

# ANNEX 3. MEASUREMENT OF THE ARAB COUNTRIES' KNOWLEDGE ECONOMY (BASED ON THE METHODOLOGY OF THE WORLD BANK)\*

The World Bank uses the Knowledge Assessment Methodology with the object of measuring and analysing the knowledge economy. This methodology is based on the supposition that the knowledge economy comprises four pillars: economic incentive and institutional regime, education and human resources, the innovation system, and ICT. The methodology currently comprises a total of eighty-three indicators that are constantly being updated on the World Bank's website.<sup>1</sup>

According to this methodology, the knowledge economy is quantified by means of a numerical index known as the Knowledge Economy Index (KEI). This is calculated from the data of twelve indicators, three of which form a single pillar. Table A-1 presents these indicators and their values with regard to the Arab countries. To calculate the index, the values of the indicators are transformed into normalised values. The normalised value for an indicator for a specific country

TABLE A-1

## Indicators of the knowledge economy index for the Arab countries

Country	Economic Incentive and Institutional Regime			Innovation System			Education and Human Resources			Information and Communication Technology		
	Tariff and non-tariff barriers	Regulatory Quality	Rule of Law	Royalty and License Fees Payments and Receipts (\$ per person)	Patent Applications Granted By the US Patent and Trademark Office per million people	Scientific and Technical Journal Articles	Adult Literacy Rate (% of those over 15)	Secondary Enrolment (%)	Tertiary Enrolment (%)	Telephones per 1000 people	Computers per 1000 people	Internet users per 1000 people
Algeria	68.8	-0.6	-0.6	..	0.0	10.7	69.9	83.2	21.4	494	11	58
Bahrain	80.8	0.7	0.6	..	0.0	45.6	86.5	101.2	33.1	1301	169	213
Djibouti	28.2	-0.9	-0.8	..	0.0	0.0	..	22.8	2.2	69	24	13
Egypt	66	-0.4	0.0	4.3	0.1	22.8	71.4	86.2	34.8	325	38	68
Iraq	15.6	-1.4	-1.9	..	0.0	40.0	74.1	45.2	12.1	432	56	35
Jordan	74.8	0.4	0.5	..	0.3	50.8	91.1	87.4	39.9	419	57	119
Kuwait	81	0.5	0.8	0.0	2.4	91.9	93.3	88.7	18.8	1140	237	276
Lebanon	77.4	-0.1	-0.5	0.0	0.8	58.3	86.5	81.4	46.3	554	115	196
Libya	39.6	-1.0	-0.6	..	0.0	27.4	84.0	98.5	..	174	..	36
Mauritania	70.2	-0.2	-0.4	..	0.0	0.8	..	20.8	3.2	256	14	7
Morocco	62.6	-0.2	0.0	1.9	0.0	14.7	52.3	49.2	11.4	455	25	153
Oman	83.6	0.8	0.7	..	0.1	44.3	81.4	88.6	18.3	623	47	111
Qatar	70.8	0.5	0.9	..	0.5	32.2	89.0	96.6	18.7	1135	171	269
Saudi Arabia	76.8	0.0	0.2	0.0	0.6	24.9	82.9	94.2	29.2	740	354	70
Sudan	..	-1.2	-1.3	..	0.0	1.3	60.9	32.7	..	69	90	77
Syria	54	-1.2	-0.6	..	0.0	4.1	80.8	67.3	..	307	42	58
Tunisia	71.8	0.2	0.4	2.2	0.1	56.9	74.3	83.3	30.1	692	57	95
UAE	80.4	0.8	0.7	..	1.2	55.8	88.7	85.7	23.2	1273	116	308
Yemen	66.4	-0.7	-1.0	..	0.0	0.6	54.1	45.6	9.4	135	15	9

is arrived at by specifying the country's ranking on the index. Thus the best performing country appears in first place, the next best performing country in second place and so on. The normalised value for an indicator for a particular country is

equal to the number of countries ranked lower than that country divided by the total number of countries multiplied by ten. The index for each pillar is calculated on the basis of its being the simple arithmetic mean of the normalised values of the three

