Digital Middle East: Transforming the region into a leading digital economy

October 2016

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Enrico Benni
Jigar Patel
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Preface

This Digital Middle East report, *Transforming the region into a leading digital economy,* analyses the state of digitisation in the Middle East. Its purpose is to assess what the region has achieved, gauge the potential value that the continued adoption of digital could generate, and offer recommendations for how public and private sector digital leaders can address gaps and pursue opportunities.

When we refer to "digital", we are defining it from an application perspective. Digital includes the foundations and underlying technologies and capabilities such as network and connectivity, computing, and storage, all of which enable the digitisation of back-end processes as well as B2B and B2C interactions. Our definition also includes new frontiers of digital such as new and improved products, services, and business models.[1]

This report was written by Digital McKinsey, a global organisation that brings together the best of McKinsey's digital capabilities. Its members not only advise but also build, operate, and transfer capabilities to help our clients create value by reinventing the core of their business. Digital McKinsey brings together more than 2,000 experts from across our global firm, including more than 800 developers, designers, IT architects, data engineers, agile coaches, and advanced analytics experts.[2]

Our analysis builds on work by the McKinsey Global Institute (MGI) that was showcased in two reports. *Digital America: A tale of the haves and have-mores,* published in December 2015, exploring the impact of digitisation on the United States. *Digital Europe: Pushing the frontier, capturing the benefits,* published in June 2016, discussing that continent's digital transformation.

This report assesses the degree of digitisation across nine countries in the Middle East: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. Together, these countries represent a population of USD 158 million[3] and gross domestic product (GDP) of 1.7 trillion[4] as of 2015.

McKinsey Global Institute created an Industry Digitisation Index that gauged the degree to which digital technologies have affected different industries. We have adapted this approach to assess the nine Middle Eastern countries discussed in this report along four areas: the level of digital adoption across consumer, business, and government sectors as well as the strength of the Information and Communication Technology (ICT) supply and innovation. We compared the Middle East's progress with countries in Asia-Pacific, the United States, and Western Europe. We also created a category of countries representing the "digital frontier"—Norway, Singapore, South Korea, Sweden, and the United Kingdom. They have the highest country scores in the index and serve as an aspirational target.

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[1]   For a detailed definition of "digital", see the appendix.
[2]   For more information, visit www.mckinsey.com/business-functions/digital-mckinsey/how-we-help-clients.
[3]   World Market Monitor database, accessed September 2016.
[4]   World Industry Service database, accessed September 2016; World Market Monitor Database, accessed September 2016.

Today, it is no longer sufficient to be a consumer of digital. To maximise the myriad economic and social gains at the digital frontier, countries must also develop the requisite technologies and associated human capital. Today's Middle Eastern consumers have embraced digital technologies—so the question now is how to integrate digital into all facets of Middle Eastern life, including business and government.

Now is a pivotal moment for the Middle East. Continued organic growth will not be enough to transform the region into a leading digital economy. Unlocking the full potential of digitisation will require comprehensive, concrete, collaborative action—and it must begin immediately.

This latest research on the Middle East has been led by Tarek Elmasry and Enrico Benni, both senior partners at McKinsey's Middle East Office, where Dr. Jigar Patel is a partner and Dr. Jan Peter aus dem Moore is an associate partner with Digital McKinsey. The core team members include Dr. Nils Barnickel, Hana Dib, and Akshay Bansal from the Middle East Office, as well as a number of our global digital experts providing additional input and direction.

The report was launched at Gitex Technology Week 2016 in Dubai and presented to 300 digital leaders from the public and private sectors in a keynote presentation.

Contents

Executive summary

The Middle East is on the verge of a massive digital disruption. In the past decade, the cross-border data flow connecting the Middle East to the world has increased by more than 150-fold. Several countries—including the United Arab Emirates, Bahrain, and Qatar—are leading the digital consumer charge, with high smartphone adoption rates and social media use. However, digitisation is uneven from country to country, and businesses and governments across the board have struggled to keep up. Building on a history of innovation, the region has the chance to transform itself into a leading digital economy—and to realise significant economic benefits—if it can bring stakeholders together to focus on developing the region's governance, business, funding, and talent.

- Citizens themselves are leading the Middle East's digitisation charge. As measured by digital consumer adoption, the United Arab Emirates, Qatar, and Bahrain are among the top countries in the world, with more than 100 percent smartphone penetration and more than 70 percent social media adoption—even higher than the United States.

- However, while consumers are primed and ready to lead digitally enhanced lives, businesses and governments have not fully embraced the digital opportunity yet. The McKinsey Middle East Digitisation Index is the first effort to assess the level and impact of digitisation across nine Middle Eastern countries: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. Despite ambitious government aspirations to go digital, only 6 percent of the Middle Eastern public lives under a digitised smart government. And Middle Eastern countries lag far behind benchmark countries (for the purposes of this report, Norway, Singapore, South Korea, Sweden, and the United Kingdom) in business digitisation, from the amount of venture capital (VC) funding available to start-ups to the share of the workforce working in digital careers and industries.

- Some Middle Eastern governments, including those of the United Arab Emirates and Bahrain, have begun implementation of core digitisation initiatives. Indeed, the UAE government leads the Middle East in digital adoption and matches the index's digital frontier on several metrics. Other countries also have big ambitions and have made considerable progress. However, in their efforts to promote innovation and push the public sector's adoption of digital to the next level, they are facing implementation challenges such as an inadequate governance structure to achieve the desired change.

- The future is promising. Consumer enthusiasm for digital suggests strong growth potential in the near future, as consumers are clearly primed and ready to embrace new digital offerings. It will be critical for the region to increase ICT patent applications and enhance infrastructure to improve its ICT supply and innovation performance.

- The prize is significant. Our analysis reveals a strong correlation between a country's GDP per capita and its score on the McKinsey Digitisation Index: a higher GDP allows countries to spend more on digital adoption, which increases a country's performance on the Digitisation Index. And a high level of digitisation contributes to economic growth, leading to higher GDP. Indeed, our analysis indicates that a unified digital market across the Middle East (160 million potential digital users by 2025) could contribute up to 3.8 percent annually in GDP—amounting to approximately USD 95 billion. Digital can also have a positive impact on inclusion and poverty reduction, increase access to and quality of healthcare and education, and reduce CO_2 emissions.

To accelerate digitisation in the Middle East, in this report McKinsey offers 10 tangible recommendations across 4 areas—government, business, funding, and talent. These recommendations are comprehensive, forward-looking, and mutually reinforcing. They are also designed to complement and fuel initiatives already under way in several countries. The future of digital in the Middle East will require the participation of all stakeholders, from government leaders and individual agencies to the private sector and civil society. Given the accelerating pace of technology and its potential to continually shape lifestyles, business practices, and governing for many years to come, now is the time to act.
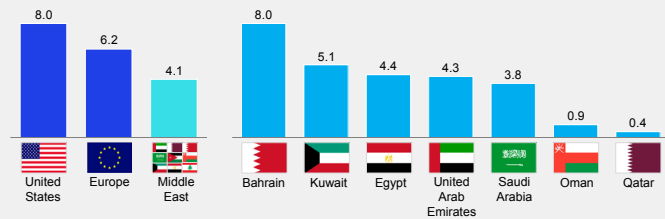
DIGITAL MIDDLE EAST:
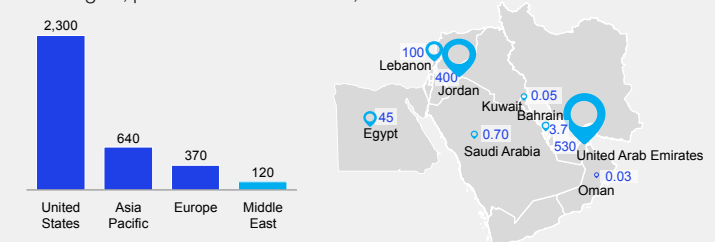## TRANSFORMING THE REGION INTO A LEADING DIGITAL ECONOMY

Digital/McKinsey

Digital contribution to Middle East economy is low compared with benchmarks
Share of digital contribution to GDP, %

8.0 United States	6.2 Europe	4.1 Middle East

Bahrain	Kuwait	Egypt	United Arab Emirates	Saudi Arabia	Oman	Qatar
8.0	5.1	4.4	4.3	3.8	0.9	0.4

Venture capital funding has room for improvement in the region
VC in digital, per million nominal GDP, USD

United States	Asia Pacific	Europe	Middle East
2,300	640	370	120

Lebanon 100
Jordan 400
Egypt 45
Kuwait 0.05
Saudi Arabia 0.70
Bahrain 3.7
United Arab Emirates 530
Oman 0.03

The region lags behind in share of ICT companies and number of unicorns, %

Share of revenues, 2015

Share of revenue in top 1,000 ICT companies
- 44
- 36
- 15
- 1
- 4

Number of unicorns

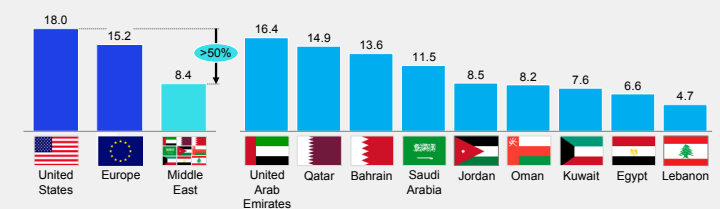Number of unicorns
- 57
- 106
- 20
- 1
- 4

Legend:
- APAC
- United States
- Europe
- Middle East
- Other
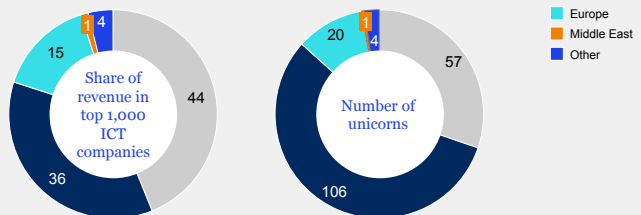
The Middle East captures just a fraction of its digital potential
Captured digital potential by country, %

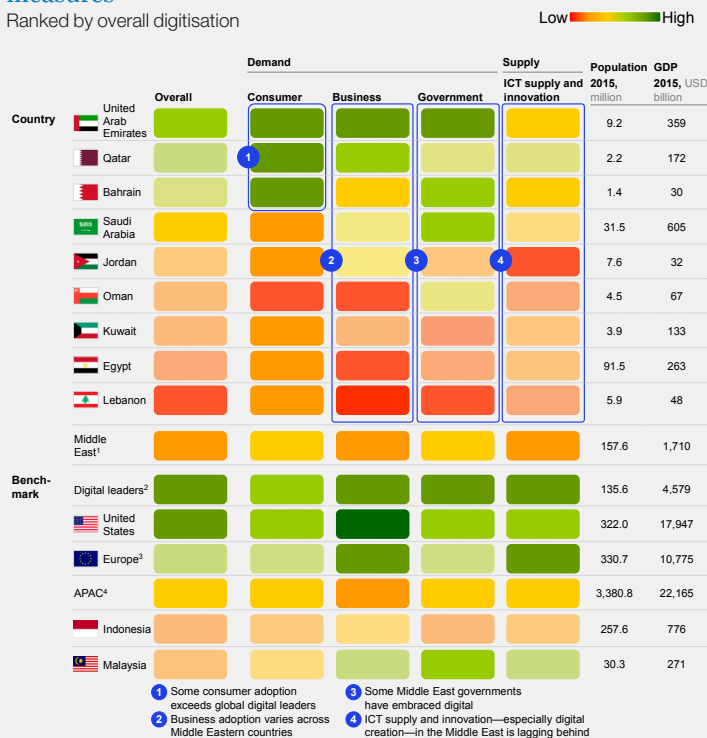| United States	Europe	Middle East	United Arab Emirates	Qatar	Bahrain	Saudi Arabia	Jordan	Oman	Kuwait	Egypt	Lebanon
18.0	15.2	8.4	16.4	14.9	13.6	11.5	8.5	8.2	7.6	6.6	4.7

>50%

MIDDLE EAST DIGITISATION INDEX COMBINES 24 INDICATORS TO MEASURE CONSUMER, BUSINESS, GOVERNMENT, AND ICT SUPPLY AND INNOVATION ACROSS EVERY COUNTRY

The Digitisation Index uncovers strong variations across Middle East countries and between demand and supply measures
Ranked by overall digitisation

Low — High

			Demand			Supply		
	Country	Overall	Consumer	Business	Government	ICT supply and innovation	Population 2015, million	GDP 2015, USD billion
Country	United Arab Emirates						9.2	359
	Qatar		①				2.2	172
	Bahrain						1.4	30
	Saudi Arabia						31.5	605
	Jordan			②	③	④	7.6	32
	Oman						4.5	67
	Kuwait						3.9	133
	Egypt						91.5	263
	Lebanon						5.9	48
Bench-mark	Middle East[1]						157.6	1,710
	Digital leaders[2]						135.6	4,579
	United States						322.0	17,947
	Europe[3]						330.7	10,775
	APAC[4]						3,380.8	22,165
	Indonesia						257.6	776
	Malaysia						30.3	271

① Some consumer adoption exceeds global digital leaders
② Business adoption varies across Middle Eastern countries
③ Some Middle East governments have embraced digital
④ ICT supply and innovation—especially digital creation—in the Middle East is lagging behind

[1] Middle East includes Bahrain, Egypt, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, United Arab Emirates.
[2] Digital leaders includes Norway, Singapore, South Korea, Sweden, United Kingdom.
[3] Western Europe includes France, Germany, Italy, Norway, Spain, Sweden, United Kingdom.
[4] APAC includes Australia, China, India, Indonesia, Hong Kong, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand.

10 RECOMMENDATIONS TO ACCELERATE DIGITISATION ACROSS THE REGION FOR PUBLIC AND PRIVATE SECTOR LEADERS

Government
1. Move from e-government-focused digital initiatives to full digital economy development
2. Empower national digital agencies
3. Create policy frameworks that foster, and do not hamper, digital innovation
4. Seize the opportunity of large public IT spending to create home-grown IT players at scale

Business
5. Take the once-in-a-lifetime opportunity to create critical digital platforms for the region
6. Step up the collaboration among corporations and digital disrupters in the region
7. Embrace agility through digital to address the ever-faster business environment

Funding
8. Scale digital VC funding and increase visibility of investment opportunities

Talent
9. Create digital curricula and seamless learning pathways from primary schools to higher education and into employment
10. Rethink how to attract and retain digital talent and reconsider applicability of nationalisation to digital

The digital market could add USD 95 billion per year to the Middle East's annual GDP by 2020

USD 95 billion

1. The digital revolution is transforming the Middle East

Digital is not a passing trend; it is a revolution that is happening right now and picking up speed every day. In the Middle East and around the world, digital technologies are disrupting every aspect of business, government, and individuals' lives.

The digitisation story of the Middle East has many highlights thus far. Indeed, the region is heavily invested in the digital age—particularly among consumers. In the United Arab Emirates, 70 to 80 percent[5] of the population is carrying a supercomputer in their pocket, placing the country in the top ranks of global smartphone penetration. On this metric Bahrain, Qatar, and the United Arab Emirates score higher than the United States (100 percent vs 80 percent).[6] Social media usage is also widespread: The Middle East and North Africa (MENA) region is ranked second in the world by number of daily YouTube videos views at more than 310 million.[7] And the MENA region is the fastest-growing consumer of videos on Facebook: consumption per Head of Facebook embedded videos is twice the global average.[8] Given the demographics in the region (50 percent of the population is under the age of 24[9]), the tech-native and savvy youth in the Middle East will only further boost the digital adoption rate in the coming years. Beyond the propagation of better feature phones and media consumption, increased mobile access and versatility of social media usage means new ways to reach, inspire, and educate a new generation for the 21st century.

On the business side, adoption of digital technologies is lower. A recent survey revealed that just 18 percent of small and midsize enterprises (SMEs) in the United Arab Emirates, 15 percent in Saudi Arabia, and a mere 7 percent in Egypt have an online presence.[10] But more and more customer journeys, channels, and internal processes and activities are getting digitised. By 2019, projections estimate that the Middle East and Africa will have the world's highest cloud traffic growth rate, at 41 percent.[11]

Several successful examples highlight the promising momentum in this space (see box, "Examples of digitised business services in the Middle East").

5   "Mobile majority: Smartphone penetration hits 78% in the UAE", *Nielsen*, 23 June 2014, www.nielsen. com/ae/en/insights/news/2014/mobile-majority-smartphone-penetration-hits-77-percent-in-the-uae. html.

6   Strategy Analytics 2015; GSMA Q4 2015; Analysys Mason database, accessed September 2016.

7   Alvin R. Cabral, "YouTube: A decade of viewing pleasure", *Khaleej Times,* 12 June 2015, www. khaleejtimes.com/article/20150611/ARTICLE/306119962/1041.

8   "MENA region is the fastest growing consumer of videos on Facebook", Dubai PR Network, 7 June 2015, m.dubaiprnetwork.com/pr.asp?pr=99891.

