Ministry of Digital Economy
and Entrepreneurship

The National Digital Transformation Strategy & Implementation Plan

(2021-2025)

Table of Contents

PREFACE 3
THE MINISTRY OF DIGITAL ECONOMY AND ENTREPRENEURSHIP 4
ECONOMIC AND SOCIAL IMPACT OF DIGITAL TRANSFORMATION 5
THE NATIONAL DIGITAL TRANSFORMATION STRATEGY & IMPLEMENTATION PLAN 2021 - 2025 7
RESPONSE TO THE CORONA PANDEMIC - COVID 19 8
VISION 10
STRATEGY ENABLERS 10
- First Enabler: Digital Infrastructure 11
- Second Enabler: Digital Government Services 17
- Third Enabler: Data 18
- Fourth Enabler: Youth, Technology, and Jobs 20
- Fifth enabler: Innovation and partnership with the private sector 22
- Sixth enabler: E-participation 22
- Seventh enabler: Change management and human resources 23
- Eighth enabler: Government Resources Management System 25

DIGITAL TRANSFORMATION – KEY PERFORMANCE INDICATORS BY 2025 27
- Main Key Performance Indicators 27

DRIVING DIGITAL TRANSFORMATION AND CHALLENGES 29
MOVING FORWARD 29
DIGITAL TRANSFORMATION – CITIZEN CENTRIC 30
EMERGING TECHNOLOGIES 30
DIGITAL TRANSFORMATION – MOVING FORWARD 30
THE DIGITAL TRANSFORMATION TIMELINES 31
GOVERNMENT DIGITAL SERVICES 32
GOVERNMENT SERVICES ARCHITECTURE 34
- Services Digital Transformation Roadmap 35

DIGITAL TRANSFORMATION – DATA 35
- Infrastructure & Data Digital Transformation Roadmap 37

DIGITAL PAYMENT TRANSFORMATION 37
- Democratizing Payments Channels In Jordan 40

POLICIES & STRATEGIES DIGITAL TRANSFORMATION ROADMAP 41
NATIONAL CYBER SECURITY CENTRE (NCSC) 41
- Jordan Computer Emergency Team (JoCERT) 41

DIGITAL TRANSFORMATION – ENTREPRENEURSHIP ECOSYSTEM 42
YOUTH TECHNOLOGY AND JOBS (YTJ) 42
CHANGE MANAGEMENT 43
DIGITAL TRANSFORMATION GOVERNANCE MODEL 44
NATIONAL DIGITAL TRANSFORMATION COMMITTEE ROLES AND RESPONSIBILITIES 44
CONNECTIVITY 46
OTHER PRIORITIES (2021) 46

Preface

The rapid growth of digital technology; the development of devices, machines, and smart systems; and the increase in the ability to process data and use of artificial intelligence have led to unprecedented transformations in the production process, which has made revolutionary changes to the global economy. There is no doubt that the expansion of the scope of growth and development and the unprecedented transformations that have followed in the economy within its various sectors and in the labor market have had great impact on the competitive advantage of countries and organizations. They are, in fact, the most important growth drivers and incentives for public and private sector organizations to ensure that the products and services they provide delivered efficiently and effectively, and for the expansion of the base of their beneficiaries.

Given the magnitude of change in the competitive advantage the digital technology adds to its users, the delay in adopting it or limited use of it will limit the possibilities of realizing the benefits provided by digital transformation processes, such as comprehensive sustainable growth and improvement in public administration.

Digital transformation works by the adoption of vital sectors, such as health, education, justice, social security, energy, financial services, transportation, and others of working methodologies based on digital technologies through processing data, making use of artificial intelligence technologies, innovating products and services, and providing new channels to improve performance efficiency to unprecedented levels. This leads to saving time, reducing cost, achieving greater flexibility and higher efficiency in production processes, improving the quality, simplifying the procedures, and creating new opportunities. The digital transformation also helps in enhancing transparency and limiting bureaucracy, corruption, and tax avoidance and evasion. It also helps in spreading and expansion on larger scale, which helps in reaching a larger segment of beneficiaries, being one of the most important drivers and catalysts for the growth of digital economy.

The government is seeking to cope with these developments and take advantage of the best global practices and available opportunities to be able to transform into a purely digital government. The government looks at the process of digital transformation as a digital journey that passes through many milestones, including digital technologies; data; youth, technology, and jobs; e- participation; and digital government services.

As the policy maker, the government is keen to involve all citizens and enable them to access basic services at a lower cost through digitizing the main sectors and ensuring the development of all governorates. The focus always remains on building the skills required for the future, creating more jobs, promoting entrepreneurship and e- participation.

The efforts made to launch various digital initiatives in the Kingdom have resulted in revealing many digital fields and smart solutions that have contributed, for example, to the development of national platforms that provide the appropriate means for disseminating information and providing citizens with access to various information sources. This includes digital education content and open government information and data.

The government is currently providing many services in a digital form through smart applications and one-stop shop services. The aim is to offer beneficiaries a seamless user experience through providing e-payment options and saving them the trouble

of using banknotes. The government is also working on improving the operational efficiency of many sectors by converting their content into a digital content.

The government realizes that the success of such initiatives depends primarily on the rapid use of digital technologies by individuals and public and private sectors and implementing them based on well-thought-out plans. The government believes that adopting the emerging technologies, such as artificial intelligence, cloud platforms, internet of things, and other emerging technologies, has become one of the foundations of the digital transformation process. The government, moreover, realizes that digital transformations are long-term processes, with each stage requiring the implementation of specific steps within the digital technology sector based on specific procedures to develop the digital skills of citizens. The government also recognizes that realizing the importance of digital technologies in these areas will push the process of developing the public sector forward and contribute to the sustainable development of public services.

The Ministry of Digital Economy and Entrepreneurship

The name and scope of the Ministry of Communications and Information Technology changed in May 2019 to the Ministry of Digital Economy and Entrepreneurship. The aim was to expand the tasks and duties of the ministry so that it would be the sponsor of digital transformation, digital economy, and entrepreneurship in Jordan, based on the achievements made in the communications and information technology sector over the past decades.

The ministry supports the digital transformation process, adopts the concepts of the digital economy, and facilitates the development of the entrepreneurial system in the Kingdom through working on eleven basic pillars:

1. Digital and entrepreneurial skills: The holistic development of Jordan's digital and entrepreneurial skills.
2. Government Digital services: Providing the best digital services.
3. Digitize payments: Digitize government payments and receipts
4. Digital assets: Building and developing the infrastructure and providing secure access to high-quality data.
5. Enabled legislative environment: Reviewing laws and regulations and enhancing confidence in the digital environment.
6. Digital and societal Entrepreneurship: Creating the appropriate conditions for the growth and development of startups of all kinds and in all fields.
7. Youth, Technology and Jobs: Providing digital skills, supporting the expansion of the digital sector and digital government services, and creating new jobs
8. Innovation and partnership with the private sector: working with partners, business incubators and investment funds to organize and stimulate the entrepreneurship sector
9. Change Management and human resources: includes raising awareness, developing capabilities and knowledge, and promoting a culture of change.
10. E-Participation: Contribute to the decision-making process through the interaction of citizens in submitting suggestions and observations and expressing opinions using technology that can improve decision-making and policy-making processes.
11. Government Resources Management: Developing a government resource management system that aims to develop a number of digital systems and tools to be an integral part of that system.

The ministry is constantly seeking to cooperate with the government organizations in addition, private sector to develop a system of legislations and implement initiatives to enable each of the eleven pillars. The ministry is also working with its partners to complete the projects of infrastructure, digital transformation, digital government, and national optical fiber network and the design and implementation of programs that enhance the digital skills in the Kingdom.

Economic and Social Impact of Digital Transformation

The digital transformation and Jordanian economy mainly based on communications and information technology. The sector has accomplished many achievements is regarded as one of Jordan's prominent achievements. Such achievement has driven by the liberation of markets, enactment of relevant legislations and laws, offering appropriate regulatory environment and supportive infrastructure, and implementing developmental and strategic programs and projects in order to raise the level of access and enhance the digital economy. The share of the information technology and communications sector, including modern digital technologies, such as cloud platforms, mega data, internet of things, and open data, has reached 4% of the GDP in 2018. Concerning the workforce, employment has increased from 18,000 employees in 2016 to 21,811 employees in 2018. The sector's revenues have also increased by 10.7% in 2018, according to the Information and Communication Technology Association (Intaj) surveys for the year 2018. The spread of smart devices of all kinds and internet have contributed to the use of e-government services and the promotion of digital transformation. The government, moreover, continues through the ministry to implement the national optical fiber network program, with the aim to facilitate the integration of multiple government sectors, bridge the digital gap in rural areas, and support national initiatives that focus on attracting foreign and domestic investments to support the digital economy in the Kingdom.

Data is the main driver of digital transformation processes. The government seeks to use data and analyze it to make effective decisions that support the government's decision-making system. The government, moreover, seeks to apply and spread the concepts of open government data and benefit from it, which emphasizes the principles of open governments that ensure participation, enhance transparency, and attract innovative ideas of applications and digital solutions, and consequently enhance the government's efforts towards digital transformation.

In light of the limited natural resources in Jordan, human capital, with its various innovations and creations, used to promote the economic growth. The Jordanian society is known as a youthful and digitally skilled society, especially with (35%) of the population is under the age of 15, "according to the data of the Department of Statistics on Population Census." This characteristic has to be used to create a digital culture that encourages the adoption of digital transformation, entrepreneurship, and innovation through spreading the awareness and developing digital skills and digital literacy among all categories and segments of the community. Investments in modern technology and the continuing digital transformation processes in the public and private sectors, moreover, will contribute together in reducing the economic, social, and political risks associated with youth unemployment.

There are, however, a set of challenges facing the digital transformation in Jordan. This includes the limited number of competencies capable of leading and implementing digital transformation programs and bringing about the required change within many bodies. Other challenges are the organizations' poor readiness to provide services electronically, the bureaucratic

procedures, and the difficulty of amending legislations, which stand as obstacles to electronic transformation of services. In addition to the limited budgets allocated for implementing digital transformation programs in governmental entities and the concerns related to information security risks because of the use of technology.

The government regards digital transformation as a major driver for development. It contributes to finding new solutions for many financial, agricultural, industrial, healthcare, and security services, as well as other sectors. It also creates new business models that could not have been possible before without modern technologies. The availability of digital technologies, therefore, will be a national priority because of the golden opportunities they offer to individuals, companies, and governments through inclusiveness, efficiency of networks and services, and innovation, which achieve economic growth, welfare, social justice, and jobs' creation for the annually growing youth population and raise production rates. Technology is also a powerful enabler for each of the seventeen goals of the 2030 Sustainable Development Goals.

Recent studies show the relative importance of broadband communications infrastructure to the national economic product on the level of individuals, as the rate of increase in GDP per capita in the case of providing broadband services for every 10% of the population is about 0.5%. This percentage is even as high as 0.62% in scientifically and economically advanced communities. The community, in turn, benefits from the high-speed communication services and turn them into increases in the economic return.

In the Arab world, however, the digital economy's contribution is no more than 4% of the GDP of the Arab world, compared to the global average of 22%. In other words, the Arab world can make huge development leaps if it makes use of the opportunities the digital economy provides. According to studies and experiences, the impact of the digital economy on promoting economic growth is estimated to be five times greater than other traditional methods, which makes it the most important accelerator of economic growth in the world.

Among the positive effects of digital transformation is that digital entrepreneurship and innovation have become one of the aspects associated with the decline in unemployment. This is thanks to its role in creating jobs and developing some of the current jobs that require employees to acquire new skills to complete modern tasks, which requires re-skilling and upskilling or replacing them with those who possess these skills. This highlights the importance of aligning the outputs of the education sector with the needs of the labor market and enhancing the digital skills of graduates. The government believes that the implementation of programs and initiatives related to digital transformation and the digital economy will provide at least 50,000 direct jobs during the next five years, 2021-2025, in the digital transformation and digital economy sectors in the Kingdom.

In addition to creating direct jobs, the number of jobs provided by digital technologies is massive, as these technologies reduce transaction costs and increase the chances of individuals who face obstacles in finding jobs. They also support the integration of women, residents of remote areas, and people with special needs in the labor market. Studies have proven the positive relationship between economic growth and employment on the one hand, and the level of maturity of digital technology, on the other.

The adoption of digital transformation and technology and the investment in innovation have become a global and Arab necessity to boost the digital economy. It is also a compulsory path for countries and companies wishing to reap some of the fruits of the Fourth Industrial Revolution. Despite the challenges and complexities that government organizations face during the process of digital transformation, the government has made a decision to create a proper legislative and regulatory environment and adopt strategic plans to sustain and encourage the digital transformation of the government and all segments of the community. This will positively affect the position of the Kingdom both regionally and internationally.

As a result, the implementation of the technology-enabled strategy will accelerate the progress of the implementation of all the Seventeen Development Goals (SDGs) of sustainability of the United Nations. The implementation of the strategic goals of digital transformation provides the necessary infrastructure for the digital transformation process, according to the latest technologies. This will serve individuals and institutions, improve government services for all segments, and help in achieving the ninth goal of the sustainable development goals in particular, which calls for developing resilient infrastructure, encouraging inclusive and sustainable industrialization, and promoting innovation. The efficiency and moderate prices of communications, information technology infrastructure, services in Jordan enable the promotion of digital economy and the achievement of comprehensive economic competition. It also helps in making a significant impact in the areas of financial inclusion, poverty reduction, and improvement of health services. The government is aware of the extent of change accompanying the digital transformation process, including change in the work methods and procedures; the way individuals think; and concepts, skills, and competencies required. This will contribute to the achievement of the fourth goal, which aims to ensure high quality, equitable, and inclusive education for all and to enhance lifelong learning opportunities for all through the achievement of the objective No. (4.4), which states the need for "a significant increase in the number of young people and adults with the right skills, including technical and vocational skills to work, get suitable jobs, and start entrepreneurship by 2030."

The National Digital Transformation Strategy & Implementation Plan 2021 - 2025

The Digital Transformation Strategy 2021 – 2025 (the Strategy) provides a strategic framework for the digital transformation of Jordan for the next five years. It describes the strategic changes and requirements necessary to keep pace with the progress of global digital transformation, improve the provision of government services, and raise the efficiency of government performance. This includes fulfilling the requirements of the beneficiaries, including the government, citizens, residents, tourists, private sector, entrepreneurs, and civil society, as well as improving the quality of life in a more effective, sustainable, and reliable manner and achieving welfare.

