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MINISTRY OF ECONOMY, PLANNING
AND REGIONAL DEVELOPMENT

SECRETARIAT GENERAL

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INVESTMENTS PROGRAMMING

DEPARTMENT OF ANALYSIS AND ECONOMIC POLICIES

ECONOMIC POLICY UNIT

REPORT ON THE DEVELOPMENT OF THE DIGITAL ECONOMY IN CAMEROON IN 2023



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ACRONYMS AND ABBREVIATIONS

ACSEL	: Association for Online Commerce and Services
AIMS	: African Institute for Mathematical Sciences
ANTIC	: National Agency for Information Technologies and Communication
ANOR	: Agency for Standards and Quality
API	: Investment Promotion Agency
APME	: SME Promotion Agency
ART	: Telecommunications Regulatory Agency
BEAC	: Bank of Central African States
BMN	: Enterprises Upgrading Office
CAA	: Autonomous Sinking Fund
CAB	: National Steering Committee of the Central African Backbone Project
CAMTEL	: Cameroon Telecommunications
CEA	: United Nations Economic Commission for Africa
ECCAS	: Economic Community of Central African States
CISC	: Cameroon Digital Innovation Centre
CENADI	: National Centre for the Development of Computer Services
CIRT	: Computer Incidence Response Team
CNC	: National Compétition Commission
UNCTAD	: United Nations Conference on Trade and Development
CNDT	: National Technology Development Committee
COLEPS	: Cameroon On-Line E-Procurement System
CVM	Global Value Chain
DGI	: Directorate General of Taxes

ENSPY	: National Advanced School of Engineering, Yaounde
FCFA	: African Financial Community Franc
GESP	: Growth and Employment Strategy Paper
SWOT	: Strengths-Weaknesses-Threats-Opportunities
GICAM	: Inter-Employer Group of Cameroon
GSMA	: Global System Mobile communication Association
AI	: Artificial intelligence
INC	: National Institute of Cartography
INS	: National Institute of Statistics
M\$: Billions of Dollars
MINFI	: Ministry of Finance
MINEDUB	: Ministry of Basic Education
MINEPAT	: Ministry of the Economy, Planning and Regional Development
MINMAP	: Ministry of Public Contracts
MINFOPRA	: Ministry of Public Service and Administrative Reform
MINDDEVEL	: Ministry of Decentralization and Local Development
MINESEC	: Ministry of Secondary Education
MINESUP	: Ministry of Higher Education
MINPMEESA	: Ministry of Small and Medium Enterprises, Social Economy and Handicrafts
MINPOSTEL	: Ministry of Posts and Telecommunications
MINSANTE	: Ministry of Public Health
MINT	: Ministry of Transport
MINRESI	: Ministry of Scientific Research and Innovation
MINREX	: Ministry of External Relations
NICTs	: New Information and Communication Technologies
SDG	: Sustainable Development Goals
PAGIRN	: Regional and National Infrastructure Governance Support Programme
UNEAP	: Digital Transformation Acceleration Project in Cameroon
PDI	: Industrialization Master Plan
GDP	: Gross Domestic Product

PM	: Prime Ministry
LDC	: Least Developed Countries
PPP	: Public-Private Partnerships
RGE	: General Business Census
SIGIPES	: Computerized System for the Integrated Management of State Personnel and Pay
SGC	: Cameroun de la Société Générale Cameroun
IFC	: International Finance Corporation
NDS30	: National Development Strategy-Cameroon 2030
SNI	: National Investment Corporation
SUP'PTIC	: National Advanced School of Post and Telecommunications
VAS	: Value-Added Service
PKI	: Public Key Infrastructure
TIC	: Information and Communication Technology
TFP	: Technical and Financial Partners
VSMEs	: Very Small and Medium Enterprises
EU	: European Union
AfCFTA	: African Continental Free Trade Area

EXECUTIVE SUMMARY

On a global scale, the digital economy has undergone a strong evolution in recent years, due to the improvement in the penetration of New Information and Communication Technologies (NICT). Massive investments made in the digital sector have significantly improved the offer of digital services and by extension its contribution to the creation of wealth on a global scale. According to the United Nations Conference on Trade and Development (UNCTAD), although it is currently difficult to accurately measure the added value of the digital economy¹, it represents between 4.5% and 15.5% of global GDP.

In general, the world has seen major developments in the digital economy, particularly in terms of mobile and internet network coverage, mobile phone access, but with huge disparities between regions. While Europe, Asia and America posted remarkable performances in 2023, Africa continued to lag behind. Indeed, only 63% of the African population has a mobile phone and only 37.1% of the African population has ever had to connect to an internet network, although 83.6% of this population live in an area covered by at least one 3G network. This underperformance of African countries could explain the low regional development of digital services, such as e-commerce, and the low contribution of ICTs to the development of these countries.

In the case of Cameroon, as part of the implementation of the National Development Strategy 2020-2030 (NDS30), the Government has set itself a series of objectives whose achievement should contribute to the structural transformation of the country's economy. To this effect, the actions undertaken by the State as well as the development of ICTs in the broad sense have made it possible to accelerate the dematerialisation and improve the efficiency of a set of services in various sectors including public governance, trade, finance, health, transport and logistics, telecommunications, etc. This has made it possible to improve the contribution of the digital sector to the national economy. For example, the telecommunications sub-sector alone contributed to 3.04% of the national GDP in 2022 with more than 6000 direct jobs created.

The diagnostic analysis of the digital economy in Cameroon reveals that the country has many assets to boost its development at the national level. However, many constraints remain. These constraints include: the inadequacy of the quantity and quality of telecommunications infrastructure, the high cost of access to bandwidth, the poor maintenance of the wired network, the lack of healthy competition on the local market, implying high retail prices, the delay in the deployment of the latest generation technologies, the low rate of access to high-speed Internet, the inadequacy

¹ On the one hand, there is no commonly accepted definition of the digital economy, and on the other hand, there are no reliable statistics on its main components and dimensions, particularly in developing countries (UNCTAD, 2020).

of training in relation to the employment needs of the sector; lack of financial resources; etc.

Thus, proposals for measures to accelerate the development of the digital economy in Cameroon have been formulated. These include:

In the short term

- The promotion of private investment in the sector, particularly for the development of infrastructure;
- The strengthening of the Government's support for private initiatives relating to the development of the digital economy in Cameroon;
- Raising awareness among the population on the importance and protection of wired networks;
- Strengthening support for start-ups;
- Strengthening research and innovation in the sector, particularly within incubation centers, specialized institutes and schools;
- The promotion of digital culture among local populations;
- Promoting the development of related services necessary for the development of the digital economy;
- Promoting the installation of new stakeholders in the sector;
- Systematic monitoring of the development of the digital economy in Cameroon;
- Supporting start-ups, including those in the informal sector, to organise their activities into formal very small and medium-sized enterprises (VSMEs);
- Raising awareness among start-up promoters on the support mechanisms put in place by the State, as well as on the various alternative private financing mechanisms;
- Raising awareness among companies of the possibilities and opportunities offered by ICTs.

In the medium and long term

- Strengthening the local energy supply;
- Seek and exploit offshoring opportunities in this sector to become part of the Global ICT Value Chain (GVC);
- The construction of the landing point of the WACS submarine cable of LIMBE;
- The extension of fibre optic coverage across the country.

INTRODUCTION

In recent years, the digital sector has seen great progress in terms of the range and quality of services offered. Technological development, the densification of the infrastructure, the development of **Artificial Intelligence (AI)**, and the improvement of access to ICT for the population are some examples of the progress that has been made in this sector. In general, these developments have made it even more complex to define the scope of the digital economy, which is now transversal.

According to the ACSEL (Association for Online Commerce and Services), the notion of the digital economy is not limited to traditional sectors that produce using ICT or that are based on ICT. It also encompasses the various activities of telecommunications, audiovisual, software, Internet and related sectors that use them as the core or support of their activity. This adaptation/specialization of digital technology in other sectors of activity has made it possible to increase the contribution of digital technology to wealth creation through, on the one hand, the improvement of performance and, on the other hand, the development of an offer of new digital products and services.

In recent years, the debate has focused more on the spread of digital technologies, services, products, and skills within different countries. This process, known as digitalisation, the transformation of companies through the use of digital technologies, products and services (Brennen and Kreiss, 2014), is particularly relevant in developing countries where digital technology has begun to affect traditional sectors such as agriculture, tourism and transport.

As far as Cameroon is concerned, the Government has placed the development of digital technology at the heart of its priorities. This desire has already been reflected in the Growth and Employment Strategy Paper for the period 2010-2020 (GESP), which represented the first phase of Cameroon's Development Vision for 2035, with the adoption in 2017 of the **Digital Cameroon 2020 Strategic Plan**, which had the strategic objective of increasing by 2020, quantitative, qualitative and low-cost access to electronic communications services throughout the national territory. It should be remembered that this objective remains relevant.

In addition, with the entry into force of the second phase of its Cameroon Development Vision for 2035, materialised by the **National Development Strategy 2020-2030 (NDS30)**, the State has set new objectives to achieve the structural transformation of its economy. Specifically in the area of digital technology, the Government aims to: (i) reconfigure the national digital ecosystem, in particular by restructuring the sector and strengthening the management of digital infrastructure assets; (ii) build the necessary digital infrastructure; (iii) ensure the overall security of networks; (iv) develop the production of digital content; (v) increase and diversify digital uses and services; (vi)

develop the manufacture and assembly of digital parts and devices. As a result, the Government has undertaken to implement a series of reforms and actions aimed at boosting the development of the digital economy in Cameroon.

This report, which outlines the development of the digital economy in 2023, has been drawn up with the aim of highlighting recent developments in this emerging economy in Cameroon. Specifically, it will present an inventory and a diagnosis of the development of the digital economy in Cameroon and, in the light of the various constraints and opportunities identified, lead to **proposals for measures to accelerate the development of the digital economy**. The methodological approach adopted to prepare this report consisted first of all in carrying out a documentary review, then collecting the necessary data from the main actors concerned, processing and analysis of the data. Finally, by the drafting of the document itself.

This report is structured around four (04) parts, namely: (i) the recent evolution of the digital economy worldwide; (ii) the current state of the digital economy in Cameroon; (iii) the diagnosis of the development of the digital economy in Cameroon and (iv) the proposals for measures to accelerate the development of the digital economy in Cameroon.

PART I: RECENT DEVELOPMENTS IN THE GLOBAL DIGITAL ECONOMY

In general, the digital economy has undergone significant change in recent years, as a result of increased digital penetration worldwide. Indeed, the massive investments made in the digital field have significantly improved the offer of digital services as well as the population's access to these services. As a result, this cross-disciplinary field has made a greater contribution to wealth creation worldwide.

I.1. Contribution of the digital economy to global growth

According to UNCTAD, although the creation and capture of value added in the digital economy is currently particularly difficult to measure², the digital economy accounts for between 4.5% and 15.5% of global GDP. In addition, the number of ICT jobs globally increased from 34 million in 2010 to 39 million in 2015, representing 2% of the jobs created worldwide. This reflects an acceleration in the digitalisation of the global economy.

Specifically in the area of ICT (the main component of the digital economy), over the past decade, global exports of ICT-related services and digitally delivered services have grown faster than exports of all services. Indeed, in 2018, the value of exports of digitally supplied services amounted to about US\$2.9 trillion, or 50% of global services exports. In the Least Developed Countries (LDCs), they more than tripled from 2005 to 2018 and were estimated at 16% of total services exports (UNCTAD, 2020).

The contribution of the digital economy to wealth creation varies according to the region and the level of development of countries. Indeed, developed countries concentrate most of the wealth generated by the digital economy. In 2019, the United States and China alone accounted for nearly 40% of the world's total ICT value added. In France, the digital market³ in 2022 was estimated at €60.9 billion (more than 39,900 billion FCFA), with more than 35000 jobs created.

Africa's contribution to the global digital economy remains marginal. According to research conducted by the International Finance Corporation (IFC), by 2025, the digital economy is expected to contribute US\$180 billion to the African economy, which remains insignificant on a global scale. However, it is noted that in some African countries, the contribution of the economy to growth has increased significantly. For example, in Ivory Coast, the contribution of the digital economy to national wealth has increased from 6.2% of GDP in 2012 to 9% of GDP in 2017, with more than 300,000

² On the one hand, there is no commonly accepted definition of the digital economy, and on the other hand, there are no reliable statistics on its main components and dimensions, particularly in developing countries (UNCTAD, 2020).

³ This data was produced by Numeum, the professional organization of the digital ecosystem in France.

direct and indirect jobs created by the ICT sector (Ivorian Center for Economic and Social Research).

In addition, it should be noted that this contribution of the digital economy to wealth creation is closely linked to the developments observed in the development and emergence of the various components of the digital economy.

I.2. Evolution of the different components of the digital economy

a. Mobile telephony

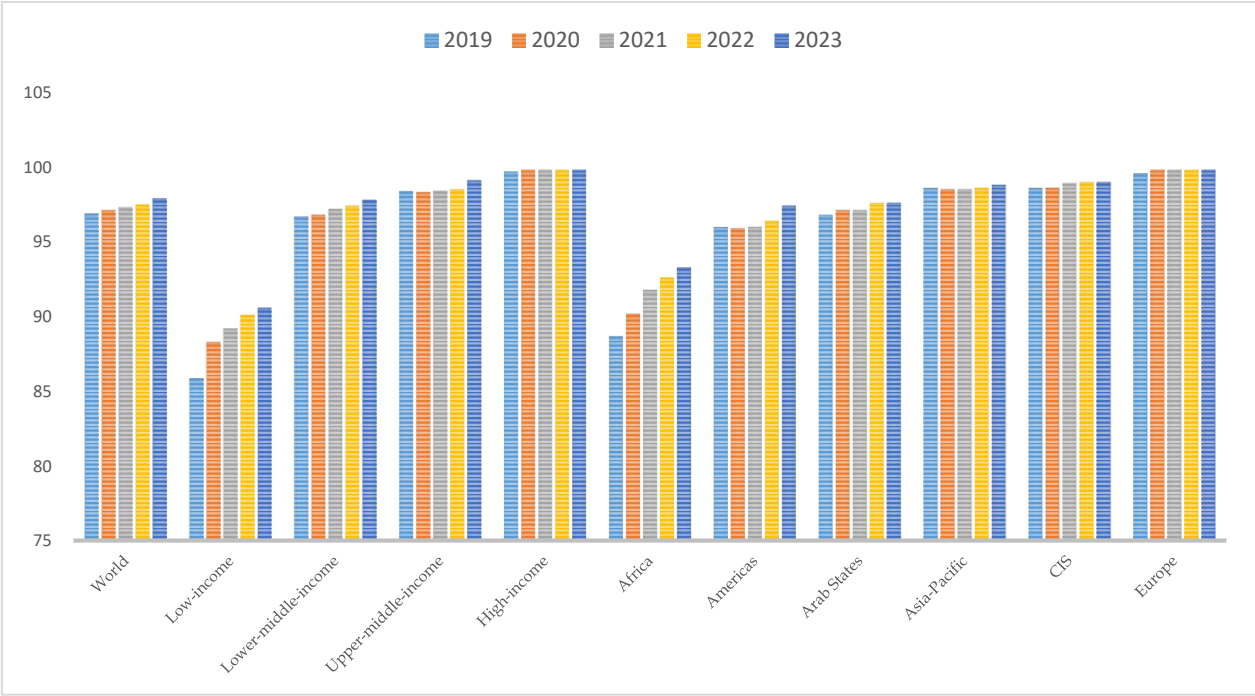
The mobile phone has become an indispensable tool for communication between people. To date, it has become one of the main means of access to the internet. As a result, it allows the user, regardless of time or place, to have access to the various products and services offered by this channel, making the user a permanent player in the digital economy. As such, considerable investments have been made over the years in this field, for the development of various innovative products and services in order to attract as many users as possible.