9   World Market Monitor 2015, accessed October 2016.

10 Sonia Rafi, "Three-quarters of Middle East–based SMEs have no online presence", customerservice.ae, accessed September 2016, www.customerservice.ae/three-quarters-of-middle-east-based-smes-have-no-online-presence.

11 "Service provider forecasts and trends: Global Cloud Index (GCI) forecast", Cisco, accessed September 2016, www.cisco.com/c/en/us/solutions/service-provider/global-cloud-index-gci/index.html.

Examples of digitised business services in the Middle East

Innovative uses of digital by various businesses around the Middle East highlight the promising momentum in this space. ENOC and EPPCO in Dubai, for example, have developed an RFID-enabled prepaid fuelling system that allows cashless and cardless automated fuel payments. Some of the biggest oil companies in the GCC are exploring ways to make its oilfields smarter by digitising operations with big data and analytics, sensors, and control systems. The regional online private car-booking service Careem is another success story: while the global market is dominated by giants such as Uber from the United States or Didi in China, Careem is able to compete regionally with a localised strategy focusing on B2B integration and additional features such as scheduled bookings—not just for their own fleet of chauffeurs but also for the cabs
of, for example, the Roads and Transports Authority in Dubai. And Bank Audi in Lebanon has launched Novot, an artificial intelligence–based humanoid robot. The autonomous mobile robot welcomes and guides customers, as well as promotes the bank's products and services. Novot lifts customer experience to a new level and makes customer journeys at bank branches interactive and intuitive. Souq.com, the region's first unicorn (a start-up with a market capitalization of more than USD 1 billion) is the Middle East's leading e-commerce marketplace; it has facilitated the connection of 75,000 Middle Eastern businesses[12] with customers they would never have been able to reach previously. Established players are also taking the opportunity to digitise their business and explore new digital adjacencies. Etilsalat and Du in the United Arab Emirates have launched several smart cities and Internet of Things (IoT) services.[13] Also STC in the Kingdom of Saudi Arabia offers IoT-based fleet management tracking cars and trucks.[14]

150-FOLD

increase in the cross-border data flow connecting the Middle East to the world

Across a range of key metrics, it is clear that digitisation is already transforming the Middle East (Exhibit 1). These trends are also reflected in the high scores of data flows connecting the Middle East to the other regions of the world. *Digital globalization: The new era of global flows,* a report by the McKinsey Global Institute (MGI),[15] analysed connectedness as measured by the use of cross-border bandwidth. The analysis shows that data flows in the Middle East have increased by more than 150 times in the past decade (Exhibit 2).

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[12] Ed Attwood, "Ronaldo Mouchawar: How I created Souq.com", *Arabian Business,* 5 April 2014, www.arabianbusiness.com/ronaldo-mouchawar-how-i-created-souq-com-545057.html.

[13] Alan Burkitt-Gray, "Etisalat and du announce UAE smart cities project," *Capacity Media,* 3 March 2016, www.capacitymedia.com/Article/3534490/Etisalat-and-du-announce-UAE-smart-cities-project.html.
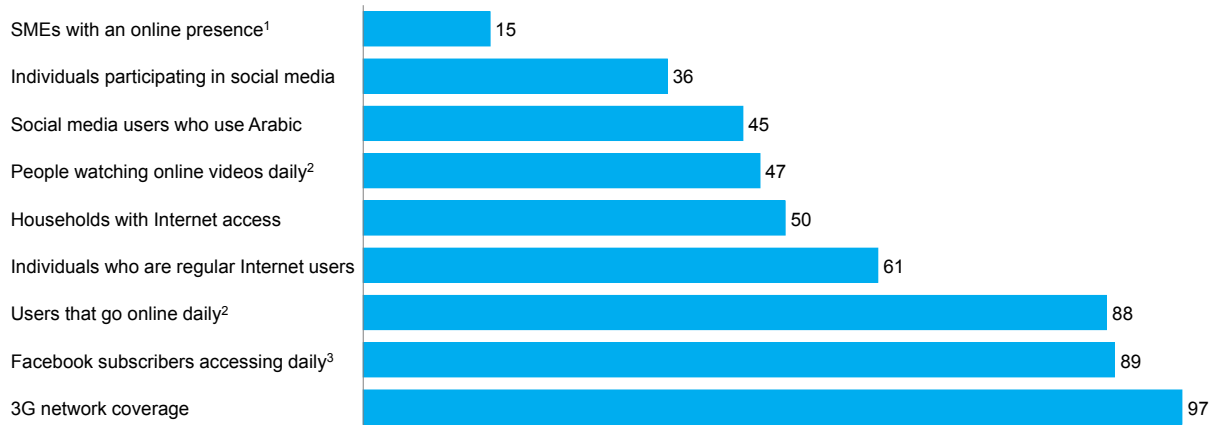
[14] "Location identifying," STC, accessed 12 October 2016, www.stc.com.sa/wps/wcm/connect/english/business/smallAndMediumBusiness/industrySolutions/locationidentifying/AutomaticVehicleLocation.

[15] James Manyika et al., *Digital globalization: The new era of global flows,* McKinsey Global Institute (MGI), February 2016, www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-globalization-the-new-era-of-global-flows.

Exhibit 1

Though Middle Eastern businesses lag behind in digitisation, consumers are leading the charge

Middle East average, %

Category	Value
SMEs with an online presence[1]	15
Individuals participating in social media	36
Social media users who use Arabic	45
People watching online videos daily[2]	47
Households with Internet access	50
Individuals who are regular Internet users	61
Users that go online daily[2]	88
Facebook subscribers accessing daily[3]	89
3G network coverage	97

[1] Saudi Arabia only.
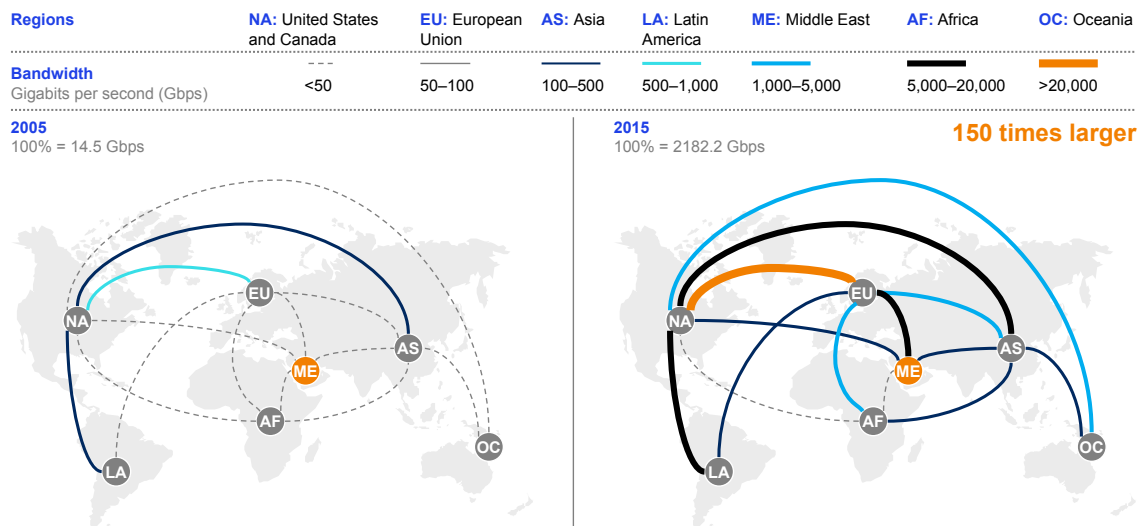[2] Google Consumer Barometer 2015 for the United Arab Emirates and Saudi Arabia only.
[3] Middle East, North Africa, and Levant, based on *Arab Social Media Report 2015,* launched at Arab Social Media Influencers Summit 2015.

SOURCE: *Networked Readiness Index 2015*, World Economic Forum; *2016 Digital Yearbook,* We Are Social; Digital Adoption Index, World Bank; *The Connected Consumer Survey 2015*, Google; McKinsey analysis

Exhibit 2

Cross-border flows have increased by more than 150-fold in the past decade

Used cross-border bandwidth

Regions	NA: United States and Canada	EU: European Union	AS: Asia	LA: Latin America	ME: Middle East	AF: Africa	OC: Oceania
Bandwidth Gigabits per second (Gbps)	<50	50–100	100–500	500–1,000	1,000–5,000	5,000–20,000	>20,000

2005
100% = 14.5 Gbps
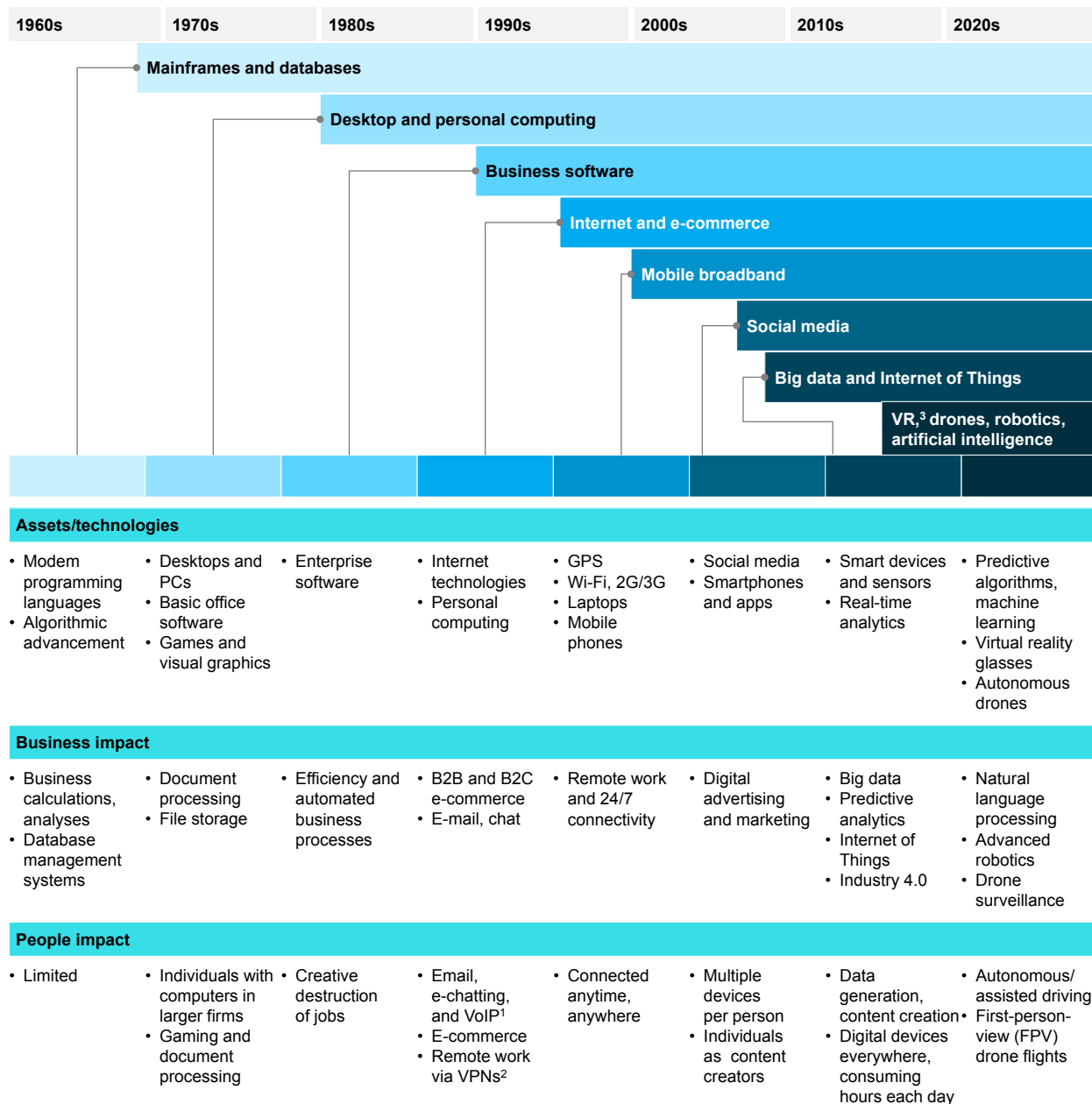
2015
100% = 2182.2 Gbps

150 times larger

Note: Lines represent interregional bandwidth (e.g., between Europe and North America) but exclude intraregional cross-border bandwidth (e.g., connecting European nations with one another).

SOURCE: Global Internet Geography, TeleGeography, McKinsey Global Institute analysis

Increased data flows are just one indicator of the accelerating pace of digital innovation; since the 1960s, each successive wave of innovation has been shorter and quicker than the one before it (Exhibit 3). At the beginning of the digital revolution, it took decades to make the step change from mainframes to personal computers. In recent years, the innovation frequency has accelerated massively. Year after year, groundbreaking digital technologies reach the market and have a profound impact

Exhibit 3

Successive waves of innovation have shaped the worldwide digital economy

1960s	1970s	1980s	1990s	2000s	2010s	2020s

Mainframes and databases

Desktop and personal computing

Business software

Internet and e-commerce

Mobile broadband

Social media

Big data and Internet of Things

VR,[3] drones, robotics, artificial intelligence

Assets/technologies

1960s	1970s	1980s	1990s	2000s	2010s	2020s
• Modem programming languages • Algorithmic advancement	• Desktops and PCs • Basic office software • Games and visual graphics	• Enterprise software	• Internet technologies • Personal computing	• GPS • Wi-Fi, 2G/3G • Laptops • Mobile phones	• Social media • Smartphones and apps	• Smart devices and sensors • Real-time analytics	• Predictive algorithms, machine learning • Virtual reality glasses • Autonomous drones

Business impact

| • Business calculations, analyses
• Database management systems | • Document processing
• File storage | • Efficiency and automated business processes | • B2B and B2C e-commerce
• E-mail, chat | • Remote work and 24/7 connectivity | • Digital advertising and marketing | • Big data
• Predictive analytics
• Internet of Things
• Industry 4.0 | • Natural language processing
• Advanced robotics
• Drone surveillance |

People impact

| • Limited | • Individuals with computers in larger firms
• Gaming and document processing | • Creative destruction of jobs | • Email, e-chatting, and VoIP[1]
• E-commerce
• Remote work via VPNs[2] | • Connected anytime, anywhere | • Multiple devices per person
• Individuals as content creators | • Data generation, content creation
• Digital devices everywhere, consuming hours each day | • Autonomous/assisted driving
• First-person-view (FPV) drone flights |

[1] Voice over internet protocol.
[2] Virtual private networks.
[3] Virtual reality and augmented reality.

SOURCE: McKinsey Global Institute analysis

2

zettabytes of data greater than the grains of sands covering the Arabian desert

on business and people in the span of months rather than years. The current wave—which encompasses recent innovations in big data, the Internet of Things (IoT), virtual reality, drones, robotics, and artificial intelligence—provides massive opportunities that have already started to reshape current industry structures.

By 2020, projections suggest that there will be around 2 zettabytes of data in the Middle East—greater than the estimated number of grains of sand covering the entire Arabian Desert.[16] This massive increase in digital comes with similarly sized opportunities—but the Middle East is not advancing quickly enough to capture anywhere close to the full potential of digital.

Despite the high smartphone penetration in the United Arab Emirates, Bahrain, and Qatar, due to particularly low penetration in several Middle Eastern countries the region's overall smartphone adoption rate is low. The current smartphone adoption rate of the bottom two-thirds of the Middle East population is just 20 percent.[17] In comparison, among those in the United States who earn less than USD 30,000 per year (the lowest quartile income segment), 50 percent have a smartphone.[18] However, there is reason for optimism: projections estimate that by 2020, the region will reach 60 percent overall smartphone adoption, in line with the rest of the world.[19]

> Due to particularly low penetration in several Middle Eastern countries, the region's overall smartphone adoption rate is lower than the poorest income segment in the United States.

Furthermore, the Middle East has only small and fragmented IT players. As an indication, the top publicly traded IT players in the Middle East do not rank in the top 600 companies globally by revenue.[20] However, scale is one of the biggest success factors in the digital business. Looking to the next generation of IT players, the Middle East's start-up corps (excluding SMEs) is slim. Taking the number of start-ups registered at AngelList[21] as an indicator, just 1 start-up is established each day in the Middle East, compared with more than 60 per day in the United States.[22] Even when adjusted for the differences in population size, the difference is 1 to 30.

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16 John Gantz and David Reinsel, *The digital universe in 2020: Big data, bigger digital shadows, and biggest growth in the Far East,* IDC country brief, February 2013, www.emc.com/collateral/analyst-reports/idc-digital-universe-united-states.pdf; *Forbes*; McKinsey analysis.

17 Based on by population size–weighted smartphone adoption of Egypt, Jordan, and Lebanon. Source: Analysys Mason Database, accessed September 2016; World Market Monitor Database, accessed September 2016; Strategy Analytics 2015.

18 Aaron Smith, "Chapter one: A portrait of smartphone ownership", Pew Research Center, 1 April 2015, www.pewinternet.org/2015/04/01/chapter-one-a-portrait-of-smartphone-ownership.