The Ministry of Digital Economy and Entrepreneurship (the Ministry) has prepared this strategy based on Jordan's Vision 2025; the government's general policy in the communications, information technology, and postal service sectors 2018; global trends; international practices in this field; and the 2030 Sustainable Development Goals, in consultation with partners, stakeholders and interested parties from all segments of society.

The strategy includes the government's vision within five years to stimulate further digital transformation and the development of the digital economy in the Kingdom by relying on a set of basic procedures and capabilities to achieve the

government vision, including continuing to build an advanced digital infrastructure based on emerging technologies, including 5G technology, and upgrading the level of government services Digital through a central interactive services platform, which facilitates access to government services, and reliance on data in planning, decision-making and policy-making, and the government gives youth the largest part in this strategy due to the huge opportunities offered by digital transformation of the youth sector, which enhances innovation and entrepreneurship in the Kingdom.

Through the strategy, the government is keen to strengthen the relationship with the private sector and enhance the participation of all segments of society in the process of government decision-making and policy-making.

The government realizes that in order to achieve the objectives of this strategy, there is an urgent need to upgrade the skills and knowledge of public sector employees and citizens in general, especially the digital skills and knowledge that support the digital transformation process. Therefore, implementing specific and deliberate measures to manage change is a prerequisite for the success of this strategy.

The government will work to develop the government resource management system by establishing a central system for government procedures, resources and assets in support of the digital transformation process in the public sector.

The strategy also includes an implementation roadmap with specific goals and clear timetables for implementing all the requirements and initiatives of the strategy.

In the interest of the government to involve the private sector in the implementation of digital transformation processes and to actively involve it in all its details, the National Committee for Digital Transformation was formed by a decision of the Council of Ministers, which includes an elite of Jordanian experts in the various fields of digital transformation, and a specific set of tasks has been assigned to these The committee includes supervising the national strategy for digital transformation and studying any changes to it, supervising the workflow of the executive plan emanating from the national strategy for digital transformation and taking the necessary measures regarding any change that occurs to it, studying investment opportunities related to digital transformation that are carried out through partnership projects with the private sector. Within the PPP or BOT methodologies, assess the policies followed, review and analyze all legislation related to digital transformation and the digital economy, and propose measures that will advance in line with the objectives of economic development at the macro level of the Kingdom, and review the reality of the communications and information technology sector and the challenges facing the future vision of the public partnership and private sector in the sector and submit a quarterly report on the progress of work and the achievements made The digital transformation is taking place in the Kingdom.

Response to the Corona Pandemic - COVID 19

The role of digital transformation has emerged during the Corona crisis as one of the important axes of efforts to maintain public health, business continuity and achieve social and economic stability in Jordan, where information and communication technology played a major role in maintaining productivity and follow-up business in most vital sectors.

The government, through the Ministry of Digital Economy and Entrepreneurship, worked to develop digital platforms and provide electronic services to sustain life and business during the crisis, while maintaining the enhancement of the protection, confidentiality and privacy of personal data, and taking all necessary measures to protect citizens and consumers from risks in cyberspace. Digital and Entrepreneurship One platform www.one.gov.jo, which is a unified platform that provides the user with easy and direct access to all effective platforms in the face of the Corona crisis in the Hashemite Kingdom of Jordan.

Government actions during the Corona pandemic include launching digital platforms to maintain productivity and business continuity, accelerating work on the national information system, using the unified national registry, establishing a central system for strategic inventory, benefiting from the geographic information system, activating distance education, promoting remote work, especially in the public sector for sustainability. Government work using the government digital infrastructure, in addition to raising the level of capabilities offered by telecom networks in the Kingdom to meet the increasing demand for Internet services.

Vision

Digital environment that accelerates economical growth, supports entrepreneurship while enabling social and political stability

Strategy Enablers

The government strives to create an integrated system of work to ensure the implementation of the strategic objectives of digital transformation through providing the infrastructure necessary for the process of digital transformation with the latest and best technologies. This will consequently serve individuals and organizations, improve government services for all segments of the community, digitize internal processes in government organizations, and maximize the use of government data and information to support decision-making and innovation processes and provide them with high quality and reliability. This will also equip Jordanian competencies with the required skills to adopt and use digital technologies by individuals, organizations, and employers in a manner that enables the participation of members of the community digitally, in order to ensure effective and integrated implementation in line with the vision.

- Digital infrastructure (digital transformation technologies, cloud platforms, e-payment, open APIs, digital identity, broadband internet, digital and mobile technologies, optical fiber network program, secure government network).
- Digital government services.
- Data.
- Youth, Technology, and Jobs.
- Innovation and partnership with the private sector.
- E-participation.
- Change management.
- Government Resource Management

Strategy Enablers

Digital Infrastructure	5G, IoT, AI, Cybersecurity, Blockchain, Open Source, Cloud, Data Centers, e-Payment, Disaster Recovery (DR) Sites, APIs, Digital Identity, Broadband Internet, National Optical Fiber, Secure Government Network
Digital Government Services	Interactive Service Platform, Once Only Principle, Simple & Fast Services, Leaving No One Behind, Digital by Default
Data	National Information System, Classification of Government Data, Personal Data Protection, Open Government Data)
Youth, Technology & Jobs	Support Provision of Digital skills, Support Expansion of Digital Sector & Digital Government Services
Innovation & Partnership with Private Sector	Ministry of Health, Department of Land and Survey, Income and Tax Department, Ministry of Higher Education & Scientific Research, National Broadband Network
E-Participation	e-Information, e-Consultation, e-Decision Making
Change Management & Human Resources	Awareness, Capacity Building, Reinforcement, Participation, Knowledge Development
Management of Government Resources	Centralized Government ERP Solution

First Enabler: Digital Infrastructure

The increasing spread of digital technologies provides an opportunity to build a new digital economy that enhances economic activity through connecting communications networks between individuals, organizations, and devices. This will allow data transfer and the implementation of daily processes. Such technologies have changed the methods of mobility, social communication, learning, government interaction, gaining of expertise, and the patterns of daily life. It, moreover, has improved and increased productivity.

It is quite evident, through international practices, that the greatest focus in the future will be on data warehouses, cloud platforms, improved data, and protection against electronic attacks, smart devices, applications, social media, block chain technology, and mega data analytics. Such technologies, along with other technologies, will have great importance, especially when it comes to investing in the field of information technology and telecommunications. These technologies will play an important role in enabling governments to achieve the concept of digital government on the ground.

The digital transformation process also turns cities into smart cities that use modern technology and the internet of things. It also improves the infrastructure and the collection, analysis, and utilization of data in real-time to spot the problem accurately, activate innovation in finding solutions, improve service delivery conditions, reduce costs, raise the level of security, and attract investments. The government, through the Greater Amman Municipality, has launched the "Amman is Smart City" roadmap project, with the aim of improving the process of service provision and reducing traffic congestion in light of the rapid population growth through appropriate systems and technologies and the facilitation of transportation around Amman.

Digital transformation technologies

5G

The government realizes that providing mobile phone services via 5G technology has spread since 2019 in some countries, including some Middle Eastern countries. It is clear that this technology will be the trend in public life and the financial and business world during the next few years. It is expected by 2025 that the number of subscribers to this service will reach 1.5 billion worldwide. Improving the information technology and communications infrastructure, in particular the modernization of networks to advance to the era of the 5G systems, is inevitable. These networks not only provide high-speed connection and data download, they are also a real driver for developing the businesses and services of all industries and sectors. It is also an essential factor for the success of the digital transformation process, including the provision of stable, secure infrastructure supported by artificial intelligence technology and the internet of things, which will help develop and enable the concept of smart sustainable cities over the next few years.

The government requests the Telecommunications Regulatory Commission to remove any obstacles that may prevent the activation of this technology in the Kingdom as soon as possible and to provide the frequency bands needed with sufficient capacities and reasonable prices, in accordance with the best international practices.

IoT

The Internet of Things is one of the most important bridges between physical and digital applications. The increasing number of devices connected to the internet enables companies to monitor and exploit assets and activities at a higher level, since companies are now able to work smartly and obtain information in real time. This empowers the decision-making process and integrates businesses in a safe, reliable manner. The internet of things is also based on sensor technologies, connected devices, and the consequences of such interconnected communications. This makes it a key driver in the digital transformation process and will have positive effects on beneficiaries.

The government, through the Telecommunications Regulatory Commission, has issued instructions related to the internet of things system in mid-2020. The government requests the commission to review and simplify these instructions and reduce the regulatory burden on companies operating in the internet of things sector and put them into effect as soon as possible, in partnership with the private sector. This technology contributes to the improvement of digital services; promotion of the adoption of the concept of smart cities; and development of the digital economy, innovation, and entrepreneurship.

AI

Artificial intelligence is developing due to the constant increase in computing powers, the availability of mega data, and the use of digital technology to create systems capable of performing tasks that simulate human mental abilities and patterns of work. Such systems are also capable of analyzing the surrounding environment and learning through mistakes to make predictions, expectations, recommendations, and decisions or take actions that influence real or virtual environments with a certain degree of autonomy. The emerging technologies, therefore, have to be harnessed when formulating the policies. The government, therefore, has issued the Jordanian Artificial Intelligence Policy 2020 to enable the use of artificial intelligence technologies in digital government services, create proper opportunities for innovation and entrepreneurship, promote artificial intelligence-related technologies in the Kingdom, and support research and studies in this regards.

The government is committed to preparing sectoral plans and strategies for artificial intelligence that clarify the market analyses required for the growth of artificial intelligence in the Kingdom, encourage investment, and support innovation. The government is also preparing a charter for the ethics of artificial intelligence.

Cybersecurity

The government realizes the importance of having an effective cybersecurity system, as the national cyberspace is considered a modern environment that requires systematic and comprehensive protection on the international, local, and sectoral levels. Protecting the information assets from unauthorized access and unlawful use is, therefore, of utmost importance to ensure the security of those assets, thus, maintain the security of everyone working and residing in the Kingdom and provide safe opportunities to create new investment opportunities, develop businesses, increase their effectiveness and efficiency, and provide safe and reliable government services.

The government has been working on issuing the National Cybersecurity Strategy 2018-2023, which clarifies governance and the ways of employing the resources required to confront potential cyber threats. The government is also issuing a set of institutional policies for national cybersecurity. Lastly, the Royal Decree on the Cybersecurity Law No. (16) of 2019 has been issued.

The government has formed the National Council for Cybersecurity, which will be entitled to ensure the building of an effective cybersecurity system on the national level, its development, and its regulation. The aim will be to protect the Kingdom against cyber threats and confront them efficiently and effectively in a manner that ensures the sustainability of work and the protection of national security and the security of individuals, property, and information.

The government has also begun to establish the National Center for Cybersecurity and entrusted it with the tasks and powers stipulated in the Cyber Security Law No. (16) of 2019. The government requires all government and private bodies to abide by the application of the regulatory instructions of the National Center for Cybersecurity and the aforementioned legislations.

Blockchain

The blockchain is a database that can preserve the data stored in it and prevent it from being modified. It can be used to record events, addresses, activity management records, identity management, data processing and verification of its source, and allocating a distinct print for data, which cannot be hacked or changed. This enables it to be used in different sectors and to complete business transactions without an intermediary, in a manner that increases the level of digital security for data and reduces operational costs through reducing paperwork and accelerating decision-making processes. The blockchain technology is based on the principle of decentralization to preserve data, which enhances the principle of transparency and protection of information exchanged between different parties and protects data from being controlled by a specific party that can manipulate it.

The government, through the Telecommunications Regulatory Commission, has set up a technical committee to study the use of blockchain technology, the possibility of applying it in various government sectors, the implications of its use, and applications and the uses it provides. The commission will also study the impact of applying this technology to entrepreneurship, activating the partnership between the public and private sectors, and exploiting the opportunities available to use this technology in facilitating the flow of business in the Kingdom. The government, therefore, requests the

commission, in cooperation with the relevant authorities, to study the need to regulate the blockchain and enact the legislations regulating the activation of this technology during 2021.

Open Source Solutions

Open source solutions allow developing digital government services smoothly and at a lower cost. They, moreover, accelerate innovation processes, adoption of cloud platforms, and enhancement of the utilization of data and its analysis through using flexible solutions compared to copyrighted software. The government, therefore, directs all government agencies to adopt open source solutions and include them in the relevant bids, when possible, with no less than 50%.

Cloud Platforms

Cloud computing technology is based on transferring the processing process and storage space of the computer to servers and work platforms that can be accessed through the internet without restricting this to a specific device or a specific location. Cloud computing technology plays a large and important role in our lives, especially in the field of information technology and communications. Thanks to its numerous benefits and features, it is possible to run many applications and programs in the cloud-computing environment and utilize such benefits and features in all the government organizations in the Kingdom. The government realizes that the approval and adoption of cloud platforms mainly contributes to supporting the growth of small and medium businesses, facilitating their involvement in the labor market, and encouraging the integration and partnership with the private sector. It will also enable government bodies to develop new digital solutions and services and present them in an innovative way to citizens, improve public services, promote digital transformation, and enable designing and managing the jobs supported by information technology in a more flexible and innovative manner. It will also save the costs through optimizing the use of technology resources, based on "pay-as-you-go" concept, which is one of the most effective options in reducing costs for government bodies.

The government has issued the Cloud Platforms and Services Policy of 2020. The government, through the ministry, will continue to develop the special government cloud. The government is requesting the ministry, through the e-government program, to lead the transition to use cloud services on the government level.

E-payment

Over the past years, the Jordanian government has implemented a large number of comprehensive infrastructure projects that constitute a strong enabler to move the country to the next levels of digitization of government services and e-payment services on the national level. There is, however, an urgent need for an increasing shift towards digital payments in the government sector. In fact, the spread of new electronic and mobile tools has opened the door to a potential revolution in payments.

By activating e-payment, the government aims to reduce the size of parallel economy and improve the user experience. It also aims to create new job opportunities, eliminate fraud and corruption, and provide more accurate government financial information.

The Jordanian government is committed to promoting the spread of digital payments for all applicable government services. The Cabinet Resolution No. (6425) of 15/09/2019, which obliges all ministries to digitize their payments, supports this trend.

The government is also committed to increase the percentage of the population who make or receive digital payments, seeks to shift to be a cashless government, and stop receiving cash payments for government transactions at the beginning of 2021.

Open APIs

The importance of using the Open APIs methodology lies in enhancing and accelerating innovation through taking advantage of the functional characteristics of the available software or systems. It also increases transparency and boosts the confidence in the government's performance through providing opportunities for beneficiaries to access public information and enabling its exchange between relevant stakeholders. It also offers new, secure access channels to government electronic services and shared services, faster and at a lower cost. It, moreover, strengthens the partnership between the public and private sectors by allowing the private sector to participate fully in the design and development of government services and the interoperability of all government applications, data, systems, and services.