Due to the development of the digital field in recent years, particularly in terms of infrastructure, network coverage, i.e. the surface area covered by the mobile network, has increased significantly. Globally, the proportion of the population living in an area covered by a mobile network is estimated at 97.9% in 2023, although there are many disparities depending on the income level of countries.

Indeed, in 2023, high-income countries are those with the best network coverage with 99.8% of the population living in an area covered by a mobile network, due in particular to the advances and quality of the technological infrastructures they have. This proportion is lower in low-income countries, at 90.6%, although it is in the latter that the greatest increase has been recorded in recent years, especially in the use of various digital services.

Also, when comparing the different regions of the world in 2023, we see that Africa (largely made up of low-income countries), despite being the least well covered region, manages to offer 93.3% network coverage to its population. Europe and the Asia-Pacific region lead the way with 99.8% and 98.8% mobile network coverage rates respectively.

Graph 1: Evolution of mobile network coverage by region and income level



Source: ITU, 2023.

In terms of access to mobile telephony, the proportion of people in the world with a mobile phone, which stood at 69.8% in 2018, has continued to grow, reaching 78.1% in 2023. This trend can be observed in all countries, regardless of geographical area or income level.

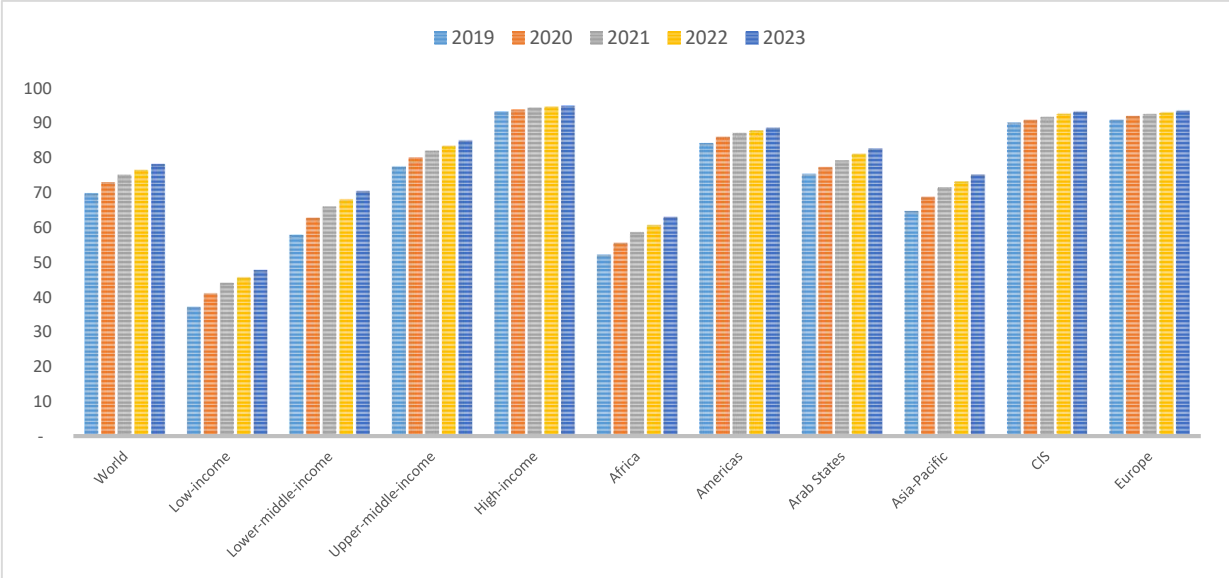
In 2023, the proportion of the population with a mobile phone in low-income economies remains below the values observed in other countries. Indeed, this proportion is 45.5% while for low-middle-income countries, the rate is 70.4%. This statistic is 85% and 95% respectively in upper-middle-income and high-income countries. In addition, depending on the geographical area, Africa is still lagging behind other regions of the world, with a proportion of 63% in 2023. Europe and America are at the top of the ranking with proportions of 93.4% and 88.5% respectively.

This low proportion of the population with a mobile phone in low-income countries could be explained in particular by the relatively high cost of communication services and mobile phone acquisition, compared to the income of these populations. In fact, in 2019, the cost of the cheapest smartphone to access the internet averaged 4% of monthly gross domestic product (GDP) per capita in high-income countries. In low-income countries, this proportion was more than twice as high in Latin America and the Caribbean (9%), and could reach 30% in sub-Saharan Africa (UNCTAD, 2021).

Thus, it appears that despite the recent developments observed in terms of mobile network coverage in African countries, particularly low-income countries, additional

actions must be taken to improve the population's access to mobile telephony services (increase in the number of subscribers). This is all the more important for these economies, because this tool is a powerful lever for wealth creation.

Graph 2: Evolution of the proportion of the population with a mobile phone by region and income level of countries



Source: ITU, 2023.

b. Internet and broadband access

As part of the implementation of the Sustainable Development Goals (SDGs), particularly in target 9c, States have set themselves the objective of significantly increasing access to information and communication technologies and ensuring that all inhabitants of the least developed countries have access to the Internet at an affordable cost by 2030. To this effect, improving people's access to Internet services is one of the development priorities of States.

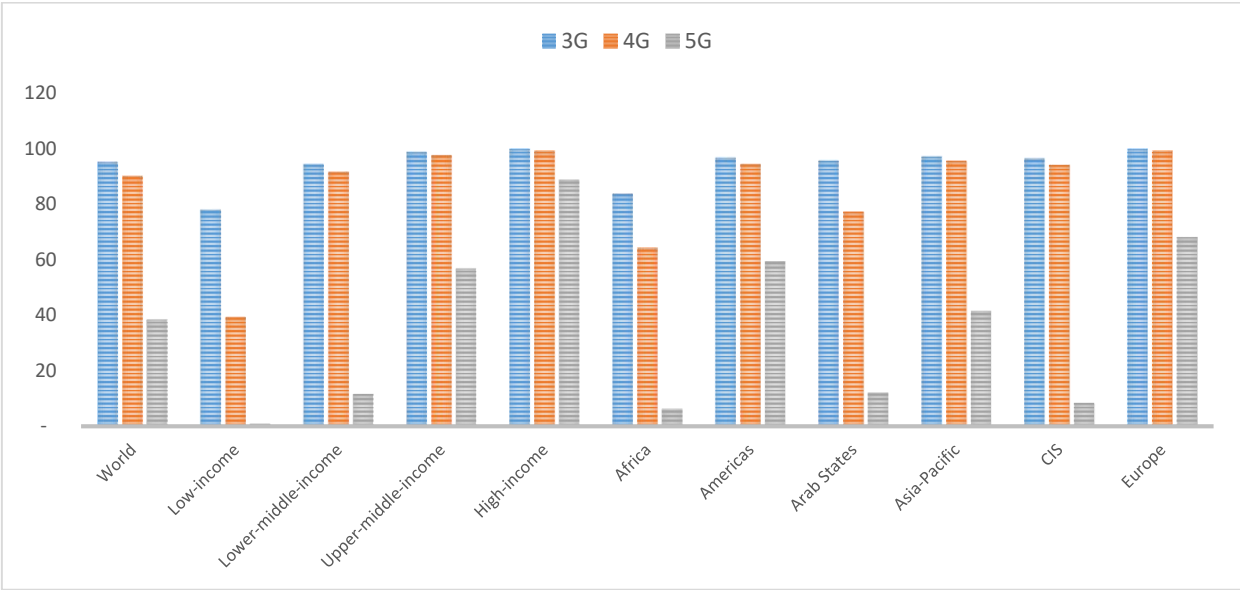
In 2023, the analysis of internet network coverage shows strong disparities depending on the region, the level of income and the type of network. On a global scale, we can observe that 95% of the population is covered by at least a 3G internet network. This proportion drops to 90.1% and 38.4% respectively for 4G and 5G internet networks.

Specifically, almost all high-income and upper-middle-income countries live in areas covered by at least one 3G network. While in low-income countries, this proportion is only 77.8%, meaning that almost a quarter of the population of these countries would not be able to access the internet even if they wanted to. This proportion drops to 39.4% for 4G network coverage, while all other countries have a rate above 90%.

At the same time, it is also noted that Africa is the region with the least coverage by the internet with 83.6% of its population living in an area covered by at least a 3G

network. At the same time, we note that in all other regions of the world this proportion is higher than 95%, and it reaches the threshold of 99.7% in Europe. When it comes to the 4G network, Europe, Asia-Pacific and America offer the best network coverage with rates of 99.2%, 95.6% and 94.4% respectively. Africa, on the other hand, continues to lag behind with 64.3%. However, it should be noted that internet coverage is not always synonymous with the use of internet services by the population.

Graph 3: Mobile internet coverage by region and income level of countries in 2023

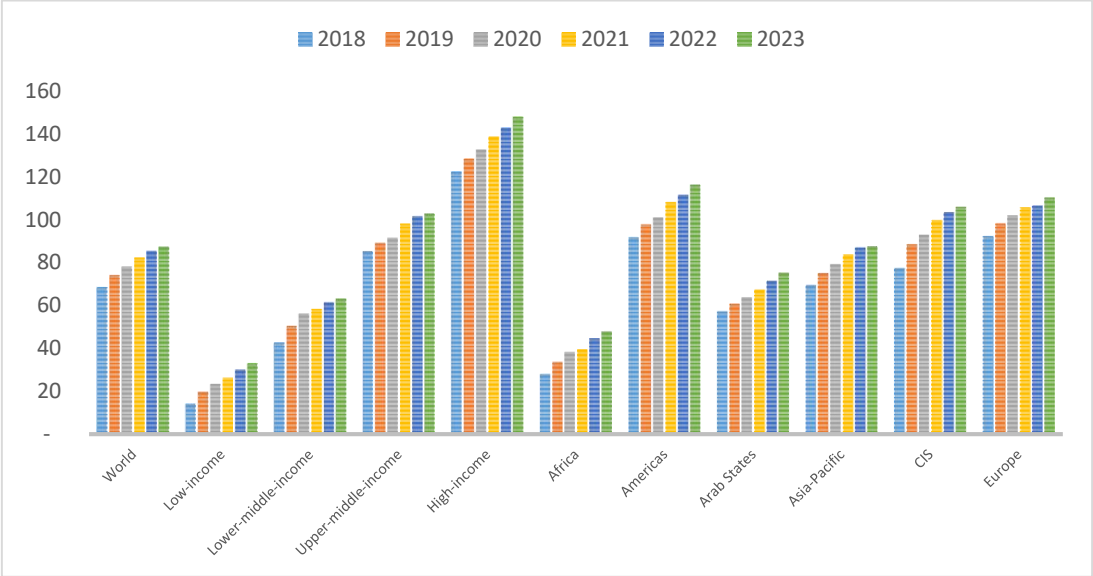


Source: ITU, 2023.

In terms of internet use, the number of internet users has grown significantly in recent years. Globally, between 2018 and 2023, the proportion of internet users increased from 48.6% to 67.4% of the population. This trend is evident in all countries regardless of income level or region. This is due in particular to the increasing digitalisation of different types of services and the development of new products as well as digital services tailored to the needs of users.

More specifically, in 2023, there are strong disparities depending on income level and regions. Europe and America are the regions with the highest internet usage with 90.5% and 86.9% of internet users respectively. While in Africa, only 37.1% of the population uses the internet. In addition, we can see that the use of the Internet increases with the level of income. Indeed, high-income countries are those in which the population uses the Internet the most (93.2%), while it is in low-income countries that we will have the populations that use the Internet the least (27.1%). These data reflect the positive effect of development on the use of the Internet by the population, particularly on the costs of Internet access.

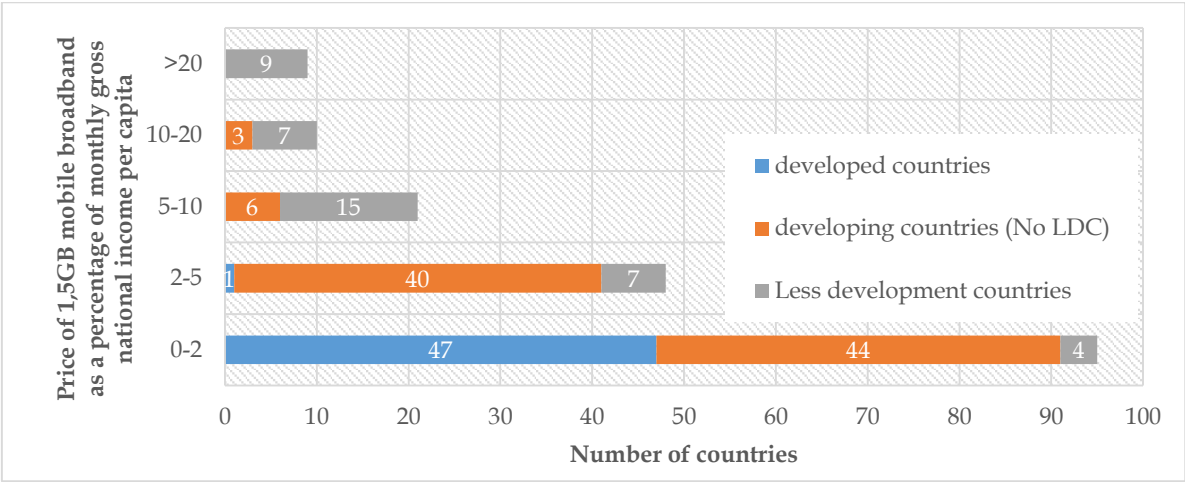
Graph 4: Evolution of the proportion of Internet users by region and income level of countries.



Source: ITU, 2023.

The cost of access to the Internet is one of the main factors that condition the use of Internet services by the population. UNCTAD, in its report on the digital economy in 2021, gives a breakdown of the costs of access to the broadband internet network according to the level of development of countries. It can be seen that developed countries have the lowest internet access costs (less than 2% of national income per capita), while in least developed countries (LDCs), these costs are the highest, reaching up to 20% of national income per capita.

Graph 5: Price of 1.5 GB mobile broadband as a percentage of GNI per capita, 2019 (Number of countries).

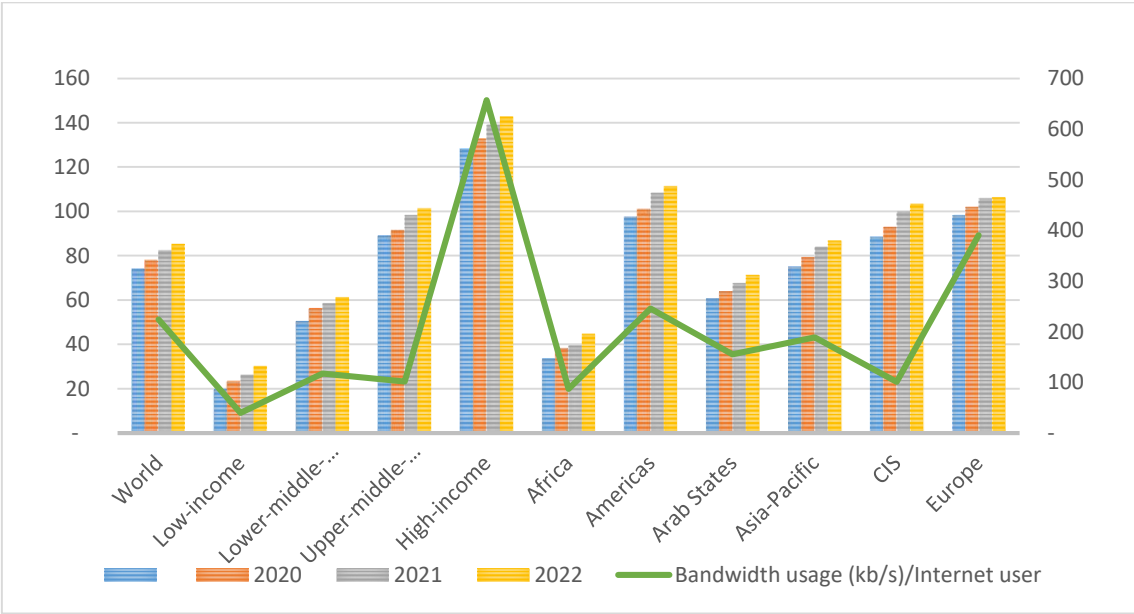


Source: UNCTAD, 2021.