TABLE A-2

### Knowledge Economy Index for the Arab countries compared to other countries

Country	Economic Incentives and Institutional Regime	Innovation System	Education and Human Resources	Information and Communication Technology	Knowledge Economy Index	Difference between the highest and lowest pillar
<b>KEI value among 135 countries of the world</b>						
Algeria	2.6	3.5	3.7	3.2	3.3	1.1
Bahrain	6.9	4.3	5.8	7.2	6.1	2.9
Djibouti	1.2	1.4	0.5	1.7	1.2	1.2
Egypt	3.6	4.5	4.4	3.5	4.0	1.0
Iraq	0.3	4.2	2.4	3.6	2.6	3.9
Jordan	5.8	5.7	5.5	4.6	5.4	1.2
Kuwait	7.0	5.0	5.1	7.3	6.1	2.3
Lebanon	4.8	4.7	5.0	5.8	5.0	1.1
Libya	1.5	3.9	5.6	2.5	3.4	4.1
Mauritania	4.0	1.8	0.7	1.9	2.1	3.2
Morocco	3.9	3.7	2.0	4.2	3.4	2.2
Oman	7.4	5.1	4.2	4.9	5.4	3.1
Qatar	6.0	5.8	5.3	7.1	6.0	1.8
Saudi Arabia	5.4	4.0	5.0	5.9	5.1	1.9
Sudan	0.7	2.0	1.3	3.5	1.9	2.8
Syria	1.6	3.5	3.0	3.5	2.9	1.9
Tunisia	5.3	4.6	4.1	5.0	4.7	1.2
UAE	7.0	6.8	4.6	7.1	6.4	2.5
Yemen	1.8	1.8	1.8	1.7	1.8	0.1
<b>Ranking among 135 countries</b>						
Algeria	109	91	94	99	96	18
Bahrain	48	76	53	38	48	38
Djibouti	123	134	132	118	132	16
Egypt	91	71	80	93	83	22
Iraq	135	78	106	89	108	57
Jordan	55	55	57	73	62	18
Kuwait	43	66	66	36	47	30
Lebanon	69	68	72	62	68	10
Libya	120	83	56	106	93	64
Mauritania	83	125	129	115	116	46
Morocco	87	88	109	78	92	31
Oman	37	65	87	66	63	50
Qatar	52	54	61	43	49	18
Saudi Arabia	61	80	71	57	67	23
Sudan	131	122	120	96	120	35
Syria	118	94	100	95	104	24
Tunisia	65	69	88	65	72	23
UAE	45	43	77	42	43	35
Yemen	116	126	114	116	122	12

indicators that make up the pillar. The KEI is then calculated on the basis of its being equal to the simple arithmetic mean of the index values for the four pillars. The value of each index falls in the range 0-10 and is an expression of the relative position of a country in comparison with all the countries whose index is calculated. On this basis, the index values of the top 10 per cent of countries fall in the range 9-10, the index values of the second highest 10 per cent of countries fall in the range 8-9, and so on.

### *INDICATORS AND INDICES OF THE KNOWLEDGE ECONOMY FOR THE ARAB COUNTRIES*

Data for the indicators of the Knowledge Assessment Methodology are currently available with respect to 140 countries, including seventeen Arab countries. For the purposes of the present report, data for the indicators has been made available for two other Arab countries, Iraq and Libya, and the data for Sudan is rounded out, to make a total of nineteen Arab countries for which it is possible to calculate the KEI and the indices of its four pillars. The three Arab countries for which the minimum level of data needed to calculate the indices is not available are Palestine, Somalia, and Comoros. Table A-2 presents the KEI values, the index values of its pillars, and the relative position for each Arab country globally.<sup>2</sup>

