# "Diagnosis of the technological maturity of SMEs in Senegal".


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# 1 Context of the report

**AFRICANTECH** is an international cooperation project co-financed by the **ERDF (INTERREG MAC Territorial Cooperation Programme)**, whose main purpose is to improve the competitiveness of small and medium-sized enterprises in both the Canary Islands and Africa by strengthening their capacities in innovation and digitalisation. Through this approach, the initiative seeks to contribute to economic, social and institutional development in both regions, facilitating the transfer o f knowledge and encouraging the adoption of emerging technologies.

This initiative gives continuity to the actions carried out in recent years by the ConfiAfri consortium in the field of internationalisation, extending to the countries participating in the INTERREG MAC 2021-2027 programme. In this new phase, **particular emphasis is placed on the degree of technological maturity of SMEs in Senegal**, addressing the challenges they face in a global context characterised by accelerated digital transformation, process automation and the growing importance of cybersecurity and data management.

In this context, FEMEPA, in collaboration with the programme partners, has undertaken to produce a detailed report **to diagnose the level of digitisation of SMEs in Senegal**, analysing their technological capabilities, the barriers they face and the opportunities for their modernisation. The purpose of this study is to provide an updated overview of the technological adoption in the Senegalese business fabric and to provide strategic recommendations to strengthen their competitiveness in the digital economy.

Digitalisation is a key factor in the economic and productive transformation of any country, and Senegal is no exception. **The Senegalese business sector, especially SMEs, faces significant challenges in integrating digital technologies, improving its connectivity infrastructure and training its human talent in advanced technological skills**. Areas such as **e-commerce, artificial intelligence, cybersecurity and data management** are emerging as strategic sectors that demand rapid adaptation by companies.

This report aims to **analyse in depth the technological maturity of SMEs in Senegal**, identifying their degree of digitisation, the most advanced sectors and those lagging behind, and the barriers limiting their modernisation. Through a methodological approach based on field studies, surveys and interviews with key actors in the business and technology ecosystem, we will seek to provide an accurate diagnosis of current digital capabilities and design concrete recommendations to facilitate the modernisation of SMEs in Senegal, and design concrete recommendations to facilitate their evolution towards more innovative and competitive business models.

In recent years, ICT penetration in Senegal has grown significantly, driven by the expansion of mobile connectivity and increased internet access. **According to the Dakar Chamber of Commerce, by 2023 Senegal has more than 10 million internet users, representing approximately 60% of the population, and more than 21 million active mobile connections, exceeding 120% of the total population**. However, this expansion does not always translate into effective digitisation of businesses, as challenges remain related to infrastructure investment, digital skills and the adoption of advanced tools.

This study will also address **the impact of digital transformation in key sectors** such as **e-commerce, fintech, digital manufacturing and agricultural technologies**, areas where SMEs can play a crucial role in modernising the country's productive fabric. While there are both government and private initiatives aimed at improving business digitalisation, their scope is still limited, which requires a coordinated effort to accelerate technological adoption and close the digital divide.

Finally, this report seeks to **lay the groundwork for the design of policies and programmes to support the digital transformation of SMEs in Senegal**, identifying good practices and strategies that can be replicated in other contexts. With this approach, it is hoped that it will help small and medium-sized enterprises not only **to bridge their internal digital divide**, but also to **position themselves as key players in the West African digital economy**, taking advantage of the potential of new technologies to improve their productivity and competitiveness.

## 1.1 Definition of the ICT sector

The sector known as ICT, or Information and Communication Technologies, encompasses a broad set of manufacturing and service industries whose main activity is related to the development, production, commercialisation and intensive use of information and communication technologies. This sector includes a variety of activities that can be classified into different categories according to the Spanish National Classification of Economic Activities (CNAE 2009).

Manufacturing industries:

- Manufacture of electronic components (CNAE 2611).
- Manufacture of assembled printed circuits (CNAE 2612).
- Manufacture of computers and peripheral equipment (CNAE 2620).
- Manufacture of telecommunications equipment (CNAE 2630).
- Manufacture of consumer electronic products (CNAE 2640).
- Manufacture of magnetic and optical media (CNAE 2680).

Services:

- Wholesale trade of computers, peripheral equipment and computer software (CNAE 4651), as well as electronic and telecommunications equipment (CNAE 4652).
- Publishing of video games (CNAE 5821) and other computer software (CNAE 5829).
- Telecommunications by cable (CNAE 6110), wireless (CNAE 6120), satellite (CNAE 6130) and other related activities (CNAE 6190).
- Computer programming activities (CNAE 6201), computer consultancy (CNAE 6202), computer resource management (CNAE 6203) and other services related to information technology (CNAE 6209).
- Data processing, web hosting and related activities (CNAE 6311) and web portals (CNAE 6312).
- Repair of computers and peripheral equipment (CNAE 9511) and communication equipment (CNAE 9512).

## 1.2 Executive summary

The digital transformation of small and medium-sized enterprises in Senegal is at a turning point. This report, which is part of the AFRICANTECH project and co-financed by the European INTERREG MAC programme, reveals a mixed picture in which technological advances coexist with structural challenges that require urgent attention.

The analysis of numerous sources and interviews with key players in the Senegalese business and technology ecosystem, shows a country that aspires to become a digital leader in West Africa, but which still has to overcome significant obstacles. The good news is that Senegal has solid foundations: an internet penetration that reaches a significant percentage of the population, a mobile phone network that covers virtually the entire territory and an increasingly digitised financial sector.

However, when we delve into the business fabric, we find a more complex reality. Discussions with entrepreneurs and managers, as well as surveys conducted, reveal that most Senegalese SMEs have barely begun their journey towards digitalisation. A large part of the business fabric operates informally, which makes access to financing and support programmes very difficult. This situation is particularly worrying in traditional sectors such as agriculture and manufacturing, where technological adoption is still in its infancy.

The interviews conducted reveal an interesting paradox: while some service sector and fintech companies are at the cutting edge of technology, using artificial intelligence and blockchain, many SMEs struggle to implement basic digital tools. High costs and lack of training emerge as the main barriers to digitisation.

The Senegalese government has not remained inactive in the face of these challenges. The Sénégal Numérique 2025 Strategy and the ambitious New Deal Technologies demonstrate a clear commitment to digital modernisation. However, our discussions with private sector representatives revealed a disconnect between public policies and the real needs of businesses.

The opportunities, however, are as significant as the challenges. The Senegalese fintech ecosystem is flourishing, with companies such as Wave and PayDunya leading the digital payments revolution. E-commerce is growing at a rapid pace, driven by platforms such as Jumia and Boutique 221.
221. And traditional sectors such as agriculture are beginning to experiment with emerging technologies: drones for crop monitoring, IoT sensors to optimise irrigation, and mobile apps to sensors to optimise irrigation and mobile apps to connect directly with markets.

International collaboration, particularly with the Canary Islands through the AFRICANTECH project, emerges as a key piece of the puzzle. Canary Islands companies can bring technical expertise, best practices and, crucially, access to funding for digitisation projects. This cooperation will not only benefit Senegalese SMEs; it will also open up new business opportunities for Spanish companies in an emerging market with enormous potential.

Looking ahead, our analysis suggests that the digital transformation of Senegalese SMEs will require a comprehensive approach that combines several elements: specific funding programmes for digitisation, intensive training in digital skills, improvement of technological infrastructure (especially in rural areas) and a robust regulatory framework that builds trust in the digital ecosystem.

The timing is crucial. With a young and increasingly connected population, Senegal has the opportunity to make a qualitative leap in its economic development through digitalisation. Success will depend on the country's ability to turn plans and strategies into concrete actions that reach the heart of the business fabric: the small and medium-sized enterprises that are the engine of its economy.

# 2 Context: Africa's economic and technological situation

Africa is undergoing an unprecedented economic and digital transformation, driven by population growth, rapid urbanisation and the adoption of emerging technologies. With a population of over **1.4 billion people in 2023** and a projected **2.5 billion by 2050** (World Bank, *World Development Indicators*, 2023), the continent represents a growing market with increasing demand for technology solutions.

In economic terms, Africa has shown remarkable resilience in the face of recent global crises. According to the **African Development Bank (ADB,** *African Economic Outlook*, 2023), the continent's GDP growth was 3.8% in 2023, with expectations of reaching 4.1% in 2024, despite challenges such as inflation, political instability and commodity price volatility. Senegal, in particular, maintains a projected growth rate of 7.1% in 2024, despite challenges such as inflation, political instability and commodity price volatility, driven by hydrocarbon exploitation and the expansion of the digital economy (*Plan Sénégal Émergent*, Government of Senegal, 2023).

However, the continent still faces **major structural challenges**:

- **Limited infrastructure**: despite progress in digital connectivity, **60 % of the African population still lacks stable internet access** (International Telecommunication Union, *Measuring Digital Development*, 2023).
- **High economic informality**: 85% of employment in Africa is still in the informal sector (International Labour Organisation, *World Employment and Social Outlook*, 2023).
- **Education and digital skills gap**: only **40 % of young Africans are trained in basic digital skills** (UNESCO, *Education for the Digital Age in Africa*, 2023).

Technologically, the continent has experienced **rapid growth in internet penetration and the use of mobile devices**. According to the International Telecommunication Union (ITU, *Measuring Digital Development*, 2023):

- **Internet penetration in Africa reached 43 % in 2023**, with more than **600 million connected users**, representing an increase of 26 % over the last five years.
- **GG % of internet connections on the continent are via mobile networks**, **with 15 % annual growth in 4G and 5G subscribers**.
- In countries such as Senegal, the internet penetration rate is **60% of the population**, while in more advanced economies such as South Africa and Egypt it exceeds **75%**.

Emerging technologies such as artificial intelligence, automation and digitisation of financial services have taken a central role in the region's economic development. **The fintech sector has grown exponentially in Africa**, with more than **$3 billion** invested **in tech startups by 2022**, with Nigeria, Egypt, Kenya and South Africa being the top recipients of capital (Disrupt Africa, *African Tech Startups Funding Report,* 2023).

Technological advancement has also been driven by government and regional initiatives. The African Union-led African Digital Transformation Strategy 2020-2030 seeks to accelerate digitisation in key sectors such as education, health, public administration and financial inclusion, with the aim of consolidating **an African digital economy contributing at least 10 % of continental GDP by 2030** (African Union, *Digital Transformation Strategy for Africa 2020-2030*, 2023).

At the national level, Senegal has adopted ambitious policies to modernise its economy through digitisation. **The Plan Sénégal Émergent (PSE)** has been the central strategic framework, with initiatives such as the *Sénégal Numérique 2025* programme, which seeks to strengthen digital connectivity, encourage the adoption of technologies in businesses and improve education in digital skills (Government of Senegal, *Sénégal Numérique 2025*, 2023).

However, significant challenges remain. Africa still has the **world's most pronounced digital divide**, with more than **800 million people without internet access**, especially in rural areas. In addition, the lack of digital infrastructure, high connection costs and digital skills shortages limit the ability of many African economies to fully integrate into the global knowledge-based economy (ITU, *Measuring Digital Development*, 2023).

In this context, technological development in developing countries, and in particular on the African continent, represents a strategic opportunity for the structural transformation of their economies. In the following section, the trends and challenges of digital advancement in developing countries will be analysed, with special emphasis on Africa and its role in the global economy.

## 2.1 Technological development in developing countries

Technological development in developing countries has been a key factor in the economic and social transformation of these nations. As information and communication technologies (ICTs) expand, they have become an essential driver of productivity, innovation and economic inclusion. However, technological progress in these economies is not homogeneous, as they face structural challenges such as lack of digital infrastructure, limited investment capacity and the digital skills gap.

Over the last two decades, digitalisation has advanced significantly in developing countries, albeit with regional disparities. According to the World Bank (***World Development Report: Digital Dividends***, 2023):

- **67 % of the population in developing countries has access to mobile phones**, which has facilitated the growth of digital services and mobile commerce.
- **Internet penetration has grown from 8% in 2000 to 45% in 2023**, driven by the expansion of mobile networks and government connectivity programmes.
- **The fintech sector has experienced 130% growth in the last decade**, enabling the financial inclusion of millions of people without access to traditional banking services.

In the field of education and digital skills, the impact of ICT has been significant, albeit uneven. According to UNESCO (*Education for the Digital Age in Developing Countries*, 2023), **58% of educational institutions in developing countries have integrated e-learning platforms**, but only **23% have access to adequate digital infrastructure**, which limits the real impact of these initiatives.

The advancement of technologies in developing countries has been influenced by several key factors:

1. **Internet access and mobile connectivity:** The proliferation of smartphones has been a catalyst for digital development. According to the International Telecommunications Union (*Measuring Digital Development*, 2023), **G4 % of the world's population lives in areas with mobile network coverage**, although the quality of connection varies considerably.
2. **Foreign investment and financing of the technology sector:** Foreign direct investment in technology has been a growth driver for digitisation in developing countries. According to the United Nations Conference on Trade and Development (UNCTAD, *World Investment Report*, 2023), **investments in tech startups in emerging markets reached USD 45 billion in 2022**, with a focus on fintech, artificial intelligence and e-commerce.
3. **Government digitisation policies:** Governments have played a crucial role in the adoption of technology through the implementation of national digitisation strategies. One example is the African Union's National Digital Transformation Strategy 2020-2030, which aims to **increase the contribution of the digital economy to the continent's GDP to 10 % by 2030** (African Union, *Digital Transformation Strategy for Africa 2020-2030*, 2023).

Despite progress, technological development in developing countries faces **several structural barriers**:

- **Digital divide and inequality of access**: although connectivity has improved, **around 2.G00 million people in the world still lack access to the internet**, most of them in developing countries (ITU, *Global Connectivity Report,* 2023).
- **High cost of access to technology**: In some regions, internet access remains prohibitively expensive. In Sub-Saharan Africa, the cost of an **5GB monthly mobile data package is equivalent to 8% of the average monthly income**, while in Europe and North America it is less than 1% (World Bank, *The Digital Economy for Africa*, 2023).
- **Digital skills deficit**: Lack of training in technology skills is a critical barrier. According to the International Labour Organisation (*World Employment and Social Outlook*, 2023)**, 65% of workers in developing countries lack training in basic digital skills**.

Despite these challenges, the future of technological development in developing countries offers significant opportunities:

- **5G network expansion**: deployment of 5G networks in emerging markets is increasing, with projections of **40 %** coverage **in developing countries by 2030** (GSMA, *The Mobile Economy Report*, 2023).
- **Rise of artificial intelligence and automation**: AI applications are gaining prominence in education, health and agriculture, facilitating access to critical services in regions with a shortage of professionals (UNESCO, *AI in Education: Global Perspectives*, 2023).
- **E-commerce growth**: The e-commerce sector is booming, with **20 %** growth **per year in Latin America and Africa**. In countries such as Nigeria and Kenya, online commerce accounts for more than **5% of GDP** (UNCTAD, *E-Commerce and Development Report,* 2023).

## 2.2 Technological development in Africa

Africa is undergoing an unprecedented technological transformation, driven by the expansion of digital connectivity, the proliferation of tech startups and the growth of the fintech sector. Despite progress, the continent still faces significant challenges in terms of infrastructure, accessibility and digital skills. Digitisation has become a key pillar for Africa's economic development, with governments and businesses investing in emerging technologies such as artificial intelligence, cloud computing and e-commerce.