19 "The Mobile Economy: Arab States 2015", GSMA, accessed September 2016, www.gsma.com/mobileeconomy/arabstates/.

20 *Bloomberg*, Capital IQ database 2015.

21 www.angel.co.

22 "Locations", AngelList, accessed 1 October 2016, https://angel.co/locations.

The Middle East's top IT players do not rank in the top 600 companies by annual revenue globally.

However, these findings are just symptoms and do not reveal any root causes. So beyond these high-level figures, where do the Middle East countries stand on digital adoption and creation, compared with one another and with other regions and countries around the world? And what are the underlying reasons?

2. The McKinsey Middle East Digitisation Index:
Digitally savvy consumers are leading the way for broader business and government adoption

The Middle East Digitisation Index is the first effort to capture how digitisation is spreading across the Middle East. It compiles 24 indicators to provide a picture of digitisation of consumers, businesses, government, and ICT supply and innovation. (See box, "Index methodology".) The index shows that economies in the Middle East have adopted digital unevenly, with large variations across countries.

Together, nine Middle Eastern countries—Bahrain, Egypt, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, and the United Arab Emirates—represent a population of 158 million people and a gross domestic product (GDP) of USD 1.7 trillion[23] as of 2015. Our analysis of these nine countries through the lens of the McKinsey Middle East Digitisation Index reveals their varying levels of progress in four defined areas of digitisation (Exhibit 4).

We also compared their scores with those of Asia-Pacific and Australia (APAC), the United States, and Western Europe,[24] as well as a selected set of countries that define the digital frontier—Norway, Singapore, South Korea, Sweden, and the United Kingdom. The averages for the regional scores are normalised by weighting in the size of population in each country.

It is important to note that the spread among countries within Europe is significantly smaller (0.29 points) than that of in the Middle East (0.44 points). In other words, while the countries of the digital frontier, Western Europe, and the United States demonstrate consistent digitisation, some Middle Eastern countries such as the United Arab Emirates, Qatar, and Bahrain have made great progress, while others such as Kuwait, Egypt, and Lebanon are lagging behind. Saudi Arabia, Jordan, and Oman land somewhere in the middle.

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[23] World Industry Service database, accessed September 2016; World Market Monitor database, accessed September 2016.
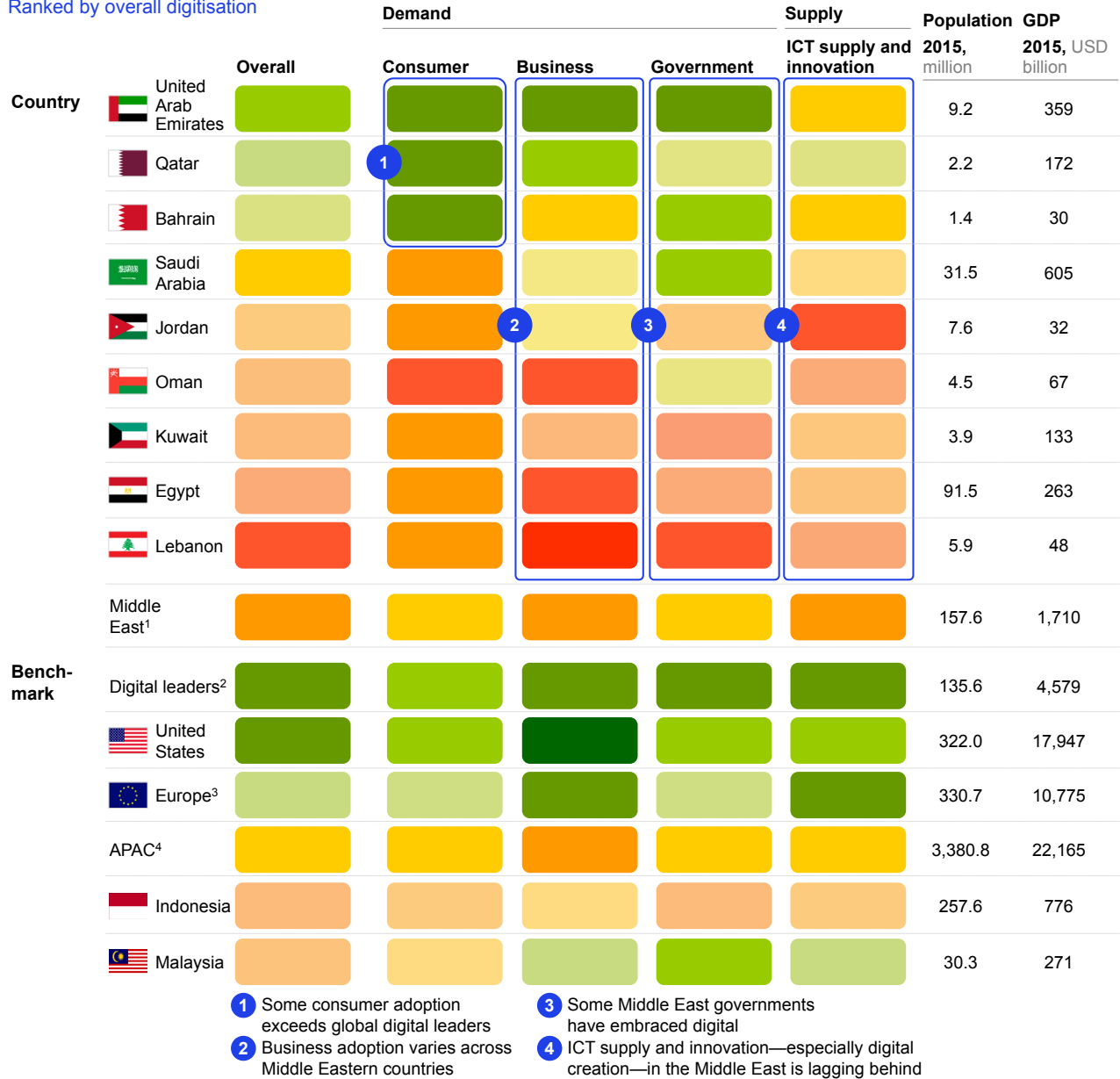
[24] For the purposes of this report, Western Europe is represented by France, Germany, Italy, Norway, Sweden, Spain, and the United Kingdom.

Exhibit 4

The Digitisation Index uncovers strong variations across Middle East countries and between demand and supply measures

Ranked by overall digitisation

		Overall	Demand			Supply	Population 2015, million	GDP 2015, USD billion
			Consumer	Business	Government	ICT supply and innovation		
Country	United Arab Emirates						9.2	359
	Qatar						2.2	172
	Bahrain						1.4	30
	Saudi Arabia						31.5	605
	Jordan						7.6	32
	Oman						4.5	67
	Kuwait						3.9	133
	Egypt						91.5	263
	Lebanon						5.9	48
	Middle East[1]						157.6	1,710
Bench-mark	Digital leaders[2]						135.6	4,579
	United States						322.0	17,947
	Europe[3]						330.7	10,775
	APAC[4]						3,380.8	22,165
	Indonesia						257.6	776
	Malaysia						30.3	271

Low ▬ High

1 Some consumer adoption exceeds global digital leaders
2 Business adoption varies across Middle Eastern countries
3 Some Middle East governments have embraced digital
4 ICT supply and innovation—especially digital creation—in the Middle East is lagging behind

Note: Region score is calculated based on a population-weighted average.
[1] Middle East includes Bahrain, Egypt, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, United Arab Emirates.
[2] Digital leaders includes Norway, Singapore, South Korea, Sweden, United Kingdom.
[3] Western Europe includes France, Germany, Italy, Norway, Spain, Sweden, United Kingdom.
[4] APAC includes Australia, China, India, Indonesia, Hong Kong, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand.

Index methodology

The McKinsey Middle East Digitisation Index assesses a country's level of digitisation based on 24 variables of supply (such as digital creation) and demand (for example, digital adoption; see exhibit). The analysis is based on previous research by MGI, as published in the reports on digitisation in the United States and Europe.[25] We have adapted this approach to assess countries along four areas: the level of digital adoption across consumer, business, and government sectors as well as the strength of the ICT supply and innovation.

Each country was rated on 24 variables of digital supply and demand

Sub-Index	Area	Metric	Description
Consumer	Internet usage	• Internet penetration • Mobile broadband usage	• Active Internet users over total population • Mobile broadband users per 100 people
	Smartphone usage	• Smartphone penetration	• Active smartphones over population
	Social networks usage	• Active social network accounts (% of Internet users) • Time spent on social media	• Active social media users divided by active Internet users • Hours spent per day
	Internet retail	• Internet retail value as % of total retail	• Internet retail divided by total retail
Business	Technology usage	• B2B internet usage • Firm-level technology absorption	• Survey response to: In a country, to what extent do businesses use ICTs for transactions with other businesses? [1 = not at all; 7 = to a great extent] • Survey response to: In a country, to what extent do businesses adopt new technology? [1 = not at all; 7 = adopt extensively]
	Advertising	• Online ad spending per capita • Online ad spending as % of total	• Internet advertisement spending per capita in USD • Internet spending as a percentage of total advertisement spending
Government	Promotion of ICT	• Government's success in ICT promotion	• Survey response to: How successful is the government in promoting the use of ICTs? [1 = not successful at all; 7 = extremely successful]
	Usage of ICT	• Government Online Service Index • ICT use and government efficiency • Core administration system digitization • Digital identification • E-government index	• Survey response to: The Government Online Service Index assesses the quality of government's delivery of online services on a 0-to-1 (best) scale • Survey response to: To what extent does the use of ICTs by the government improve the quality of government services to the population? [1 = not at all; 7 = to a great extent] • Based on multiple indicators/surveys such as financial management information system, human resources information system, e-tax, e-customs, e-procurement • Based on multiple indicators/surveys such as access to services, digital signature, card features • United Nations E-government development index
ICT supply and innovation	Coverage	• 3G network coverage	• Mobile network coverage as percentage of population
	Connectivity	• International Internet bandwidth • Secure Internet servers per million pop. • Average download speed	• International Internet bandwidth in kbps per user • Secure Internet server per capita • Average download speed in kbps
	Affordability	• Broadband tariffs • Mobile broadband pricing	• Fixed-broadband Internet tariffs in PPP USD per month • Mobile-broadband pricing PPP adjusted
	PCT[1] patents	• PCT patents application per million pop.	• PCT patents, applications per capita
	ICT companies	• Share of country's ICT companies' revenue in global Top 1000	• Share of 2015 revenues per country as % of overall Top 1000 revenues

1 Patent Corporation Treaty.

SOURCE: International Monetary Fund, World Economic Forum, World Industry Service Database, World Bank, World Market Monitor, Wearesocial.org, Euromonitor, ITU, UN data

25 Digital America: A tale of the haves and have-mores, MGI, December 2015, www.mckinsey.com/industries/high-tech/our-insights/digital-america-a-tale-of-the-haves-and-have-mores; *Digital Europe: Realizing the continent's potential,* MGI, June 2016, www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-europe-realizing-the-continents-potential.

Key insights from the McKinsey Middle East Digitisation Index

Our analysis reveals several key insights about the state of digitisation in the Middle East.

Consumers are leading digital adoption in the Middle East

- As measured by digital consumer adoption, the United Arab Emirates, Qatar, and Bahrain are among the top countries in the world, with more than 100 percent smartphone penetration and more than 70 percent social media adoption[26]—even higher than the United States and various countries in Western Europe and APAC. The majority of Middle East users are keen to stay up to date with the relentless pace of innovation in the digital space.

- Due to particularly low penetration in several Middle Eastern countries, the region's overall smartphone adoption rate is lower than even the poorest income segment in the United States.

- However, consumer demand for digital is far higher than adoption by the region's companies and governments almost across the board.

Middle Eastern businesses' digitisation varies significantly among countries

- The Middle East's level of digitisation in the business sector—which scores below the benchmark regions—still hides a great deal of variation among countries. In general, the Gulf Cooperation Council (GCC) countries[27] have more digitised businesses than Egypt, Jordan, and Lebanon. In fact, as measured by business digitisation, the United Arab Emirates reaches the level of digital frontiers countries, whereas Egypt, Kuwait, Lebanon, and Oman still have many opportunities to gain from the further steps toward digitisation.

- The Middle East scores low on firm-level technology absorption and online advertising spending per capita—metrics that affect its overall score on digital adoption in the business sector.

Some Middle East governments have embraced digital

- Middle Eastern governments diverge in their digital adoption progress. The United Arab Emirates and Bahrain are in the lead, having implemented core digitisation initiatives.

- The UAE government ranks number one in digital adoption among Middle Eastern countries and matches the digital frontier countries. Among the Middle Eastern countries studied, the United Arab Emirates has the highest digital identification—a metric that is based on multiple indicators such as access to services, digital signature, and card features. The country is also engaged in various digitisation initiatives, such as expanding broadband coverage and creating a unified smart-city platform.

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[26] "Social media adoption" is the percentage of Internet users active on social media. Source: *The global information technology report 2016,* WEF, July 2016, www.weforum.org/reports/the-global-information-technology-report-2016; "Digital in 2016", Wearesocial.org, 27 January 2016, http://wearesocial.com/uk/special-reports/digital-in-2016.

[27] Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

Digital McKinsey

2. The McKinsey Middle East Digitisation Index:
Digitally savvy consumers are leading the way for broader business and government adoption

22

- Other countries such as Bahrain, Egypt, Qatar, Oman, and Saudi Arabia also have big ambitions and have achieved considerable progress. However, in their efforts to promote innovation and push the public sector's adoption of digital to the next level, they are facing implementation problems such as an inadequate governance structure to unify the vision and achieve the change.

- Despite ambitious government aspirations to go digital, only 6 percent of the Middle Eastern population lives under a digitised smart government.[28]

ICT supply and innovation—especially digital creation—in the Middle East is lagging behind

- In general, the Middle East trails its global counterparts in ICT supply and innovation, especially on the digital creation side. For example, the Middle East has just one-thirtieth the ICT patents per million population compared with the United States; compared with other emerging market players in BRIC (Brazil, Russia, India, and China), the Middle East still has one-third fewer ICT patents overall.[29]

- Qatar and Bahrain lead ICT supply and innovation among Middle East countries thanks to high 3G coverage and low prices. Qatar's highly developed network infrastructure (for example, by coverage and speed) places it first in ICT supply and innovation among Middle East countries. It should be noted that both Bahrain and Qatar have a proprietary advantage to create a unified level of access for the entire population due to their small area compared with larger countries such as Saudi Arabia and Egypt.

The gap between consumer adoption and digitisation among business and government as well as ICT supply and innovation implies strong growth potential in the near future, as consumers are clearly primed and ready to quickly embrace new digital offerings. Given the demographics in the region (50 percent of the population is under the age of 24[30]), the tech-native and savvy youth in the Middle East will only further boost the digital adoption rate in the coming years.

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[28] This considers the population of the United Arab Emirates. Source: World Market Monitor 2015, accessed September 2016.

[29] *The global information technology report 2016,* WEF, July 2016, www.weforum.org/reports/the-global-information-technology-report-2016.

[30] World Market Monitor 2015, accessed October 2016.

3. The Middle East is capturing only a fraction of its digital potential
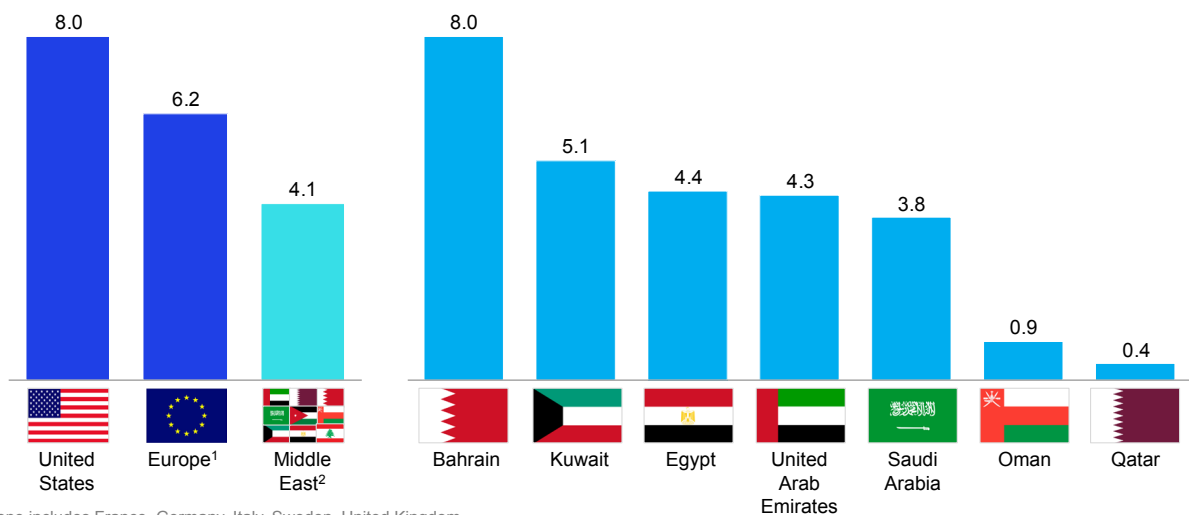
Across sectors, the digital economy accounts for 4.1 percent of the Middle East's GDP, as measured by digital share in private consumption, private investment, government expenditure, and imports and exports (Exhibit 5). Digital's contribution to GDP in the Middle East is just 50 percent that of the United States. Furthermore, the Middle East average hides a great deal of variation among countries. GCC countries generally have more digitised economies than their neighbours. For instance, the digital economy accounts for 8.0 percent in Bahrain and 5.1 percent in Kuwait—but less than 1 percent in both Oman and Qatar. Bahrain's high score is mainly driven by that country's high digital exports to regional neighbours.

