

Digital Iran

National Roadmap Executive Summary 2020-2025





Abstract

In this document, Iran digital national plan consisted of vision, goals, objectives, strategies, policies and projects is presented. For this matter, concerning the design science paradigm, the exhaustive framework has been prepared consisted of 3 layers, including enabler, application, and impact. The enabler layer is comprised of six constructs including regulation, security, infrastructure, identity, literacy, and open data. The application layer consists of digital society, digital government, and digital business and the last segment, which covers Iran's 8 key issues, assorted in social, economic, and environmental classification. Next, the coordinating pillars of Iran's digital transformation agenda prepared and the vision set stated as ***“a healthy cooperative society coupled with the smart economy, sustainable development and effective governance with transparency as a result of utilizing digital technologies”***. The goals of the aforementioned vision, regarding Iran's key issues, are the increment of society's physical and social well-being, citizen's participation in society's administration, increased government's productivity, transparency, employment, and enhancement of free competition atmosphere. The quantitative parameter determined for all components of the proposed framework, including 13 strategies, 30 policies, and 42 confirmed projects. At last, the detailed digital transformation strategies and Iran's key issues are constructed in a table finally, the mapping strategies of digital transformation and the country's key issues are presented, as well as a case of the proposed projects.



Introduction

Advancement in technology has changed the world's structure; specifically, digital technologies have disrupted jobs and lives. Internet of things, big data, social platforms, cloud computing, blockchain, augmented reality, and similar technologies have transcended the organization's interaction with customers and the way processes are being managed. From buying a pair of shoes through voice commands to utilizing drones and sensors' information for eliciting best-suited agriculture methods and product increment or using smartphones and their application for finding the shortest way to get to the destination, considering traffic and weather conditions, are some applications of information technology. Undoubtedly, "Digital phenomenon is eating up both physical and industrial world." Digital transformation is a global trend in which no old business systems, if not prepared, is immune from its catastrophe. Countries and governments are not immune to this phenomenon.

Digital transformation has changed the economy, and digitalization of the economy has contributed to innovation, productivity, and better service providing.

Neither, the government's operational process, interaction with its citizens, businesses, and institutions is affected by information technology. Today, with the help of information technology, new ways of managing and operating the processes are available, accommodating both users and service providers with loads of data. Digital transformation has changed the economy, and digitalization of the economy has contributed to innovation, productivity, and better service providing. Increased productivity, innovation, economic growth, and decreased unemployment, is just one of the goals that could be attained through national digital strategies that could have a substantial effect on time and cost-saving.



When applied on a large scale, it has a significant impact on operational costs. For example, in the health sector, with the help of machine learning and big data, a customized treatment solution could be presented to reduce the total cost for patients. Attaining substantial growth and improving social well-being, acting on digital transformation is a necessity. Social well-being's effects can be attributed to perspective, increased life quality, sense of equity and equality, increased accessibility of essential services to all members of society, sustainable development, health, economical and clean energy, and economic growth. From a political standpoint, digital transformation can be ascribed to increased transparency, trust, efficiency of government sectors (like healthcare and education). Therefore, the governments need to be equipped with the suited planning considering the government's economic, social, political, and cultural prioritization to provide the context needed for researching, development, and application of digital transformation. By digital transformation, the set of activities leveraging the performance through the utilization of disruptive technologies are being alluded.



The Exhaustive Framework of Digital Iran

This framework has consisted of Impact, application, and enabler which the composition of these layers leads to “Digital IRAN”. Each layer is being described as follows:

Impact Layer

Including the impact of the digital transformation and its application for solving the country’s key prioritized issues

Economic Impact: Digital transformation’s role in corruption reduction, employment promotion, improving transparency and reducing poverty.

Social Impact: Digital transformation’s role in promoting social’s capital, society’s emotional security and mental health.

Environmental Impact: Digital transformation’s role in a contemporary crisis like water, air pollution and so on.

Application Layer

Exploiting applicable use of disruptive technologies in businesses, government, and society.

Enabler Layer

A set of enabler that lay the ground for utilizing digital transformation capabilities. Enabler include regulation, security, identity, digital literacy, open data, and infrastructure.

Digital IRAN

Impact



Environmental

Decreasing Water Crisis Effect
Decreasing Air Pollution Crisis

Economical

Decreasing Corruption
Increasing Performance Efficiency
Employment Increment
Transparency Enhancement
Inequity and Poverty

Social

Promoting Social Capital
Promoting Mental Health
Promoting Mental and Social Security

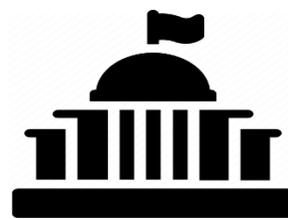
Application



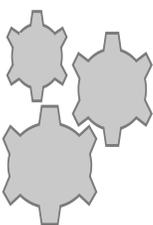
Digital Business



Digital Society



Digital Government



Enabler

Open data

Literacy

Security

Identity

Regulation

Infrastructure

Main Pillars of Digital IRAN

After reviewing the correspondent country's published and available digital transformation plans and analyzing the country's key issues and challenges in its ecosystem the digital transformation vision drafted and granted to project's consultant. After receiving their feedback, the vision of digital IRAN stated as:

Vision

"A healthy cooperative society coupled with the smart economy, sustainable development, good governance accommodating transparency as a result of utilizing digital technologies."

Goals

- ❖ Enhancement of society's physical and social well-being
- ❖ Citizen's participation in society's administration
- ❖ Increased government's efficiency
- ❖ Increased transparency
- ❖ Increased employment

Impact Layer

Objectives

- ✓ Improvement of water crisis index
- ✓ The reduction in the number of unhealthy days of the year
- ✓ Improvement of social capital index
- ✓ Improvement of a social and psychological security index
- ✓ Improvement of operational inefficiency index
- ✓ An increase in the index of perception of corruption
- ✓ A reduction in unemployment Index
- ✓ Gini coefficient reduction

Digital Society:

- Increment in internet penetration rate
- Enhancement of "content searching" Index
- Increment in social media's participation
- Increment in the percentage of people with an online purchase experience.