The government, therefore, has prepared, through the ministry, the Open APIs 2020 Policy that encourages the use and provision of APIs for individuals, public and private sectors, and entrepreneurs.

The government requires the ministry to complete the work on building, developing, and operating the platform of "Jordan as Platform", which enables beneficiaries to access open APIs of data and government services in a seamless, simple manner before the end of 2020. This platform aims to ensure the production of APIs according to open principles that allow seamless and transparent integration with other systems.

Digital Identity

This system aims to authenticate the digital identity and activate the digital signature of individuals and companies to enable them to benefit from the services that require the authentication of the beneficiaries. It also aims to provide single-sign-on for individuals and companies. The Ministry of Digital Economy and Entrepreneurship, therefore, has to work to ensure that the technical infrastructure requirements are completed through obtaining the international accreditation and providing a center for recovery and other requirements. The ministry will also provide an integrated legislative system to activate the digital signature on the national level effectively, in order to complete electronic transactions fully remotely. This is to be done through reviewing and developing the Electronic Transactions Law and other relevant regulatory legislations.

The government has been working lately on developing a national system concerned with verifying and documenting the identity of the user and creating a digital identity for individuals and companies. This is to enable benefiting from the services that require the authentication process of the beneficiaries, provide the verification and authentication service, and activate the digital identity services through the single sign-on service for individuals and companies and the digital signature of documents service. The ministry has also been creating a digital identity system to be the main technical enabler that aims to enable users to access the e-service portals anywhere, using the smart national ID and smart phones, depending on the digital identity that is created for users. With this system, the government and private sector will be enabled to accelerate the digital transformation and convert all transactions into smart digital services and adopt the digital signature of electronic documents service, taking into account maintaining the security and confidentiality of users' information.

The ministry, through the digital identity system, has made it possible to use a unified (username and password) to benefit from the submission of electronic transactions for Jordanian users as a first stage and to enable them to benefit from their digital identity for digital signature. The ministry will continue to work on developing and improving this system to include

the rest of the user classifications and various work sectors, such as the business sector, the companies, the financial sector, and non-Jordanian users, to achieve the ultimate goal of establishing a comprehensive, national system for identity verification.

The government requests the ministry to work on reviewing the integrated legislative system necessary to enact the digital identity and activate the electronic signature, such as the Electronic Transactions Law and other regulating laws on the national level, in an effective manner, in order to enable the completion of electronic transactions fully remotely.

Broadband Internet and Digital Mobile Technologies

Successful digital transformation requires the availability of digital infrastructure for telecommunications, such as fixed and mobile broadband networks and the relevant modern systems to reach the required and necessary speeds to support the functions and services necessary for the advancement of the digital economy. What supports the availability of this digital infrastructure is the issuance of legislations and regulatory instructions that keep pace with the rapid development of emerging technologies, ensure the spread of mobile broadband services, and improve the coverage and quality of services to ensure that services reach all segments of society, regardless of their residence or when the service is requested.

It is, therefore, increasingly important for companies operating in the communications and information technology sector to enhance the infrastructure through taking part in spreading the latest technologies and continue to invest in this field, in order to keep subscribers in constant contact with their interests. The telecommunications companies should also become a digital partner for all sectors and an effective contributor in the digital transformation process to build and cognitively empower the community and offer digital services and products that keep pace with the needs of the market and meet its requirements.

The government, therefore, is requesting the ministry to strengthen the partnership between the public and private sectors to provide a supportive environment that includes infrastructure and legislative systems that enable the acceleration of digital transformation and ensure keeping pace with the rapid developments in this field.

The government also requests the ministry and the Telecommunications Regulatory Commission to draw up plans to improve efficiency, reduce the cost of internet services, and increase its overage. This will affect the cost of providing digital government services to the beneficiaries and increase the rate of demand for them.

National Optical Fiber Network Programme

The national optical fiber network program provides a high-speed network using optical fiber cables on the Kingdom's level to connect all educational agencies, government offices, and health agencies. This aims to facilitate the intersection between multiple government sectors, bridge the digital gap in rural areas, and support national initiatives that focus on attracting foreign and domestic investments that support the digital economy sector in the Kingdom. In order to increase broadband coverage in the Kingdom, boost investment, increase revenues, enhance competition, and make Jordan a regional center for cloud platform, cybersecurity, and international communication services, the government, through the ministry, has connected 1,361 government, health, and educational bodies to the optical fiber network spread throughout the Kingdom.

The government, through the ministry and the Public-Private Partnership Unit of the Council of Ministers, is conducting a feasibility study for a partnership between the public and private sectors to manage, expand, and operate the national optical

fiber network program. This includes the exploitation of capacities available on optical fiber cables, ground pipelines capacities, and broadband capacities for commercial purposes.

The government requests the Ministry and the Partnership Unit of the Prime Ministry to complete the feasibility study for the project of expanding the optical fiber network program as soon as possible and submit recommendations to the Council to make a decision on it, no later than mid-2021. The government also requests the ministry to complete the national optical fiber network program by the end of 2021.

Secure Government Network

The government has worked through the ministry on developing and building the Secure Government Network on the optical fiber network to connect all government agencies on a secure network that adopts high international standards to achieve cybersecurity and maintain the security of information exchanged between government bodies. The government has connected 128 government bodies to the secure government network. The government, through the ministry, will continue to connect more government organizations to the network, depending on the readiness and need, and develop and update the components of the secure government network to maintain business continuity, increase the capacity, and ensure information security.

Second Enabler: Digital Government Services

The next stage requires the ministry and government bodies to continue transforming government services into effective digital services, in line with international requirements and specifications. They should also review the legislations to ensure the achievement of digital transformation to support the development, improve citizens' lives, and achieve welfare based on general international principles related to digital transformation that are compatible with the Jordanian context, namely:

- **Interactive services platform**

It provides an interactive services platform through the e-government portal and the electronic application "Sanad", which provides one portal to digital government services and allows access using a one password and username instead of multiple passwords to perform many digital government transactions, anytime and anywhere.

- **Once only principle**

It aims to request the necessary data only once when providing the service and share it with the rest of government bodies. The ministry will continue to work on building an interconnection system through which the data will be shared with government bodies, in accordance with the approved standards and controls.

- **Simple, fast services** that meet the needs of the beneficiaries and achieve their satisfaction

The ministry will continue to re-engineer the procedures before proceeding with the electronic services automation procedures, in order to provide simplified services that meet the needs of investors, in accordance with the approved user journey standards.

- **Leaving no one behind**

It takes into account all segments of the community when developing electronic services and government e-content and meeting the needs of the vast majority of them.

- **Digital by default services**

It means continuing to transform all government services into effective digital services in line with international standards of digital government services, provided that the new services are digital by default.

Third Enabler: Data

Data is the main pillar of the digital transformation process for any society that strives towards progress and advancement through enhancing transparency and establishing the principle of accountability and evaluation of government performance and designing digital channels that serve the needs of beneficiaries, based on the data stock available to them. This is also achieved through promoting innovation and entrepreneurship and providing access to government data and making use of it, in addition to providing opportunities to participate in decision-making processes.

Adopting transparency in the relation between the government and all segments of the community is important to promote development, provide government services and running businesses easier, provide information and public data required to enhance innovation, achieve development, and overcome challenges.

Data and the standards for organizing, storing, and sharing data are witnessing major developments, accompanied by a notable increase in the level of coordination and cooperation between government agencies. The initiatives launched by the government, however, still needs more support and improvement, as Jordan is ranked 104 out of 193 countries on the Open Government Data Index (OGDI)), in the E-Government Report 2020 issued by the United Nations Department of Economic and Social Affairs.

National Information System

In October 2019, the government decided to establish a national information system in the Ministry of Digital Economy and Entrepreneurship through connecting the sectoral information systems and databases operating in the government sector to provide the decision-maker with studies, statistics, and accurate recommendations, as required, to enable them to make the right decision at the right time.

The government realizes that establishing this system requires setting up the necessary legislative frameworks for government agencies to share the data they possess. It also requires establishing the necessary infrastructure to receive, collect, store, and process information and data, as well as classify and analyze them, and maintain their integrity, security, and privacy. The government also realizes that the ministry is facing challenges related to the ownership and sharing of data and integrated information in particular. The presence of a large number of bodies and organizations involved in providing integrated information and services leads to bureaucratic procedures and the unwillingness of stakeholders to bear the responsibility resulting from ownership in some cases.

The government requests the ministry to continue to take executive steps to put this system into effect as soon as possible, including the legislative framework that will be binding for all government bodies. The ministry is also requested to use the latest available technologies, such as artificial intelligence and machine learning technologies, and to rely on modern methodologies in data analysis. The government requests all government bodies to adhere to whatever the ministry issues in this regards.

Classification of Government Data

Data is one of the valuable assets the government owns and which has to be managed effectively to achieve the added-value resulting from its optimal use. This can be achieved through defining a unified methodology for its classification and management, in accordance with specific conditions, to ensure transparency and accountability in government bodies. The government issued the Government Data Classification and Management Policy 2020, which sets the main base for government agencies to classify the data they own, according to the expected level of damage because of illegal disclosure.

The policy defines four main levels of data classification, namely confidential, sensitive, private, and normal. The policy is considered the main enabler towards adopting modern technologies, including cloud platform services, artificial intelligence technologies, and others. All government agencies have to comply with the policy and finalize the classification of their data, in accordance with the requirements set out in the policy, by the end of 2021.

Personal data

The government realizes that with the rapid technological developments resulting from the increasing use of digital devices, computers, and everything connected to the internet; individuals' personal data is no longer limited to their name, picture, and phone number. It has expanded to include biometric data, such as the eye print, face, and fingers. It also includes health data, geographical location, travel path, and many other personal information. This requires the government to protect such data, create a safe legislative and legal environment, and provide the necessary protection for data transfer, especially in the digital, internet, banking, and health sectors. This will boost confidence and security while implementing electronic transactions and prevent the breach of citizens and residents' right to privacy established under the provisions of the constitution and relevant laws.

The government has worked to set up an institutional legal and regulatory framework for the protection of personal data (the Personal Data Protection Law). The law aims to balance between the individuals' rights and freedoms related to their personal data, while keeping up with international practices to allow companies and investors to benefit from the circulation of data and information in light of cyberspace and the spread of the concepts of mega data, artificial intelligence, and the internet of things. This will be in a manner that establishes the storage, processing, and conducting operations on data within clear restrictions and obligations, which enhances the necessary confidence to engage in the digital economy and contributes to encouraging e-commerce and electronic services.

The government is committed to completing all the constitutional procedures to approve the bill as soon as possible and put it into effect no later than the end of 2021.

Open government data

The government has issued, through the ministry, the necessary legislations to support the dissemination of open government data to make open government data available free of charge. This will allow the local community, researchers, scholars, and civil society organizations to use, reuse, analyze, and merge them for multiple purposes. This will eventually contribute to achieving transparency and accountability, enhancing confidence in government performance, encouraging creativity and innovation, and creating new job opportunities.

The ministry has established the Open Government Data Portal, which is a the tool to display the open government data sets provided by government bodies divided by sector (health, education and culture, economy and business, environment and

weather, tourism and monuments, governorates and municipalities, justice and societal peace, political development and elections, energy, transportation, social development and societal safety, government and public sector, maps and geographical locations, population and society, agricultural wealth and natural resources).

Although the number of open government data sets that have been published so far is considered modest by international standards, the ministry spares no effort in providing more data sets for all segments of the community. It is also focusing on the quality and accuracy of the published data, the need to update it, and provide it to users through the latest technologies.

The government, therefore, requests the ministry to boost cooperation with government bodies to provide more open government data sets in real time and to develop digital solutions to facilitate users' access to them. The government also requests government bodies to continue publishing their open data in a high quality and updated form on the portal. The government also requests the ministry to develop an independent portal for open data, in line with international standards in this field, by mid-2021.

Fourth Enabler: Youth, Technology, and Jobs

The process of digital transformation requires developing the digital skills of all segments of the community, employing those who have digital talents, and attracting skilled labor to the labor market to bridge the gap resulting from technological developments. The government, therefore, should devise national plans to develop the digital skills of the youth, build an environment conducive to innovation and entrepreneurship, and create jobs in the field of digital economy.

The government has been working, through the ministry, on implementing the project of the Youth, Technology and Jobs for five years (2020-2025). The project aims to create 30,000 new jobs for youth in the next five years, including women (30%) and Syrian refugees active in the fields of freelance digital work (15%). The project also aims to digitize government payment transactions, attract about 20 million US dollars in the form of new investments from the private sector for digital services, improve income opportunities from the Jordanian digital sector, and ~~expande~~expand government digital services.

The government realizes the continuing negative effects of the coronavirus pandemic, the resulting repercussions and the application of physical distancing and distance learning. The government also realizes the need to support the process of digital transformation and provide school students with the necessary digital skills. With (16%) of Jordanian government school students not having devices connected to the internet, according to multiple studies, there is an urgent need to provide an ideal model for transforming traditional education systems, based on textbooks and interaction between the teacher and the learner, into modern systems, based on digital technologies that enhance the learner's experience through the shift towards digital education. This will offer learners the opportunity to access an integrated cycle and ensure that they are prepared to keep up with the latest technologies and possess the most important skills that help them play an effective role in the community and economy.

The government, through the ministry and the Ministry of Education, and in cooperation with the private sector, is devoting its efforts to provide opportunities for flexible education for all and across various educational fields and skills, and through relying on digital learning and educational courses provided on the internet. The government will work in this area to provide the necessary infrastructure for remote learning, such as computers, internet capacities, technical support, and periodic maintenance of devices. It will also provide digital educational platforms that support the remote learning process and make them available to all students across the Kingdom, no later than the end of the first quarter of 2021.

The government, represented by the ministry and through the project of Youth, Technology, and Jobs, seeks to stimulate the supply and demand aspects of the digital sector in the Kingdom through two main components:

First component - Supporting the provision of digital skills in Jordan

- Supporting the development of digital skills led by the private sector through facilitating the establishment of the National Skill Council for Information and Communication Technology (NSC-ICT). It shall be an independent legal entity (financially and administratively), with a majority of the board members from the private sector and key stakeholders in the public sector, to do the following: (Assess supply and demand for digital skills in Jordan; establish national professional standards; qualify training services providers; select and contract with training service providers; create, approve, and disseminate online training materials; conduct national awareness activities; engage in monitoring and evaluation; establish a comprehensive Customer Relations Management (CRM) system for beneficiaries).
- Enhancing the digital skills competencies of public school students from the seventh to twelfth grades. The gaps in the current computer subject in schools will be identified, a special digital skills course will be developed, and teachers will be trained on the new courses, which will be systematically spread across public classrooms.
- Providing workspaces in local communities through equipping three to five technology centers operating under the management of the private sector. They will serve as spaces for applying digital skills and co-working spaces that serve trainers, employers, entrepreneurs, civil society organizations, and subcontracting for business operations of companies.

