



Insight

Saudi Arabia Vision 2030: Envisioning a Technology-Led Transformation - IDC's Initial View

Abdulaziz Al-Helayyil
Ranjit Rajan

Massimiliano Claps
Olivier Schaller

IDC OPINION

Saudi Arabia recently announced its much-anticipated Vision 2030 initiative, which is a long-term economic blueprint designed to curtail the country's dependence on oil. The initiative, which is expected to be implemented over the next 15 years, outlines the regulatory, budgetary, and policy changes that will have an impact on all major aspects of the Saudi economy. Technology is to be a key enabler and driver of the numerous changes envisaged in the initiative.

- Countries around the world view digitization as an opportunity to enhance the lives of citizens and drive economic and social progress. Similarly, Saudi Arabia expects ICT usage and digitization to accelerate the execution of the programs and plans envisaged in the Vision 2030 blueprint and help drive economic and social development, promote good governance, and enhance national security.
- For this to happen, there must be a concerted effort by organizations across sectors and industries to align their ICT strategies with the Vision and its overarching executive programs, as a lack of alignment could adversely impact the goals outlined by the government. However, such alignment may prove particularly challenging for various organizations and industries, so there will need to be a comprehensive review of strategies in light of the guidelines and plans outlined in the Vision.
- ICT can enable, facilitate, and accelerate the transformation envisioned by the Vision 2030 initiative. If this initiative is implemented with sufficient diligence, Saudi Arabia can be expected to have a vibrant domestic IT industry by 2030. The country can further be expected to have a highly efficient and effective government, a digitally transformed private sector, and public eservices that rank among the best in the world.
- To achieve these outcomes, telecommunication providers will need to provide a highly developed and resilient communications infrastructure, small and medium-sized enterprises (SMEs) will need to rapidly embrace ICT solutions and services, and the local IT industry will need to innovate and develop more valuable products and services. The education system will also need to refocus its efforts on nurturing the existing ICT skills base.

IN THIS INSIGHT

This IDC Insight juxtaposes the future possibilities with the current state of play to outline the role that digitization will play in diversifying Saudi Arabia's economic interests in line with Vision 2030. It draws upon IDC's extensive research in the kingdom and our experience in assessing similar strategies in other countries around the world. Furthermore, the paper identifies the key challenges that must be addressed in order to facilitate the country's digital transformation and provides essential guidance on the best way forward for relevant stakeholders working within the government itself, public sector organizations, telecommunications service providers, and other industries in general.

SITUATION OVERVIEW

The Vision 2030 initiative sets out plans for developing a vibrant society, a thriving economy, and an ambitious nation. In particular, the goals outlined for economic development are groundbreaking and could have a significant impact on the country's growth. At a macroeconomic level, Saudi Arabia aims to increase non-oil government revenue from SAR 163 billion (\$43.5 billion) to SAR 1 trillion (\$267 billion) by 2030, and raise the share of non-oil exports in non-oil gross domestic product (GDP) from 16% to 50% by the same year.

Some of the other key goals of Vision 2030 are as follows:

- Increase foreign direct investment (FDI) from 3.8% to 5.7% of GDP in line with more developed economies.
- Increase the private sector's GDP contribution from the present 40% to 65% by 2030, and, in particular, increase SME GDP contribution to 35% (from the present 20%).
- Lower the rate of unemployment from the present 11.6% to 7% by 2030 and improve the participation of women in the workforce.
- Raise government effectiveness and efficiency and improve Saudi Arabia's position in the Government Effectiveness Index published by the World Bank. Saudi Arabia ranked 80th in 2015, and the government aims to increase this to at least 20th place as part of Vision 2030.
- Improve Saudi Arabia's position on the annual Global Competitive Index published by the World Economic Forum (WEF). The government aims to be listed as one of the top 10 countries listed on the WEF index by 2030. The country currently ranks 25th.