> The digital contribution to GDP in the Middle East is just 50 percent that of the United States.

Exhibit 5

The contribution of the Middle East's digital economy is low compared with benchmarks—though this average belies variation among the nine countries studied

Share of digital contribution to GDP, %

United States	Europe[1]	Middle East[2]	Bahrain	Kuwait	Egypt	United Arab Emirates	Saudi Arabia	Oman	Qatar
8.0	6.2	4.1	8.0	5.1	4.4	4.3	3.8	0.9	0.4

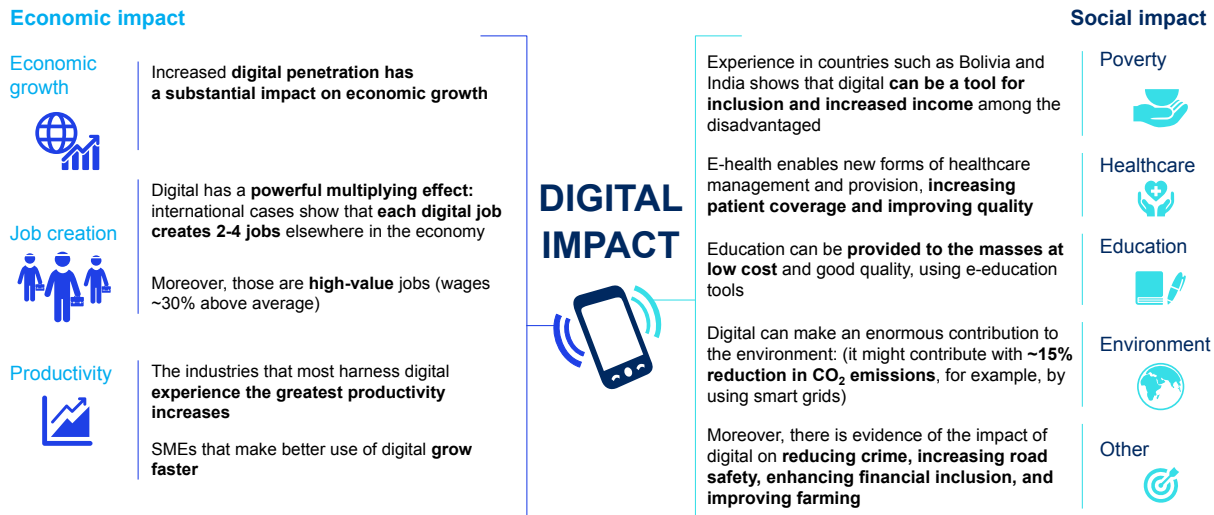[1] Europe includes France, Germany, Italy, Sweden, United Kingdom.
[2] Middle East includes Bahrain, Egypt, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates.
SOURCE: *Euromonitor Passport*, September 2016; *IDC ICT Black Book,* September 2016; *World Industry Services Database,* September 2016; UN data; *World Development Indicators*, World Bank; Ovum, September 2016; Magna 2015; UNCTAD stats 2011–15; McKinsey analysis

Digital can have a significant impact on the economy and society. It contributes to economic growth, creates jobs, and is a key enabler of increased productivity. Digital can also have a positive impact on inclusion and poverty reduction, increase access to and quality of healthcare and education, and reduce CO_2 emissions. Exhibit 6 illustrates the myriad benefits of digital.

Exhibit 6

A digitised economy enjoys myriad economic and social benefits

Economic impact

Social impact

Economic growth
: Increased **digital penetration has a substantial impact on economic growth**

Job creation
: Digital has a **powerful multiplying effect**: international cases show that **each digital job creates 2-4 jobs** elsewhere in the economy

: Moreover, those are **high-value** jobs (wages ~30% above average)

Productivity
: The industries that most harness digital **experience the greatest productivity increases**

: SMEs that make better use of digital **grow faster**

DIGITAL IMPACT

Poverty
: Experience in countries such as Bolivia and India shows that digital **can be a tool for inclusion and increased income** among the disadvantaged

Healthcare
: E-health enables new forms of healthcare management and provision, **increasing patient coverage and improving quality**

Education
: Education can be **provided to the masses at low cost** and good quality, using e-education tools

Environment
: Digital can make an enormous contribution to the environment: (it might contribute with **~15% reduction in CO_2 emissions**, for example, by using smart grids)

Other
: Moreover, there is evidence of the impact of digital on **reducing crime, increasing road safety, enhancing financial inclusion, and improving farming**

SOURCE: World Bank; Nasscom; Van Reenen et al. (2005); MGI; UNESCO; Smart 2020 report; press clippings

To understand the relationship between digital and economic impact, we examined the link between the McKinsey Digitisation Index and GDP. Our analysis shows a strong correlation between a country's non-oil GDP per capita and its score on the McKinsey Digitisation Index (Exhibit 7). These findings suggest that the relationship between GDP and digitisation is a virtuous cycle: a higher GDP allows countries to spend more on digital adoption, which increases a country's performance on the Digitisation Index. And a high level of digitisation contributes to economic growth, leading to higher GDP.

Middle East countries are currently pursuing various digitisation strategies

Leaders in the region recognise the impact that digital can have on their nations. Indeed, accelerating the digitisation journey would have a substantial impact on social inclusion, SME development, job creation, economic productivity, and government efficiency, so digital is a key enabler for governments' ambitions for their economies and societies. Several Middle Eastern governments have developed cornerstone visions and strategies, and many digitisation initiatives have been undertaken in the past decade. Recent examples include:

- Saudi Arabia's Vision 2030 sets as one of its ambitious nationwide goals to raise the country's ranking in the E-Government Survey Index to among the top five nations.

- Saudi Arabia's National Transformation Program 2020 has prioritised digital transformation as one of the top four Common National Goals. The programme identified 5 digital platforms, 29 essential digital initiatives for key sectors, and a number of national digital assets to receive further investment in order to support the government's digital transformation.

Exhibit 7

Digitisation and non-oil GDP per capita are strongly correlated, and together they create a virtuous growth cycle

Non-oil GDP per capita, 2015, USD, thousands

Digitisation index
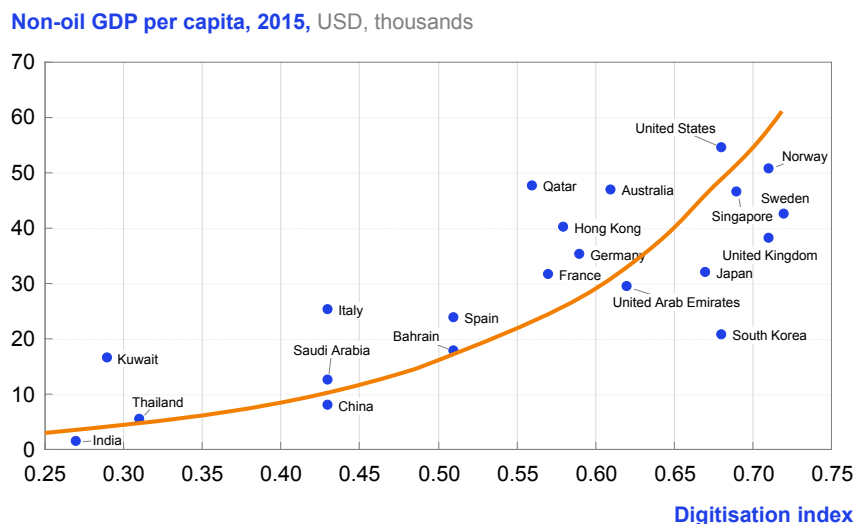
Note: Indicative only; correlation is no proof of causality.
Source: *Networked Readiness Index 2015*, World Economic Forum; *2016 Digital Yearbook ,* We Are Social; *Digital Adoption Index 2016, World Development Indicators,* World Bank; *World Market Monitor*, September 2016; World Industry Service Database, July/September 2016; *Euromonitor Passport,* September 2016; Megna Strategy Analysis; Analysys Mason; *UN E-Government Survey 2016*, ITU; McKinsey analysis

- As part of UAE Vision 2021, the National Innovation Strategy identified digital technology as one of the top seven primary national sectors. The strategy focuses on the development of smart cities, software, and applications including advanced technology in areas of global interest such as artificial intelligence, semiconductors, nanotechnology, and 3D printing, as well as the quick adoption of technology across various industries.

- Qatar Vision 2030 prioritises the creation of a knowledge-based economy characterised by innovation, entrepreneurship, excellence in education, a world-class infrastructural backbone, the efficient delivery of public services, and transparent and accountable government.

- Egypt's Vision 2030 envisions a competitive, balanced, and diversified economy, dependent on innovation and knowledge; based on justice, social integrity, and participation; characterized by a balanced and diversified ecological collaboration system; and investing the ingenuity of place and humans to achieve sustainable development and to improve Egyptians' life quality.

However, the history of governmental digital agendas in many countries is also a story of plans that have gone unexecuted. Now is the time for governments to prioritise pragmatism over complexity—and to move quickly from strategy to implementation and execution.

The Middle East economy has realised

8.4%

of its digital potential

The Middle East has only scratched the surface of its digital potential

Our analysis and estimates show that the Middle East region's economy has realised only 8 percent of its digital potential. By comparison, Western Europe has achieved an estimated 15 percent of its digital potential, and the US economy has captured 18 percent (Exhibit 8).[31]

Exhibit 8

The Middle East is capturing just a fraction of its digital potential—revealing the significant opportunities of digitisation initiatives

Captured digital potential by country, %
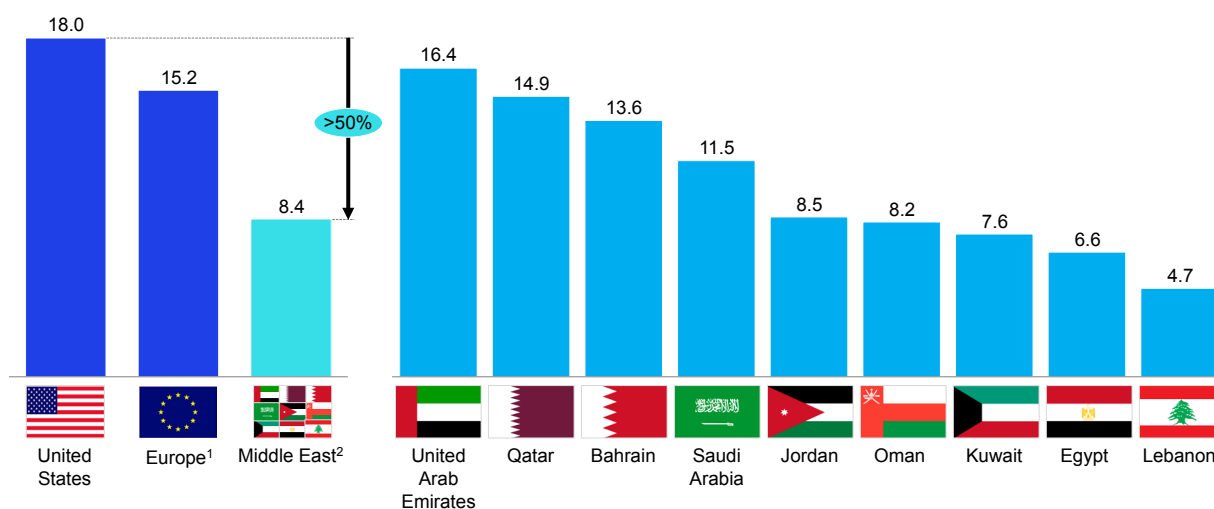
	United States	Europe[1]	Middle East[2]	United Arab Emirates	Qatar	Bahrain	Saudi Arabia	Jordan	Oman	Kuwait	Egypt	Lebanon
Value	18.0	15.2	8.4	16.4	14.9	13.6	11.5	8.5	8.2	7.6	6.6	4.7

[1] Europe includes France, Germany, Italy, Norway, Spain, Sweden, United Kingdom.
[2] Middle East includes Bahrain, Egypt, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, United Arab Emirates.
SOURCE: *Digital Europe: Pushing the frontier, capturing the benefits*, McKinsey Global Institute, June 2016; McKinsey analysis

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Public sector leaders in the Middle East have developed ambitious visions for 2030 to harness the power of digital for the economy and society.

How can this gap in the captured digital potential be explained? Based on analysis of the metrics underpinning the McKinsey Digitisation Index, we have identified several shortcomings across the region in the strength of areas such as ICT companies, digital unicorns, VC funding, digital trade balance, and digital talent pool. Based on the overall footprint of digital companies and funding, if the Middle East were able to close the gaps, the impact could be significant.

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[31] The metric of captured digital potential by country is calculated based on the McKinsey Digitisation Index and uses the United States as a reference, based on an estimate of captured potential of 18 percent. This figure is the average US economy digitisation score compared with the ICT sector—the most advanced digital sector—defining the digital frontier as 100 percent base. See: *Digital America: A tale of the haves and have-mores,* MGI, December 2015, www.mckinsey.com/industries/high-tech/our-insights/digital-america-a-tale-of-the-haves-and-have-mores.

The Middle East captures just

1%

of the revenue share of the top 1,000 global ICT companies

Among the top 1,000 ICT companies globally by annual revenue, only 1 percent are located in the Middle East (Exhibit 9). In particular, digital unicorns—start-up digital companies that have a market capitalisation of more than USD 1 billion—are underrepresented in the region. Currently, the Middle East has only one representative (Souq.com, in the United Arab Emirates) and one company that almost qualifies as a digital unicorn (Fumia, in Egypt, with slightly lower market capitalisation).

Exhibit 9

The Middle East lags behind other regions in two key indicators of ICT strength—share of revenues and number of unicorns

Legend:
- APAC
- United States
- Europe
- Middle East
- Other

Share of revenues, 2015
%

Number of unicorns
#

Share of revenue in top 1,000 ICT companies: Other 4, Middle East 1, Europe 15, United States 36, APAC 44

Number of unicorns: Other 4, Middle East 1, Europe 20, United States 106, APAC 57
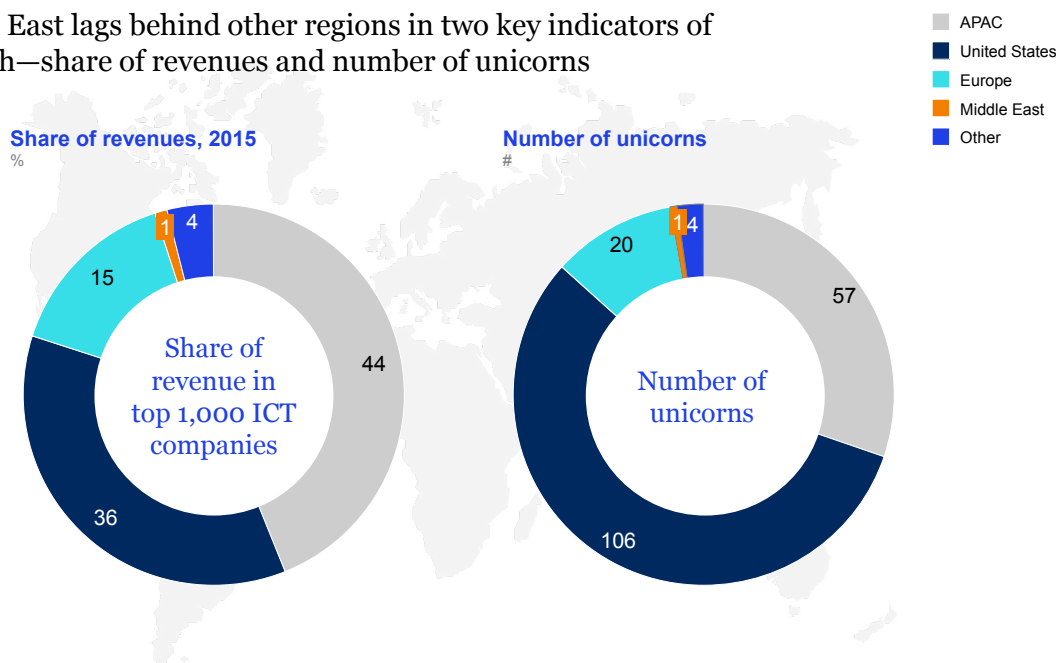
SOURCE: Bloomberg; Capital IQ; CrunchBase Unicorn Leaderboard, TechCrunch; McKinsey analysis

The Middle East claims

1 UNICORN

out of 200 globally

Looking to the region's next potential generation of digital unicorns, it is clear that interest in technology start-ups in particular is skyrocketing. Half a dozen tech start-ups in the MENA region today are valued at more than USD 100 million each, and investors sunk more than USD 750 million into MENA tech start-ups from 2013 to 2015.[32]

Relative to GDP, the Middle East has only 10 percent of the VC funding of the United States.