With regard to mobile broadband access, although the trend shows an increase in the number of mobile broadband subscribers, many disparities remain across countries and regions. According to data published by ITU for the year 2022, active mobile broadband penetration⁴ remains very low in low-income countries at 30.3%. This rate has reached 61.4% for lower-middle-income countries and in higher-income countries, the rate exceeds the 100% mark. Meanwhile, Africa ranks last in broadband penetration with only 44.8%, while Europe and America lead the way with 106.3% and 111.4%, respectively.

These penetration rates are in line with the data on bandwidth usage in 2022. Indeed, data consumption by Internet users is significantly lower in Africa and low-income countries (87Kb/s and 39.6Kb/s, respectively), compared to the other groups. However, it should be noted that high-income countries far outperform all others with a consumption per Internet user of 657.1Kb/s.

Graph 6: Evolution of active mobile broadband penetration rate (%) and international bandwidth usage (Kbps/user) by region and income level of countries



Source: ITU, 2023.

c. E-commerce

E-commerce is a business practice that involves connecting producers of goods or services with customers through a digital channel. This practice has evolved significantly in recent years with the development of specialised platforms as well as the development of a very varied range of digital products and services.

⁴ In other words, it only takes into account, those accounts that have justified an activity during the three months preceding the survey.

In 2019, UNCTAD estimated that sales through e-commerce reached the US\$26.7 trillion mark globally, up 4% from the previous year. This graph includes business-to-business (B2B accounting for the largest share) and business-to-consumer (B2C) sales, and is equivalent to 30% of global gross domestic product (GDP) for the year 2019.

When it comes to B2B e-commerce, its global turnover was estimated at US\$21.8 trillion in 2019, accounting for 82% of all e-commerce. This amount includes both sales through online marketplace platforms and electronic data interchange (UNCTAD) transactions.

As far as B2C commerce is concerned, this mode of transaction has evolved strongly in e-commerce. In the space of 5 years, the turnover generated by B2C e-commerce has tripled, from 1,336 billion US dollars in 2014 to 4,900 billion US dollars in 2019. The leaders for B2C e-Commerce sales are China, the United States, and the United Kingdom.

More generally, e-commerce remains strongly dominated by developed countries, particularly in America and Asia. Of the top thirteen (13) e-commerce companies in the world, 8 are American (7 for the United States and for Canada) and 5 are Asian (4 for China and 1 for Japan). In the B2C trade segment alone, the value of the gross merchandise volume of these 13 companies amounted to US\$2.9 trillion (UNCTAD).

Table 1: E-commerce sales in 2019 (in billions of US dollars)

	2B2 Sales	2B2C Sales	Total Sales	Sales as % of GDP
United States	8139	1261	9400	45
Japan	3238	178	3416	67
China	1065	1539	2604	18
South Korea	1187	115	1302	79
United Kingdom	633	251	884	31
France	669	1116	1785	29
Germany	413	111	524	14
Italy	396	35	431	22
Australia	325	21	346	25
Spain	280	64	344	25
Rest of world	4277	1179	5456	

Source: UNCTAD, 2021.

In terms of consumption of e-commerce products and services, developed countries are the main stakeholders. Indeed, the Digital Economy Report 2021 reveals that in some European countries, more than 80% of internet users shop online, while in many LDCs, this proportion is less than 10%. This delay in the LDCs can be explained, among other things, by the delay in putting in place the prerequisites necessary for the local

development of e-commerce (level of use of the Internet, access to suitable payment methods, development of the local delivery system, etc.).

In order to assess the level of preparedness of countries for e-commerce, UNCTAD has developed the B2C E-Commerce Index. This index is built from data on Internet usage, secure servers, credit card penetration and home postal delivery. Thus, the calculation of the B2C e-commerce index in 2020 for the different regions of the world shows that Africa with a score of 30 is far behind in terms of e-commerce compared to the global average of 55. This is generally explained by the low penetration rate of banking services, internet services as well as the underdevelopment of related services essential to the development of e-commerce, in particular, reliable internet service infrastructures, postal services and digital banking services.

Table 2: UNCTAD B2C e-commerce index by region

<i>Group by region and level of development</i>	Proportion of individuals using the internet (2019 or newer)	Proportion of people with an account (15+, 2017)	Secure Internet Servers (Standardized, 2019)	UPU Postal Service Reliability Index (2019 or newer)	Index Value 2020	Index value 2019 (2018 data)
<i>Africa</i>	30	40	28	21	30	31
<i>East, South and Southeast Asia</i>	57	60	54	58	57	58
<i>Latin America and the Caribbean</i>	64	53	50	29	49	48
<i>West Asia</i>	77	56	45	50	58	59
<i>Countries in transition</i>	71	58	60	59	62	63
<i>Developed countries</i>	88	93	84	80	86	87
<i>World</i>	60	60	53	47	55	55

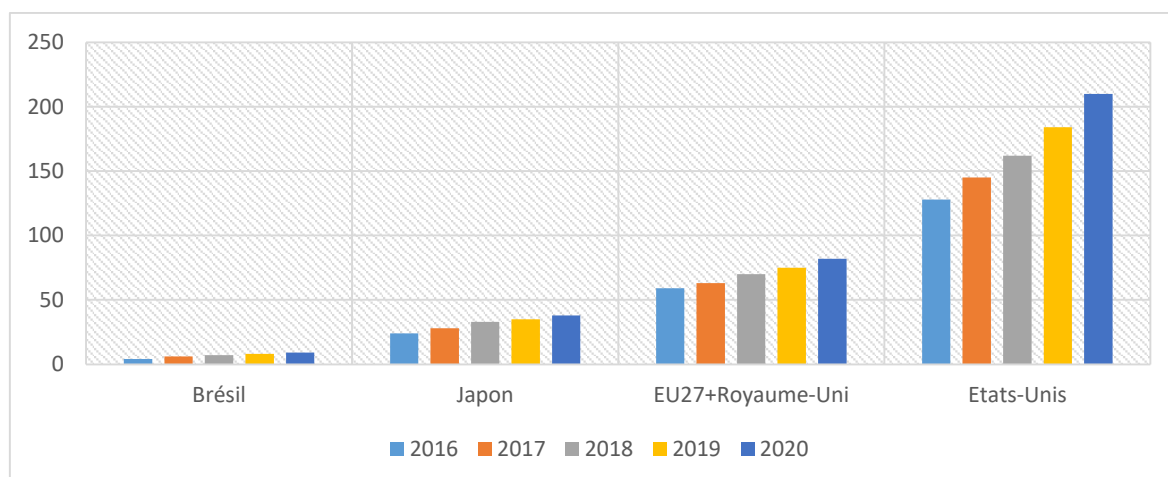
Source: UNCTAD, 2021.

d. The Data Market

According to the European Commission, the data market can be defined as the market on which digital data is exchanged in the form of products or services derived from raw data. The value of this data comes from the process of transforming raw data, from data collection to processing and analysis to digital intelligence, a process that makes it monetizable for commercial purposes or usable for social goals (UNCTAD). To generate and capture value, you need both the raw data and the capacity to process the masses of information, allowing it to be transformed into digital intelligence, useful for decision-making.

The data market in its current state remains mainly the prerogative of developed countries. A comparative study conducted by the European Commission revealed that in this area, the United States was far ahead of the rest of the world with a market estimated at more than 200 million euros compared to about 80 million euros for the EU countries with Great Britain.

Graph 7: Market value of data from 2016 to 2020 for selected countries (in millions of euros).



Source: UNCTAD, 2021.

e. Artificial Intelligence (AI)

- **Artificial Intelligence in the World**

Artificial intelligence is a field of computer science that seeks to create systems that can perform tasks that would normally require human intelligence. This concept first emerged in 1943, with the publication of the paper "A Logical Calculus of Ideas Immanent in Nervous Activity." by Warren McCullough and Walter Pitts, in which they presented the first mathematical model for the creation of a neural network. Subsequently, AI has undergone many evolutions and several types have been developed, namely:

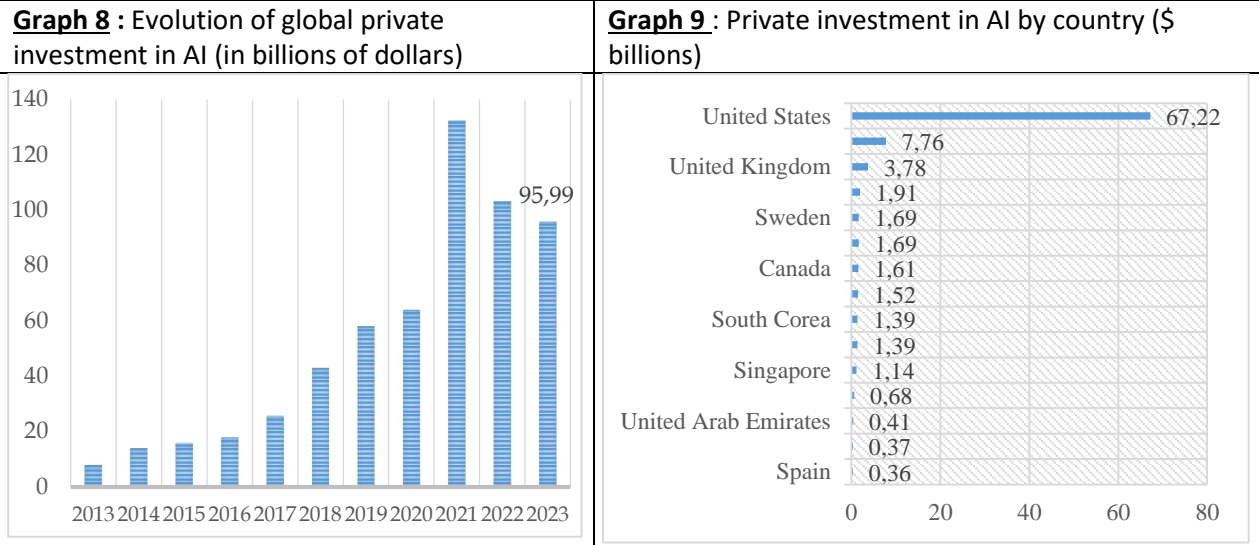
- **artificial general intelligence**, which is an artificial intelligence capable of performing any cognitive task as a human or an animal would;
- **Strong artificial intelligence**, also known as "superintelligence", refers to AI models that refer to philosophical knowledge and show signs of its own consciousness. In the scientific community, the creation of this type of AI remains hypothetical insofar as the notion of consciousness and feelings cannot see the light of day in mathematical systems that manipulate and respond with symbols and calculations;
- **Weak artificial intelligence** or narrow AI, refers to a system capable of performing a single task in an almost perfect way, without the need for human supervision. It is the most widely used model and created to speed up various processes in different business sectors.

The various developments that AI has undergone over time have made it possible to diversify its field of action to almost all sectors. Through the development of specialized software and applications, AI is now an essential tool for improving and optimizing human and/or business performance. This is reflected in the increasing

use of software and applications by people and companies. Some of these software and applications include: ChatGPT, Tensorflow, SEOpital, openAI, Watson, etc.

The sector of artificial intelligence is a rapidly expanding market. In 2022, it was estimated at US\$327 billion (\$327 million) and is expected to represent more than US\$1,800 billion by 2030, representing an average annual growth of 37.5% over the period (Statista). This strong growth is partly explained by the level of investment devoted to this field. Indeed, private investment in AI globally has increased by US\$80 billion per year. They stand at nearly \$96 million in 2023, down 7.2% from the previous year. These investments in 2023 were mainly directed towards the field of generative AI⁵, to the tune of \$25.2 million. Moreover, this overall volume masks the strong disparities that exist between countries.

Indeed, the investments made in the field of AI come mainly from developed countries. In 2023, 70% of private investment in AI comes from the United States with more than \$67 million invested. Then come countries such as China (\$7.76 million), the United Kingdom (\$3.78 million), Germany (\$1.91 million), etc. In addition, it appears that developing countries, particularly African countries, are still lagging behind in the field of AI, both in terms of the use of this technology and in terms of investments for its development.



Source: Stanford University, 2024

In general, it appears that Africa, and mainly low- and lower-middle-income countries, are still lagging behind in terms of the development of the digital economy. This is partly due to the still high costs of access to digital products and services, and above all to the infrastructure deficit in this area that these countries have. Although the positive impact of the development of the digital economy on a country's growth is

⁵ Generative AI, sometimes referred to as "gen AI," is artificial intelligence that can create original content (text, images, video, audio, and/or software code) in response to a user's prompt or request.

obvious, the governments of these countries still do not have the necessary means to achieve the required level of investment. To this effect, governments must find investment elsewhere, particularly in the private sector and foreign direct investment.

PART II: OVERVIEW OF THE DIGITAL SECTOR IN CAMEROON

New information and communication technologies, in the broadest sense of the term, are booming in Cameroon, and have helped to restructure many sectors of activity, including tourism, trade, finance, agriculture, health, etc. we have recently been witnessing the deployment of a new so-called digital economy in Cameroon, a vector of economic growth.

According to the axes of the Strategic Plan for the Digital Economy of Cameroon 2020, it was envisaged to increase the contribution of this sector to GDP from 5% in 2016 to 10% in 2020, the creation of direct jobs from 10,000 in 2016 to 50,000 in 2020 and the increase in taxes collected from 136 billion FCFA in 2016 to 300 billion in 2020.

Also, the Government, in its new reference framework, the NDS30, aims for the digital sector: (i) to reconfigure the national digital ecosystem, in particular by restructuring the sector by strengthening the management of the digital infrastructure assets; (ii) build the consequent digital infrastructure; (iii) to globally secure networks. In addition, the Government plans to create digital parks and technopoles with a view to: (iv) developing the production of digital content; (v) to increase and diversify digital uses and services; (vi) to develop the manufacture and assembly of digital parts and devices.

In addition, the telecommunications development strategy is based on connecting households and businesses to the optical fibre already installed, continuing to invest in modernising infrastructure, extending geographical coverage, improving the quality of internet service and the offer of new, more attractive products, and developing the digital economy. Based on these assumptions, the telecommunications sector should grow by 6.4% by the National Development Strategy 2020-2030. The main issue here is the neutralisation of the digital divide.

In view of the above-mentioned objectives, the mapping of the digital ecosystem makes it possible to identify the main actors and their roles, the evolution of the contribution of the sector to the national economy in relation to investments, jobs and revenues achieved by operators providing electronic communications services to the public.

II.1. Main actors of the digital economy in Cameroon

The section presents the mapping of the main actors acting on the development of the digital economy in Cameroon. These include public and private actors, who actively contribute to the development of the digital economy ecosystem in Cameroon.

a. Institutional actors:

- **The Ministry of Posts and Telecommunications (MINPOSTEL)**

It is the umbrella body for the digital sector in Cameroon. As such, it carries out actions in favour of the development of the digital economy in order to make Cameroon an African technological leader. In particular, it is a question of supporting young actors in the digital economy in the process of migration from the informal to the formal through the strengthening of technical and operational capacities, and to provide them with administrative assistance in the process of creating businesses.

- **National Agency for Information and Communication Technologies (ANTIC)**

It is a public administrative establishment, placed under the technical supervision of the Ministry of Telecommunications and under the financial supervision of the Ministry of Finance. Created by Decree No. 2012/180 of 10 April 2012, its mission is to: (i) promote and monitor the action of the public authorities in the field of Technology and Communication; (ii) regulate the security activities of electronic communications networks and information systems, as well as naming and addressing resources; (iii) carry out security monitoring and auditing; and (iv) perform electronic certification.

