

The reality of the knowledge economy in Algeria according to the Global Knowledge Index - An analytical study

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Abstract:

This research paper aims to analyze the state of the kE in Algeria according to Global Knowledge Index, with the intention, assessing the performance of its vital sectors and their readiness for Knowledge economy Indicators. The study found a variance in the indicators of the knowledge economy in Algeria, as per the GKI. Some indicators achieved positive results, such as pre-university education technical and vocational education and training, and the development of information and communications technology. However, there were weak results in areas like innovation and the enabling environment, along with moderate results in higher education and the economy.

Keywords: knowledge economy, Global knowledge index, information and communications technology , knowledge economy indicators.

Jel Classification Codes: O30, O33, P47.

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1. Introduction

As a result of the 4IR. and the use of ICT in the economic field, This led to the emergence of the concept of a ke. which is considered main driver of sustainable economic growth, In this context, many countries have started investing in education and innovation, strengthening information infrastructure, and providing a favourable economic environment for market transactions, which the World Bank calls the pillars of the KE. In the same context, Algeria, like other developing countries, is endeavouring to bring about a radical change in its economic policy by transforming into a new knowledge-based development model

In order to keep pace with the current global economic development process, which is characterised by challenges and opportunities to realise this transition. it's necessary vision for the future and an accurate diagnosis of the reality of the Algerian economy , international organisations work to assess this reality by building Indicators, that provide a scientific and practical tool, including the Global Knowledge Index.

1.1 Research Question :

"What is the reality of the knowledge economy in Algeria according to the Global Knowledge Index (GKI)?"

1.2 Sub-questions :

- What is the knowledge economy and what are its indicators?
- What are the opportunities and challenges of the KE?
- What is the position of knowledge economy indicators in Algeria?

1.3 Objectives of study :

- Introduce the concept of the knowledge economy and its indicators;
- analysing the reality of the knowledge economy in Algeria using the Global Knowledge Index;
- Known GKI index.

2. definition of knowledge economy :

Author	concept
(Walter W. & Kaisa , 2004, p 201)	as production and services ,That contribute of scientific advance
(hamza, 2021, p. 254)	Industry the information and data for knowledge

According to the above concepts, The knowledge economy, a modern approach based on technology, knowledge, tools and techniques

2.1 Distinguishing. between «information economy» and «knowledge economy» ,we illustrate, in the following table:

Table 1. different

information economy (IE)	knowledge economy (KE)
Of a more quantitative nature, it refers globally to the digital revolution and contributes largely to the diffusion in time and space of digital knowledge, through information and communication technologies (ICT). The costs of reproduction of information are almost zero and tend towards 0. Its value is also associated with its freshness. It concerns the creation, manipulation, processing, transmission, distribution and use of information.	It deals with cognitive capacities that generate knowledge, an economy in which investments are made in education and training, research and information systems, with a marked use of information networks. It is the economy of content, of virtual worlds and of digital creation, an economy of creation, of the audience, of the immaterial, of the ubiquity of the centers of production and consumption, with profound questions on the evolution of the notions of value, of property, of innovation, of consumption. An economy in which raw materials are skills, and the means of control and hoarding are no longer land or capital.

Source: (hamza, 2021, p. 225)

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Table 2. Characteristics , Drivers ,Strategy of knowledge economy

Drivers	Technological advancements : - AI , big data analytics - Democratize information access Globalization and digital connectivity : -connect the world
Strategy	- Investment in R & D - IP rights protection - Education and lifelong learning
Characteristics	-Intangible assets . - Data-driven insights - Optimiez operation and inform strategies - Innovation and IP
Key players	- Knowledge workers - institutions - Knowledge-based industries

Source: (Tamplin, 2023, p. 01)

The knowledge economy ,based on four pillars we illustrate, in the following table:

Table 3. the 4 pillars of the knowledge economy

1Pillar	2Pillar	3Pillar	4Pillar
The country's economic and institutional regime	Education and skills	Information and communication infrastructure	Innovation system
The country's economic and institutional regime must provide incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship	The country's people need education and skills that enable them to create and share, and to use it well.	The country's information infrastructure is needed to facilitate the effective communication, dissemination, and processing of information.	The country's information infrastructure is needed to facilitate the effective communication, dissemination, and processing of knowledge, assimilating and adapting it to local needs, and creating new technology