Internet access has grown exponentially in Africa over the last two decades. According to the International Telecommunication Union (ITU, *Measuring Digital Development***,** 2023)**:**

- **Internet penetration in Africa went from 11 % in 2010 to 43 % in 2023**, with more than **600 million users connected**.
- **GG % of connections on the continent are through mobile networks**, with **15 % annual growth in 4G and 5G adoption**.
- **In countries such as South Africa and Egypt, the connectivity rate exceeds 75%. 75%**, while in other regions, such as Central Africa, it is still b e l o w 30%.

The cost of internet access remains a barrier**. In sub-Saharan Africa, the average price of a 5 GB data package is equivalent to 8 % of the average monthly income**, while in North America and Europe it is less than **1 %** (World Bank, *The Digital Economy for Africa*, 2023).

The growth of the digital ecosystem in Africa has been driven by investment in tech startups and mass adoption of digital financial services. According to Disrupt Africa (*African Tech Startups Funding Report*, 2023), **African startups received more than $3 billion in investment in 2022**, with fintech, e-commerce and digital education sectors standing out.

The fintech sector has been key to Africa's digital transformation:

- **More than 60% of the adult population in Africa uses mobile money services**, more than any other region in the world (World Bank, *The Global Findex Database*, 2023).
- **Nigeria, South Africa and Kenya account for more than 75% of fintech investment**, with companies such as Flutterwave and M-Pesa leading innovation in digital payments.
- **Financial inclusion has increased significantly**, allowing millions of people to access banking services through mobile platforms.

Investment in digital infrastructure has been a key pillar in Africa's technological modernisation. According to the African Union (*Digital Transformation Strategy for Africa 2020-2030*, 2023), the continent's digitisation strategy seeks to increase connectivity, improve telecommunications infrastructure and encourage investment in data centres and cloud computing.

Among the most prominent initiatives are:

- **The deployment of continent-wide fibre optic networks**, with projects such as the **East African Cable System (EASSy)**, which has improved connectivity in more than 20 countries.
- **Expansion of 5G networks**, with countries such as South Africa, Kenya and Nigeria leading the way in deployment. It is expected that **40% of the continent** will **have access to 5G by 2030** (GSMA, *The Mobile Economy Report,* 2023).
- **Construction of data centres and adoption of cloud computing**, with investments from companies such as Google, Microsoft and Huawei, looking to boost data storage and processing in Africa.

Despite progress, Africa still faces significant technological challenges:

- **Digital divide and unequal access**: more than **800 million people remain without internet access**, especially in rural areas (ITU, *Global Connectivity Report,* 2023).
- **Shortage of digital talent**: Only **30% of the workforce in Africa has basic digital skills**, limiting technology adoption in enterprises (UNESCO, *Education for the Digital Age in Africa*, 2023).
- **High costs of accessing technology**: The high cost of internet devices and services remains a barrier to mass digitisation.

## 2.3 African Digital Transformation Strategy 2020-2030

Digital transformation has become a key pillar for Africa's socio-economic development. To coordinate this process, the African Union (AU) launched in 2020 **the African Digital Transformation Strategy 2020-2030**, a framework that seeks to accelerate the continent's digitisation and promote the use of emerging technologies in key sectors. This strategy aligns with the African Union's Agenda 2063, which establishes digitisation as a central pillar for sustainable growth in Africa (African Union, *Digital Transformation Strategy for Africa 2020-2030*, 2023).

The strategy sets out **four key pillars** to drive digital transformation in Africa:

1. **Digital Infrastructure and Internet Access**: ensuring that at least 70 % of the population to have access to high-speed internet by 2030.
2. **Digital governance and cybersecurity**: establish regulatory frameworks for data protection and security in the digital space.
3. **Digital skills and employment**: train 300 million Africans in digital skills to improve employability and innovation.
4. **Innovation and digital entrepreneurship**: strengthen the technological ecosystem, facilitating access to financing and promoting investment in digital start-ups.

According to the International Telecommunication Union (ITU, *Global Connectivity Report*, 2023), **more than 40 % of Africans still lack access to the internet**, which represents one of the biggest challenges for the implementation of this strategy.

Since its launch, the strategy has driven several key programmes on the continent:

- **Smart Africa Initiative**, which brings together more than 30 African countries to improve connectivity and reduce internet access costs.
- **5G network deployment projects**, with South Africa, Kenya and Nigeria leading the way.
- **Creation of innovation and technology centres**, such as the *African Digital Innovation Hub*, which promotes the incubation of technology start-ups.

However, significant challenges remain:

- **Persistent digital divide**: more than 800 million people in Africa do not have access to the internet, limiting the adoption of digital technologies (ITU, *Measuring Digital Development*, 2023).
- **Lack of investment in infrastructure**: digitisation requires large investments in fibre optics, data centres and mobile networks, which remains a challenge in many African economies (African Development Bank, *African Economic Outlook*, 2023).
- **Digital skills deficit**: only 30 % of the population has basic digital skills, slowing the expansion of the digital economy (UNESCO, *Education for the Digital Age in Africa*, 2023).

### 2.3.1 Senegal in Africa's digital transformation strategy

Senegal has emerged as one of the African countries most committed to digital transformation, aligning its policies with the African Union's African Digital Transformation Strategy 2020-2030. In a context where digitalisation has become a key driver of economic growth and social inclusion in Africa, the Senegalese government has implemented a series of initiatives aimed at modernising its technological infrastructure, improving connectivity and fostering the development of the digital economy. The commitment to digitalisation not only responds to the need to improve the country's competitiveness, but also to the urgency of reducing the digital divide that still affects large sectors of the population.

In this framework, the **Sénégal Numérique 2025** initiative, launched by the Senegalese government, is the cornerstone of its digital strategy and is designed to consolidate the country as a technology hub in West Africa. This strategy aims to increase internet penetration, strengthen digital infrastructure, promote the digitisation of government services and stimulate innovation in strategic sectors such as fintech, digital commerce and artificial intelligence. According to the Government of Senegal (*Sénégal Numérique 2025*, 2023), one of the main objectives of this plan is to ensure that at least 70 % of the population has access to broadband internet by 2025, in addition to expanding fibre optic coverage to improve connectivity in rural and urban areas.

In terms of progress, Senegal has managed to consolidate a steadily growing digital infrastructure. Today, more than **60% of the population has access to the internet**, which puts the country above the African average, estimated at **43%** according to the International Telecommunication Union (*Measuring Digital Development*, 2023). The expansion of mobile connectivity has been a key factor in this progress, with a substantial increase in the adoption of 4G technologies and a progressive roll-out of 5G networks in major cities. In addition, the modernisation of public administration through e-government platforms has improved efficiency in the delivery of public services, facilitating digital administrative procedures and reducing bureaucracy.

One of the sectors where Senegal has experienced the greatest impact of digital transformation is financial services. The digitisation of payments and the expansion of the fintech sector have improved financial inclusion, facilitating access to banking services for a large part of the population that, until recently, was excluded from the formal financial system. Companies such as Wave and PayDunya have been key in this process, offering innovative solutions that have increased the use of mobile money and electronic payments. According to the World Bank (*The Global Findex Database*, 2023), **more than 60% of adults in Senegal use mobile money services**, a figure that has increased significantly in the last decade and has contributed to the reduction of cash dependency in the economy.

However, despite this progress, Senegal still faces significant challenges in its digital transformation process. Inequality in access to technology remains a relevant issue, with rural areas having lower levels of connectivity and access to digital devices. Although the country has made progress in the expansion of fibre optic and mobile infrastructure, the cost of internet access remains high for a significant part of the population. According to the African Development Bank (*African Economic Outlook*, 2023), the average price of a data package in Senegal still represents a considerable percentage of monthly household income, which limits the mass adoption of digital services.

Another pending challenge is the development of digital skills within the workforce. The increasing automation and digitisation of productive sectors require more training in technological skills, but there is currently a deficit of training in this area. According to Senegal's National Agency for Statistics and Demography *(Rapport sur la Digitalisation et l'Emploi*, 2023), **only 30 % of the workforce possesses basic digital skills**, which represents an obstacle to the consolidation of a robust and competitive digital economy. In this respect, the government has launched training programmes in collaboration with international organisations, with the aim of reducing this gap and equipping young people and workers with skills in areas such as programming, cybersecurity and data analysis.

As part of its long-term vision, Senegal has recently announced the **"New Deal Technologique" plan**, a programme that seeks to reinforce and expand the efforts initiated with "Sénégal Numérique 2025". Although this plan has not yet entered the implementation phase, its presentation reflects the government's willingness to further deepen the country's digitisation by investing in new digital infrastructure, boosting emerging technologies and expanding access to digital services throughout the country. This initiative is expected to provide a more ambitious framework to consolidate Senegal's leadership in the West African digital economy and ensure that the country can meet the technological challenges of the next decade with a structured and effective strategy.

In conclusion, Senegal has demonstrated a strong commitment to digital transformation, making remarkable progress in infrastructure, connectivity and digitisation of services. However, to consolidate its position as a technological benchmark in West Africa, it will need to continue investing in bridging the digital divide, improving affordable internet access and strengthening digital skills training programmes. The country's integration into the African Digital Transformation Strategy 2020-2030 is a key opportunity to strengthen its technology ecosystem and ensure that digitisation contributes to the inclusive and sustainable development of its economy.

# 3 Context: Senegal's economic situation

*Figure 1: Location of Senegal on the African continent. Source: The World Factbook, CIA.*

Focusing on the Republic of Senegal as the protagonist of this report, we must establish its geographical context as a West African country, on the coast of the Atlantic Ocean, bordered to the north by Mauritania, to the east by Mali, to the southeast by Guinea and to the southwest by Guinea-Bissau. Senegal almost surrounds The Gambia, which occupies a narrow strip of land along the Gambia River that separates the southern Senegalese region of Casamance from the rest of the country. Senegal also shares a maritime border with Cape Verde.

The following are the basic facts about the country according to the main sources:

*Table 1: General information on Senegal. Sources: CIA World Factbook, Economic and Commercial Office of the Spanish Embassy in Senegal.*

| | |
|---|---|
| **Capital** | Dakar |
| **Population (2023)** | 18,384,660 inhabitants |
| **Total area** | 196,722 km2 |
| **Name and position of the head of government** | Bassirou Diomaye Faye, President of the Republic of Senegal (from 2 April 2024) |
| **Currency and denomination** | West African CFA franc (XOF) |
| **Equivalent in euros** | 1 EUR = 655.957 XOF (fixing) |
| **Religion** | Islam (97.2%) |
| **Official languages** | French (official), Wolof, Pulaar, Jola, Mandinka, Serer, Soninke |
| **Population growth (2023)** | +2,52% |
| **Life expectancy** | 70.3 years |
| **Literacy rate** | 58% |
| **Crude birth rate (per thousand)** | 30.8 births/1,000 population |
| **Crude death rate (per thousand)** | 5 deaths/1,000 population |

The Senegalese economy is well diversified, with the services sector being the largest contributor to GDP. The future exploitation of oil and gas from the Grand Tortue Ahmeyim field is expected to contribute to strengthening the extractive and industrial sector, thereby continuing economic diversification.

Although it has a diversified economy, poverty and immigration represent the country's main challenges, preventing access to decent jobs for skilled labour and undermining economic diversification through brain drain. The current political uncertainty will also have an impact on economic indicators, making foreign investment and the evolution of the Senegalese economy more difficult.

The basic data for Senegal are shown below, based on information from the Economic and Commercial Office of the Spanish Embassy in Senegal and the CIA World Fact Book.

*Table 2 Main economic indicators for Senegal. Sources: World Bank, African Development Bank, ICEX, CIA World Fact Book, CESCE.*

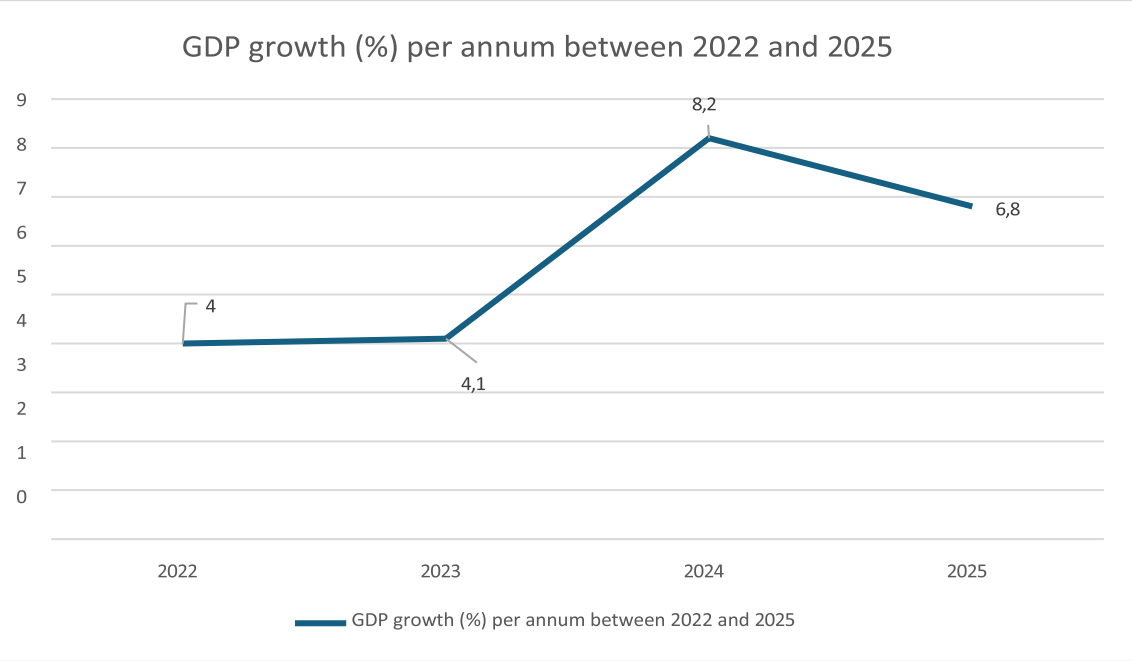
| Main Economic Indicators of Senegal | |
|---|---|
| **Currency** | West African Franc (XOF) |
| **GDP 2022 (at current prices)** | 27.68 billion |
| **Real GDP annual growth (2023)** | 4,1% |
| **Inflation (2023)** | 5,94% |
| **Unemployment rate (2023)** | 2,93% |
| **GDP by sector (2023)** | Agriculture: 17.4<br><br>Industry: 24.3<br><br>Services: 59.2% GDP per capita (2024) |
| **GDP per capita (2024)** | 1,900 USD |
| **External debt (% of GDP)** | 7,3% |
| **Foreign direct investment, % of GDP (2022)** | 9,3% |
| **Value of exports of goods (2022)** | 9.85 billion USD |
| **Value of imports of goods (2022)** | 14.0 billion |
| **Current account balance in relation to GDP (2024)** | -8,9% |

### 3.1.1 GDP growth

According to the African Development Bank, Senegal grew by 4.1% in 2023, similar to the growth the country experienced in 2022. The international situation marked by the impact of the conflict between Russia and Ukraine explains this slow growth as it affected local agricultural production.