Digital Businesses

- Increment of employment rate in digital business
- Digital business's share of GDP
- Number of Unicorns
- Number of digital SME'S

Digital Government

- Improving citizen's and business satisfaction from digital services
- Prevalence of digital services and the application of emergent information technology.

- **Improvement cyber security index**
- **Improvement in Digital Literacy index**
- **Increment Open data index**
- **Increment in digital footprint index**
- **Improvement Digital identity index**
- **Enhancement digital regulation structure index**

Digital Transformation Strategies and Policies

Policies' major outlines, digital transformation strategies, and policies presented based on the proposed framework. At each layer, related strategies and policies were proposed regarding benchmarking studies, related national plans, analyzing the country's key issues and challenges that the digital ecosystem proposes. As a final step, the gathered analysis submitted to the project's consulting team. 13 strategies has been introduces which are as follows:

- Promoting digital maturity of government:

Regarding the efforts have been put into designing different programs in the area of e-government in the last two decades and implementation of multiple projects in this area, the basic level of digital maturity of public services has been created in different government sectors. The approach adopted in this area is to improve the digital maturity of the government to create digital capability and platform development.

- Development of a digital business environment (with an approach to innovation and competitiveness enhancement)

The main challenges of digital businesses are competition and regulatory hurdles especially for the new ones. The main focus in this field is improving the business environment to facilitate fair competition.

- Penetrating digital markets of the region and Islamic countries

Considering the potentials of the new companies and businesses, the main strategy is to both create platforms and support the

active presence of Iranian companies in the region markets (primarily Islamic countries).

- Integrating digital technologies into education

Schools and universities are the leading platforms for human resource development. The education sector is one of the critical domains, which is influenced by digital technologies capabilities.

- The pervasiveness of digital service to citizens

Extending and deepening digital technologies' application is accessible through cultural awareness and substation infrastructural actions regarding the pervasiveness of digital services to all citizens.

- Developing public digital literacy

One of the essential strategies for creating the necessary abilities concerning digital technology application is the development of digital public literacy among all different society's sectors by focusing on prioritized reference groups.

- The development of experts in digital transformation field

The strategic orientation for exercising digital abilities is developing specialized human resources by modifying the current courses presented in universities for finding digital talents according to digital transformation domains.

- Improving Iran's cybersecurity by employing disruptive technologies

Regarding the fact that Iran's cybersecurity Index is better than other digital-related fields, the primary orientation for combating emergent technologies threats is strengthening cybersecurity by strengthening its infrastructure.

- Organizing digital identity of Iran

Various actions have been performed in different systems and departments in the field of digital identity. The primary strategy in this area is organizing the digital identity system of the country.

- Openness toward availability of data

Concerning the importance of corruption in Iran, which has lately garnered the attention of policymakers, the openness toward publicity of data is the primary approach in this regard.

- Development of Iran's communication infrastructure for supporting the digital economy

According to necessities and requirements of the digital economy, the best approach is the preparation and adaptation of infrastructures to the new economic ecosystem.

- Rectification of regulations related to digital eco-system

According to the changes in the business environment and community environment based on the development of disruptive technologies, the primary orientation in this field is to review existing laws and perform necessary modifications in regulations related to the digital transformation's ecosystem.

- Rectification of structures and improvement of procedure for facilitating the utilization of disruptive technologies

Due to the requirements developed by disruptive technologies, a flexible structure in the country's regulation system is needed. The primary strategy is to improve the structure and procedures for facilitating disruptive technologies utilization.

Enabler Layer





Strategy

Digital Literacy Development at the Community Level

- Timely attention to the opportunities and threats of digital age in literacy

Policy

Project

- The design and implementation of programs to accelerate the process of societies' utilization from disruptive technologies
- Developing and implementing knowledge accrual programs for developing a basic digital literacy for priority reference groups

Strategy

Human Resource Development Specialized in the Field of Digital Transformation

- Fostering digital talents in schools and universities

Policy

- Designing applicable specialized courses with a focus on knowledge requirements and human capital skills of organizations in the digital age
- Course revision and holding specialized events for pre-college students (with a focus on knowledge requirements and skills required digital age)
- Course revision and holding specialized events for college students (with a focus on knowledge requirements and skill required for digital age)