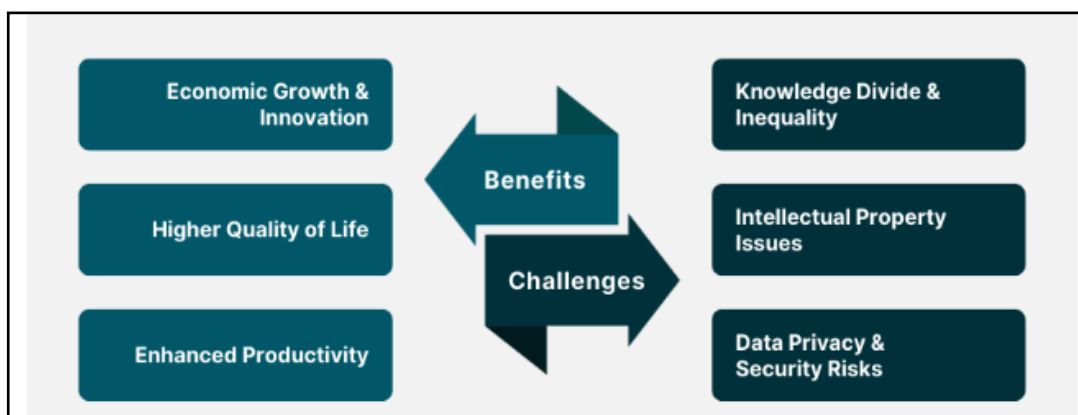
Source: (Madalina, 2012, p. 5)

These pillars are important, for the development of the knowledge economy because they include aspects related to organisations, skills and education.

In addition , Knowledge economy , has two pillars: human intellect and informatics ,The first one is stored in the minds of knowledge workers , The second is in the data available in media and the internet(guerini & abdallah , 2024, p. 82). Intellectual capital is one of the pillars supporting the knowledge economy. which includes creativity, innovation and competitiveness (siham & badri , 2023, p. 28

About the challenges and benefits, We present them in the following Fig:

Fig.1. knowledge economy between challenges and benefits

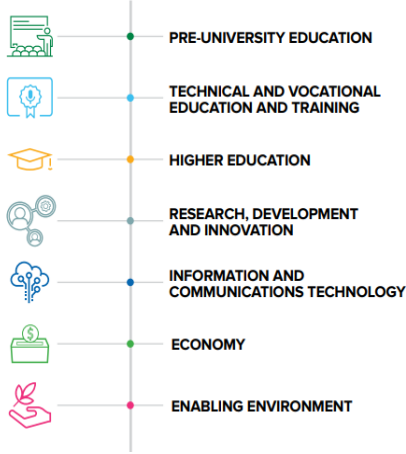


Source: (Tamplin, 2023, p. 01)

2.2 Knowledge economy indicators :

It is a strategic tool that helps countries measure their ability to support the knowledge economy and identify their strengths and weaknesses. This indicator is composed of :

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Fig.2. Sectoral indices	
	Knowledge capital: enrolment completion ,outcomes Educational enabling environment resources,early learning
	labour market firms offering formal training; labour force skilled workers
	Inputs- Learning environment -Outputs
	R&D –institutions Innovation-Quality Business development
	Infrastructure-Access-Usage
	Economic competitiveness and openness Financing and domestic value added
	Governance- Socio-economic Health and environment

Source: (GKI & MBRF, 2023, pp. 12-26)

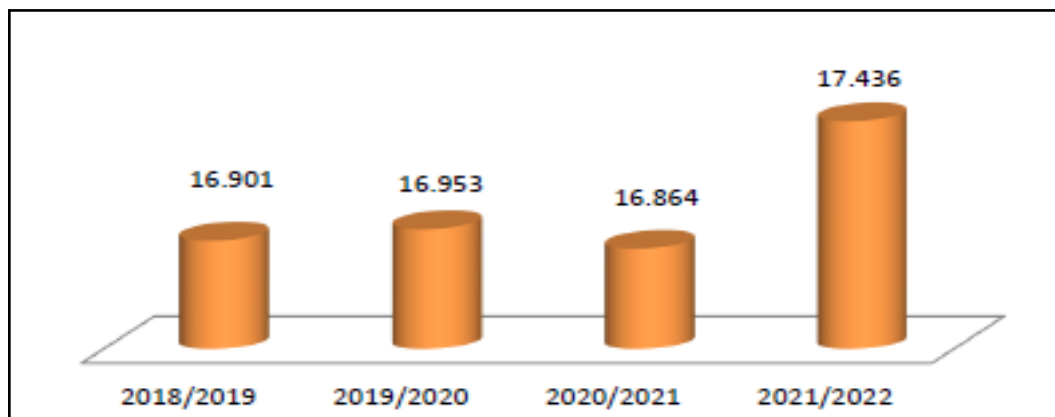
3. The reality the knowledge economy in Algeria :

In this section, we will try to project these indicators on the reality of the knowledge economy in Algeria. According to the latest version (GKI 2023) .

3.1 Pre university education :

In the academic year 2021/2022, the number of students enrolled in preparatory education was 541,100, compared to 500,276 in the academic year 2021/2021, an increase of 8.2% (40,824 more students), and for teachers, 19076 teachers were registered in the academic year 2021/2022 compared to 18,102 in the previous academic year, an increase of 974 new teachers (ONS, 2023, p. 03).