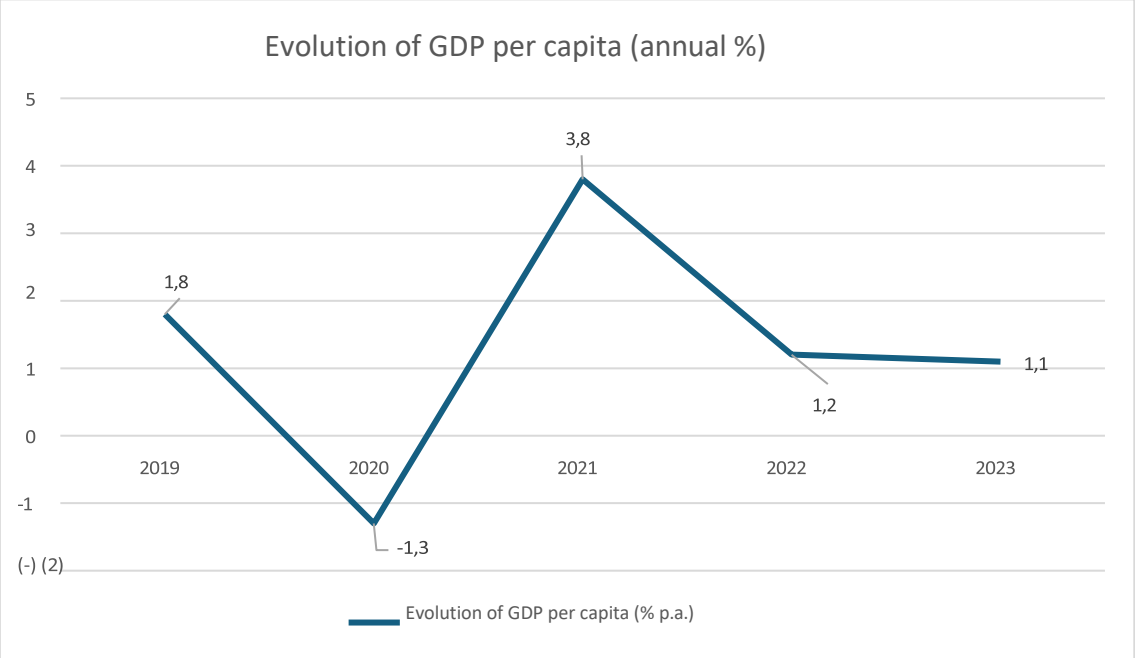
For 2024 and 2025, the African Development Bank forecasts a remarkable GDP growth of 8.2% this year and 6.8% in 2025. The imminent development of the Greater Tortue Ahmeyim oil and gas field will contribute to this growth, with the possibility of an increase in predictions for the years 2024-2025 if production starts during 2024.

*Illustration 2: Annual GDP growth between 2022 and 2022 (%) Source: African Development Bank.*




GDP per capita experienced an increase of 1.5% in 2022 compared to 3.8% growth in 2021, although this increase was due to the exit from the crisis caused by the COVID- 19 pandemic.

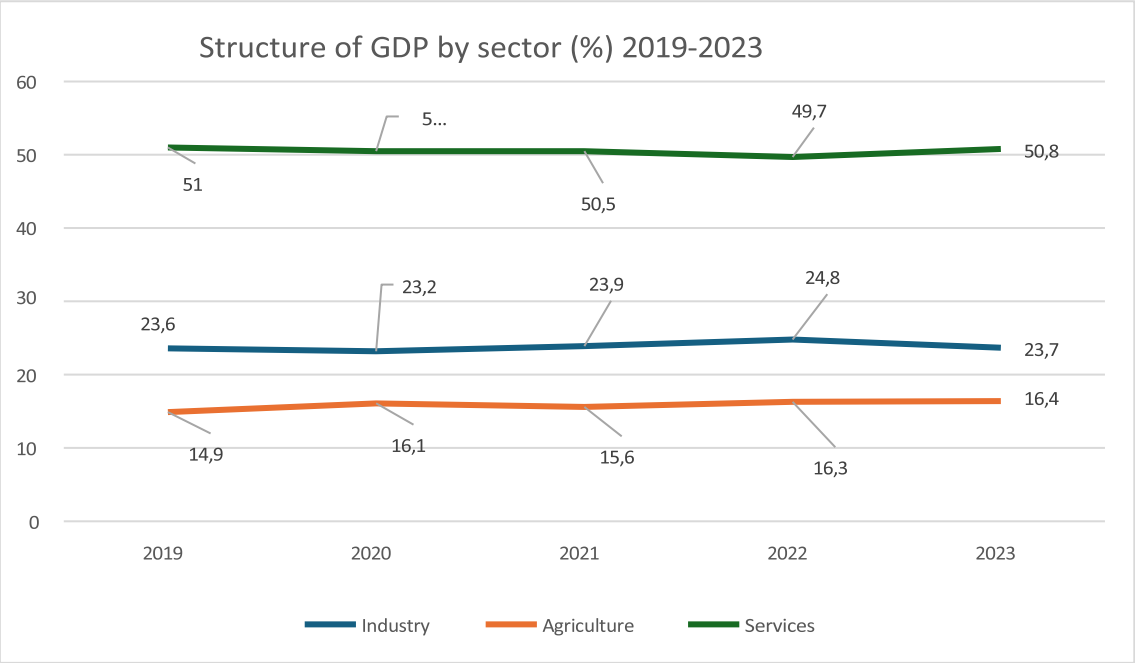
*Figure 3: GDP per capita growth between 201S and 2022 (% p.a.) Source: World Bank*




Regarding the structure of Senegal's GDP, if we focus first on the agricultural sector, its contribution has grown in the period between 2019 and 2023, where it represented 14.9% to 17.4% in 2024. Industry also saw a slight increase in its contribution to GDP, with a contribution of 24.3% in 2024 compared to 23.6% in 2019.

The services sector, however, remains the most significant sector of the Senegalese economy, contributing 59.2% of GDP in 2024.

*Illustration 4: GDP structure by sector 201S-2023. Source: World Bank.*



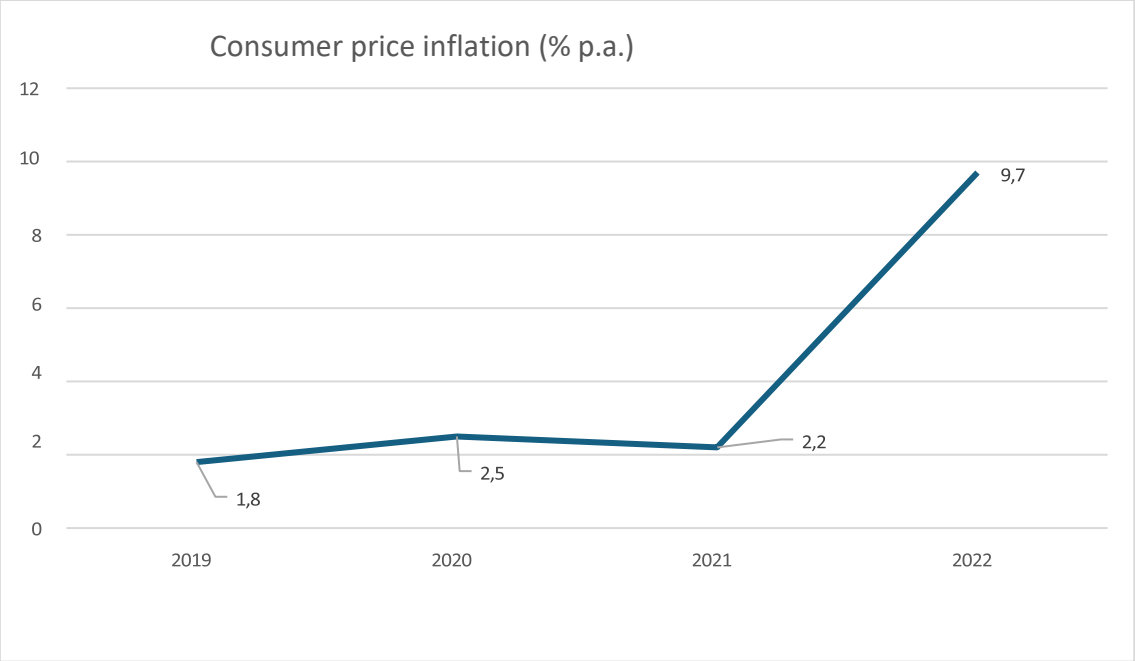

## 3.1.2 Inflation

Between 2019-2021 inflation in Senegal has been relatively stable, fluctuating between 1.8% (2019) and 2.5% (2020), but in 2022 inflation reached 9.7% due to inflationary pressures resulting from the effects of the international and local economic situation. The latest available figures for 2024 set investment at 5.94%.

- **Drought:** In 2019/2020, Senegal experienced a severe drought that impacted food security and agricultural production.

- **Russia-Ukraine war:** In February 2022, the war between Russia and Ukraine started and had a serious impact on the world economy. Senegal, which, despite having a diversified economy compared to its neighbouring countries, remains dependent on foreign trade for agricultural and mineral exports and food imports. The impact of the conflict between Russia and Ukraine explains the rise in inflation in 2022.

*Figure 5: Consumer price inflation. Source: World Bank: World Bank.*




### 3.1.3 Labour market and unemployment

Senegal has experienced sustained economic growth over the last decade, driven mainly by the Emerging Senegal Plan (PSE), which has favoured infrastructure development, expansion of the agricultural sector and strengthening of the service sector. However, despite these advances, the labour market continues to face significant challenges in absorbing the growing youth population, which has resulted in high rates of unemployment and underemployment, especially among youth and women.

According to data from the United Nations International Labour Organisation[1], the country has a **working-age population of 58.2 per cent,** which represents an opportunity to take advantage of the demographic dividend. However, formal employment opportunities are limited, with approximately 200,000 new job seekers each year, compared to a supply of only 30,000 new formal jobs, reflecting a mismatch between labour demand and supply.

[1] https://www.ilo.org/senegal

The Senegalese labour market is characterised by a significant segmentation between the formal and informal sectors. **The informal sector employs more than 75% of the labour force**, providing employment in vulnerable conditions, with low levels of remuneration, lack of social protection and little job stability. In contrast, the formal sector, dominated by services such as telecommunications, finance and public administration, represents a smaller fraction of total employment, but with better working conditions.

In terms of economic sectors, **the service sector is the main driver of employment, accounting for 61% of total value added**, followed by the secondary sector (industry) with 22.6%, while agriculture continues to employ a large part of the population, but with low productivity and low wages.

One of the main challenges of the labour market in Senegal is the **precariousness of employment, especially among young people**. According to data from the International Labour Organisation (ILO), 39.9 per cent of the unemployed have no formal qualifications, and more than 83 per cent of the unemployed have not received technical or vocational training. This lack of qualifications contributes to the difficulty of accessing quality jobs, forcing many young people to take low-paid informal jobs.

In addition, there is a significant gender gap in access to employment, with a higher unemployment rate for women (22.6%) compared to men (9.8%), reflecting structural barriers in terms of access to job opportunities and persistent gender inequalities.

To address these challenges, the government has implemented a number of **employment support programmes**, such as the National State-Employer Convention (CNEE), which seeks to facilitate the integration of young people into the labour market through apprenticeships and internships in companies. These programmes have been shown to have a positive impact on the quality of employment of beneficiaries, increasing their chances of obtaining formal jobs with better working conditions.

The impact analysis of these programmes shows that young people who participated in apprenticeship programmes are significantly more likely to obtain formal jobs compared to those who did not participate. However, challenges remain related to the sustainability of these programmes, the lack of post-training follow-up and the need to expand their reach to rural areas.

Despite progress in employment policies, Senegal faces **a number of structural challenges** that limit the labour market's ability to generate quality jobs, including the following:

- Skills gap: there is a mismatch between the skills offered by the labour force and market needs, especially in emerging sectors such as digital technology and manufacturing.
- High informality rate: most of the jobs created are in the informal sector, with low levels of social protection and limited labour rights.
- Territorial inequalities: employment opportunities are concentrated in Dakar and other major cities, while rural areas have high rates of unemployment and underemployment.
- Limited access to finance: young entrepreneurs and small businesses face significant barriers to accessing finance, which limits their capacity to grow and create jobs.

On the other hand, there are significant opportunities to improve the labour market through:

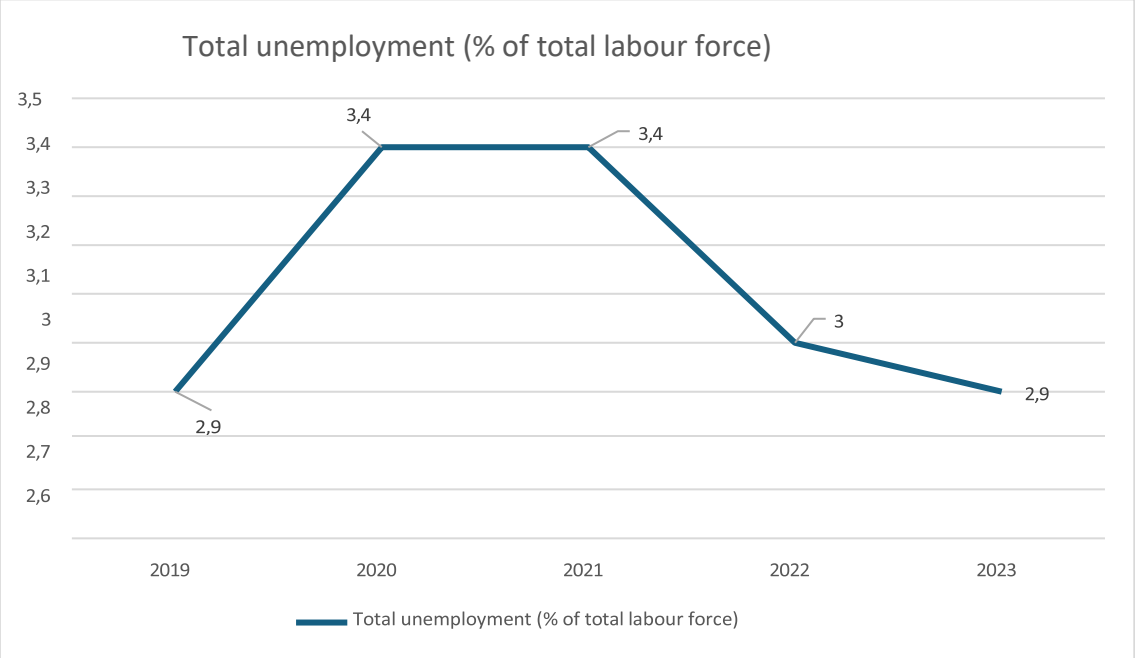
- Strengthening vocational and technical training, with a focus on strategic sectors such as the digital economy and agribusiness.
- Boosting the green economy and sustainable employment, taking advantage of the country's natural resources to generate jobs in sectors such as renewable energy and waste management.
- The promotion of youth entrepreneurship, through access to finance and the strengthening of business incubators.