Second component - Supporting the expansion of the digital sector and digital government services in Jordan

- Supporting the expansion and access to markets for digital companies and digital platforms through providing the necessary competencies and financial incentives to support their growth plans in building and expanding the scope of their activities and creating local job opportunities. It will also facilitate access to income-generating opportunities in various technical and non-technical economic activities through digital platforms and the freelance market, and facilitate women and youth's access to such platforms.
- Supporting the digital transformation of service provision to citizens and businesses through support activities designed to improve access to and the quality of selected e-government services, as well as improving service quality and cost efficiency. Policies will also be adopted to give the private sector an opportunity to innovate through adopting business models that benefit from open government databases.
- Supporting the digitization of payments through providing the necessary infrastructure, including identification, electronic signature, and main payment system platforms. Integration, business processes, procedures, and policies necessary to facilitate payments for citizens will also be enhanced.
- The government also realizes the importance of harmonizing the outputs of higher education with the requirements of the labor market through adopting training programs to develop the life, technical, and linguistic skills of graduates and leverage their digital skill. The government also emphasizes the importance of transforming the traditional education systems adopted in universities into modern systems and developing its infrastructure to maintain the permanence and the sustainability of educational services in a manner that keeps pace with the digital transformation.

Fifth enabler: Innovation and partnership with the private sector

Because of technological advancement and modern digital technologies, almost every project is relying mainly on information technology and telecommunications of creativity and innovation. This contributed to the spread of digital entrepreneurship, which mainly depends on establishing innovative projects using new digital technologies, and provided a fertile environment for entrepreneurship and the discovery of innovators and the creation of a new generation of entrepreneurs and innovators, which would positively promote the digital economy.

The government realizes the importance of enhancing the entrepreneurial, initiative sense among university graduates. That is why the ministry has signed several memoranda of understanding with the private sector to train young people and university graduates on digital skills and competencies and establish business incubators to benefit small and medium entrepreneurship companies.

The ministry is also working, in cooperation with its legal partners, business incubators, and investment funds, on creating a legislative framework to regulate the entrepreneurship sector and facilitate the procedures for establishing, expanding, and expanding entrepreneurial companies. The government is also keen on facilitating and stimulating the entry of these entrepreneurial companies into Arab and international markets.

The ministry is working on preparing a legislative framework for startups to encourage and enhance entrepreneurship in Jordan and to ensure the existence of a stimulating environment for investment. The aim is to develop a work environment that stimulates the emergence and development of new entrepreneurial companies and create a legislative environment that stimulates emerging companies in a manner that ensures their continuous development in Jordan.

Sixth enabler: E-participation

E-participation provides an opportunity to contribute to the decision-making process through the interaction of citizens in submitting proposals, observations, and opinions using technology and E-participation tools, which may improve the decision-making and policy-making processes. It will also have a great impact in achieving government goals and enhancing transparency and accountability. That is why the government has provided various electronic communication channels, such as the platforms of "Bekhedmetkom" (at your service), "Redakom Yehemena" (your satisfaction is important to us), "Qayyem Tagrebtak" (evaluate your experience), the national call center, and the SMS platform, in order to enable all segments of the community to express their opinions and make suggestions. This will help improve the quality of government services provision, raise the level of customer satisfaction, and make their lives easier.

The government realizes the need to improve the two-way flow of information between the government and citizens, increase public participation, and establish partnerships and cooperation between the public and private sector in designing and implementing the programs. This also means engaging citizens in important tasks, activities, and projects, such as writing and reviewing documents and innovation of products and services, which will have a positive impact on the government's efficiency and digital transformation.

The government, through the ministry, is committed to preparing a legislative framework for e-participation within a period of 3 months as of the date of the approval of the strategy and presenting it for public consultancy to receive comments and responses from stakeholders and interested parties, to be submitted then to the Council of Ministers for approval.

The government requests the ministry and the Institutional Performance and Policy Development Unit of the Prime Ministry to study the status of electronic government portals and publish reports on interaction statistics with these portals on an ongoing basis. The unit should also work on improving their performance, suggesting mechanisms for their development, and building a specialized, unified electronic portal for e-participation, in accordance with the best international practices. A training and awareness plan in the field of e-participation of citizens and public sector employees should also be devised, in addition to preparing appropriate guidelines for government bodies to activate the provisions of the legislative framework for the e-participation. This should include developing guidelines for government bodies to deal with social media platforms and submitting it to the Council of Ministers.

Seventh enabler: Change management and human resources

The government realizes the magnitude of change accompanying the digital transformation process, including the change in methods and procedures of routine work; new ways of individuals' thinking; and change in concepts, skills, and competencies required to achieve the required digital transformation. The government also realizes that the required change will not occur on the institutional level unless it occurs first on the level of employees and individuals. This requires setting up a systematic, clear plan for change management on the government level and developing an interactive approach that raises the level of competencies required to move forward with the digital transformation processes. This includes awareness campaigns and promotion of digital services provided by the government, in addition to raising the awareness of government employees and members of the Jordanian community.

Human resources constitute a vital part to keep pace with the developments in the digital transformation process. The government has to provide qualified human cadres capable of using modern technologies, dealing with them, and developing them. This may be achieved through developing specialized programs and mechanisms to build the capabilities of the human cadres responsible for establishing the digital infrastructure and dealing with it and providing digital services in all forms.
In light of the aforementioned, the government is requesting the ministry to proceed with the establishment of the Virtual Academy for Digital Transformation. The academy aims to spread knowledge, skills, and digital trends, raise the level of digital awareness among public sector employees and their families, and work on training 150,000 government employees and their families during the next five years. Such training will be a compulsory course within the career requirements for public sector employees.

Whereas the responsibility for change management related to digital transformation is a shared responsibility between the ministry and other ministries and departments, the government requests the adoption of a modern model for change management within government bodies and members of the civil society. Such model should aim to improve the rate of adoption of changes by citizens and cadres of government organizations, ministries, and other participating parties, and reduce the amount of the expected rejection through developing a practical plan to address the possible causes. The model

should also promote change, so that individuals do not return to old methods and procedures, and increase the success rate of projects, so that the model is based on the following pillars (awareness of the need for change, building the desire to participate in and support change, developing knowledge of the method of change, developing the ability to implement change on a daily basis, reinforcement to keep change in place).

The government also requests the ministry, in cooperation with the concerned authorities, to prepare a comprehensive strategy for managing institutional change in the digital transformation within 6 months of adopting the Jordanian Strategy for Digital Transformation, ensure its implementation effectively, and monitor the compliance with it, provided that the ministry leads the activities supporting its implementation.

Communication plan

The continouse implementation of this strategy requires the development of a systematic plan to manage the communication process and effective communication with all segments of society by defining the necessary requirements to move forward in the digital transformation processes. The communication management includes the implementation of awareness and promotion campaigns, raising the level of awareness and institutional and community culture, and then analyzing the impact and periodic review of the outputs Plans according to clear performance indicators.

The government requests from the Ministry of Digital Economy & entrepreneurship to prepare and adopt a systematic framework to manage the process of media and communication with segments of society, and the framework includes the following pillars:

1. **Inform**: Preparing the necessary media materials to provide information to all segments of society about the plans, programs and projects implemented by the Ministry to manage and implement digital transformation, including websites, social networking sites and media coverage in the press, television and other communication channels.
2. **Examine**: involving relevant stakeholders in the study and development phase of digital transformation programs
3. **Engage**: Study the feedback on digital transformation from relevant stakeholders.
4. **Collaboration**: Cooperation with stakeholders (entrepreneurs, private sector and civil society) to implement a vision and committed leadership in implementing digital transformation plans and programs, launching hackathons and national competitions, adopting the implementation of business accelerators/incubators and digital platforms, and publishing success stories in this field.
5. **Enable:** Support and enable entrepreneurs, private sector and civil society to contribute in implementation of digital transformation initiatives by holding training, providing incentives and creating the appropriate legislative environment.
6. **Evaluate**: Assessing the impact and developing performance in implementing digital transformation programs through clear measurement indicators that include adoption of interactive digital platforms, providing space for digital community participation, developing digital capabilities and skills, creating jobs, enhancing investment and increasing media attention.

Eighth enabler: Government Resources Management System

The digital transformation process, upon successful implementation in the public sector, has a wide-ranging impact on the economy and community. The public sector organizations have an exceptional opportunity to make improvements to their services, in order to offer sustainable solutions at the lowest operational costs and increase the percentage of saving. The digital technologies provide the public sector with an unprecedented opportunity to digitize internal processes and advance, especially when relying on the most important technologies, analyzing mega data and infrastructure of cloud platforms, and developing the required capabilities, such as skills, culture, and management.

Whereas the true concept of digital transformation will not be achieved Kingdom-wide except through achieving transformation within the public sector, the government requests the ministry to provide a central system for managing and planning government organizations' resources. This aims at accelerating internal government procedures, raising the productivity and efficiency of the public sector, and automating basic government processes to complete transactions electronically among the various internal departments and sections and external government bodies. This aims, moreover, to achieve rapid, effective, and quick completion of all administrative and financial works and transactions, that involve long procedures, and enable the transition towards a paperless government.

The adoption of modern technologies in the development of the government system will facilitate the process of benefiting from data and providing statistical analyses. It will also allow building a central database of government employees, reducing the capital and operational costs of institutional resources systems, and unifying government controls and procedures through a unified national system.

The government believes building such a system will provide an important tool to monitor and follow-up on government expenditures; enhance remote completion of administrative tasks; achieve digital transformation in the public sector; enhance transparency and accountability; improve government performance and productivity; and provide smart, simple, and fast services and accurate and updated data to decision makers, as this is an integral part of the aforementioned national information system. It will also enhance e-participation and provide information and data to citizens and beneficiaries, such as researchers, academics, and entrepreneurs.

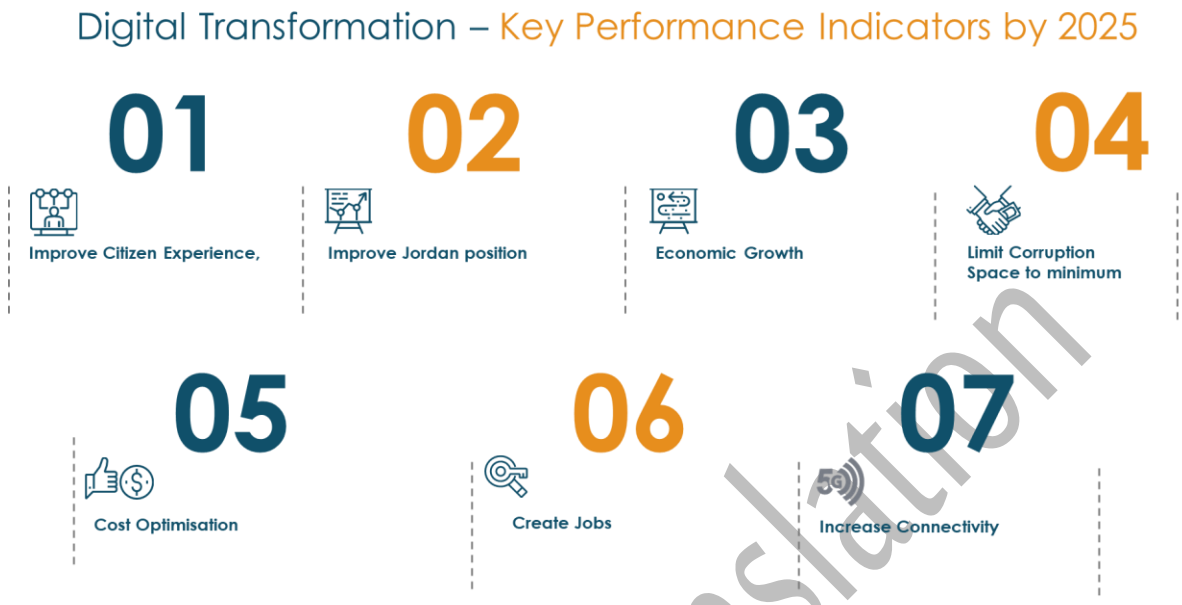
The government requests the ministry to include in the targeted government resources management system the development of a number of digital systems and tools to be an integral part of that system, such as (human resources and administrative development system, personnel affairs system, payroll system, electronic Diwan, vehicle tracking system, workflow follow-up system, financial resources management system, electronic government procurement system). The government is also committed to make all government bodies and organization implement this system in 2021 and requests the ministry to take the necessary measures to achieve this.

- Providing data and statistical analytics to the Prime Ministry in real time.
- Automating the regulations and mechanisms of government procedures through a unified national system.
- Providing single-source, accurate information to all government agencies.
- Introducing a centralized database to state personnel and identifying a unified structure based on civil service laws.
- Reducing capital and operational costs for institutional resource systems.
- Monitoring and supervising government expenditure and encouraging remote work for administrative tasks.

- Improving the quality of services and promoting transparency.
- Delivering simplified, paperless services to ensure timely service delivery.
- Delivering smart government services which can be approved quickly and electronically by government agencies taking part in the service.
- Reinforcing the principles of social justice for beneficiaries of government services.
- Facilitating the process of identifying and announcing government employment opportunities for applicants.

- Accelerating internal government procedures and increasing public sector productivity.
- Achieving integration in administrative work through a single system which serves as a link between all departments and units of various government agencies.
- Completing all time-consuming administrative and financial tasks and transactions in a timely and effective manner.
- Identifying agencies' HR requirements.
- Monitoring current plans, budgets, and projects.