As far as its cybersecurity organisation is concerned, ANTIC has a security monitoring center: the CIRT (Computer Incidence Response Team), an Information Systems Security Audit Division whose role is to test the systems of organizations in order to detect flaws and vulnerabilities. It makes recommendations to ensure their safety. A Certification Center, also known as the PKI Center (Public Key Infrastructure), which makes it possible to secure applications in Cameroonian cyberspace.

- **Cameroon Telecommunications (CAMTEL)**

Placed under the technical supervision of the Ministry of Posts and Telecommunications and under the financial supervision of the Ministry of Finance, in accordance with Decree No. 2019/264 of 28 May 2019 approving the statutes of CAMTEL, it aims to own, operate and provide telecommunications infrastructure and services within the framework of the licenses granted to it for this purpose by the competent authorities.

More specifically, CAMTEL ensures:

- ✓ the study, installation, operation and maintenance of any system necessary for the provision of telecommunications services throughout the national territory, as well as for the connection of local, national or foreign networks;

- ✓ the carrying out of commercial, industrial, movable, real estate and financial operations directly or indirectly related to the above services or likely to promote their development.

- **Telecommunications Regulatory Agency (ART)**

Placed under the supervision of the Ministry of Posts and Telecommunications, the ART is a public administrative institution with legal personality and financial autonomy. It is established by Law 2021/013 of December 21, 2021 governing electronic communications in Cameroon. Its organization and functioning are defined by Decree No. 2012/203 of April 20, 2012.

Its mission is to: (i) ensure the application of legislative and regulatory texts in the field of Telecommunications and Information and Communication Technologies; (ii) ensure that access to networks open to the public is carried out under objective, transparent and non-discriminatory conditions; (iii) to ensure healthy and fair competition in the telecommunications and information and communication technologies sector; (iv) sanction operators' failures to comply with their obligations as well as anti-competitive practices; (v) to define the principles to govern the pricing of the services provided; (vi) examining applications for licences and preparing decisions on them ;(vii) formally issuing declaration receipts; (viii) define the conditions and obligations for the interconnection and sharing of infrastructure; (ix) to issue an opinion on all draft texts of a legislative and regulatory nature relating to electronic communications; (x) to ensure the assignment and control of the frequency spectrum; (xi) prepare tender documents for concessions and licences; (xii) establishing and managing the numbering plan; (xiii) to submit to the Government any proposal and recommendation for the development and modernization of the telecommunications and information and communication technologies sector; (xiv) assign addressing resources; (xv) to examine the approval dossiers for terminal equipment and to prepare the relevant decisions; (xvi) issue approvals; (xvii) to carry out any other mission of general interest that may be entrusted to it by the Government in the telecommunications and information and communication technologies sector; and (xviii) ensuring consumer protection.

- **National Centre for the Development of Computer Services (CENADI)**

It is a computer center of the Cameroonian Government that advises public administrations, parastatals, local authorities, etc., on information and communication technologies (ICT). Its main activities include Web Hosting, IT Audits, Provision of extranet and intranet application services as well as IT systems backup. CENADI has set up the nGomna application which allows you to print pay slips online. This innovation aims to reduce the difficulties encountered by some public officials on other platforms.

- **The National Committee for the Development of Technologies (CNDT)**

It is a coordination, reflection and information organization in the field of technology transfer and development set up by Presidential Decree No. 78/109 of April 1, 1978 on the creation and organization of the National Committee for Technology Transfer (CNTT). This decree was amended and supplemented by Decree No. 82/126 of March 18, 1982, which created the National Committee for the Development of Technologies (CNDT). Decisions No. 008/MINRESI/CAB/CNDT/SP/12 and No. 0009/MINRESI/CAB/CNDT/SP/12 of 27 February 2012 on the organization of the technical commissions have given it substance for an optimal operationalization of its missions.

As for its missions, they are based on five (05) major points which are listed below: (i) the collection, processing and dissemination of documentation and information on both the development and the processes of use of technologies; (ii) the study of the modalities of acquisition and adaptation of technologies; (iii) the inventory and promotion of local technologies; (iv) the choice of foreign technologies likely to contribute effectively to the socio-economic development of Cameroon; (v) the organization of seminars and conferences relevant to the development of technologies.

- **the National Advanced School of Post and Telecommunications (SUP'PTIC).**

It is a public institution of higher education located in the city of Yaoundé. It is responsible for higher vocational education, specialised technical training, continuing education and applied research in the fields of post, telecommunications and information technology and the management of companies in these fields.

As such, SUP'PTIC provides in particular (i) initial training in the fields of post, electronic communications techniques, network and information systems security, management and operation techniques of postal companies and electronic communications, regulation and regulation of the postal and electronic communications sectors; (ii) the development, retraining and specialization of staff in the post, electronic communications and ICT professions; (iii) studies and applied research in the fields of post, electronic communications and ICT; (iv) technical support to public, semi-public or private administrations and bodies in the field of post, electronic communications and ICT; (v) technology watch with a view to updating training courses in the post, telecommunications and ICT sectors; and in general (vi) the training of professionals in the post, electronic communications and ICT sector.

- **Centre for the Development of the Digital Economy (CDIC)**

It is a national incubator and a center of excellence dedicated to research, development and innovation, set up by the State. It offers the opportunity to young people to better

develop their talents and advance innovation in Cameroon. It is fitted out and equipped with state-of-the-art technological tools, information systems and electronic communications networks, which aims to support the development of the digital economy in Cameroon and accelerate the digital transformation by promoting the creation of a local digital industry and the development of Made in Cameroon applications.

The CDIC has a contact center, a job portal, a clean room made up of cloud servers and application servers, a 3D prototype laboratory, an assembly and digital creation studio for connected classrooms, co-working spaces; conference and meeting rooms. It offers services such as online and face-to-face incubation, call center, data hosting.

- **The Cameroon Digital Transformation Acceleration Project (UNDPAT)**

It is a project that is the result of an agreement between the Government of Cameroon and the World Bank. It aims to increase digital inclusion and the use of digital agricultural solutions by smallholder farmers in the target agricultural value chains. The UNTAP embodies the digital transformation approach, targeting a highly strategic sector for Cameroon while proposing to reform the regulatory framework of the Information and Communication Technology (ICT) sector. This project, with its investment in connectivity and digital skills, supports interventions that leverage digital innovations to drive agricultural growth, ultimately contributing to improving the quality of rural livelihoods.

b. Other institutional actors

- **The Ministry of Economy, Planning and Regional Development (MINEPAT)**

The Minister of Economy, Planning and Regional Development, in the light of Decree No. 2008/220 of 4 July 20008, is responsible for the development and implementation of the nation's economic policy as well as for regional planning

With regard to the economic aspects, it is responsible in particular for (i) carrying out studies and prospective analyses on the country's development in the medium and long term; (ii) the development of a comprehensive framework for strategic planning for the country's development; (iii) the coherence of the country's sectoral development strategies; (iv) the coordination and centralization of studies on projects of national economic interest and the monitoring of their implementation; (v) monitoring the coordination of the government's economic and social development policy; (vi) the preparation of economic studies, in liaison with the administrations and bodies concerned; (vii) the monitoring and permanent analysis of developments in the national economy, the sub-regional economies of Central Africa and the international economic environment; (viii) the monitoring and permanent analysis of developments in the labour market in conjunction with the administrations concerned;

(ix) centralization, processing, updating and dissemination of economic information; (x) the preparation of short- and medium-term macroeconomic forecasts, in conjunction with the administrations and bodies concerned; (xi) the conduct of studies on strategies for the growth and competitiveness of the national economy; (xii) the development and monitoring of the implementation of the value chain development policy; (xiii) the monitoring of the activities of the Technical Committee for the Preparation and Monitoring of the Structural Adjustment Programme, the Competitiveness Committee, the National Institute of Statistics and the Mission for the Rehabilitation of Public and Parapublic Sector Enterprises.

- **Administrations whose activities are highly digital intensive with a view to improving their performance (MINFI, MINFOPRA (SIGIPES I, II, etc.), minesup, minesec, minsante, mint, minedub, minmap, caa, etc.)**

c. Key Private Sector Actors

Among the main private players in the digital field in Cameroon are: (i) Mobile phone operators (Orange, Nexttel, MTN, CAMTEL); (ii) Internet Service Providers (CREOLINK, YOOME, MATRIX, etc.).

Regarding mobile phone operators: MTN CAMEROON, with a number of active subscriptions to mobile electronic communications networks **10,680,913 in 2022, i.e. 50.85%** of the market share, it is ranked as the leading mobile operator. It is followed by ORANGE CAMEROON with **9,755,605 subscribers in 2022**, thus 46.44% of the market share. As for CAMTEL (BLUE), the public operator, the figures indicate **569,934** subscribers under the same period that is 2.71% of the market share. All three provide 2nd generation (GSM), 3rd (UMTS) and 4th generation (LTE) mobile services. The fourth operator VIETTEL Cameroon, which operates under the trade name Nexttel, which only provides 2G and 3G services, is still in the process of entering the digital market. However, it had **1, 225,926** subscribers in 2021.

- **Regarding Internet service providers:** at the top of this market segment is the concessionaire CAMTEL, followed by MTN Cameroon, ORANGE Cameroon, as well as first-class licensed operators, including INQ (VODACOM), HTT Telecom, MATRIX, CREOLINK and SWECOM. In 2022, the total number of active internet service subscriptions (fixed network operator, mobile network operators, internet service providers) amounted to 12,174,370 in 2022, an increase of around 30.48% compared to the previous year

In addition to these two major groups, there is a **value-added service (VAS)**, which is a service offered to the public through electronic communications networks open to the public by means of computer systems allowing access to data relating to specific areas, with a view to consulting or exchanging them. In Cameroon, the provision of

VAS is governed by Law No. 2010/013 of 21 December 2010 governing electronic communications in Cameroon, amended and supplemented by Law No. 2015/006 of 20 April 2015 and the related implementing texts.

Value-added services may be offered by concessionary operators, network operators (operators holding 1st category licences) or operators holding prior declaration receipts, in accordance with the regulations in force. Concerning the operators holding declaration receipts, there are about forty companies operating in this segment and submitting their annual activity report to the ART in accordance with the regulations in force. In 2022, according to the annual activity reports submitted, the income generated by holders of prior declaration receipts fell considerably in 2022, by 38.37%, to 3,071,853,904 CFA francs.

d. Civil Society Organizations

These include:

- ACCOS-TELECOM, which is an association whose main purpose is to bring together consumers in the telecoms and ICT sector, with a view to ensuring that their interests, moral, material and economic, individual and collective rights are taken into account. The association's missions include (i) providing its members with material and moral support for the preservation of their socio-economic interests; (ii) it works in the popularization of information and communication technologies, for access for all to the information society; (iii) it acts in particular at national level to develop training, information, protection and representation of consumers;
- Telecommunications Consumers' Association which brings together Consumers of Telecommunications and ICT Products and Services in order to protect and defend their socio-economic interests

II.2. The main areas of the digital economy in Cameroon

Given its cross-cutting nature, almost all areas of the economy have adopted ICTs to increase their productivity, create new market opportunities and reduce their operating costs through the range of products and services offered by digital technology. The administrative sector is not left out in the sense that, administrations use practically all ICTs to achieve their different governmental objectives. The same applies to the private sector and civil society organizations.

a. Administrative area

In a world where technology is evolving at high speed, the dematerialization of public service procedures has become a major challenge for administrations around the world and that of the State of Cameroon in particular.

Indeed, digital transformation offers the opportunity to make government services more accessible, faster and more efficient. This contributes to a better quality of service for citizens and a significant reduction in costs for administrations. The Cameroonian government relies on digital technology to reveal its sovereign challenges, particularly in the identification services, tax collection, national security, etc.

By way of illustration, we can note: the identification of Cameroonian citizens and foreign residents through the "Aadhaar" platform, which allows to have a biometric identification database of the Cameroonian State. This universally recognized identifier allows banks, telecommunications companies and others to immediately verify the identity of customers. This, according to the Government, reduces the risk of fraud and the costs of verification. It allows the Government to send direct benefits to bank accounts linked to "Aadhaar".

We also note the existence of the System for the Aggregation of State Means of Payment (Syampe), set up by the Government via the General Directorate of Taxes (DGI). This new government transaction management portal is aimed at business owners, merchants, students, employees or all other professionals. The aim of this digital platform is to provide taxpayers with all the means of unified payment and thus facilitate the payment of tax and non-tax taxes, all in a simple, secure and authenticated way. A solution to improving tax revenues.

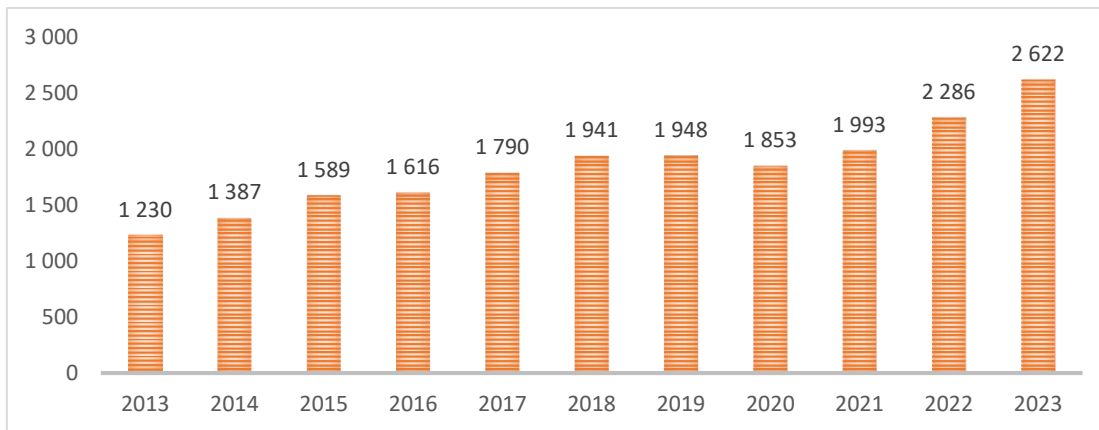
Indeed, since 2014, the DGI of Cameroon has gradually digitised all tax transactions, in particular through:

- digitisation of registration (online file tracking)
- the digitization of tax returns (monthly, annual and one-off)
- the digitization of payment methods (Mobile tax, telepayment, bank transfer)
- the digitization of tax audits, litigation and VAT credit refunds
- the digitization of administrative documents (tax compliance certificate, registration certificate, etc.).

This digitalization has produced convincing results in view of the evolution of the revenue curve, which shows an upward trend

This digital transformation is also observable at the level of the General Directorate of Customs of the MINFI, with similar trends at the DGI/MINFI.

Graph 10: Evolution of tax revenues from 2013 to 2023 (in billions of CFA francs).



Source: DGI, MINFI, 2023.

Also, the following performances are appreciable due to the dematerialization of procedures:

- ✓ Spontaneous payments are up **14%** between 2022 and 2023
- ✓ The tax compliance rate is increasing (the declaration rate has increased from **66%** in 2022 to **71%** in 2023). It is important to note that this rate does not yet include the ongoing operations relating to the online declaration of personal income.

At the level of MINMAP, we have the project for the dematerialization of public procurement procedures, called "Cameroon On-Line E-procurement System" (Coleps), whose main orientations of this new framework aim, among others: to strengthen the quality of procurement, the transparency of procedures and the fair treatment of all actors against the backdrop of the permanent fight against corruption through the prohibition of contacts between the actors.

The platform has been made operational at the technical level and in terms of its legal arsenal thanks to the following decrees on online procurement and its subsequent texts: (i) Decree No. 2018/0001/PM creating a dematerialization platform in the context of public procurement and setting its rules of use, (ii) Decree No. 2018/0002/PM setting the conditions and modalities of public procurement by electronic means in Cameroon. In the long term, when a tenderer wants to apply for a contract, he can simply, subject to a few technical and organisational prerequisites, enter the COLEPS system available on the Internet at the following addresses: <https://www.marchespublics.cm> and <https://www.publiccontracts.cm>. In the current state of the system, a bidder can download, consult the programme and the Tender Notices launched, examine it and propose its bids.