According to the latest available data from the World Bank, unemployment in Senegal was 2.93% in 2023, a slight increase from 3.3% the previous year. However, these statistics do not include the unemployed who are not in the system, so the figures are not fully representative, warns the World Bank and the World Organization of Workers.

The under-reporting of the unemployed is a fundamental aspect to consider when analysing the labour dynamics of any country. In the case of Senegal, this could imply that a considerable part of the labour force is not being accounted for in the official metrics. This could be due to several factors, such as informality in the labour market, lack of access to labour registration or demotivation towards the formal job search system.

In addition, the slight variation in the unemployment rate, although it may not seem significant at first glance, may reflect structural changes in the Senegalese economy that merit further analysis. For example, it is possible that there is an increase in the labour force or that specific sectors of the economy are facing difficulties, which could be pushing more people into unemployment or informality.

*Illustration c: Total unemployment rate (% of total labour force) 201S-2022 Source: World Bank.*

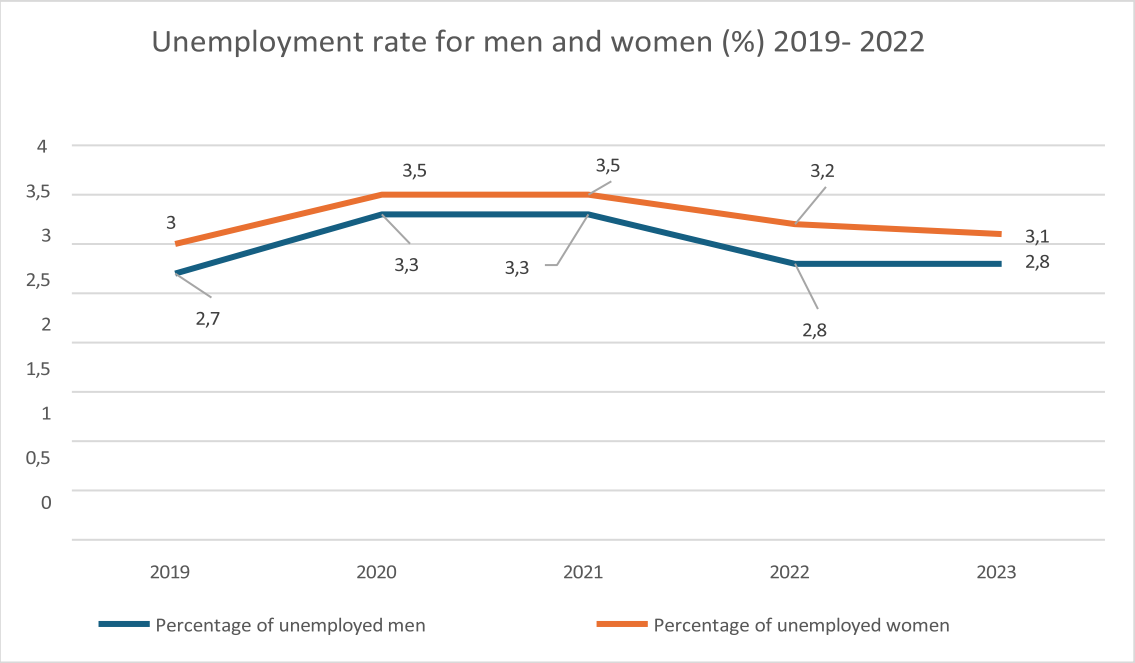



The data indicate that unemployment increased in 2020, due to the impact on the Senegalese economy of the COVID-19 pandemic on trade flows. We note that in 2022, unemployment fell by 0.3 points to 3%, indicating that the economy experienced an improvement in 2022.

From 2019 onwards, the female unemployment rate has shown some stability, fluctuating between 3% and 3.5%. Despite minimal variations, the female unemployment rate has continued to decline in 2022, reaching 3.2%. This indicates that women are strongly entering the labour market.

As of 2019, the male unemployment rate has shown some stability, fluctuating between 2.7% and 3.3%. The male unemployment rate has continued to decrease in 2022, reaching 2.9%.

*Illustration 7 Evolution of the male and female unemployment rate in Senegal 201S-2022. Source: World Bank.*




## 3.2 Ease of doing business

The business environment in Senegal has undergone remarkable transformations in recent years, aimed at improving competitiveness and attracting foreign investment. The country's democratic stability, combined with sustained economic growth, has created a favourable business climate. According to the US Department of State (*Investment Climate Statements - Senegal*, 2023**)**, Senegal offers attractive opportunities for foreign investment due to its open and growing economy. However, it also faces challenges related to bureaucracy, access to finance and the efficiency of the regulatory system.

In terms of business creation, the government has implemented reforms to simplify administrative procedures and reduce registration times. It is now possible to incorporate a company in a few days through the one-stop-shop system managed by the Agency for the Development and Supervision of Small and Medium Enterprises (ADEPME). However, according to the African Development Bank (*African Economic Outlook***,** 2023), there are still barriers related to transparency and efficiency of procedures, which in some cases may deter foreign and local investors.

One of the main obstacles to business development in Senegal is access to financing. High interest rates and strict collateral requirements make it difficult for many SMEs to obtain credit to expand their operations.

The country's public debt has reached 75 % of GDP, exceeding the risk threshold set by the Economic Community of West African States (ECOWAS). According to the US State Department (*Investment Climate Statements - Senegal*, 2023), the country's public debt has reached 75% of GDP, exceeding the risk threshold set by the Economic Community of West African States (ECOWAS). This situation has limited the government's ability to provide financial incentives and has reduced the availability of credit in the private sector. To alleviate this problem, the government has launched initiatives such as the Sovereign Fund for Strategic Investments (FONSIS), which seeks to mobilise resources to finance business projects, although its outreach remains insufficient in the face of demand.

In terms of infrastructure, Senegal has made significant investments in transport and energy to improve the competitiveness of its businesses. The expansion of the port of Dakar, which seeks to position itself as a regional logistics hub, and the modernisation of Blaise Diagne International Airport, have facilitated trade and foreign investment. However, energy supply remains a concern for many businesses. According to the African Development Bank (*African Economic Outlook*, 2023), the high cost of electricity and instability in energy supply represent critical challenges for the productive sector, mainly affecting manufacturing industries and technology start-ups that require reliable access to digital infrastructure.

Despite its political stability, Senegal has generated some concerns in the business community due to contractual revisions in key sectors such as oil and gas. According to the Financial Times (*Senegal Reviews Oil and Gas Contracts*, 2024), the new government has initiated a series of contract reviews to improve financial terms for the benefit of the country, which has generated uncertainty among investors. While such measures aim to ensure that natural resources are exploited equitably, the lack of clarity in regulatory processes may affect the confidence of foreign companies.

In conclusion, Senegal has made progress in creating a more business-friendly environment, but still faces structural challenges in terms of access to finance, administrative efficiency and regulatory stability. The implementation of coherent policies and transparent communication with investors will be key to consolidating business confidence and fostering inclusive and sustainable economic growth.

## 3.3 Impact of the macroeconomic conditions on the digitalisation of the country

Senegal's macroeconomic environment has a significant impact on the adoption of digital technologies. According to the World Bank's *Global Economic Prospects* (2022), inflation tends to drive up the prices of equipment and software licenses, making investment in digital infrastructure more expensive. By relying heavily on imported technology, the depreciation of the local currency against the dollar or the euro makes it more expensive to purchase and maintain tools. In addition, the ANSD report *Indicateurs macroéconomiques de base: panorama 2021-2022* (2022) points out that the general increase in prices squeezes the margins of SMEs, which tend to prioritise immediate expenses rather than digitisation. This situation is exacerbated when liquidity is constrained and financing options are reduced, as most SMEs consider digitisation, although strategic, not a priority in the face of general price increases (IMF, *Regional Economic Outlook: Sub-Saharan Africa*, 2021).

Regulatory and fiscal barriers also impact the adoption of digital tools. The ANSD's *Rapport annuel sur la conjoncture économique* (2021) highlights that several specific levies raise the cost of ICT services, in addition to a VAT that is sometimes levied on the purchase of software and cloud services. According to the OECD's *Economic Outlook for Southeast Asia, China and India 2020* (2020), red tape in obtaining licences or certifications increases the cost of formalising technology businesses and delays the adoption of digital solutions, especially in sectors with stringent regulatory oversight. Similarly, the ITU's *Global Cybersecurity Index* (2021) warns that although Senegal has enacted cybercrime and data protection laws, regulatory gaps persist, creating uncertainty and inhibiting investment in information technology. Finally, the *African* Development Bank's *Senegal Economic Outlook* (2022) states that, despite announced tariff exemptions for ICT equipment, many SMEs are unaware of the procedures for accessing these incentives, which limits their real impact. As a result, the adoption of digital tools is segmented: only companies with the greatest financial capacity take full advantage of the digital transformation, while others are left behind.

# 4 Description of Senegal's fabric business

Senegal's business fabric has undergone a significant transformation in recent decades, driven by a combination of factors such as population growth, private sector modernisation and government reforms aimed at improving competitiveness. The country has been recognised as one of the most dynamic economies in West Africa, with an entrepreneurial ecosystem that continues to evolve through digitalisation and diversification of productive sectors. Despite this progress, structural challenges remain, such as high informality, limited access to finance and the geographical concentration of economic activities.

## 4.1 Geographical distribution of enterprises

The geographical distribution of enterprises in Senegal is markedly uneven, with a strong concentration in the Dakar region. According to the National Agency of Statistics and Demography of Senegal *(ANSD, Rapport sur les Entreprises Sénégalaises*, 2023), more than **50% of the country's registered companies are located in the capital**, due to its more developed infrastructure, proximity to the main commercial ports and concentration of financial institutions.

*Illustration 8. Regional organisation of Senegal. Source: Government of Senegal*

Other regions that have shown sustained business growth include **Thiès**, with **15% of total enterprises**, and **Saint-Louis**, which is notable for its activity in the agro-industry and fisheries sectors. In contrast, inland regions such as Kédougou and Tambacounda have a lower business density, affected by constraints in infrastructure, transport and digital connectivity.

Geographic distribution of enterprises in Senegal

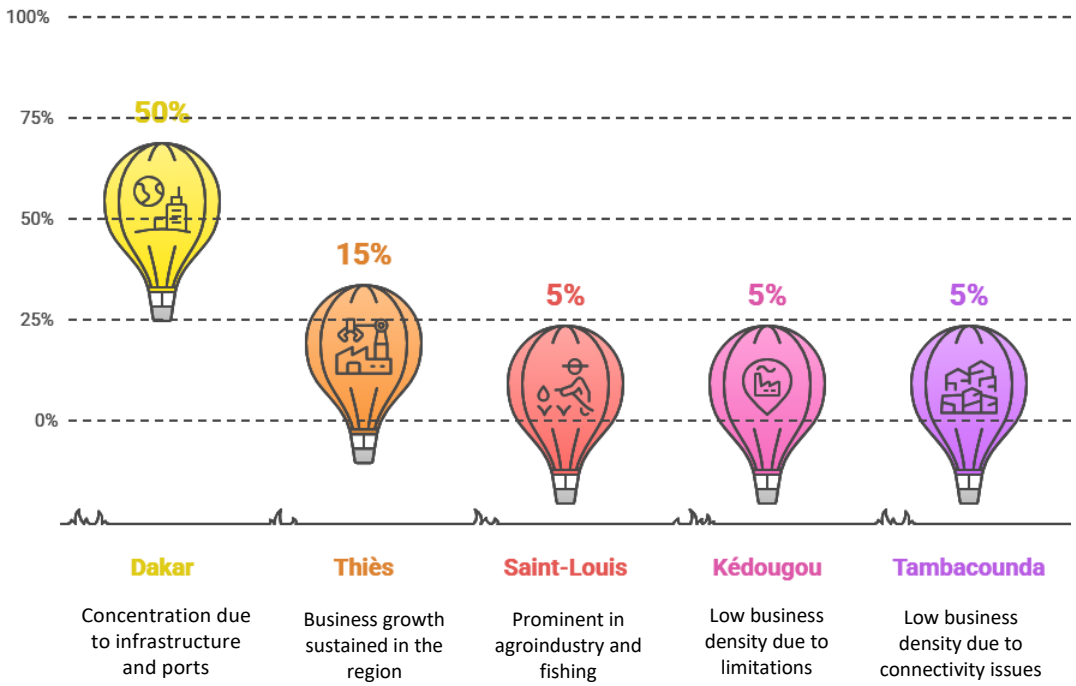



*Illustration S. Geographical distribution of firms in Senegal. Source: ANSD, Rapport sur les Entreprises Sénégalaises, 2023. Prepared by the authors*

Government policies have attempted to encourage the decentralisation of the productive fabric through tax incentives and investment support programmes in rural areas. However, the impact of these measures is still limited, and most economic activity remains concentrated in urban areas.

## 4.2 Distribution by sector of activity

The services sector is the mainstay of the Senegalese business economy, accounting for about 60% of GDP, with a dominant presence in commerce, telecommunications, transport and hotels and restaurants. According to the African Development Bank (*African Economic Outlook*, 2023), the growth of e-commerce and fintech have been key to the modernisation of the sector.

The manufacturing industry accounts for about 20 % of GDP, with a significant weight in the processing of agro-industrial products, fish processing and the manufacture of cement and construction materials. The primary sector (agriculture, livestock and fisheries) remains essential, but its contribution to GDP has declined in relative terms due to low productivity and lack of mechanisation.

Contributions per sector to Senegal's GDP

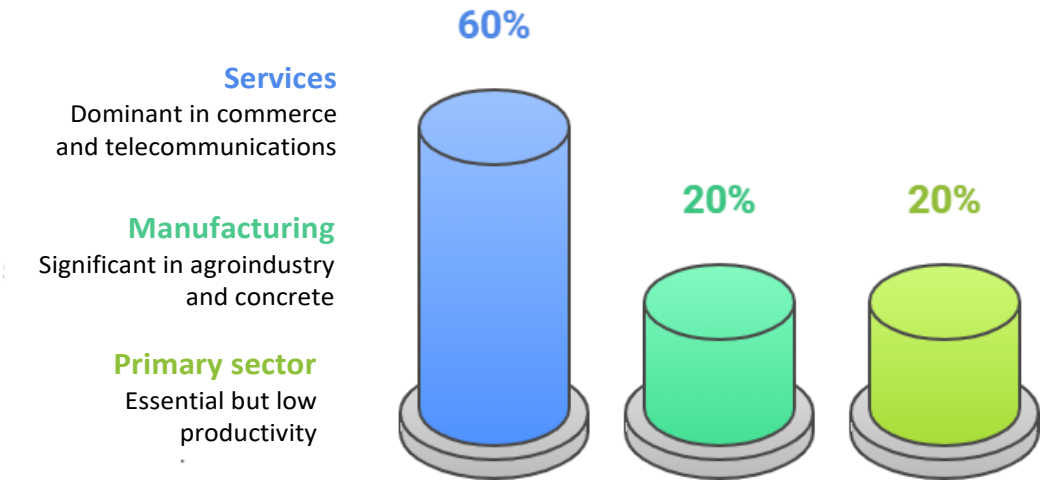



*Illustration 10. Sectoral contribution to Senegal's GDP. Source: African Development Bank: African Development Bank. Own elaboration*

The technology sector has expanded rapidly, driven by initiatives such as *Sénégal Numérique 2025 and the strength of the private sector*. Start-ups in artificial intelligence, cybersecurity and cloud services have begun to establish themselves in the market, although their weight is still minor compared to traditional sectors. In fact, the ANSD does not yet break down ICT sector statistics in its sectoral studies in its business censuses.