Digital Transformation – Key Performance Indicators by 2025

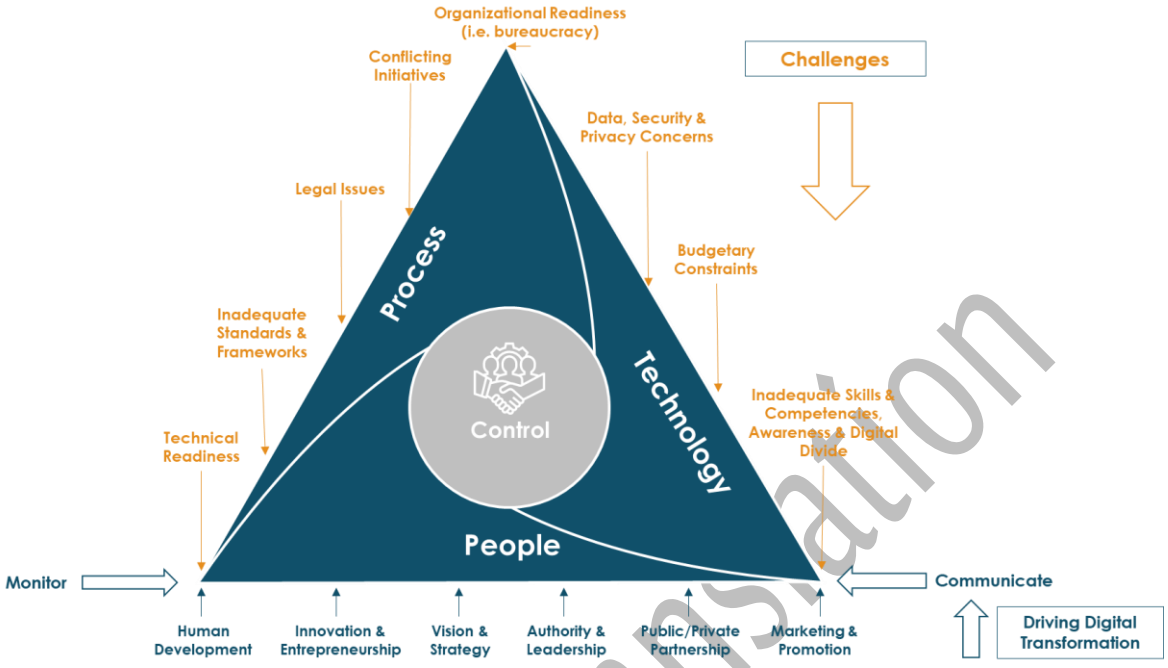


Main Key Performance Indicators

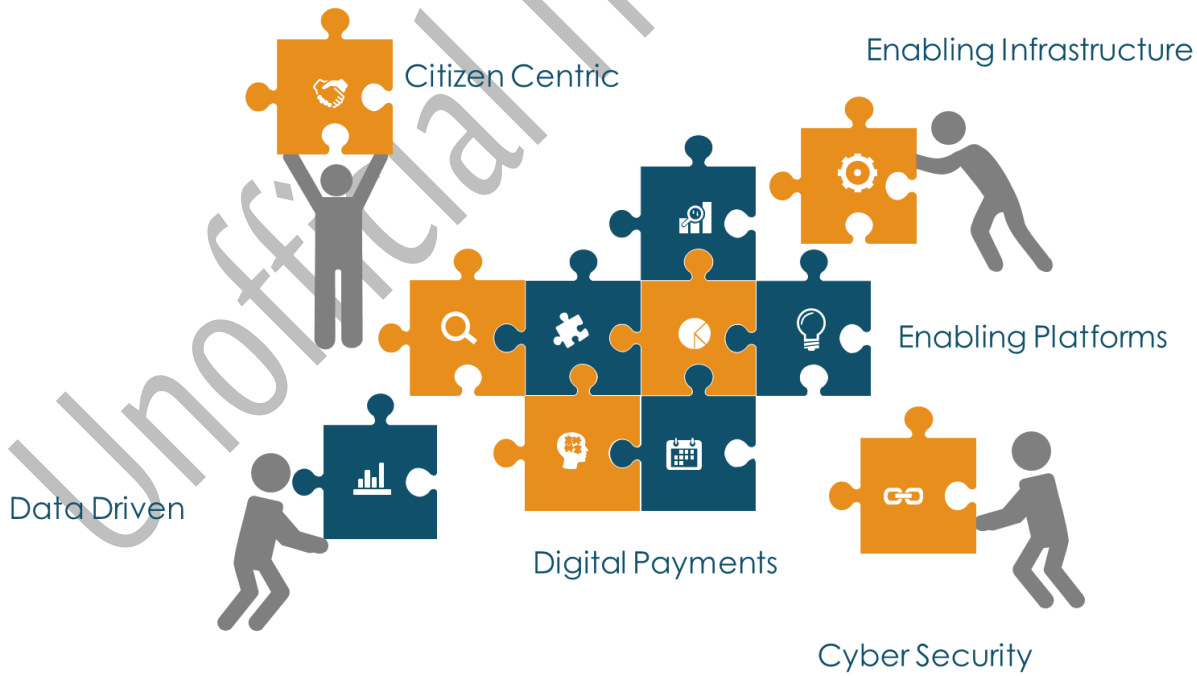
KPI	Current status	2022	2023	2024	2025
Increase connectivity					
Government FTTH	34%	45%	78%	100%	100%
Business FTTH	10%	25%	40%	60%	80%
Household FTTH	10%	22%	35%	45%	55%
5G coverage	0	5%	10%	25%	50%
Improve Jordan Positions regionally and globally					
Arab Digital Economy Index	Top 7	Top 5	Top 4	Top 3	Top 3
Global Digital Competitiveness Index	Top 4 regionally	Top 4 regionally	Top 3 regionally	Top 3 regionally	Top 3 regionally
	Top 53 Globally	Top 50 Globally	Top 45 Globally	Top 40 Globally	Top 35 Globally
Doing Business Index	Top 6 regionally	Top 5 regionally	Top 4 regionally	Top 3 regionally	Top 3 regionally
	Top 75 Globally	Top 60 Globally	Top 50 Globally	Top 35 Globally	Top 35 Globally
Global Entrepreneurship Index	Top 6 regionally	Top 5 regionally	Top 4 regionally	Top 3 regionally	Top 3 regionally
	Top 63 Globally	Top 55 Globally	Top 50 Globally	Top 35 Globally	Top 35 Globally
e-Government Development Index	Top 10 regionally	Top 9 regionally	Top 6 regionally	Top 3 regionally	Top 3 regionally
	Top 117 Globally	Top 100 Globally	Top 85 Globally	Top 65 Globally	Top 35 Globally
Limit corruption Space to the minimum					
Corruption Perception Index	Top 5 regionally	Top 5 regionally	Top 4 regionally	Top 3 regionally	Top 3 regionally
	Top 60 Globally	Top 55 Globally	Top 48 Globally	Top 38 Globally	Top 35 Globally

Economic Growth	Current status	2022	2023	2024	2025
Increasing the contribution of the ICT sector to the GDP	3%	4%	6%	7%	7%
Revenues of ICT Sector	1,543 Million JOD	3.3% Growth Rate	4.8% Growth Rate	6.3% Growth Rate	7.8% Growth Rate
		1593.9 Million JOD	1670.42 Million JOD	1775.66 Million JOD	1914.16 Million JOD
ICT exports	185.7 Million JOD	5.6% Growth Rate	7.1% Growth Rate	8.6% Growth Rate	10.1% Growth Rate
		196.09 Million JOD	210.022 Million JOD	228.084 Million JOD	251.12 Million JOD
Job Creation	Current status	2022	2023	2024	2025
Direct Jobs	18,000	23,000	24,500	26,000	28,000
Jobs through freelance platforms and shared economy	Current status	2022	2023	2024	2025
transportation smart applications	12,695	15,000	17,000	19,000	20,000
Delivery services applications	16,000	16,500	17,000	17,500	18,000
Business Process Outsourcing	5,000	6,500	7,500	9,000	10,500
Freelance Platforms	2,500	3,500	5,000	7,000	8,000
Jobs by upskilling	Current status	2022	2023	2024	2025
GIP	4,618	5,118	5,618	6,118	6,618
National upskilling Program	1,000	1,500	2,000	2,500	3,000
Support temporary employment (حافز)	12,500	-	-	-	-
E-Payment - Government Payment	Current status	2022	2023	2024	2025
Amount	60%	75%	85%	90%	90%
Transactions	15%	35%	65%	80%	80%

Driving Digital Transformation and Challenges

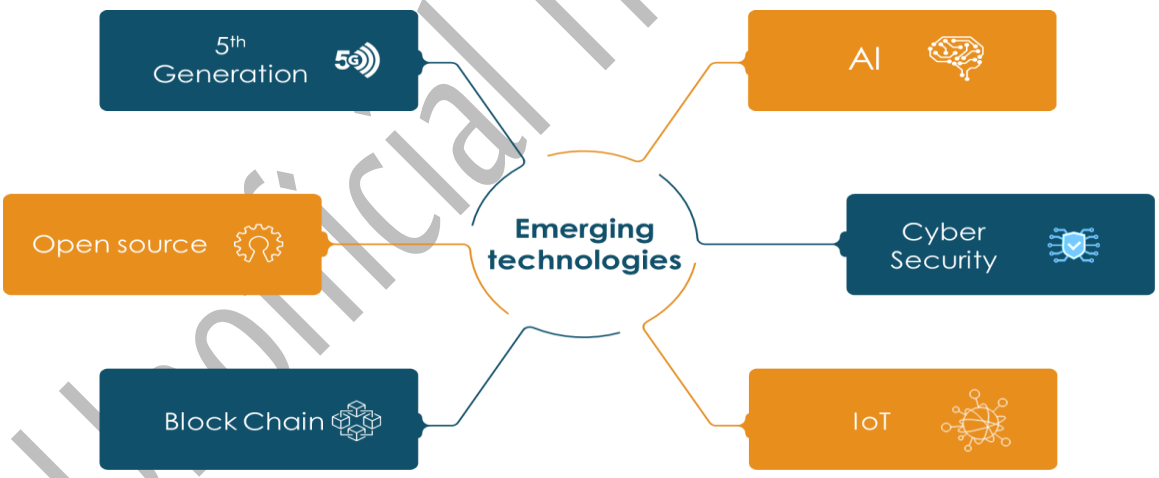


Moving Forward

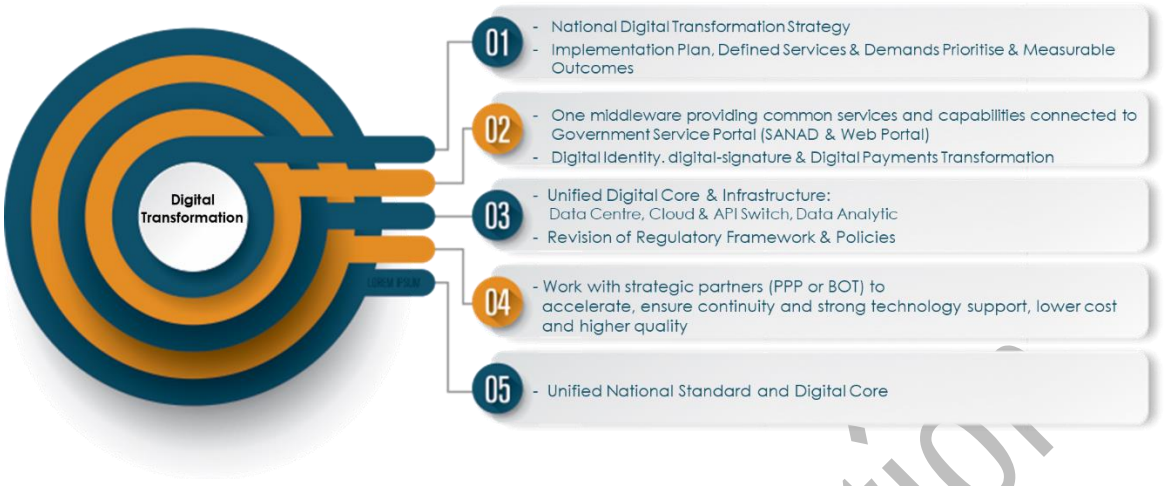


Digital Transformation – Citizen Centric

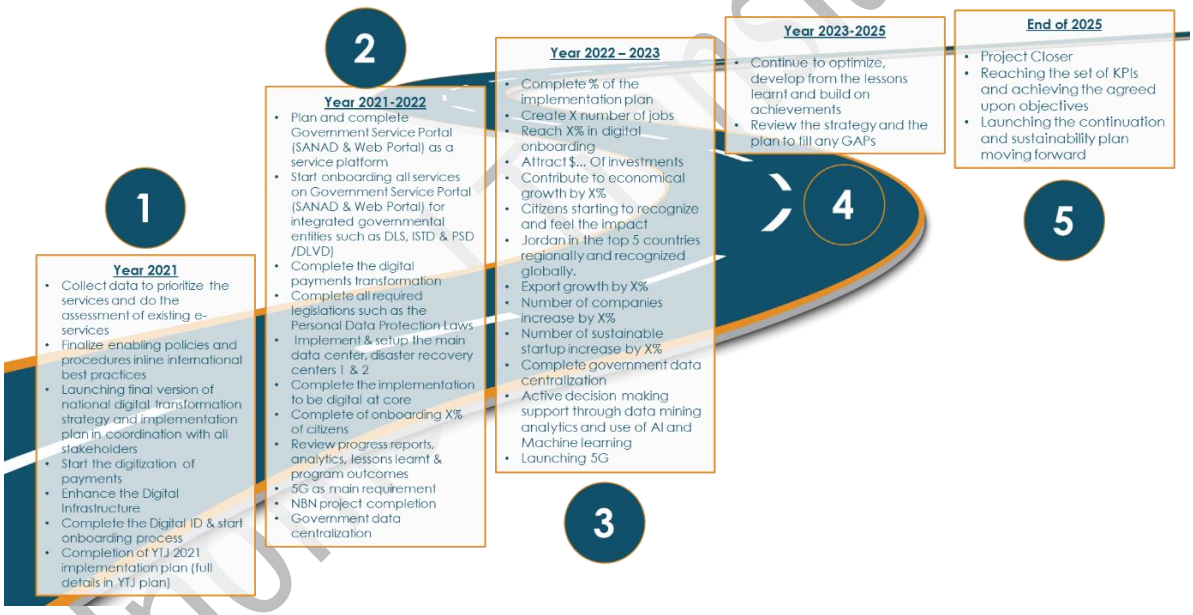
Emerging Technologies



Digital Transformation – Moving forward



The Digital Transformation Timelines



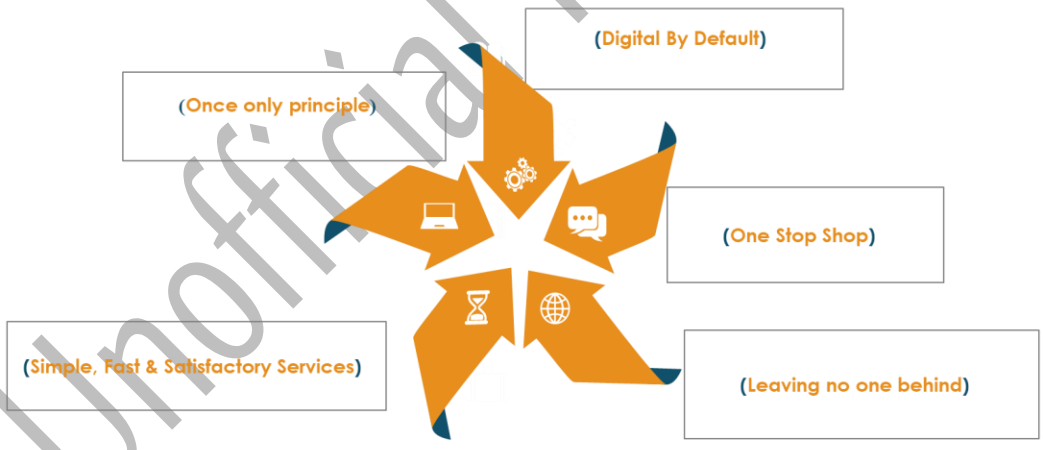
Government Digital Services

Services Automation Overview

Automating services on Government Service Portal for integrated ministries and other governmental entities

Targeted Governmental Entities	50 entities
Number of all Services	2464 service
API Enabled Services	25 Service
Non-API Enabled Services	599 Service
Service Automation (In Progress)	86 Service
Non-Automated Service (To be prioritized)	1754 Service

Services - International principles related to digital transformation that are compatible with the Jordanian context:



Digital Transformation – Services

The Digital Transformation (DT) structure has to be a centralized Digital Transformation to achieve a citizen centric model.