Comparing digital venture capital (VC) funding of the Middle East with other regions reveals another shortage. More than 1,000 start-ups are active across the GCC, but the Middle East has only 10 percent of the VC funding relative to GDP compared with the United States (Exhibit 10). Even the leading country in the region, the United Arab Emirates, still scores 80 percent lower than the United States by digital VC funding

[32] *The state of digital investments in MENA: 2013–15*, Arabnet Business Intelligence, accessed 11 October 2016, infive.ae/wp-content/uploads/2014/08/The-State-of-Digital-Investments-in-MENA-Report1.pdf.

as a share of GDP. One reason is industries with a high number of family businesses, which typically have concentrated ownership and a culture of keeping full equity share.[33]

Exhibit 10

Venture capital funding as a share of GDP has room for improvement in all Middle Eastern countries

VC in digital, USD per million nominal GDP
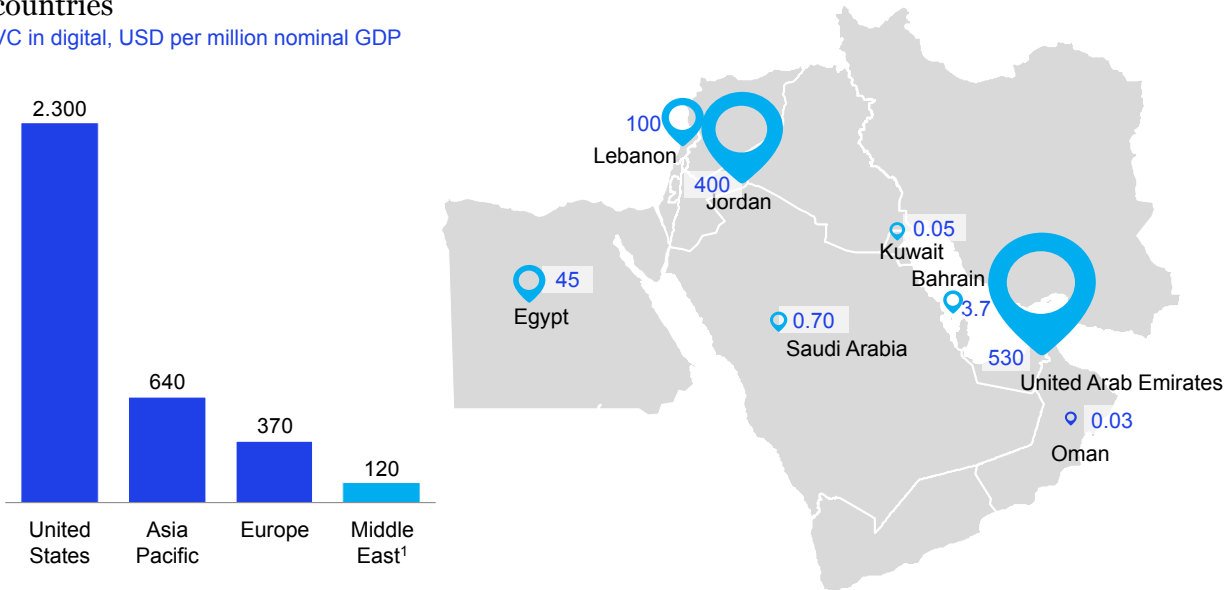
United States: 2.300
Asia Pacific: 640
Europe: 370
Middle East[1]: 120

Lebanon: 100
Jordan: 400
Egypt: 45
Kuwait: 0.05
Bahrain: 3.7
Saudi Arabia: 0.70
United Arab Emirates: 530
Oman: 0.03

[1] Middle East includes Bahrain, Egypt, Jordan, Lebanon, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates.
SOURCE: Venture Capital Database Pitchbook 2016; McKinsey analysis

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The digital supply side from a labour perspective across sectors reveals further insights. Our analysis shows that the share of digital jobs in the overall regional workforce is 1.7 percent—significantly lower compared with that of the United States and Europe (Exhibit 11).

The share of the Middle East workforce that is digital talent is less than half of the United States.

Advancing the digital capabilities of the workforce or even completely automating processes and tasks provides enormous potential for productivity gains in the region.

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33   Åsa Björnberg, Heinz-Peter Elstrodt, and Vivek Pandit, "The family-business factor in emerging markets," *McKinsey Quarterly,* December 2014, www.mckinsey.com/global-themes/winning-in-emerging-markets/the-family-business-factor-in-emerging-markets.

Exhibit 11

Just 1.7 percent of the Middle East workforce is digital talent

Digital talent as share of total FTEs,%
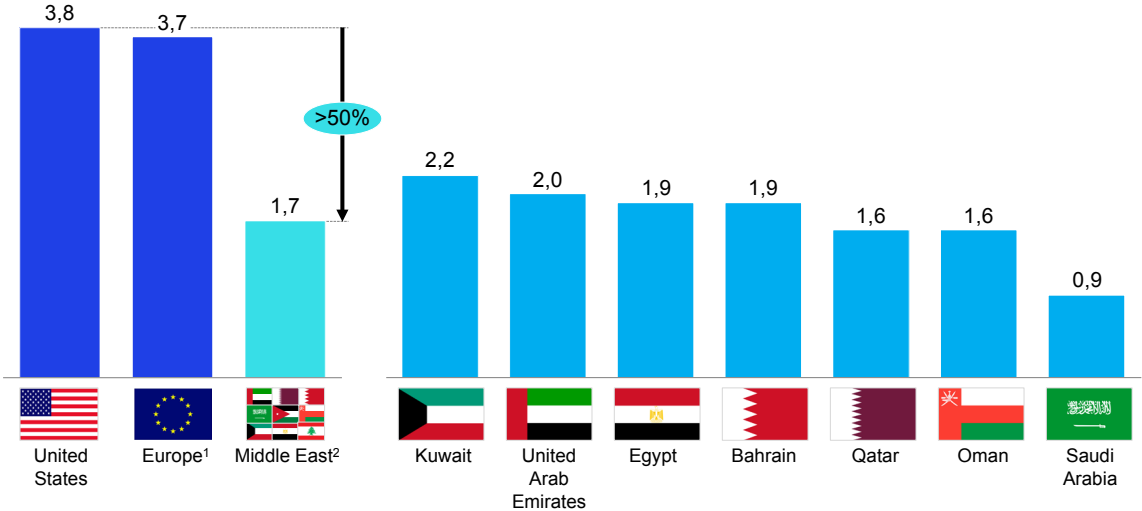
[1] Europe includes France, Germany, Italy, Norway, Spain, Sweden, United Kingdom.
[2] Middle East includes Egypt, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, United Arab Emirates.

SOURCE: US Bureau of Labor Statistics; Oxford Economics; McKinsey analysis

4. Transforming the Middle East into a leading digital economy:
Recommendations for how to overcome the challenges and to accelerate digitisation across the region

Our analysis demonstrates that the Middle East's goal of increasing digitisation comes with both significant challenges and huge opportunities. What can leaders in both the public and private sectors do to accelerate digitisation across the region?

We believe the transformational visions outlined by the Middle East's government leaders are the right path forward. To make progress, the region's individual economies and societies must evolve. Today, it is no longer sufficient to be a consumer of digital; countries that aspire to join the vanguard must become digital creators.

To maximise the myriad economic and social gains at the digital frontier, countries must also develop the requisite technologies and associated human capital.

To become a world-leading digital economy, the Middle East can and should build on its great history of inventing fundamental mathematical concepts that make up the foundation for digital. The region's inhabitants invented the concepts of algorithms,[34] key aspects of number theory[35] and zero;[36] indeed, the latter gives the Middle East claim to having invented "half of digital", given its dependence on 1s and 0s. Arabic numerals are the world standard for the representation of numbers. Middle Eastern countries also hold a high appreciation for engineers as architects and creators of the future.

However, digital acceleration across an entire economy and society requires the strategic coordination of multiple stakeholders. We have identified four areas—government, business, funding, and talent—as the most important areas to drive transformational change. Across these dimensions, we see ten tangible opportunities for public and private sector digital leaders in the region to enable and affect a digital revolution (Exhibit 12).

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[34] The word "algorithm" comes from the name of the ninth-century mathematician Muhammad ibn Musa Al-Khwarizmi. Source: "Muhammad ibn Musa Al-Khwarizmi", famousscientists.org, accessed September 2016, www.famousscientists.org/muhammad-ibn-musa-al-khwarizmi.

[35] The Arab, scientist, mathematician, astronomer, and philosopher Ibn al-Haytham's contributions to www.ibnalhaytham.com/discover/who-was-ibn-al-haytham/.

[36] Sumerian scribes used spaces to denote absences in number columns as early as 4,000 years ago, but the first recorded use of a zero-like symbol dates to sometime around the third century B.C. in ancient Babylon. Source: "Who invented the zero?", History.com, 22 January 2014, www.history.com/news/ask-history/who-invented-the-zero September 2016.

Exhibit 12

Government	1. Move from e-government-focused digital initiatives to full digital economy development
	2. Empower national digital agencies
	3. Create policy frameworks that foster, and do not hamper, digital innovation
	4. Seize the opportunity of large public IT spending to create home-grown IT players at scale
Business	5. Take the once-in-a-lifetime opportunity to create critical digital platforms for the region
	6. Step up the collaboration among corporations and digital disrupters in the region
	7. Embrace agility through digital to address the ever-faster business environment
Funding	8. Scale digital VC funding and increase visibility of investment opportunities
Talent	9. Create digital curricula and seamless learning pathways from primary schools to higher education and into employment
	10. Rethink how to attract and retain digital talent and reconsider applicability of nationalisation to digital

Digital McKinsey

4. Transforming the Middle East into a leading digital economy:
Recommendations for how to overcome the challenges and to accelerate digitisation across the region

34

GOVERNMENT – Establishing the enabling ecosystem and environment to accelerate digitisation

1. Move from e-government-focused digital initiatives to full digital economy development

Spurring digitisation at the national level requires a holistic national digital strategy—one that aims high and sets the digital agenda for all stakeholders. The strategy should be broken down by individual sector and aligned with the national vision and goals.

Of the nine Middle Eastern countries we studied, seven have recently launched digital government or e-government strategies, but only two (Egypt and Oman) have a nationwide digital strategy. (See box, "Recently published Middle East digital strategies")

These strategies focus on the digitisation of government services, which is a good starting point. They should aim to, for example, move 80 percent of government services to digital channels—a dramatic action that will put digitisation front and centre across a broad spectrum of applications as well as ensure much higher ease of use, citizen satisfaction, and efficiency for both the public and private sectors. However, a digital national strategy has to go far beyond a digital government strategy to address the entire economy and society, including e-health, digital infrastructure, digital education, and other adjacent sectors.

Several other nations serve as good role models for the Middle East. Denmark, for example, has set the bar high by naming its ambitious strategy "A stronger and more secure digital Denmark".[37] Singapore's Smart Nation strategy addresses digital on a national level while covering the whole economy and society. The Smart Nation strategy is positioned as a national initiative aimed at solving urban living challenges and improving lives through the better use of technology.[38] The strategy covers key domains for digitisation including transport, home and environment, business productivity, health and enabled aging, and public sector services.

Successful efforts, backed by a full set of initiatives, encompass the following three objectives: facilitate smart solutions across key domains, nurture a culture of experimentation and sustained innovation, and build computational capabilities. Areas of focus include open data and connectivity, investment in research and development, living laboratories, cybersecurity and data privacy, and enhancing the industry and start-up ecosystem.

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[37] *A stronger and more secure Denmark: Digital strategy 2016–2020,* Digitaliseringsstyrelsen, May 2016, www.digst.dk/Servicemenu/English/Policy-and-Strategy/Digital-Strategy-2016to2020.

[38] www.smartnation.sg.

Recently published Middle East digital strategies

Seven Middle Eastern countries have developed strategies to drive digitisation:

Bahrain's digital strategy focuses on eight pillars: increased society participation and engagement; increased partnerships and private sector ICT readiness; improved national e-literacy and government IT skills; heightened protection of information and user rights; higher performing, collaborative, integrated, and efficient government; comprehensive and effectively managed quality service offering; enhanced e-government channels and user experience with increased service uptake; and greater innovation and entrepreneurship.

Egypt's ICT 2020 Strategy focuses on three main pillars: the transformation of Egypt into a digital society, the development of the ICT industry, and the establishment of Egypt as a global digital hub.

Jordan's digital strategy focuses government initiatives focusing on applications related to electronic services, definition and development of appropriate technological infrastructure, definition and development of the structure of adequate legislative and regulatory environment, effective process re-engineering to achieve high efficiency, transformation and development in the field of education, training and knowledge transfer and change management and restructuring of government institutions.

Saudi Arabia has listed various digital initiatives in its National Transformation Program 2020 such as "improve the efficiency and effectiveness of the healthcare sector using information technology and digital transformation" and "establish emerging technology companies with added value to contribute to the increase of local content". However, these initiatives are isolated in a sector view and could be accelerated with an overarching holistic approach for the whole nation.

Oman has the Digital Oman Strategy (eOman), which focuses on six main pillars: society and human capital development; enhanced e-government and e-services; ICT industry development; governance, standards and regulations; national infrastructure development; and promotion and awareness.

Qatar's e-Government 2020 strategy focuses on three main pillars: better serve individuals and businesses, create efficiency in government administration, and develop a more open government with enhanced participation of citizens and residents.

The United Arab Emirates' digital government initiatives are Smart Dubai and Abu Dhabi. Smart Dubai facilitates collaboration among private sector and government partners; it was established to empower, deliver, and promote an efficient, seamless, safe, and impactful city experience for residents and visitors. To achieve its strategic pillars, Smart Dubai aims to introduce strategic initiatives and develop partnerships to contribute to its Smart Economy, Smart Living, Smart Governance, Smart Environment, Smart People, and Smart Mobility dimensions.[39] Similarly, the Abu Dhabi e-government programmes and digital transformation initiatives discuss key digital transformation plans and projects—which include enhancing "the formation of a smart government based on significant and effective services for users, ranging from individuals to the private and government sectors".[40]

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[39] www.smartdubai.ae.

[40] "Abu Dhabi E-Government Programmes and Digital Transformation Initiatives discusses key digital transformation plans, projects", Emirates News Agency, 4 September 2016, www.wam.ae/en/news/emirates/1395293883743.html.

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The ten timeless tests of strategy[41] can be helpful in determining whether a national digital strategy covers all critical elements:

1. Will your strategy beat the market—Does the nation's digital strategy address real market needs and overcome pain points?

2. Does your strategy tap a true source of advantage—What is the nation's digital competitive edge compared with its peers?

3. Is your strategy granular about where to compete—Does the national digital strategy have a granular sector view?

4. Does your strategy put you ahead of trends—Is the national digital strategy anticipating the most relevant digital innovations?

5. Does your strategy rest on privileged insights—Does the national digital strategy build on local insights?

6. Does your strategy embrace uncertainty—Does the national digital strategy consider scenarios?

7. Does your strategy balance commitment and flexibility—Does the national strategy focus on a few crucial, high-commitment initiatives while maintaining flexibility to make other choices over time?

8. Is your strategy contaminated by bias—Does the national digital strategy consider all stakeholders?

9. Is there conviction to act on your strategy—Is the national digital governance in place to successfully implement the strategy?

10. Have you translated your strategy into an action plan—Does the national digital strategy have a clear road map of target-based initiatives?

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[41] Chris Bradley, Martin Hirt, and Sven Smit, "Have you tested your strategy lately?", McKinsey Quarterly, January 2011, www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/have-you-tested-your-strategy-lately.

2. Empower national digital agencies

Many countries have found that a chief digital office (CDO) at the national level helps to ensure the consistent and sustained implementation of a digitisation strategy in partnership with the various stakeholders in society, including public sector ministries and agencies, corporate players and start-ups, and civil society. Currently, none of the Middle Eastern countries has a CDO office. Most have a committee that supervises a portion of the digital strategy, but misses other responsibilities. For example, Bahrain has established a Supreme Committee for Information and Communication Technology (SCICT)[42] to oversee the e-government strategy. In Qatar, the steering committee reports directly to the council of ministers and provides oversight of strategy implementation, resolves issues facing the implementation, coordinates with government agencies, and approves the project plans for Qatar e-Government 2020. Oman's Information Technology Authority board of directors reports directly to the council of ministers and is responsible for overseeing the implementation of the eOman strategy.[43] The Abu Dhabi e-Government Supervisory Committee was established in February 2016 and oversees a number of key digital transformation plans and projects of entities that form the committee.[44]

As an example of the work of a CDO, Middle Eastern countries can look to leaders such as France, Singapore, and the United States, each of which has established a similar chief information office (CIO). In France, the national CIO is rethinking the state as a platform by establishing FranceConnect, a unified digital identity and portal to all public digital services.[45] Singapore has a Government Technology Agency (GovTech) and a chief information officer who oversees ICT initiatives. The US Digital Service was founded by President Barack Obama in 2014 to bring together the country's best technology, design, and government talent to tackle large-scale digitisation issues such as immigration, veterans' benefits, and healthcare.[46] The US Digital Service is directly anchored at the White House and is part of the Executive Office of the President.