## 4.3 Size of enterprises

Senegal's entrepreneurial ecosystem is dominated by small and medium-sized enterprises (SMEs). According to the ANSD *(Rapport sur les Entreprises Sénégalaises*, 2023), **more than G0 % of registered (formal) enterprises in the country are SMEs**, with less than 10 employees.

**Large enterprises**, although **representing only 2 % of the total**, account for a significant proportion of revenues and exports, operating in strategic sectors such as telecommunications, mining and energy. However, informality remains a major problem, with a large number of micro-enterprises operating outside the legal framework, limiting their access to finance and government support programmes.

## 4.4 Legal structure of enterprises

Companies in Senegal can adopt various legal structures, the most common being **Limited Liability Companies (SARL)** and **Sole Proprietorships (EI)**. According to the World Bank (*Investment Climate in Senegal*, 2023), the business registration process has been simplified in recent years, allowing companies to be set up in less than 48 hours through the one-stop shop system.

*Table 3: Main legal structures in Senegal. Source: APIX and own elaboration.*

| Type of legal structure | Number of Partners | Minimum Capital | Liability of the Partners |
|---|---|---|---|
| **Sole Proprietorship (PE)** | 1 | Not required | Unlimited: the owner is liable with his personal assets. |
| **Sole Proprietorship Limited Liability Company (SURL)** | 1 | Freely fixed | Limited to the capital contributed. |
| **Limited Liability Company (SARL)** | Minimum 1 | Freely fixed | Limited to the amount of the contributions of each partner. |
| **Public Limited Company (SA)** | Minimum 1 | 10 million FCFA | Limited to the amount of shares subscribed by each shareholder. |
| **Simplified Joint Stock Company (SAS)** | Minimum 2 | Freely fixed | Limited to the number of shares subscribed by each shareholder. |

| | | | |
|---|---|---|---|
| **General Partnership (SNC)** | Minimum 2 | Not required | Unlimited and joint and several: the partners are liable with their personal assets for the company's debts. |
| **Limited partnership (SCS)** | Minimum 2 | Not required | Mixed: limited partners with unlimited liability and limited partners with liability limited to the capital contributed. |
| **Economic Interest Group (EIG)** | Minimum 2 | Not required | Unlimited and joint and several among members. |

However, certain sectors still face regulatory barriers that hinder the formalisation of businesses, especially in industries subject to specific licences, such as mining and energy.

## 4.5 Employment generated by the private sector

The **private sector** is the main driver of employment in Senegal, generating about **70 % of jobs**. However, the labour market is still characterised by high informality, with **around 75-80% of workers in unregulated sectors**, according to the International Labour Organisation (*ILO, Labour Market Trends in Senegal*, 2023)**.**

The sectors that generate the most formal employment are telecommunications, banking, commerce and manufacturing. However, sectors such as agriculture and fisheries still rely heavily on precarious employment without access to social protection and contractual stability.

## 4.6 Gender in business leadership

Women's participation in business leadership has been increasing, but still faces structural challenges. According to the World Bank (*Women in Business Report***,** 2023), only **24% of businesses in Senegal are run by women**, and many of these businesses operate in low-profit sectors such as retail and handicrafts.

The most relevant barriers include lack of access to finance, the burden of family responsibilities and certain cultural norms that limit female entrepreneurship. In response, government and international organisations have launched mentoring and funding programmes to encourage women's entrepreneurial empowerment.

## 4.7 Age of enterprises

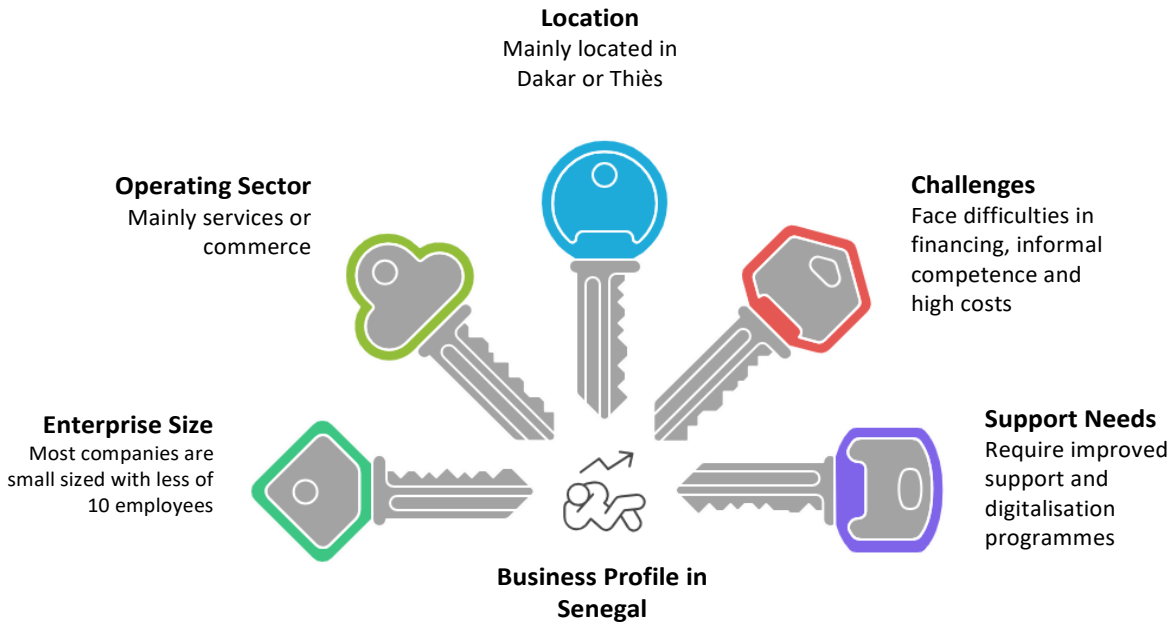
The majority of enterprises in Senegal are relatively young. According to the ANSD (Rapport sur les Entreprises Sénégalaises, 2023), more than **60% of businesses are less than 10 years old**, reflecting a dynamic ecosystem, but with a high level of business mortality.

Factors such as lack of access to credit, informal competition and economic volatility affect business longevity. Only **30% of businesses make it beyond five years of operation.**

## 4.8 Average profile

The average profile of a company in Senegal corresponds to a **small or medium-sized enterprise (SME), with less than 10 employees, operating in the service or trade sector, located in Dakar or Thiès**. These enterprises face difficulties in accessing finance, competition with the informal sector and high administrative costs.

Challenges and Opportunities for SMEs in Senegal




*Challenges and opportunities for SMEs in Senegal. Own elaboration*

According to the ANSD *(Rapport sur les Entreprises Sénégalaises*, 2023), only 30 % of companies manage to expand after five years, which highlights the need to strengthen business support and digitalisation programmes to improve their sustainability and competitiveness.

# 5 Senegal's governmental structure and ITC development policies

Senegal has demonstrated a strong commitment to digitisation and the development of information and communication technologies (ICTs) as fundamental pillars for its economic growth and government modernisation. In recent years, the Senegalese government has implemented ambitious strategies to improve digital infrastructure, foster technological inclusion and position the country as a benchmark in the West African digital economy. This process has been marked by initiatives such as *Sénégal Numérique 2025* and the recent *New Deal Technologique* proposal, which seek to consolidate progress in digitalisation and stimulate innovation in the technology sector.

The government structure in charge of ICT development in Senegal is composed of several key institutions, including the **Agence de l'Informatique de l'Etat (ADIE)**, now renamed **Sénégal Numérique**, which is responsible for the digitisation of public administration, and the **Autorité de Régulation des Télécommunications et des Postes (ARTP)**, which oversees telecommunications infrastructure and competition in the digital sector. These entities work in coordination with the **Ministry of Digital Economy and Telecommunications**, which designs and implements policies for digital transformation and the strengthening of the country's technological ecosystem.

From a strategic perspective, Senegal is committed to expanding connectivity, bridging the digital divide and developing a robust technological infrastructure. According to the Government of Senegal (*Sénégal Numérique 2025*, 2023), the country has set itself the goal of ensuring broadband internet access to 70 % of the population by 2025, in addition to strengthening fibre optic coverage throughout the national territory. The strategy also includes modernising government services through digital platforms to improve administrative efficiency and reduce bureaucracy.

At the regulatory level, Senegal has made progress in creating a favourable legal environment for investment in the ICT sector. In this regard, the country has established regulatory frameworks for the development of e-commerce, cybersecurity and personal data protection. However, challenges remain in the effective implementation of these regulations, as well as in reducing the cost of Internet access and improving the energy infrastructure needed to sustain the growth of the digital sector.

One of the key pillars of the Senegalese digital strategy has been to boost the entrepreneurial ecosystem and innovation. Through funding programmes, technology incubators and the promotion of startups, the government has sought to position Senegal as a regional hub for technological innovation. Initiatives such as **CTIC Dakar**, an incubation centre for technology companies, have played a crucial role in supporting digital entrepreneurs by facilitating access to mentoring, funding and international collaboration networks.

In terms of digital inclusion, the government has implemented programmes aimed at reducing the technology gap in rural areas and improving digital literacy. Projects such as the deployment of public internet access centres and the digitisation of the education system have allowed for increased access to digital tools in communities with lower connectivity. However, according to the African Development Bank (*African Economic Outlook*, 2023), significant challenges remain in terms of digital equity, especially with regard to the participation of women and vulnerable groups in the technological ecosystem.

In conclusion, Senegal has made significant progress in its digitisation process, consolidating an institutional and policy framework geared towards ICT development. However, the success of these policies will depend on the government's ability to overcome remaining challenges, including bridging the digital divide, improving access to finance for tech start-ups and strengthening digital infrastructure. The implementation of the *New Deal Technologique* will represent a key opportunity to accelerate the country's digital transformation and consolidate its position as a technology leader in West Africa.

## 5.1 An ICT vision for Senegal's economic development

Senegal has demonstrated a sustained commitment to digital transformation as a driver of economic and social development. Since the early 2000s, the country has implemented various strategies to strengthen its digital ecosystem, with the aim of improving connectivity, boosting business competitiveness and fostering technological innovation. The government has articulated its policies around key strategic plans, starting with the *Information Society and Digital Economy Development Plan* and evolving towards more ambitious programmes such as *Sénégal Numérique 2025* and the recent *New Deal Technologique*. These plans reflect a long-term vision to turn Senegal into a digital hub in West Africa, attracting foreign investment and improving the quality of life of its citizens.

The first digital initiatives in Senegal emerged in the 2000s with the creation of the *Agence de l'Informatique de l'Etat* (ADIE), charged with digitising administrative processes and improving government efficiency. At the same time, the government promoted the development of telecommunications infrastructure, with the liberalisation of the sector and the entry of private operators that boosted access to the Internet and mobile telephony.

One of the most important milestones in this first phase was the formulation of the *Plan for the Development of the Information Society and the Digital Economy*, which laid the foundations for greater integration of ICTs in strategic sectors such as education, health and public administration. This plan enabled the deployment of the national fibre optic network, facilitating interconnection between regions and promoting broadband internet access.

In 2016, the government launched the *Sénégal Numérique 2025* (SN2025) plan, a comprehensive strategy designed to consolidate progress in digitisation and strengthen the country's technological ecosystem. The plan is structured around four key pillars:

1. **Digital infrastructure development**: expansion of fibre optics, modernisation of the 4G network and preparation for the adoption of 5G.
2. **Digital transformation of public administration**: digitisation of government procedures and improved accessibility of online services.
3. **Fostering the entrepreneurial ecosystem and technology start-ups**: tax incentives, innovation incubators and financing for technology SMEs.
4. **Bridging the digital divide**: digital literacy programmes and improving access to ICT in rural areas.

This plan had a budget **of 136 billion CFA francs (approximately 200 million euros)**, financed through public-private partnerships and international agencies such as the African Development Bank (ADB) and the World Bank. Thanks to SN2025, Senegal managed to significantly improve its connectivity, **increasing internet penetration from 46% in 2016 to 60% in 2023**, and positioning the country as one of the leaders in digitisation in West Africa.

The Senegalese government has identified the need for an even more ambitious strategy to consolidate the progress of *Sénégal Numérique 2025* and take digital transformation to the next level. In this context, it has announced the **New Deal Technologique**, a plan that aims to accelerate the digitisation of the economy, boost innovation in emerging sectors such as artificial intelligence and cybersecurity, and attract greater foreign investment in technology.

Although its implementation has not yet started, the *New Deal Technologique* foresees significant investments in digital infrastructure, with a focus on expanding 5G coverage, developing data centres and promoting the digital software and services industry. In addition, this plan is expected to strengthen cybersecurity capabilities, ensuring a secure digital environment for both businesses and citizens.

Senegal's digital strategies have had a positive impact on the modernisation of the country, facilitating job creation, improving digital education and increasing business competitiveness. However, there are still challenges that need to be addressed to ensure equitable and sustainable digital development:

- **Unequal access to ICTs**: rural areas still face limitations in connectivity and access to technological devices.
- **Cost of internet access**: Mobile data tariffs remain high compared to the average income of the population.
- **Digital skills training**: Demand for technology talent outstrips the supply of skilled professionals.
- **Cyber security**: data protection and cybercrime prevention require more robust regulation.

The ICT vision for Senegal's economic development has evolved from the creation of basic infrastructure to the consolidation of an integrated digital economy. Through initiatives such as *Sénégal Numérique 2025* and the future *New Deal Technologique*, the government has demonstrated its determination to make Senegal a leader in technological innovation in Africa. However, the key to the success of these strategies lies in the country's ability to overcome the remaining challenges and ensure that the benefits of digitisation are accessible to all citizens, regardless of their geographical location or socio-economic status.

## 5.2 Government structure for digitisation

Senegal's government ecosystem for digitisation and Information and Communication Technologies (ICT) is made up of a number of ministries and public agencies that work in a coordinated manner to design and implement digital transformation strategies. Through initiatives focused on technological infrastructure, regulation of the digital sector and promotion of technological entrepreneurship, the government seeks to position the country as a benchmark in the West African digital economy.

The ministries responsible for digitalisation are:

- **Ministry of Digital Economy and Telecommunications (MENT):** is the main government authority responsible for the formulation and implementation of policies related to ICT and digitisation in Senegal. Its mission is to ensure equitable access to the internet, encourage technological innovation and promote the digital modernisation of public and private services. This ministry oversees the regulation of the telecommunications sector and works closely with international agencies to fund digital infrastructure projects.
- **Ministry of National Education (MEN):** plays a key role in the digitisation of the education system, developing programmes that integrate technological tools in primary and secondary education. Initiatives include the provision of computer equipment in schools, teacher training in the use of digital technologies and the development of distance education platforms.
- **Ministry of Vocational Training, Apprenticeships and Trades (MFPAA):** responsible for coordinating and supervising technical and vocational education and training (TVET) in Senegal. In the context of digitisation, this ministry is working to modernise curricula to include ICT training, with the aim of equipping young people with digital skills that will enable them to integrate into an increasingly technological labour market.
- **Ministry of Higher Education, Research and Innovation (MESRI):** promotes ICT research and the integration of emerging technologies in Senegal's universities and research centres. It also promotes the creation of innovation laboratories and collaboration with the private sector for the development of technological solutions applied to various industries.

