

ESCWA Arab E-Government Council Meeting

13 February 2018

Economic and Social Commission for Western Asia

Perspectives of Digital Economy in the Arab Region

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Outline

- Background of the DE study
- Development Process
- Structure of the Publication
- Highlights of Core Chapters

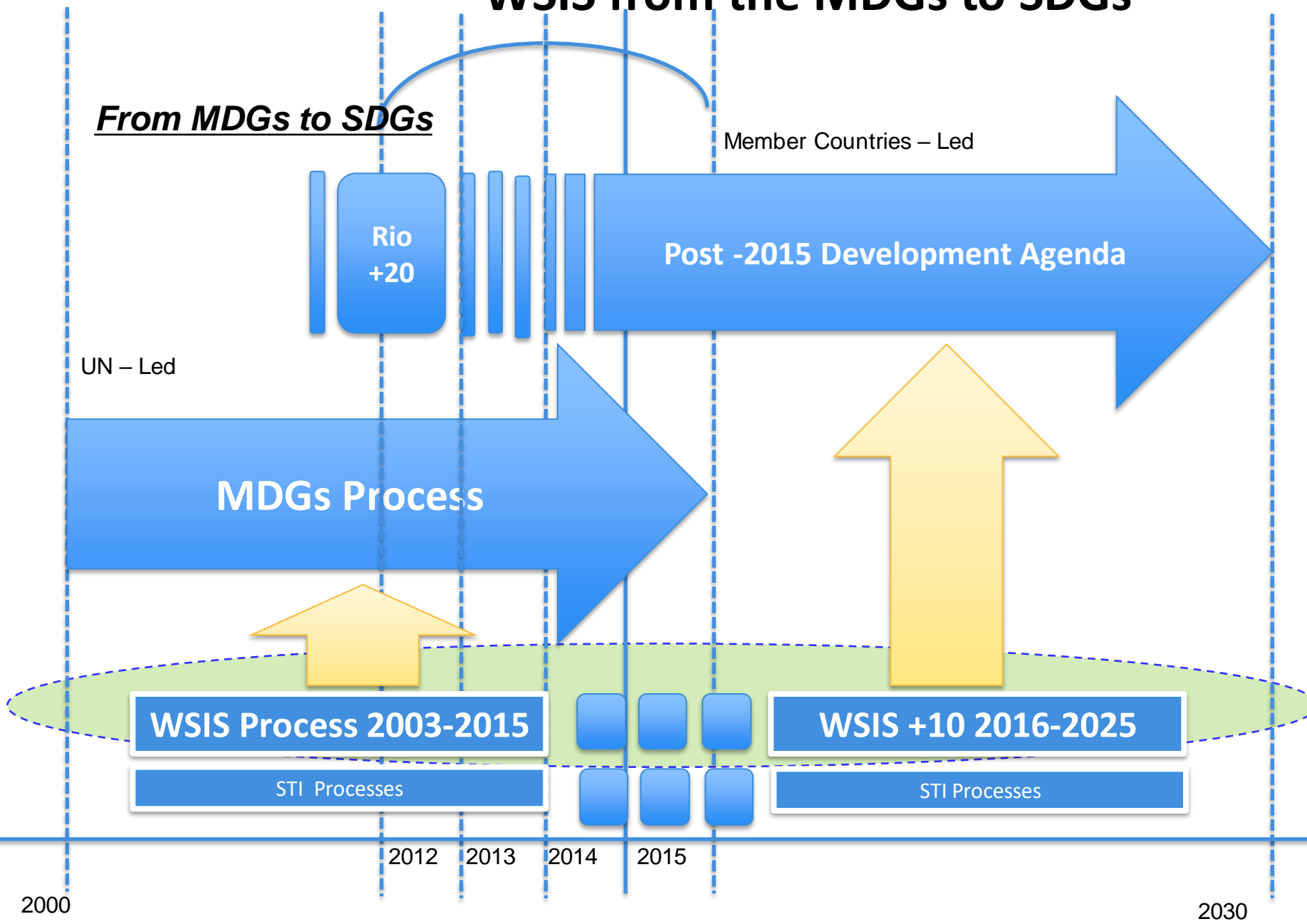
- Highlight on Digital Technologies Horizon 2030 Study

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WSIS from the MDGs to SDGs



From MDGs to SDGs

Member Countries – Led

Rio +20

Post -2015 Development Agenda

UN – Led

MDGs Process

WSIS Process 2003-2015

WSIS +10 2016-2025

STI Processes

STI Processes

2012 2013 2014 2015

2000

2030

WSIS 11

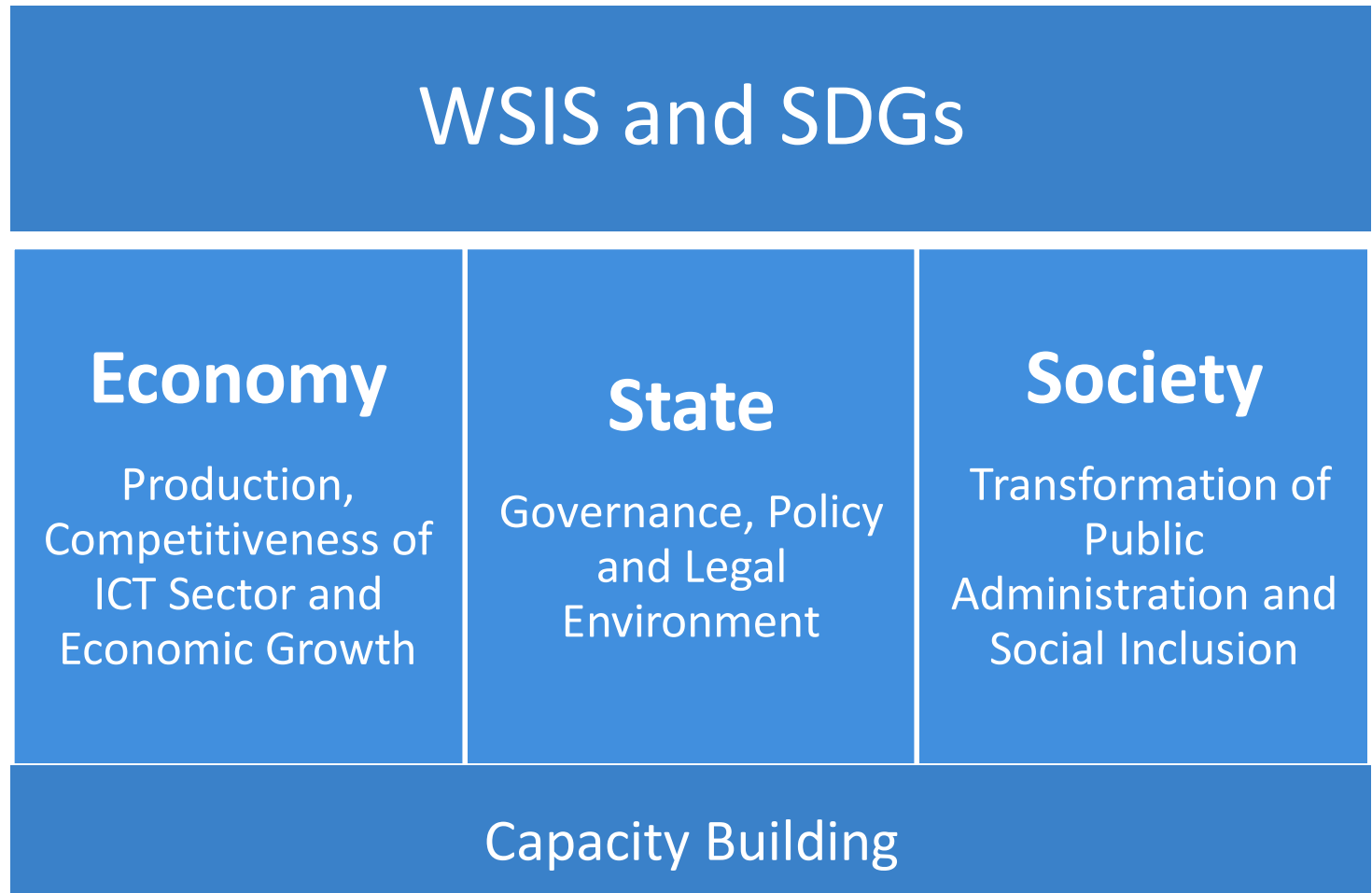
Action Lines

No Digital Economy was mentioned neither in 2005 nor in 2015

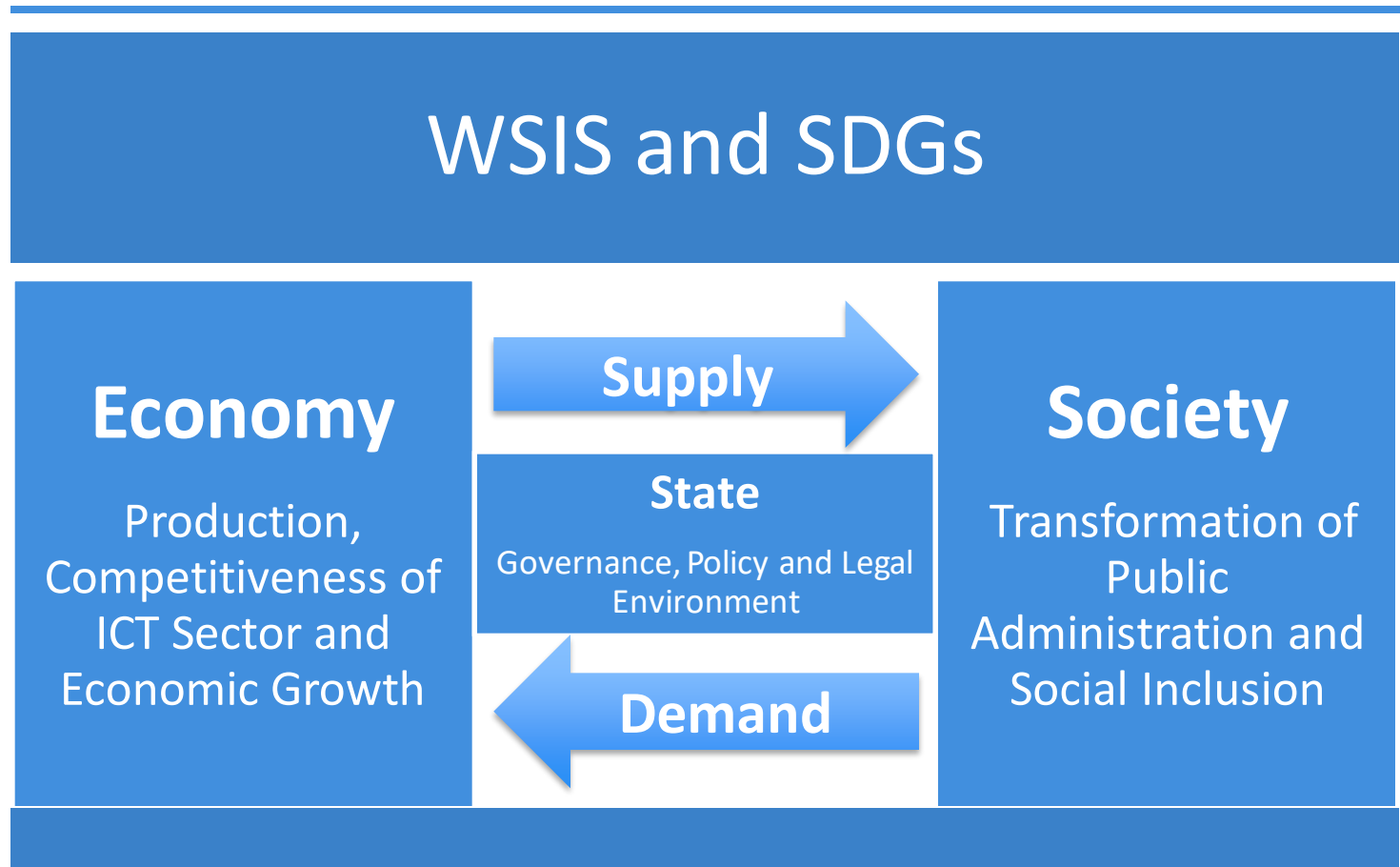
- C1. The role of public governance authorities and all stakeholders in the promotion of ICTs for development
- C2. Information and communication infrastructure
- C3. Access to information and knowledge
- C4. Capacity building
- C5. Building confidence and security in the use of ICTs
- C6. Enabling environment
 - E-government
 - E-business
 - E-learning
 - E-health
 - E-employment
 - E-environment
 - E-agriculture
 - E-science
- C7. ICT Applications
- C8. Cultural diversity and identity, linguistic diversity and local content
- C9. Media
- C10. Ethical dimensions of the Information Society
- C11. International and regional cooperation