The CDO's role typically includes a range of responsibilities: CDOs should continuously review the national strategy implementation efforts, adapt the strategy as needed, and advocate for policies and regulations that accelerate digitalisation. The CDO should define and establish relevant metrics to measure digitisation and adoption across the whole ecosystem. The CDO can play a leading role in ensuring best-practice sharing and consistency across the citizen digital experience to avoid reinventing the wheel over and over. And the CDO can also help to address the scarcity of digital talent, both at the execution and at the leadership levels, as some

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[42] "Summary: National eGovernment strategy, 2016," Kingdom of Bahrain", accessed 11 October 2016, www.bahrain.bh/wps/wcm/connect/fc54be3a-a0d6-43ef-9cbe-7ab640c581d3/New+eGovernment+Strategy+2012-2016.pdf?MOD=AJPERES.

[43] "Strategic pillars", Information Technology Authority Sultanate of Oman, accessed 11 October 2016, www.ita.gov.om/ITAPortal/ITA/strategy.aspx?NID=646&PID=2323&LID=115.

[44] "Abu Dhabi E-Government Programmes and Digital Transformation Initiatives discusses key digital transformation plans, projects", Emirates News Agency, 4 September 2016, www.wam.ae/en/news/emirates/1395293883743.html; Mark Sutton, "Abu Dhabi e-Govt Supervisory Committee meets", ITP.net, 6 March 2016, www.itp.net/606722-abu-dhabi-e-govt-supervisory-committee-meets.

[45] Romain Dillet, "France wants to rethink the state as a platform," *Tech Crunch,* July 6, 2016, techcrunch.com/2016/07/06/france-wants-to-rethink-the-state-as-a-platform/.

[46] "The United States Digital Service", www.usds.gov/about.

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economies of specialization can only be captured at sufficient scale. For example, not every agency can have a world-class digital architecture expert; it may be more effective for some to employ a "delta force" and change agents across entities. Last, CDOs could also establish digitisation incentives such as an annual prize for digital adoption by government agencies, established companies, and start-ups.

3. Create policy frameworks that foster, and do not hamper, digital innovation

Beyond developing the digital national strategy and establishing a CDO as its execution organisation, each country should establish key digital policies. Such policies need to enable innovation while mitigating the risk of destabilization. Regulatory aspects to address include access to platforms, compatibility, fair pricing, data privacy and security, control of information assets, tax policy, and labour regulation.[47]

In many countries, particularly in the Middle East, policies in the digital space protect local incumbents. For example, VoIP calls via Facetime, WhatsApp, or Skype are blocked on the mobile network in many Middle Eastern countries. However, the question arises how sustainable this approach can be in a digital world that is increasingly borderless.

Although digital policies need to apply to the digital economy and society as a whole, action areas can be distinguished by digital supply, digital demand, and the enablers that cut across both areas.

Regulating the digital supply
Policies need to unlock the potential of digital players across the entire value chain. Network effects and cracking the critical mass are essential for new digital business models to gain fast adoption and traction for scaling up. Three high-potential opportunities areas are particularly relevant for the Middle East: mobile payments, digital health, and e-commerce.

Mobile payments, a cornerstone of the digital society, are an important area of policy for any government seeking to accelerate digitisation. The Middle East, with its close relations between government and the business sector, has a unique opportunity to align all relevant stakeholders on a unified, scaled platform and drive innovation in mobile payments. Some programmes are already in motion: Dubai is promoting a cashless society and has launched a consortium of banks, retailers, payment networks, and public sector agencies led by Dubai Smart Government.[48] However, the solution competes with alternatives such as e-Dirham from the UAE Ministry of Finance and National Bank of Abu Dhabi—a challenge that hinders both programmes from reaching scale and ubiquitous adoption. Global players such as Apple Pay and Google Pay also face these challenges[49]—but they are surmountable given a cohesive effort.

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[47] Geoffrey G. Parker, Marshall W. Van Alstyne, and Sangeet Paul Choudary, *Platform Revolution: How Networked Markets Are Transforming the Economy-and How to Make Them Work for You* (New York: W.W. Norton & Company, 2016).

[48] Mark Sutton, "Dubai Smart Government signs deal for smart payments", ITP.net, 21 December 2015, www.itp.net/605888-dubai-smart-government-signs-deal-for-smart-payments.

[49] Odysseas Papadimitriou, "Where does Apple Pay stand on its first birthday?", *Tech Crunch,* 17 October 2015, techcrunch.com/2015/10/17/where-does-apple-pay-stand-on-its-first-birthday.

The outlook for the years ahead is promising: a recent survey from Mastercard found that more than 70 percent of respondents in the Middle East and Africa were ready to use their smartphone to make payments compared with only 38 percent in Europe.[50]

Healthcare can also benefit from regional alignment around digital technologies. Many digital health initiatives have been launched around the world to take advantage of huge opportunities, including patient self-services and the use of digital channels instead of direct physician interaction. Furthermore, technologies that combine hospital reviews and ratings from multiple users can increase transparency around outcomes and patient satisfaction, leading to improved performance. Similarly, electronic medical records can enable information sharing across multiple hospitals, resulting in better continuity of care for individuals and more effective public health management.

How digital can fundamentally transform healthcare

Technological advances have the potential to alter how healthcare is delivered. Greater connectivity enables physicians to comanage patients while giving individuals the opportunity to choose between remote or in-person care methods. Automation improves access to care, quality of care, and consistency of care and can increase the efficiency of clinical staff. Further, big data and advanced analytics can support clinical decision making and change the way in which clinical research is conducted.

A recent McKinsey report estimates that digital could deliver net economic benefits of 7 to 11 percent of total healthcare spending; however, the analysis also reveals most launched initiatives have not delivered on expectations, and many even had to be cancelled.[51] Different stakeholders in the health ecosystem—healthcare providers, payers, suppliers, physicians, and patients—are often challenged to align on key questions:

• Who should pay for digital health applications and services?

• Who decides on the scope of digital healthcare use cases?

• How to regulate and balance privacy of patient data and advanced analytics use cases to improve performance?

Aligning the digital healthcare stakeholders on these questions requires national coordination and governance. Similar to mobile payments, the governance structures in the Middle East can be used as a regional advantage. In the United Arab Emirates, for example, the Ministry of Health's National Unified Medical Record project has already paved the way for an integrated system on the national level.

50 "Mastercard survey shows Kenyans want more digital services", 27 September 2016, newsroom. mastercard.com/mea/press-releases/mastercard-survey-shows-kenyans-want-more-digital-services/.

51 Gerardo Aue, Stefan Biesdorf, and Nicolaus Henke, *ehealth 2.0: How health systems can gain a leadership role in digital health, McKinsey,* accessed January 2016, www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/how-healthcare-systems-can-become-digital-health-leaders.

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Regulations can also enable platforms that accelerate the scaling of e-commerce. Currently, the Middle East only captures a fraction of its e-commerce potential compared with leading countries such as the United Kingdom (Exhibit 13).

For example, governments across the GCC could ease cross-border e-commerce by overhauling customs and logistics policies. This step would help regional e-commerce companies such as Souq.com, a digital unicorn with a market capitalization of more than USD 1 billion, to expand further without being bound to small-scale markets behind national borders. These regulations could themselves help propagate digital by, for example, requiring IoT-based track and trace for all containers, trucks, and ships involved in the underlying logistics value chain.

The list of opportunities where regulation can unlock positive network effects is long. Again, other countries offer a host of examples of successful digital regulations in the public space, such as Berlin's designated free parking spaces for the many digitally-enabled car-sharing services available in the city.

Exhibit 13

The Middle East has significant untapped e-commerce potential
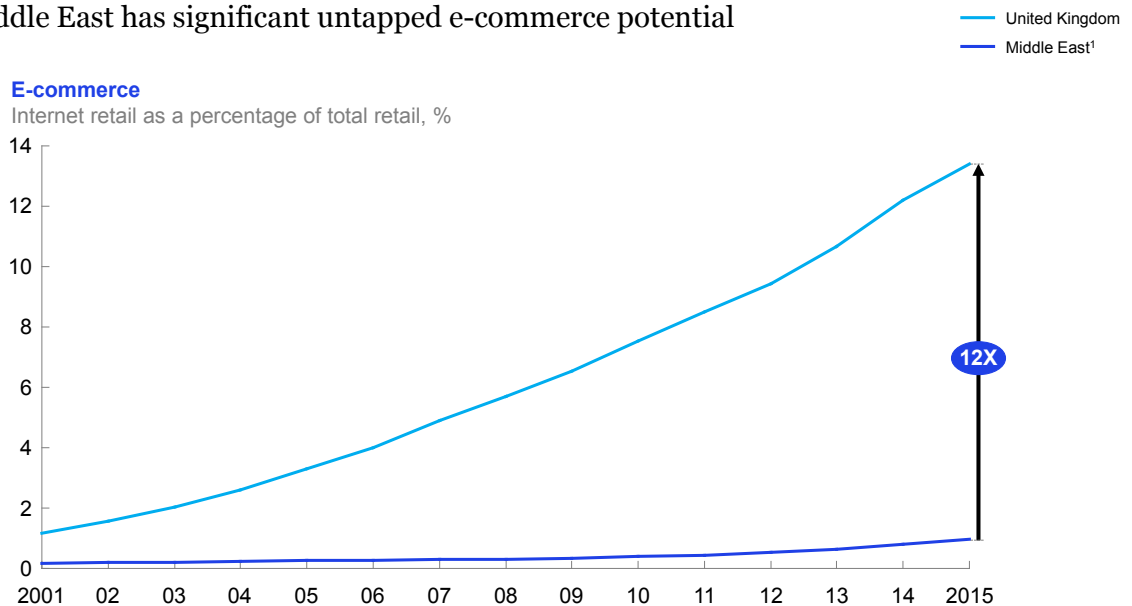
United Kingdom
Middle East[1]

E-commerce
Internet retail as a percentage of total retail, %

[1] Middle East includes Bahrain, Egypt, Jordan, Lebanon, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates.
SOURCE: *Euromonitor Passport,* October 2016; McKinsey analysis

Regulating the digital demand

Digital polices and regulations also need to address the demand side, with a focus on protecting end consumers and citizens. In an ever-more digitised world (fuelled in part by the vast number of IoT devices), data privacy and protection are a critical dimension as part of broader cybersecurity regulatons. Singapore, for example, integrated its digital sign-on system to give each resident a "Singpass ID"[52] for obtaining services from more than 60 agencies. The system both increases convenience for users and brings coherence to Singapore's digital offerings, using centralization to reduce rework and duplication.

A great deal of the Internet's potential for value creation across all sectors stems from data sharing and use. In financial services, banks that use analytics on the credit histories of small businesses and their owners could reduce the risk of default. A reduction in risk could result in increased lending to SMEs. Recent MGI research[53] found that open data could unlock some USD 3 trillion in annual value by giving rise to innovative start-ups and giving established companies the tools to segment markets, define new products and services, and increase the efficiency of their operations.

Regulating to enable innovation

Besides regulating the supply and demand sides, digital regulations need to support a flourishing digital start-up ecosystem that allows start-ups to disrupt the market with new value propositions. The importance of policies that enable a vital start-up scene in the Middle East is highlighted in a recent Atlantic Council report titled *Youth, Tech, and Entrepreneurship: Unlocking the Middle East's Economic Potential.*[54]

The Dublin Digital Hub demonstrates how such regulation overhauls can maximise the potential of the digital start-up ecosystem.[55] The hub focuses on coordination and facilitation between Dublin's start-up centres and key players on regulation (such as lowering the administrative burden and enhancing the visa regime for entrepreneurs). The hub builds on nine foundational principles that governments should embrace to establish the right conditions for start-ups (see box, "Nine principles for creating a thriving entrepreneurial ecosystem").

For instance, the rules for starting a company and declaring bankruptcy should be massively simplified to encourage entrepreneurship. For example, according to the World Bank, it can take 11 days to set up a business in the Middle East compared with 6 in the United States, 5 in the United Kingdom, and less than 1 day in New Zealand.[56] Governments can facilitate convenience by passing regulations that cut down on bureaucracy and streamline the company regulation process.

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[52] www.singpass.gov.sg/singpass/common/about.

[53] James Manyika et al., *Open data: Unlocking innovation and performance with liquid information,* MGI, October 2013, www.mckinsey.com/business-functions/digital-mckinsey/our-insights/open-data-unlocking-innovation-and-performance-with-liquid-information.

[54] Sherif Kamel and Christopher M. Schroeder, Y*outh, tech, and entrepreneurship: Unlocking the Middle East's economic potential,* The Atlantic Council, February 2016, www.atlanticcouncil.org/events/webcasts/youth-tech-and-entrepreneurship-unlocking-the-middle-east-s-economic-potential.

[55] www.thedigitalhub.com.

[56] "Doing business: Measuring business regulations", The World Bank Group, accessed September 2016, www.doingbusiness.org.

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As another example of how a government can regulate to enable innovation, the city of Berlin has established an agency to help entrepreneurs launch and support their small businesses[58]. The multilingual start-up service agency provides "one-stop shopping" for local and foreign entrepreneurs to help them cut the fastest path through the bureaucratic jungle, including an online portal that provides an overview of all relevant services offered by government offices and institutions.

Another key enabler is to establish start-up-friendly insolvency policies to encourage private risk taking and funding. For example, the United Arab Emirates is establishing a new federal bankruptcy law that is expected to give a vital new thrust to that country's business environment by making it more investor-friendly.[59] The new law enables businesses in financial distress to restructure their debt rather than fleeing the country to avoid criminal proceedings and arrests. These measures should also include harmonising merger and acquisitions rules across countries to enable regional players to achieve scale and exit opportunities—fundamental elements of a successful digital ecosystem. And given the planned introduction of VAT across the GCC, tax incentives for digital services should also be part of the portfolio. For example, Louisiana in the United States and Ontario in Canada have established tax refunds

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[57] Source: Daniel Isenberg, "The big idea: How to start an entrepreneurial revolution", *Harvard Business Review,* June 2010, hbr.org/2010/06/the-big-idea-how-to-start-an-entrepreneurial-revolution.

[58] www.mckinsey.de/files/131007_pm_berlin_builds_businesses.pdf.

[59] "New UAE bankruptcy law to be operational in early 2017", Gulf News, September 6, 2016, http://gulfnews.com/business/economy/new-uae-bankruptcy-law-to-be-operational-in-early-2017-1.1892150

for digital service companies.[60]

Finally, for innovation to thrive established companies and start-ups must feel secure enough to invest in developing new technologies. Intellectual property (IP) protections are critical, especially if they allow innovators to share in the benefits accruing to external parties that license technologies.

4. Seize the opportunity of large public IT spending to create home-grown IT players at scale

Governments in the Middle East spend large IT and service budgets mostly on goods and services from international companies. In 2015, the Middle East's total IT government spending in the Middle East was more than USD 8.2 billion,[61] which is five times more in ratio to GDP compared with the United States' IT government spending. Instead of outsourcing digital, these governments are in the unique position of being able to use their large spending power to grow local capabilities by facilitating public-private partnerships with local or regional players. Their high rate of spending could enable a spillover effect and ensure sustainable growth in local digital companies and vendors.

Currently, the market is often fragmented, with local IT players unable to reach scale as each organisation maintains its own IT service provider. To overcome this fragmentation, governments should drive consolidation of local providers and support joint ventures and M&A activities.

Dublin, Ireland, offers another example of the use of public spending to encourage local talent. The city's digital strategy identified difficulties for start-up companies in accessing public procurement opportunities due to the significant administrative burden for each proposal, high costs to prepare proposals, and financial guarantees that are generally required. To provide start-ups with access to public procurement, Dublin introduced an accreditation method which would preapprove companies for government procurement.[62]

Governments are also seeking to establish local content requirements across the value chain. Local content regulation should encourage the growth of domestic support industries that have a realistic chance of success with a parallel objective of keeping production costs competitive. For example, South Africa and Turkey have already paved the way to enhancing local content within their respective economies. Saudi Arabia is following their path: in December 2015, Saudi Aramco launched an initiative called In-Kingdom Total Value Add (IKTVA) aimed at increasing investment, economic diversification, job creation, and workforce development within Saudi

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[60] "Louisiana digital interactive media and software development incentive", Louisiana Economic Development, accessed 11 October 2016, www.opportunitylouisiana.com/incentives/digital-interactive-media-and-software-development-incentive; "Ontario interactive digital media tax credit", Ontario Media Development Corporation, accessed 11 October 2016, www.omdc.on.ca/interactive/Tax_Credits/OIDMTC.htm.

