

The image features a central blue square containing the text "Economy Index" in white. The square is surrounded by a pattern of grey arrows pointing upwards and to the right, creating a sense of growth and progress. The background is white, and the overall design is clean and modern.

Economy Index

Introduction

During the pre-industrial era, land and labour were the main resources of wealth; with the onset of the industrial era they were replaced by capital and labour. In today's post-industrial era, the main factor of production has shifted to knowledge, whereby its production, distribution, and use have become the key stimulants for growth. This has been accompanied by a shift from manual labour to knowledge-based labour. Knowledge has therefore become a new form of capital, consisting of ideas, experiences, and practices.¹

The value of knowledge as a new economic resource lies in its distribution and integration into production systems that contribute to increasing the competitiveness of human capital. Knowledge capital today is therefore considered to be more important than financial capital and can be considered as the fifth factor of production, adding to labour, land, capital and entrepreneurship.

The application of knowledge, especially through the technology that it stimulates, in development and improvement of the quality of goods throughout all stages of production and across all sectors has had a positive impact on economies, resulting in increased gross domestic product (GDP), job creation, and adoption of innovative methods. This in turn has improved productivity in human and financial resource management, and business administration as in the case of the digital revolution, which has reshaped business operations and relations with other local and international sectors, resulting in increased profits and capital.

Mohamed Diab notes that the concept of knowledge underwent its greatest transformation during the scientific and technological revolution that occurred in the final quarter of the twentieth century. According to Diab, this set in motion major transformations in the field of information and communications that saw the latter become a new strategic resource to complement natural resources in the dynamics of an economy, giving rise to what is generally known as the 'knowledge economy' or the 'knowledge-based economy'.²

The Economy Index is presented here as a tool to better understand the relationship between knowledge and economy and facilitate efforts to monitor various elements of a knowledge based-economy to better inform related policies in different sectors.

Formulation process and initial structure of the index

The Economy Index was developed following extensive review of economic literature, discussions within the AKI team, and consultations with experts and stakeholders.³ The index constituents were thus compiled in two interconnected levels. The first level is comprised of three main pillars: *organizational performance and human resources*; *competitiveness and creative development*; and *economy-related ICTs*; the second level is derived from the first and encompasses the sub-pillars of the index.

The first pillar, *organizational performance and human resources*, constitutes the backbone of the Economy Index, and is therefore assigned the highest weight among the pillars (50%). The other two pillars, namely *competitiveness and creative development* and *economy-related ICTs* are assigned relative weights of 30% and 20%, respectively.

All sub-pillars were assigned equal relative weights, regardless of the main pillar they fall under, as a means to avoid potential bias.

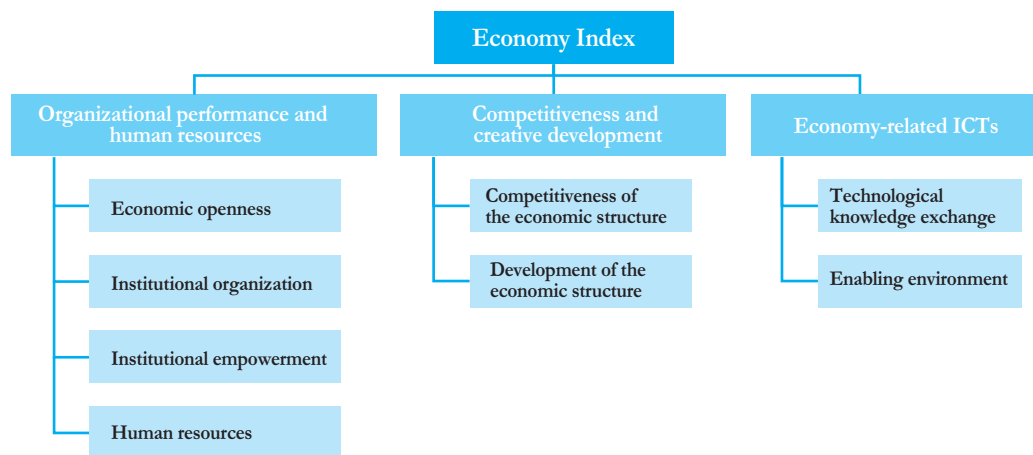
Figure 17 shows the structure of the 2015 Economy Index.

The first pillar, *organizational performance and human resources*, contains three sub-pillars that are directly related to economy, and a fourth sub-pillar, *human resources*, which represents the relationship between economy and education.