Project

Identity

Project

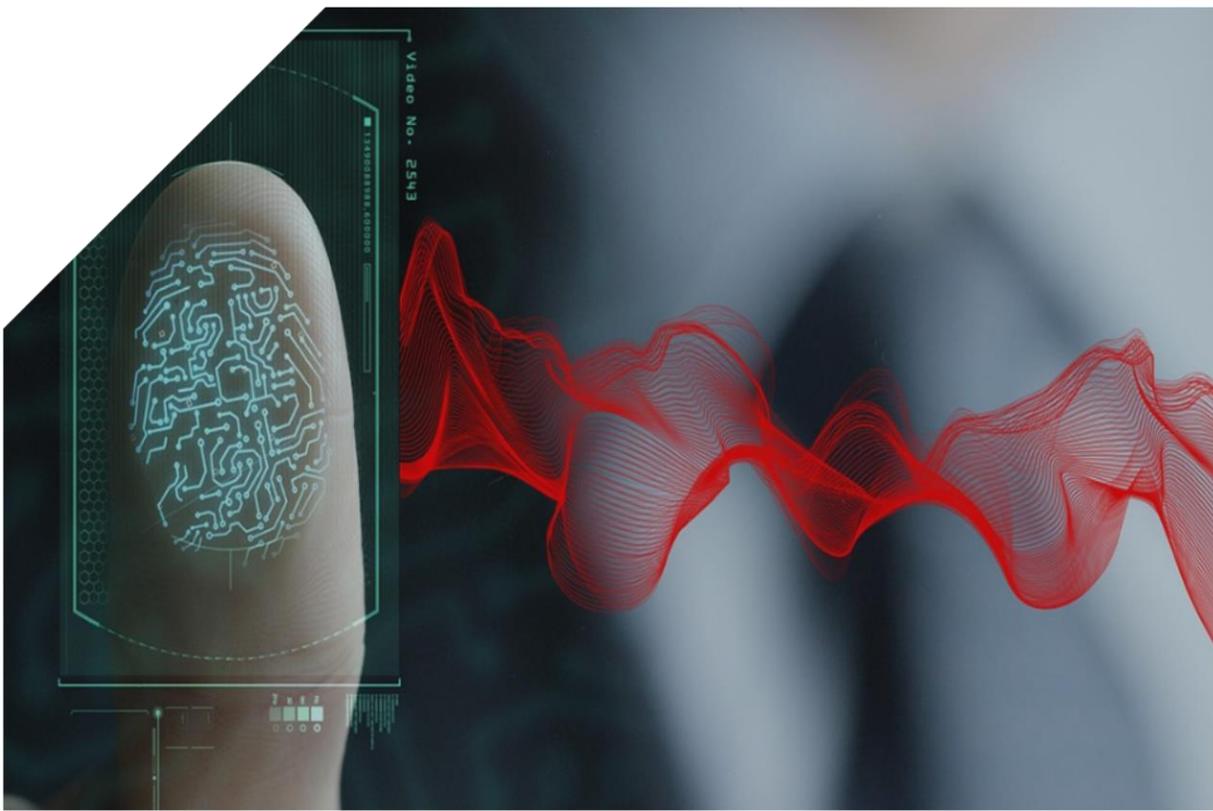
Strategy

Organizing Country's Digital Identity System

➤ Exploiting the available Identity data

Policy

- Formulation of digital identity plan implementation (prioritization of implementation in different sectors)
- Review and integration of existing digital identity systems
- Formulation of standards and related guidelines with respect to countries' situation and its ability to interact with international standards



Strategy



Improving Country's Cyber Security through Disruptive Technologies

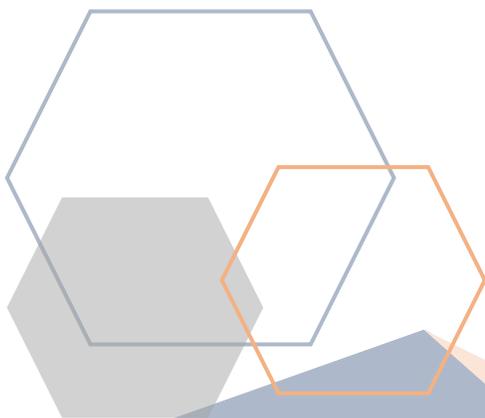
Policy



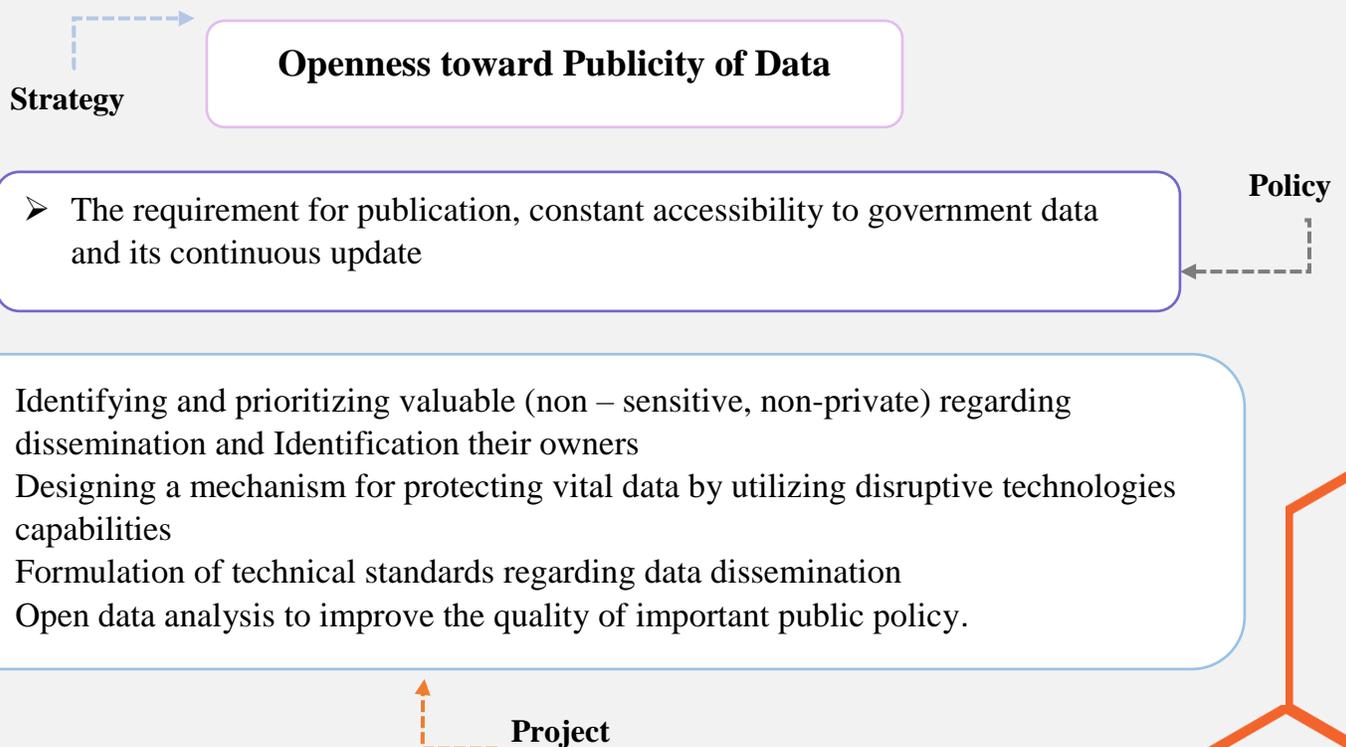
- Encouraging private sector for cooperation in data security operation
- Self-reliance of production process of cyber security products
- Strengthening technical infrastructure rather than the limitation of cyberspace
- Simplifying the end-user task for implementing cyber-security solutions