Decentralized Digital Automation

Weaknesses

- Automation at an Institutional Level
- Lower Productivity
- Higher Costs
- Higher Complexity **(integrations, data mining, analytics)**
- No National Standardization
- Lower Citizen Satisfaction, multiple service platforms
- Multiple Points of Failure
- Scalability Issues
- Intricate coordination
- Lacks the potential of achieving digital economy
- Reactive operating model for MoDEE

NOW

Centralized Digital Transformation

Strengths

- Lower Costs
- Higher Reliability and Quality
- Faster Development and Innovation
- Scalable Operation
- Higher Satisfaction, single platform for citizens
- Reduced Complexity
- Unified Government Services Platform
- Powerful Digital Economy
- Proactive operating model by MoDEE
- Better control over the process and implementation plan

MOVING FORWARD

→ Beneficiaries are looking for decentralized services, centralized platform and simplicity

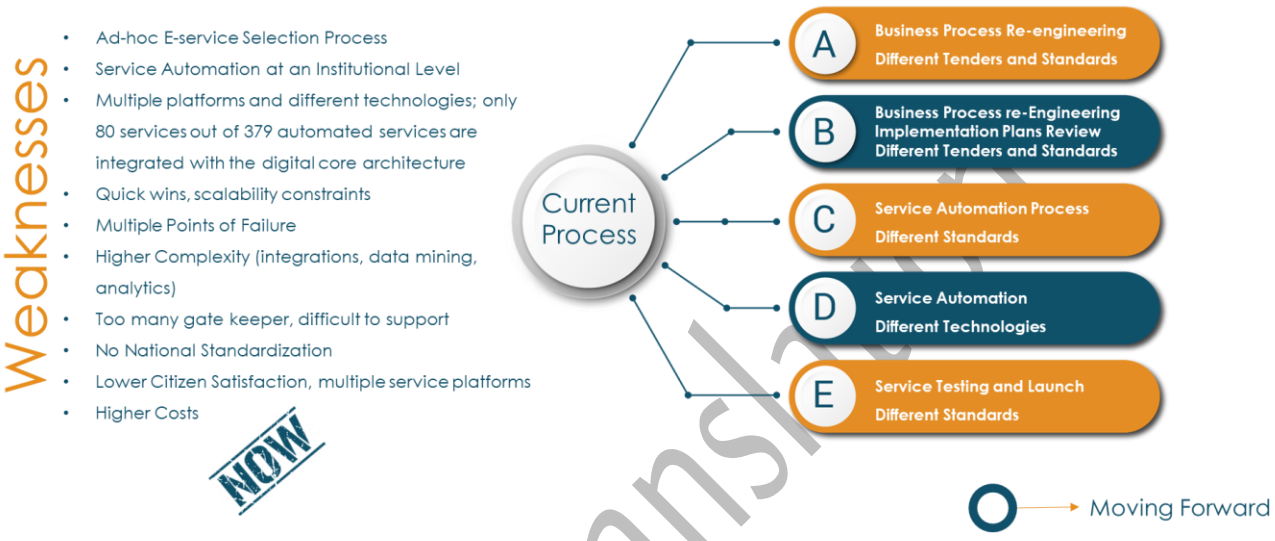
Digital Transformation – Moving Forward Process

Services

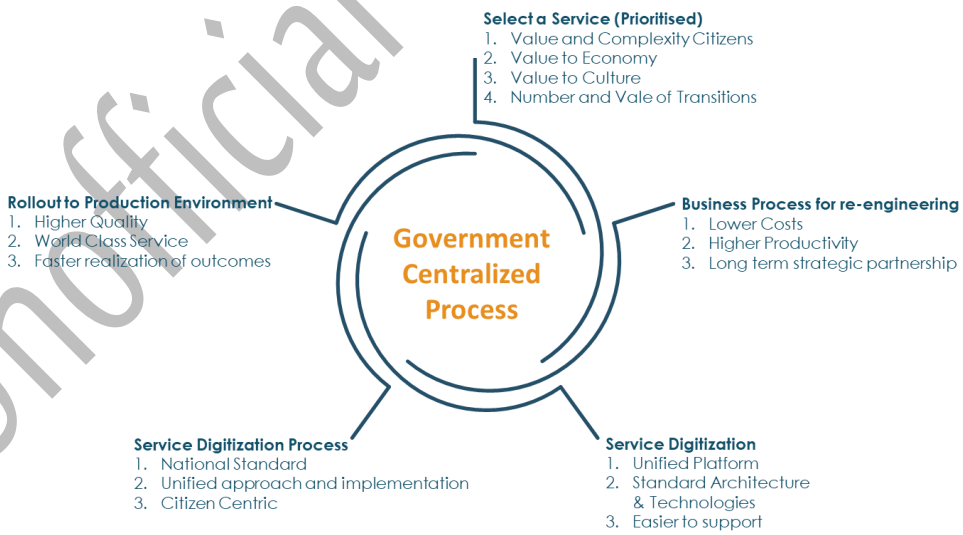
Collection of data is in progress with approximately 2000 services collected for analysis

Digital Transformation - Current Process

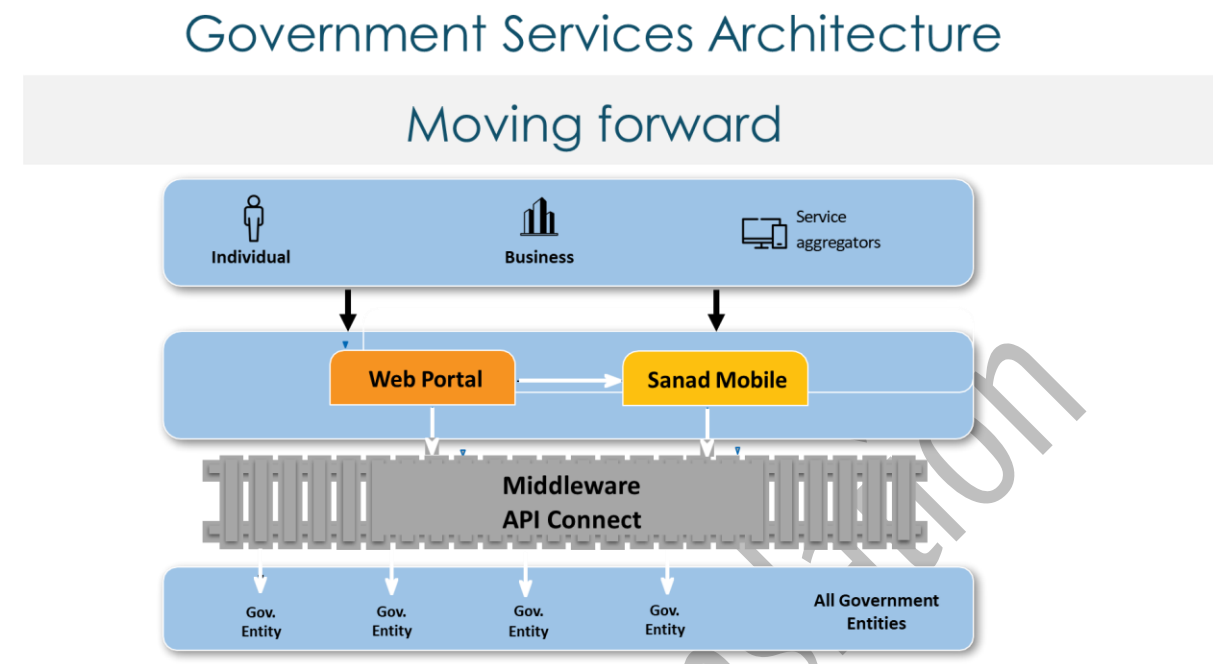
The re-engineering and automation of services are currently developed and produced at an institutional governmental level which is a decentralized Digital Transformation(DT) structure.



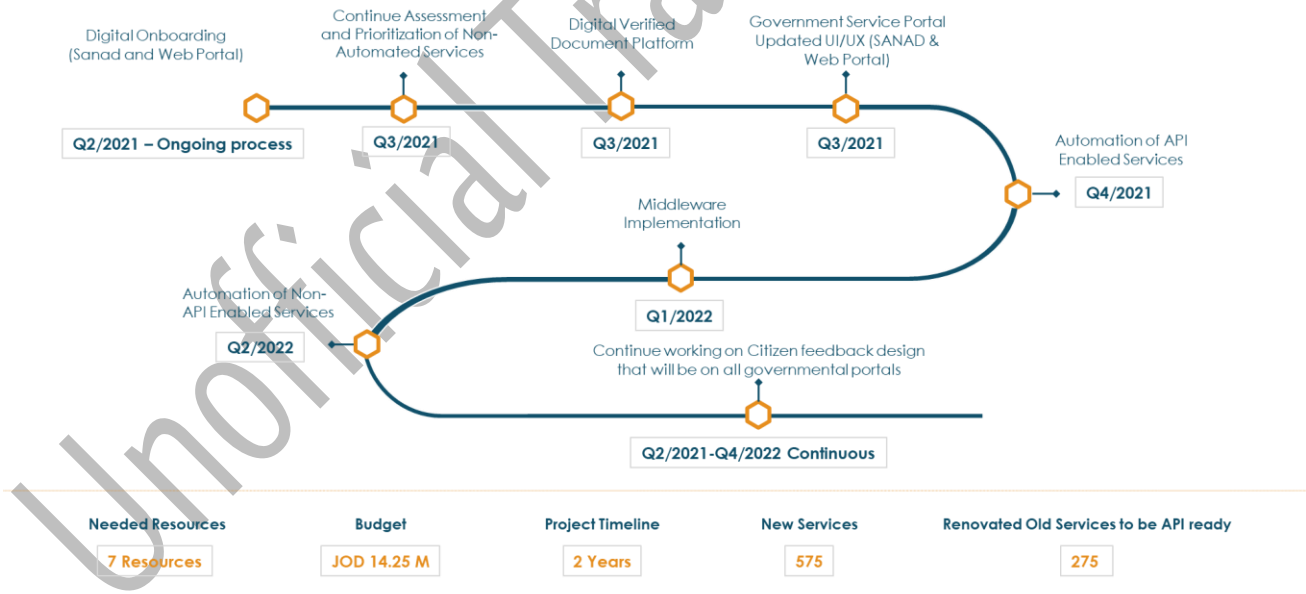
Digital Transformation - Moving Forward Process



