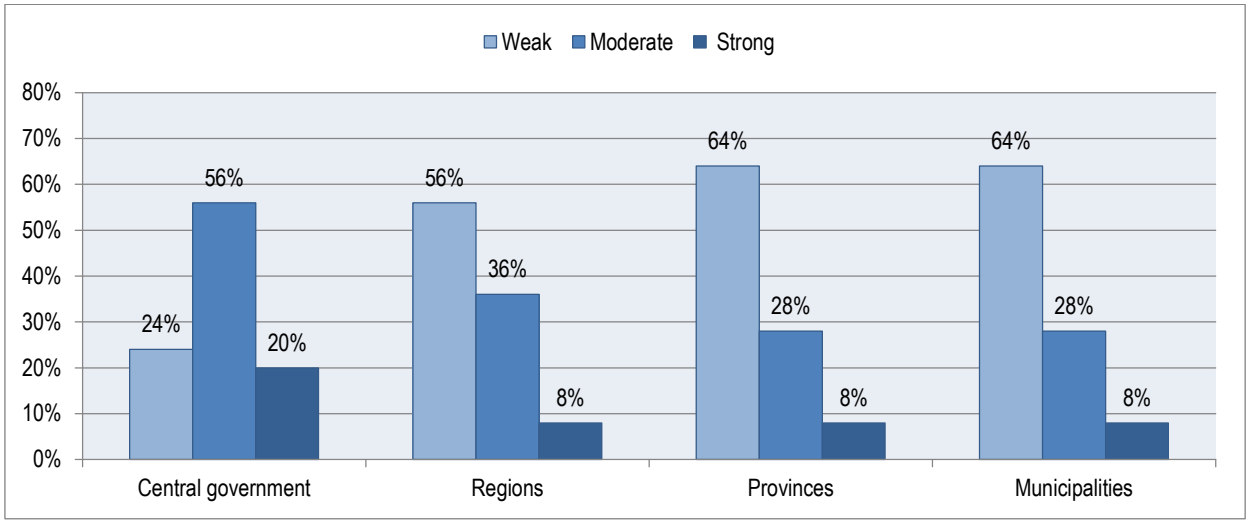
The Cl@ve system is complemented by Cl@veFirma, a solution to electronically sign through electronic certificates residing on a server. Cl@veFirma avoids the problems associated with the management and access to certificates in the user's device, maintaining all the advantages of using the firm with an electronic certificate, such as its high level of security, its interoperability, and its ease of verification by third parties.

Source: Based on the Spanish government's response to OECD (2014), "Benchmarking Digital Identity Solutions – Survey".

Interoperability and data sharing for greater digital integration

Another critical enabler of the digital transformation of the public sector is the issue of systems and data interoperability. This is a crucial factor that delivers the infrastructural requirements for data sharing and the digital integration of the public sector that can ultimately deliver a seamless experience for citizens, businesses and other service users. To enhance data sharing and integration across the public sector, the Government of Morocco adopted an interoperability framework in August 2012.[5] Still, five years after its publication, its adoption among public institutions remains relatively low (see Figure 4.8).

Figure 4.8. Assessment of the adoption of the national interoperability framework in Moroccan public institutions



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

As part of its efforts to foster data sharing and more user-centred approaches in the public administration, the Government of Morocco is developing the Government Gateway (Gateway Gouvernementale). To support administrative simplification, the Gateway platform would allow service users to approach a single authority responsible for a specific procedure, which would in turn request the information it needs directly from other public institutions responsible for the management of such pieces of information, thus making life easier for citizens.

The single portal or "one-stop shop" called Government Gateway, initially introduced in the *e-Maroc 2010* strategy,[6] suffered significant delays in its planning and procurement. The Government Gateway became accessible only in January 2016 through the link www.gisr.gov.ma,

The completion of this project will represent a measurable improvement over the current state of affairs, significantly facilitating data sharing within the public sector for enhanced public service delivery. The project thus deserves particular attention and energy. Yet, making the most out of such a tool demands the digitalisation of key basic registries to allow the public sector to deliver tailored and easy-to-use services. In addition, moving to user-driven administration would require central and subnational governments to increasingly organise service delivery around the users, to facilitate their growing responsiveness and data-driven customisation.

Building capabilities for the digital transformation of cross-government ICT projects

Ultimately, Morocco's ability to use digital technologies to modernise the territorial administration of the country and support a more homogeneous distribution of development outcomes will greatly rely on its institutional capabilities to prioritise, plan, manage and monitor ICT investments to ensure adequate returns. The 2014 report prepared by the Cour des Comptes on the implementation of *Maroc Numéric 2013* highlights that poor ICT project prioritisation and planning contributed to significant delays.