There are also other agencies and public bodies linked to digitalisation:

- ***Sénégal Numérique, former Agence de l'Informatique de l'Etat*** **(ADIE) - under the MENT:** the body in charge of the digitisation of public administration in Senegal. Its main objective is to implement technological solutions that optimise government efficiency and facilitate the population's access to public services. Its projects include the creation of e-government platforms, the digitisation of administrative records and the strengthening of cybersecurity in the public sector.

- ***Autorité de Régulation des Télécommunications et des Postes*** **(ARTP) - under the MENT:** oversees the telecommunications sector in Senegal, ensuring fair competition between operators and protecting consumer rights. The ARTP regulates the radio spectrum, promotes the expansion of mobile coverage and encourages the reduction of internet access tariffs to facilitate digital inclusion.

- **Agency for the Development and Promotion of Small and Medium Enterprises (ADEPME) - under the MENT:** aims to support the growth and competitiveness of SMEs in Senegal. In the field of digitalisation, this agency offers ICT training to entrepreneurs, facilitates access to financing for technological projects and promotes the adoption of digital tools in the private sector.

- **National Agency for Statistics and Demography (ANSD) - under the MESRI:** it is responsible for collecting and analysing statistical and demographic data essential for the formulation of public policies. Its role in digitisation includes the implementation of open data systems and the modernisation of information management platforms that facilitate access to statistics on the evolution of the ICT sector in Senegal.

- **National Agency for Agricultural and Rural Advice (ANCAR) - under the Ministry of Agriculture:** although not directly part of the ICT sector, it plays a key role in the digitisation of the agricultural sector. Through projects such as the use of smart sensors in agriculture and the creation of digital information platforms for farmers, ANCAR promotes the adoption of technologies that optimise productivity and improve the resilience of the agricultural sector to climate change.

- **Agency for the Development and Promotion of Industrial Sites (APROSI) - under the Ministry of Industry and Trade:** manages and promotes the establishment of industrial parks in Senegal, including special economic zones oriented towards technology and digital innovation. Its work contributes to the attraction of foreign investment in the technology sector and facilitates the development of industrial infrastructure with advanced digital components.

## 5.3 Promoting startups and supporting innovation

Senegal has emerged as a dynamic ecosystem for startups and technological innovation in West Africa, driven by government policies, foreign investment and the growth of the digital sector. Through strategic programmes such as *Sénégal Numérique 2025* and the forthcoming *New Deal Technologique*, the government has reinforced its commitment to promoting startups and supporting innovation in key sectors such as fintech, artificial intelligence, e-commerce and digital health.

The country's digital transformation has been driven by the increasing adoption of information and communication technologies (ICT), the expansion of connectivity and the development of digital infrastructures. In this context, the government has launched multiple initiatives to strengthen the entrepreneurial ecosystem, provide access to finance and facilitate the creation of start-ups with high growth potential.

The development of the startup ecosystem in Senegal is supported by a number of policies and regulatory frameworks designed to facilitate innovation and entrepreneurial growth. One of the most important initiatives is the **Startup Law**, which provides tax incentives, access to finance and technical support to startups. This law has been implemented by the Ministry of Digital Economy and Telecommunications (MENT) in collaboration with the private sector and international organisations.

Within *Sénégal Numérique 2025*, the government has identified the promotion of innovation as a strategic axis to improve the country's competitiveness in the digital domain. This policy translates into the creation of technology incubators, the implementation of business acceleration programmes and the facilitation of access to international markets for Senegalese startups.

Senegal has a robust ecosystem of incubators and innovation hubs that support entrepreneurs at various stages of development. Among the main incubators are

- **CTIC Dakar**: Senegal's first technology incubator, specialising in digital and ICT startups. It offers mentoring programmes, access to investors and business training.
- **DER/FJ (Délégation Générale à l'Entrepreneuriat Rapide des Femmes et des Jeunes)**: government initiative that provides funding and advice to young entrepreneurs and women in technology and innovation sectors.
- **Jokkolabs**: network of coworking and innovation spaces with a presence in Dakar, which promotes digital entrepreneurship and collaboration between startups.
- **Impact Hub Dakar**: support platform for social and technological entrepreneurs, offering training, networking and access to seed capital.

These incubators have played a key role in creating a vibrant entrepreneurial ecosystem, connecting startups with investors and facilitating access to international markets.

Access to finance remains a key challenge for startups in Senegal. To address this issue, the government and the private sector have launched several investment funds and financial support mechanisms, among them:

- **Fonds de Développement du Numérique (FDN)**: public fund aimed at financing early-stage and growing digital startups.
- **Fonds Souverain d'Investissements Stratégiques (FONSIS)**: Senegal's sovereign wealth fund that invests in strategic sectors, including technology startups.
- **Fonds d'Amorçage, de Garantie et de Capital Risque (FOGAR)**: guarantee and venture capital fund for innovative ventures.
- **Foreign investment and venture capital**: Senegal has attracted the interest of international investors in technology, with investment funds such as Partech Africa and Orange Digital Ventures actively participating in the ecosystem.

Startup support policies have had a positive impact on job creation, the growth of the digital sector and the diversification of the Senegalese economy. According to the African Development Bank (*African Economic Outlook*, 2023), **the number of startups in Senegal has increased by** 35% in the last **five years**, with significant growth in fintech, digital education and e-commerce. According to the consulting firm Tracxn, **the country is home to 677 startups**[2], of which 144 have raised funding, accumulating a total of USD 439 million in venture capital and private equity. In addition, eight of these companies have reached the Series A funding stage or higher.

The drive for innovation has enabled the internationalisation of several Senegalese start-ups, which have succeeded in expanding into other African markets and attracting foreign investment. However, challenges remain, such as bureaucratic red tape in the start-ups, the shortage of specialised talent and the need to improve access to late-stage funding.

[2] Tracxn data, updated 29 January 2025.

Despite the progress made, the startup ecosystem in Senegal faces several challenges that need to be addressed to consolidate its growth:

- **Access to late-stage funding**: many startups find it difficult to scale due to a lack of growth capital.
- **Regulation and bureaucracy**: simplifying administrative processes and reducing regulatory barriers are essential to attract more investment.
- **Digital talent development**: training in technology skills and talent retention are key to the sustainability of the entrepreneurial ecosystem.

With the implementation of the *New Deal Technologique*, the government is expected to reinforce policies supporting innovation, increasing investment in digital infrastructure and promoting public-private collaboration to strengthen the startup ecosystem in Senegal.

Senegal has managed to build a dynamic and growing startup ecosystem, supported by government policies, technology incubators and access to finance. The country has established itself as a benchmark for digital innovation in West Africa, with sustained growth in key sectors such as fintech and digital education. However, long-term success will depend on the ability to address existing challenges and strengthen investment and talent development strategies.

The combination of government support programmes, private funding and an enabling regulatory environment will be crucial to ensure that Senegalese startups continue to innovate and contribute to the country's economic development in the digital era.

## 5.4 Other relevant initiatives of the Government of Senegal

The Government of Senegal has launched several initiatives complementary to its digitisation strategy, with the aim of strengthening the private sector, boosting access to finance, developing key infrastructure and modernising strategic sectors such as agriculture. These initiatives are part of a comprehensive vision to diversify the economy, generate employment and improve the country's competitiveness in the regional and international context.

### 5.4.1 Private sector initiatives

Strengthening the private sector is one of the priorities of the Senegalese government to foster sustainable economic growth. Within this framework, programmes and policies have been implemented to improve the business climate, facilitate business start-ups and support entrepreneurs in key sectors.

One of the most important programmes is **the Délégation Générale à l'Entrepreneuriat Rapide des Femmes et des Jeunes (DER/FJ)**, a government initiative that provides financing, training and technical support to small and medium-sized enterprises (SMEs), especially those led by women and young people. Since its creation, DER/FJ has allocated more than **50 billion CFA francs** in funding to innovative projects in sectors such as technology, trade and manufacturing.

Another relevant initiative is the *Plan Sénégal Émergent* (PSE), which includes specific measures to improve the competitiveness of the private sector through tax incentives, reducing red tape and strengthening access to international markets. In this context, the government has created digital platforms to facilitate business registration processes and improve transparency in public management.

In addition, Senegal has promoted the formalisation of informal businesses, offering incentives for small entrepreneurs to access bank financing and benefit from business support policies. This measure aims to reduce the high rate of informality, which still represents approximately 85% of employment in the country, according to the African Development Bank (*African Economic Outlook*, 2023).

### 5.4.2 Economic support funds

Access to finance remains a challenge for many businesses and entrepreneurs in Senegal. To address this issue, the government has established several economic support funds aimed at boosting investment in strategic sectors.

One of the most relevant is the ***Fonds Souverain d'Investissements Stratégiques*** **(FONSIS)**, a sovereign wealth fund that aims to mobilise resources for development projects in areas such as infrastructure, energy, telecommunications and agribusiness. Through public-private partnerships, FONSIS has contributed to the financing of technology start-ups and the modernisation of traditional companies.

Another key mechanism is the ***Fonds de Développement du Numérique*** **(FDN)**, which financially supports companies in the technology and digital sector. This fund has enabled the expansion of e-commerce platforms, fintech solutions and cybersecurity projects, consolidating Senegal as an emerging player in West Africa's digital economy.

In addition, the government has launched microfinance programmes aimed at small entrepreneurs, with preferential interest rates and guarantee schemes to facilitate access to credit. These programmes have been instrumental in the expansion of businesses in sectors such as manufacturing, tourism and digital services.

### 5.4.3 Other strategic and infrastructure development projects

Infrastructure development is a central pillar of the government's strategy to improve Senegal's competitiveness. In recent years, significant investments have been made in key projects aimed at modernising telecommunications, improving logistics and strengthening connectivity throughout the country.

One of the most ambitious projects is the **expansion of the national fibre optic network**, which aims to ensure high-speed internet access in all regions of the country. Through partnerships with private operators, the government has managed to increase fibre optic coverage **by 45% between 2018 and 2023**, enabling the digitisation of public services and the adoption of advanced technologies in the private sector.

In the area of transport and logistics, Senegal has invested in the modernisation of the **Port of Dakar**, with the construction of new terminals to facilitate international trade and the transit of goods. Land transport corridors have also been developed to improve connectivity with neighbouring countries, such as Mali and Guinea.

In addition, the country has promoted **renewable energy** projects, with the installation of solar and wind farms aimed at reducing dependence on fossil fuels and guaranteeing a sustainable energy supply for businesses and households. These projects have been key to reducing electricity costs and improving the competitiveness of local industries.

### 5.4.4 Development and digitisation of the agricultural sector

The agricultural sector remains a key part of the Senegalese economy, accounting for approximately 17% of GDP and providing employment for a large part of the population. To modernise this sector, the government has launched digitalisation programmes aimed at improving productivity, resource efficiency and the marketing of agricultural products.

One of the most prominent projects is the **Digital Agriculture Programme**, which introduces technological tools such as smart sensors, automated irrigation systems and digital information platforms for farmers. These solutions have helped to optimise crop management and reduce production losses.

The government has also promoted the adoption of **digital traceability systems** in the agricultural supply chain, allowing producers to monitor the quality of their products and access international markets with better certification standards.

Another key initiative is the creation of **digital agricultural training centres**, where farmers are trained in the use of new technologies applied to the sector. These centres have helped to improve digital literacy in rural areas and promote more sustainable and efficient farming practices.

# 6 Private sector-led digitisation initiatives

The private sector in Senegal has played a crucial role in accelerating the country's digitisation, complementing government initiatives and fostering innovation in various strategic sectors. Telecommunications companies, financial institutions, technology start-ups and innovation hubs have driven the development of digital infrastructure, the expansion of digital financial services and the modernisation of business processes. These initiatives have improved access to connectivity, facilitated financial inclusion and consolidated an increasingly dynamic technological ecosystem.

Telecommunications companies have been key players in the deployment of digital infrastructure in Senegal**. Sonatel, a subsidiary of Orange Senegal**, has led projects to expand the fibre optic network and improve mobile coverage, facilitating the adoption of 4G and 5G networks in several regions of the country. Thanks to its investments, Senegal has achieved an increase in internet penetration, enabling businesses and citizens to access digital services more efficiently. **Free Senegal**, another major operator, has energised the market by introducing competitive offerings in connectivity and mobile telephony, encouraging greater adoption of digital tools in both urban and rural environments. These developments have been instrumental in the digitisation of commerce, education and public administration, contributing to the modernisation of the country.

The financial sector has also undergone an accelerated digital transformation, driven by the adoption of fintech solutions and mobile banking services. Companies such as **Wave and PayDunya** have revolutionised the way Senegalese manage their daily transactions, providing accessible mobile payment platforms that have reduced reliance on cash and facilitated financial inclusion. The proliferation of these services has enabled thousands of citizens without access to traditional banking to make payments, transfers and commercial transactions from their mobile devices. In parallel, traditional banks such as the **Bank of Africa and the National Bank for Economic Development (BNDE)** have developed online banking services and mobile applications that have streamlined account and credit management, promoting a more agile and accessible financial environment.

The entrepreneurial ecosystem in Senegal has been boosted by the consolidation of incubators and technology hubs that support startups in various stages of growth. Spaces such as **CTIC Dakar and Jokkolabs** have played a key role in incubating technology companies, providing mentoring programmes, business training and access to investor networks. These initiatives have enabled young entrepreneurs to develop innovative digital solutions in areas such as education, health and e-commerce, contributing to the diversification of the country's productive fabric. The private sector has also established investment funds and acceleration programmes for start-ups, facilitating the financing of technological projects with high growth potential.

Synergy between the private sector and government policies has been key to positioning Senegal as an emerging technology hub in West Africa. Collaboration between telecommunications operators, financial institutions and technology companies has enabled the modernisation of the country and the creation of new economic opportunities in the digital environment. However, despite this progress, challenges remain, such as the need to expand internet coverage in rural areas, reduce the cost of digital services and encourage greater adoption of emerging technologies in the business sector. The continuity of these initiatives will be essential to ensure that Senegal consolidates its leadership in the region's digital economy and that the benefits of digital transformation reach all sectors of society.

# 7 Analysis of Senegal's technology infrastructure

The development of technological infrastructure in Senegal has been a key factor in modernising its economy and improving competitiveness in strategic sectors. In recent years, the country has experienced a major expansion in digital connectivity, with significant advances in mobile network coverage and telecommunications infrastructure. However, challenges remain related to equity of access, energy stability and bridging the digital divide between urban and rural areas. According to the International Telecommunication Union (ITU) *State of Broadband 2022* report, **Senegal has managed to increase internet penetration to 60 % of the population, with more than 15 million active users**, although the average connection speed is still lower than in other countries in the region.

