

Knowledge-Based Economy Performance Indicators: A Comparative Study with a View of Iraq's Situation and Strategy in Transition Towards A Knowledge Economy

Asst .Prof. Dr. Ahmed.H.Al-Husayny

Al-Mustansiriyah University Banking and Finance Sciences Department

Mail:dr.ahmad_hamdy@uomustansiriyah.edu.iq

Abstract

Knowledge has become a strength in all spheres of social, economic and financial life. Technological progress plays a prominent role and importance in the development of production processes, The development of knowledge in all its elements has played a prominent role in changing the nature of economic and financial relations between the countries of the world. The present study, through two detailed chapters, will attempt to clarify the importance of the knowledge economy by addressing performance indicators and comparing the status of Iraq's economy in the field of knowledge with other countries by addressing the concept of knowledge-based economies and some indicators directly related to the development of knowledge-based economies. The study has reached a set of conclusions of the most important ones. Knowledge has become an essential component of modern production and an important economic resource in modern economies. Rather, it has become the new strategic resource in economic life and its features emerge from two fundamental realities: knowledge and human accumulation on the one hand, and the skills and capabilities that have resulted in this cognitive build-up that has improved many countries' living standards and well-being.

The tremendous progress and development of networks, information systems, and their applications have opened up new prospects for the dissemination of knowledge and the realization of many benefits that have enabled many ambitious countries to progress, reduce the knowledge gap, and develop and position their potential.

Keywords: Knowledge, Gross domestic product, Iraqi economy, Knowledge-Economy, Communications.

Introduction

Knowledge Economy: has become an important knowledge tributary, whether in terms of economic theory, intellectual and methodological frameworks, or at the level of practical applications and different areas of life. This branch of economic knowledge has become a pivotal tool in measuring the ability of countries to possess the causes of progress and the



ingredients necessary for the success of their development plans and programs. The world shifted from an existing economy based on muscular and physical strength in production to a digital economy based on the human mind as a major source of knowledge accumulation.

The knowledge economy raises many questions that have resulted in a general call targeting researchers, scholars, decision-owners and makers, as well as politicians, for the need to develop a theoretical framework that controls its inherent dimensions at the level of economic thought and embodies the mechanism of its application, to enrich the reality with real images that contribute to the processes of controlling the features of economic policy.

Iraq: is not exempt from this knowledge supply that opens a broad horizon for integration into the knowledge economy system. Still, several challenges hinder this integration, which is the extent of the exhausting Iraqi economy's readiness to simulate this new economy in search of deepening building and construction opportunities and raising levels of sustainable development.

1- Research objective:

There is no doubt that knowledge represents the basic characteristic of human society, through which man was able to achieve profound transformations that covered almost all aspects of life, as the knowledge-based economy became the primary engine of economic competition through increasing rates of production and demand for new technologies and ideas, as the possession, the means of knowledge and their proper orientation and investment with high efficiency through the integration of skills and innovations to form a basis for the transition towards a knowledge-based economy, and today it is no secret to anyone that there is a global movement to benefit from the information revolution and the technological revolution to confront economic and social diseases ((such as poverty and unemployment)). Within the framework of the government program adopted by the Iraqi government to improve the economic and living conditions in the country through the adoption of economic policies that would raise economic growth rates and achieve sustainable economic growth, the importance of this research comes through examining some of the indicators that we believe are necessary to measure the readiness of the Iraqi economy to shift towards Knowledge economy, based on the experiences of some countries that have come a long way in this regard.

2- The importance of research:

The importance of research is evident from the utmost importance of the shift towards a knowledge-based economy and building a new knowledge-based economy as a basic engine of economic growth and knowledge and scientific human resource development in order to be able to deal with modern and advanced technologies and make a qualitative shift in the economic environment.