Information Society and Digital Economy Hub for the Arab Region (ISDEHAR)

Strategic Tracks – Activities



From Smart Societies to Digital Economy and vice-versa



Background

- **Title: Perspectives of Digital Economy in the Arab Region.**
- **Type: Non Recurrent Publication.**
- **Period: TDD 2016-2017 Strategic Framework**
- **Source of Fund: Regular Budget**

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Development Process



Summary of Structure of the Publication

Executive Summary

- 1- Introduction
- 2- Digital Economy: Trends and Global Perspectives
 - 2.1 Methodological Approach
 - 2.2 Highlights on Key Aspects of the Supply Side of Digital Economy
 - 2.3 Highlights on Key Aspects of the Demand Side of Digital Economy
- 3- Status of Arab Countries' transition towards Digital Economy
 - 3.1 Methodological Approach
 - 3.2 The ICT Sector: Innovation and financial aspects
 - 3.3 ICT Infrastructure and Affordability
 - 3.4 Human Capacity and Research
 - 3.5 ICT Use by Individuals, Businesses, and Governments
 - 3.6 Economic Impact
 - 3.7 Social Impact
- 4- Strategies for Digital Economy at National and Regional Level
- 5- Recommendations

Detailed of Structure of the Publication (1/2)

Executive Summary

1- Introduction

1.1 Digital Economy

1.2 Digital Economy and Public Policies

1.3 Security and Privacy in Digital Economy

1.4 Digital Economy and Smart Society

2- Digital Economy: Trends and Global Perspectives

2.1 Methodological Approach

2.2 Highlights on Key Aspects of the Supply Side of Digital Economy

2.2.1 The ICT Sector: Scope, Value Added, Employment and Trade

2.2.2 Recent Status of the ICT infrastructure

2.2.3 Digital Innovation: R&D Expenditures and Investment

2.2.4 New Business Models: Digital Driven Innovation and Sharing Economy

2.3 Highlights on Key Aspects of the Demand Side of Digital Economy

2.3.1 Internet use by Households and Individuals

2.3.2 ICT use by Business

2.3.3 Digital transformation of Government Services

2.3.4 Skills for the Digital Economy

Detailed of Structure of the Publication (2/2)

- 3- Status of Arab Countries' transition towards Digital Economy**
 - 3.1 Methodological Approach**
 - 3.2 The ICT Sector: Innovation and financial aspects**
 - 3.3 ICT Infrastructure and Affordability**
 - 3.4 Human Capacity and Research**
 - 3.5 ICT Use by Individuals, Businesses, and Governments**
 - 3.6 Economic Impact**
 - 3.7 Social Impact**

- 4- Strategies for Digital Economy at National and Regional Level**
 - 4.1 The Role of Digital Strategies at National Level**
 - 4.2 National Digital Strategy Structure**
 - 4.3 The Role of Digital Strategies at the Regional Level**
 - 4.4 Selected Digital Strategies from the Arab Region**

- 5- Recommendations**
 - 5.1 Recommendations related to Policy Issues**
 - 5.2 Recommendations related to Measurement Issues**

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- **Highlights of Core Chapters**
- Highlight on Digital Technologies Horizon 2030 Study

Highlights of Core Chapters

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Highlights of Core Chapters

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Chapter 1: Introduction

Structure of the Publication

The publication is currently organized in 5 chapters covering the following:

- 1- INTRODUCTION
- 2- DIGITAL ECONOMY: TRENDS AND GLOBAL PERSPECTIVES
- 3- STATUS OF ARAB COUNTRIES' TRANSITION TOWARDS DIGITAL ECONOMY
- 4- STRATEGIES FOR DIGITAL ECONOMY AT NATIONAL AND REGIONAL LEVEL
- 5- RECOMMENDATIONS

Chapter 1: INTRODUCTION

To set the scene by:

- Introducing the concepts of Digital Economy
 - Highlighting policymaking priorities
 - Underlying technological developments
1. Digital Economy
 2. Digital Economy And Public Policies
 3. Security and Privacy in Digital Economy
 4. Digital Economy and Smart Society

Highlights of Core Chapters

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Chapter 2: DIGITAL ECONOMY TRENDS AND GLOBAL PERSPECTIVES

Structure of the Publication

The publication is organized in 5 chapters covering the following:

- 1- INTRODUCTION
- 2- DIGITAL ECONOMY: TRENDS AND GLOBAL PERSPECTIVES
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- 4- STRATEGIES FOR DIGITAL ECONOMY AT NATIONAL AND REGIONAL LEVEL
- 5- RECOMMENDATIONS

Chapter 2: DIGITAL ECONOMY: TRENDS AND GLOBAL PERSPECTIVES

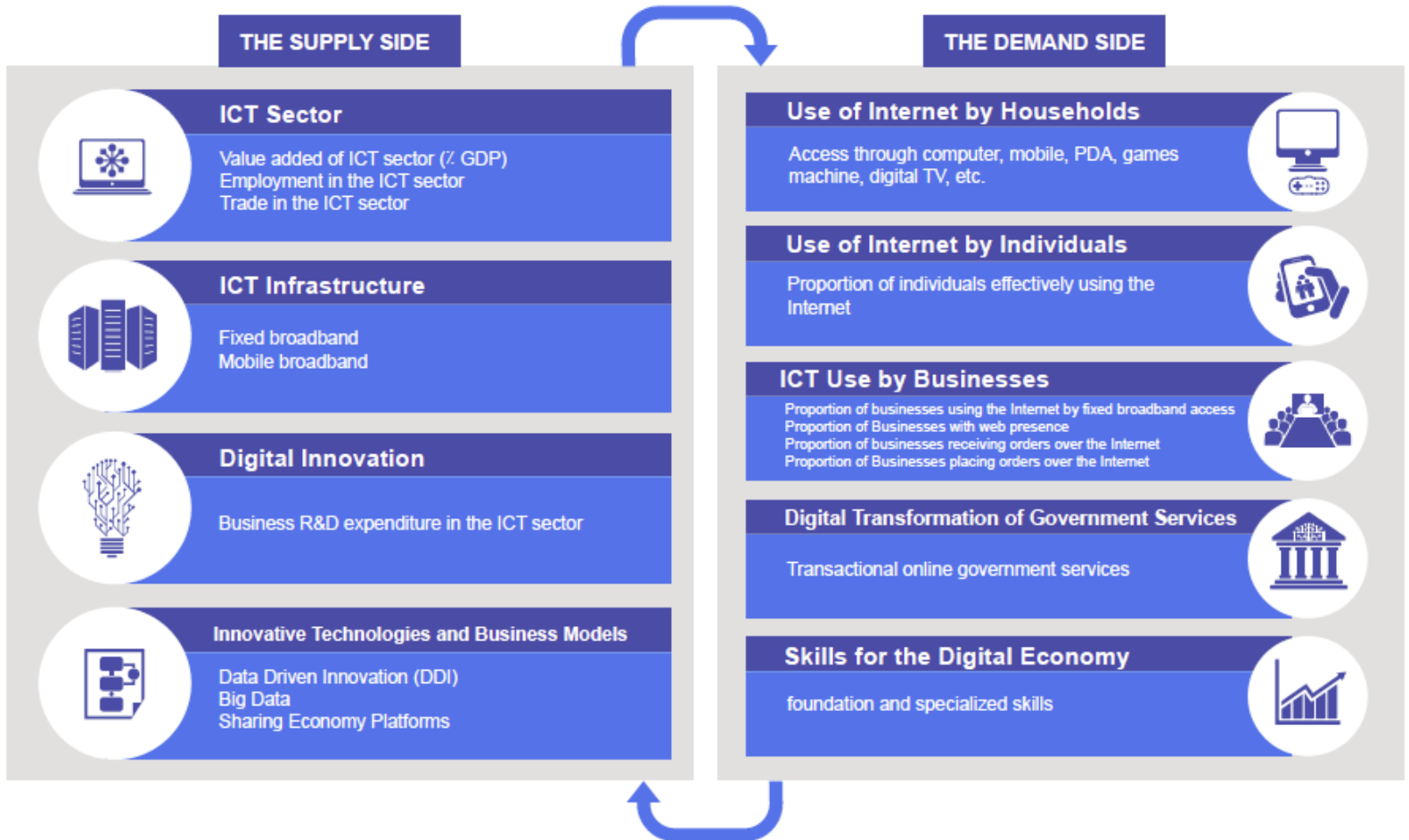
- This chapter addresses in more detail the different **components of Digital Economy** related with its **supply** and **demand** sides.
- It sheds light on the **current status of Digital Economy at global** level.
- It is currently organized into the following sub-structure:
 - 2.1 Methodological Approach
 - 2.2 Highlights on Key Aspects of the Supply Side of Digital Economy
 - 2.2.1 The ICT Sector: Scope, Value Added, Employment and Trade
 - 2.2.2 Recent Status of the ICT infrastructure
 - 2.2.3 Digital Innovation: R&D Expenditures and Investment
 - 2.2.4 New Business Models: Digital Driven Innovation and Sharing Economy
 - 2.3 Highlights on Key Aspects of the Demand Side of Digital Economy
 - 2.3.1 Internet use by Households and Individuals
 - 2.3.2 ICT use by Business
 - 2.3.3 Digital transformation of Government Services
 - 2.3.4 Skills for the Digital Economy

Methodological Approach

- The status at global level **will be addressed** by assessing the supply and demand sides of Digital Economy primarily **in developed as well as in some other emerging countries** as they are at the **forefront of the Digital Economy** transition process, and for **which we have reliable and detailed data** to substantiate analysis.
- There is no **global unified Digital Economy Index** per se.
- We use the most recent statistics provided mainly by **OECD, ITU, and UN E-Government survey**, noting that the **OECD is considered the most advanced and reliable source** on Digital economy aspects, to the level that the European Commission developed its own index based on the guidelines and recommendations of the OECD's