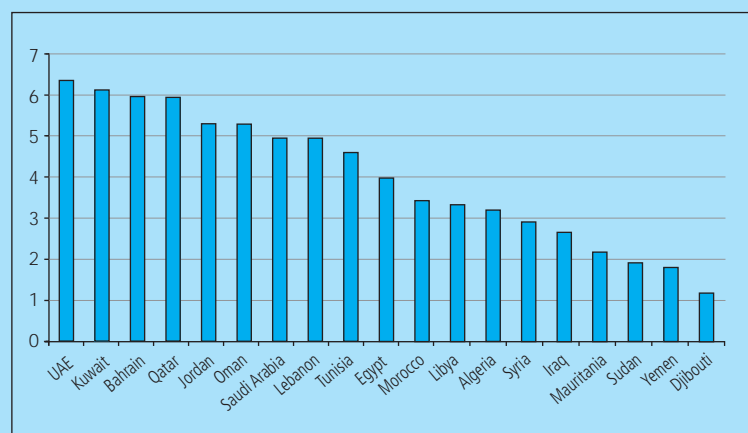
### *VARIATION IN THE KNOWLEDGE ECONOMY AMONG THE ARAB COUNTRIES AND IN COMPARISON WITH OTHER COUNTRIES*

Variation in the knowledge economy with regard to the Arab countries is visible on three main levels: within the individual Arab country, among the Arab countries, and between the Arab countries and the countries of the world. Given the lack of sufficient data to calculate the KEI at the level of the geographic or demographic

divisions within each Arab country, the presentation of variation with respect to each Arab country will be limited to that between the indices of the four pillars within the country. From the final column of Table A-2, it is to be noted that, for seven Arab countries (Jordan, Lebanon, Tunisia, Egypt, Algeria, Djibouti, and Yemen) the index values for these pillars are close together, with the difference between the highest and lowest not being greater than 1.2. In contrast, seven other Arab countries (Bahrain, Iraq, Libya, Mauritania, Oman, Sudan, and the UAE) display a relatively large variation, of not less than 2.5, in the index values for the pillars. The reason for this high level of variation in the case of five of these countries goes back to the Economic Incentive and Institutional Regime pillar whose index is higher than that of the other three pillars with respect to Mauritania and Oman, while it is lower than the other three with respect to Iraq, Libya, and Sudan. Given that each of the four pillars of knowledge forms an essential element for achieving the knowledge economy, it is necessary to achieve a balance between the levels of the pillars within one country, since underdevelopment in one of the pillars forms an obstacle to performance by the other three pillars of their role in

FIGURE A-1

### **The Knowledge Economy Index for the Arab countries**



Source: World Bank databas, Knowledge Assessment Methodology (KAM).

the knowledge economy. On this basis, one of the priorities for the development of the knowledge economy within each Arab country is to pinpoint its weakest pillar and then work to develop it to close the gap between the four pillars.

Within the Arab region, there is relatively large variation between the Arab countries with respect to the KEI. Table A-2 and Figure A-1 indicate that the KEI for the Arab countries ranges from 6.4 for the UAE to 1.2 for Djibouti. Thus the Arab