3- Research problem:

The dependence of the Iraqi economy the decades of the eighties and nineties until the present time on the revenues of production and sale of crude oil has caused structural imbalances in the overall economic activity, led later to the occurrence of a structural imbalance in the composition of this economy, it is very necessary to consider a fundamental solution to address



a unilateral problem of the Iraqi economy through the adoption of new economic policies that would help in the transition towards a knowledge-based economy, especially as Iraq today has become an important figure in the global economic, social and political equation, and therefore the research problem arises through the following questions:-

- 1- What are the most prominent indicators of a knowledge-based economy?
- 2- What is the extent of the Iraqi economy's readiness to move towards a knowledge economy?
- 3- What are the visions and strategies adopted by Iraq to shift towards a knowledge economy?
- 4- **Research hypothesis:- In light of** the current economic situation and at a time when the benefits of the industrialized countries are increasing from the knowledge-based economy, the knowledge gap between Iraq and the developed world is increasing. Iraq faces great challenges to keep pace with the developments in the global economy and integration into the new economy based on knowledge and technological development, and in spite of that Iraq possesses the human and material energies that enable it to face the challenges that hinder its transformation towards a knowledge economy, and therefore the research is based on the premise that,((the knowledge economy has positive effects on the economies that try to enter it, and the Iraq as part of the global economy system seeks to adopt the vocabulary, tools, techniques and pillars of the knowledge-based economy in order to try to break the dependence of its economy based on oil revenues.

5- Research methodology:-

The research adopts the descriptive method to determine the nature of the knowledge economy, its concept, tools, indicators, and the extent of Iraq's orientation towards it, in addition to using the inductive method to indicate the extent of the Iraqi economy's ability to shift towards a knowledge economy benefiting from the experiences of other countries.

Previous studies:

Research entitled ((Introduction to the Knowledge Society Economy)): published in the International Journal of Social Sciences.

A- By Paul. a. David and Dominic Foray, in which I reviewed the main topics related to the knowledge economy through the historical review of the emergence of the knowledge economy, and put forward a distinct theoretical framework through reviewing the experiences of some economies of knowledge-based countries, and the research has reached the conclusion that ((the growth of the knowledge economy is related mainly to the availability of high scientific, technical experiences, and the extensive use of information technologies))

B - Master Thesis entitled ((The Ideal Methodology for Employing Knowledge Economy in Achieving the Development Renaissance in Syria)) by the researcher Hossam Issa Hamdan in 2009, the researcher discussed the scientific applications of the knowledge economy and its basic features in Syria, and reached a conclusion that

That knowledge applications In Syria, it is still taking place in part of the value chain in some companies, although Syria possesses many characteristics, such as the strategic location, natural resources, scientific elites, leadership frameworks, and alternative energies.



First topic

Knowledge economy ... a conceptual framework

1- The emergence and concept of the knowledge economy:

It is no secret to anyone that the known production elements in the economic theory are (land, work, capital, organization), and in consideration of the developments that have occurred in the world today, especially in the fields of technology, a fifth productive element has been added which is (knowledge) and all which is related to this term of creativity and artificial intelligence and information, it is worth noting that the term, knowledge economy and knowledge society, his first use was in the twelfth chapter of the book (The Age of Discontinuity) by (Peter Drucker), and the writer distinguished between two terms (Knowledge Economy) and (Knowledge Based Economy), the first relates to practical economics knowledge whether in terms of costs related to administrative, intellectual and consultative processes, the second goes to the superstructure of knowledge, meaning the economic sectors that benefit from the products of knowledge that are the leachate of human thought and creativity.

The first reference to the knowledge economy came in 1945 by Friedrich Hayek in his research entitled (The use of knowledge in society). In his research, he attempted to count knowledge as a commodity, while the real attempt to study knowledge as a commodity came from (Fritz Machlup) through his scientific output embodied in the book (The Production and Distribution of Knowledge in the US).