In order to achieve these objectives, a number of executive programs have been outlined in the Vision 2030 blueprint. These include the Saudi Aramco Strategic Transformation Program, the Public Investment Fund Restructuring program, the Human Capital program, the National Transformation program, the Strategic Partnerships program, the Privatization program, and the program for Strengthening Public Sector Governance. The details of these executive programs have not yet been published; however, the Vision does provide a good preview of what can be expected going forward.

FUTURE OUTLOOK

ICT can be a key enabler of the national programs outlined in Vision 2030. Saudi Arabia is the largest spender on ICT in the Middle East, with spending in 2015 estimated at \$35 billion and expected to surpass \$39 billion by 2019 (*IDC Blackbook, Q3 2015*). The adoption and use of ICT by individuals and enterprises in the public and private sectors has been rising rapidly in recent years, and IDC has outlined a number of strategies that Saudi Arabia could employ in order to facilitate its Vision 2030 goals and thereby develop a digital economy and digital society.

Leverage ICT to Enhance Public Service Delivery and Government Effectiveness and Efficiency

Globally, ICT use in the public sector is increasing rapidly to support multiple domains, both at the central government level and in the context of Smart Cities. ICT is intended to be an enabler for enhancing the citizen experience through an omni-channel approach. The Vision 2030 initiative states that Saudi Arabia will "expand the scope of current online services" and "strengthen the governance of online services". For such a transformation to take place, IDC advises government IT and non-IT executives to:

- Focus on small steps that can significantly improve the omni-experience of citizens by leveraging relevant data coming from multiple sources and improving the ease of use of public systems (as well as enhancing the personalization features of these systems). This tactic will require the segmentation of services and end users in order to first identify relevant data and

thereafter classify and secure the data in an appropriate manner. This strategy will require the use of tools that enable the cross-silo interoperability of data and processes through common platforms that facilitate the "plug and play" of application programming interfaces (APIs) in a consistent, comprehensive, and continuously monitored manner. Through the use of such tools, users would be able to trust the validity and integrity of data; moreover, the rapid prototyping and scalability of systems would be made possible.

- Leverage a platform-based approach that enables the use of data and micro-services across multiple channels, particularly across the mobile channel, in order to exploit the rapidly growing access to digital services through mobile devices. Nimble data and service architectures that are easier to expose to a mobile environment will also be required.
- Integrate healthcare service delivery by enhancing collaboration across the ecosystem of formal and informal caregivers. This goal is particularly important given that long-term inpatient health conditions are driving the bulk of healthcare costs at present.

Changes in technical architectures must be accompanied by a governance platform that promotes data sharing and collaboration while complying with regulations on data protection, transparency, and intellectual property. This idea of facilitating improved collaboration is a global phenomenon. Indeed, IDC predicts that by 2018 at least half of government CIOs in the world's developed countries will have created teams and committees that are specifically tasked with enabling collaboration across siloed hierarchical structures. Such an approach will help foster greater levels of innovation and more agile development, and it is a strategy that Saudi Arabia would be wise to embrace.

A platform approach based on rapid prototyping and scalability of plug-and-play services will require public administrations to expand their existing ecosystems. Such ecosystems will have to combine and broker the capabilities of legacy ICT suppliers (such as systems integrators that have deep knowledge of public sector business requirements and the ability to rapidly deploy onsite human resources when needed) with the capabilities of 3rd Platform-native providers that foster rapid prototyping (enabled by fast-growing developer communities) and reduce costs and risks of failures (through granular cloud services).

ICT can also be a source of efficiency improvement for public services through the rationalization of ICT investments (e.g., through shared services) and the implementation of tools that make government operations more cost-effective and transparent (such as eprocurement tools). Vision 2030 states that Saudi Arabia is "working towards shared services across government agencies." Shared services are a service delivery model that is often characterized by some degree of centralization and the consolidation of IT (or other) assets. In particular, shared services are centered on the idea that a dedicated business unit is entirely focused on offering a transparent set of services to a well identified group of end users. Shared services aim to continuously improve underlying architectural components, business and/or IT processes, and service portfolios in order to achieve the business goals of end users.