TABLE A-3

### Economic performance and KEI indicators for the Arab countries compared with the world's geographic regions

Indicator or index	Arab region*	Middle East and North Africa	Africa	East Asia and the Pacific	Europe and Central Asia	The G7 group of nations	Latin America	South Asia	Western Europe	The World	Number of regions higher than the Arab region
<b>Overall economic performance</b>											
Annual GDP growth (%)	5.7	5.1	4.9	5.9	6.9	1.9	3.9	5.5	2.7	4.9	2
Human Development Index	0.73	0.76	0.51	0.8	0.8	0.95	0.77	0.6	0.94	0.74	6
<b>Economic Incentives and Institutional Regime</b>											
Tariff and non-tariff barriers	65	70	68	77	80	84	74	49	85	74	7
Regulatory Quality	-0.2	-0.1	-0.5	0.4	0.1	1.3	-0.1	-0.4	1.4	0.1	6
Rule of Law	-0.2	0.1	-0.5	0.3	-0.3	1.4	-0.4	-0.4	1.6	0	4
<b>Innovation System</b>											
Royalty and License Fees Payments and Receipts (\$ per person)	1	23	6	258	22	240	15	0	645	127	7
Scientific and Technical Journal Articles per million people	31	86	6	234	107	591	21	5	634	160	5
Patent Applications Granted by the US PTO per million people	0.3	10.0	0.1	44.6	1.2	146.5	0.9	0.1	77.6	22	6
<b>Education and Human Resources</b>											
Adult Literacy (%)	78	80	59	93	98	100	87	60	99	85	6
Overall enrolment in secondary education (%)	72	79	38	82	91	103	81	51	107	76	6
Overall post-secondary education enrolment (%)	21	26	5	43	47	63	29	7	62	34	6
<b>Information and Communication Technology</b>											
Telephones per 1000 people	557	682	174	823	804	1407	596	115	1542	705	6
Computers per 1000 people	91	137	36	274	142	585	84	13	492	183	5
Internet users per 1000 people	114	152	30	314	207	522	164	29	521	210	6
<b>Indices for the pillars</b>											
Economic Incentives and Institutional Regime	3.8	4.6	2.8	5.7	5.4	8.2	4.7	2.7	8.7	5.2	6
Innovation System	4.4	6.8	5.3	8.8	6.9	9.9	6.5	7.2	8.7	8.8	8
Education and Human Resources	3.4	3.8	1.5	5.3	6.7	8.6	4.3	1.9	8.0	4.4	6
Information and Communication Technology	5.1	5.9	2.6	7.0	6.4	8.8	5.3	1.8	8.9	6.5	6
<b>Knowledge Economy Index</b>	4.2	5.3	3.0	6.7	6.3	8.9	5.2	3.4	8.6	6.2	6

\* The Arab region overlaps the Middle East and North Africa region and the Africa region as eighteen Arab countries fall within the Middle East and North Africa region, while the other four Arab countries – Mauritania, Somalia, Sudan, and Comoros – fall within the Africa region.

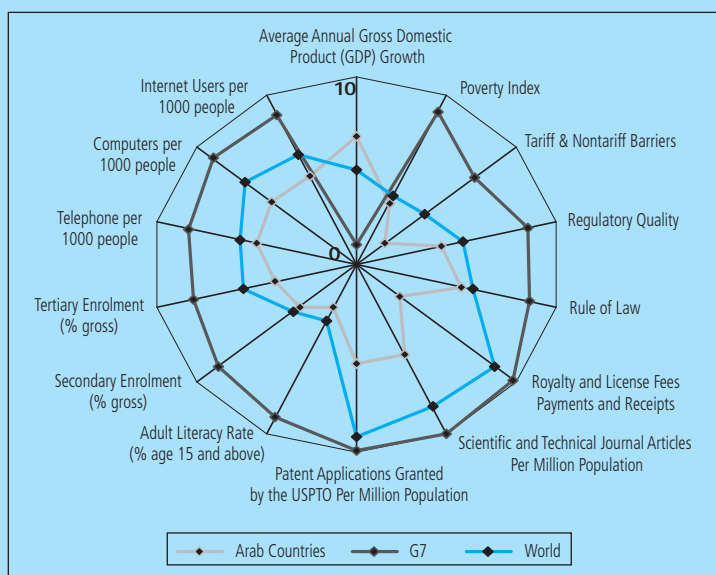
countries' rankings among the countries of the world vary from forty-third place for the UAE to 132<sup>nd</sup> place for Djibouti—which is fourth from bottom among the world's countries.

When the countries of the world are divided into four quartiles by KEI, it is to be noted that not one Arab country appears in the top quartile—that among countries whose KEI is 7.5 or more. In fact, no Arab country appears in the top 35 per cent. Eight Arab countries fall within the second highest quartile—countries whose KEI ranges from 5.0 to 7.5—and these are the six Gulf Cooperation Council states and Jordan and Lebanon. Seven Arab countries fall in the third quartile with KEI scores of 2.5 to 5.0: Tunisia, Egypt, Morocco, Algeria, Libya, Syria, and Iraq. The Occupied Palestinian Territories, in all probability, also come within this group. The remaining Arab countries come within the bottom quartile of the world's countries in terms of the knowledge economy, with index scores of less than 2.5, and these countries are Mauritania, Sudan, Yemen, and Djibouti. Somalia and Comoros would also be expected to come within this group.