The sources indicated that the knowledge economy came as a result of three transformations that affected human societies. From the primitive agricultural community to the industrial community, and up to the knowledge economy society. Technological development and progress has helped in these transformations, and if we want to give the concept of knowledge economy it can be said (it is that economy in which the production, distribution and use of knowledge is an essential element, and the main driver of all related processes With economic growth and employment in all fields) (1), it can also be defined as (an economic system in which qualitative and qualitative science represents the primary element of production and the driving force for wealth production) (2), and the Organization for Economic Cooperation and Development defines it as (that economy based mainly on The production, dissemination and use of knowledge and information) (3), while the United Nations Development Program 2003 defined the knowledge economy as (the dissemination, production, and employment of knowledge in all areas of socio-economic activity, civil and political society, and private life, all the way to progressively developing the human condition, i.e. focusing on human development This requires building human capacities and the successful distribution of human capabilities) and the World Bank knows it (is the economy that achieves an effective use of knowledge in order to achieve economic and social development, and this includes bringing and applying foreign knowledge in addition to adapting and adapting Quinn knowledge in order to meet his special needs).

2- Characteristics of the knowledge economy:

One of the most prominent features of the knowledge economy is its ability to create and use knowledge in various economic, social and human fields, meaning that one of the most prominent engines of the knowledge economy is innovation (Innovation), and if wealth is what



characterized the old traditional economy, knowledge is the basis of the comparative advantage gained. In the new economy, through the knowledge and innovations that result from it, economies can achieve higher efficiency in production processes and achieve more justice in distribution issues as well as adding qualitative and quantitative improvements in production and providing more options and opportunities in choosing between different goods and services. Either at the level of consumers or producers. Based on the above, it can be said that the most prominent characteristics of the knowledge economy are:

- 1- Individuals in the knowledge economy society are not only considered consumers of information, but rather as producers and makers of it.
- 2- Borders and distances do not represent an obstacle to the process of economic development or full integration into the global community, and what was facilitated by this task is the technological revolution in the field of communications.
- 3- Knowledge is available to all individuals and is provided in a way that suits the individual and collective needs of society in a way that facilitates the process of making decisions more rationally and in all areas of life.

Through extensive readings of the characteristics of the knowledge economy and the traditional economy, it can be said that the knowledge economy is distinguished from the traditional economy by the following advantages: - (4)

- 1- The knowledge economy relies mainly on qualified, trained and specialized manpower for new technologies.
 - 2- The knowledge economy is based on investing in the human resource as knowledge and intellectual capital.
 - 3- Relying on training and developing the capabilities of workers to ensure keeping pace with recent developments.
 - 4- The shift of production from the manufacture of material goods and services to the production and manufacture of knowledge services.
 - 5- Relying almost entirely on information technology to build a high-speed information system that responds to changes that occur quickly.
 - 6- Research and development is the main nutrient for change and development.
- There is a direct relationship between the income of knowledge makers and their qualifications.
- 7- There is a direct relationship between the income of knowledge makers and their qualifications.
 - 8- The knowledge economy is characterized by its high flexibility to meet the changing and increasing needs of societies, and is characterized by excellence

With openness and global competition, the absence of restrictions, borders or barriers has helped all countries, individuals and companies enter the knowledge economy community.

As for **Galbreath**, it looks at the characteristics of a knowledge economy through the following: - (5)

- 1- Globalization**
- 2- Extended adaptation to meet customers' wishes**
- 3- Staff / Skills- Shortage**
- 4- Focus on customer services emphasis**
- 5- Service Self Service**



6- Electronic Commerce

The following figure shows the most prominent differences between the knowledge economy and the traditional economy.

Table (1): Characteristics of the knowledge economy compared to the traditional economy

| Traditional economy | Knowledge economy |
|---|--|
| Investing in physical capital | Investing in knowledge capital |
| Dependence on physical effort in production | Mainly relying on intellectual effort |
| Market stability under competition that is often controlled by authoritarian bureaucracy | The dynamics of the markets operating under an open competitive environment |
| Mechanization is the primary engine of industrial economics | Digitalization is the primary driver of the knowledge economy |
| It aims to achieve full employment without specifying distinctive skills for worker performance | It aims to put a real value on wages and expand the use of highly qualified workers that respond to training and development |
| Subject to the law of relative scarcity, as its resources are exhausted in abundance | Subject to the law of abundance as its resources increase frequently |
| The agricultural economy is subject to the law of the law of diminishing returns (increasing costs), and the industrial economy to the law (stability of costs) while continuing to use | Subject to the law of increasing yields (decreasing costs), while continuing to use |
| The stability of the relationship between management and the workforce | The instability of the relationship between the administration and the workforce, as the principle of lifelong recruitment negates |
| The relationship between the business sectors and the state is not equal, as the state imposes its control and issues its orders according to requirements | The relationship between the business and state sectors is based on alliance and cooperation |
| The state and its economic trends | Not bound by time and place |