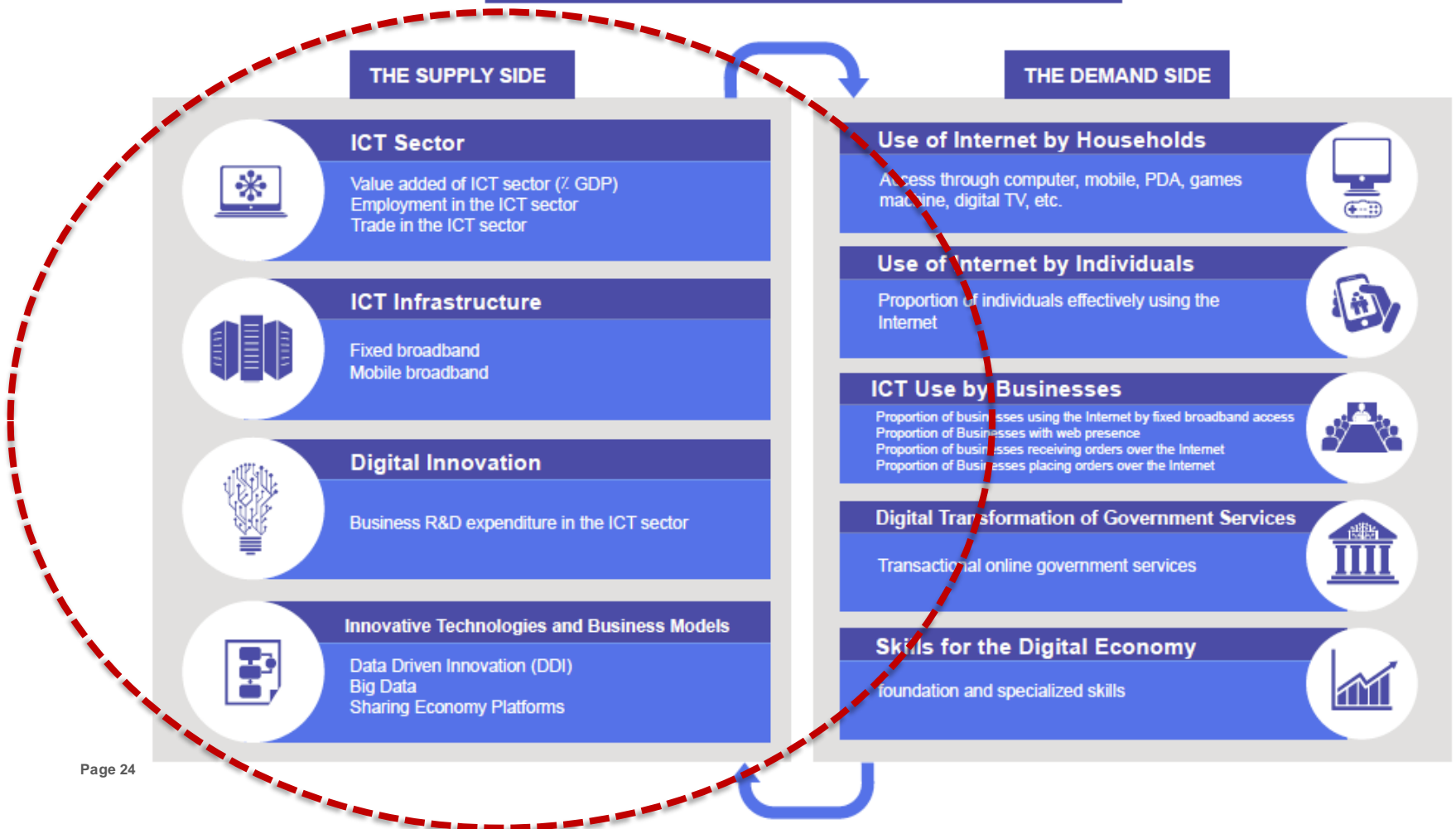
Chapter 2: DIGITAL ECONOMY: TRENDS AND GLOBAL PERSPECTIVES

THE SUPPLY AND DEMAND SIDES OF DIGITAL ECONOMY

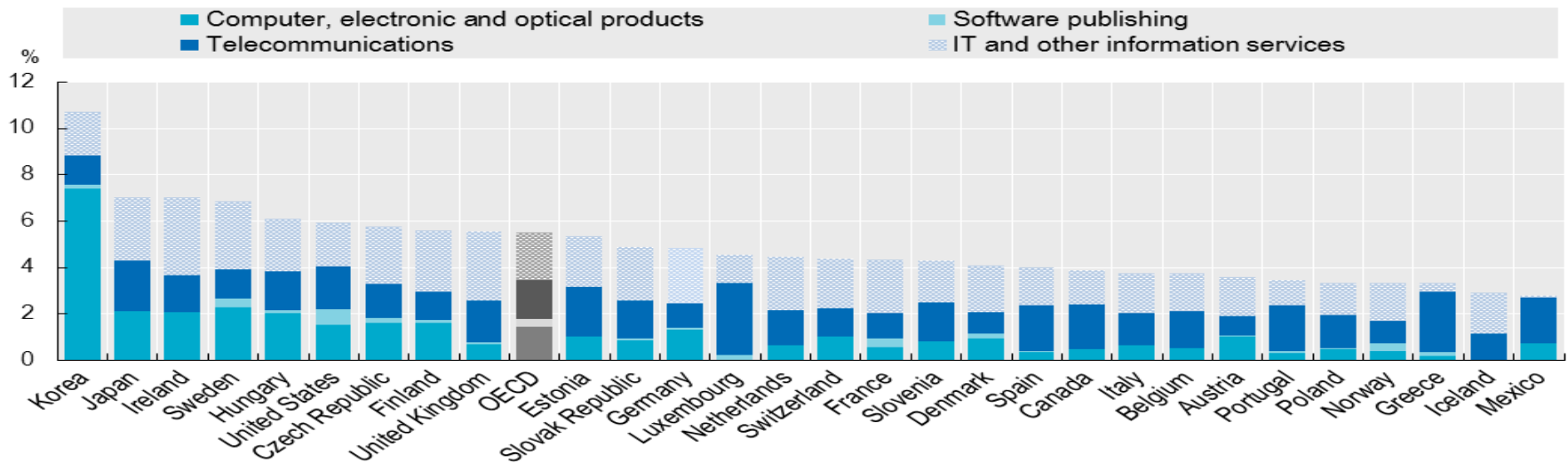


Chapter 2: DIGITAL ECONOMY: TRENDS AND GLOBAL PERSPECTIVES

THE SUPPLY AND DEMAND SIDES OF DIGITAL ECONOMY

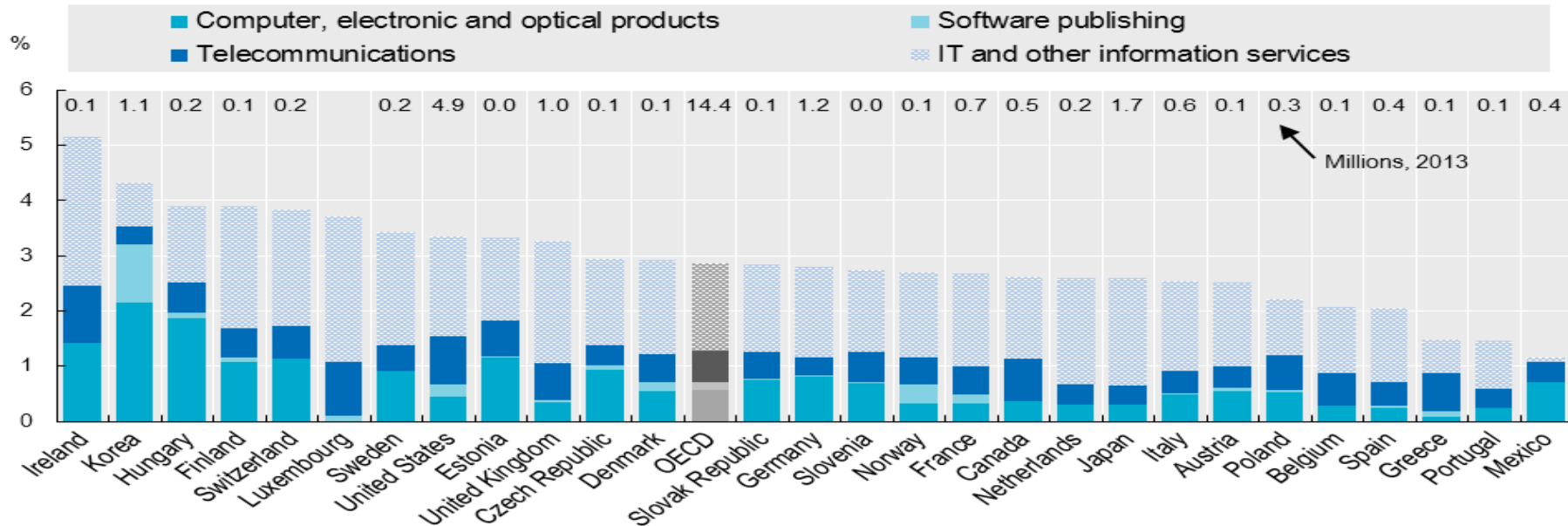


Value Added of ICT Sector and Subsectors (Percentage GDP), OECD Countries



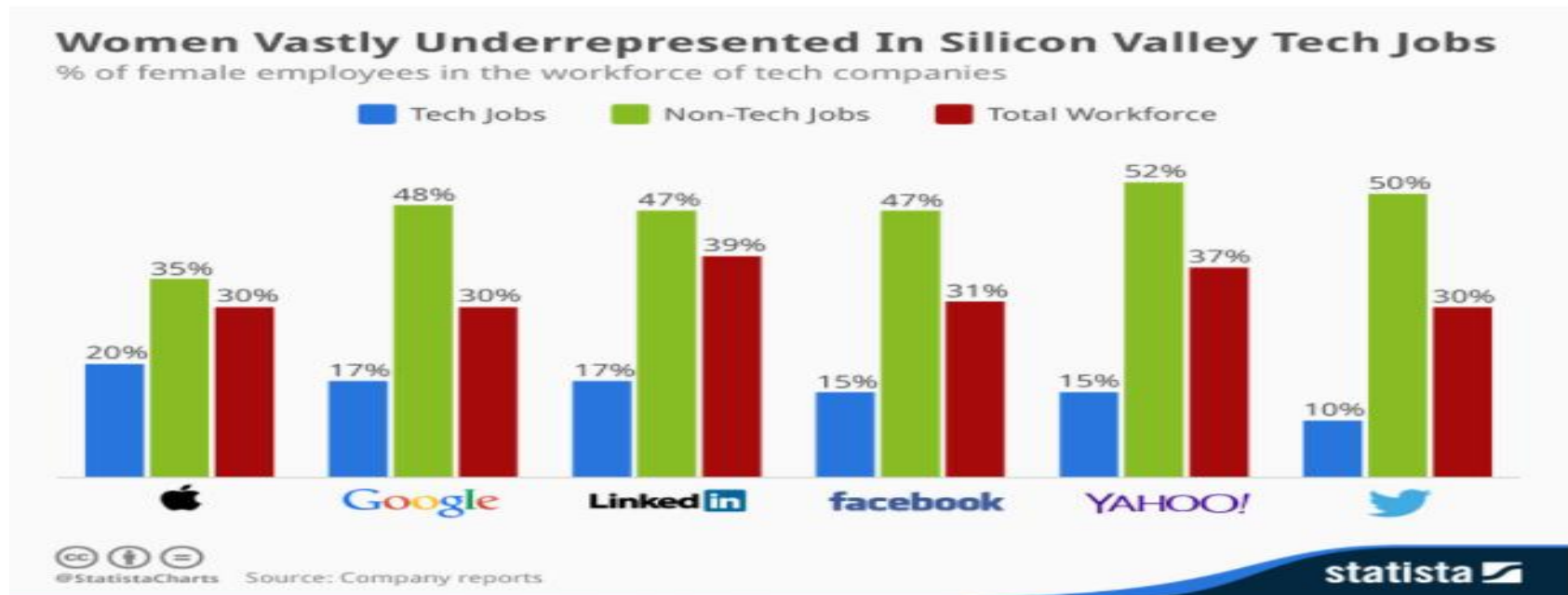
- The ICT sector total value added accounted for **5.5% of GDP in OECD countries** representing a total of **2.4 trillion US\$**.
IT and Information services (2%), telecommunication services (1.7%), computer, electronic and optical products (1.4%), and software publishing (0.3%).
- Few data** available from developing and Arab countries.
- In developing countries, **much higher role of telecom sector** (up to **80%** and higher), compared to 30% in OECD countries.