One of the major milestones in the development of digital infrastructure has been **the deployment of 4G technology, which has reached 88% coverage in the country's main cities,** according to the report *État du Marché des Télécommunications au Sénégal 2023* by the *Autorité de Régulation des Télécommunications et des Postes* (ARTP). However, in rural areas, coverage remains limited, with less than 50% access to high-speed networks. **As for 5G, although Senegal has made progress in pilot tests with operators such as Sonatel and Free, its deployment is still at an early stage** and faces both infrastructure and regulatory barriers.

In parallel, the government has prioritised the expansion of fibre optic infrastructure within the framework of the *Sénégal Numérique 2025* strategy. According to the *Ministère des Postes et des Télécommunications (* 2022), the country has deployed more than 5,000 km of fibre optics, with the aim of improving connectivity between major cities and production centres. Despite this progress, the lack of investment in base stations and the low density of telecommunications towers in rural areas continue to limit accessibility to high-speed internet.

Energy infrastructure also plays a crucial role in the country's digitisation. According to the African Development Bank's *Senegal Economic Outlook 2022*, **the national electrification rate has reached 78%, but in rural areas it remains below 50%**. This constraint represents a major barrier to the operation of digital services, especially in sectors such as e-commerce, fintech and online education, which depend on constant and reliable connectivity.

Despite these advances, Senegal still faces significant challenges in terms of connectivity and bridging the digital divide. According to ITU's *Global Digital Connectivity Index 2022*, **the country is below average.**

**Africa in terms of affordability of digital services, with the cost of internet access remaining high compared to the average income of the population**. In this context, digitisation of the agricultural sector has become a priority within economic development strategies, with initiatives seeking to improve productivity through the use of digital platforms, IoT sensors and data management solutions to optimise the agri-food value c h a i n .

## 7.1 4G and 5G rollout in Senegal

The deployment of mobile telecommunications networks has been one of the main drivers of digital transformation in Senegal. In the last decade, the country has experienced significant growth in coverage and access to advanced connectivity technologies, particularly with the expansion of the 4G network and the first steps towards 5G deployment. However, challenges remain in the equitable distribution of these technologies, especially in rural areas, as well as in the regulation and sustainability of infrastructure investment.

4G has been at the heart of the improvement in mobile connectivity in Senegal and has enabled an increase in the speed and quality of internet access. According to the report *État du Marché des Télécommunications au Sénégal 2023* by the *Autorité de Régulation des Télécommunications et des Postes* (ARTP), 4G network coverage has reached 88% of the population in major cities such as Dakar, Thiès and Saint-Louis. However, in rural areas, penetration remains uneven, with coverage below 50 % in some inland regions such as Kolda and Tambacounda.

The leading operator, Sonatel (a subsidiary of Orange), has been a pioneer in the expansion of 4G, obtaining in 2016 the official licence to deploy the technology throughout the territory. Free Senegal and Expresso have followed suit, albeit with smaller infrastructures. In terms of subscribers, the number of users with access to 4G networks has grown by 35 % annually since 2019, exceeding 9 million in 2023, representing more than 40 % of the total number of active mobile lines in the country (ARTP, 2023). This growth has been driven by the progressive reduction in the cost of data plans and the increased availability of affordable smartphones.

Despite these advances, 4G expansion faces several obstacles. The high cost of radio spectrum and the lack of investment in base stations in less densely populated regions have limited the universalisation of the service. In addition, network congestion in major cities remains a problem, especially at peak hours, due to the growing demand for data consumption on streaming platforms and social networks.

Senegal has started to take the first steps towards the implementation of 5G technology, although the rollout is still in an experimental phase. In 2022, Sonatel conducted the first 5G pilot tests in collaboration with Huawei and Nokia, achieving speeds of up to 1 Gbps in controlled environments in Dakar. In parallel, Free Senegal also announced its intention to develop 5G-compatible infrastructures in the coming years, while Expresso has not yet confirmed a clear strategy for adoption.

The government, through the *Ministère des Postes et des Télécommunications*, has included 5G as one of the priorities in the *Sénégal Numérique 2025* strategy, with the aim of improving network capacity and fostering the digitisation of strategic sectors such as industry, health and education. However, a concrete timetable for the 5G licence auction has not yet been defined, which has generated uncertainty among telecommunications operators.

Among the main challenges for 5G deployment in Senegal are high infrastructure costs and the need to upgrade transmission networks to support the high data traffic required by this technology. According to ITU's *Global Digital Connectivity Index 2022*, Senegal still faces limitations in base station density and fibre optic availability across the territory, critical factors to ensure an efficient 5G network deployment. In addition, the affordability of compatible devices remains a challenge, as the majority of consumers still use 3G and 4G terminals.

The development of 5G in Senegal has the potential to accelerate digital transformation in multiple sectors. In particular, the manufacturing industry, the agricultural sector and telemedicine could benefit significantly from this technology, enabling the automation of processes and the implementation of IoT (Internet of Things) solutions. According to the African Development Bank's *Senegal Economic Outlook 2022*, the adoption of 5G could contribute to an additional 1.5% growth in the country's GDP over the next five years if an efficient and affordable deployment is achieved.

To capitalise on these opportunities, clear regulation and an incentive framework that promotes private investment in telecommunications infrastructure will be key. Collaboration between the public sector and industry will be essential to bridge the digital divide and ensure that access to new technologies is not limited to the most developed urban areas.

In conclusion, while 4G has transformed connectivity in Senegal, facilitating greater access to mobile internet and the expansion of digital commerce, 5G still faces significant challenges to mass deployment. As the country moves forward with its digitisation strategy, it will be critical to ensure sustainable investments in infrastructure and generate a favourable regulatory environment for the development of this new technology.

## 7.2 Digital infrastructure improvements

The development of digital infrastructure in Senegal has been a priority in recent years, with significant investments in the expansion of fibre optics, connectivity to submarine telecommunications cables and the strengthening of data storage and processing capacity. These developments have been driven both by government initiatives within the framework of *Sénégal Numérique 2025* and by private investments from major telecom operators. Despite this progress, challenges remain in accessibility and equity of access to these infrastructures, especially in rural and peripheral areas.

Optical fibre has been one of the main pillars of Senegal's digital infrastructure growth. According to the *Rapport sur l'avancement de Sénégal Numérique 2025* of the *Ministère des Postes et des Télécommunications* (2022), the country has deployed more than **5,000 km of fibre optics** in recent years, with a focus on improving connectivity between major cities and economic centres. This deployment has strengthened regional interconnection and improved access to high-speed services, facilitating the development of digital solutions in sectors such as education, health and e-commerce.

Investments in fibre optics have been led by the incumbent **operator Sonatel**, a subsidiary of Orange, which has extended its network to offer fixed broadband services in urban and peri-urban areas. Free Senegal and Expresso have also developed projects to extend fibre coverage, albeit with a smaller reach. However, fibre access remains limited outside Dakar and other major cities, with many rural areas still relying on mobile networks for internet access, which limits the quality and stability of the connection.

Senegal has consolidated its role as a strategic connectivity hub in West Africa thanks to its integration with various international submarine cable systems**. The country is connected to five undersea fibre optic cables**, which has significantly improved international bandwidth capacity and reduced communication latency. The main cables include:

- **ACE (Africa Coast to Europe)**: connects Senegal to Europe and other African countries along the Atlantic coast.
- **SAT-3/WASC**: a key system linking West Africa to Europe via Portugal and Spain.
- **MainOne**: improving connectivity to Nigeria and other emerging African markets.
- **Glo-1**: strengthening connectivity between Africa and the UK.
- **2Africa** (under implementation): an ambitious project led by Meta (Facebook) and global operators that will connect more than 30 African countries to Europe and Asia.

Thanks to this infrastructure, Senegal has been able to improve the stability and speed of international connections, reducing dependence on expensive and inefficient satellite links. It has also enabled the provision of higher quality services in segments such as digital banking, e-commerce and online entertainment. However, while international connectivity has improved, the efficient distribution of this capacity within the country still faces challenges due to the lack of adequate domestic infrastructure in certain regions.

The development of data centres is another key aspect of Senegal's evolving digital infrastructure. The country currently has **two main data centres**, operated by **Sonatel** and **ATOS**, which offer hosting and cloud storage services. These centres have improved security and access to digital services, making it easier for businesses and government agencies to efficiently manage their data without relying on offshore servers.

However, compared to other countries in the region, Senegal still lags behind in the expansion of cloud computing infrastructures and high-capacity data centres. According to the ITU's *Global Data Center Market Report* (2022), most cloud services used in Senegal rely on servers located in Europe, leading to longer response times and vulnerabilities in terms of digital sovereignty. To address this situation, the government has put forward initiatives to encourage the construction of new data centres and boost local storage capacity, although energy costs and cooling infrastructure are challenges to overcome.

Improvements in Senegal's digital infrastructure have been significant in the last decade, with a strong deployment of fibre optics, strategic integration with submarine cables and the establishment of data centres that strengthen information storage and processing capacity. However, challenges remain in the equitable expansion of these infrastructures, with rural areas still lagging behind in terms of connectivity. To consolidate its position as a digital hub in West Africa, Senegal will need to continue to boost investment in domestic infrastructure, ensure sustainability of access to high-speed networks and strengthen digital sovereignty through a greater presence of local data centres.

## 7.3 Expansion of energy infrastructure

The development of energy infrastructure in Senegal is a key factor for the success of its digital transformation and the sustainability of economic growth. The availability of reliable and affordable electricity is a fundamental requirement for the deployment of technological infrastructures, the expansion of telecommunications and the adoption of digital solutions in strategic sectors such as industry, education and agriculture. In recent years, the country has made significant progress in improving access to electricity, diversifying its energy matrix and integrating renewable sources, although challenges related to stability of supply and equity in energy distribution remain.

The electrification rate in Senegal has experienced a remarkable growth in the last decade. According to the African Development Bank's *Senegal Economic Outlook 2022*, **the rate of access to electricity has risen from 54% in 2010 to 78% in 2010.**
**% by 2022**, reflecting a significant expansion in the distribution network. However, this coverage is not homogeneous across the country: **while in urban areas access exceeds G5%, in rural areas it remains below 50%**, creating an energy gap that directly impacts the digitisation of more isolated communities**.**

The lack of reliable access to electricity in rural areas limits the use of digital technologies in key sectors such as education and agriculture. In many locations, telecommunications networks rely on diesel generators to ensure the operability of base stations, which increases operating costs and reduces the efficiency of the service. This situation restricts high-speed internet access in these areas, affecting small businesses, digital commerce platforms and government digital inclusion initiatives.

Aware of the need to improve the sustainability and stability of energy supply, Senegal has promoted a strategy to diversify its electricity matrix, with a growing role for renewable energies. According to the International Energy Agency's (IEA) *World Energy Outlook 2022*, the country has gone from relying almost exclusively on fossil fuels in 2015 to generating more than **30% of its electricity from renewable sources by 2023**. This progress is largely due to the commissioning of large-scale solar and wind farms, among them:

- **Senergy 2 solar park** (Bokhol): with a capacity of **30 MW**, it is one of the leading photovoltaic plants in West Africa.
- **Ten Merina solar plant**: with a **capacity of 2G MW**, it contributes to reducing dependence on fossil fuels.
- **Taïba Ndiaye wind farm**: the largest wind power project in the country, with **158 MW** of installed capacity, contributing significantly to the stability of the electricity grid.

These projects have made it possible to reduce the cost of electricity generation and improve the sustainability of the energy system. In addition, the integration of these renewable sources has favoured the reduction of carbon emissions and has strengthened the country's energy resilience in the face of fossil fuel supply crises.

The growth of the digital sector in Senegal requires a reliable power supply to ensure the continued operation of data centres, telecom base stations and fibre optic networks. According to ITU's *Digital Infrastructure and Energy Needs in Africa* report (2022), the quality of power supply remains a challenge in some areas, with voltage fluctuations and power outages affecting the operation of critical technology infrastructure.

To improve the stability of supply, the government has launched initiatives such as the *Plan Sénégal Émergent* (PSE), which envisages the modernisation of electricity grids and the expansion of rural electrification through solar micro-grids. In addition, the *Société Nationale d'Électricité du Sénégal* (Senelec) has invested in energy storage systems to ensure greater stability in electricity distribution.

Despite these advances, generation and distribution capacity is still insufficient to meet the growing energy demand of the digital sector. The lack of adequate infrastructure in certain regions limits the installation of new data centres and hinders the expansion of high-capacity telecommunications networks, which represents an obstacle to the development of advanced digital services in the country.

The expansion of energy infrastructure in Senegal has been a determining factor in the country's digitisation, with significant progress in electrification and diversification of the energy matrix. However, challenges remain in terms of stability of supply and equity of access to electricity, especially in rural areas. To ensure the success of the digital transformation, it will be key to further expand renewable energy generation capacity, modernise distribution infrastructure and ensure that the technology sector has a reliable and sustainable energy supply.

## 7.4 Digital connectivity challenges and technology gaps

Despite progress in the deployment of digital infrastructure in Senegal, the country still faces significant challenges in terms of connectivity and bridging the technology gap. Although the expansion of 4G and fibre optics has improved internet access in the main cities, significant inequalities in access to digital services persist between urban and rural areas, between different economic sectors and between people of different socio-economic levels. These disparities limit the positive impact of digitalisation on the economy and social inclusion, requiring targeted public policies to ensure more equitable technological development.

Internet access in Senegal has been growing steadily, reaching a penetration rate of 60 % by 2023, according to ARTP's *État du Marché des Télécommunications au Sénégal* report (2023). However, this growth has been concentrated in urban centres, where fibre and mobile network coverage is more robust. In contrast, in rural areas, connectivity remains limited, with less than **50% of the population having access to high-speed internet services**. The lack of infrastructure in these regions not only restricts digital inclusion, but also limits economic and educational opportunities for the most isolated communities.

Another critical factor is the affordability of digital services. According to the ITU's *Global Digital Connectivity Index 2022*, **the cost of mobile data plans in Senegal** represents **on average** 5.2% of a user's monthly income**, exceeding the recommended threshold of** 2% **set by the UN Broadband Commission.** This high cost makes internet access difficult for lower-income sectors, creating a digital divide that excludes a significant part of the population from the benefits of digitisation.

Beyond infrastructure, the lack of digital skills is one of the main barriers to the effective use of technologies in Senegal. According to the African Development Bank's *Senegal Economic Outlook 2022*, **more than 40 % of the adult population has never used the internet**, largely due to a lack of training in basic digital skills. This problem disproportionately affects women and older people, who face greater difficulties in integrating into the digital economy.

Access to appropriate devices is also a limiting factor. Although mobile phones are widely used, with a penetration rate of over 120 % (ARTP, 2023), most of the devices used are low-end and do not offer optimal performance for advanced internet applications. The availability of computers and tablets remains low, especially in educational and business environments, which restricts the development of digital skills and adoption of technological solutions in key sectors such as education, health and commerce.

Despite increasing investment in telecommunications networks, Senegal continues to face problems of stability and quality of service. According to ITU's *State of Broadband 2022*, **the average connection speed in the country is 17 Mbps**, **significantly lower than the global average of 60 Mbps**. In addition, network congestion in major cities and lack of redundancy in transmission infrastructure affect the quality of service, leading to frequent interruptions in internet access.