- Design of country's cyber security management system (nation labor division) with centrality of digital technologies
- Standard formulation and guidelines for security of platform-oriented businesses
- Providing solution and suggestion for combating threats and challenges of disruptive technologies

Project



Open Data



Infrastructure

Strategy

Developing Communication Infrastructure for Supporting Digital Economy

Policy

- Providing ICT infrastructure in a competitive way by outsourcing to private sector
- Supporting platform development as service
- Strengthening national data center
- Development of the country's fiber - optic network
- Development of international internet capacity
- Release of frequency bands
- Reviewing the architecture of emergent technologies infrastructure
- Development of national information network capacity

- Experimental development of the 5G network in the country
- Developing satellite infrastructure for general exploitation and space-based businesses

Project

Regulation

Strategy

Reviewing and Rectifying Regulation Related to Digital Transformation Eco-System

Policy

- Maximum engagement of unions and formations in the process of legislation
- The best-practice approach toward decreasing encumbering legislation process

- Reviewing country's enacted cybersecurity regulations with centrality of digital transformation and incorporation of digital
- Reforming the commercial laws in order to include issues of the country's digital businesses
- Reformation of the labor code and by laws related to it in accordance with the new working conditions in the digital (freelancers, consultant, trainers, crowdsourcing)
- Establishing the deregulation committee in the economic and finance ministry regarding reducing the regulatory laws of the development of digital economy

Project

Restructuring and Improving Procedures to Facilitate the Exploitation of Disruptive Technologies

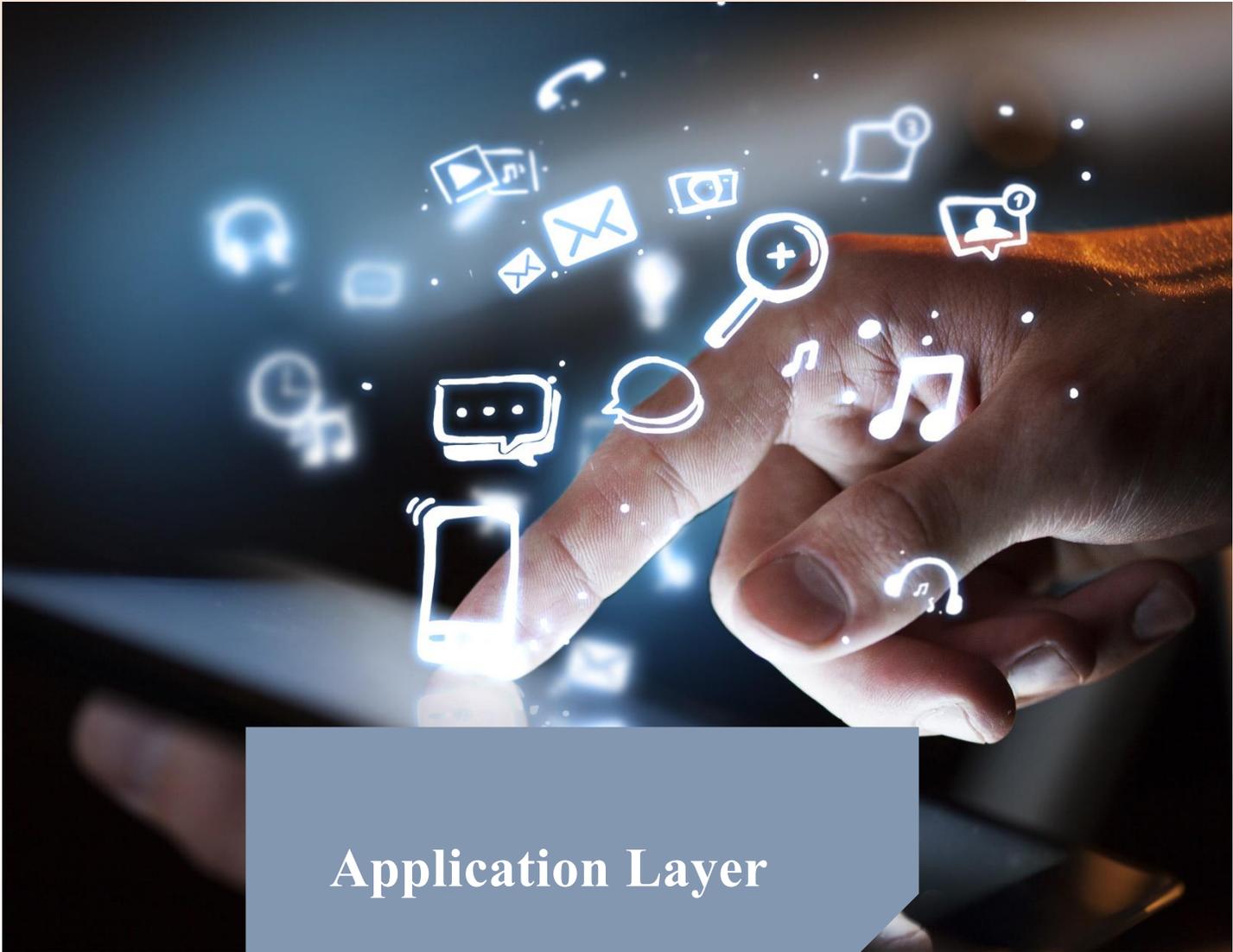
Strategy

- Formulation of dynamic and flexible regulation with the aim of shaping competitive market and promoting innovation.
- Focusing on 10 principles manifested by the Supreme court of the Internet.