Regarding the variation between the Arab countries and the rest of the world's countries, Table A-3 comprises, for the twelve indicators of the KEI and for two indicators of overall economic performance, a comparison of the Arab region as a whole with the world's eight geographic regions. From the last column of the table, it is noted that the Arab region scores lower than seven of these eight regions with respect to two indicators, scores lower than six of these regions with respect to eleven indicators, scores lower than five regions with respect to two indicators, and scores lower than four with respect to one indicator. The sole indicator for which the Arab region performs better than half of the world's geographic regions is the annual rate of GDP growth, where it achieved the third highest level after the East Asia and Pacific region and the Europe and Central Asia region. The high

FIGURE A-2

### Normalised values for indicators concerning knowledge for the Arab countries, the G7, and the world



Source: World Bank databases, Knowledge Assessment Methodology (KAM).

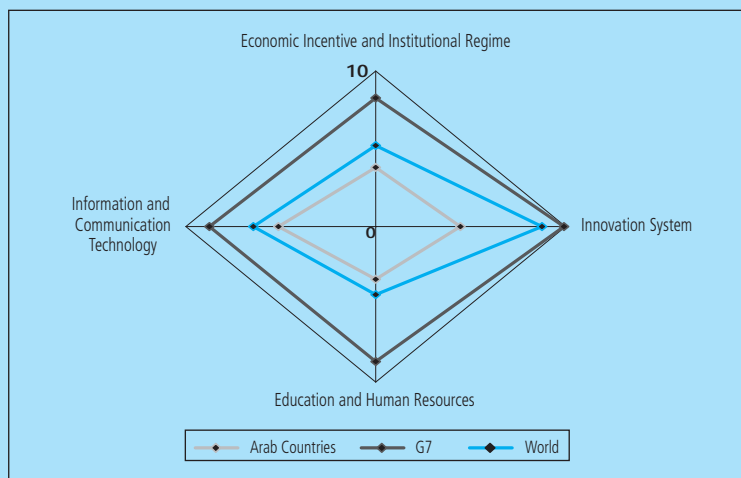
level of this indicator goes back in large part to the rise in world crude oil prices.

Figure A-2 presents a comparison of the normalised values of the above indicators between the Arab region, the world as a whole, and the G7 group of nations (Canada, France, Germany, Italy, Japan, UK, and US). This last group was chosen because it comprises the countries with the highest levels within the knowledge economy. The figure shows that the Arab region falls below the world median on all indicators with the exception of annual GDP growth rate. It also shows that the gap between the Arab region and the world median is particularly marked for the indicator on tariff and non-tariff barriers and for the three indicators of the Innovation System.

With respect to the pillars of knowledge, it is to be noted, from Figure A-3, that the Arab region comes lower than almost all other regions of the world on the Innovation System index. Regarding the indices of the other pillars of the knowledge society, there are only two regions, South Asia—which includes

FIGURE A-3

### Index values for the pillars of the knowledge economy for the Arab countries, the G7, and the world



Source: World Bank databases, Knowledge Assessment Methodology (KAM).

Bangladesh, Nepal, Sri Lanka, India, and Pakistan – and Africa, on a lower level than the Arab region. Figure A-3 clearly shows the depressed levels of the pillars of the knowledge economy in the Arab countries with respect to the average for the world's countries as a whole and for the G7 group of nations. This low performance is