At the level of CAA, the System for tracking Financing Agreements, External Debt Management and Disbursements and Debt Sustainability Analysis (CS-DRMS 2000+) and the Treasury Management and Banking Monitoring System (SYGED/ERP) are also being set up. All of these digital tools make it possible to improve the ability to control public debt management and to establish reliable debt statistics for the purpose of developing sustainable policies.

b. Trade

The digital economy via e-commerce has made it possible to offer customers the opportunity to order goods and services online and have them delivered, no matter where they are. The e-commerce transaction can be between companies, households, individuals, administrations or other public or private bodies.

It should be noted that e-commerce is possible thanks to the internet, which facilitates operations such as ordering goods and services. In other words, many transactions that would have taken place without the Internet can be carried out more efficiently and at a lower cost. In addition, the Internet has enabled small businesses to expand their operations and enter markets that otherwise would have been out of reach for them. The number of companies that conduct business transactions on the Internet has therefore increased considerably over the past decade.

The field of e-commerce in Cameroon is experiencing considerable growth. In 2022, the Cameroonian market reached a value of 150 billion CFA francs, up 20% compared to the previous year. This growth is fueled by several factors, including the significant increase in the urban population, the rise in internet access, and the expansion of online offerings.

Indeed, for an estimated population of about 27.57 million inhabitants, Cameroon has an Internet penetration rate of 36.5%. This means that the country has crossed the symbolic threshold of 10 million Internet users. This is a market within reach for all economic operators.

c. Transport and logistics

The sector of transport and logistics has been transformed by the digital economy, which allows the tracking of vehicles and goods across continents and within the national territory, the provision of information to customers and the development of new operational processes such as just-in-time deliveries in the manufacturing sector.

This is the case with innovative applications developed by local entrepreneurs, in order to guarantee safety for road users. Among these applications, we can mention in particular: (i) the **Vairified** mobile application which allows you to directly order a secure taxi with the possibility of scanning the identification to verify the authenticity

of the driver; (ii) the **YANGO** platform, which is an international carpooling service, which is currently booming in Cameroon. It is considered by many as a response to the growing insecurity in transport in Cameroon's major cities, especially since until now, the process of booking a taxi was done on the fly, with the customer stopping at the edge of a busy avenue to stop a taxi.

The Traveler platform aims to prevent accidents by allowing road users to constantly measure the speed of the vehicles used, via a smartphone. Technology makes it possible to report risky behaviour to transport companies. In the event of an accident, the app automatically detects the impact and its intensity and notifies the nearest emergency services.

d. Financial

Banks, microfinance institutions, service providers of insurance companies, and other companies, including brokerage firms, allow their customers to transact and access new products online, even though they continue to use their branches to carry out some of the transactions. With online payment services, the payment service provider acts as an intermediary between online buyers and sellers. It accepts payments from buyers through various means (credit card, direct bank debit, or real-time bank transfer), processes these payments, and deposits the funds into the seller's account. Electronic payment systems have a number of advantages for users, namely (i) protection against fraud, as the seller and buyer do not exchange sensitive information, (ii) faster payment compared to traditional payment methods, and (iii) very often, the ability to complete the transaction in multiple currencies. Payment service providers usually charge a fee on each transaction completed, which may be fixed or proportional to the amount of the transaction, although some providers also charge a monthly fee or commission for certain additional services.

In addition, recently, mobile financial services, which are considered as vectors of financial inclusion, offer subscribers who do not have access to traditional banking services the possibility of having an electronic wallet.

In Cameroon, these **mobile financial services** are provided by four operators: Orange money, MTN mobile money, Yoomee money and BGFI mobile. This service has undergone rapid evolution in recent years, in part because it offers consumers a convenient and simplified solution for monetary transactions and the increasing adoption of this service as a means of payment in everyday transactions. Thus, the evolution of the use of this service is perceptible via a set of indicators, in particular:

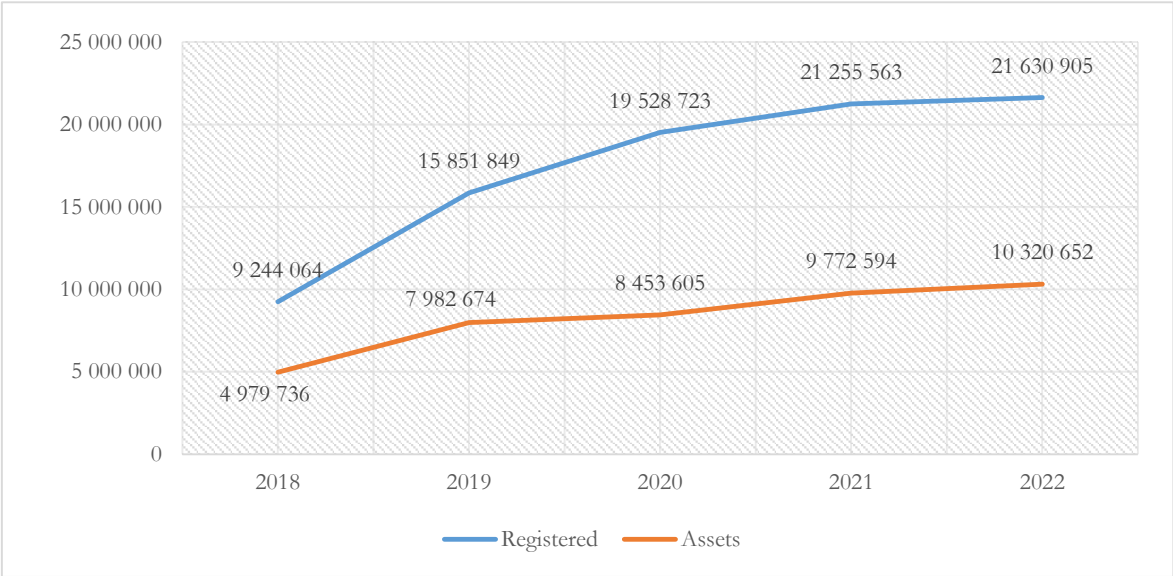
- Number of payment accounts

The number of payment accounts opened in Cameroon has been increasing significantly since 2018. Indeed, as the graph below shows, over the period 2018-2022,

this number has been multiplied by 2.3 from 9,244,064 to 21,630,905. However, it should be noted that there is a huge gap between the number of accounts opened and the number of accounts actually active.

In 2022, the number of active accounts in Cameroon amounted to 10,320,632, which is twice as many as the value observed in 2018.

Graph 11: Number of Payment Accounts



Source: BEAC, 2023.

The mobile phone giants MTN Cameroon and Orange Cameroon have an active number of subscriptions to mobile financial services of 9,358,370 subscriptions in 2022, an increase of 1,097,730 subscriptions compared to 2021.

Regarding the revenues generated by the activity of providing mobile financial services, the companies MTN Mobile Money Corporation and ORANGE Money Cameroon SA achieved a turnover of 90,709,223,744 CFAF in 2022, a decrease of 3.99% compared to the previous year.

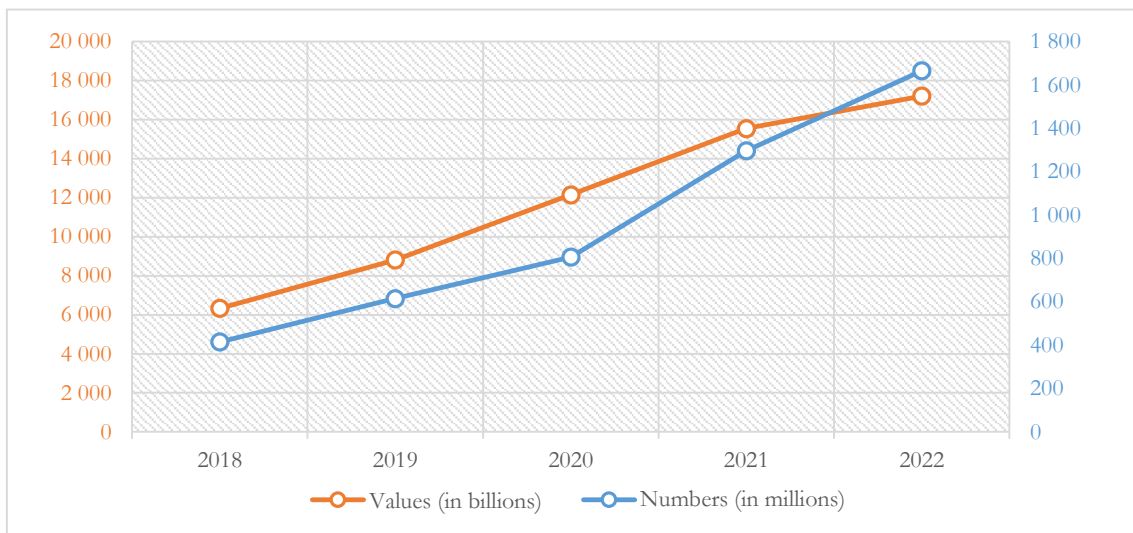
- The volume of e-money transactions

Over the period 2018-2022, the number of electronic money transactions in Cameroon has increased by a factor of 4, from nearly 415 million to more than 1.6 billion between these two dates. In the same vein, the value of these transactions increased from about 6,333 billion CFA francs to nearly 17,207.6 billion CFA francs, an increase of more than 171% over the period under review and 11% compared to the previous year.

This increase is explained in particular by:

- the increase in the number of users of electronic money (number of active accounts);
- the development of digital payment solutions through partnerships between economic operators;
- the development of new digital services, including E-commerce;
- the extension of the geographical area covered by operators offering electronic money transaction services.

Graph 12: Evolution of electronic money transactions



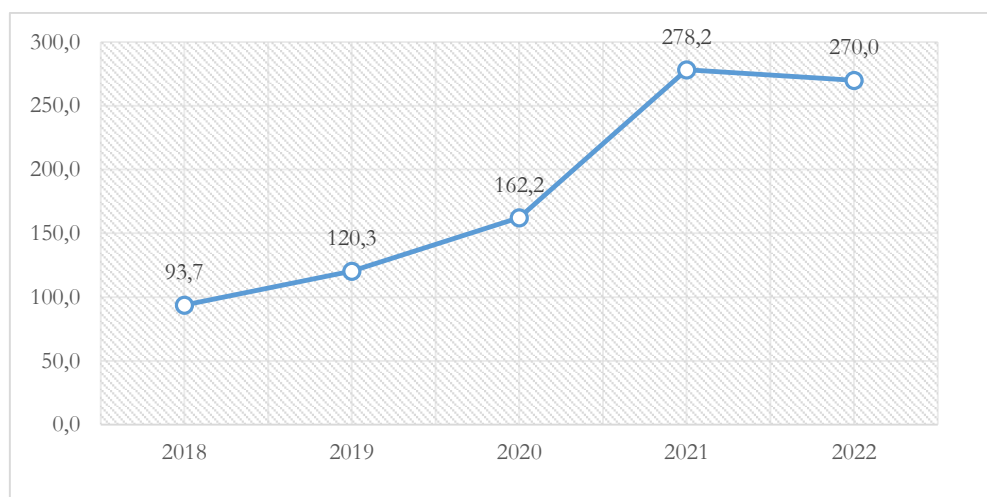
Source: BEAC, 2023.

- **The outstanding amount of electronic money**

Over the period 2018-2022, it can be seen that the outstanding amount of electronic money has increased significantly. It went from nearly 93.7 billion CFA francs to about 730 billion CFA francs, an increase of 188%. In addition, compared to 2021, this outstanding amount is down by about 3% due in particular to the cessation of activities of the operator YUP Cameroon of Société Générale Cameroun (SGC).

This evolution in the outstanding amount of electronic money reflects an explosion in local demand in connection with an offer that is increasingly adapted to the expectations and needs of consumers.

Graph 13: Evolution of the outstanding amount of electronic money



Source: BEAC, 2023.

e. Healthcare

The values of digital technologies are no longer to be demonstrated in the field of health because the digital economy is revolutionising this sector through remote diagnosis, improving the efficiency of systems and the patient's experience, electronic medical records. It also opens up opportunities for advertising medicines and other treatments. Indeed, the digital economy contributes in particular to supporting health systems, by improving the quality and accessibility of health services, both geographically and financially. Better still, it makes it possible to overcome the challenges of the health system, such as geographical inaccessibility, low demand for services, delay in the provision of care, poor compliance with clinical protocols and costs borne by individuals.

This is the case, for example, with **telemedicine**, which gives people living in areas with limited access to services the opportunity to benefit from safe and quality care, through real-time interaction between the patient and their healthcare provider, via videoconferencing and other forms of online and remote communication.

At the regulatory level, there are two structures related to digital health, whose missions are clearly defined in Decree No. 2013/093 of 3 April 2013 on the organisation of the Ministry of Public Health. These include the IT Unit and the Health Information Unit. In addition, the country has some legal instruments that regulate ICTs, including Law No. 2010/012 of December 21, 2010 on cybersecurity and cybercrime in Cameroon. However, there is not yet a regulatory and ethical framework for the implementation of specific digital health interventions.

In addition, according to the National Strategic Plan for Digital Health, in terms of (i) equipping health structures with ICTs at the national level, only 32.1% of health

facilities have a computer, while 16.8% use a personal computer, for internet access limited to 27% of health facilities; (ii) information and communication, the private mobile phone paid for by staff but used by the health facility is the most used means of communication by health facilities (52.7%), followed by the mobile phone belonging to the establishment (33.2%), and a private mobile phone whose calls are paid for by the health facility (23.1%).

f. Teaching

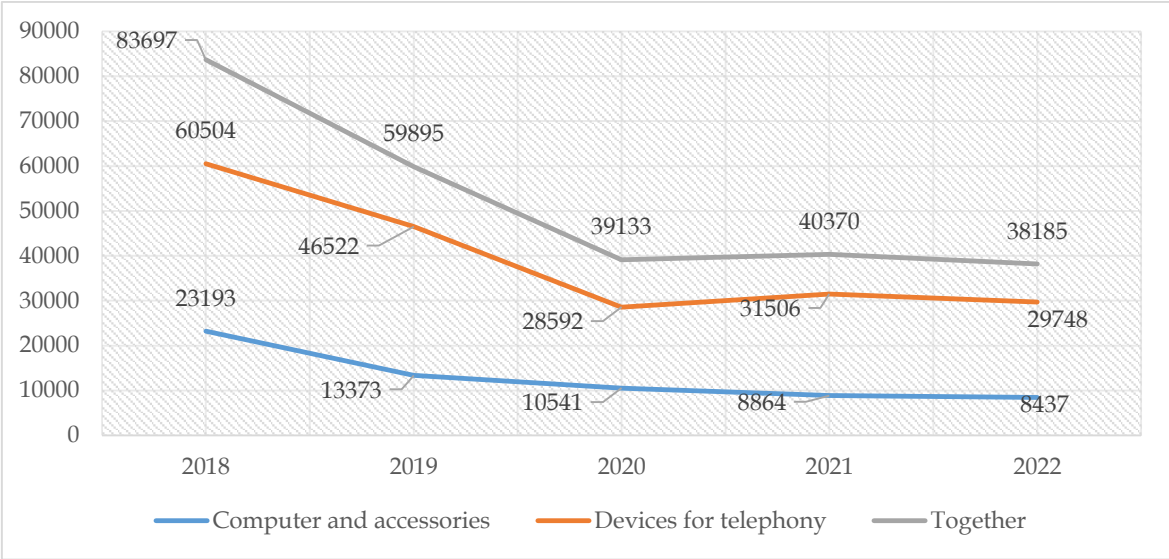
The digital economy allows primary and secondary schools, universities, tutoring services and other education providers to deliver distance learning without the need for face-to-face learning, thanks to technologies such as video conferencing, streaming video and online collaboration portals. This makes it possible to offer their various education and vocational training programs to the world in a way that was not possible before. Indeed, the digital transformation of Universities in Cameroon is being done through the digitalization of teaching and administrative activities. The E-National Higher Education Network was done by: (i) the distribution of 500,000 laptops to students of public and private universities; (ii) the construction, equipment and operation of nine (09) ultramodern centers for the development of digital university, including one in each State University and one at the Congo-Cameroon Inter-State University in Sangmelima; (iii) the establishment of a Virtual Network for the interconnection of State Universities and the Ministry of Higher Education (RIC), managed by a National Center for University Digital to be built, equipped and made available to MINESUP. Indeed, thanks to the agreement between the Ministry of Higher Education and Cameroon Telecommunications (CAMTEL), for the provision of shared access to high-speed Internet, the Universities are moving from a shared speed of 263 megabits per second to a speed of 9333 megabits per second, an increase of 3500% at an inexpensive cost of 2.5 billion CFA francs (instead of 9 billion CFA francs) per year; (iv) the design, development and implementation of the Information System for Integrated Management of Higher Education in Cameroon (SIGIRES).

g. Production and marketing of electronic equipment and devices.