Policy

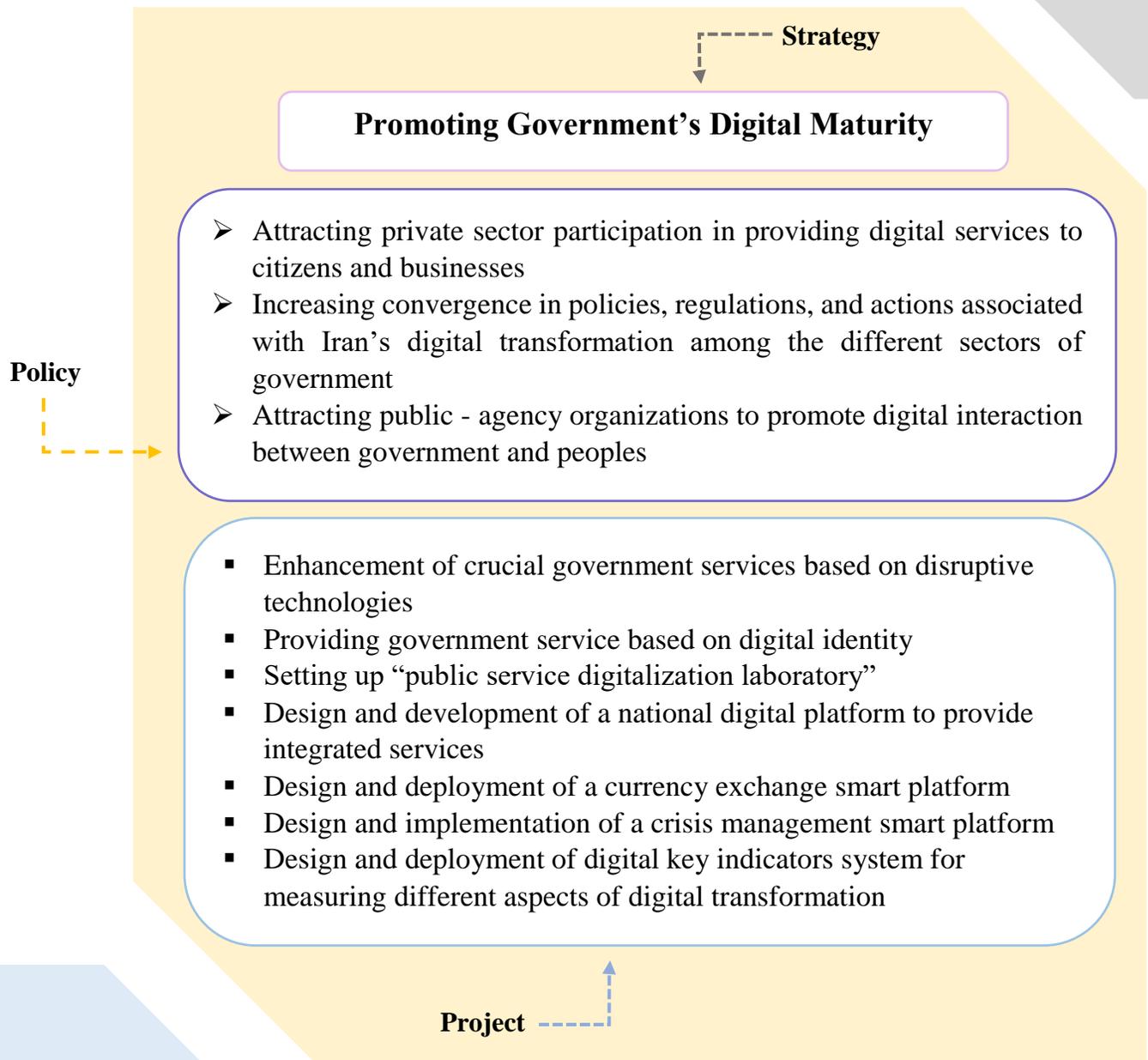
Project

- Developing an executive guide to data property
- Developing legal guidelines for platform business
- A review of the proposal proposed by the Supreme Council of the Virtual Space Council with the aim of attracting maximum participation from the actors in the country's digital ecosystem
- Designing the valuation model of digital assets (under legal loopholes)
- Establishing legal frameworks for the implementation of contracts and handling disputes (such as digital specialized knowledge in judges and specialized branches)

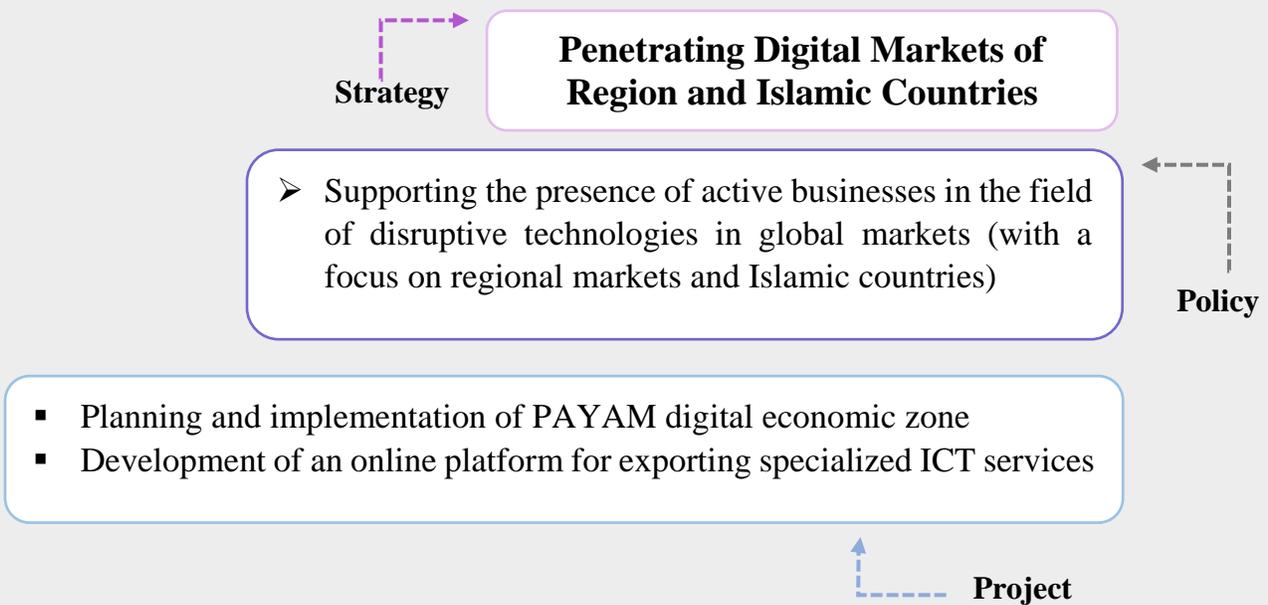


Application Layer

Digital Government



Digital Business



Digital Society

Strategy

Improving Digital Technologies in Educational Sector

Policy

- Facilitating and supporting the change of educational institutions systems through their digital journey