Employment in the ICT Sector and Subsectors (Percentage Total), OECD Countries



- Employment in the ICT sector **within OECD reached 14.4 million** in 2013 representing nearly **3% of total employment**.
- On average **IT and other information services and Telecommunications accounted for nearly 80%** of total employment.
- Korea (and to a lesser extent Hungary, Finland and Estonia) have higher percentages of employment in the manufacturing and software publishing subsectors.

Percentage of Female in the Workforce in Silicon Valley Technology Jobs, 2016



- **Apple** has the highest proportion of female employees in tech roles, however this figure **is still only 20%**.
- At **Twitter** only **10%** of tech positions are filled by women.
- Women still view the ICT sector as **male-dominated** and this put them off entering the field.

Trade in the ICT goods and services

- Global exports in **ICT Goods**:
 - **1.6 trillion US\$** global trade in 2013 (800 billion in 2001) (representing 10% of all goods).
 - **9 leaders: China, United States, Singapore, Korea, Malaysia, Germany, Japan, Mexico, Netherlands.**
 - **China: 32%** of total world exports in 2013 vs.. only 6% in 2001.
- Global exports in **ICT services**:
 - **400 billion US\$** total in 2013 (100 billion in 2001) (representing 30% of all services).
 - **5 leaders: Ireland, India, Germany, US and UK : 53%** of ICT total service trade (China : only 4.5%).

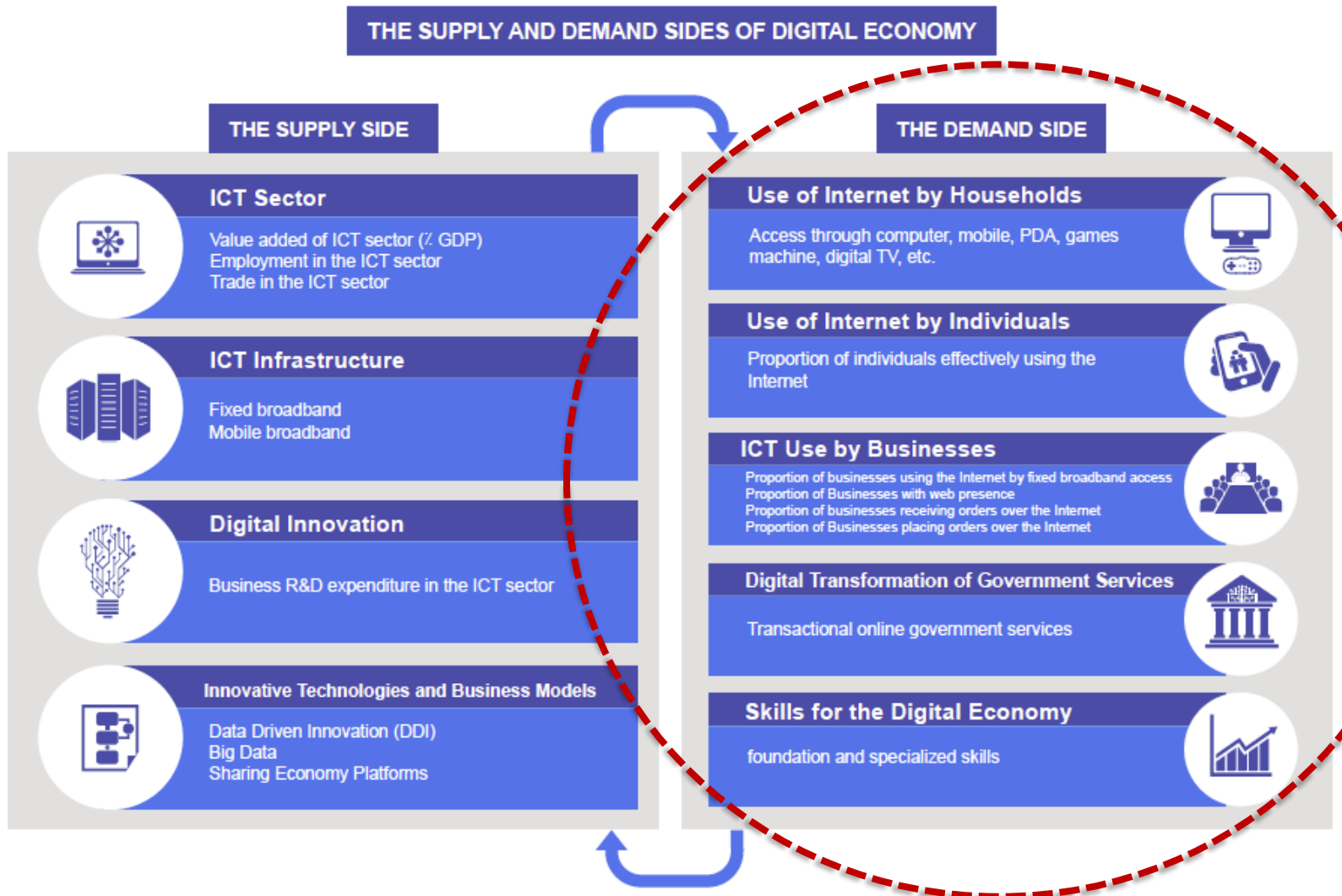
Recent Status of the ICT infrastructure

- **Fixed and Mobile Broadband access** are **driving forces** behind access to **Digital Economy** services.
- End of 2016, near **90% subscribed in mobile** broadband in developed regions and decent 40% level in developing countries.
- Major **discrepancies** in fixed and mobile broadband **prices** between developed and developing regions.
- In 2015 the monthly average bill for fixed was still more than twice expensive in developing (67.3\$) than in developed (27.8\$) countries.
- For mobile broadband (30.8\$ for developing versus 15.9\$ for developed) .
- **Major differences** also exist in **access, quality of service** and affordability between nations.

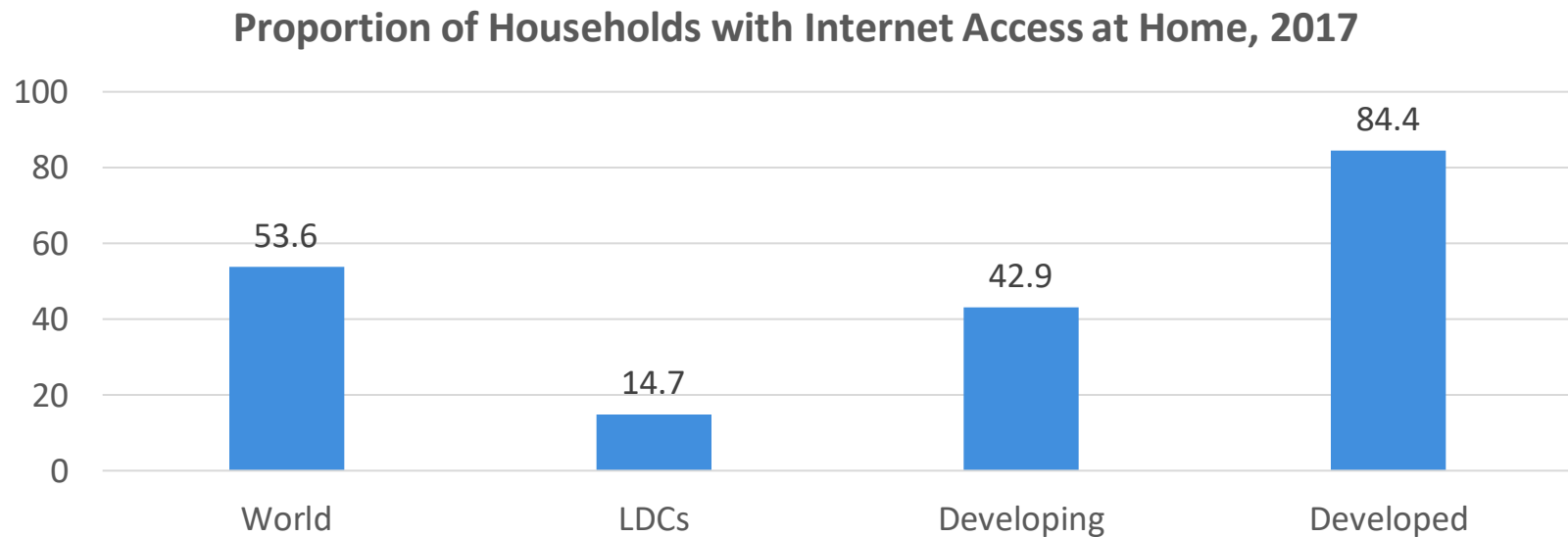
Digital Innovation

- **ICT sector innovation** is important to create **improved products and services** and **decrease ICT prices** which remain a key driving force for ICT adoption.
- **Investing in ICTs alone** is **not enough** to drive digital innovation. The effective use of ICTs and data requires **additional investments** in complementary **knowledge-based capital (KBC)**, in particular in **skills and know-how, and in organizational change including new business models and processes.**
- **Digital Innovation is risky and capital intensive** and needs special Venture Capital financing which operates effectively only in some developed countries.
- **70% of Venture Capital in the US went to ICT** (2014).
- Venture Capital investments are below their pre-crisis (2007) level in most countries.
- There is a **need for the majority of countries – including developed - to provide support and financing** for Digital Innovation.

Chapter 2: DIGITAL ECONOMY: TRENDS AND GLOBAL PERSPECTIVES

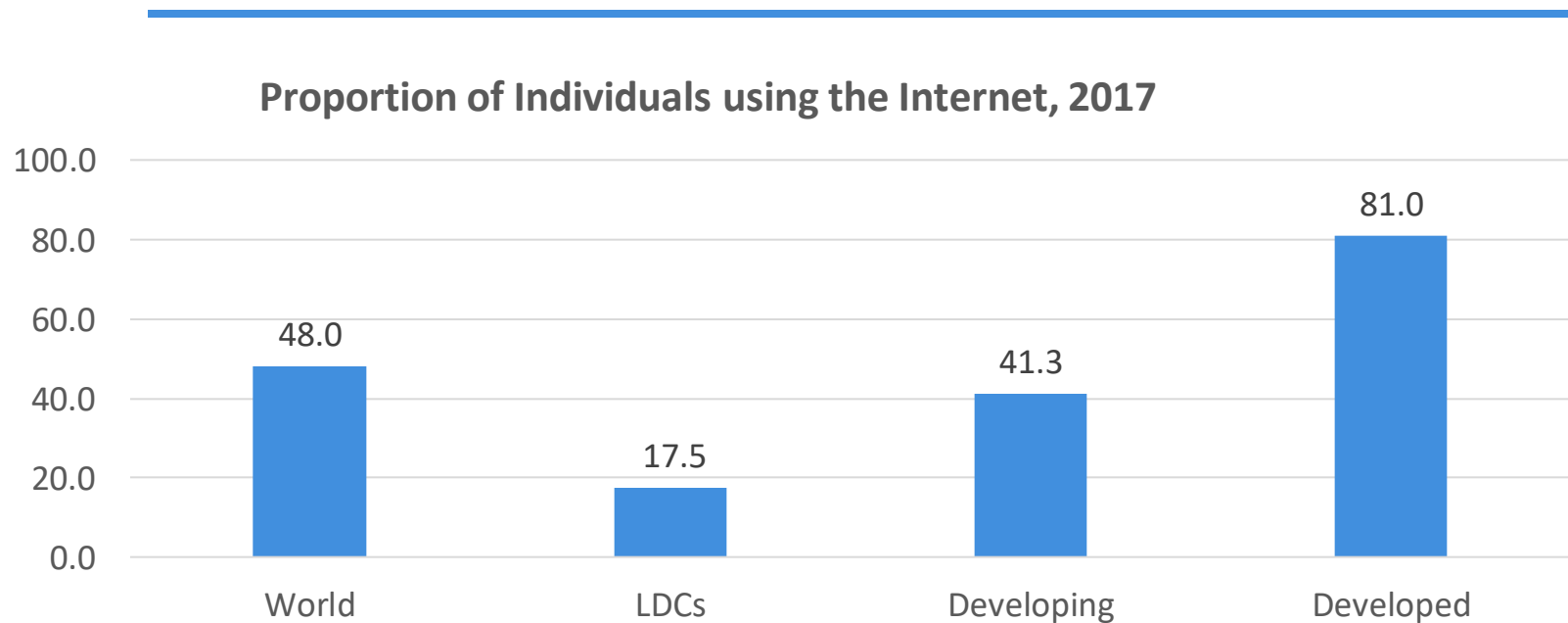


Proportion of Households with Internet Access at Home, 2017, ITU Database



- **Access by Households** to the Internet is one key indicator that measures **potential use of Internet**.
- In **developed countries**, the proportion of households with Internet access at home is **twice as high as in developing countries**.