Indeed, ICT project management has become increasingly complex in terms of budget size, number of actors involved, investment planning frameworks, number of technological options and overall project management techniques that demand more sophisticated and interdisciplinary skill sets. Building such capabilities is a considerable challenge for subnational governments that work with very scarce resources. Despite considerable potential benefits, by their nature, they could translate into significant transactions costs to ensure effective co-ordination and aligned incentives and efforts.

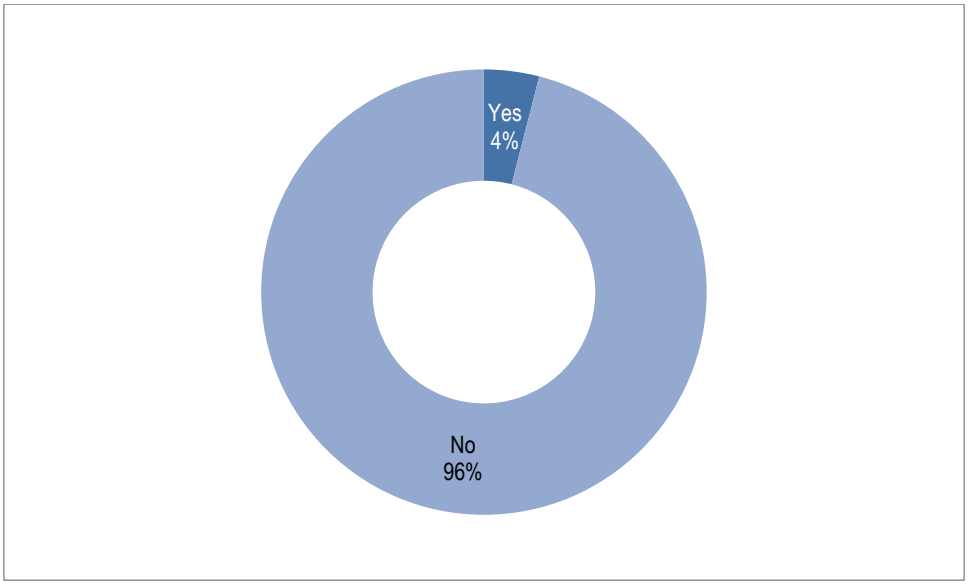
This section will look into key areas for reinforcing capabilities to deliver cross-government ICT projects and subnational government digitalisation.

Prioritising, planning and delivering on cross-government and subnational ICT projects

The development and implementation of large ICT projects across levels of government in Morocco are still relatively scarce. It is thus understandable that ICT project governance tools for such projects have not yet been fully set up and deployed. As of 2017, only 4% of Moroccan public institutions have developed business cases or similar assessments of project value propositions for ICT projects managed by institutions from different levels of government (see Figure 4.9). Still, as decentralisation reforms take a

foothold and subnational levels of government prepare to increase their share in total public expenditure, Morocco would benefit from putting in place more robust tools and frameworks for ICT investment decisions in order to spread digital dividends across the Moroccan territory.

Figure 4.9. Public institutions in Morocco that have defined value propositions (i.e. business cases, cost-benefit analyses) for ICT projects with institutions from a different level of government



Source: OECD (2017), "Survey to Moroccan public institutions on digital government", unpublished.

Business cases are a core element of ICT project governance and a critical tool enhancing institutional capacity to prioritise investments, determine their viability and feasibility, establish project objectives, accurately determine expected project benefits and monitor their realisation (see Box 4.9). By defining the project's rationale and resources, the business case helps plan for its management and helps clarify the role of the stakeholders involved. In addition, these tools help identify key project risks and plan in advance strategies to minimise them, thus improving the odds for effective and timely implementation of ICT projects (see Box 4.10).

Box 4.9. ICT project assessment in Portugal

The Portuguese Agency for Administrative Modernisation (AMA), an executive agency located at the Presidency of the Council of Ministers, has substantive powers in terms of allocation of financial resources and approval of ICT projects.

The AMA manages the administrative modernisation funding programme, which is composed of EU structural funds and national resources (SAMA2020). These funds are an attractive source of funding for agencies planning to develop ICT projects. This gives the agency important leverage as the approval of funding for digital government projects through this programme is conditioned on compliance with existing guidelines.