The rise of the digital field in Cameroon has led to the development of several related activities. At the local level, there is a large market for electronic devices and equipment. Although in recent years, there have been the creation of a few companies specialising in the production of this type of goods, Cameroon remains a net importer in this area.

Over the period 2018-2019, imports of telephone devices, computers and accessories are on a downward trend. It went from nearly 83.7 billion CFA francs to about 38.2 billion CFA francs over the period under review.

Graph 14: Evolution of imports of electronic equipment and devices

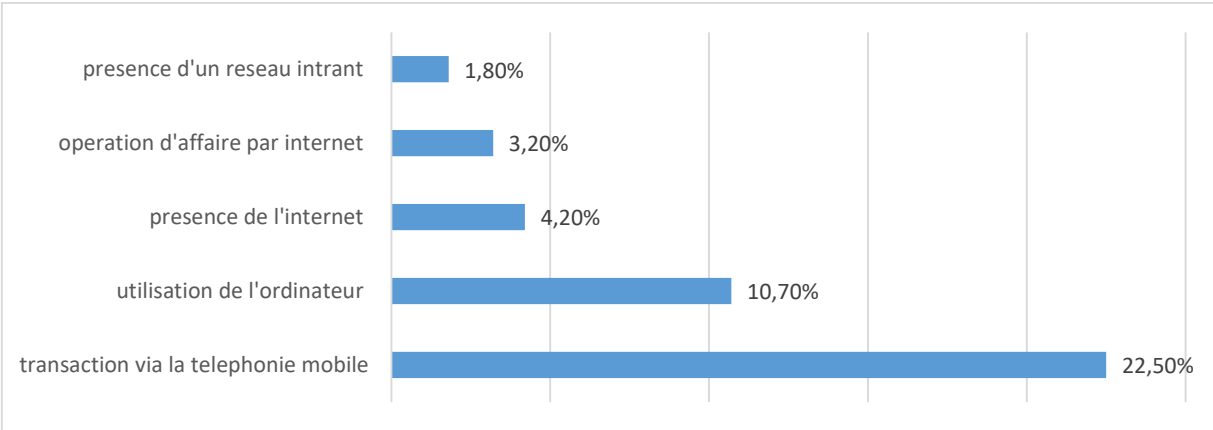


Source : MINFI, Comext 2023.

h. Business

The 2019 report on the general census of companies in Cameroon notes that the use of computers within companies is effective for only 10.7% of them. However, there was a breakthrough in transactions via mobile telephony (22.5%), which could be explained by the relatively easy access to the equipment.

Graph 15: ICT penetration in enterprises (%)



Source: RGE-2, NIS 2019.

However, according to the report of the 2021 GICAM Global Survey of companies, 58% of companies believe that they are digitalized. Only 38% of companies have an IT charter and 81% have a website. 85% use social networks to communicate and 67% use mobile applications in their activities. These figures indicate that companies are evolving in the process of digital transformation.

Indeed, the health crisis linked to the Covid-19 pandemic has reinforced this need among companies, because digital technology has become the solution to many problems, whether for trading, working, learning, etc. We are therefore witnessing a digital revolution in which companies are called upon to reorganize themselves in order to take full advantage of the opportunities and facilities that this new model provides. This is particularly the case with the dematerialization of administrative procedures, which are major assets for improving the performance of both the private sector and the State.

This is one of the reasons why digital transformation must be a major priority for our companies. This will increase operational and economic efficiency. As a result, the digital transformation will appear to be a factor in strengthening Cameroon's economic growth.

i. Employment

The development of the digital economy, as we can see it, allows society to free up unprecedented individual production capacities and offers more choice of activities to workers. Recently, we have witnessed: (i) a new individual autonomy of workers, whether in the company or as "self-employed" workers who make extensive use of the flexibility offered by technological capital to be able to work from anywhere; (ii) the creation of micro-works, particularly in the service sector (home delivery, short-distance transport, consulting activities, bloggers, etc.); (iii) a change in paid jobs which results in the disappearance of some of them and the appearance of new ...

According to a World Bank study, the number of digital jobs in sub-Saharan Africa is expected to increase from 8 million in 2020 to 230 million in 2030. In Cameroon⁶, with the digital transformation underway, job opportunities in the digital sector are numerous and varied in view of the job profiles currently solicited by companies in order to boost their digital activities. They concern in particular the following areas:

- Software and app development: The demand for web and mobile developers is constantly increasing, as many startups and companies are hiring developers, designers, and engineers.
- Digital marketing: Businesses are looking to increase their online visibility and reach a wider audience, which creates in-demand needs for digital communications, community management, SEO, social media, and content strategists.

⁶ <https://www.econuma.com/go-digital/lemploi-dans-le-digital-au-cameroun-opportunités-et-perspectives-1694813085>

- IT services: Businesses need IT support for their infrastructure and applications. This sector offers job opportunities for technicians, administrators, and consultants.
- E-commerce: e-commerce is growing strongly in Cameroon, which creates a need for salespeople, logisticians and online payment specialists.
- Emerging technologies: Emerging technologies such as artificial intelligence, Internet of Things, and blockchain are starting to gain momentum in Cameroon, providing job opportunities for experts in these sectors.

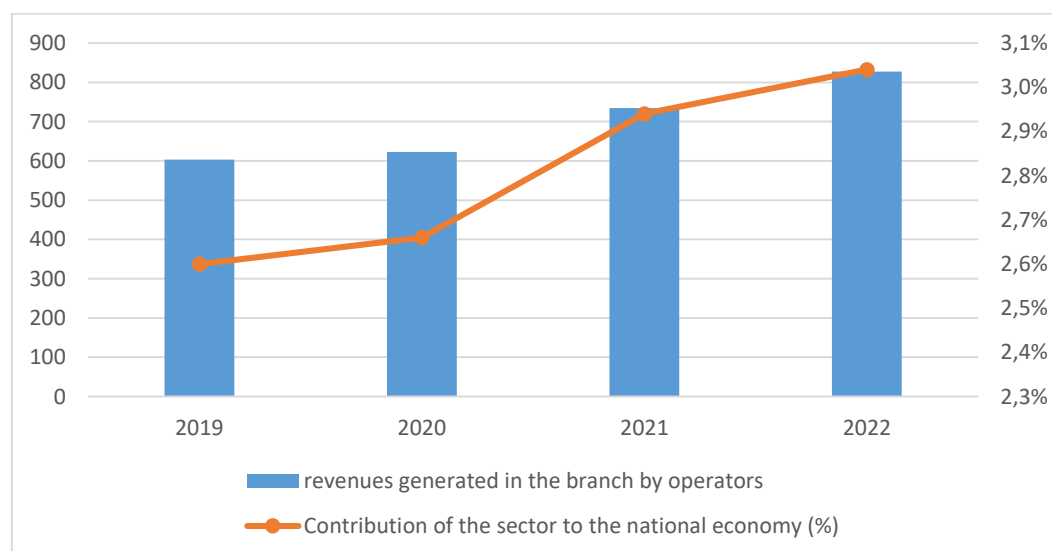
II.3. The evolution of the contribution of digital technology to the national economy in terms of investment and jobs

In the telecommunications branch, we note: (i) the revenues generated by the activity, (ii) the investments in the digital branch of activity and (iii) the number of direct jobs created.

a. Income generated in the industry

The revenues recorded by operators, all business segments combined, maintain their upward trend that began in 2019. In 2022, these revenues increased by 12.75% to 827,920,987,779 CFA francs. This translates into an upward increase in the contribution of this branch of activity to the country's economic growth.

Graph 16: Revenue generated in the sector by operators

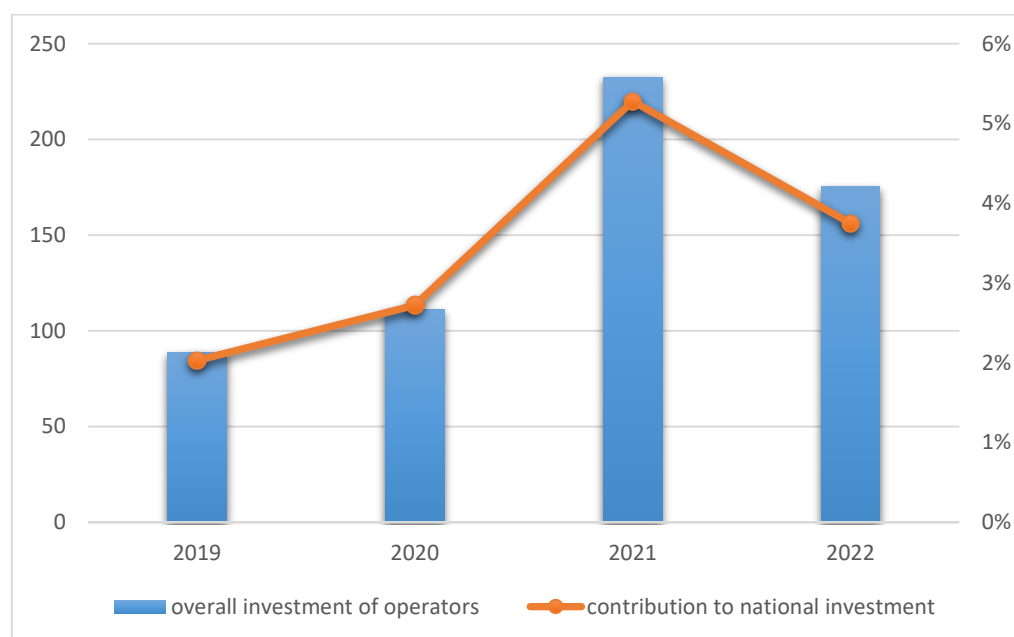


Source: ART, 2022.

b. Overall investment situation in the sector

According to data from the reports sent to the ART by the operators of that branch between 2019-2022, there was a decrease of 24.62% to 175.241 billion CFA francs in 2022, in the overall investments of the various actors in the field of telecommunications and ICT in Cameroon.

Graph 17: Evolution of investment in the telecommunications sector

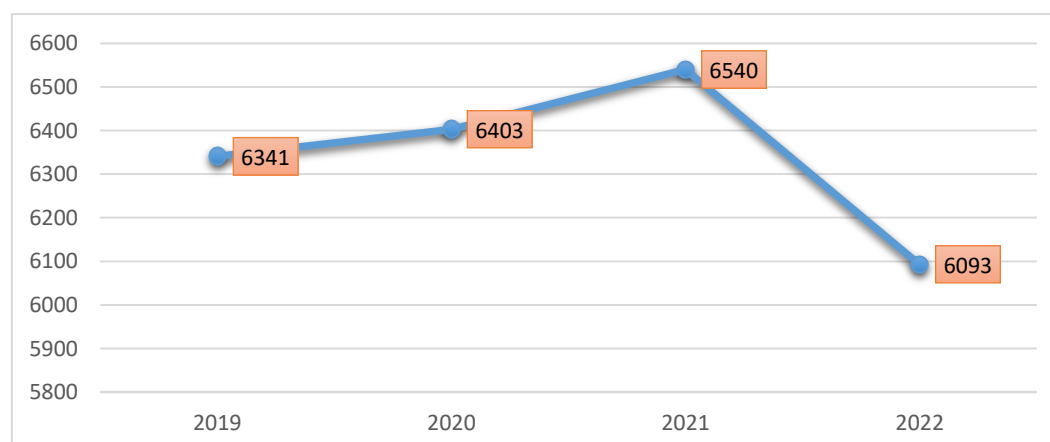


Source: ART, 2022.

c. Evolution of direct jobs in the sector

The chart below shows that in 2022, the stock of direct jobs decreased by 6.83%, to 6,093 employees, compared to 6,540 in 2021.

Graph 18: Evolution of direct employment in the sector



Source: ART, 2022.

II.4. Artificial intelligence in Cameroon

The evolution of artificial intelligence in recent years now requires Cameroon, as well as all states, to align and appropriate this new technology. On the one hand, because it is a tool for optimizing and improving performance in all sectors of activity, and on the other hand, in order to control risks and protect against the negative effects associated with the use of this new technology.

In the case of Cameroon, it should be noted that the use of AI is still in its infancy and booming thanks to efforts in the field of research, education and training, as well as infrastructure. To date, we can note some actions taken for the development of AI in various fields⁷, including:

In terms of public policies, it should be noted that Cameroon does not yet have regulations that govern the use of AI technology. In addition, a preliminary draft law on the protection of personal data is open for public consultation within the Ministry of Posts and Telecommunications⁸. This is an approach that requires acceleration in view of the fact that data is a raw material for AI.

In Research and Development, some researchers from both the public and private sectors (start-ups) are working to find practical solutions based on AI to solve the problems encountered on a daily basis in various sectors such as: health, agriculture, management (human, material or financial), audiovisual, etc. However, given the lack of technical resources, most of them work in partnership with foreign universities or laboratories, and the results are little exploited and promoted at the local level. This requires permanent monitoring of these research areas as well as appropriation of their results by the public authorities.

In terms of private initiatives (Startups and companies), it appears that a growing number of startups and companies in Cameroon are embarking on AI. These develop AI-based solutions in areas such as health, agriculture, finance and human resource management. We can mention Healthlane with the GiftedMom application, Toget Tech with AJarke Mobile Assistant, Tagus drone which offers smart drones, Menye Startup which has developed an Antivirus. There are also smart solar dryers and egg incubators. Some initiatives such as POESAM, MTN Y'ello startups, and the Digital Innovation Week are also being conducted.

In the field of Education and Training, we can identify the very first artificial intelligence (AI) training center in Cameroon which was created in 2019 thanks to a partnership between the public operator Cameroon Telecommunications (CAMTEL) and the University of Yaoundé I, via the National Advanced School of Engineering in

⁷ Report of the National Committee for the Development of Technologies on AI

⁸ Digital Transformation Acceleration Project in Cameroon, <https://www.minpostel.gov.cm/> accessed 10/12/2023.

Yaounde (ENSPY). There are also a good number of student projects on AI at the African Institute for Mathematical Sciences (AIMS).

In terms of infrastructure, data storage is a strategic aspect. It is in this capacity that we have the Orange Cameroon Datacenter which facilitates the storage, backup, processing, distribution and transmission of data, the MTN Datacenter, the CAMTEL Datacenter, the ST Digital Independent Datacenter. The internet component, on the other hand, is based on the Backbone National Project, a fiber optic network with an extension of 25,000 km.

a. The opportunities of AI in Cameroon

The development of AI in Cameroon could be a decisive factor for the structural transformation of our economy, in the sense that, if used wisely, it would improve the performance of public and private actors as well as their contribution to growth. The use of this technology could be beneficial in a variety of areas, including:

- Finance through the development of digital products adapted to user expectations and that can serve as alternatives to traditional banking services, such as smart payment methods;
- Health and AI can improve the performance of medical intervention through improved public health policy, care delivery, rapid access to diagnosis and interpretation of test results. In addition, we also note the development of AI applications that facilitate a personalized medical approach and can serve as a "life assistant" by reminding you to take your pills, exercise or eat a more balanced diet;
- Education, AI can enable the automation of activities like grading, additional support to students through intelligent tutoring systems, and automated teaching agents. It also makes it possible to monitor learners' progress, the quality of teaching and adapt course content for limited devices and thus adapt content in other languages (for example from English to French or vice-versa);
- Agriculture, AI through specialized applications could promote the emergence of smart agriculture through, for example, the optimization of agricultural production based on the analysis of climate and soil data to improve yields;
- Administration, AI could be used to automate certain tasks such as administrative writing, translation and correction of texts, personnel management, etc. ;
- Cultural, AI could play a major role in the preservation of national languages (239) and thus safeguard our cultural identity. Speech recognition systems could be put to good use; etc.