Proportion of Individuals using the Internet, 2017, ITU Database

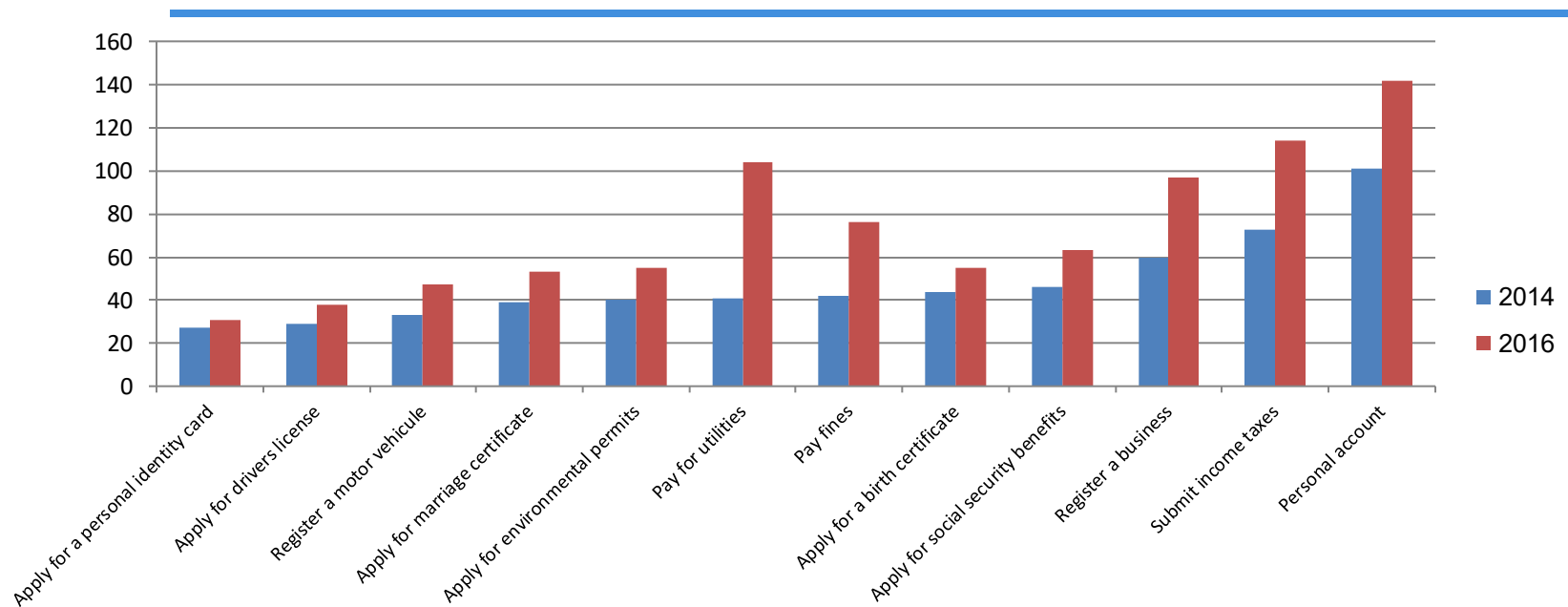


- As per the use of the Internet by Individuals, the proportion in the developed countries is also double this in the developing countries.

Internet Use by Businesses

- In OECD countries, **fixed broadband access has become nearly universal** among all enterprises of 10 and more employees and reaches near 100% in the category of large (250 and more employees) enterprises.
- The average of **having a website or homepage is quite high at 80%** but with larger spreads from over 90% in Denmark, Finland and Switzerland to 54% in Portugal and 42% in Mexico.
- **Cloud Computing is becoming of special interest** for new uses of ICT by businesses, as it allows firms to have **flexibility of accessing to software, storage capacity and other services.**
- Currently **22% of OECD countries' enterprises use Cloud Computing** but large variations exist among countries (up to 50% in Finland down to only 6% in Poland).

Digital Transformation of Government Services



- In the latest UN E-government Survey, **web presence** is now available in all of the **193 surveyed countries**
- The same UN Survey shows **a positive trend** in the government related **online services** through the **Online Service Index (OSI)**, which steadily evolved since the previous 2014 survey.

Highlights of Core Chapters

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Chapter 3: STATUS OF ARAB COUNTRIES' TRANSITION TOWARDS DIGITAL ECONOMY

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- 5- RECOMMENDATIONS

Chapter 3- STATUS OF ARAB COUNTRIES' TRANSITION TOWARDS DIGITAL ECONOMY

- This chapter provides detailed analytical assessment of the situation of Arab countries.
- It is currently organized into the following sub-structure:
 - 3.1 Methodological Approach
 - 3.2 The ICT Sector: Innovation and financial aspects
 - 3.3 ICT Infrastructure and Affordability
 - 3.4 Human Capacity and Research
 - 3.5 ICT Use by Individuals, Businesses, and Governments
 - 3.6 Economic Impact
 - 3.7 Social Impact

Methodological Approach

- The progress and status of the Arab region in its transition towards Digital Economy, will be assessed based on a **hybrid approach**:
 - Using predominantly **two international indexes**, namely the Networked Readiness Index (**NRI**) of the World Economic Forum (WEF), and Global Innovation Index (**GII**) of INSEAD.
 - In addition to other complementary data from other sources, including ITU, WB, OECD, UNESCO, UNCTAD, and some case studies from Arab countries.

3- STATUS OF ARAB COUNTRIES' TRANSITION TOWARDS DIGITAL ECONOMY

Networked Readiness Index (Rank: Global and Per Pillar), Arab Countries, 2016 (139 countries) (WEF)

Country (Global Rank)	Environment		Readiness			Usage			Impact	
	Political & Regulatory	Business & Innovation	Infrastructure	Affordability	Skills	Individual	Business	Government	Economic	Social
UAE (26)	25	13	28	116	22	19	27	2	26	2
Qatar (27)	18	15	29	120	5	23	25	5	28	10
Bahrain (28)	36	26	31	40	31	14	37	3	48	13
Saudi Arabia (33)	29	25	36	101	49	21	42	11	40	36
Oman (52)	53	58	46	96	76	39	94	34	95	46
Jordan (60)	39	38	92	94	59	70	41	47	61	53
Kuwait (61)	63	72	30	89	77	32	72	81	102	84
Morocco (78)	70	87	102	20	110	67	105	41	110	59
Tunisia (81)	90	112	82	24	85	78	107	55	93	78
Lebanon (88)	126	49	77	109	55	46	97	124	83	114
Egypt (96)	102	113	97	47	111	80	129	67	58	103
Algeria (117)	123	133	80	99	89	103	133	130	124	132
Mauritania (136)	135	135	136	118	138	118	135	134	116	134

Global Innovation Index (Rank: Global and Per Pillar), Arab Countries, 2016 (128 countries) (INSEAD)

Country (Global Rank)	Institutions	Human Capital and Research	Infrastructure	Market Sophistication	Business Sophistication	Knowledge and Technology Outputs	Creative Outputs
UAE (41)	22	41	23	42	24	86	70
Saudi Arabia (49)	72	32	39	38	66	75	47
Qatar (50)	34	59	16	68	78	88	49
Bahrain (57)	55	68	29	91	59	61	74
Kuwait (67)	75	72	48	50	127	51	64
Lebanon (70)	91	76	84	99	63	74	51
Morocco (72)	74	61	45	98	125	72	67
Oman (73)	41	52	51	90	124	95	79
Tunisia (77)	70	45	70	123	107	89	81
Jordan (82)	63	86	79	115	116	79	78
Egypt (107)	123	82	82	110	122	94	97
Algeria (113)	113	79	86	117	118	100	122
Yemen (128)	126	111	128	111	128	124	125

Infrastructure and Affordability

- **Infrastructure**

- Both the NRI and GII highlight the fact that **infrastructure** is relatively one of the **strong points of Arab countries**.
- This is particularly **the case of high-income GCCs** but not exclusively.

- **Affordability**

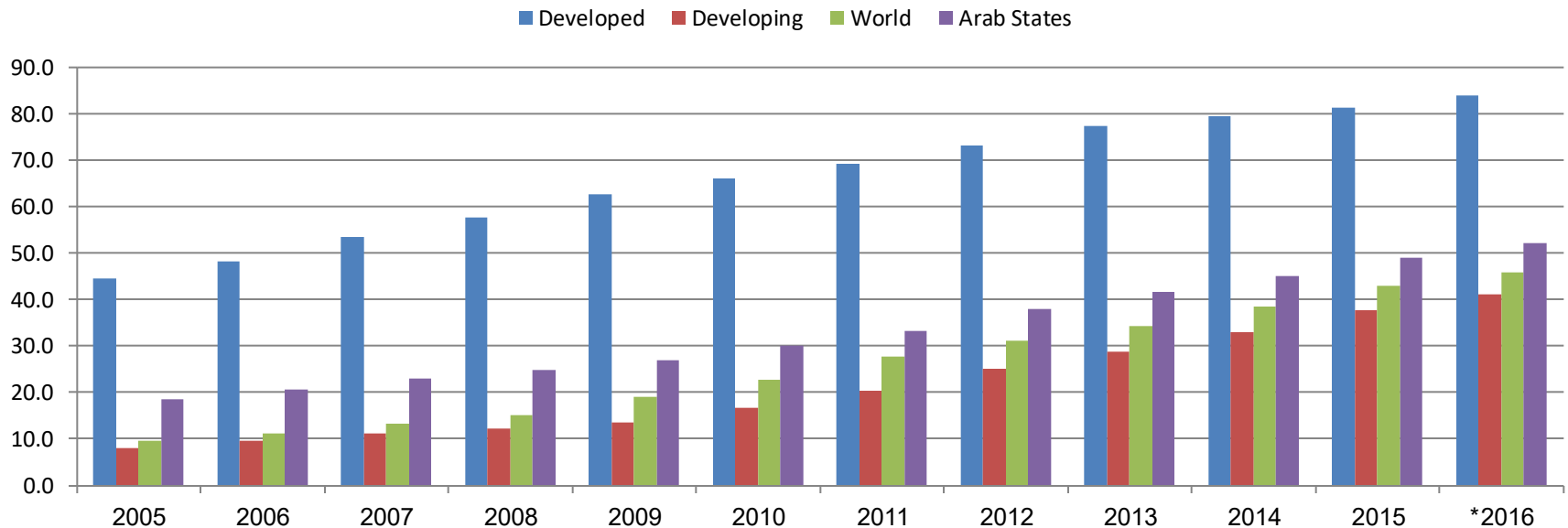
- **Affordability** of ICT services (mobile cellular and fixed broadband) **is weak** in the region, particularly in most **GCCs** (except only relatively Bahrain), **Lebanon and Jordan**.
- Only **Tunisia, Morocco and Egypt** enjoy **good affordability** of their ICT services.
- Many Arab including GCC, are driven down **due** to both relatively **high prices** and **insufficient competition**.