According to IDC's *2016 Saudi CIO Survey*, over 80% of government CIOs presently expect their IT budgets to increase or remain the same from the levels recorded in 2015. This indicates that, despite the pressure on organizational budgets in general, IT is a key priority for organizations in the country that will lead to public services enablement and efficiency improvements. IDC estimates that public sector spending on IT will surpass \$2 billion in 2016.

Digitize Industries and Supply Chains to Improve Competitiveness

Promoting the use of ICT by domestic firms in various industries would lead to improvements in productivity and efficiency and help increase the private sector's contribution to GDP (as targeted by Vision 2030). Indeed, 3rd Platform technologies – namely cloud, mobility, Big Data analytics, and social – are enabling industries to move deeper into the digital economy and become globally competitive.

Supply chain networks are the backbone of Saudi Arabia's international trade and commerce activities; they also make a significant contribution to the country's economy. Supply chain logistics encompass freight transportation, warehousing, border clearance, and payment systems, and increasingly many of these functions are being outsourced by manufacturers and merchants to dedicated service providers. Good logistical performance is a key pillar of the kingdom's economic growth and diversification plans. However, as operations on a global scale increase complexity, firms must work to control costs, ensure regulatory compliance, and manage cross-border logistics. ICT is vital to automating end-to-end business processes across the entire supply chain. Since a tremendous amount of data is created and captured by procurement, sales, shipping, and customs and regulations processes, ICT is key to improving supply chain performance. Government systems (such as customs and payment systems) must therefore provide an open interface that facilitates integration with all private sector players in the supply chain ecosystem.

Manufacturing

The manufacturing industry is undergoing a massive structural shift from the PC- and client/server-based 2nd Platform to the 3rd Platform, which is built on the foundations of mobility, cloud, Big Data analytics, and social business. Manufacturers will increase collaboration to align business and IT goals at the enterprise level and create digitally connected processes. These initiatives will help drive horizontal and vertical integration and deliver end-to-end services to customers. The traditional operating model will be significantly transformed, driven by ubiquitous connectivity, product innovation, and new manufacturing and logistics services. So-called "product-as-a-service" platforms will evolve as popular models for asset-intensive products, negating the need for upfront investment.

For manufacturers, the Internet of Things (IoT) will create new possibilities for connected products, assets, and supply chains. Through IoT, manufacturers can leverage combinations of software, sensors, and IP-enabled connectivity to change products and processes.

Tourism

The tourism industry is a central pillar of Saudi Arabia's economy. While Umrah and Hajj visitors represent a large part of tourism growth, the government's goal is to invest in cultural and entertainment activities that attract additional visitors to the kingdom.

Today, tourism authorities across the world are embracing digital initiatives. Through location-based services, the smartphone has become an indispensable tool that incentivizes tourists to spend more during their stay and offers a wide range of entertainment irrespective of location. In fact, some tourism boards in particular countries are looking to transform their branch offices into information services centers that feature relaxing lounges with WiFi connections, phone-charging stations and kiosks, and third-party digital advertising platforms. Through similar transformations, Saudi Arabia can encourage visitors to seek out local tourism offices as places to relax and plan the next steps of their journeys.

When developing a strategy for nationwide tourism, the entire tourism value chain must be addressed, including:

- Travel research and planning (traditional travel agents, online travel agents, tour operators).
- Transport (airlines, cruises, taxis, buses, private services)
- Hotel accommodation and restaurants
- Shopping and entertainment
- Sightseeing and excursions
- Communication services (roaming, WiFi)

Services must also be accessible via various interaction channels (Web, mobile, social media, kiosks, call centers, in-flight systems, etc.). To introduce such accessibility, an omni-channel tourism experience strategy that involves every major player in the ecosystem will have to be developed.