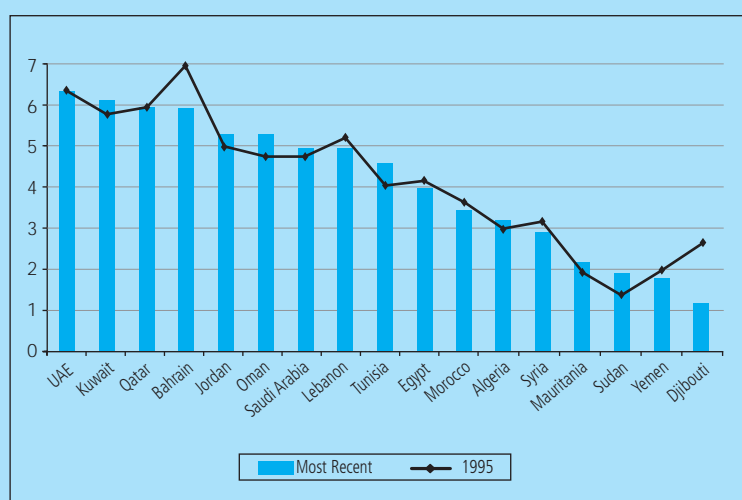
especially pronounced for the Innovation System pillar.

### THE EVOLUTION OF THE KNOWLEDGE ECONOMY IN THE ARAB COUNTRIES SINCE 1995

Figure A-4 compares KEI values for the most recent period for which data is available with 1995 levels for the Arab countries for which this index is available for both periods (see Statistical Annex, Table 4). The Arab countries are ranked in the figure according to the most recent index value. It is to be noted that the KEI score has risen for nine of the seventeen Arab countries included in the comparison. Oman and Tunisia achieved the highest increase, the KEI score for each increasing by 0.6. On the other hand, the KEI scores of seven Arab countries fell back. Djibouti stands out with its score falling from 2.7 in 1995 to 1.2 according to the most recent data. It should be pointed out here that a drop in the value of a particular indicator, and consequently in the value of a particular pillar or of the KEI, from one time period to another, does not necessarily mean a drop in the absolute score for the indicator. Rather it means that the relative position of the country for this indicator has fallen. Such a drop may occur even when the indicator value has risen, if the proportional increase is less than the proportional increases achieved by other countries that are contending with this country in terms of ranking.

FIGURE A-4

### The latest KEI compared to 1995



Source: World Bank databases, Knowledge Assessment Methodology (KAM).

### THE APPROPRIATENESS OF THE INDICATORS AND INDICES OF THE KNOWLEDGE ECONOMY FOR THE ARAB COUNTRIES

The indicators and indices of the knowledge economy were designed to make international comparisons that conform to the reality of the world's countries as a whole, and in particular from the perspective of the availability of data. On this basis, these indicators and indices do not take into account the specificities

of the Arab countries and suffer from many shortcomings when applied to these countries. The most important of these follow.

- Certain dimensions of knowledge deemed significant with respect to the Arab countries, such as the arts, culture, literature, and translation, are not part of the indicators and indices of the knowledge economy.
- The knowledge economy indicators concentrate on the quantitative and do not lend sufficient importance to the qualitative. The education indicators, for example, concentrate on the numbers of students enrolled in education but do not deal with the qualitative requirements of education in terms of qualified teachers, purpose-built buildings and science labs, the suitability of curricula and the extent of their implementation, and the fit between the specialisations of graduates and the requirements of the knowledge economy.
- Many of the indicators pay attention to the provision of the inputs and environments required to achieve knowledge, but not to its outputs. That is, they are biased towards the supply side in terms of the requirement for achieving the knowledge society and do not devote enough attention to the social and economic fruits of knowledge and to other aspects that are reflected in the life of society. Provision of ICT equipment and infrastructure, such as telephones, computers, the internet, and television, does not necessarily mean that these will contribute to the generation of knowledge. Indeed they may encourage time-wasting in futile activities at the expense of those related to knowledge. Similarly, increased research and development does not necessarily imply that the latter is put to use for the generation of economic returns and benefits to society.
- Some indicators included within the Knowledge Assessment Methodology do not express the variable targeted for

measurement. For example, the indicator on the number of patents granted by the US Patent and Trademark Office does not express the actual number of patents, because it does not include patents granted by national patent and trademark offices or by international offices outside the US.