Access to the Fixed and Mobile Infrastructure in the Arab Region, 2016, ITU database

Country/Region	Fixed Telephony Subscriptions (per 100 Inhabitants) 2016	Mobile Telephony Subscriptions (per 100 Inhabitants) 2016
Algeria	8.24	117.02
Bahrain	20.8	216.93
Egypt	7.11	113.7
Iraq	5.53	82.16
Jordan	4.55	196.31
Kuwait	10.96	146.55
Lebanon	21.05	96.37
Libya	21.49	119.78
Mauritania	1.27	86.52
Morocco	6.02	120.72
Oman	9.8	159.22
Palestine	9.26	76.81
Qatar	19.34	147.1
Saudi Arabia	11.96	157.6
Sudan	0.34	68.63
Syria	15.21	54.23
Tunisia	8.59	125.82
UAE	23.43	204.02
Yemen	4.65	67.17
Arab Countries	7.70	106.40
Developed Countries	38.10	127.30
Developing Countries	8.50	98.70
World	13.60	103.50

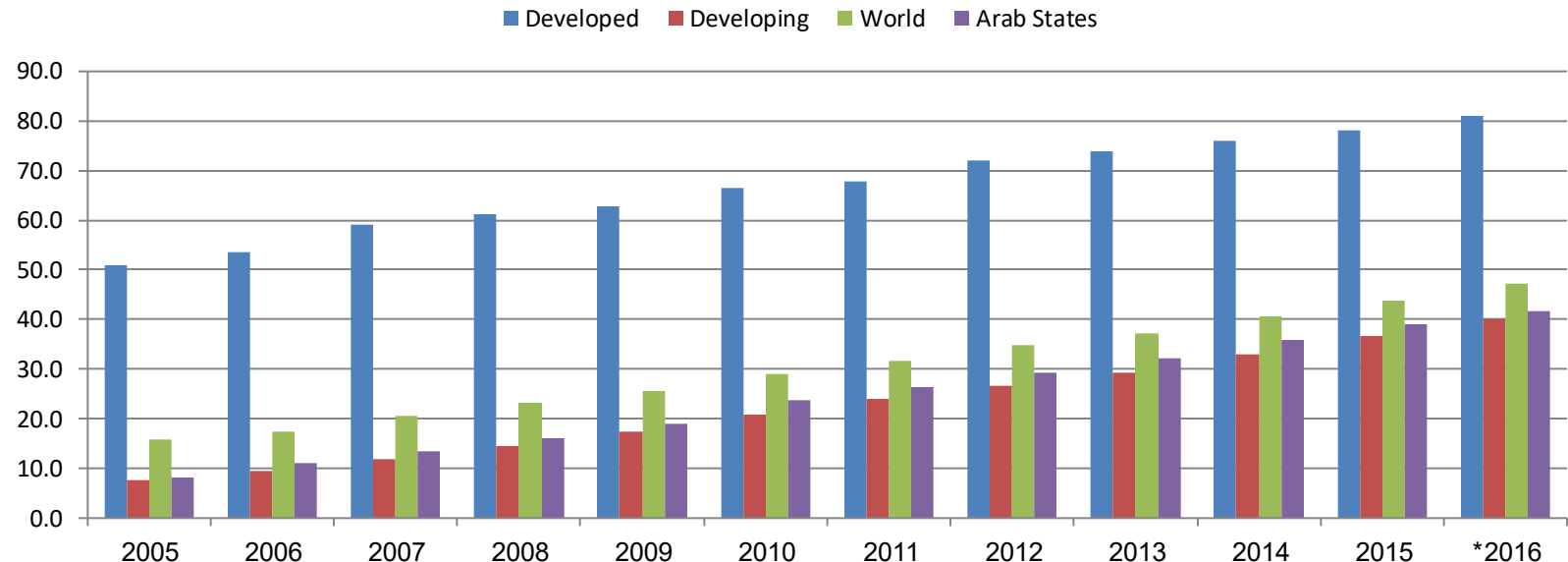
- **High level mobile connectivity** (more than 100%) of almost all Arab countries (12 out of 19 listed).
- **Arab Countries average 106.4%, which is slightly above the World average.**
- The development of the mobile infrastructure in the region is **due to the high level of investments** allocated to the services provided by this sector.
- As per the **fixed telephony subscription**, the Arab countries **average is around 7.7%**, while the **world average ranges at 13.6% and this for the developed ones is at 38.5%**.

Internet Use by Households, 2016, ITU Database



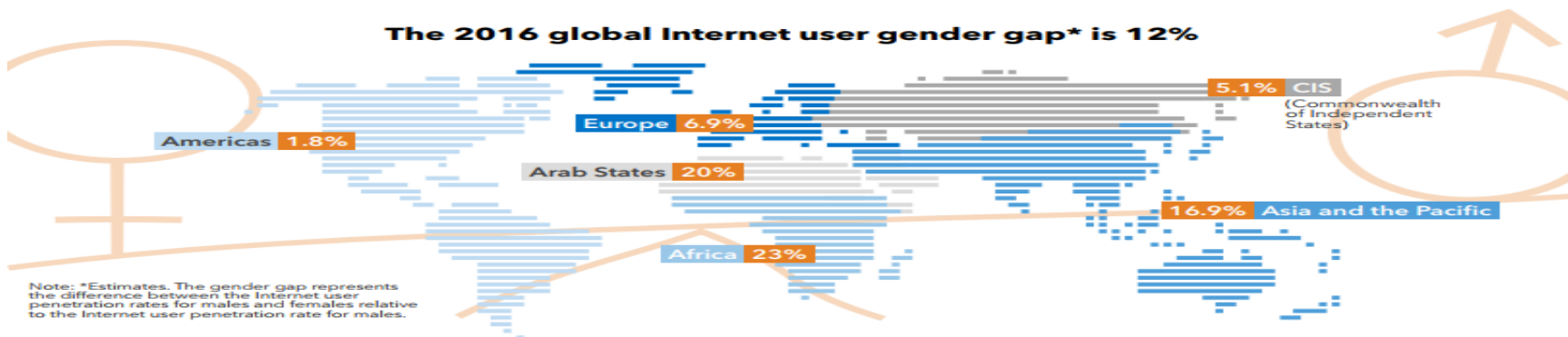
- Developing countries have made **significant advances** in this respect more than quadrupling their percentage over the last decade.
- **Arab countries current average is above the World's and Developing countries.**

Internet Use by Individuals, 2016, ITU Database



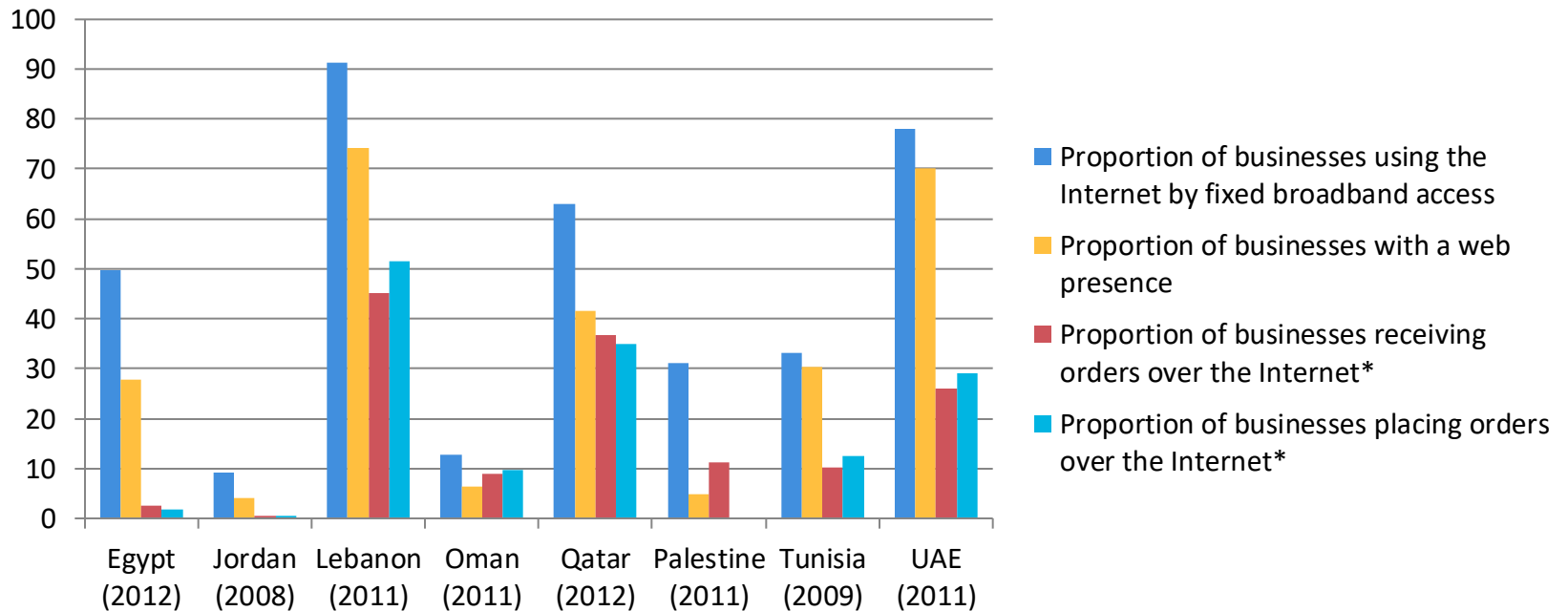
- Steady **advance** over the last decade. This is essentially **driven by mobile broadband** (many GCC are among the leaders with rates standing at more than 100% of their population).
- **Arab countries slightly above developing average.**
- In Developed countries, Internet users among **youth aged 16-24** reaches **95.6%** but stands at only **48.8% among persons aged 65-74.**
- Ratio developed/developing: 6 in 2005, 2 in 2016.

Gender Digital Gaps in the world, 2016, ITU Database



- **Digital divide is a pressing concern.**
- **More than 200 million fewer women online than men,** and the gap is widening.
- **Global digital gender gap** for the year 2016 is around **12%**, ranging **from 23% in Africa** to less than **2% in America.**
- The **Arab world** is ranged between Asia and Pacific and Africa with **20%** of gap.
- **Only 9 Arab countries** provided gender disaggregated data.