- Designing and developing digital universities in the country
- Designing and developing digital schools in the country

Project

Strategy

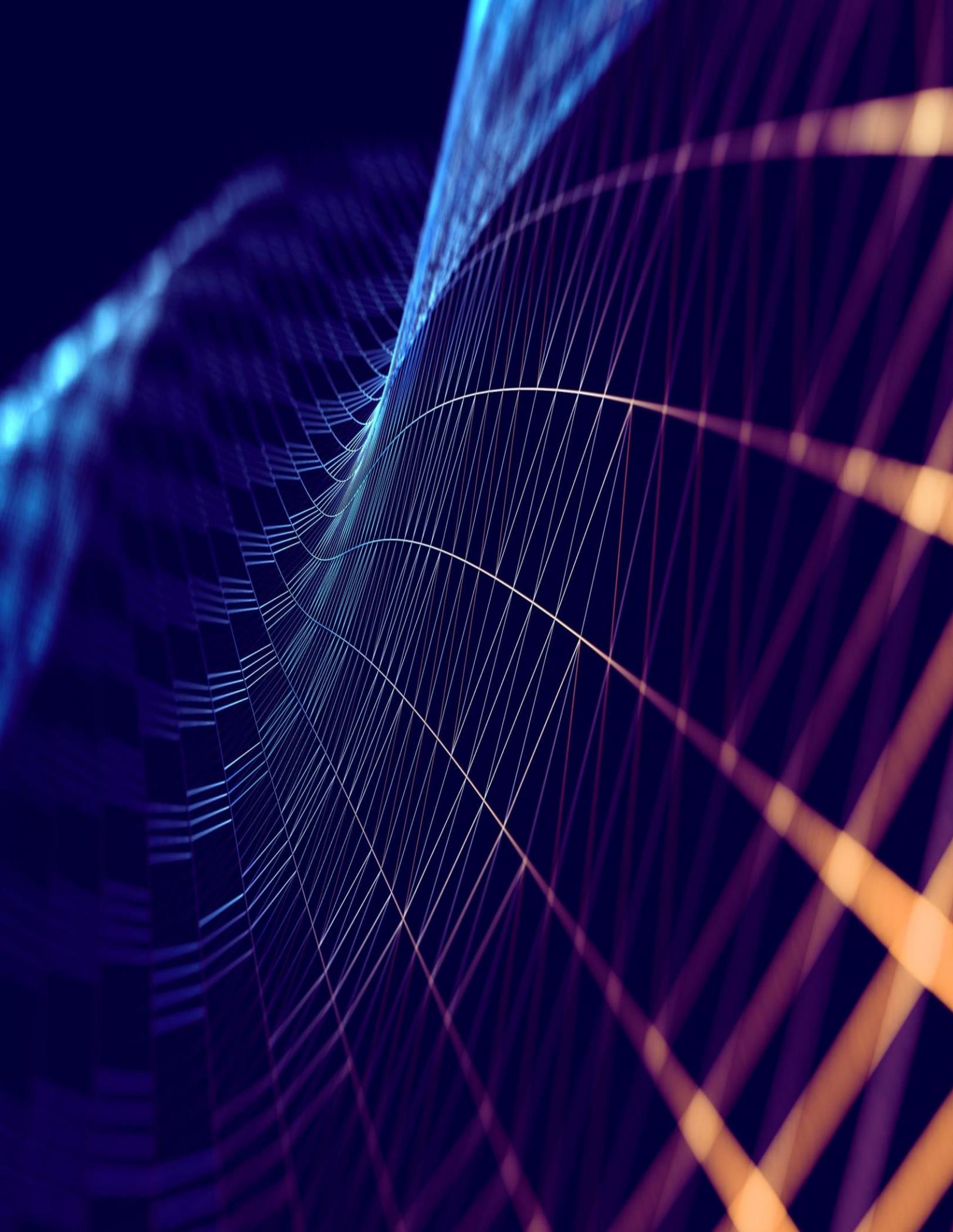
The Pervasiveness of Digital Service to Citizens

- Development of digital culture in society
- Support for innovative ideas and initiatives to support certain groups like the disabled, the elderly and the illiterate

Policy

- Planning and building digital content for special groups (the elderly, disabled)
- Development of the necessary platforms for taking advantage of the social network capacity to reduce the gap between the state and society.
- Designing and developing a health platform based on digital transformation technologies
- Developing Intelligent police platform based on digital transformation technologies
- Designing digital experience of a citizen

Project



Mapping Digital Transformation Strategies Concerning Iran's Key Issues

As the primary purpose for preparing digital transformation roadmap is to solve countries' key issues, the "strategies/issues" matrix has been issued. By preparing this matrix, the issues that could be enhanced, which are coordinated with each strategy (and its respective policies and projects), have been defined. For example, digital maturity promotion could aid in water crisis, corruption, economic structure abnormalities, performance inefficiency, and air pollution. This effect has been measured through benchmarking, analyzing challenges, and experts' standpoints, and reviewing the effects mentioned above brought us into this conclusion that the defined strategies will aid the most in three fields; corruption, economic structure abnormalities, and performance inefficiencies.

On the other hand, reviewing the effects sheds light on the fact that modification of regulations regarding the digital transformation ecosystem and rectifying structural and procedural deficiencies for facilitating the exploitation of disruptive technologies has the most effect on solving the county's key issues. Following up on analysis, improvement of the digital business environment (with competitiveness and innovation promotion) stands out. Another analysis based on the influence of the defined strategies on economic, social, and environmental aspects of issues suggests that strategies' ultimate influence is through solving economic issues. As six of eleven investigated issues are economical, the approach toward strategies' formulation has been made on this basis. The following important points are as follows:

Digital Iran means solving national key issues by digital technologies.