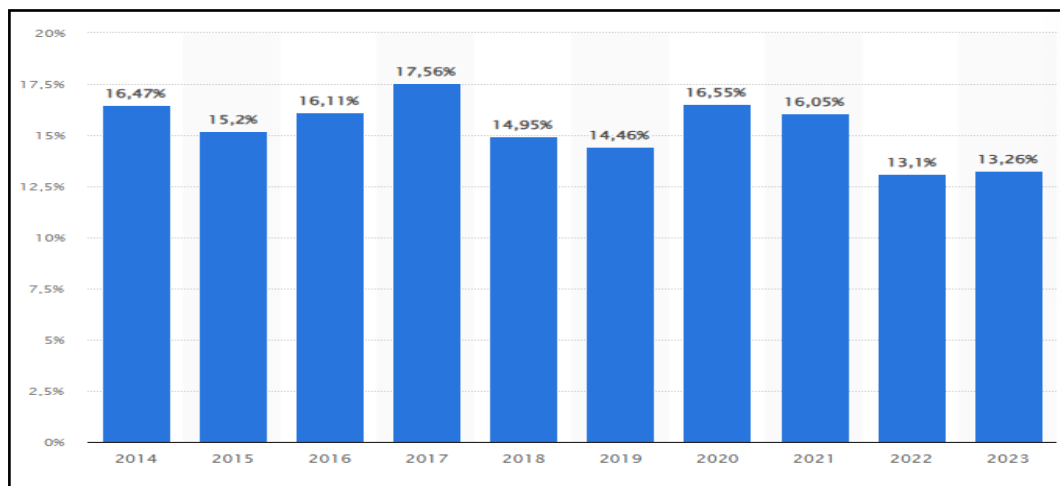
Fig.3. Evolution of the number of classrooms - pre-school education



Source: (ONS, 2023, p. 04)

As for public spending on education in Algeria. Statistics indicate that in 2023, remained almost unchanged. where it reached about 13.26 %, It can be illustrated by the following diagram:

Fig .4. spending on education in Algeria (2014 - 2023)



Source: (statista, 2024)

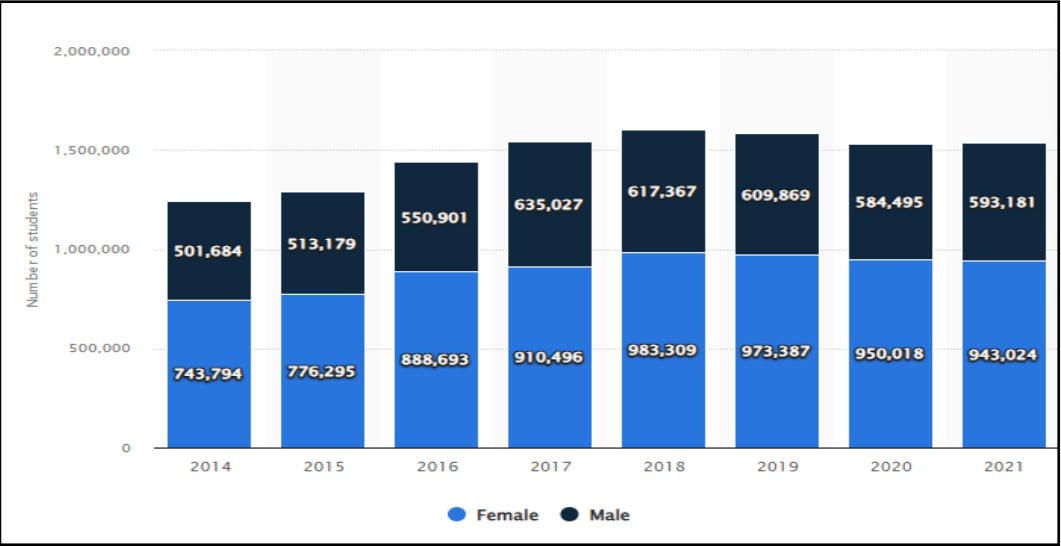
3.2 Technical and vocational –education and training :

The numbers indicate an increase ,in 2023 registered an additional of 51.43 % compared to 2022. This indicates the interest in promoting and developing education , but in 2024, the increase continued at a rate of 29.30 % compared to 2022. (mf, 2024, p. 01) .

3.3 Higher education :

Higher education in Algeria has witnessed slight changes in the number of enrolled students in recent years. In the 2020/2021 academic year, the number of students reached 1,534,513, and in the 2021/2022 academic year, 1,536,205.) (statista, 2024) Students , However, in 2023/2024, this number reduced to 1501941 (MESRS, 2024).