Digitize Small and Medium-sized Enterprises

It is widely accepted that SMEs play an important role in economic development as they can make significant contributions to national employment and GDP. In more developed countries, SMEs account for nearly 62% of national employment and 64% of GDP, while in developing countries they account for approximately 45% of employment and up to 33% of GDP (source: *International Finance Corporation, Knowledge Series in MENA: Issue 1, 2013*). As previously noted, the Vision 2030 initiative aims to increase SME GDP contribution from 20% to 35% by 2030. SMEs make up over 91% of the total enterprises in Saudi Arabia. According to the Communications and Information Technology Commission's (CITC's) *ICT Investments in the Kingdom of Saudi Arabia 2016* report, many SMEs in Saudi Arabia presently lag behind their larger enterprise counterparts in terms of ICT investments and the maturity of their management and production techniques.

SMEs often view IT purely as a cost element that needs to be controlled. Instead, IDC urges them to view IT as a transformational force that can enable them to compete effectively with large, established organizations and even disrupt the business models employed within their respective industries. Increasingly, service providers are offering cost-effective ICT solutions targeted at SMEs, which will make it easier for SMEs to adopt new technologies. Ultimately, the increased adoption of ICT by SMEs – and the integration of technology into their operations – can play a crucial role in increasing their productivity, enhancing their contribution to national economic output, and thereby supporting the diversification aims of Vision 2030.

Develop Next-Generation Communications Infrastructure

The development of robust national communication infrastructure is critical to the success of the Vision 2030 initiative. A sophisticated digital infrastructure is integral to empowering the citizens of the future and equipping businesses with the tools required to drive greater growth, agility, and competition. A digital infrastructure that is equipped to handle zettabytes of data, high-definition video, and millions of connected devices and things will attract investors and enhance the competitiveness of the Saudi economy.

Next-generation networks and high-speed fiber will need to be deployed to carry the colossal amounts of data that will be transmitted as the nation moves forward with its plan. With up to 90% of homes in urban areas expected to be covered by fiber (and up to 66% of homes in other areas), new deployments and continuous investments in infrastructure upgrades will be essential for success. Fiber is required to deliver the high-quality bandwidth and speed that is required for economic transformation. Strong mobile broadband connectivity will be mandatory, particularly as the kingdom's citizens increasingly demand continuous and ubiquitous coverage. As digitization takes greater hold and as IoT applications emerge, citizens will actually become more and more dependent on the Internet in their day-to-day lives.

Ultimately, 5G is a technology that will provide the capabilities demanded by citizens in Saudi Arabia. However, continuous investments in the rollout, upgrade, and optimization of 4G and 4.5G services will be crucial going forward. Moreover, Vision 2030 aims to see the kingdom's three leading cities rank among the top 100 cities in the world by 2030. Significant investments will be needed in energy and green initiatives, building management, and smart homes to fulfill this objective, each of which will be supported by IoT.

Within the healthcare industry, IoT could be a key driver that spurs the development of remote health monitoring and personal wellness services and improves access to healthcare. Such services and improvements can help the Saudi government increase average life expectancy from 74 to 80 years of age (as outlined in Vision 2030).

As cities evolve and become truly smart, innovations based around connected things will bring about hitherto unimaginable improvements. For example, logistics and transportation will improve through

services such as freight monitoring, connected cars, autonomous cars, and connected roads. In fact, every service and every vertical could witness significant change.

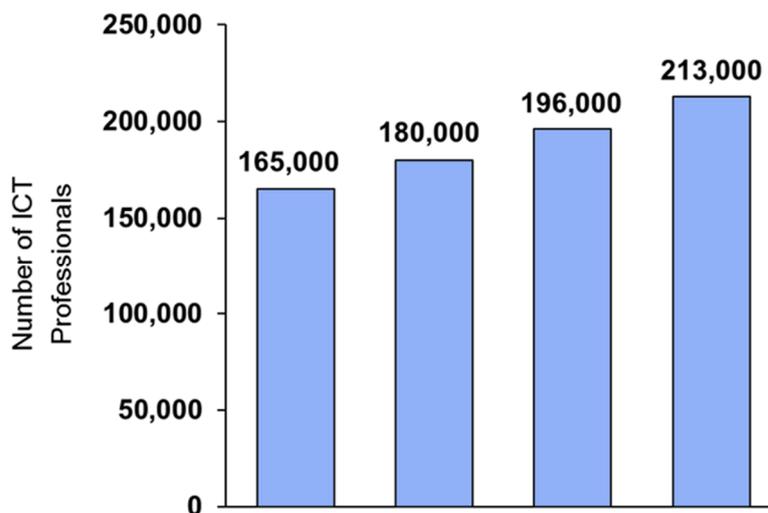
Leverage the ICT Sector as an Employment Generator