Regarding Economic Issues, "Modifying regulations and laws related to digital transformation eco-system, restructuring and improving procedures for facilitating the exploitation of disruptive technologies" has the most effect on solving the related issues" are the effective strategies.

Regarding the Social Issue, the "Pervasiveness of digital services to all citizens and improvement of digital public literacy among all different society's sectors" is useful in resolving three key issues of this sector" are the effective strategies.

Regarding Environmental Issues, “Improving the digital maturity of the government, improving the digital business environment, development of experts in digital transformation field (concerning promoting the innovation and competitiveness) and development of experts in digital transformation field” are the effective strategies.

Regarding Corruption, “Promoting government’s digital maturity, improvement of digital business environment (concerning promoting the innovation and competitiveness), organizing country’s digital Identity system, openness toward publicity of data, modifying regulations related to digital transformation ecosystem, restructuring and improving procedures for facilitating exploitation of disruptive technologies” are the effective strategies.

Digital Iran means powerful Iran in the light of digital technologies.

Regarding Performance Insufficiency, “Promoting government’s digital maturity, development of experts in digital transformation field, development of digital business environment (concerning promoting the innovation and competitiveness), organizing country’s digital identity system, openness toward publicity of data, development of fitted infrastructure for supporting digital economy, rectifying structure and improving procedures for facilitating exploitation of disruptive technologies” are the effective strategies.

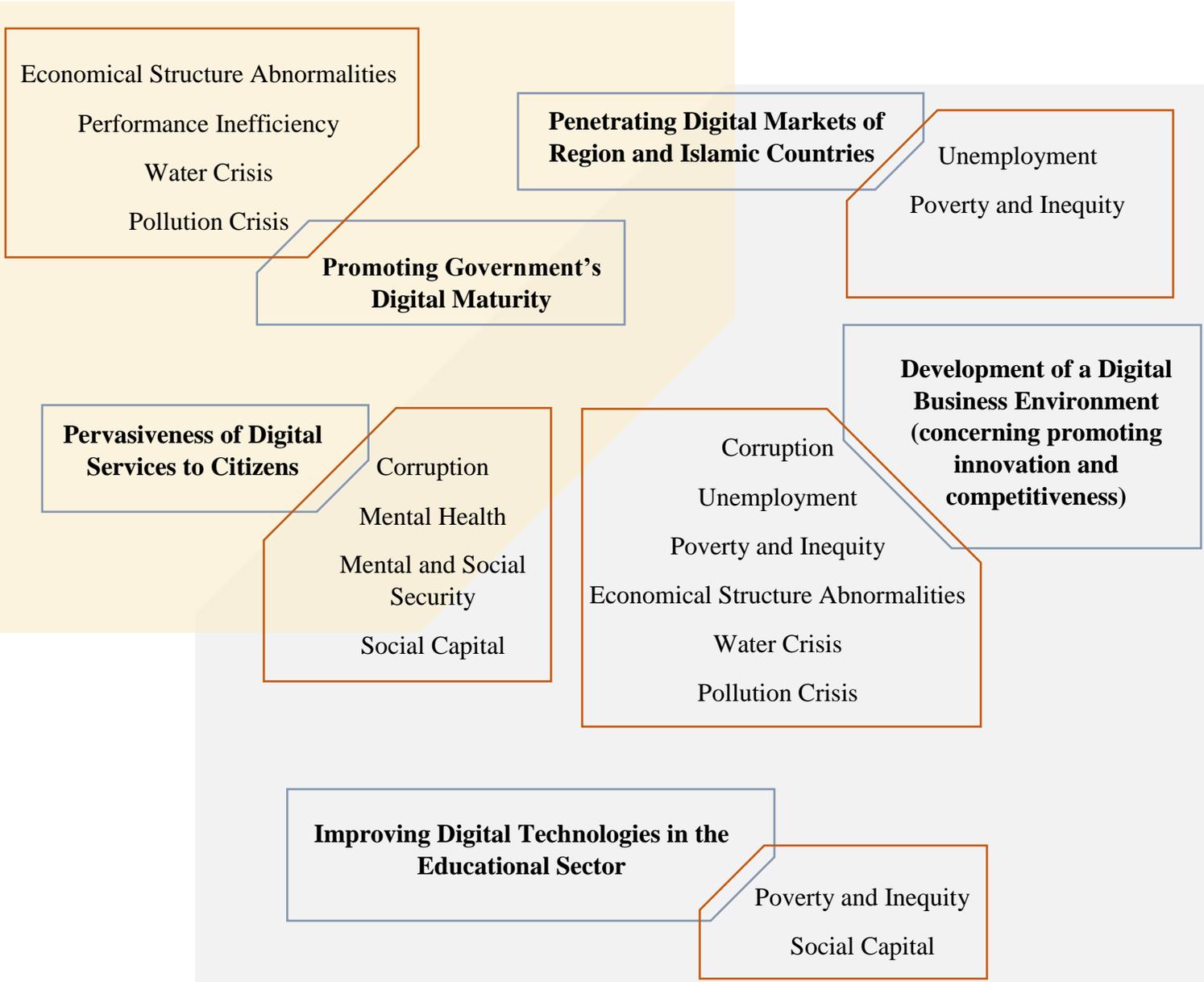
Regarding Poverty and Inequity, “Development of digital business environment (concerning promoting the innovation and competitiveness), development of fitted infrastructure for supporting digital economy, rectifying structure and improving procedures for facilitating exploitation of disruptive technologies, Development of suited digital technologies in education sector penetrating digital markets of region specifically Islamic countries” are the effective strategies.

Regarding Mental Health Issues, “Pervasiveness of digital services to citizens and developing a digital public literacy” are the most effective strategies.

Regarding Social and Psychological, “Developing digital technologies in the education system, the pervasiveness of digital services to citizens, developing digital public literacy, openness toward publicity of data rectifying structure and improving procedures for facilitating the exploitation of disruptive technologies” are the effective strategies.

Regarding the Water Crisis, “Utilization of government’s digital maturity, enhancing digital business environment (concerning promoting the innovation and competitiveness), development of experts in digital transformation field, development of fitted infrastructure for supporting digital economy” are effective strategies.