Government Services Architecture



Services Digital Transformation Roadmap



Digital Transformation – Data

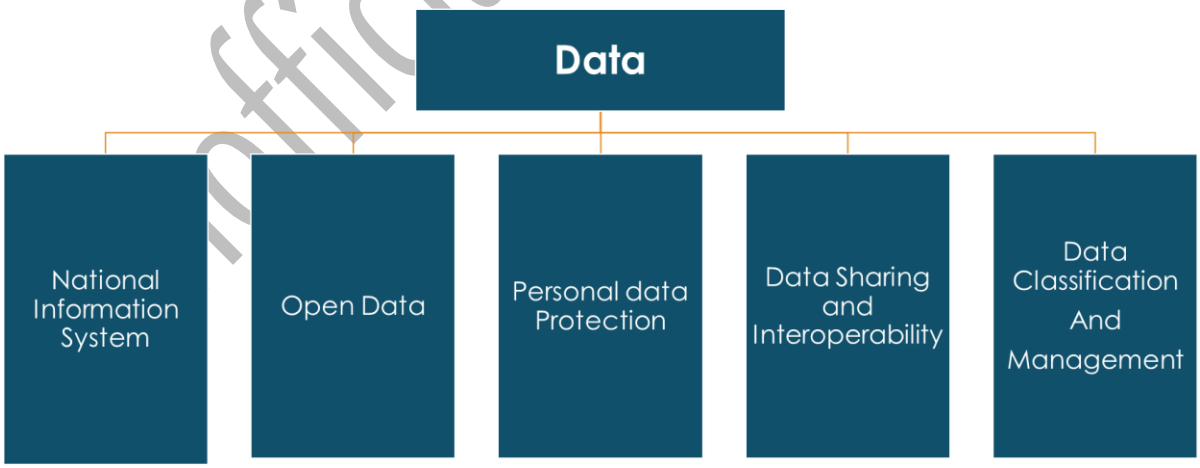
Digital Transformation - Data

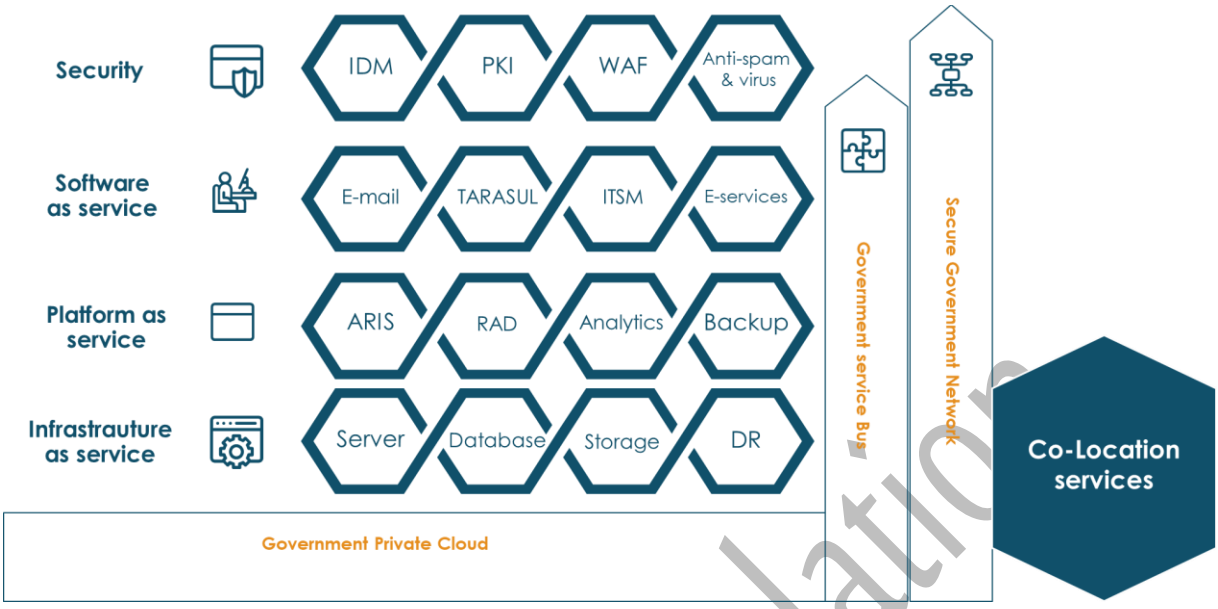
Current Situation

- Most of government data and technologies are decentralised
- The Government Digital Infrastructure is optional for government entities
- The main data centre is rented and not owned by a government entity
- The disaster recovery data centre is hosted on a government premise (NCSCM)
- The main and backup data centres are not currently being mirrored 100%
- There is no single entity owner of data
- National Broadband Network delayed and should be completed by end of 2021
- Government Private Cloud is not being fully utilized by government entities and is currently optional
- Poor utilization of the API platform and data analytics
- Government Service Portal (SANAD & Web Portal) doesn't have a roadmap and is not utilized as a single integrated services platform

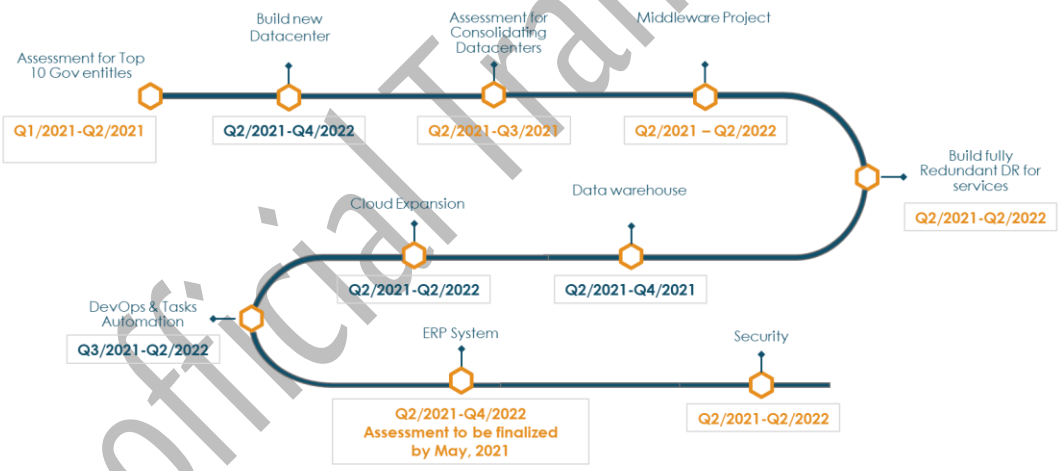
Moving Forward

- Centralization of government digital infrastructure
- The Government Digital Infrastructure to become obligatory
- The main data centre to be re-located to a government owned premise and must follow international best practices
- The backup data centre mirroring and location to be assessed in case of major risks
- The Government Private Cloud must be utilized by all entities and a single assign a single owner of data
- The National Broadband Network must be completed by 2021
- Plan and implement a data analytical strategy to accelerate development and sustainable economical growth
- Government Service Portal (SANAD & Web Portal) to be the face of the government for all governmental services





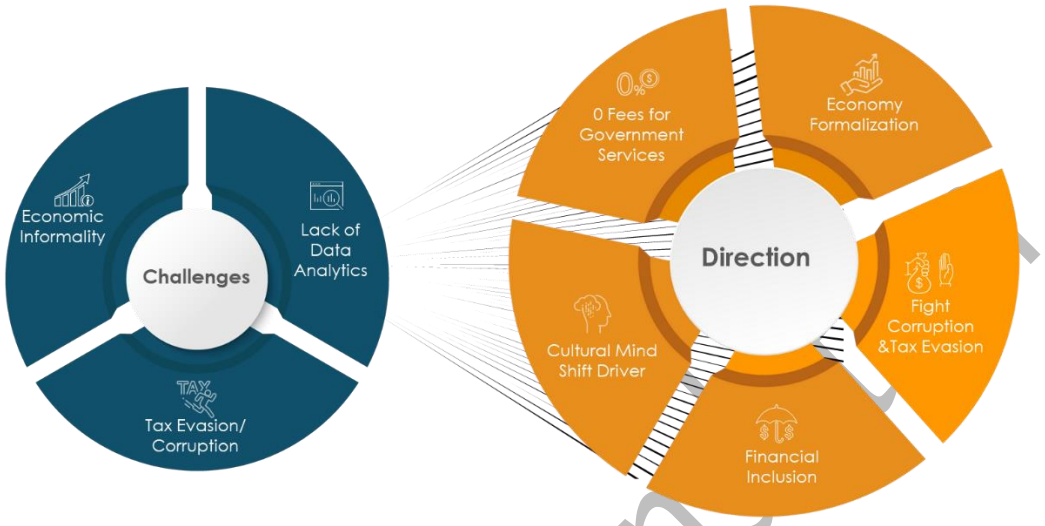
Infrastructure & Data Digital Transformation Roadmap



Needed Resources	Budget	Project Timeline	Main Platforms
20 Resources	JOD 27M	2 Years	5 Platforms

Digital Payment Transformation

To create an inclusive and formalized digital economy that limits corruption, tax evasion, and lack of information



Key Transactions Numbers

Collected Data

Total Collected Amount in 2019	JOD 5.9 Billion Average Ticket Size JOD 1521
Total Transaction count in 2019	3,895,440 Transaction
Collected Amount / Questionnaire	JOD 8.4 Billion
Collected Count / Questionnaire	38 Million Transaction
Collected number of P.O.C Interaction	Number of cashier 4552

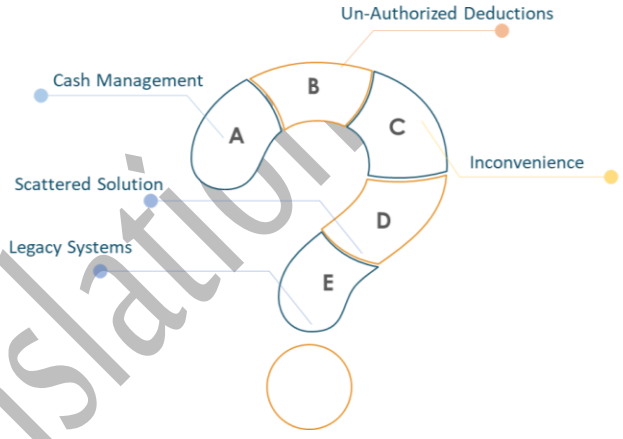
Digital Transformation - Digital Payment Transformation

MoDEE is currently working on the digital payments architecture to be able to transform into a cashless government and cease receiving cash receipts. The TOR is in the final stages of being signed off to start the tender process.

Government Benefits

- Improve Citizens Experience
- Reducing Economic Informality
- Creating New Jobs
- Eliminating the Risk of Fraud
- Making Government Payment Data more Accurate

Current Challenges



Digital Payment Transformation

Potential Bidders will suggest the possible new design that fulfills the government of Jordan needs to achieve Digitization of Person/Business – to – Government Payments.

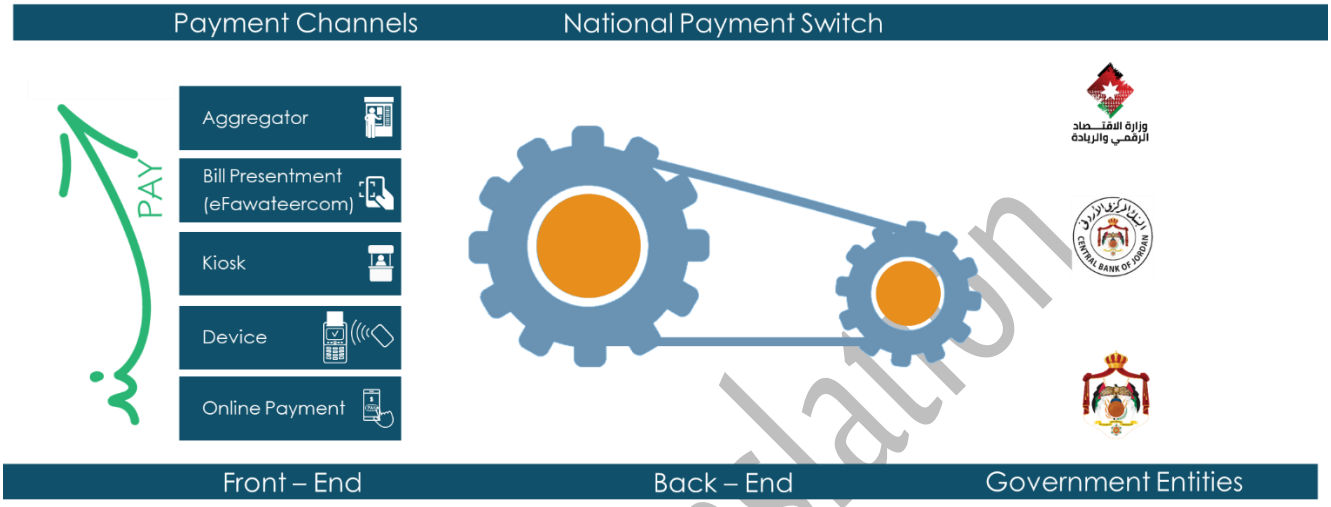
CHANNELS	TECHNOLOGY	USERS	BACK-END	SUPPORTED SERVICES
• eFAWATEERCOM	• eFAWATEERCOM	• NFC *	• INTEGRATION	• DEVICES
• MOBILE WALLETS	• MOBILE WALLETS	• DIRECT PAY	• RECONCILIATION**	• KIOSKS
• Bank accounts	• Bank accounts	• QR CODE	• REPORTING	• AGENTS
• CARDS	• CARDS	• CARDS	• APIs	
• Aggregators	• Aggregators	• BIOMETRIC		
• Others	• Others	• WEB / IN-APP		
		• KEY ENTRY		

* Wallets ,Physical Cards ,Bracelet...Etc.

** Clearing, Settlement, Switching, Processing , Operating...Etc..

Digital Payment Platform - Jordan Beyond Cash Payments in 2021

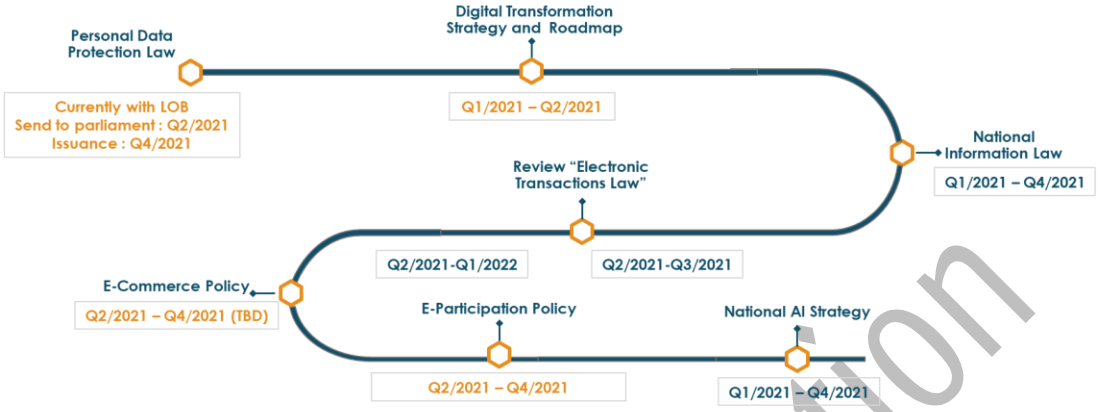
National Payment Switch will be owned by the Government and operated by the private sector
The latest in payment technology will be implemented to ensure seamless citizen Journey



Democratizing Payments Channels In Jordan

National Payment Switch will be owned by the Government and operated by the private sector
The latest in payment technology will be implemented to ensure seamless citizen Journey

Policies & Strategies Digital Transformation Roadmap



Needed Resources	Budget	Project Timeline
0	0	1 Years

National Cyber Security Centre (NCSC)

MoDEE recognizes the importance of having an effective cybersecurity ecosystem since a national cyberspace is a modern environment that requires systematic and comprehensive protection at the international, domestic, and sectoral levels.

The protection of information assets in the Kingdom is, therefore, crucial to ensure the security of all those who work and reside therein, create new investment opportunities, and develop businesses while increasing their effectiveness and efficiency.

The Government has issued the National Cybersecurity Strategy 2018-2023 and a set of institutional policies related to national cybersecurity.