Similarly, every ICT project of EUR 10 000 or more must be pre-approved by AMA, which verifies compliance with guidelines, the non-duplication of efforts, and compares the prices and budgets with previous projects in order to ensure the best value for money.

Source: OECD (2016), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258013-en.

Box 4.10. New Zealand: Better business cases

The primary objective of Better Business Case (BBC) is to enable smart investment decisions for public value. If applied appropriately BBC can also help to:

- reduce the costs of developing business cases
- reduce the time it takes to develop business cases
- meet recognised good practice.

A business case is a vehicle to demonstrate that a proposed investment is strategically aligned, represents value for money, and is achievable. A business case turns an idea (think) into a proposal (plan). It enables decision makers to invest with confidence, knowing that they have the best information available at a point in time. It is also a reference point during the "do" phase to support delivery and used in the "review" phase to determine whether the benefits in the business case were realised. For significant projects, there are two key stages in the evolution of a project business case: the indicative business case and the detailed business case. For smaller and/or lower risk investments, typically a single stage business case (which combines the indicative and detailed business cases) is used.

Source: Treasury of the Government of New Zealand (2015), "Better Business Case Methodology", www.treasury.govt.nz/statesector/investmentmanagement/plan/bbc.

As such, the Moroccan administration would benefit not only from the use of such tools at the central administration level (see Chapter 2) but also from developing use cases, templates and guidance supporting their use at the subnational level as well as for co-operation across levels of government. In addition, the use of business cases will help develop key project performance indicators that can be monitored. The progressive incorporation of such metrics into ICT project management in the public sector (at all levels) should help promote a performance and results-based culture in digital government implementation in Morocco. Such metrics would help project managers make timely adjustments to project implementation and help the broader administration identify key drivers of project failure and success. Moreover, by collecting such data, the central co-ordinating unit for digital government would strengthen its ability to continuously monitor the implementation of digital government strategies. The potential of these tools can be amplified if complemented with templates and guidance on ICT

project management, and training on the use of these documents addressed to its most likely users.

Strategic ICT commissioning to advance the digitalisation of Morocco's territorial administration

The efforts to modernise the territorial administration in Morocco will inevitably have to include acquiring access to ICT infrastructure and services. Despite the specificities related to the commissioning of new technologies, the country still lacks a strategy that covers ICT commissioning specifically (OECD, 2017b). By way of illustration, new digital tools such as cloud computing allow institutions to gain access to infrastructure and services on demand, monitor its workload, foster collaboration between public entities and encourage the broad adoption of common strategic approaches for the whole public administration. The economies of scale made possible by this new technology make it extremely cost-effective compared to building and maintaining a private data centre. These technological tools are driving new forms of partnering and sharing resources. This has led certain governments to move significant shares of their computing power, data storage and access to services to private or public clouds.

Yet, these same technologies raise new questions for which traditional procurement frameworks do not provide answers. These include risks of technological lock-in or potential violations of data privacy and security. The new digital context and the pressure to provide the Moroccan administration (across all levels) with affordable access to digital infrastructure and services require new tools for decision making that can take into account these new variables. As such, new procurement approaches help governments make cost-benefit analysis and risk assessments that help navigate these complexities. As Morocco considers making considerable investments in a national data centre for public institutions, its decision should be made in careful consideration of alternatives available today, including cloud computing, with its advantages and downsides.

The OECD Recommendation on Digital Government Strategies suggests that to enhance ICT procurement performance in support of the digital transformation of the public sector, governments should procure technologies based on existing assets (Principle 11). This, however, requires the existence of certain tools to support strategic decisions and avoid duplicative investments. Some examples of such tools are searchable databases or repositories holding all existing ICT contracts and assets, or data on the historical performance of ICT providers. However, Moroccan institutions currently lack any similar tools (OECD, 2017b). For example, the United Kingdom created the Digital Marketplace as a way to leverage new opportunities to innovate in technology deployment and resource sharing in the public sector (Box 4.11).

Box 4.11. The United Kingdom's Digital Marketplace

The United Kingdom has been looking for ways to leverage new opportunities to innovate in technology deployment and resource sharing in the public sector. Cloud computing allows for greater efficiency in ICT investments. The Government Digital Service set up the G-Cloud and its associated CloudStore, which has now evolved into the government's Digital Marketplace.