Regarding Air Pollution, “Enhancing the digital business environment (concerning promoting the innovation and competitiveness), development of experts in digital transformation field” are the effective strategies.



Improving Country's Cybersecurity through disruptive Technologies

Unemployment
Performance Inefficiency

Mental Health
Mental and Social Security
Social Capital

Digital Literacy Development at the Community Level

Openness toward Publicity of Data

Corruption
Performance Inefficiency
Mental and Social Security
Social Capital
Economical Structure Abnormalities

Human Resource Development Specialized in the Field of Digital Transformation

Corruption
Economical Structure Abnormalities
Performance Inefficiency

Unemployment
Pollution Crisis
Water Crisis
Performance Inefficiency

Organizing the County's Digital Identity System

Economical Structure Abnormalities
Poverty and Inequity
Unemployment
Water Crisis

Development of IRAN's Communication Infrastructure for Supporting the Digital Economy

Reviewing and Rectifying Regulation Related to Digital Eco-System

Corruption
Economical Structure Abnormalities
Performance Inefficiency
Poverty and Inequity
Mental and Social Security
Social Capital

Restructuring and Improving Procedures to Facilitate the Exploitation of disruptive Technologies



Conclusion

The primary purpose of this report is to provide strategic plans, including vision, goals, objectives, strategies, policies, projects, and Iran's Digital Transformation Roadmap. For this regard, at first step, Iran's exhaustive digital transformation framework designed based on three layers including, impacts, application, and enabler. The logic behind proposed framework is to strengthen the enabler layer (including infrastructure, open data, identity, security, regulation, open data, and digital literacy) to provide a platform for digital's transformation application in government, businesses and society level that country's prioritized issued to be solved through enhancement of the business environment, cultural awareness, providing society safety and intelligent service presentation to citizens and businesses. Thus, digital transformation

application effects would be manifested in managing and decreasing corruption rate, increasing employment, transparency improvement, inequity and poverty reduction, a social issue like enhancing social capital, society's social security and mental health and environmental issues including water crisis and air pollution management.

The Iran digital vision for 2025 is as follows "a healthy cooperative society coupled with the smart economy, sustainable development and efficient governance with transparency as a result of utilizing digital technologies."

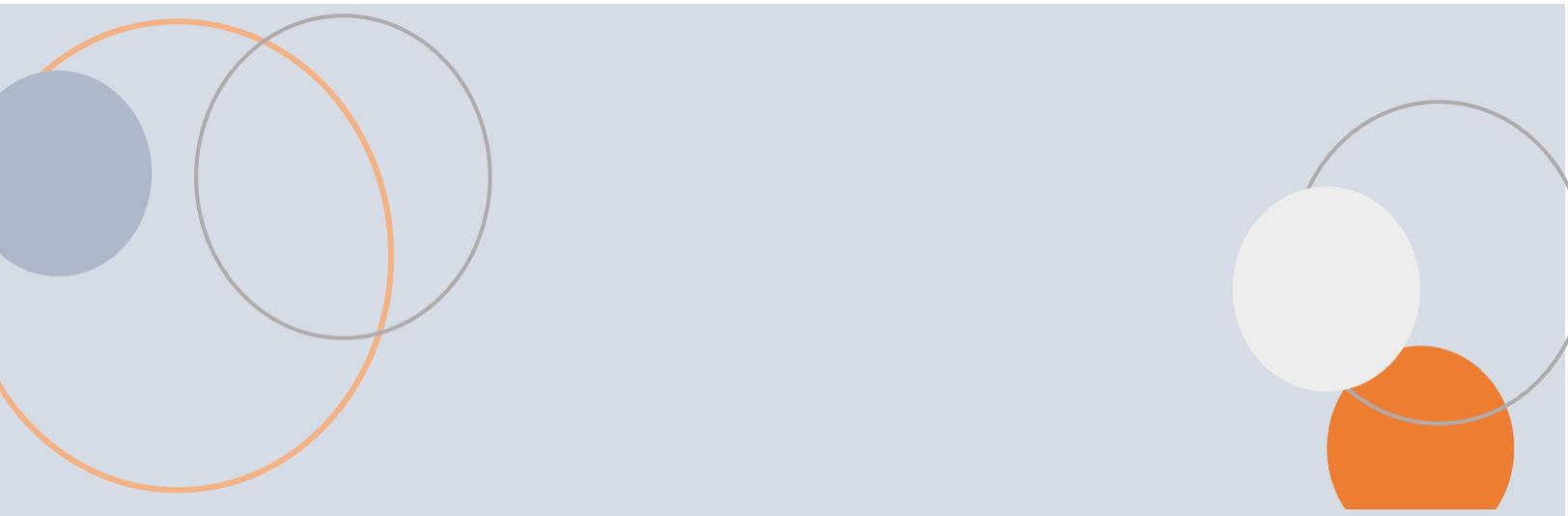
According to the aforementioned vision, regarding countries' key issues, six goals including the physical and mental health of citizens, promoting public participation in administrating the society, government's

performance efficiency, transparency, employment, and enhancement of a free competitive atmosphere have been arranged.

Based on the design science approach, 13 strategies have been defined. Defining the strategies, based on the country's key issues, the strategies/issues have been depicted. Reviewing these effects illustrates that the defined strategies have the most effect on solving 3 key issues: 1- corruption, 2- abnormalities of economic structures, and 3- performance inefficiencies. On the other hand, Redefinition and rectifying the regulation related to digital eco-system, restructuring, and enhancement of procedures for facilitating the process of digital transformation utilization have the most effect on solving the issues mentioned above.

30 policies and 42 projects also have been confirmed. 17 projects are related to the application, and 25 projects are related to enablers. The time frame suggested for projects is 2 years.

Regarding an agile perspective and experimentation principle in digital transformation, long-term planning is not rational. Projects will be planned and iterated in multiple phases. At Phase 1 (2020 – 2022) project name has been defined but vision timeline, goals, strategies, and policies are set for 2025.



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