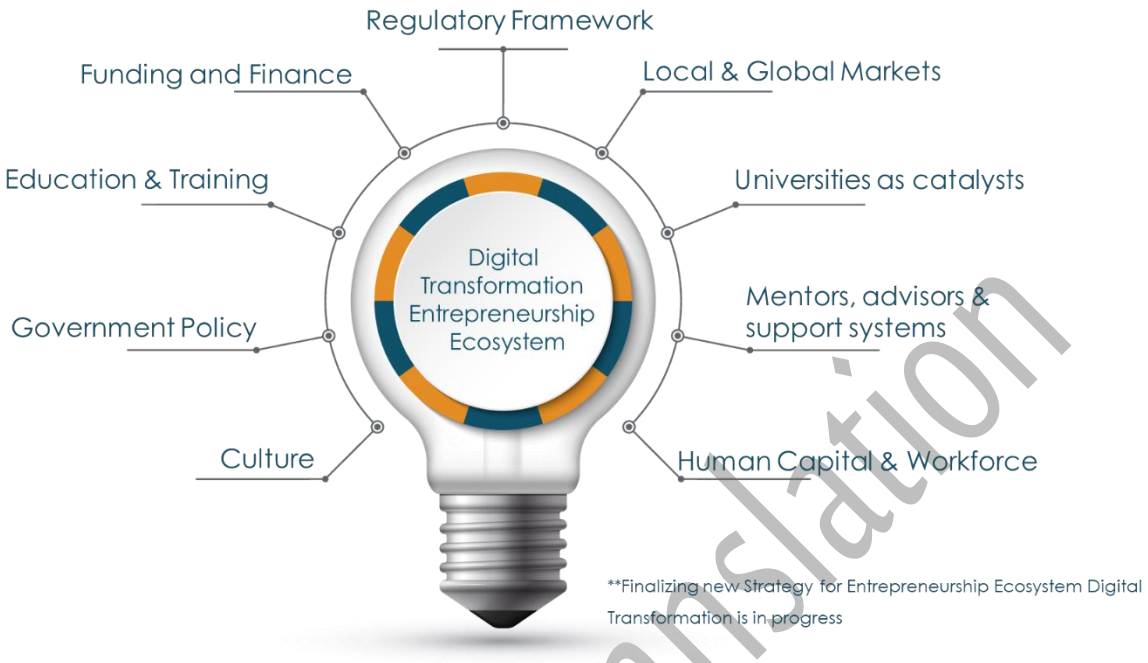
Jordan Computer Emergency Team (JoCERT)

MoDEE Established JoCERT in April 2018 to monitor the government network, enforce government information security policies, respond to information security threats, determine vulnerabilities and protect national critical infrastructure.

- Accountability and ownership to move to the National Cyber Security Centre.

No. of Detected Breaches	**204**
No. of Handled Incidents	**1690**
No. of Log Sources	**32**
No. of Threat Intel. Reports	**321**
CERT Systems' Availability	**99.994**
Risk Assessments operations	**39 Entities**
No. Of Security Information and event management Rules	**128 Rule**

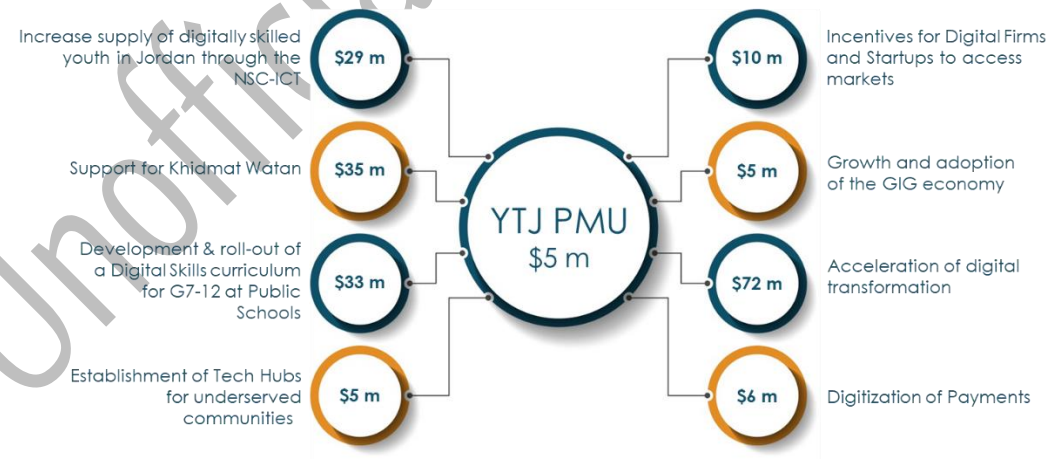
Digital Transformation – Entrepreneurship Ecosystem



Youth Technology and Jobs (YTJ)

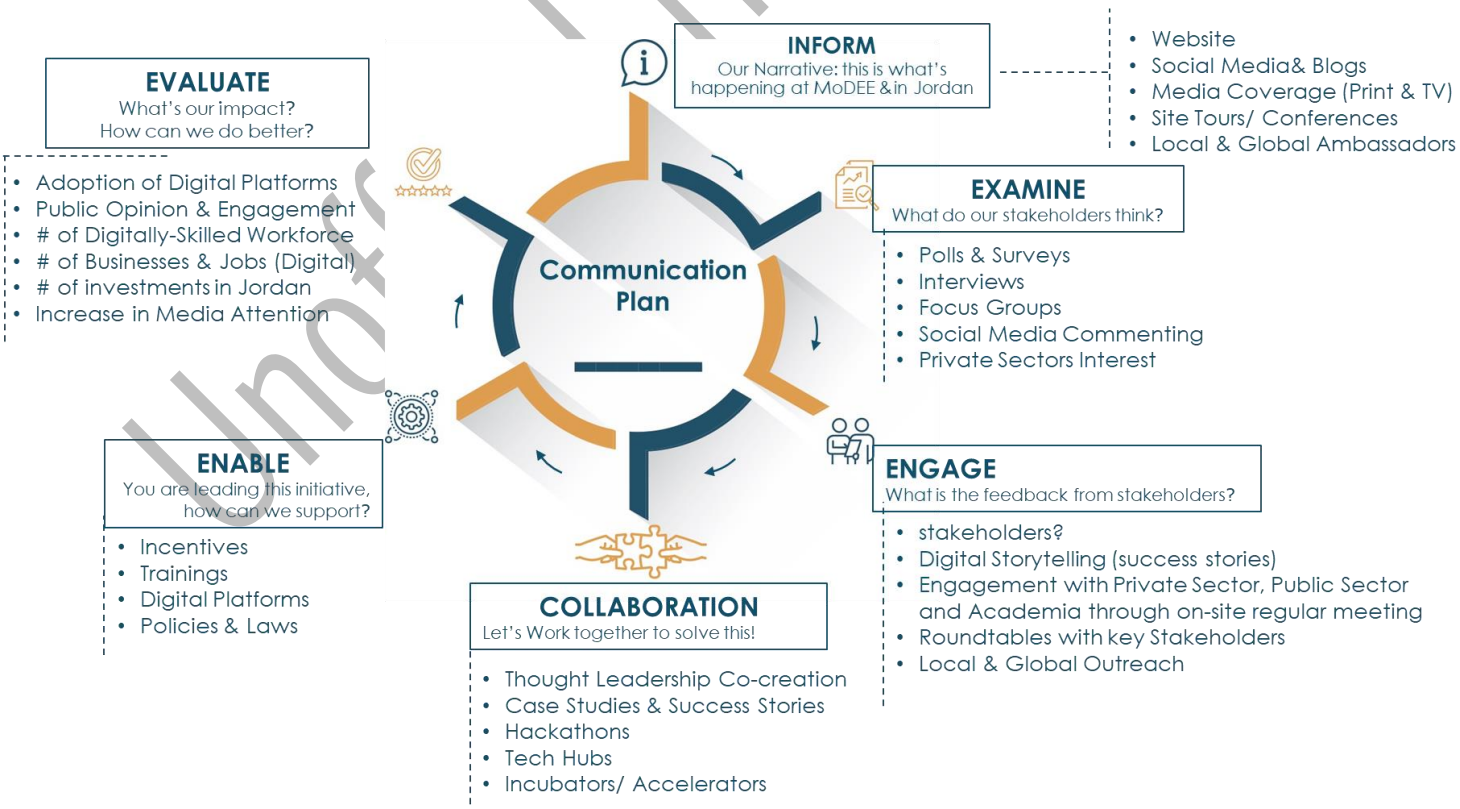
YTJ project aims to support, improve digitally-enabled income opportunities and expand digitized government services in Jordan (full detailed plan is in the YTJ project documentation).

YTJ is a 200 million USD project financed by the World Bank for a period of five years.



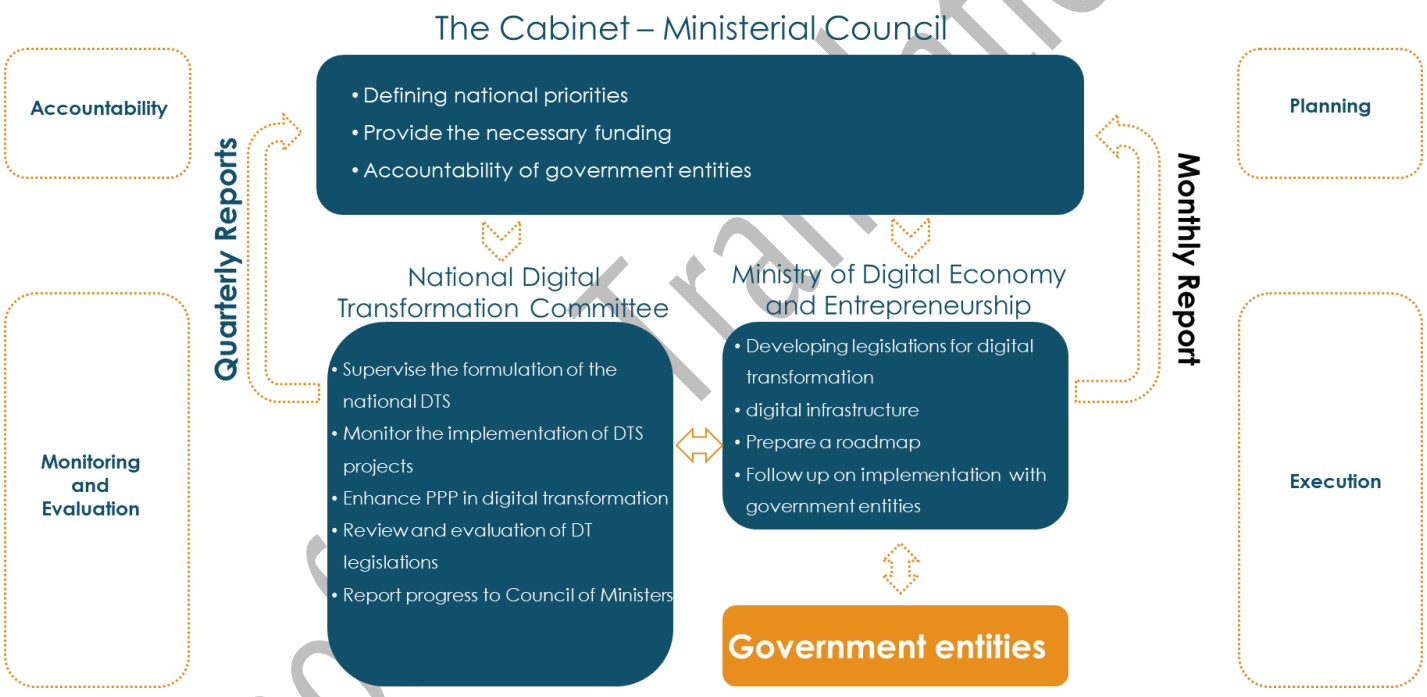
Change Management

Communication Plan



Core Narrative & infographic	Key Presentations	Digital & printed Collateral
• Vision & mission • Standardized Descriptions • Infographics • Visuals	• About Jordan • About MoDEE • ICT in Jordan • Jordan Source • About DT • About YTJ	• Short Videos • Online Banners • Press Releases • Quotes from Stakeholders • Success Stories

Digital Transformation Governance Model



National Digital Transformation Committee Roles and Responsibilities

The committee has the following roles and responsibilities:

1. Evaluate the policies and legislative tools used in digital transformation, review the legislation governing its work, agree on a common vision, and submit recommendations for the necessary amendments to the Minister of Digital Economy and Entrepreneurship.
2. Contribute to the preparation of digital transformation strategies and related operational plans.
3. Preparing a matrix of major priorities to be worked on and updated periodically.
4. Suggesting and discussing measures that would advance digital transformation in line with the objectives of economic development at the macro level and in line with reform plans and sectoral studies.
5. Setting key performance indicators for digital transformation in line with international best practices in this field.

6. Participate in the preparation of legislation regulating and enabling digital transformation and include in these legislation proposals that would serve the comprehensive digital transformation of the Kingdom, including contributing to reducing corruption, evasion and tax avoidance.
7. Making decisions regarding fast-track projects that have a significant impact on national priorities and raising the level of adoption of digital government services by citizens and various sectors.
8. Contribute to the development of a data strategy in the public and private sectors, in accordance with the requirements of the National Information Law.
9. Facilitate and simplify the procedures for implementing projects related to digital transformation, especially with regard to government procurement policies to support local companies, digital inclusion, digital payments, digital participation, e-commerce, and the adoption of modern technologies.
10. Find solutions to facilitate the procedures of companies and investors in the digital transformation of the various departments.
11. Review the situation of digital transformation and the challenges facing the partnership between the public and private sectors and come up with specific recommendations.
12. Propose solutions that would raise the level of digital skills among young people and Jordanian society, especially the women and the less fortunate segment.
13. Provide recommendations for the preparation and development of digital transformation enablers in ministries and government institutions to ensure the building of a distinguished digital infrastructure that supports digital transformation projects.
14. Sets measurable strategic performance indicators that reflect the committee's efforts and work, including the relevant global indicators.
15. Coordinate with the King Abdullah II Center for Excellence in developing the digital transformation award for government agencies to ensure alignment with the committee's objectives and with the aim of positive competition in promoting digital transformation.
16. Coordination with the Crown Prince Award for the best application of government services in order to encourage digital transformation in the priorities determined by the committee.

Note: the above roles and responsibilities are preliminary and need to be approved by the Council of Ministers as appropriate.

Connectivity

- Incentivize the investment in expanding and continuously upgrading telecom networks
- Review the regulatory environment to make it more supportive for investment and growth
- Support the expansion & penetration of fiber connectivity to households and businesses
- Incentivize and support the investment in 5G and its roll-out to achieve more than 50% coverage within 3 to 4 years.
- NBN PPP Project and achieve 100% connectivity for all government entities
- Telecom operators and internet providers as strategic digital transformation enablers
- Support the enhancement of the average mobile internet speed through optimal spectrum usage and licensing scheme

Other Priorities (2021)

Other Priorities (2021)

In addition to the list of projects and service automation initiatives, MoDEE is working on other priorities in 2021 including below shared services:

Shared Services	Potential PPP Projects
Trasul	Ministry of Health
Digital Wallet	Department of Land and Survey
Document Management System	Income and Tax Department
ERP	Ministry of Higher Education & Scientific Research
Cloud Queueing System	National Broadband Network (NBN)
Modernization Hosting (DevOps)	
Government Customer Service Technology (Chatbot, IVR, etc.)	