The second pillar, *competitiveness and creative development*, focuses on processes and procedures related to business development and execution. These processes serve as the main incentive for developing economic structures based on knowledge that can be acquired through facilitating procedures for foreign direct investment. Such investment results in increasing a country's exposure to new knowledge, global

Figure 17:

The structure of the 2015 Economy Index*



* The names have been updated to include changes resulting from the 2016 revisions.

standards and its ability to attract the finest skills and expertise available in the world market, especially at the level of production and production enhancement. This is reflected in the variables *starting a business, procedures* (number of procedures to start a business), *starting a business, time* (number of days to start a business), and *foreign direct investment, net inflows*.

The third and final pillar, *economy-related ICTs*, highlights the role of ICT in connecting economy to knowledge channels worldwide. The corresponding sub-pillars demonstrate a qualitative overlap between economy and ICT sectors, two of the six sectoral indices that make up the Arab Knowledge Index.

It is worth noting that the Economy Index takes into consideration the specific characteristics of each country, especially in the sub-pillars *enabling environment, human resources, development of the economic structure, technological knowledge exchange, institutional organization* and *institutional empowerment*. The index builds on the individual economic infrastructure and superstructure of each country, whether in terms of institution-building, legal frameworks, global communication, or local competitiveness.

Revisions

Taking into account the feedback from experts and readers, the AKI core team held several meetings to discuss and improve the

conceptual foundations and pillars of the 2015 version of the index, and to enhance the connectivity between the Economy Index and the five other indices covering pre-university education; technical vocational education and training; higher education; information and communications technology; and research, development and innovation.

Revisions applied to the main structure

Based on the reviews and discussions, no revisions were made to the main structure of the index (pillars and sub-pillars).

Revisions applied to the variables

Most of the changes were applied at the level of variables related to the *organizational performance and human resources* pillar and the relative weights were redistributed accordingly. This was due to the special focus attributed to this pillar given its essential role in reflecting an economy's ability to generate, attract, accumulate, and utilize knowledge.

The added variables are: *high-technology exports as a percentage of manufactured exports* (economic openness sub-pillar); *Corruption Perceptions Index* (institutional organization sub-pillar); *World Press Freedom Index* and *percentage of bank deposits to GDP* (institutional empowerment sub-pillar); and *percentage of gross enrolment ratio in tertiary education for both sexes* and *percentage of graduates from tertiary education graduating in science, engineering, construction and manufacturing for*

both sexes (human resources sub-pillar). Every time a variable was added, the total relative weight of the sub-pillar was again divided equally among all its variables.

The *high-technology exports (% of manufactured exports)* variable reflects an understanding that exports are generally among the most important indicators of knowledge exchange and localization among countries, and can indicate the level of knowledge accumulation by the exporter. Each country introduces, through its exports, elements that serve as inputs for the recipient country to create their own products ready for export—which may be regarded as the ‘added value of exchange.’ Exports with high-technology components are a good example of knowledge exchange among countries. Consequently, an increase in the percentage of high-technology exports as a percentage of manufactured goods constitutes a positive element in the exchange of knowledge.

The *Corruption Perceptions Index* variable is based on the index issued by Transparency International on an annual basis. It is considered an important indicator for evaluating a country’s proper use of economic resources, foreign investment and the equal distribution of income. These three aspects are fundamental constituents of knowledge-based economies. The flow of foreign investment facilitates the transfer of knowledge from one place to another. The proper use of economic resources reflects the quality and efficiency of legal and organizational frameworks, especially in prohibiting resource monopolies including the transfer and localization of knowledge related to economy. Finally, equal distribution of income implies that more people have access to information and knowledge and are able to develop their capabilities in a just, transparent, and impartial environment.

The addition of the *World Press Freedom Index* variable might seem controversial, but it is in itself a component of the superstructure used to transfer knowledge to economies without barriers. Censorship might prevent knowledge and information from reaching all members of society. Freedom of press is also an important element in countering corruption, and helps attract foreign investment as it reflects the existence of a framework for guiding governance,

enhancing transparency and integrity, and of an environment tolerant of criticism.

The *bank deposits to GDP (%)* variable reflects the banking system’s capacity to achieve growth and development based on its ability to attract and utilize deposits. The state of the banking system is considered an important part of a country’s economic development course. This variable also reflects the relative level of development of a nation and enables a year-to-year evaluation of achieved economic development.

From an economic point of view, the *gross enrolment ratio, tertiary, both sexes (%)* variable reflects the level of accumulated knowledge, as well as the positive contribution that higher education offers to economic productivity, particularly in terms of developing the human element; such development is achieved using the abilities, skills, and information endowed by higher education including language skills, computer skills, research and analytical skills and critical thinking skills, etc.

The inclusion of the variable, *percentage of graduates from tertiary education graduating from science, engineering, construction and manufacturing, both sexes (%)*, reflects the assumption that graduates in these disciplines are among those best qualified to advance the development, localization, production and distribution of knowledge.