[61] IT spending includes internal services, software, IT services, telecom services, devices, and data centre systems. Source: Enterprise IT Spending by Vertical Industry Market, Worldwide, 2014-2020, Gartner 2016

[62] "Startup city: Outcomes from the co-creation event to redesign city supports for enterprise in Dublin," Dublin City Council, November 2013, www.dublincity.ie/sites/default/files/content/YourCouncil/CouncilPublications/Documents/Startup%20City%20Outcomes.pdf.

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Arabia.[63] This model of promoting local content can be applied in the digital space to boost local capabilities.

BUSINESS – Pursuing the right initiatives on the corporate level to fully harness the power of digital

5. Take the once-in-a-lifetime opportunity to create critical digital platforms for the region

Companies should take the opportunity to get ahead of digitisation and create local and regional platforms to overcome their dependence on imported digital services. Regional players should also consider joint ventures to reach scale across regional borders. Joint ventures with international players that are willing to localise key parts of the value chain to build local capacity should be also considered. The government should act as an enabler and orchestrator for these deals to ensure sustainability and fit into the local ecosystem.

To address the growing digital outsourcing market in the Middle East, opportunities for the provision of large-scale cloud services include infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS), software-as-a-service (SaaS), and even business-process-as-a-service (BaaS). For example, Chinese e-commerce giant Alibaba has extended its cloud offerings to the Middle East—and taken its competition with Amazon Web Services (AWS) to new heights—with a joint venture in Dubai. Alibaba partnered with Dubai-based Meraas Holding to provide cloud-based systems integration services to enterprises and government bodies in Middle East and North Africa.[64] (For further analysis on existing opportunities, see box, "Hyperscaling platforms".)

[63]   "Saudi Aramco launches 'local content development' supplier initiative", Saudi Aramco, 1 December 2015, www.saudiaramco.com/en/home/news-media/news/IKTVA-PROGRAM.html.
[64]   David Ndichu, "Alibaba Cloud eyes regional opportunities," ITP.net, 20 August 2016, www.itp.net/608868-alibaba-cloud-eyes-regional-opportunities.

Hyperscaling platforms

Several digital platforms provide opportunities to create regional champions based on their ability to serve local or regional customers (see exhibit).

Despite dominance by global giants, local offerings from Middle Eastern companies could still be competitive

Digital lifestyle	Middle East offering	Users (million)	Global leaders	Users (million)	Asian leaders	Users (million)
Search	-	N/A	Google	1,400	Baidu 百度	300
Social media	-	N/A	Facebook	1,712	Tencent QQ	829
Communication	-	N/A	WhatsApp	1,000	WeChat	1,120
Video	-	N/A	YouTube	1,000	YOUKU 优酷	500
Music	anghami	24	Spotify	100	K	800
E-commerce	SOUQ.com	6	amazon.com	304	Alibaba.com	434
Payment	CASH U	1	PayPal	179	支付宝	300
Online fashion	NAMSHI	5	zalando	18	ZALORA	5
Travel and hospitality	-	N/A	airbnb	50	tujia 途家	40
Job market	bayt	18	LinkedIn	450	dajie 大街	32
Transportation	CAREEM	4	Uber	8	滴滴	250
Education	skill academy	8	coursera	17	沪江	110
Social commerce	cobone	3	GROUPON	50	美团 meituan.com	20

SOURCE: Statista.com, company websites, Web search

The analysis reveals that despite dominance by global Internet giants such as Google for search, Facebook for social media, and Spotify for music streaming, regional Asian players have been able to launch and scale competitive offers. Often, success is driven by local innovation. For example, WeChat used chat communication to support B2C relationship management on a local level much earlier than Facebook, which has sought to address this opportunity with its April 2016 launch of chatbots.

These examples should encourage Middle Eastern players that a localised offering can compete against global giants. Some digital lifestyle areas already offer Middle Eastern success stories. For instance, Anghami has become the first legal music streaming platform in the Middle East with an offer focusing on Arabic and international music. Other regional successes include Bayt for the job market, and Careem for car services and Souq.com for e-Commerce.

A key feature of hyperscaling platform businesses is that they build on and aggressively exploit positive network effects, which can arise on the consumer or B2B demand side and the producer or supply side as well as through "cross-side effects" that produce win-win value potential.[65]

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[65] For a detailed and fresh discussion of platform business strategy, their economics and implications for competition and regulation, see *Platform Revolution* by Geoffrey G. Parker, Marshall W. Van Alstyne, and Sangeeth Paul Choudary. The authors argue that "Network effects are creating the giants of the 21st century" and share many illustrative examples for how to create and manage them.

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6. Step up the collaboration between corporations and digital disrupters in the region

Large corporations, SMEs, and family-owned business often struggle to drive innovation from inside the company. Today, the threat of digital disruption is low, so many companies have yet to tap into external opportunities to innovate. For example, investments in and collaboration with start-ups have been limited. Over the past three years, Middle East corporations have accounted for just 4 percent of venture capital funding[66] compared with a global average of 13 percent.[67]

Corporations should invest in understanding what digital disruption means and transform their culture to take higher calculated risks in innovation. Incorporating the open innovation concept (see box, "Open innovation") into organisations can be driven by partnerships between companies and innovation centres as well as coworking spaces to create a centre of excellence that than can then promote a digital culture to the whole organisation.

For example, Tech City UK was initially launched with many corporate sponsors, including Barclays, Cisco, Facebook, Google, Intel, Cisco, Silicon Valley Bank, and Vodafone.[68] The NESTA UK Tech nation report[69] highlights the success of regional clusters. Outside of London, digital companies are driving economic growth, transforming businesses beyond digital tech industries, and creating highly paid digital jobs across the country. In 2014, London had a digital turnover of GBP 64.2 billion, but other regions also contributed including Reading and Bracknell (GBP 10 billion), Bristol and Bath (GBP 8.2 billion), and Manchester (GBP 2.2 billion).

While some companies in the Middle East are paving the way for such efforts, more needs to be done. For example, Majid Al Futtaim Ventures launched Beam Wallet, a mobile commerce and rewards platform; Thomson Reuters purchased Zawya in 2012;[70] Japan's Cookpad acquired Chahiya in 2014;[71] and Payfort bought White Payments in 2015.[72] Other companies such as MBC Ventures, Mobily Ventures, Ooredoo (tStart), STC Ventures, Vodafone Ventures Egypt, and Wa'ed Aramco have also shown a growing interest in start-ups.

[66] Lynn Bizri, "Investments in the MENA region: The State of Digital Investments in MENA Report", Arabnet, 25 August 2016, news.arabnet.me/investments-in-the-mena-region-the-state-of-digital-investments-in-mena-report.

[67] PricewaterhouseCoopers MoneyTree Report, www.pwcmoneytree.com.

[68] www.techcityuk.com.

[69] *Tech Nation 2016: Transforming UK Industries,* TechCityUK and Nesta, www.techcityuk.com/wp-content/uploads/2016/02/Tech-Nation-2016_FINAL-ONLINE-1.pdf.

[70] "Thomson Reuters buys business information service Zawya", Reuters.com, 25 June 2012, www.reuters.com/article/thomsonreuters-zawya-idUSL5E8HP0QC20120625.

[71] Noyan Ayan, "Japan's recipe site Cookpad acquires Lebanese counterpart Shahiya for $13.5M", webrazzi.com, 21 November 2014, en.webrazzi.com/2014/11/21/japans-recipe-site-cookpad-acquires-lebanese-shahiya-for-13-5m.

[72] Kareem Cheyhayeb, "'It's going to be much easier to be an SME'—Payfort to acquire White Payments", Entrepreneur.com, 20 July 2015, www.entrepreneur.com/article/248605.

The Middle East has started unlocking the potential with a few initiatives. In 2016, various Dubai governmental entities such as the Dubai municipality, DEWA, and RTA launched the Dubai Future Accelerators[73] programme to encourage innovation. Efforts focus on tackling major challenges such as testing automated, recycled, and nature-inspired building systems.

Open innovation

Henry Chesbrough is a huge proponent of open innovation—knowledge sharing both inside and outside the organisation to improve innovation. In his book *Open Innovation: The New Imperative for Creating and Profiting from Technology,* he wrote, "Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology".[74]

This concept recognizes that in a world of widely distributed knowledge, companies cannot rely solely on their own research. Instead, they should buy or license patents. Open innovation extends beyond just tapping external sources of innovation such as customers, rival companies, and academic institutions; it also embraces a different approach to the use and management of IP. Internal innovations that are not being developed should be taken outside the company—for example, through licensing or joint ventures.[75] In this sense, open innovation promotes the systematic exploration and exploitation of a wide range of internal and external sources for opportunities, supported by firm capabilities and resources.

Open innovation brings many advantages: reduced R&D costs, productivity improvements, and new opportunities that arise from the combination of internal and external innovations. Companies interested in pursuing this strategy can mitigate its associated disadvantages through proper governance.

7. Embrace agility through digital to address the ever-faster business environment

Many business leaders are excited about developing new digital solutions and products for their customers. However, digitisation is not a onetime addition to customer channels; to respond to an ever-faster business environment, it needs to be approached as a continuous practice.

Companies should seek to understand agile and lean operations, including Scrum, design thinking, lean start-up methods, DevOps, and a "build, test, fail, rework" attitude, a key underlying cultural element. In the digital world, it is better to fail fast than to overengineer a digital service or process that is already outdated by the time it is launched or ill-suited to market needs. The UAE government, for example, launched Ibtikar Labs in 2012 as a core part of achieving the country's aspirations.

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[73] www.dubaifutureaccelerators.com/en.

[74] Henry William Chesbrough, O*pen Innovation: The New Imperative for Creating and Profiting from Technology* (Boston: Harvard Business School Press, 2003).

[75] Henry W. Chesbrough, *"The era of open innovation", MIT Sloan Management Review,* 15 April 2003, sloanreview.mit.edu/article/the-era-of-open-innovation.

The UAE sought to bring cross-disciplinary decision makers together to facilitate a rapid discovery process.[76]

An organisation can only harness digital's full potential by integrating it into every facet of the enterprise. Transforming a traditional company into a digital business can be a disruptive process that involves rethinking everything from company culture to strategy, operations, organisational structure, and outside partnerships. But the rewards can be enormous: one recent McKinsey study across ten industries found that a successful and comprehensive digital transformation can boost a company's bottom line by more than 50 percent over five years.[77] Another recent MGI report analysed the impact of digital automation on around 2,000 distinct work activities and identified that 45 percent of them could be automated using existing technology.[78]

One European bank was struggling after the financial crisis and aspired to achieve operational improvements while significantly reducing costs. It embarked on an ambitious programme to digitise its top 20 processes, setting a target of being 10 times better in efficiency and turnaround times.[79] The bank used its account-opening and mortgage applications as a starting point. For each process, the development team first defined a digital vision for each product and a road map to achieve that vision. Then it developed a digital prototype while also redesigning the underlying business process using lean methodologies and agile software approaches. After six weeks, the team tested a new user interface on customers, refined the prototype, and gradually increased the volume of mortgages and new accounts using the new digital process. After four months, the digital process was in production. The team scaled it through a website launch followed by a rollout to the branch network.

Less-digitized sectors can gain huge benefits from digitisation. For example, in many Middle Eastern countries the construction and capital projects sector is positioned to harness the following five trends:[80]

- Higher-definition surveying and geolocation—rapid digital mapping and estimating

- Next generation 5-D building information modelling—design platform of the future[81]

- Digital collaboration and mobility—moving to paperless projects, from the office to the workspace

[76] *Innovation in the Gulf Cooperation Council (GCC) Governments,* McKinsey Center For Government, October 2015.

[77] Tunde Olanrewaju and Paul Willmott, "Finding your digital sweet spot", *McKinsey Quarterly,* November 2013, www.mckinsey.com/business-functions/digital-mckinsey/our-insights/finding-your-digital-sweet-spot.

[78] Michael Chui, James Manyika, and Mehdi Miremadi, "Four fundamentals of workforce automation", *McKinsey Quarterly,* November 2015, www.mckinsey.com/business-functions/digital-mckinsey/our-insights/four-fundamentals-of-workplace-automation.

[79] Shahar Markovitch and Paul Willmott, "Accelerating the digitization of business processes", McKinsey.com, May 2014, www.mckinsey.com/business-functions/digital-mckinsey/our-insights/accelerating-the-digitization-of-business-processes.

[80] For more information of these five trends in digitising construction and capital projects, see Rajat Agarwal, Shankar Chandrasekaran, and Mukund Sridhar, "Imagining construction's digital future", McKinsey.com, June 2016, www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/imagining-constructions-digital-future.

[81] Next-generation 5-D considers a project's cost and schedule in addition to the standard spacial design parameters in 3-D.

- The Internet of Things and advanced analytics—intelligent asset management and decision making

- Future proof design and construction—designing with materials and methods of the future

Regardless of sector, becoming a digital organisation requires fundamental changes in how organisations do business. To ensure a successful digital transformation, executives should answer these nine questions:[82]

1. How well do you know where change is occurring?

2. Do you know which customer journeys matter?

3. Are your teams collaborating across functions?

4. Do you have a disciplined "test and learn" approach?

5. Are your budgets tied to progress?

6. Do you have mechanisms to challenge ideas?

7. Are your people empowered to act?

8. Is your IT operating at two speeds?

9. Are you coordinating a portfolio of initiatives?

Given the cross-functional nature of digitisation, the answers to these questions often fall in the cracks between the established governance structures within a company. Clear KPIs need to be set and coupled with incentives for enabling business units to ensure a culture of digital accountability.

FUNDING – Providing the financial means to spur digital innovation

8. Scale digital VC funding and increase visibility of investment opportunities

VC funding at scale is vital to establishing a vibrant digital start-up ecosystem. In countries where private funds do not operate at scale, the government should act as an enabler by subsidising and reducing the risk of venture capital. In addition to the needs of start-ups, government can also serve SMEs by facilitating their access to funding schemes in order to support the adoption of digital assets.

In the Middle East, despite the steady growth of VC firms to 97, from 13, the level of VC funding varies from one country to another. The United Arab Emirates is leading with 55 percent of total investment value in 2015, followed by Lebanon. Lebanon's

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[82] For further details and insights, see Karel Dörner and Jürgen Meffert, "Nine questions to help you get your digital transformation right", McKinsey.com, October 2015, www.mckinsey.com/business-functions/organization/our-insights/nine-questions-to-help-you-get-your-digital-transformation-right.

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central bank was able to improve VC funding through Circular 331, which guarantees 75 percent of banks' investments in direct start-up equity or indirect start-up support entities. And in Egypt, VC funding has dropped drastically over the past three years.

Despite the low base, the Middle East has demonstrated a rapid pace in scaling VC funding. Over the past five years, the compound annual growth rate (CAGR) of the region's VC funding was 124 percent, led by UAE and Lebanon (142 and 115 percent, respectively).[83]

Still, as our analysis (see section 3 on VC funding) revealed, the Middle East is lagging substantially behind other regions in terms of VC funding in relation to GDP. To close the gap with the United States, an additional USD 3.7 billion annually would be required.[84]

Governments in Europe have launched efforts to increase VC investment. The city of Berlin plans a dedicated start-up fund in a partnership between the city and private investors. It should have around EUR 100 million to acquire more capital for start-ups, specifically young companies needing capital infusions of EUR 3 million or more. Meanwhile, France provides incentives for private investment in start-ups: dividends from such VC investments are taxed at a lower rate.[85]

Another challenge to overcome is the current low visibility of start-up investment opportunities. The Middle East has a high concentration of wealth with various family offices and sovereign wealth funds, but these investment pools are often disconnected from the start-up scene. Global platforms such as Gust, which connects start-ups with investors, demonstrate ways to address this transparency gap. So far USD 1.8 billion has been invested in start-ups via Gust[86]. In addition, the region's awareness and use of crowdfunding platforms such as Kickstarter should be increased[87].

TALENT — Empowering the digital workforce of the future

9. Create digital curricula and seamless learning pathways from primary schools to higher education into employment

Digital talent is scarce across the globe—and particularly in the Middle East—and the fast-growing digital economy is increasing the demand for highly skilled technical workers. According to a recent Oxford Economic survey[88] of all technical capabilities, digital business skills are seen as most critical. Many lighthouse projects in the Middle East are driven by global rather than local companies. One key underlying reason is the shortage of local and regional digital talent: a recent survey from Bayt and YouGov

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[83] PitchBook database, accessed September 2016; McKinsey analysis.

[84] Qatar is excluded from the analysis due to data availability. Source: PitchBook database, accessed September 2016; McKinsey analysis.

[85] www.mckinsey.de/files/131007_pm_berlin_builds_businesses.pdf.

[86] www.gust.com.

[87] www.kickstarter.com.