ICT Use by Businesses in the Arab Countries, UNCTAD Database



- What strikes in the Arab region are the **weak levels of ICT use by businesses.**
- **Few Data from Arab Countries.**

ICT Use by Governments in the Arab Countries, UN E-Government Survey, Online Service Index (OSI), 2016

	OSI Index value (0-1)	Importance of ICTs to government vision (1-7) - rank	Government success in ICT promotion (1-7) - rank	Impact of ICTs on access to basic services (1-7) - rank	ICT use and government efficiency (1-7) - rank
UAE	0.8913	6.1 (1)	6.2 (1)	6.1 (4)	6.1 (1)
Bahrain	0.8261	5.2 (9)	5.1 (12)	5.4 (26)	5.4 (10)
Morocco	0.7391	4.3 (50)	4.3 (49)	3.8 (95)	4.0 (65)
Tunisia	0.7174	3.6 (90)	3.8 (83)	3.8 (100)	3.6 (92)
Saudi Arabia	0.6739	5.3 (7)	5.3 (9)	5.2 (33)	5.5 (8)
Qatar	0.6739	5.9 (3)	5.8 (4)	6.0 (8)	6.0 (3)
Kuwait	0.6522	3.2 (113)	3.3 (116)	4.1 (71)	3.7 (89)
Oman	0.5942	4.5 (39)	4.4 (44)	4.6 (50)	4.5 (46)
Lebanon	0.5145	2.7 (134)	2.7 (134)	3.4 (117)	3.0 (125)
Egypt	0.4594	3.2 (112)	3.6 (99)	3.5 (108)	3.4 (112)
Jordan	0.4565	4.5 (36)	4.4 (40)	4.8 (43)	4.4 (47)
Algeria	0.0652	3.1 (119)	3.4 (115)	3.2 (124)	3.3 (116)
Mauritania	0.0652	3.1 (124)	3.1 (123)	3.0 (129)	3.0 (123)

- The UN Survey shows **a positive trend** in the government related **online services** through the **Online Service Index (OSI)**, which steadily evolved since the previous 2014 survey.
- **Two** Arab countries (**Bahrain and United Arab Emirates**) are in the **very high OSI** group, while **7** others (**Morocco, Tunisia, Saudi Arabia, Qatar, Kuwait, Oman, and Lebanon,**) are in the **high OSI** group.
- **Good in most Arab countries** with few exceptions (such as in Lebanon)

Telecommunications Revenue as Percentage of GDP in selected Arab countries (%), 2010-2015, World Bank

Country	2010	2011	2012	2014	2015
Jordan	6.1	5.8	5.4	4.7	4.1
Morocco	4.6	4.6	4.3	3.8	3.5
Tunisia	4.4	3.9	3.9	3.7	3.4
Bahrain	3.7	4.2	3.6	3.4	3.4
Yemen	2.9	3.3	3.4	..	..
Algeria	3.1	3	2.9	3	2.9
Oman	2.8	2.5	2.4	2.4	2.6
United Arab Emirates	2.4	2.1	2	2.2	2.3
Saudi Arabia	3.1	3	2.7	2.7	2.1
Sudan	3.3	3.1	2.1	1.5	1.6
Qatar	1.4	1.1	1.1	1.1	1.2
MENA average	2.9	3.4	2.7	2.6	2.2
Global average	2.7	2.6	2.6	2.6	2.4

- **ICT sector value added in Arab countries is primarily concentrated on telecom reaching up to 80% of the ICT sector total value added, compared to only 30% in developed economies.**
- Over the period 2010 -2015 **revenues varied between 1% and 6%of national GDP** and the **regional average has been higher than the global average** all over the period except for the last year.
- **Jordan, Morocco, Tunisia and Bahrain had the highest revenue, while rates in Qatar, Saudi Arabia and the United Arab Emirates were relatively low because of their high GDP.**

Full-Time Equivalent Telecommunication Employees in Selected Arab countries, ITU, 2010-2015

Country	2010	2011	2012	2013	2014	2015	% of Total Labor Force
Algeria		31,268	31,976	32,660	33,433	41,353	0,33%
Bahrain	2,570	2,708	3,141	3,000	3,100	3,180	0,42%
Egypt	64,015	63,233	65,619	64,166	63,518	62,251	0,20%
Iraq	17,464						0,19%
Jordan	4,739	4,600	4,596	4,214	4,304	4,159	0,18%
Kuwait						12,500	0,58%
Lebanon						7,840	0,37%
Morocco	12,901	12,943	11,557	11,437	11,196	11,243	0,09%
Oman	3,720	3,959	3,819	3,834	4,007	4,010	0,18%
Palestine	3,022	3,442					-
Qatar	2,502						0,14%
Saudi Arabia	23,406	23,721	23,745	23,721	22,019	22,887	0,18%
Syria	26,628	26,612	25,877	26,899	27,154	27,300	0,56%
Tunisia	10,957	10,936	10,795	10,971	11,057	10,529	0,26%
United Arab Emirates	11,337	10,798	7,961	7,419	6,254	6,286	0,10%
Yemen	9,532						0,12%

- **FTE numbers** in the sector **don't show any significant growth from 2010 to 2015, but even some drop in selected countries**, Egypt, Jordan, Morocco, Saudi Arabia, and the United Arab Emirates.
- **The % of the national Total Labor Force is also insignificant (with a max of 0.58% in Kuwait) compared to 3% in the developed countries.**

ICT Goods Exports (Percentage Total Goods Exports), Arab Countries, 2007-2014, World Bank

	2007	2008	2009	2010	2011	2012	2013	2014
Bahrain	0.06	0.11	0.39	0.25	0.57	1.44	2.39	1.71
Egypt	..	0.34	0.17	0.14	0.23	0.24	0.42	2.84
Jordan	6.88	3.77	1.56	1.29	1.47	1.61	1.39	1.89
Kuwait	0.16	0.18	0.29	..	..	..	0.05	0.06
Lebanon	1.22	1.14	2.86	7.11	0.95	0.65	0.86	1.04
Morocco	5.13	3.24	4.12	3.77	3.26	3.08	2.87	2.71
Oman	0.28	0.27	0.28	0.10	0.14	0.11	0.09	..
Palestine	0.54	0.63	0.88	1.35	0.97	0.73	0.58	0.42
Qatar	0.04	..	0.04	..	..	..	0.00	0.00
Saudi Arabia	0.08	0.03	0.07	0.11	0.11	0.12	0.22	..
Syria	0.00	0.01	0.01	0.02	..	..	..	..
Sudan	..	0.01	0.03	0.01	0.01	0.01	..	..
Tunisia	3.14	3.86	4.66	6.53	7.38	6.70	5.85	..
UAE	2.72	1.95	..	..	..	..	..	..
Yemen	0.05	0.05	0.05	0.04	0.01	0.01	0.01	0.08
World	12.19	11.27	11.97	11.79	10.69	10.55	10.48	10.83

- Only **Tunisia shows steady performance** over the last years.
- **Jordan and Lebanon**, though having had some good performance in some recent years, show **unsteady performance**.
- **The absence of data for the UAE of data since 2009** although the country is at the forefront of the Digital Economy transition in the region.
- **It is very important to highlight the fact that Tunisia is the best in class Arab country in this field and it stands at half the world's average in ICT goods exports.**

ICT Services Exports (% total trade), Arab Countries, INSEAD, 2016

Country	ICT services exports, % total trade, (Global Rank)
UAE	n/a
Saudi Arabia	0.07 (120)
Qatar	0.37 (102)
Bahrain	3.28 (20) 2013
Kuwait	3.82 (16)
Lebanon	2.72 (32)
Morocco	2.91 (27) 2013
Oman	0.19 (114)
Tunisia	1.71 (56) 2013
Jordan	n/a
Egypt	1.71 (55)
Algeria	0.32 (106) 2013
Yemen	3.36 (19) 2013

- **Good level in Kuwait, Yemen, Bahrain, Morocco, and Lebanon.**
- These countries **range among other developing countries that are leveraging the ICT services as a good source of exports.**
- It is **not necessarily about 'high-tech'**, it includes the T for Telecommunication services **including call centers for businesses.**
- **Important source of revenues and relatively decent jobs for youths and women in local economies.**

Situational analysis- Summary

- **DE impact is weak** and often even 'statistically unknown' in most Arab countries.
- **Weak level of exports of ICT goods** in most Arab countries except some relative champions and showing irregular patterns.
- **Relatively good results in exports of ICT services** in some countries **but** no details as regards IT and Telecom breakdown.
- **Low levels of ICT use by Arab businesses** and no detailed business surveys on this.
- **Weak leveraging of Digital Innovation by firms** and near inexistent Innovation surveys.
- **Low levels of available VC and credits** and weak climate for doing business in most countries.

Highlights of Core Chapters

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Chapter 4: Strategies of Digital Economy at National and Regional Levels

Structure of the Publication

The publication is currently organized in 5 chapters covering the following:

- 1- INTRODUCTION
- 2- DIGITAL ECONOMY: TRENDS AND GLOBAL PERSPECTIVES
- 3- STATUS OF ARAB COUNTRIES' TRANSITION TOWARDS DIGITAL ECONOMY
- 4- STRATEGIES FOR DIGITAL ECONOMY AT NATIONAL AND REGIONAL LEVEL
- 5- RECOMMENDATIONS

Chapter 4- Strategies for Digital Economy at National and Regional Level

- This chapter shows that digital strategies play a tremendous role in **leveraging digital technologies for inclusive development and growth, towards achieving SDGs.**
- This applies to developed and developing countries alike.
- **Traditionally,** related policies tended first to **focus on availability and usage** of these technologies, then started to focus afterwards on the sector, but **recent policies** have become more horizontal, covering issues ranging **from business creation and productivity growth to public administration, employment, education, health, environment and development.**
- National digital strategies **are thus now cross-sectoral by nature** and in many instances are designed explicitly to boost countries' competitiveness, economic growth and social well-being.
- This chapter is currently organized in the following:
 - 4.1 The Role of Digital Strategies at National Level
 - 4.2 National Digital Strategy Structure
 - 4.3 The Role of Digital Strategies at the Regional Level
 - 4.4 Selected Digital Strategies from the Arab Region

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Recommendations to Overcome the Challenges Hindering the Transition Towards Digital Economy in the Arab Region.

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RECOMMENDATIONS RELATED TO POLICY ISSUES

- Devise digital agendas at national and regional levels to promote the Digital Economy in the Arab region.
- Involve the private sector in the transition towards Digital Economy.
- Mobilizing concrete political will to deploy smart policies aiming at improving public service delivery and combating corruption through smart governments, smart cities and smart citizens.
- Improve quality and affordability of access to the Internet particularly in its fixed high-speed broadband variant (through Fiber Optics for example).
- Empowering citizens to effectively use the online services and provide feedback and suggestions for improvement and definition of services through effective participation.
- Improve access to Credit and Venture Capital by young and innovative entrepreneurs in ICT sector and beyond for both sexes women and men.
- Improve R&D expenditure by businesses in general and in ICT in particular and Bolster patent protection and effective competition law.
- Improve investments in ICT complements, including process, organizational change, development of firm's intangible assets, skills, and devising proper related capacity building plans.
- Devise policies and prepare plans and initiatives to increase the number of women in the ICT Sector, including in the high-tech start-ups and SMEs and improve their representation at managerial or senior levels in the Technology Sectors.

RECOMMENDATIONS RELATED TO MEASUREMENT ISSUES

- Improve **the collection of data disaggregated by sex**, as well as other measurement techniques, **to fully understand the impact of Digital Economy on men and women**, which can improve the process of policies development as well as decisions making.
- Promote **firm's surveys** to gauge **their level of ICT adoption and use**, such as Broadband access, presence and activities on the net (**website**, and commerce in both its **B2C and B2B** variants) as well as adoption of Enterprise Resource Planning **ERP systems**.
- **Improve the efforts** of national statistical offices (**NSOs**) in Arab countries **to include questions** to know more about the **usage patterns of internet by individuals and by sex** within their surveys. Usage measurement should also include **expenditure on ICT goods and services**. This is an important measure that helps **evaluate the Digital economy's impact on overall expenditure patterns of Individuals and Households**.
- **Improve data collection on students and adult's skills as well as ICT specialists (all disaggregated by sex)**.
- **Improve the collection and analysis of Big Data** so that it can provide information on population subgroups, such as differentiate between **men and women, youth and elderly, youth and adults, people with disabilities**.
- Promote **surveys to monitor the ICT investments** aiming at leveraging ICT for growth.
- **ESCWA** can have a leading role in **compiling a new set of Indicators aiming particularly at conducting a Specialized Digital Economy Profiling Exercise in the next decade**.
- Put forward **national strategies** and laws to **protect human and data privacy**.