However, many challenges remain to be overcome in order to capture the opportunities offered by AI.

b. The challenges of developing AI in Cameroon

The challenges facing AI in Cameroon are of several kinds, including:

- The infrastructural deficit in terms of data center, research laboratory, network infrastructure to ensure coverage and a satisfactory quality of internet connection for the development of this data-intensive technology, etc. ;
- The scarcity of funding, particularly in the field of AI, which is still undervalued at the local level;
- The lack of human resources specialized in cutting-edge AI;
- The absence of regulation around AI and its development in Cameroon.

II.5. Economic intelligence

The practice of economic intelligence is not new, because it dates back to the twentieth century, to the era of the Republic of Venice, far from it; But the explicit formulation of the concept, made necessary by a certain "dematerialization" of the economy and the extraordinary recent evolution of information technologies, dates back only a few decades.

For more than twenty-five years, the dynamic of economic intelligence has developed, a culture of intelligence that gives the companies that implement it a decisive advantage. This collective approach aims at agility through the strategic use of information. It sets to music approaches to monitoring, economic security and influence (Moinet, 2020).

It is in surveillance, in the military sense of the term, that economic intelligence finds its origins. Surveillance is defined as that which makes it possible to avoid surprise, to ensure the defense of the state, and to neutralize the enemy. It has become, over time, a common and legitimate practice of states. Practically all countries have set up intelligence services, which have been assigned the mission of "seeing without being seen" (Baumard, 1991). With the air of *Soft Power* (Nye, 1992), where innovation and the conquest of markets will become the key words of a new war, that of "geoeconomics" (Larot, 1997; Luttwak, 1990; Baumard, 1997), the logic of confrontation has become more economic than military. It marks the transition from surveillance to economic intelligence. In this logic, the industrialized countries have begun to invest their intelligence capacities in the service of multinational firms and SMEs and SMIs.

Considered a Western practice, economic intelligence has become established in several countries and is increasingly attracting the interest of African countries. In the face of globalization, African states must better understand their local and international competitors, avoid surprises, consolidate their position on the local market and give themselves the capacity to internationalize (Zakaria, 2011).

In Cameroon, economic intelligence (EI) is a concept whose appropriation is still at an embryonic stage, although some actions are beginning to express a desire to boost the need to use this tool in both the public and private sectors. Indeed, there is not yet a formal body in charge of managing economic intelligence issues as advocated in some developed countries. However, we observe components of Economic Intelligence implemented by various administrations in an isolated and poorly coordinated manner. In addition, awareness of the importance of Economic Intelligence is still low and it is carried by certain civil society actors and private operators who better understand the realities of international competition. It is in this sense that conferences and training sessions for the main players in strategic monitoring and economic intelligence (managers and other company executives) are multiplying.

With a view to implementing a structured Economic Intelligence system, adapted to our own specificities and likely to contribute significantly to the growth of strategic sectors for our endogenous development, the NDS30 recommends the development and implementation of an Economic Intelligence strategy in order to strengthen the effectiveness of public actions that will be implemented during the second phase of Cameroon's Development Vision to be implemented in Cameroon by 2035. This thus confirms its strategic anchoring in our National Development Strategy. In addition, the current economic dynamic calls for the observation that EI appears to be a strategic lever for the performance of public policies and the development of the private sector.

In view of the importance that could be given to EI because of its potential, its positioning calls for the analysis of certain issues. These include the political, economic, as well as technological.

In terms of political issues, it should be noted that monitoring is an important mechanism for monitoring and controlling socio-political data for anticipatory purposes. Indeed, EI is based on a political concept based on the implementation by the public authorities of a genuine policy of international competitiveness, an industrial policy, coupled with a policy of economic security, supported by a national policy of influence within international bodies, which must be associated with an education and research policy, capable of guaranteeing its implementation work within the administrations concerned, and to ensure its strategic counterpart in companies. Moreover, economic intelligence is the best weapon to face the new threats of geographical expansion, political crises, and political changes. The resulting knowledge can help leaders in planning the future actions of their organizations. In addition, despite recent progress, economic intelligence is still often struggling to translate into effective practices in the company.

In terms of technology, digital technology is at the heart of the challenges of economic intelligence because the advent of digital technology is undoubtedly a source of new opportunities. It appears that the use of information and communication technology

resources allows companies to be more competitive and more efficient in the face of the competition imposed by the new configuration of the economy. Economic intelligence will allow companies to be up to date and to align more easily. In addition, it is the ideal tool for safeguarding innovation and research investments, insurance on material goods, developing a business strategy, finding a partner, setting up companies and subcontracting.

However, digital technology is also perceived as a flip side of the coin, a vector of attacks on the economic, industrial and scientific interests of each nation, through the multiplication of cybercriminal attacks, digital espionage, cases of misuse of legal e-discovery procedures leading to mass transfers of information without direct links to the ongoing litigation "fishing expeditions" or "intelligence fishing"... in order to try to seize confidential information, strategic information, manufacturing processes, as well as know-how. Intellectual property (in various forms such as technology transfer, patents, software protection, technological innovations) is also a major issue in this context of globalization, with increasing competition between economies.

The economic challenges are linked to the use of economic intelligence tools and methods to cope with the acceleration of market developments and national and international competition, the evolution of the rules governing international trade and facilitate anticipation and decision-making. EI is identified as a tool for national, territorial and business competitiveness. Indeed, it is an information system that several entities use to determine their competitiveness in the face of competition. In addition to its role in building a competitive approach, it also contributes to improving the economic security of the company and the country.

PART III. DIAGNOSIS OF THE DEVELOPMENT OF THE DIGITAL ECONOMY IN CAMEROON

The digital economy has been at the centre of development in recent years. It is the strategic area of the economy in the sense that it encompasses activities in different areas of development in the country.

After the presentation of an inventory, the diagnostic analysis made it possible to identify the assets and constraints that hinder the development of the digital economy in Cameroon.

III.1. The Advantages of the Development of the Digital Economy in Cameroon

Several elements are assets for the development of the digital economy in Cameroon. These include the following assumptions:

- a strategic framework integrating the issue of the development of the digital sector into its priorities (NDS30, PDI, etc.);
- the creation and implementation of several structures that are supposed to boost the growth dynamic, but have not yet reached the optimality of their activities in terms of digital development;
- the installation of optical fibre on more than 50% of the national territory;
- the implementation of several pilot programs/projects, which are slow to become widespread, in order to derive the expected added value e-government, e-regulation, e-commerce, e-employment, e-registration (electronic declaration, etc.);
- the participatory elaboration coordinated by MINPOSTEL, of the strategy for the development of the digital economy with the various administrations concerned (Digital Strategic Plan 2020);
- the establishment of an incentive framework for the promotion of private investment in Cameroon. These include: (i) Law No. 2013/011 of 16 December 2013 governing economic zones in Cameroon; (ii) Law No. 2006/012 of 29 December 2006 laying down the general regime for partnership contracts; (iii) Law of 18 April 2013 establishing incentives for private investment in the Republic of Cameroon;
- the implementation of actions to strengthen the local energy supply, in particular the construction of several hydroelectric dams (Nachtigal, Bini in Warack, etc.), the commissioning of the Kribi gas power plant, the continuous implementation of the Emergency Thermal Program (PTU), through the installation of thermal power plants in the cities of Bamenda, Ebolowa, Mbalmayo and Yaoundé, etc. ;

- the establishment of (i) the commodity exchange, (ii) the subcontracting exchange, (iii) the real estate stock exchange (the Douala Stock Exchange), etc. main instruments for promoting the digital economy;
- the development of a Response Plan against COVID 19 in 2020;
- the start of the implementation of the African Continental Free Trade Area (AfCFTA) Agreement since January 1, 2021, which includes a whole protocol on digital development as well as another on trade in services;
- the establishment by the Government of a national strategic monitoring and economic intelligence system, which will not only make it possible to effectively secure the national economic space, but also and above all to constantly scrutinize the global environment, to detect warning signs and business opportunities for Cameroon.

III.2. The problems of the development of the digital economy.

The analysis of the state of play has identified several problems that hinder the development of the digital economy in Cameroon. These problems are classified into three categories, namely, those that hinder the supply of services, those that prevent boosting demand and finally those relating to good governance, regulation and training.

a. In terms of supply

In terms of supply, we can mention among others:

- Poor development of broadband infrastructure;
- The lack of a broadband infrastructure development master plan;
- The high cost of bandwidth access;
- The quantitative and qualitative inadequacy of adequate technological infrastructure, as many regions still lack reliable internet connections, modern data centres and state-of-the-art technological equipment;
- The lack of specialised skills, there is a shortage of professionals trained in the field of Artificial Intelligence in Cameroon which hinders organizations from developing and deploying solutions based in the field;
- The weak transformation of business sectors, due to the low availability of ICT solutions;
- The absence of a local digital content development industry;
- Poor maintenance of the wired network;
- The delay in the deployment of the latest generation technologies;
- Research and innovation not sufficiently supervised;

- The low development of related services necessary for the development of the digital economy (delivery service, internet access, mobile financial services, etc.);
- A wide range of services provided informally.

b. In terms of demand

In terms of demand, we can mention in particular:

- The low rate of access to high-speed Internet for households;
- The low rate of access to very high-speed internet by companies;
- The company's weak digital transformation;
- The lack of culture in the use of ICTs;
- Retail tariffs are still high;
- Low purchasing power;
- The low dematerialisation of public services;
- The low availability of online services;
- Vulnerability to cyberattacks.

c. In terms of Governance and Training

In terms of governance and training, we can mention among others:

- The trust framework in the digital economy, which is not yet sufficiently adapted;
- The weakness of regulation to support the development of the digital economy;
- The failure to adapt the institutional framework to the development of the digital economy;
- The inadequacy of training in relation to the employment needs of the field;
- The inadequacy of the necessary financial resources;
- The weak regulatory framework for digital services such as e-commerce or the creation and sale of digital content in cyberspace.

III.3. SWOT Analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Prioritizing digital transformation as a national goal; - Existence of a telecommunications regulatory authority (ART); - Existence of an ICT security agency (ANTIC); - Implementation of the e-post; - Existence of several INTERNET service providers; - Existence of a public company for the management of state assets (CAMTEL); - Existence of several incubators for the promotion and development of start-ups; - Continuation of work to extend the fibre optic coverage area; - Existence of local servers; - Fiber optic network throughout the country; - Use of technology to develop e-services; - Potential for change in public services through ongoing transformational systems initiatives; - Rapid development of Internet-related services; 	<ul style="list-style-type: none"> - Quantitative and qualitative deficit of infrastructure in the digital field; - Insufficient fiber optic landing points (Limbe, Kribi); - Weak competition in the telecommunications market; - Insufficient number of earth stations; - Poor wired network coverage; - Low bandwidth throughput; - Delay in the deployment of the latest generation technologies; - Low internet penetration; - Lack of culture in the use of ICTs; - Retail prices are still high; - High cost of retail rates on certain digital services; - Low dematerialization of public services; - Local digital industry still in its infancy; - a framework of trust in the digital economy that is not yet sufficiently adapted; - Weak culture in the use of digital services; - Lack of clarity of the institutional framework for setting cybersecurity standards;

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Strengthening the engagement of private actors in the digital ecosystem 	<ul style="list-style-type: none"> - Inability of investors to understand digital businesses and assess their creditworthiness. - Mismatch between skills and labour market needs;
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - Universal consensus on the lever that digital technology represents for the growth and transformation of the State; - Support from Technical and Financial Partners (TFPs); - Implementation of the Major Achievements policy with the ongoing execution of structuring projects (e-government, backbone project, urban optical loops, National Broadband Network...); - Cameroon's strategic position in the Gulf of Guinea; - Presence of an extensive market of 300 million inhabitants within the framework of the Economic Community of Central African States (ECCAS) and its proximity to Nigeria; 	<ul style="list-style-type: none"> - Cross-border insecurities; - Cybercrime; - Energy deficit; - the persistence of the crisis in the South-West and North-West Regions, which could seriously compromise the country's development ambitions; - Lack of synergy between actors in the implementation of infrastructure projects; - Insufficient resources for research and innovation - Degradation on installed wired network; - High cost of maintaining existing infrastructure; - High cost of bandwidth access; - Poor access to new information and communication technologies; - Lack of the necessary financial resources;

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Access to a larger market with the African Continental Free Trade Area (AfCFTA); - Existence of four (04) 4G operators in the field of telecommunications; - Presence of two Internet exchange points by ANTIC; - Existence of various public financing mechanisms to promote the development of local industries (the business credit guarantee fund, the guarantee fund for young entrepreneurs, etc.); - Increasing dematerialization of public and private services; - Training in the digital sector offered by public and private higher education institutions. 	<ul style="list-style-type: none"> - Resistance to change.

PART IV. PROPOSAL FOR MEASURES TO ACCELERATE THE DEVELOPMENT OF THE DIGITAL ECONOMY IN CAMEROON

After the analysis of the strengths and difficulties of the development of the digital economy in Cameroon, followed by a Strengths-Weaknesses-Threats-Opportunities (SWOT) analysis, the following part proposes: (i) the measures to be taken to improve supply, improve demand and improve governance; (ii) the various actions to be implemented to strengthen the field as well as the main administrations concerned.