The ICT sector can provide high-paid jobs, improve the quality of employment in the kingdom, and raise the overall employment rate. The growth in ICT consumption and spending will naturally create a number of new ICT jobs that require varying skill levels. If the local ICT workforce is not able to fill these positions, many vacancies will need to be filled by foreign workers or offshored to other countries.

According to the CITC's *ICT Workforce in Saudi Arabia, 2015* report, the number of ICT professionals required in the kingdom will increase to approximately 213,000 by 2017 (up from 165,000 in 2014). However, based on the estimated supply of qualified Saudi nationals over this period, the country is expected to face a cumulative shortage 37,000 professionals. The development of the Saudi ICT talent pool, both in terms of quantity (e.g., the number of ICT graduates and professionals) and quality (i.e., the skill levels), will contribute significantly to bridging this gap and raising the overall employment rate in the kingdom.

FIGURE 1

Number of ICT Professionals in Saudi Arabia (2014-2017)



Source: CITC's *ICT Workforce in Saudi Arabia, 2015*

In order to address this skills issue, it will be important for the kingdom to mobilize the local ICT workforce by fostering collaboration between the public and private sectors. Further investments in the recruitment, training, and retention of Saudi national ICT workers should be encouraged. At the same time, the capacity of the higher education system (universities, technical colleges, etc.) should be strengthened through greater coordination and collaboration between government stakeholders, policy makers, academia, and the ICT industry.

Foster ICT-Led Innovation, Entrepreneurship, and Investments

It is crucial for Saudi Arabia to promote the growth of local start-ups and drive FDI in order to improve its competitiveness and become one of the top 10 countries on the annual Global Competitiveness

Index. Significant opportunities for innovation and foreign investment exist in ICT industries and others that are heavily reliant on ICT, such as ecommerce, ebanking, and mobile payments, among others.

In global terms, Saudi Arabia lags significantly behind the leaders when it comes to innovation, particularly in relation to science and technology research (it ranked 49th in the WEF's *2015 Competitiveness Index*) and in the development of intellectual property such as patents (ranked 44th). The availability of venture capital to fund technology-led start-ups is central to fostering and commercializing innovation. In addition, there is a need to further develop other related institutions that support the ICT investment and entrepreneurship ecosystem such as incubators, industry-specific training programs, entrepreneur clubs, and business networks. The King Abdulaziz City for Science and Technology's BADIR Program for Technology Incubators is at the forefront of supporting high-potential technology entrepreneurs in the kingdom. With four fully functional incubators, BADIR is now joined by a host of other public, private, and not-for-profit entities that aim to boost access to the requisite entrepreneurship building blocks.

The quality of higher education in Saudi Arabia, particularly with respect to science and math, remains relatively low (69th). Saudi universities and colleges have made substantial investments in introducing new ICT courses and creating additional seats. The primary role of these institutions is to provide a foundational education that can be leveraged for further skills development. This approach has enabled the kingdom's more renowned universities to produce high-quality graduates on a consistent basis. However, boosting the quality of education will take additional time to yield measurable results. There is a need to foster further interest in science and technology education among young Saudi nationals in order to encourage more of them to take up employment in the ICT sector. As mentioned earlier, the kingdom is expected to face a cumulative shortage 37,000 professionals between 2014 and 2017 (according to CITC's *Workforce Report 2016*), so there is a clear opportunity for young Saudis to secure gainful employment in the near term if they have the requisite qualifications.