### *STATISTICAL DATA ON KNOWLEDGE IN THE ARAB COUNTRIES*

The data related to knowledge indicators in the Arab countries very often suffer from gaps, inaccuracy, datedness, or irrelevance. These shortcomings in the data make it impossible or difficult to make accurate comparisons, to identify the factors linked to the points of strength and weakness in the state of knowledge, and to perform in-depth and in-detail analyses. These negative effects are particularly concentrated in the indices and countries which suffer to a high degree from the scarcity or datedness of the available data or from its weak capacity to express what is to be measured, while at the same time these very indices and countries are the ones most in need of development based on accurate statistical measurement and analysis.

The importance of statistical data in relation to knowledge is not limited to the purposes of measurement and analysis for which they have been used in this report. Rather, these data form one of the major elements of knowledge, particularly in those areas susceptible to quantitative assessment, such as the economy, sociology, medicine, and engineering, since it plays a vital role in coming to know and analyse reality, in predicting the future, and in decision-making.

### *AVAILABILITY OF KNOWLEDGE DATA FOR THE ARAB COUNTRIES*

To become familiar with the scope of knowledge data available in the Arab countries, we will use here the data of the

TABLE A-4

### Availability of knowledge indicators for the Arab countries included by the World Bank

Kind of indicator	Number of indicators	Availability of index indicators for latest period in 19 Arab countries		Number of Arab countries lacking data for the index in 17 Arab countries	
		Number of countries (country/indicator)	Availability rate (%)	Latest period	1995
Overall economic performance	9	16.1	85	..	..
Economic Incentive and Institutional Regime Index	19	16.9	89	1	8
Innovation System Index	24	11.4	60	11	9
Education and Human Resources Index	19	14.1	74	4*	0
ICT Index	12	14.8	78	0	0
All Knowledge Economy Indicators	83	14.3	75	11	13

\* The four countries that lack data for the index of the Education and Human Resources pillar for the latest period but did not lack such data in 1995 are Djibouti, Mauritania, Sudan, and Syria.

World Bank's Knowledge Assessment Methodology indicators in view of their clear features and the effort spent in collecting and updating them. According to the latest release of indicators, the number of indicators to have been calculated for each Arab country ranges from thirty-four to seventy-eight out of a total of eighty-three indicators, with an average of 61.2 indicators for each Arab country, in comparison with 74.0 indicators for the non-Arab countries. There are four Arab countries for which data is available for fewer than fifty indicators, nine Arab countries for which data is available for fifty to seventy indicators, and only six Arab countries for which data is available for more than seventy of the indicators. This is with respect to the nineteen Arab countries where it has been possible to calculate the KEI; the remaining Arab countries—Palestine, Somalia, and Comoros—suffer greater shortcomings in the data.

On the level of the pillars of the knowledge economy, Table A-4 shows that the pillar most lacking in data is the

Innovation System, where the average number of Arab countries for which the data for the indicators of this pillar is available amounts to 11.4 out of nineteen countries. That is, the percentage of data available for this pillar reaches only 60 per cent. It is worth pointing out that of the indices of the knowledge economy, this, at twenty-four, consists of the largest number of indicators, in comparison with twelve to nineteen indicators for the remaining pillars. This demonstrates the significance of this pillar in the Knowledge Assessment Methodology. The index for which data is most available is the Economic Incentive and Institutional Regime pillar, for which the data availability rate reaches 89 per cent.

#### *SOURCES OF KNOWLEDGE DATA ON THE ARAB COUNTRIES*

Sources of data about knowledge are either national or foreign. The foreign sources are represented by international organisations; foremost among these are the UN organisations, the World Bank, research centres such as the American

Freedom House and Heritage Institute, government offices such as the US Patent and Trademark Office, and other bodies. These bodies undertake the preparation of knowledge data by gathering and collating data available from other sources or by carrying out surveys or polls or on the basis of their administrative records.