[88] Global Talent 2021, Oxford Economics, 2012, www.oxfordeconomics.com/Media/Default/Thought%20 Leadership/global-talent-2021.pdf.

revealed that IT jobs are among the top open positions in the MENA region.[89]

To address this shortcoming at the source, curricula from primary schools to higher-education institutions need to be tuned toward digital and address cognitive, social, and behavioural as well as technical skills and particularly critical thinking.[90] This shift includes digitisation of the learning process, from equipping classrooms with smart boards and tablets to establishing a truly blended or online learning environment. Research[91] shows that a digital learning approach can contribute to deeper learning. As outlined by a recent McKinsey report,[92] digitisation offers a huge opportunity to transform learning and address some of its current deficiencies. While digital learning tools are not new, what is new—and disruptively so—is the transition of learning content to the cloud, making it accessible across multiple devices and teaching environments. Often, lessons are generated, shared, and continually updated by users themselves. This capability offers the potential to create more seamless, lifelong learning journeys along the education-to-employment pathway—a key to addressing youth unemployment, which is still plaguing many countries in the Middle East.[93] Some of the region's cities have already started reform. For example, Dubai has begun changing its curriculum to cover technology, innovative design, career guidance, and business management as well as critical thinking and other important skills.[94]

Just as crucially, core digital capabilities need to be learned early on. Coding institutions such as codecademy[95] provide an inspiring example of how quickly young people can learn programming. Digital capability building also needs to address the digital divide. Digital curricula starting in basic education can help to narrow the gap. However, holistic approaches should also include dedicated programmes to build digital literacy targeted to specific groups such as the elderly and underprivileged. According to McKinsey research,[96] the offline population faces the following barriers: incentives and lack of compelling reasons to go online, low incomes and affordability, user capability, and barriers in infrastructure.

Notably, Egypt, the country with the highest population in this report, belongs to the second lowest scoring group of countries and faces medium to high barriers in Internet accessibility.

Nations around the world have recognized the transformational impact of bringing

89 *The Skills Gap in the Middle East & North Africa—A Real Problem or a Mere Trifle?,* YouGov and Bayt.com, accessed 11 October 2016, research.mena.yougov.com/en/skills-gap-middle-east-north-africa/.

90 Tom VanderArk and Carri Schneider, *How Digital Learning Contributes to Deeper Learning,* Getting Smart, accessed 11 October 2016, net.educause.edu/ir/library/pdf/CSD6152a.pdf.

91 Tom VanderArk and Carri Schneider, How Digital Learning Contributes to Deeper Learning, Getting Smart, accessed 11 October 2016 (http://net.educause.edu/ir/library/pdf/CSD6152a.pdf).

92 Richard Benson-Armer, Arne Gast, and Nick van Dam, "Learning at the speed of business", *McKinsey Quarterly,* May 2016, www.mckinsey.com/business-functions/organization/our-insights/learning-at-the-speed-of-business.

93 "Enabling Seamless Lifelong learning journeys—the next frontier of Digital Education" in *Digital Europe: Pushing the frontier, capturing the benefits—A collection of sector-specific insights,* Digital McKinsey, June 2016.

94 Nadeem Hanif and Roberta Pennington, "Curriculum reforms will position the UAE well for the future, experts say", *National UAE,* 30 August 2016, www.thenational.ae/uae/curriculum-reforms-will-position-the-uae-well-for-the-future-experts-say.

95 www.codecademy.com

96 *Offline and falling behind: Barriers to Internet adoption,* McKinsey.com, September 2014, www.mckinsey.com/industries/high-tech/our-insights/offline-and-falling-behind-barriers-to-internet-adoption.

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more of their population online and are moving aggressively on several fronts to accomplish this objective. Middle Eastern governments should follow suit by setting ambitious goals for mobile Internet coverage and making investments to extend fixed-broadband infrastructure and increase public Wi-Fi access. At the same time, regional telecommunications network operators need to play their part to further reduce the cost of access and provide coverage to underserved populations. Overall, the private sector should play an active role in shaping the digital curricula by building relationships with faculty members and being part of school and university advisory boards. Companies should also collaborate with students and schools by offering real-world, business-related projects. These business partnerships ensure that the digital curriculum is aligned with market demand while building relationships with future job seekers.

Going forward, the sustained and inclusive growth of digital users will require a multipronged strategy—one that will depend on close collaboration among players across the ecosystem. The Middle East, with its strong ties between government and the business community, has a strategic advantage in overcoming the digital divide and enabling more people to participate in the digital revolution.

Furthermore, to establish digital curricula across the Middle East, countries should exchange best practices and digital learning assets across borders. For example, Edraak, a massive open online course (MOOC) platform, is an initiative of the Jordan Queen Rania Foundation. As such, Edraak has capitalised on regional Arab talent to create the first nonprofit Arabic MOOC platform using technology developed by the Harvard-MIT consortium, edX.[97] Doroob,[98] providing several education-to-employment programs was launched in Saudi Arabia.[99] Most recently, the Al-Ghurair Foundation for Education, established with USD 1.14 billion, is collaborating with MIT on online MicroMaster degrees with MIT on new online MicroMaster degrees.[100]

Further, the region has many education technology start-ups that are seeking to become part of the Middle East's rich digital education ecosystem.[101]

10. Rethink how to attract and retain digital talent and reconsider applicability of nationalisation to digital

Today, countries must create the right ecosystem to attract global experts and high-skilled digital talent. For companies, it is important to build digital capabilities in-house. In the short run, to ensure a sufficient pool of digital talent, companies can pursue digital build-operate-transfer partnerships (in which they work with an external vendor to build the solution, operate with adjustments, and then transfer capabilities for the owner to run independently). This model ensures that the critical digital talent is injected into the organisation as a catalyst at the start of a digital transformation programme, which then attracts and builds the required in-house capabilities. As an example, Silicon Valley was able to attract the right talent and its citizens are not all born and raised in the region.

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[97] www.edraak.org.

[98] www.doroob.sa.

[99] *Innovation in Gulf Cooperation Council (GCC) Governments,* McKinsey Center for Government, October 2015.

[100] alghurairfoundation.org.

[101] Nafez Dakkak, *Mapping Education Technology Startups in MENA,* Wamda Research Lab, October 2014, www.wamda.com/2014/10/lesson-one-mapping-education-technology-startups-mena.

Since most Middle East countries lack of talent required for digitisation but must address nationalisation concerns, the region should adjust policies to encourage digital talent to join local firms. Easing the visa policy in Saudi Arabia, for example, could help lower the barrier to attracting talent. In addition, a relaxation on nationalisation scores could be explored for scarce digital talent.

In the longer run, companies should develop a 360-degree talent management approach from attraction, onboarding, and training to retention. More particularly, companies needs to manage their talent in a digital age on different levels.[102]

At the attraction level, companies should have a compelling vision.[103] They should also use online labour platforms to match labour supply and demand. Such platforms are already useful for more than just recruiting: beyond the hiring process, companies can use digital tools to develop a pipeline of employees with diverse skills. As a result, organisations can not only get smarter about the workers they team together and deploy for specific initiatives and tasks, but also address the capabilities they will need in the future.[104]

At the onboarding and training level, companies need to invest in continuous learning for employees.[105] They should also use digital labour platforms to maximize employee performance. For example, developing an onboarding agenda helped Google boost the productivity of its new hires by up to 15 percent.[106] At the senior level, digital tools can strengthen leadership and creativity. Online labour platforms can help companies cultivate the next generation of leaders. For example, 3M has created an integrated workforce-planning platform that increased its employees' internal mobility and boosted productivity by 4 percent.[107]

At the retention level, companies can use predictive analytics to identify the employees who are likely to depart. Wells Fargo developed a predictive model to select the most qualified candidates for positions such as tellers and personal bankers. Working with Kiran Analytics, the bank identified the qualities that characterize engaged, high-performing employees in client-facing positions and then screened for those attributes in new candidates. By the end of the programme's first year, the retention of tellers and personal bankers rose by 15 and 12 percent, respectively.[108]

[102] Susan Lund, James Manyika, and Kelsey Robinson, "Managing talent in a digital age", *McKinsey Quarterly,* March 2016, www.mckinsey.com/industries/high-tech/our-insights/managing-talent-in-a-digital-age.

[103] Satty Bhens, Ling Lau, and Hugo Sarrazin, "The new tech talent you need to succeed in digital", McKinsey.com, September 2016, www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-new-tech-talent-you-need-to-succeed-in-digital.

[104] James Manyika, Susan Lund, Kelsey Robinson, John Valentino, and Richard Dobbs, *Connecting talent with opportunity in the digital age,* MGI, June 2015, www.mckinsey.com/global-themes/employment-and-growth/connecting-talent-with-opportunity-in-the-digital-age.

[105] Richard Benson-Armer, Arne Gast, and Nick van Dam, "Learning at the speed of business", *The McKinsey Quarterly,* May 2016, www.mckinsey.com/business-functions/organization/our-insights/learning-at-the-speed-of-business.

[106] Chris DeRose, "How Google uses data to build a better worker", *The Atlantic,* 7 October 2013, www.theatlantic.com/business/archive/2013/10/how-google-uses-data-to-build-a-better-worker/280347/.

[107] www.3m.com/3M/en_US/sustainability-report/global.../education-and-development/.

[108] Susan Lund, James Manyika, and Kelsey Robinson, "Managing talent in a digital age", McKinsey Quarterly, March 2016 (www.mckinsey.com/industries/high-tech/our-insights/managing-talent-in-a-digital-age).

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Overall, companies need to embrace the digital opportunity—and address the associated challenges. Like any tool, a digital talent platform must be wielded properly. Most organisations lack integrated systems to manage their current employees—let alone to identify and engage with potential ones or to develop long-term plans for the needs of the workforce. With multiple systems and fragmented data, human resources' visibility into such issues is limited.

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These ten recommendations are not exhaustive but focus on the most important areas for action today. Ultimately, all the key stakeholders in the Middle East should join forces and take the opportunity to create a unified digital market. The United States (270 million digital users) and China (630 million digital users) showcase the advantages of a large-scale digital market—and the Middle East may even have an advantage in sharing the same language and similar culture across the region. A unified digital market across the Middle East (160 million potential digital users[109]) could contribute up to 3.8 percent annually uptake in GDP, amounting to approximately USD 95 billion.[110] When the multiplier effect on the job creation and the economy growth factored in, this contribution could even be higher.

In the long run and ultimately, the Middle East should join forces and create a unified digital (160 million potential digital users), which—assuming a similar contribution as in the unified US digital market—could contribute up to 3.8 percent annually in GDP, or approximately USD 95 billion.

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[109] Based on population projections for the covered nine countries until 2025 and assuming Internet adoption of 85 percent, similar to United States.

[110] Assuming similar digital contribution as in unified digital US market.

Europe's Single Digital Market

According to a recent McKinsey report, [111] "Europe's country borders represent a barrier to a seamless digital market. European Parliamentary Research Service suggests that a fully integrated digital sector could boost Europe's annual GDP growth by a significant 0.45 percent or more.[112] In fact, in 2012 the European Commission prioritised the creation of a single digital market; a paper written by the organisation in 2014 suggests that such an integrated market, combined with e-business models, could boost growth by 1.9 percent.[113] The continent has made impressive progress; since 2011, it has adopted 14 directives on key areas such as harmonising consumer rights, electronic identification, value-added taxes, and digital content rights—many of which have been implemented by member states. Improving digital marketability is a European priority, but the continent has a long way to go. Scale is one of the top benefits of digitisation, but Europe's digital landscape—its telecom networks, regulations, standards, and the logistics of e-commerce—remains fragmented. Just 15 percent of EU consumers make cross-border online purchases, and only 7 percent of the EU's SMEs sell beyond their borders.[114] Of the online services used in Europe, just 4 percent are EU based and cross-border; the vast majority are either offered by US companies or geared to their national market. Allowing and encouraging telecom providers to build out more seamless cross-border high-speed digital networks and standardising regulations on privacy and cybersecurity could lower some of the barriers to establishing a regional ecosystem. Sector regulation must evolve to ensure the development of new businesses as well as and fair and intense competition."

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Digital technologies are already transforming the Middle East, and they are spreading at an accelerating speed. Some Middle Eastern countries are embracing this new era with aggression and reaping the economic rewards, but some are less advanced and are falling behind. There are some highlights across digital adoption in business, government, and overall society, but the fact remains that the region is not capturing the full potential of digital yet. The region is a net importer and consumer of digital, rather than developing digital assets and services at home and maximising their benefits. However, the Middle East has the opportunity to change this with concerted

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[111] *Digital Europe: Pushing the frontier, capturing the benefits—A collection of sector-specific insights,* Digital McKinsey, June 2016.

[112] Joseph Dunne, *Mapping the costs of non-Europe, 2014–19,* European Parliamentary Research Service, March 2014, www.europarl.europa.eu/RegData/etudes/etudes/join/2014/510983/IPOL-EAVA_ET(2014)510983_EN.pdf. For further discussion, see Eric Labaye, Sven Smit, Eckart Windhagen, Richard Dobbs, Jan Mischke, and Matt Stone, A window of opportunity for Europe, MGI, June 2015, http://www.mckinsey.com/global-themes/europe/a-window-of-opportunity-for-europe.

[113] Dimitri Lorenzani and Janos Varga, *The economic impact of digital structural reforms,* European Commission European Economy economic paper number 529, September 2014, ec.europa.eu/economy_finance/publications/economic_paper/2014/ecp529_en.htm.

[114] "Why we need a Digital Single Market", *Factsheets on Digital Single Market,* European Commission, 6 May 2015, ec.europa.eu/priorities/publications/factsheets-digital-single-market_en.

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action by companies, governments, and, indeed, individuals. Ultimately, we all need to embrace the transition in the Middle East toward a leading digital economy and society.
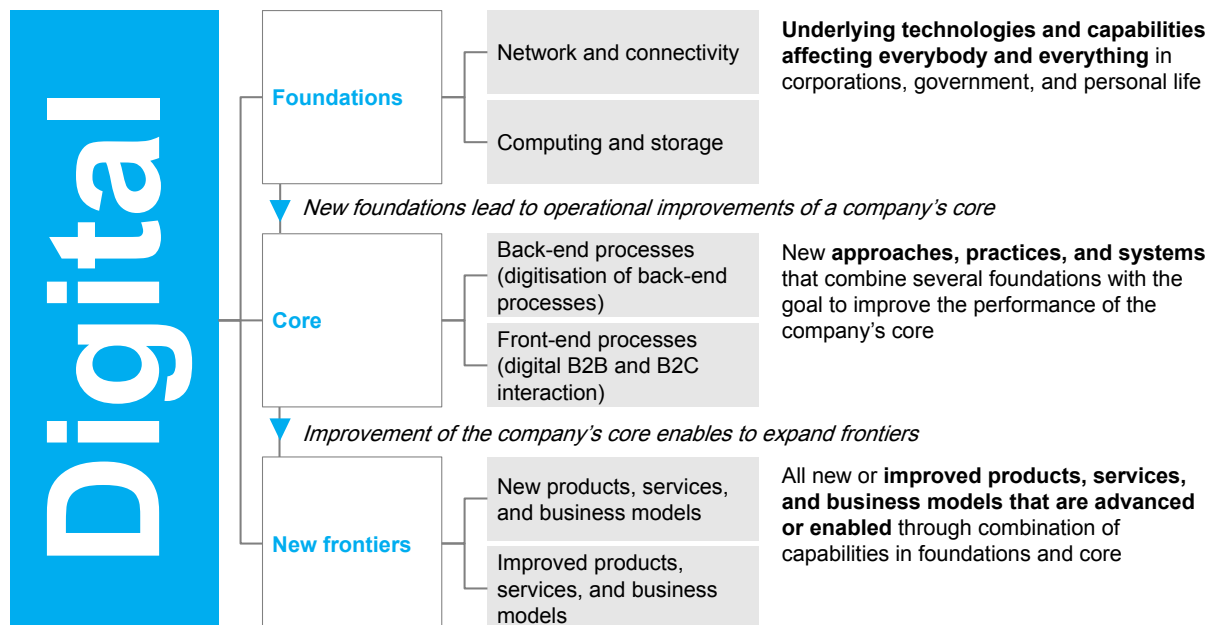
Appendix: Definition of "digital"

Everyone wants to go digital. The first step is truly understanding what that means. It is tempting to look for simple definitions, but to be meaningful and sustainable, we believe that digital should be seen less as a concept and more as a way of doing things. To help make this definition more concrete, we have broken it down into three attributes: creating value at the new frontiers of the business world, optimizing the processes that execute a vision of customer experiences, and building foundational capabilities that support the entire structure (Exhibit 14).

Exhibit 14

Definition of digital from an application perspective

Digital	**Foundations** — Network and connectivity / Computing and storage	**Underlying technologies and capabilities affecting everybody and everything** in corporations, government, and personal life
	New foundations lead to operational improvements of a company's core	
	Core — Back-end processes (digitisation of back-end processes) / Front-end processes (digital B2B and B2C interaction)	New **approaches, practices, and systems** that combine several foundations with the goal to improve the performance of the company's core
	Improvement of the company's core enables to expand frontiers	
	New frontiers — New products, services, and business models / Improved products, services, and business models	All new or **improved products, services, and business models that are advanced or enabled** through combination of capabilities in foundations and core

For more information on the definition of "digital" please refer to the McKinsey article "What 'digital' really means".[115]

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[115] Karl Dörner and David Edelman, "What 'digital' really means", McKinsey.com, July 2015, www.mckinsey.com/industries/high-tech/our-insights/what-digital-really-means.

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