Regarding the second pillar, *competitiveness and creative development*, one variable was added to the *development of the economic structure* sub-pillar: *science and engineering articles in all fields* combined to reflect quantitative measure of scientific research and development. Scientific publications, especially in the field of technology, reflect an economy’s real research and development capacities; they also reflect local competitive capabilities, and local incentives to develop a country’s competitive and creative capacities. Such incentives are the main stimulants of knowledge production, localization and exchange between countries. The total relative weight of the sub-pillar (0.5) was redistributed equally among all six variables.

For the third and final pillar of the Economy Index, *economy-related ICTs*, the *Government Online Services Index* variable was added to the

Table 5:**Changes applied to variables in the 2015 Economy Index[†]**

Variable	Modification
Organizational performance and human resources pillar	
High-technology exports (% of manufactured exports)	Added
Corruption Perceptions Index	Added
World Press Freedom Index	Added
Bank deposits to GDP (%)	Added
Percentage of graduates from tertiary education graduating from science, engineering, construction, and manufacturing, both sexes (%)	Added
Gross enrolment ratio tertiary, both sexes (%)	Added
Competitiveness and creative development pillar	
Science and engineering articles in all fields combined	Added
Economy-related ICTs pillar	
Government Online Services Index	Added

[†] The names of the pillars have been updated to include changes resulting from the 2016 revisions.

enabling environment sub-pillar. It illustrates the country's ability to employ information and communications technologies to support knowledge transfer and economic development by offering public services through digital means and at a suitable cost. These time-, effort- and resource-saving initiatives feed into increased competence, efficiency and productivity, and enhance the country's attractiveness for investment.

Table 5 summarizes all the changes made to the variables of the 2015 Economy Index.

Revised structure (2016 version)

No changes were made to the main structure of the 2015 Economy Index. Accordingly, Figure 17 reflects the current configuration of the index as well.

Results

The results of the AKI Economy Index ranged between 83.1 (United Arab Emirates) and 15.09 (Somalia). This shows a wide disparity between Arab countries, with some making swift advances towards becoming globally competitive while others - mostly those suffering from crises or conflicts - experiencing economic collapse. With

the highest score achieved, the United Arab Emirates stands out among all other countries, including those with high rankings.

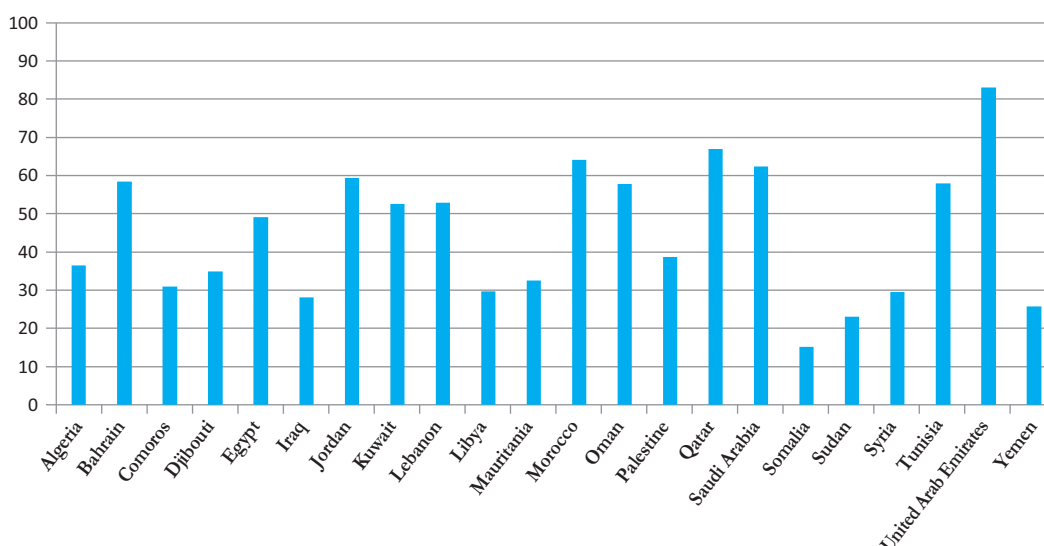
Regarding the main pillars of the Economy Index, the results show that apart from the United Arab Emirates, which ranked high on the *economy-related ICTs* pillar, most countries with high scores performed best on the *competitiveness and creative development* pillar, followed by the *organizational performance and human resources* pillar. Correlation coefficient analysis showed very strong positive correlation (0.819) between these two pillars. Correlation coefficient between the *organizational performance and human resources* pillar and the *economy-related ICTs* pillar was 0.547.

The results of the sub-pillars show some common trends in the economies of most Arab countries. With the exception of countries that are politically unstable, most Arab countries scored above 50 in terms of *institutional organization* and *institutional empowerment*. This suggests that these two sub-pillars are functioning well in most Arab economies that are not experiencing political and social instability, including in the areas of *regulatory quality*, *rule of law*, *soundness of banks*, *laws relating to ICTs* and *government effectiveness*.