The second topic:

The pillars of knowledge economy and its indicators

1- The basic pillars of the knowledge economy:

By reviewing the concepts of knowledge economy and its characteristics, it is clear that this advanced type of economy mimics the human mind and deals with innovations as products that are put on the market and available to all, meaning that the knowledge economy deals with the (No Concretes), so it becomes difficult to place specific indicators for the knowledge economy, (6) Mach up has attempted to build the first formal framework for a knowledge economy consisting of six sub-sectors of the production sector, namely:

A- Education

B- Research and development

T- Artistic creativity



W- Information Technology

C- Information services

H- Means of communication

The most prominent pillars of the knowledge-based economy can be clarified by formulating the following equation, which clarifies the ground that has been adopted by the economies of countries that switched from the traditional economy to the knowledge economy:

$$\mathbf{AUK = ANDI + CAV + RI + PNY + PK + ASI}$$

Whereas:

AUK: - Availability of Useful Knowledge

ANDI: - Ability to Discover New Idea.

CAV: - Characteristics Additional Value

RI: - Registering Of International

PNY: - Prove Of New Information

PK: - Protecting Of Knowledge

ASI: - Absolute Sharing Of Information

These elements are: - (7)

1- The ability to discover new ideas (ANDI):- It depends on the existence of a database of information, the existence of a good educational system, the existence of a program of incentives, and good competitive programs that allow the acquisition of new experiences

2- Distinguished Extra Value (CAV):- This depends on the quality of scientific research and the ability to innovate and create. And share knowledge.

3- Information Registration (RI):- It depends on the development and technological progress and the desire for documentation.

4- Proof of new information (PNY):- It depends on the extent of the existence of the new facilities, which in turn lead to work judgment, and the ability to implement and implement solutions.

5- Protection of knowledge (PK):- This depends on the existence of a strong law to protect intellectual property.

6- Absolute information sharing (ASI):- This depends on the establishment of seminars, workshops and conferences that are characterized by brainstorming, and the availability of the desire to share information and achieve the maximum benefit from it.

There are also some other sub-specific pillars which are called (**Knowledge Production Indicators**) which are considered

Necessary for the economies that intend to move towards a knowledge economy and indicators of knowledge production are:- (8)

1- **Patent:** It is a temporary right of monopoly granted by the government to the inventor in exchange for publishing the invention for a limited period of time, and that the outcome of patents within the framework of the internal system of science and technology constitutes an overall indicator of the development and progress of the technological state of the country.

2- **Expenditure on research and development:** - One of the most important advantages of research and development in stimulating sustainable economic growth through the development of technology that serves production and improves its quality, as spending on research and development, centers for innovation and creativity development and containers of



ideas (**Think Tank**) all lead ultimately to payment The wheel of sustainable economic development forward

3- Scientific publishing:- Knowing the extent of scientific and knowledge capabilities in any country depends on the quantity and quality Scientific Publications

4- Preparing workers in the production of knowledge and workers in research and development: - One of the most important inputs to the process of knowledge production is the quantity and quality of workers in the cognitive field, as highly qualified human cadres are among the most important elements of work in research and innovative activities necessary to produce knowledge.

The report indicates the Arab Knowledge Report for the year 2016 that the Arab Knowledge Index sector includes the following effects:

Pre-university education index

Technical Education and Vocational Training Index

Higher Education Index

Influence of information and communication technology

Economy Index

Research, Development and Innovation Index

It is noted that the previous indicators focus in more than one indicator on education, technology and innovation as the most important indicators that create the necessary ground for transformation and transition to a knowledge economy.