IV.1 Proposal for measures

a. Development of the service offer in the digital economy

To improve the offer in the digital sector, it is important to:

- Invest in telecommunications infrastructure to ensure reliable and fast internet coverage, especially in rural areas. To do this, it will be necessary to implement a real digital development policy for Cameroon through the quality of its infrastructure and guarantee high-speed access throughout the country and very high-speed broadband for certain priority areas. Indeed, the Government should encourage the sharing of infrastructure, ensure that tariffs are cost-oriented, integrate into the contracts access roads to new or old social housing districts, the laying of network and internal distribution pipes in housing, draw up digital development master plans in collaboration with decentralized local authorities, building datacenters for administration and companies and promoting Cloud technologies and the rational management of metadata (Big Data), installing Wi-Fi everywhere in public spaces in large cities;
- Increase the production of digital content on offer. Develop and structure the ICT sector and ecosystem to capture opportunities and increase the added value of the digital economy for the benefit of Cameroon. To accomplish this, it will be necessary to make the government web portal functional, digitize and disseminate the national tourist and cultural heritage, promote the development of e-application content in all sectors of activity including health, tourism, education, transport, agriculture, establish and make available free of charge the digital map of Cameroon, in order to promote the development of applications and services using Information Systems geographical, digitizing and putting the national archives online;
- Ensuring the digital transformation of the administration and companies. The digital revolution is transforming traditional sectors of activity and allows companies and structures in these sectors to also offer their services virtually (thanks to broadband telecommunications infrastructure and the Internet), in

order to increase their number of users, as well as the added value linked to their activities.

b. Developing the demand for services in the digital economy

Several actions must be put in place to promote demand for digital services. They may include:

- Putting in place favourable conditions to generate confidence in the digital economy, which will involve securing all public administration websites, securing electronic transactions, identifying and securing national critical infrastructures, raising awareness of electronic security among the administration, businesses and citizens, encouraging research/development and innovation in electronic security, finalize and monitor the implementation of the national policy on the security of network and information systems, develop procedures and standards for securing electronic communications networks, strengthen and coordinate awareness-raising initiatives, strengthen international cooperation in cyber security, and the fight against cybercrime and cyberterrorism;
- To develop locally produced digital goods and services at the national level. It will be a question of privileging locally produced ICT goods and services in public procurement, creating institutes for digital studies and research in all state universities, strengthening the broadband connection of universities and creating digital laboratories, creating a platform for exchanges between the government and business groups for the development of the digital economy, Facilitate the establishment of foreign companies/investors in national technology parks, organize annual ICT fairs and forums, create an environment conducive to the development of the digital economy, promote the culture of Digital Innovation, stimulate innovation within the public administration, universities and colleges, research centers and companies, encourage the establishment of security research and development centers electronic innovation, inventing mechanisms for financing public and private innovation;
- To ensure the availability of quantity and quality of human skills capable of meeting the needs of the digital economy. Expand digital skills training programs for youth and professionals to create a skilled workforce. It will be necessary to develop a local digital industry and encourage research and innovation, ensure free training in digital sectors, exempt from taxes on the acquisition of ICT equipment by pupils, students and schools and universities, recruit specialists in network and information systems security and in digital investigations, encourage certification training and capacity building for public

administration staff in ICT and electronic security, encourage the inclusion of digital security in educational curricula at all school and university levels, strengthen capacities in digital security, adapt training with the niches of professions in shortage and of the future identified by the sector's stakeholders, strengthen the training of engineers and equivalents as well as the professional training of senior technicians in the field of ICT, develop training on digital humanities;

- Create an environment conducive to the development of digital technology for economic development. Putting in place a regulatory framework that promotes competition and protects consumers, while ensuring data security. Among other things, it will be possible to adapt the legislative framework to put local authorities at the heart of the development of infrastructure in their territory, regulate the mandatory pre-wiring of new buildings in fibre optics, take into account in contracts for the development of urban roads and the construction of social housing, the pipes of the fibre optic access network and internal distribution in housing, adapt legislation on cybersecurity and cybercrime, cyber-terrorism, e-commerce, intellectual property, in order to take into account the requirements of the digital economy, develop a text on the protection of personal data, develop a national legal framework for venture capital financing;
- Provide tax incentives to technology companies to encourage innovation and investment in the digital sector. The Government will be able to develop a tax and customs regime to encourage the development of the digital economy, take incentive, regulatory and fiscal measures for any investment in research and digital innovation, draft a law on online access to administrative documents of public institutions, adapt the law on public-private partnership to the field of the digital economy, adapt the law on electronic funds transfer, To develop a law governing online payments, to create a national infrastructure and transport company in the field of electronic communications.

c. Several initiatives should be taken to ensure the acceleration of the development of the digital economy in Cameroon.

- The promotion of private investment in digital technology, particularly for the development of infrastructure stock;
- The strengthening of the Government's support for private initiatives relating to the development of the digital economy in Cameroon;
- Raising awareness among the population on the importance and protection of wired networks in order to avoid human-caused degradation;

- Strengthening support for start-ups through the establishment of specialized incubators and strengthening the support capacities of existing ones;
- The strengthening of research and innovation in the digital sector, particularly within incubation centres, institutes and specialised schools through (i) the strengthening of the funding allocated to research in this field, (ii) the adaptation of the teaching offered within the institutes and grandes écoles of the field to the developments in ICT, and (iii) the promotion of the transfer of skills and technology within the framework of win-win partnerships with other schools or foreign start-ups;
- The promotion of digital culture among local populations, this could be done through on the one hand raising awareness of the advantages offered by digital technology, and on the other hand familiarizing the progressive population with the digitization of services. In this second case, the State will accelerate the process of dematerialization of public services to users, in particular foreign trade procedures, the implementation of tax and parafiscal tele-procedure platforms, the integration of digital solutions into administrative procedures such as e-registration and mobile banking, etc. ;
- The promotion of the development of related services necessary for the development of the digital economy, in particular mobile banking, which is now the essential alternative to the formal banking system and as a digital payment method, postal or delivery services, IT security, etc. ;
- The promotion of the installation of new players in the sector in order to stimulate competition on the local market and to benefit the costs of the services offered;
- The systematisation of the monitoring of the evolution of the digital economy in Cameroon, in order to identify the various constraints to its development and formulate corrective measures. To this end, it will be a question of introducing into official collection operations specific information to understand the evolution of the digital economy in Cameroon and on the other hand of producing biannual or annual monitoring reports on the evolution of the digital economy in Cameroon;
- Support startupers, including in the informal sector, to organize their activities into formal very small and medium-sized enterprises (VSMEs) through (i) the creation of a status of VSEs with derogatory and simplified taxation, (ii) training in order to help these actors better monitor their activities by keeping light accounts, (iii) assistance with setting up and access to financing, (iv) the

development of technological zones and incubators to facilitate their networking—clusters dedicated to digital technology;

- Raising awareness among companies of the possibilities and opportunities offered by ICTs. This is done through a set of tools such as: forums, thematic workshops (practical information, demonstrations, etc.) and information meetings specific to each sector of activity, information notices, websites, the development and updating of directories of approved service providers, support for companies, especially small ones, and individual support (diagnosis, advice, tools, etc.), particularly for VSEs. In the same vein, it will be a question of raising awareness among professionals about digital uses and services as well as security awareness, development of trust, respect for personal or private data;
- Raising awareness among start-up promoters on the support mechanisms put in place by the State, as well as on the various alternative private financing mechanisms;
- the strengthening of the local energy supply through the acceleration and/or finalization of the construction of the various dams as well as the promotion of the development of alternative/renewable energies available locally. This condition is a prerequisite for industrial development, particularly in the digital sector, whose installations generally require a lot of energy;
- the promotion of the search for partnerships and the exploitation of opportunities for the relocation of high-intensity digital activities in Cameroon, with a view to integrating into the Global ICT Value Chain (GVC), in particular through the promotion of activities in Cameroon such as: outsourcing, software engineering, remote data processing, computer data entry centres, etc. by large international firms;
- Awareness-raising, information and training of companies on the possibilities and opportunities offered by ICTs. This is done through a set of tools such as: forums, thematic workshops (practical information, demonstrations, etc.) and information meetings specific to each sector of activity, information notices, websites, the development and updating of directories of approved service providers, support for companies, especially small ones, and individual support (diagnosis, advice, tools, etc.), particularly for VSEs. In the same vein, it will be a question of raising awareness among professionals about digital uses and services as well as security awareness, development of trust, respect for personal or private data;

- The construction of the landing point of the WACS submarine cable of LIMBE, with a view to improving the quality of the internet offer;
- The extension of the national network by optical fiber through (i) the construction of the National Emergency Telecommunications Network (RNTU), (ii) the construction of urban optical loops and (iii) the construction of internal exchange points in large cities (Douala, Yaoundé, etc.).

IV.2 Priority Action Plan for the Digital Economy in Cameroon

In order to ensure the implementation of measures to accelerate the development of the digital economy in Cameroon, various actions can be planned in the short, medium and long term.

Table 3: *Action Plan*

Actions	Period	Responsible Structures/Administrations	Associated Structures/Administrations
a. Short-term action			
Harmonious development of broadband infrastructure at the national level	Short-term	MINPOSTEL	ART, MINEPAT, ANTIC, MINFOPRA
Improving the quality of services offered by telecommunications and ICT operators	Short-term	MINPOSTEL, ART, CAMTEL	ANTIC, ANOR, MINFOPRA
Increasing public access and services to broadband service	Short-term	MINPOSTEL, ART	ANTIC, MINEPAT, CTD
Increase in the coverage of the national territory by optical fibre	Short-term	MINPOSTEL, CAMTEL,	ART, MINEPAT, CAB
Broadband connection for all decentralised services of public administrations	Short-term	MINPOSTEL, ART, ANTIC	MINEPAT, RLA
E-post Infrastructure Data Center Upgrade	Short-term	MINPOSTEL, CAMTEL	ANTIC, ART
Construction of public Wi-Fi access terminals	Short-term	MINPOSTEL, ART	RLA, Public-Private Partnerships (PPPs)
Reducing the digital bill between urban and rural areas	Short-term	MINPOSTEL, MINEPAT	ANTIC, RLA

Actions	Period	Responsible Structures/Administrations	Associated Structures/Administrations
Increased competition between operators	Short-term	MINCOMMERCE, National Competition Commission (CNC), ART	ANTIC
Establishment of a national digital library	Short-term	MINAC, MINPOSTEL	ANTIC, National Library of Cameroon, Universities and Academic Institutions
Setting up an e-mail system for administrations	Short-term	MINPOSTEL, ANTIC, ART	MINEPAT
Make the government web portal functional and reference it	Short-term	MINPOSTEL, ANTIC, ART	MINEPAT
Promoting the local internet economy	Short-term	MINPOSTEL, MINDDEVEL,	ANTIC, APME, MINEPAT
Digitization and dissemination of educational and academic resources	Short-term	MINESEC, MINESUP,	ANTIC National Library of Cameroon, Universities and Academic Institutions
Implementation of automatic and/or online payment platforms for services offered by the administration	Short-term	MINPOSTEL, MINFI	ANTIC, ART,
Establishment of the online visa issuance platform	Short-term	MINPOSTEL, MINREX	ANTIC, ART
Implementation of measures to support the development of e-commerce	Short-term	MINPOSTEL, MINCOMMERCE	MINEPAT, ANTIC, ART, APME
Setting up multimedia centres in high schools, colleges and schools	Short-term	MINPOSTEL, MINESEC,	ANTIC

Actions	Period	Responsible Structures/Administrations	Associated Structures/Administrations
		MINEDUB	
Development of the National Cybersecurity Strategy and the Master Plan for the Security of Electronic Communications Networks	Short-term	MINPOSTEL, Network and Information Systems Security Department (DSR)	ANTIC
Organization of campaigns to raise awareness, promote and popularize cybersecurity	Short-term	MINPOSTEL	ART, ANTIC, MINEDUB, MINESEC, Civil Society Organizations and NGOs
b. Short-term action			
Provision of cloud services, big data	Medium term	MINPOSTEL, CAMTEL	ANTIC, ART
Setting up a telemedicine platform in Cameroon	Medium term	MINSANTE, MINPOSTEL	ANTIC, ART
Dematerialization of administrative procedures (public procurement, foreign trade, justice, external relations, etc.)	Medium term	MINPOSTEL, MINFOPRA, MINMAP,	MINEPAT, MINFI, ANTIC, MINJUSTICE, MINREX
Development and dissemination of the digital map of Cameroon	Medium term	MINPOSTEL, National Institute of Cartography (INC)	ANTIC, MINEPAT
Increasing Cameroon's sub-regional connectivity and contributing to ICT integration	Medium term	MINPOSTEL, ART	MINEPAT, ANTIC, PARGIRN, CEA
Support for the training of trainers and the retraining of administrative staff	Short-term	MINEFOP, MINFOPRA,	ANTIC

Actions	Period	Responsible Structures/Administrations	Associated Structures/Administrations
		National Centre for Training of Trainers and Programme Development (CNFFDP)	
Strengthening the cybersecurity capacities of magistrates and judicial police officers	Short-term	MINJUSTICE, MINPOSTEL	ANTIC, ENAM
Securing applications and databases of public administrations and institutions	Medium term	MINPOSTEL, ART	ANTIC, MINFI
Securing the applications and databases of non-telecommunications organizations	Medium term	MINPOSTEL	ANTIC, MINFI, ART
Establishment of security monitoring and cyber threat centres/laboratories	Medium term	MINPOSTEL, MINDEF	ANTIC, ART
To have a reliable database of subscribers to electronic communications networks	Medium term	MINPOSTEL,	ANTIC, ART
Setting up digital incubators or startup support platforms	Medium term	MINPMEESA, MINPOSTEL	ANTIC, Public-Private Partnerships (PPP)
Support for equipping digital laboratories in universities and high-ranking schools	Medium term	MINESUP, MINPOSTEL	ANTIC, APME
Support for the establishment of a local industry for the development of applications "made in Cameroon"	Medium term	MINPOSTEL, MINPMEESA	ANTIC, APME, Public-Private Partnerships (PPPs)
Adaptation of legislation on cybersecurity and cybercrime, cyber terrorism, e-commerce, intellectual property, to take into account the requirements of the digital economy	Medium term	MINJUSTICE, MINPOSTEL, MINCOMMERCE	ANTIC MINAC

Actions	Period	Responsible Structures/Administrations	Associated Structures/Administrations
Adaptation of the legislative framework to put local authorities at the heart of the development of digital infrastructures in their territories	Medium term	MINDEVEL, MINPOSTEL	ANTIC Regional and Local Authorities (RLAs)
Developing a tax and customs regime to encourage the development of the digital economy	Medium term	MINFI, MINPOSTEL,	Directorate General of Customs (DGD)
Adaptation of the Law on Public and Private Partnership in the Digital Economy	Medium term	MINFI, MINPOSTEL,	ART, ANTIC

CONCLUSION

The digital economy, through the transformation brought about by Information and Communication Technologies (ICT), has led to the emergence of new solutions in several sectors of the economy in Cameroon. This report presents the situation of the development of the digital economy in Cameroon in 2023.

Overall, it appears that the use of ICT in different sectors of the economy offers many advantages. Indeed, the evolution of the digital economy has had a knock-on effect on other traditional sectors of the economy, thus contributing to the strengthening of productivity, fluidity in transactions, healthy competition and innovation. At the level of individuals, the digital economy through ICT promotes the creation of many new jobs, lifelong learning, the highlighting of new skills and openness to the whole world.

Indeed, its total contribution to the growth of countries, such as Cameroon, can be apprehended by a direct effect through the accumulation of digital capital and an indirect effect measured by the diffusion of digital capital in the productive system. However, it should be noted that Cameroon, despite its many assets, is lagging far behind because its ICT and Internet penetration rate remains low compared to other African countries. This is verified in particular by: (i) the investments that are less important in digital technology in Cameroon than in some countries; (ii) poor quality of infrastructure. Indeed, digital technology in Cameroon lacks appropriate infrastructure, which will help it take off definitively towards emergence in 2035. As for the existing infrastructure in this area, it is facing climatic constraints, which are gradually deteriorating in the absence of a government strategy for permanent maintenance; (iii) logistical constraints, This is one of the most important obstacles to the development of the digital economy in the sense that, the cost of customs procedures is high, which impacts delivery time and customer satisfaction; (iv) the prohibitive cost of the internet does not make it accessible to all, according **to the 2017 "Alliance for Affordable Internet"**, Cameroon ranks 5th out of 10 African countries where the internet has a high cost of access.

In order to accelerate the use of digital technology in Cameroon, it was recommended to: (i) promote the development of digital infrastructure; (ii) to meet the needs of the least served areas of the country while intensifying coverage in urban areas; (iii) developing new models for the provision of digital development infrastructure; (iv) put in place measures to reduce the costs of deploying digital infrastructure in Cameroon.

In perspective, in order to remain on the path of Cameroon's emergence by 2035, the gaps identified will have to be filled while aiming for the targets of the Vision. More specifically, it will be a question of: (i) finalizing the commissioning of major first-generation projects as a matter of priority; (ii) to ensure the optimal functionality of

existing infrastructures dedicated to digital development; (iii) to rehabilitate public digital facilities destroyed or rendered obsolete by reason of their unuse or lack of maintenance; (iv) streamline the implementation of new projects by complying with project preparation standards integrating various sustainable development goals (digital economy, green economy, circular economy, etc.); (v) formulate projects in an integrated manner to optimize their impact on the economy, in particular through the consideration of digital technology from the design and assembly stage; (vi) systematize counter-expertise for the evaluation of the costs of major infrastructures for the development of the digital economy; (vii) to set up, monitor and regularly evaluate a reference framework for the cost of access to the various digital products and services; and (viii) strengthen the prioritization and selection process of digital economy development projects in Cameroon.

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