If developed further and made more competitive, the IT sector could also attract significant FDI to Saudi Arabia. The IT sector (excluding telecommunications services providers) accounted for just 3.3%, or SAR 21.08 billion, of all FDI stock in the country in 2011 (according the Saudi Arabian General Investment Authority's *Annual Report of FDI into Saudi Arabia, 2011*). Foreign technology companies that invest and operate in the kingdom would no doubt provide gainful IT employment opportunities to locals. Moreover, these companies could eventually transfer much-needed technology skills and knowhow to the domestic market, further stimulating ICT innovation and investment in the process.

ESSENTIAL GUIDANCE

The strategies described above will help Saudi Arabia leverage ICT to achieve the goals outlined in Vision 2030. When pursuing these strategies and implementing the relevant plans and programs, national stakeholders and senior executives across sectors should consider the following guidance and advice:

Ensure Strategic Alignment Across the Organization

Public sector organizations should clearly align their digitization strategies with the goals of Vision 2030. Their digitization plans should aim to enhance the quality of government services, healthcare, education, and public security through the use of ICT.

Key industries and sectors should align with the overall national strategy and use ICT to increase productivity and drive economic development and competitiveness. Investments guided by a "technology for technology's sake" approach will lead to a waste of money unless they are linked to clear economic outcomes. As such, organizations need to review their existing strategies in light of the guidelines described in the Vision and its related programs.

At the same time, SMEs should look to leverage the support – financial and otherwise – that the Vision 2030 blueprint promises in order to accelerate their adoption of ICT and improve their overall competitiveness.

Increase Focus on Infrastructure Investments

Saudi Arabia needs to invest significantly in its telecommunications infrastructure to achieve the goals outlined in Vision 2030. Working in conjunction with the government, telecommunications providers need to invest in reliable broadband connectivity. By doing so, providers will support and develop the underlying infrastructure needed to execute national digital strategies.

Implement a Transparent Regulatory Framework

A transparent regulatory framework is necessary to raise end-user trust in ICT services. Regulatory bodies such as the CITC and the Ministries of Justice, Commerce, and Industry need to strengthen the regulations that affect digitization (such data protection laws, intellectual property protection laws and judicial procedures, and anti-trust and anti-corruption laws). Interoperability standards and policies will be required to avoid technology lock-in or, worse, supplier lock-in. Cybersecurity is becoming an increasingly important aspect to consider, and its implementation will be critical in enabling existing strategies to be executed safely.

Enhance ICT Competencies and Skills

To achieve the Vision 2030 goals for skills development, educational institutions and national policy makers will need to pursue programs that leverage ICT. Raising the level of ICT literacy in Saudi Arabia will positively impact productivity and enable individuals to participate in the social progress of the country. However, in a globalized ICT market, the quantity and quality of skills will not be the only factors that matter going forward. Compensation and the ability to work in a multicultural environment oriented toward problem solving and continuous improvement will become more and more important.

Similarly, investing in ICT research and development programs in partnership with academic institutions will drive technological innovation and enhance entrepreneurial activities. In the process, the local ICT industry will be further developed (in terms of the number of intellectual property patents), employment will be increased, and the level of exports will be boosted.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

IDC Middle East/Africa

Level 15, Thuraya Tower 1
Dubai Media City
P.O. Box 500615
Dubai, United Arab Emirates
+971.4.3912741
Twitter: @IDC
idc-community.com
www.idc.com

Copyright Notice

This IDC research document was published as part of an IDC continuous intelligence service, providing written research, analyst interactions, telebriefings, and conferences. Visit www.idc.com to learn more about IDC subscription and consulting services. To view a list of IDC offices worldwide, visit www.idc.com/offices. Please contact the IDC Hotline at 800.343.4952, ext. 7988 (or +1.508.988.7988) or sales@idc.com for information on applying the price of this document toward the purchase of an IDC service or for information on additional copies or Web rights.

Copyright 2016 IDC. Reproduction is forbidden unless authorized. All rights reserved.