Part II: Digital Technologies Policy Areas

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Digital Technologies Horizon 2030



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ICT Policies Section, TDD

Part II: Digital Technologies Policy Areas

- **Chapter 4:** Digital Strategies
- **Chapter 5:** ICT Sector
- **Chapter 6:** ICT Infrastructure
- **Chapter 7:** Cybersecurity
- **Chapter 8:** Digital Divide
- **Chapter 9:** e-Applications
- **Chapter 10:** e-Government

Part II: Digital Technologies Policy Areas

- **Chapter 4:** Digital Strategies
- **Chapter 5:** ICT Sector
- **Chapter 6:** ICT Infrastructure
- **Chapter 7:** Cybersecurity
- **Chapter 8:** Digital Divide
- **Chapter 9:** e-Applications
- **Chapter 10: e-Government**

Part II: Digital Technologies Policy Areas - Unified Analytical Approach for the 7 Policy Areas

- **Contextualization** of the discussed issue with respect to its **impact on Sustainable Development Goals (SDG)**
 - identification of relationship with relevant WSIS action line(s) as well as *other considerations* when applicable
- **Situation and gap analysis “*Prevailing Policies: Current Situation and Future Implications*”**
 - a snapshot of the current situation of Arab countries and measurement of the **current gap** with respect to advanced countries
- **Horizon 2030 vision and policy change recommendations “*Horizon 2030: Aspirations and Policy Recommendations*”** to address it
 - Horizon 2030 vision reflects a view on what could be appropriate by 2030 for the Arab region considering its resources, human capabilities and development expectations
 - A set of Policy Recommendations are proposed to induce radical change to address root cause of the gaps and hence achieve the Horizon 2030 vision
- **Conclusion: Business-as-Usual Trajectories versus Horizon 2030**

Vision2030 Blueprint – State Level

	Horizon 2030 Vision	Policy Recommendations Summary
<p>Digital Strategies</p>	<p>All Arab countries adopted holistic digital strategies supporting a national long-term development vision. These strategies contribute to economic growth and well-being through a well-developed ICT sector and infrastructure, reduced digital divide and pervasive e-applications with concrete impact on poverty reduction, women empowerment, reduced inequalities and more inclusive societies.</p>	<ul style="list-style-type: none"> • Develop digital strategy articulated with a long-term development vision supported at the highest political level. • Implement and follow-up of digital strategies through a whole-of-government approach. • Leverage public-private-partnerships with sustainability and effective business models taken into consideration in all projects. • Address disruptive effects of digital technologies on employment, power concentration, social control and inequalities with proper measures and capacity building.

Vision2030 Blueprint - Economy Level

	Horizon 2030 Vision	Policy Recommendations Summary
ICT Sector	<p>Share of the ICT sector value added is expected to reach 4% of GDP in GCC and 2-4% in other countries. FDI expected to recover to 6% of global FDI with more equal distribution among countries. VC deals to reach a meaningful 0.1% per billion GDP in most Arab countries except LDCs. Arab region share in global ICT goods and services trade to reach 10% in services and 2-5% in goods excluding re-exports. R&D effort to reach 1% of GDP in most Arab countries. Arab digital media market, to reach levels 2-3% of global media and entertainment market.</p> <p>In a horizon 2030 vision, it is expected that unemployment – particularly among the youth – is significantly reduced with digital technology jobs contributing 30% of this total reduction and digital talent among the total workforce is increased from the current 1.7 to 5 percent. As for economic growth, the present digital economy contribution to the region's economy is estimated to grow from the present estimated 4.1 to 6 percent and the region to enhance its digital potential from the estimated 8.4% to 15%. As a proxy for ICT industrialization, the present status of the region is one-thirtieth of the ICT patents per million population compared with the United States and expected to reach only one-tenth of this value.</p>	<ul style="list-style-type: none"> • Develop digital strategies that address framework conditions and issues related with skills, enabling economic environment and nurturing of innovation to enhance the ICT sector share in the economy. • Develop national innovation and digital strategies in close coordination and with consistent approaches under the remit of a high-level authority. • Remove online content restrictions and filtering and support all actors that provide factual and checked information. • Establish a media regulatory authority, media sector liberalization, and digital policies addressing in a unified manner the telecom and media sectors. • Support initiatives related to the development of relevant infotainment or edutainment content on media predominantly used by youth • Enhance digital jobs available for youth both quantitatively and qualitatively. • Governments should introduce incentives for small local companies in the digital sector to merge with other companies to make up larger enterprises that can compete with companies from outside the region. • Arab businesses should invest in developing employees' career by funding further education for employees; introduce career development programs and rewards for young employees to meet the needs of digital economy. • Transform employment structure to be in line with the growing importance of digital economy. • Governments and major employers should consider the variety of new job families such as Gig economy jobs and crowd work and incorporate them in the strategy vision for 2030. • Governments and major employers in the region should pay attention to lifelong learning and training.

Vision2030 Blueprint - Economy Level

	Horizon 2030 Vision	Policy Recommendations Summary
ICT Infrastructure	<p>All Arab countries have fixed broadband access at developed countries' averages for GCC and half up the spread between developed and developing for others with NGA expected to reach 100% in GCC and at least 50-75% in other countries. Generalized uncapped data volumes for fixed broadband access will become the norm and throughput for both mobile and fixed broadband is expected at quality and pricing equivalent to developed countries' averages for GCC and no less than 70-80% for other countries.</p>	<ul style="list-style-type: none"> • Develop full unbundling of legacy copper and innovative bundled service to enhance fixed broadband penetration and pave the way for NGA eventual uptake. • Develop backbones at the national and regional levels to improve the fluidity of traffic generated by access networks. • Encourage Infrastructure sharing schemes to develop entry for newcomers on equal footing with open and fair access to common infrastructure. • Develop national and regional IXPs, local hosting of services and data and ensure non-exclusionary practices that may lead to the emergence of monopolies. • Consider the general framework of Annex 1 and its recommendations to improve quality and affordability of ICT infrastructure and pave the way for NGA deployments and future Next Generation Networks (NGN)

Vision2030 Blueprint - Economy Level

	Horizon 2030 Vision	Policy Recommendations Summary
Cybersecurity	<p>All Arab countries have a well-functioning national CERT and have established a solid culture of cybersecurity involving civil society and private sector. National CERTs coordinate with Arab peers and others..</p> <p>Effective technical solutions to combat cyber-threats will become pervasive. A legal framework to combat cybercrime and ensure data privacy is implemented in all Arab countries which have implemented the Arab convention and most joined international instruments such as the Budapest convention.</p>	<ul style="list-style-type: none"> • Develop a cybersecurity strategy that are multi-stakeholder, holistic, and extrovert. • Conduct a cost benefit analysis of cybersecurity incidents with rational justification of needed security investments by public and private stakeholders alike. • Build a national CERT to become a national center of excellence in cybersecurity with advisory role to government and law-makers, and support of NGOs and civil society at large working on cybersecurity awareness campaigns. • Arab CERTS should build an effective regional cooperation network and improve their participation in global fora and networks like FIRST • Arab countries to update their legal arsenal to combat cybercrime and ratify and make effective the use of the Arab convention on cybercrime and consider joining the international Budapest convention on cybercrime. • Develop ad-hoc national initiatives to protect children from harmful content on the net and address youth and teens' online addiction and issues related with harassment on social networks. • Remove content filtering and censorship which, beyond being costly, does little more than threaten the usefulness of the Internet as an engine of growth.

Vision2030 Blueprint – Societal Level

	Horizon 2030 Vision	Policy Recommendations Summary
Digital Divide	<p>All Arab countries achieved universal access to the internet and eradicated the important existing gender gap. E-applications with direct socio-economic impact and engaging online with government and other public services reaches levels no lower than 20% of developed countries' in GCC and 40% in other countries. The cost of a full basket of telecom and internet access services (including NGA) should reach 1% of GNI p.c in GCC and stay at no higher than 3% in others.</p>	<ul style="list-style-type: none"> • Arab countries to leverage their fixed telephony infrastructure and improve the Internet access experience thanks to fixed broadband with content-rich multimedia applications, enhanced use for professional and educational purposes, and remote support services (e.g. telehealth). • Drive down Internet access costs by addressing infrastructure bottlenecks as already recommended for the ICT infrastructure. Public policy intervention should address 'market failure' situations characterized by insufficient investments resulting in high prices with low quality of service. • Develop public-private partnerships and open access schemes in areas judged as unprofitable by private investors. Central and local authorities could lay out passive infrastructure like 'dark fiber' in new or existing neighborhoods and lease it to operators on non-discriminatory basis. • Develop users' capabilities and 'Internet access culture' through the education system among youth and ad-hoc initiatives for the population at large (particularly among women and other disadvantaged groups).
E-applications: e-commerce	<p>B2C e-commerce in the Arab region reaches 2% of global volumes with at least 50% for non-GCC in this total. SMEs engaging in e-commerce activities are 60% in GCC and 30-60% in other countries. Percentage of Internet shoppers to reach 70% of Internet users in GCC and 30-50% in other countries. E-payment becomes universal in GCC and impacts at least 50% of the population in other countries.</p>	<ul style="list-style-type: none"> • Leverage UNCTAD's 'e-trade for all' platform to address shortcomings hindering the development of their e-commerce. • National Statistical Offices (NSOs) to address lack of B2C and B2B e-commerce data through their regular statistical surveys. . • Develop national or cross-border Arab e-commerce platforms to allow SMEs and micro-enterprises to sell their products online. • Develop mobile payment leveraging smartphone penetration among Arab population to encourage online transactions. • Encourage the development of national and secure platforms for both commerce and payment at the service of national economy.
E-applications: e-health	<p>All Arab countries are implementing a national e-health strategy at an advanced stage for GCC and early to medium stage in others. EHR adopted by all GCC and at least in 70% of other Arab countries with similar percentage of telehealth and m-health programs established in all countries. E-health applications based on big data analytics and other advanced AI technologies operational in GCC and at least in advanced stage of piloting in all other countries.</p>	<ul style="list-style-type: none"> • Develop or update a national e-health strategy involving all health system stakeholders by following the suggested three-step approach of the ITU/WHO toolkit consisting in the elaboration of a national e-health vision, an action plan and a plan to monitor implementation and manage associated risks. • Develop smart and targeted e-health applications, like tele-radiology or tele-diagnosis considering upfront their sustainability and eventual integration within the framework of a national e-health strategy. • Consider with caution e-health projects aimed at showing the best technologies even if the country can afford their cost and ensure that a cost-benefit analysis is carried out to evaluate e-health projects.

Vision2030 Blueprint – Societal Level

	Horizon 2030 Vision	Policy Recommendations Summary
<p>E-applications: e-education and skills</p>	<p>ICT use will become pervasive at all education levels in all Arab countries. ICT use shall impact 50-70% of learning activities in all Arab countries. A large majority (80% and plus) of Arab countries will join international students assessment programs for their pupils - like PISA - and improve their results reaching 80% to parity and above with OECD averages.</p>	<ul style="list-style-type: none"> • Develop schools' ICT infrastructure and connectivity to the Internet at all stages in particular for primary and pre-primary levels • Introduce new teaching methods that develop independent and critical thinking leveraging on a smart and effective use of ICT primarily targeted to enhance their efficiency. • Carry out school surveys focusing as much on ICT equipment and access to the Internet as on how ICT is effectively used in the educational process. • Participate to PISA – or any other equivalent test - and use its results to address issues in the education system and assess if ICT use in Education has led to better education outcomes and why.
<p>E-government</p>	<p>All government services have an online version with averages of 80% adoption rates in GCC by 2030. These targets can be set at 20-30% lower for Arab middle income countries and 50% in low-income/LDCs. Population satisfaction should reach highs of 90% in GCC and from 60-80% in other countries. All Arab countries should have adopted open data policies and enhanced their global rank in the open data barometer with none GCC at below the second quintile and no middle income below the third.</p>	<ul style="list-style-type: none"> • Arab countries should evaluate, according to their maturity level, the set of digital technologies and their analog complements to enhance government services and evaluate these technologies in accordance with its needs after consideration of their impact, effort, link with SDGs, and estimated costs within an action priority matrix. • Arab countries, according to their national priorities and contexts, might consider classifying their public services and activities by amenability to improvement thanks to digital technologies and focus on those where citizens have both an incentive and means to measure this improvement. • Arab countries should deploy more efforts aimed at the quantitative and qualitative improvement of their open government data and leverage data analytics revolution for better social impact.

Insights of eGov Directors

Unified Analytical Approach: Survey to be sent

Thank You

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