The Digital Marketplace consists of a series of framework agreements with suppliers from which public sector organisations can buy from without the need

to run a tender or competition procurement process. These suppliers are available on an online store that allows public sector institutions to search and buy services covered under the G-Cloud agreements. These services include cloud-based services as well specialist services. These services can be classified as follows:

- Infrastructure as a service (IaaS): Provisioning of fundamental computing services (processing, storage, etc.) for the user to run arbitrary software.
- Platform as a service (PaaS): Provisioning of platform services to enable a user to deploy user-built or acquired applications.
- Software as a service (SaaS): Provisioning of the provider's application as a cloud service.
- Specialist cloud services (SCS): Typically consultancy in the cloud domain.

The Digital Marketplace has seen sustained growth in transactions and enjoys the wide participation of small and medium-sized businesses, which make up the majority of suppliers in the marketplace.

Source: Government of the United Kingdom (n.d.), "Digital Marketplace buyers and suppliers information", GOV.UK, webpage, www.gov.uk/government/collections/digital-marketplace-buyers-and-suppliers-information (accessed on 9 February 2018).

There remains one final critical point that may require adjustments in the way technology is deployed across the administration. Certain OECD countries have encountered issues with IT acquisition, leading to cost overruns and schedule slippages (US GAO, 2011, 2015; Mergel, 2017). To tackle these issues, OECD countries have looked at bringing to the public sector tools that are commonly used in start-ups and the tech industry to ensure IT acquisition efficiency: 1) the use of agile development; and 2) open-by-default standards in technology deployment.

To become more efficient, digital transformation teams in government are gradually shifting away from waterfall development models,[7] which require very detailed pre-definition of technical requirements and project segmentation in stages with little ability to adjust them once finalised, in favour of agile deployment. Agile methodologies, which have a greater focus on user needs and small-scale prototyping with several iteration stages that allow for the progressive adaptation of the solution to the user's expected outcomes. This has implications for how ICT projects are defined, planned and procured. Countries like the United States have tried to move to this new procurement method, but have noticed they often require new contract models and new ways of defining the scope of projects. Denmark established a standardised model for a way to manage ICT projects across all government administrations (see Box 4.12).

Box 4.12. The Danish ICT Project Model

The Danish ICT Project Model provides a standardised way of managing ICT projects across the government administration. With clear reference to the United Kingdom's ICT project model Prince2, it provides guidelines on how to organise and manage ICT projects and delivers concrete templates for all generic products in the process. The overall phases covering all projects are illustrated in the figure below.

Phases of projects in the Danish ICT Project Model

The model has enabled the establishment of a specific governance structure, for example requiring the approval of well-developed business cases, as well as ongoing approvals – so-called "stop-go" decisions – each time a project passes from one phase to the next.

Source: Danish Digitisation Agency; Digitaliseringsstyrelsen (2016), "Den fællesstatslige it-projektmodel", webpage, www.digst.dk/Styring/Projektmodel; OECD (2016), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258013-en.

An additional potential driver of efficiency in ICT acquisition across levels of government is the use of open source software. Open source software allows for a solution to be developed once and then be made available for the rest of the public administration to either use or improve. For instance, 18F in the United States develops solutions in open software and then shares them on GitHub, an online social coding platform, so it can be reused by other public institutions (Mergel, 2017). GitHub also allows 18F to leverage a broader community of software developers that can then rework and enhance the code, allowing public institutions to reap the benefits of such improvements (see Box 4.13). An open source software policy for the whole of the Moroccan public administration that considers both its risks and its advantages could help subnational governments leapfrog on existing solutions and utilise external talent to modernise their internal operations and service delivery strategies.

Box 4.13. 18F's agile procurement agreements

18F, an innovative digital transformation team within the US General Services Administration made up of top-notch talent coming mainly from the tech industry, has looked at introducing new technology deployment techniques in the US federal government. To do so, they have developed new contract and service agreement templates that are compatible with agile software development.

As part of this effort, 18F established the Agile Blanket Purchase Agreements (BPAs), which radically transform the ICT procurement approach. Instead of traditional Requests for Proposals (RFP), which require very detailed descriptions

of technical requirements and specifications in advance - which are unlikely to include all the functionalities and details the contractor would like to include - BPAs work as a competition that requires participating firms to prepare a prototype in an open GitHub repository open for everybody to see. This approach allows the contractor to appreciate what competing firms are actually able to deliver. The BPAs can foresee agile development sprints and iterations, allowing both the contractor and the service provider to progressively define software requirements and functionalities as the project advances.