Fig .5. Position of student in -HE



Source: (statista, 2024)

The sector is also witnessing many developments, relying on modern technologies and platforms to improve the quality of education and facilitate access to information (Progress, Moodle...). These developments reflect the trend towards digital education, through the transition from the classical university to University 4.0.

3.4 Research Development and Innovation :

According to the Global Innovation Index 2024 (GII), Algeria ranks 115 out of 133 countries, which is very low compared to Arab countries such as Saudi Arabia, Qatar, and Tunisia; this ranking reflects the need to improve R&D investments, innovation environment, and digital infrastructure, in general Algeria faces significant challenges in the fields of innovation and technology.

Table 4. Algeria's ranking in the global innovation Index 2024

Ranking	Countries	Score-GII
01	Switzerland	67.5
02	Sweden	64.5
03	UAE	62.4
04	Singapore	61.2
47	Saudi Arabia	33.9
49	Qatar	32.9
81	Tunisia	25.4
<u>115</u>	<u>Algeria</u>	<u>16.2</u>

Source: (WIPO, 2024)

3.5 Information and Communication technology :

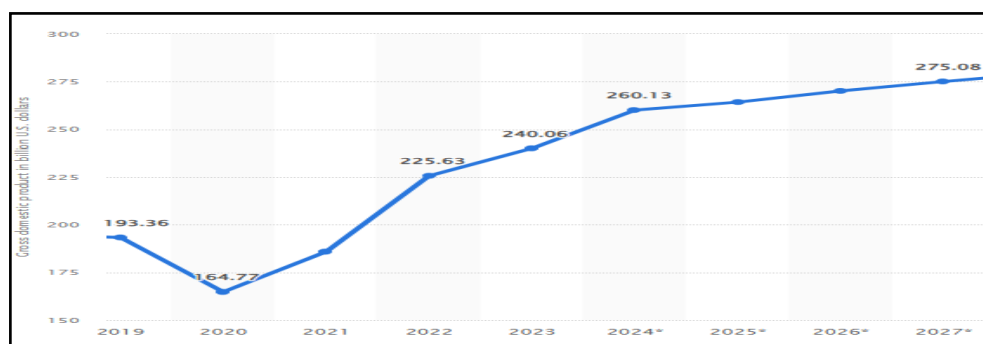
can be illustrated through the following table :

The ICT index is one of the most important indicators in the knowledge economy. According to the index of IDI , Algeria scored 80.9 in 2024 and 77.8 in 2023 An average of +4 % , this is a positive indicator , (ITU, 2024, p. 04) .

3.6 Economy :

There are many economic indicators, such as GDP, doing business, and human capital as an important component of the knowledge economy. Between 2024 and 2029, Algeria's GDP is expected to increase by 24.2 billion US\$ (+9.3%). It could realise 284.35 billion USD in 2029 (statista, 2024) .

Fig .5. GDP in Algeria from 2019 to 2027



Source : (statista, 2024)

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Regarding the Doing Business Index, it was as follows :

Table 6. Algeria's ranking in the doing business index

Ranking	Contry	Index score	Global ranking
15	Algeria	48.6	157

Source : (Arab digital , 2022, p. 102)

In the Doing Business Index, Algeria ranked 157th globally, a low rank in the world, and among Arab countries, Algeria ranked 15th out of 22 countries ,Compared to some countries, Tunisia ranks 7th. Qatar ranked 8th .

In the human capital index, the arab federation for the digital economy report focused on two main axes: the current labour force and the future labour force

Table 7. human capital index

Contry	Current workforce index	Global ranking	Future workforce index	Global ranking
Algeria	50.0	83	65 .2	85

Source: (Arab digital , 2022, p. 107)

The table reflects that Algeria's performance is average in the labour force; however, there is an improvement in the future labour force index

4. CONCLUSION

The KE is a strategic component for achieving development goals and internationally recognised indicators. Through this research paper, it was concluded that the knowledge economy needs pillars that help in achieving the economic and social dimensions of society Because it achieves tools based on knowledge development, for Algeria, the knowledge economy should be promoted by working on the development of knowledge-related indicators, and study the strengths and weaknesses associated with quantitative and qualitative variables.

Result:

- The indicators of the knowledge economy in Algeria varied between positive and weak;
- Pre-university education in Algeria has recorded positive results;

- Algeria ranked 115th out of 133 countries;
- Achieves good results in the ICT;
- The national economy faces significant challenges in terms of the business environment;
- Improving the business environment in Algeria is a necessary indicator to attract investments.

The suggestions:

- Moving towards a knowledge-based economy;
- Investing in Algeria's digital infrastructure to improve indicators;
- Public-Private Partnership (PPP) in the ICT sector for Algeria;
- Create national digital platforms (idea bank) linked to macro indicators.

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