The chief national sources for knowledge data in the Arab countries are the specialist statistical bureaux attached to government departments. At the forefront of these bodies is the national central statistical agency of the state which provides technical oversight and works to coordinate statistical activity within the state. Statistical departments are also usually to be found in some state agencies relevant to knowledge, such as the educational institutions, institutions concerned with ICT, and agencies that regulate industrial activity, foreign trade, investment, and intellectual property rights. The private sector in the Arab countries plays a limited role in the provision of knowledge data, although this role is starting to grow in some institutions operating in fields connected with knowledge, such as the private universities, mobile phone companies, and banks. The foreign sector also contributes to the provision of data concerning knowledge in the Arab countries, especially in the Gulf countries where this sector is active in education, commerce, technology transfer, ICT, finance, and others.

It is possible to divide sources of knowledge data into two main kinds on the basis of how they gather this data: administrative data and statistical survey data. By administrative data is meant the data extracted from the records of the bodies that provide services, such as educational institutions, phone and internet companies, banks, and the agencies concerned with regulation of trade, industry, property rights, and others. The most significant feature of administrative data is its availability in detailed form and for time periods that may extend many years into the past. However this data, being a by-product of undelimited specifications

and unsorted with regard to its relevance to knowledge, may not be expressive. It is frequently not ready for use and statistical processing and tabulation may be required in order to render it of use. Administrative data from some agencies also overlaps with data from other agencies or is incomplete and limited to the activity of the specific agency.

Knowledge data extracted from statistical surveys includes the data from periodic sector-based surveys, such as those of industrial, service, and financial institutions that are implemented seasonally or annually, comprehensive censuses such as population, residential, and economic institution censuses, opinion polls, and specialist statistical surveys. In the Arab countries, statistical surveys and publications devoted to knowledge are rare, with the exception of the basic attempts of some Arab countries to gather and publish data related to science and technology, which for the most part concentrate on the numbers of those working in research and development activity and expenditure on these activities. In comparison with data extracted from administrative records, knowledge data extracted from statistical surveys is distinguished by its greater conformity to the requirements of the data users, having been designed to serve these. However, collection of such data requires the devotion of financial resources and the availability of statistical expertise and other requirements which make most of it available only for limited time periods and for limited areas of knowledge.

The sources of data for the knowledge indicators in the Arab countries differ according to the indicator. Data for some indicators is available from a number of sources, while at the same time data for other indicators is available from only one source or not available at all. It is of course preferable for data for an indicator to be available from more than one source, provided that such data are mutually complementary and consistent. However, data for the same indicator from different sources are often mutually inconsistent or

even contradictory. For example, data for the indicator on enrolment in a specific stage of education extracted from the records of the educational institutions may not be consistent with those extracted from family surveys because of the difference in the time period, the beginning or end of the school year, how enrolment is defined, the coverage of those enrolled, and other methodological factors.

In general then, there are severe shortcomings in knowledge data within the Arab countries, because interest in collecting these data remains recent. At the time when these data are becoming relatively available with respect to some fields of knowledge, such as education and communications, they remain almost non-existent in other fields, such as those connected to research and development,

the publishing industry, patents, literary and artistic production, the media, and translation. In the face of these shortcomings in knowledge data about the Arab countries, it was decided, for the purposes of the present Report, to conduct a statistical survey to examine the opinions of those concerned with knowledge. Implementation was, however, postponed because of the delay such a survey would cause to publication of the Report, and because postponement may be beneficial in light of the increasing fine-tuning of the diagnosis of the reality of knowledge in the Arab countries, of the priorities and subjects on which data should be gathered, and of the best formulations for gathering and tabulating this data that the current Report sets out.

## Endnotes

- \* This annex was prepared by Mohammed H. Bakir in the third quarter of 2008.
- <sup>1</sup> World Bank website (Knowledge Assessment Methodology), [http://info.worldbank.org/etools/kam2/KAM\\_page3.asp?default=1](http://info.worldbank.org/etools/kam2/KAM_page3.asp?default=1).
- <sup>2</sup> The values given in the table differ slightly from the values shown on the World Bank website. This is because the addition of data concerning Iraq, Libya, and Sudan alters the total number of countries included, and in consequence their rankings, which means a change to the normalised values of the indicators.