Source: Mergel, I. (2017), *Digital Service Teams: Challenges and Recommendations for Government,* IBM Center for the Business of Government, Washington, DC, http://dx.doi.org/10.13140/RG.2.2.27227.57121.

Digital skills to capitalise on new digital opportunities

The returns on public sector investments made to acquire new digital technologies can only be realised, however, if the capabilities exist in the public sector to extract the value of these tools, and digital service users reach a critical mass that justifies such efforts. This sub-section will look into both sides of the coin: 1) bringing ICT talent to the public sector; and 2) building capabilities outside of the public sector to reap the benefits of digital.

Striving for digital excellence in the public sector

The digital transformation of the public administration, across all levels and policy areas, is requiring governments to incorporate new talent and skillsets to cope with the complexities of the new policy environment. These skill sets include the ability to use new, digitally-enabled approaches to policy making; the ability to manage complex ICT projects; the ability to engage effectively with a wide variety of stakeholders (see Chapter 3); to code and develop software; to extract value out of government's wealth of data; and to accurately assess and manage digital risks.

However, attracting digital talent to the public sector is a common challenge, given the high demand for such skills and the inability of public institutions to keep up with private sector wages as well as their hardships in presenting the profiles of civil servants and their functions as sufficiently attractive. This is particularly true for subnational governments, which despite pressing challenges and demands for public service delivery, face them with scarce resources. A number of initiatives in OECD countries can inform Moroccan policy makers as they strive to bring excellence to the public sector for digital government project delivery. Such a dilemma requires a decisive and structured response, and a strategic view on how to attract, develop and retain skilled ICT professionals in the public sector. These strategies can either be surge-like initiatives that allow the government to rapidly build a pool of talent that the public sector can use to ensure delivery. The second type of strategy aims to structurally strengthen the public sector's digital capabilities in the long term.

Mexico and the United States both have interesting surge experiences when it comes to digital talent in the public administration. In 2014, as part of its broader open government data strategy and policies, Mexico set up dedicated *Data Squads* aimed at working with federal agencies to help them overcome the technical challenges of setting up an open data operation and empowering them by providing them with the tools required to be

effective participants of the open government data ecosystem. This centralised team of specialists working out of *Presidencia,* established to support agencies and ensure delivery, was divided into three areas of technical expertise: information architecture and security, public policy and legal issues. Setting up similar centralised teams in highly specialised areas, such as data science, can enable the Government of Morocco to provide much needed technical advice and assistance to the broader public administration, thus helping them seize the opportunities of the digital age.

Another telling example is that of the ***United States*** federal government under the Obama Administration. After the 2011 *Healthcare.gov* debacle, it became evident that the federal government had to drastically change how it procured and managed IT projects. While public sector wages weren't as competitive in the public sector, the US federal government was able to develop a strategy to attract digital talent from the vibrant tech industry building on tech entrepreneurs' and specialists' interest in having a social impact at a scale that only the federal government could offer. Indeed, the Obama Administration succeeded in creating a series of programmes that called upon highly skilled software engineers to perform missions of six months to two years to tackle specific problems. These missions were framed as civic duties that would ultimately enhance government performance and its ability to use technology to deliver better services, even if such efforts would be hard to sustain in the long term unless they transformed the practices of career civil servants (Mergel, 2017).

More sustainably, however, the ***Australian administration*** recently launched an initiative to more structurally transform the data capabilities of its public administration. Acknowledging the growing relevance of data in the process of the digital transformation, the emergence of new roles and activities associated with policy making and service delivery and taking stock of the Australian Public Service current data capabilities, the Government of Australia recently unveiled their new data competency framework. This competency framework defines data-related roles for the public sector (i.e. data analysts, data scientists, data policy experts, data infrastructure engineers or data architects). In addition, the competency framework was accompanied by a list of available data-related trainings and degrees for civil servants offered by higher education institutions that have trainings partnered with the Government of Australia. These trainings work on the basis of continuous education entitlements for civil servants.

Nurturing the broader digital government ecosystem

This said, efforts to modernise the administration of Moroccan cities, provinces and regions can only be sustainable if paired with an expanding tech-savvy citizenry, able to use digital services and enrich the ecosystem of developers and entrepreneurs that engages with the public sector in the co-creation of public services.