It is worth mentioning that the GCC countries scored highly on all the sub-pillars of the

Figure 18:

Results of Arab countries on the Economy Index



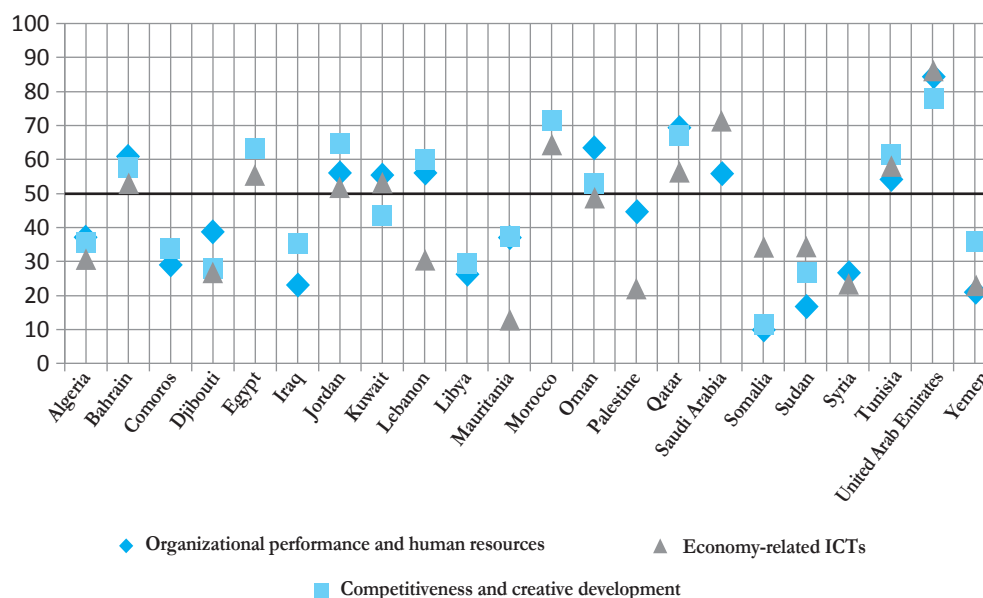
organizational performance and human resources pillar. Most Arab economies, with the exception of the United Arab Emirates and Oman, did not do well on the economic openness sub-pillar, which suggests that Arab economies are not largely involved in international trade.

The results also indicate an urgent need to focus on developing human resources in the Arab region, as the vast majority of Arab countries received low scores on the human resources sub-pillar.

As for the competitiveness and creative development pillar, the results were balanced among most countries that are not facing political or social instability problems. This indicates that Arab countries are keen to develop their economic structures and improve their competitiveness by simplifying the procedures required to start a business, computerizing some of these procedures, and attracting foreign capital. Scores were remarkably varied in terms of the development of the economic structure, especially in relation to variables evaluating the value added of

Figure 19:

Results of Arab countries on the main pillars of the Economy Index



manufacturing (as a % of GDP), e-government services, venture capital availability, and expenditure on R&D. This highlights the need for greater efforts to develop the economic structure around all of these sub-pillars in a balanced manner.

Looking at the sub-pillars of the *economy-related ICTs* pillar, there is wide variation between the results of Arab countries, with only few excelling in this area (Morocco, Saudi Arabia and the United Arab Emirates). This suggests that Arab countries are making little effort to develop an ICT infrastructure that supports their economies (*enabling environment* sub-pillar). Furthermore, they are not making any tangible progress in terms of *technological knowledge exchange*. In both areas, the United Arab Emirates was a unique case of excellence, scoring much higher than the rest of the Arab countries. This can be explained by the country's interest in advanced technology, smart government, and innovation. The United Arab Emirates's success story could encourage other Arab countries to

adopt similar approaches in order to improve their rankings. This highlights the important role of technological capital today in strengthening the economy, putting the country on the world economic map, being connected with the tools and channels of international trade and foreign investment, and creating capital.

The data provided by the AKI 2016 Economy Index may help decision makers devise policies to improve the economic environment, strengthen links between components of the local economy, and meet the requirements of the global economy. Although this analysis does not seek to rank countries, the results show that some Arab countries have come a long way in developing their economies through reliance on their accumulated knowledge, and learning from other countries' practices. Given the similarities across the Arab region, while taking into account national specificities, there is scope to enhance cooperation and joint action among Arab countries and to benefit from regional successful experiences.

Endnotes

- ¹ Diab, 2009 (in Arabic).
- ² Ibid.
- ³ UNDP and MBRF, 2015.