2- Knowledge Economy Measurement Indicators:

Through a review of the determinants of knowledge economics in the previous section of the research, it was emphasized that knowledge economics deals with intangibles, so it becomes difficult to define or establish specific methodologies for measuring knowledge-based economies, and there is no international consensus on specific indicators for measuring the knowledge economy, although There is an international interest in trying to find specific foundations by which to measure the indicators of the knowledge economy, but it is still available only at the local level for each country separately, and despite all of you, some international institutions and organizations have tried to lay down some methodological foundations for measuring the knowledge economy, which will be Exposed by my agencies:

The first indicator: The World Bank Index

This indicator focuses on the extent to which countries are able to produce, adopt and spread knowledge. The Bank Institute has worked on creating and developing a tool through which knowledge is measured and has called it (**Knowledge Assessment Methodology**) (**KAM**). This methodology consists of 148 variables to measure knowledge in 146 countries, and is based on four basic pillars:-

1- The Economic Incentive and Institutional Regime

2- Education and Human Resources

3- Information and Communicational Technology

1-Innovation System:

And these indicators are evaluated with a degree ranging from (0-10), as the closer the value of the indicator to 10 indicates the strength of that indicator, the more it deviates from 10 and approaches 0 0 times the value of that indicator.



It is worth noting that (KAM) is an interactive tool to produce the knowledge index and its mechanism of action depends on indicators

Six to measure the knowledge-based economy (10):

- 1- Basic Scorecard: - Which uses 12 variables, allowing comparison between more than three countries
- 2- Special scorecards: It allows to choose any set of variables and compare no more than three countries using the most recent annual data.
- 3- Knowledge indicators: It consists of two sub-indicators, namely:-
Knowledge Index (KI), the Knowledge Economy Index (KEI)
- 4- Comparison over time
- 5- Comparing countries
- 6- World Map.

The second indicator: - OECD indicators:

This index is based on five main pillars and was established in 1996:

The first pillar: - Knowledge-based economy

The second pillar: - Information and communications technology

The third pillar: - Science and technology policies

The fourth pillar: - Globalization

Pillar Five: - Outputs and Impact

The third indicator: - APEC indicators:

This indicator aims to provide an analytical tool to enhance the effectiveness of using the knowledge economy. It was developed by the Asia Pacific Economic Cooperation in 1999, and this indicator is based on four main axes: (11)

- Business Environment
- Information and Communication Technology Environment
- Innovation System
- Human Resource Development

Fourth Indicator: - Australian bureau of statistics (ABS) indicators.

This indicator consists of five axes, three of which are basic and two to support the main axes, which are the economic and social impact. This index was developed in 2001 to measure knowledge of Australian society and the economy. The main points are (12):

- The axis of innovation and entrepreneurship
- The axis of human capital
- Information and Communication Technology
- The following figure shows the dimensions of measuring the knowledge-based economy in Australian society



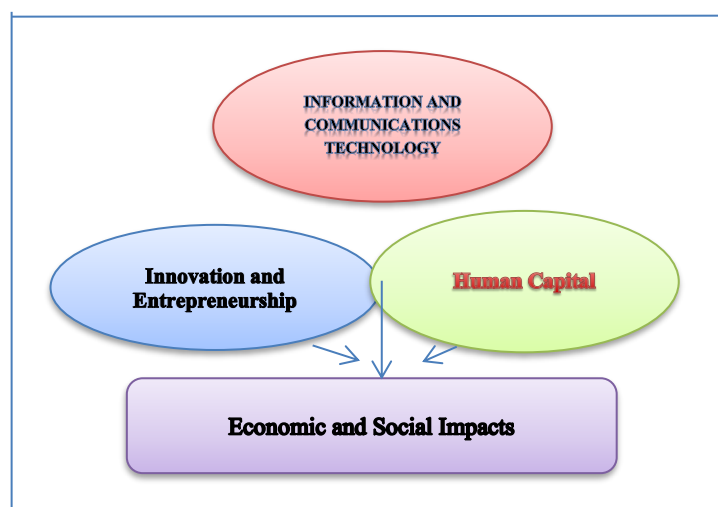


Figure (1)^(*)

INFORMATION AND COMMUNICATIONS TECHNOLOGY

Human Capital

Innovation and Entrepreneurship

Economic and Social Impacts

Fifth Indicator:- European Commission Knowledge Economy Indicators

In 2008 an indicator was introduced by the European Union as an attempt to measure indicators of a knowledge-based economy