Moroccan cities should focus efforts on harnessing the rise of digital natives as a driver for digital public innovation. This could start by focusing on specific segments of the population, such as youth who are most likely already experiencing high levels of connectivity through their smartphones and use of social media platforms. The Moroccan Government has recently began to focus on the development of a national policy on youth, providing an opportunity for engagement on youth on digital transformation and their potential role as digital innovators. As subnational governments are seated closest to citizens and their needs, their efforts to continuously improve service delivery would benefit from building trust and establishing collaborative relations with the ecosystem of developers and entrepreneurs that can complement their efforts. Indeed, the public sector,

and local governments, in particular, do not have all the resources, information or talent required to respond to all of the users' needs. However, by deploying a strategy to foster co-creation, they can crowdsource ideas, garner support and leverage the skills, energy and resources residing outside of the public sector in order to co-create policies and services that are better tailored to citizens' needs.

Rural areas, where the education and digital infrastructure tend to be poor, can have a harder time in reaping the benefits of the digital revolution for public service delivery and public sector modernisation strategies. This is partly driven by the absence of broad potential user bases and digital skills available to incentivise the private sector to invest in infrastructure, given the low expected returns. Indeed, low-income rural areas tend to display low literacy levels and are often hard to access.

Rural teachers often lack basic pedagogical training or are unfamiliar with national curricula, while schools lack basic teaching material such as books. Such contexts have given rise to experimentation and technology-driven innovation to enhance the quality of services and educational outcomes (see Box 4.14). Similar initiatives could be replicated in Morocco as efforts are made to widen the pool of digital users and natives throughout the country. A recent Inter-American Development Bank (IDB) study highlights some of the characteristics of successful technology-enabled innovations in education delivery enhancement in remote areas (Arias Ortiz and Cristia, 2014; World Bank, 2016):

1. sharing of technological resources (i.e. devices) in the school setting
2. focus on pedagogical techniques and teacher support
3. not making technologies the focus, but using them in practical purpose-oriented ways
4. using evaluation systems that look beyond outputs.

Box 4.14. Enhancing education outcomes and digital skills in rural areas

Teachers in remote and rural areas often suffer from lack of access to formal training. As a result, education personnel often are not sufficiently familiar with the curricula or are unaware of the material they are expected to cover each week or how to teach it effectively. And yet, as in Morocco, most of them do have access to mobile phones. The SMS Story project implemented in Papua New Guinea showcases the potential of new technologies to establish more direct communications with such teachers, provide them with pedagogical tools to carry out their jobs more effectively and keep them motivated.

The SMS Story Project sent daily message stories and teaching tips to teachers to help them enhance their student's reading performance. In these narratives and tips, teachers were encouraged to stimulate and teach reading every single day. Such intervention halved the number of children who could not read anything. While this project by its own could not possibly solve all of the education challenges in such areas, SMS Story represents a template for leveraging new and more connected alternatives to tackle pervasive challenges facing educators in rural schools in Papua New Guinea. While the lack of access to books in such schools is a critical factor constraining educational outcomes, simple interventions as the SMS Story project can have significant impacts by using technology in inclusive, efficient, and scalable ways.

This initiative can also inform digital literacy initiatives as connectivity, and digital opportunities are progressively brought to rural Morocco.

Source: Kaleebu, N. at al. (2013), SMS Story Impact Assessment Report, VSO, Papua New Guinea, Papua New Guinea Department of Education, VSO (Voluntary Services Overseas), and Australian Aid, www.vsointernational.org/sites/vso_international/files/sms-story-impact-assessment -report_tcm76-41038_0.pdf.

Notes

1. The Gini Index or Coefficient is represented with a number that ranges from 0 to 1, where 1 stands for absolute inequality – one person gets all available income - and 0 stands for perfect equality. A reduction in the Gini Coefficient indicates thus a reduction in income inequality.
2. Data concern individuals15 years old and above. Data are the latest available.
3 The Universal Service Fund is financed through the tax on telecommunications and supports initiatives to increase access to telecommunication services throughout the population.
4. For more details, see the Organic Laws for Regionalisation, detailing the institutional framework for regions, prefectures or provinces and municipalities, published on 15 July 2015 in the *Bulletin Officiel*.
5. For more information, see www.egov.ma/sites/default/files/cgi_2012_v1.pdf.
6. *e-Maroc 2010* was the government's digital strategy launched in 2007, and was supposed to go up to 2010. However, in 2009 Morocco launched *Maroc Numéric 2013*, which replaced *e-Maroc 2010* before the end of its term.
7. For more information, see https://en.wikipedia.org/wiki/Waterfall_model.

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LAYING THE FOUNDATIONS FOR THE DIGITAL TRANSFORMATION OF THE PUBLIC SECTOR IN MOROCCO

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