This indicator is based on three main groups divided into sub-groups, Wakati (13)

The first group: - characteristics and motives, and is divided into:

1- Production and diffusion of information and communication technology, Production and Diffusion of ICT

1-1- The Economic Impact of the Information and Communications Technology Sector

1-2- Internet use by companies

In light of this reality that characterizes the Iraqi economy, the process of transformation and building an effective strategy for the transition towards a knowledge-based economy needs urgent steps, the most important of which are:

1- Restructuring and rationalizing public expenditures and making a significant increase in spending directed towards the cognitive sectors, from primary education through secondary education to university education with a focus on scientific research.

2- Working to create and develop human capital with high quality, and it is the responsibility of the state to create an enabling environment for this. Knowledge today is no longer an intellectual luxury but rather an important component of production.

3- Investors and companies operating in the private sector must create a certain awareness of the importance of a knowledge economy, as it is noticeable that the major international companies, especially those transnationals, contribute to financing part of the education of their

^(*)The work of the researcher.

workers and raise the level of their training and competence and allocate an important part of their budgets to research, development and innovation.

In light of the foregoing, we can discern that Iraq is one of the backward and faltering countries in the process of transition to a knowledge-based economy, as Iraq still has not allocated the most important part of its revenues to the system of education, higher education, and scientific research, and, as mentioned above, spending on education and scientific research The development of skills and capabilities is the necessary condition for building a knowledge base that facilitates the process of transition towards a knowledge economy. The following figure shows the structure of spending for the Iraqi state:

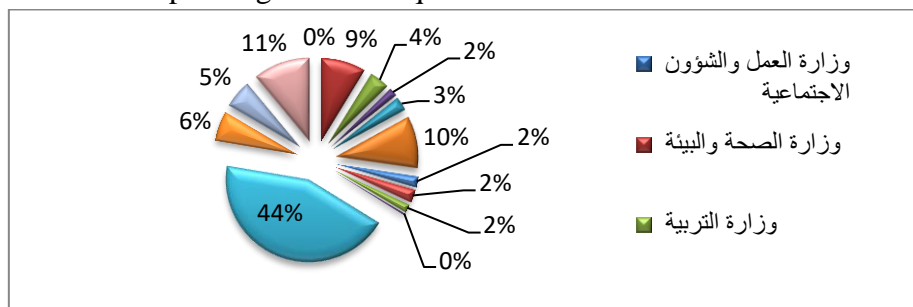


Figure 3 Government investment spending priorities for 2019 (*) (%)

* Source:- Federal Budget Law of 2019.

From the previous figure, it is clear how weak the allocations directed to the sectors supporting the shift towards a knowledge economy, as the investment allocations directed to higher education did not exceed (2%), just as the allocations directed to the Ministry of Communications did not exceed (0.88%), while the Ministry of Education was not a virtue Immediately from its predecessors, only 4% of the total investment spending was allocated to it.

In light of the foregoing, the process of transition to a knowledge-based economy in Iraq needs to build a real strategy that takes into account the difficulties that have been mentioned, neither the economic incentives nor the institutional system that exists at the present time contributes to creating a suitable ground for the transformation process, nor education and capacity building And human resource skills help with that as well, not to mention the availability of advanced information and communication infrastructure that can keep pace with global modernity and contribute effectively to protecting the shift towards a knowledge economy.

In this context, Przhedetskaya & Panasekova indicates "without developing the skills and competencies of individuals in any economic system in any country, the investment of human capital that is directed towards innovation is not achieved, and therefore the quality of growth is not available because it is the main driving force of the knowledge economy business. Management is a process. Defining and achieving the goals of the organization through the implementation of management functions while recruiting and using human resources. (15)

Based on the above, Iraq is still lagging behind other Arab countries that have come a long way in the area of transforming their economies towards a knowledge economy, and the following table shows that:

Table (3) Knowledge Economy Index for Arab Countries Compared to the World Countries (The value of the guide is within 135 countries in the world)

| Country | Economic incentives and institutional systems | Creativity system | Education and human resources | Information and Communication Technology | Knowledge Economy Manual | The gap between the highest anchor and the lowest anchor |
|-----------------------|---|-------------------|-------------------------------|--|--------------------------|--|
| Iraq | 0.3 | 4.2 | 2.4 | 3.6 | 2.6 | 3.9 |
| Kuwait | 7.0 | 5.0 | 5.1 | 7.3 | 6.1 | 2.3 |
| Saudi | 5.4 | 4.0 | 5.0 | 5.9 | 5.1 | 1.9 |
| UAE | 7.0 | 6.8 | 4.6 | 7.1 | 6.4 | 2.5 |
| Jordan | 5.8 | 5.7 | 5.5 | 4.6 | 5.4 | 1.2 |
| Morocco, West, sunset | 3.9 | 3.7 | 2.0 | 4.2 | 3.4 | 2.2 |
| Sudan | 0.7 | 2.0 | 1.3 | 3.5 | 1.9 | 2.8 |
| the two seas | 6.9 | 4.3 | 5.8 | 7.2 | 6.1 | 2.9 |
| Lebanon | 4.8 | 4.7 | 5.0 | 5.8 | 5.0 | 1.1 |

United Nations Development Program, Dar Al Ghurair Printing and Publishing, Dubai, United Arab Emirates, 2017, p. 235.

As for Iraq's ranking among the (135) countries compared to the countries chosen in the previous table, the following table shows it:

Table (4) Ranking within 135 countries in the world (*)

| Country | Economic incentives and institutional systems | Creativity system | Education and human resources | Information and Communication Technology | Knowledge Economy Manual | The gap between the highest anchor and the lowest anchor |
|-----------------------|---|-------------------|-------------------------------|--|--------------------------|--|
| Iraq | 135 | 78 | 106 | 89 | 108 | 57 |
| Kuwait | 43 | 66 | 66 | 36 | 47 | 30 |
| Saudi | 61 | 80 | 71 | 57 | 67 | 23 |
| UAE | 45 | 43 | 77 | 42 | 43 | 35 |
| Jordan | 55 | 55 | 57 | 73 | 62 | 18 |
| Morocco, West, sunset | 87 | 88 | 109 | 78 | 92 | 31 |
| Sudan | 131 | 122 | 120 | 96 | 120 | 35 |
| the two seas | 48 | 76 | 53 | 38 | 48 | 38 |
| Lebanon | 69 | 68 | 72 | 62 | 68 | 10 |

(*) Source: Previous

From the previous table, it is clear that Iraq, compared to other countries, is relatively late in the transformation towards a knowledge economy, but it appears that it has a comparative advantage in the innovation system, which can be invested in developing other late indicators,

as creativity is one of the main pillars of transformation and transition to a knowledge economy. It is well invested, it is possible to develop indicators and other necessary pillars.

Conclusions and recommendations

First: - Conclusions:-

1- Knowledge has become an essential component of modern production and an important economic resource in the modern economies. Rather, it has become the new strategic resource in economic life and features of this resource emerge from two basic facts, knowledge and human accumulation on the one hand, and the skills and capabilities that resulted in this knowledge accumulation Which led to the improvement of living standards and the welfare of many countries.

2- The tremendous progress and development in the field of networks and information systems and their applications has led to opening new horizons of spreading knowledge and achieving numerous benefits that enabled many aspiring countries to progress and reduce the knowledge gap and develop their potentials and status alike.

3- Regarding Iraq, the previous analysis made it clear that Iraq is still lagging behind the rest of the countries, especially the regional states in the field of knowledge, but having a comparative advantage in the field of creativity systems which is the primary engine of knowledge gives him a golden opportunity to develop other infrastructure that qualifies him to move to a knowledge economy Especially if government investment spending is directed towards research, development and communication development.

Second: - Recommendations:

In order to facilitate the transition of the Iraqi economy to a knowledge economy and build a real strategy for this transformation A number of recommendations and proposals must be adopted:-

1- The necessity of developing coherent plans for the infrastructure, especially with regard to communication networks through the development of existing technology, with an interest in achieving a high degree of information security, especially in the early stages of development.

2- The necessity of adopting media mechanisms for education on the importance of moving to a knowledge economy by adopting policies that create a kind of social conditioning and linking it to the labor market according to the need of the knowledge economy.

3- Focusing on institutional aspects, enabling and encouraging private sector initiatives and innovations through adopting approaches to cooperation and knowledge exchange.

4- Encouraging the incentives that drive the demand for knowledge through encouraging competition, promoting entrepreneurship and discovering new talents.

5- Restructuring the investment spending and reorienting it towards the fields that would create the spirit of initiative, innovation, research and development, and which support the systems of education, higher education, scientific research, communications and modern technology systems, as the main pillars of the transition to a knowledge economy.

6- Benefiting from the experiences of countries in the field of transition towards the existing economy to knowledge, especially those that have made strides in this regard.

7- Building new knowledge by increasing interest in basic research in this field.



8- The necessity of introducing knowledge economy courses in academic institutions and linking education outcomes with the labor market.

References

- 1- Abdul Khaleq Farooq, Knowledge Economy in the Arab World, Its Problems Approved Its Development, Issued by the Office of the Deputy Prime Minister for Media Affairs, Abu Dhabi, Printing and Publishing Company, Abu Dhabi, United Arab Emirates. 2005. P. 14
- 2- Murad Bug, Knowledge Economy and its Role in Achieving Economic and Social Development in the Arab Countries - Gulf Cooperation Council Countries as a Model - Research published on the website www.urninsaniah.Com, p. 2.
- 3- Abdul Rahman Al-Hashimi and Faiza Azzawi, The Method and Knowledge Economy, Al-Masirah House for Publishing and Distribution, Amman, First Edition, 2007, p.
- 4- Hashem Al-Shammari, Nadia Al-Leithi, and Knowledge Economy. The first edition, Dar Safaa for Publishing and Distribution, Amman - Jordan, 2008, p. 22, with disposition.
- 5- Ribhi Mustafa Alyan, Knowledge Management, Safaa House for Publishing and Distribution. Amman, Jordan, 2008, pp. 358-359.
- 6 Afzal, M.N.I., & Lawrey, RKBE Frameworks and Their Applicability to Resource - Based country: The case of Brunei Darussalam, Asian Social Science, Vol. 8, No7; June 2012. Retrieved Feb 3, 2015. from <http://www.ccsent.org/journal/index.php/ass/article/viewfile/176241/11806>.
- 7- Kbar, G., & Aldusary, A. A. Measuring the Effectiveness of Organizational Knowledge Based Economy. Electronic Journal Information System Evaluation. vol15. Issuel. 2012. Retrieved Jan 18, 2015, From <http://www.ejise.com/issue/download.html?idArticle:820>
- 8- Ahmed Salam Shamoun, Badr Salih Al-Aboudi, Symposium on Knowledge Economy and Analysis of the Path of Knowledge Economy in the Kingdom of Saudi Arabia, King Khalid University, College of Administrative and Financial Sciences, 2016, pp. 11-12.
- 9-Bassem Ghadeer Ghadeer, Knowledge Economy, Shuaa Publishing House, Science and First Edition, 2010, p. 91.
- 10- Chen, D.H.C., & Dahlman, C.J. The Knowledge Economy, the KAM Methodology and World Bank operations. 2005. Retrieved Dec 20, 2014. From <http://siteresources/WB/paper-WP-pdf>.
- 11- Apec, towards knowledge - based economies in Apec. 2000.
- 12- Australian Bureau of Statistics. Measuring a Knowledge - based Economy and Society: An Australian Framework • 2002.
- 13- Report “Knowledge Methodology Assessment - 2009 KAM .. The World Bank.
- 14- The National Strategy for Transformation into a Knowledge Society. The Queen transformed into a knowledge society and a knowledge-based economy 1436 AH.
- 15- Khaled Yassin Al-Sheikh, Knowledge Economy and its Role in Achieving Economic and Social Development, Damascus University. Higher Institute for Administrative Development. 2016,P.24.