Another key problem is the lack of accessible local data centres and cloud services. Most businesses and government agencies rely on servers located abroad, which creates latency and security issues. Building new data centres in the country would improve digital sovereignty and optimise the performance of services in strategic sectors such as banking, public administration and telecommunications.

The challenges in digital connectivity and technology gaps in Senegal reflect the need for more inclusive policies to ensure that advances in digital infrastructure benefit the entire population. While internet access has grown significantly, inequalities persist in terms of coverage, affordability and digital skills training. To close these gaps, it is essential to boost digital literacy programmes, reduce the costs of internet access and encourage investment in local infrastructure to ensure equitable and quality access to digital services.

## 7.5 Digitisation of the agricultural sector in Senegal

The agricultural sector plays a key role in the Senegalese economy, accounting for approximately **17% of GDP** and employing more than **60% of the labour force**. Despite its strategic importance, the sector's productivity remains constrained by factors such as access to inputs, climate variability and the lack of modern management tools. In this context, digitalisation emerges as a key factor to improve the efficiency, resilience and profitability of the agricultural sector, through solutions that facilitate access to information, finance and markets.

One of the main developments in the digitisation of the agricultural sector in Senegal has been the development of digital platforms that allow farmers to access real-time information on prices, weather and farming techniques. According to the FAO report *Digitalisation et agriculture en Afrique de l'Ouest* (2022), the country has seen a growth in the use of mobile applications and SMS-based services to improve decision-making in the field.

Among the most prominent initiatives are:

- **mLouma**: a platform that connects producers with markets through up-to-date information on prices and availability of agricultural products.
- **Sen'Agri**: a service that provides weather forecasts and personalised crop recommendations.
- **WeFarm**: a knowledge-sharing network where farmers can ask questions and receive advice from experts and other producers.

These tools have improved transparency in the marketing of agricultural products and reduced dependence on intermediaries, thereby increasing farmers' incomes. However, their adoption remains uneven, with higher penetration in regions close to urban centres and lower penetration in rural areas with connectivity difficulties.

In addition to digital platforms, Senegal has begun experimenting with emerging technologies such as artificial intelligence (AI), the Internet of Things (IoT) and big data analytics to optimise agricultural production. According to the *African* Union's *Africa Agritech Report 2023*, some agricultural companies and cooperatives have implemented moisture sensors and drones to improve water use efficiency and early detection of pests.

The development of precision agriculture in the country is still in its infancy, due to high implementation costs and the need for specialised training. However, pilot projects driven by institutions such as the *Centre de Suivi Écologique* (CSE) and the *Institut Sénégalais de Recherches Agricoles* (ISRA) have shown that the use of satellite imagery and data analysis can significantly contribute to improving crop yields and resilience to climate change.

One of the main obstacles faced by smallholder farmers in Senegal is access to finance. In this regard, fintech solutions have started to play an important role in financial inclusion in the agricultural sector. According to the World Bank's *Global Findex Database 2021*, only **20% of Senegalese farmers have access to formal banking services**, limiting their ability to invest in inputs and technology.

To address this problem, digital finance platforms have emerged such as:

- **Yobanté**: a fintech that offers microcredit to smallholder farmers via mobile phones.
- **Mlouma Finance**: linked to the farmers' market platform, it facilitates access to loans based on recorded production and sales.

These tools have enabled the expansion of financial inclusion for farmers, although there are still challenges in terms of trust in the system and financial education to ensure efficient use of these services.

Despite advances in the digitisation of the agricultural sector, there are still significant challenges that limit its expansion. The lack of technological infrastructure in rural areas, low levels of digital literacy and the costs of accessing devices and services remain major barriers. According to ITU's *State of Broadband 2022* report, internet coverage in rural areas of Senegal remains below 50%, hindering the adoption of digital technologies in agriculture.

To overcome these constraints, it is necessary to strengthen investments in telecommunications infrastructure in rural areas, promote digital skills training programmes for farmers, and develop support policies that facilitate the adoption of emerging technologies. The digitisation of the agricultural sector has the potential to transform production and marketing in Senegal, but its success will depend on the country's ability to integrate these solutions in a way that is equitable and accessible to all actors in the sector.

# 8 Senegal's SMEs maturity

The level of technological maturity of small and medium-sized enterprises (SMEs) in Senegal is a key factor in assessing the country's capacity in terms of competitiveness, innovation and adaptation to the digital economy. According to the African Development Bank's *Senegal Economic Outlook 2022*, SMEs represent more than **G0 % of the business fabric** and generate approximately **40 % of national GDP**. However, their level of digitisation varies widely depending on the sector, access to finance and available technological infrastructure.

According to the International Telecommunication Union's Digital Maturity Index (ITU, 2022), Senegal is at an intermediate level within the African continent, with digitisation progressing in specific sectors such as trade and financial services, but still facing significant gaps in manufacturing, agriculture and education. This section analyses the digital maturity of SMEs in Senegal based on different dimensions, their variation across sectors of activity, the main challenges they face and the opportunities to accelerate their digital transformation.

*Table 4: Main ICT development indicators. Source: own elaboration based on UN ITU data.*

| Country | % of the population with mobile coverage | % of the population with mobile coverage (3G) | % of the population with mobile coverage (at least 4G) | Mobile telephone subscribers (per 100 inhabitants) | Fixed telephony subscribers (per 100 population) | Active mobile broadband subscribers (per 100 inhabitants) | % population using the Internet |
|---|---|---|---|---|---|---|---|
| **Benin** | 98% | 80% | 46% | 92 | 0 | 27 | 26% |
| **Burkina Faso** | 92% | 48% | 27% | 106 | 0 | 52 | 22% |
| **Cape Verde** | 99% | 94% | 79% | 98 | 10 | 75 | 64% |
| **Côte d'Ivoire** | 98% | 95% | 60% | 152 | 74 | 1 | 36% |
| **Equatorial Guinea** | 70% | 60% | 0% | 46 | 1 | 0 | 26% |
| **Gambia** | 98% | 88% | 7% | 111 | 2 | 55 | 36% |
| **Ghana** | 97% | 96% | 68% | 130 | 1 | 85 | 58% |
| **Guinea** | 88% | 40% | 29% | 105 | 0 | 24 | 26% |
| **Guinea-Bissau** | 100% | 33% | 0% | 97 | 0 | 40 | 23% |
| **Kenya** | 96% | 94% | 77% | 114 | 0 | 47 | 29% |
| **Liberia** | 76% | 63% | 35% | 33 | 0 | 7 | 26% |
| **Mali** | 100% | 65% | 45% | 125 | 1 | 46 | 27% |
| **Morocco** | 100% | 99% | 99% | 134 | 6 | 75 | 84% |
| **Mauritania** | 96% | 43% | 0% | 106 | 1 | 62 | 41% |
| **Niger** | 92% | 24% | 15% | 59 | 0 | 6 | 10% |
| **Nigeria** | 91% | 74% | 41% | 99 | 0 | 42 | 35% |
| **Senegal** | 99% | 99% | 75% | 114 | 1 | 67 | 43% |
| **Sierra Leone** | 85% | 65% | 40% | 86 | 0 | 20 | 18% |
| **South Africa** | 100% | 100% | 96% | 162 | 4 | 111 | 70% |
| **Togo** | 98% | 91% | 67% | 79 | 1 | 31 | 24% |

### 8.1.1 Digital maturity per dimension

To measure the digital maturity of SMEs in Senegal, it is necessary to assess different axes that determine their ability to adopt digital technologies. According to the World Bank's *Digital Transformation in Emerging Markets* report (2022), SMEs can be classified into four levels of digital maturity:

1. **Initial**: companies with low technology adoption, no digital presence or management tools.
2. **Intermediate**: companies with internet access and basic use of digital tools such as social networks or email.
3. **Advanced**: companies using e-commerce platforms, cloud solutions and digital payments.
4. **Leaders**: companies with complete integration of emerging technologies such as AI, Bit Data or IoT.

In Senegal, **54% of SMEs are at the start-up or intermediate level**, while **only** 12% **can be considered as digital leaders** (ITU, 2022). Key dimensions assessed include:

- **Digital infrastructure**: **65% of urban SMEs** have access to broadband internet, but in rural areas this figure drops to **27%** (ARTP, 2023).
- **Use of digital tools**: **58% of SMEs** use social media for marketing, but only **22%** have their own website (World Bank, 2022).
- **Payments and e-commerce**: **35% of SMEs** accept digital payments, but less than **15%** sell on e-commerce platforms.
- **Cybersecurity**: only **18% of SMEs** have implemented data protection or cyberattack prevention measures (ITU, 2022).

### 8.1.2 Digital maturity per business sector

The level of digitalisation varies considerably according to the sector of activity of SMEs in Senegal. According to the OECD *ICT Adoption in SMEs in Africa* report (2023), the sectors with the highest digital adoption are financial services, trade and telecommunications, while agriculture and manufacturing continue to lag behind.

- **Financial sector and fintech**: more than **80% of financial SMEs** use digital platforms for payments, financing and customer management (African Development Bank, 2022).
- **Retail and commerce**: **60% of urban businesses** use social media for sales, although less than **25%** have structured e-commerce platforms (ARTP, 2023).

- **Industry and manufacturing**: Only **18% of industrial companies** have implemented process management or automation software.
- **Agriculture**: Less than **12% of agricultural SMEs** have access to climate monitoring platforms or digital marketplaces (FAO, 2022).

These data reflect that while some sectors have made significant progress in digitisation, others still require support in infrastructure, training and financing to adopt new technologies.

### 8.1.3 Challenges and obstacles to digitisation

Despite the progress in SME digitisation, there are a number of barriers that limit their technology adoption. According to the World Bank's *SME Digital Readiness Index 2022* report, the main obstacles include:

- **High costs**: **40% of SMEs** see the high price of digital devices and services as a barrier to adoption.
- **Lack of training**: **48% of entrepreneurs** report that they do not have the necessary skills to implement digital tools.
- **Limited access to finance**: only **18% of SMEs** have obtained credit for technology investment.
- **Regulatory gap**: the lack of a clear legal framework for e-commerce and data protection creates uncertainty for businesses.

### 8.1.4 Digital infrastructure and connectivity

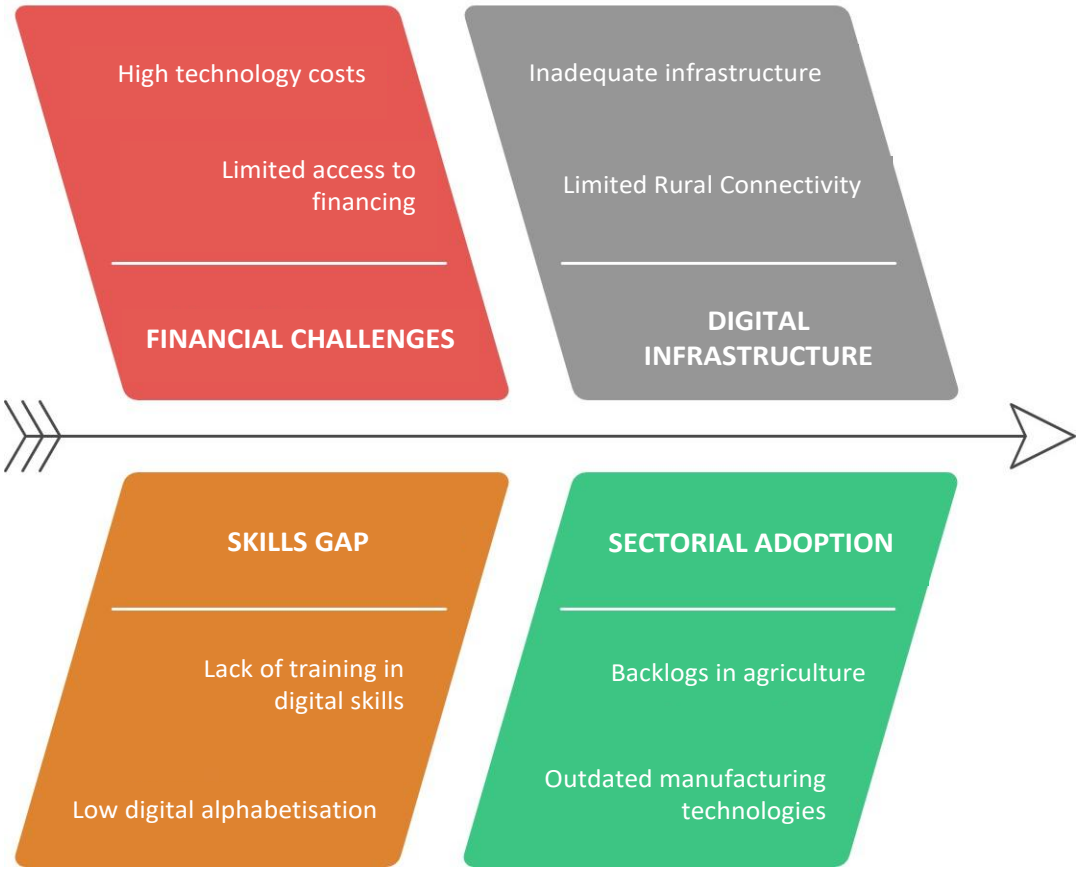
Access to reliable digital infrastructure is critical for the technological development of SMEs. According to the *Autorité de Régulation des Télécommunications et des Postes* (ARTP, 2023), Senegal has made progress in the expansion of the fibre optic network and the deployment of mobile technologies, but still faces challenges in terms of coverage and quality of service.

- **Broadband coverage**: **65% of** urban **SMEs** have access to fibre optics, but in rural areas this figure drops to **27%**.
- **Connection speed**: The average internet speed in Senegal is **17 Mbps**, below the African average of **25 Mbps** (ITU, 2022).
- **Cybersecurity**: **82% of SMEs** do not have data protection policies, making them vulnerable to cyber-attacks.

### 8.1.5 Recommendations and opportunities for improvement

To accelerate the digital transformation of SMEs in Senegal, it is critical to adopt a holistic approach that addresses existing barriers and fosters an ecosystem conducive to innovation and technology adoption. This requires coordinated action by various actors, including government, the private sector and international agencies.

Overcoming digitalisation barriers for SMEs in Senegal



The following are the main recommendations to improve the digital maturity of SMEs in the country:

#### *8.1.5.1 Facilitate access to finance for digitisation*

One of the main obstacles to the digitisation of SMEs in Senegal is the lack of financial resources to invest in technology. According to the African Development Bank's *Senegal Economic Outlook 2022*, only 18% of SMEs have accessed financing for the acquisition of digital solutions. To reverse this situation, the implementation of specific investment funds for the digitisation of companies is crucial, as well as the creation of credit lines with preferential rates for the purchase of technological equipment, software and cloud services.

The government, in collaboration with the banking sector and fintech companies, can develop digital microcredit programmes aimed at SMEs, following the successful model applied in other African countries such as Rwanda and Kenya. Strengthening tax incentives for companies investing in digital transformation would also help to reduce the economic burden of these investments.

#### *8.1.5.2 Implement digital skills training programmes*

The low level of digital skills among employers and employees represents a major barrier to the adoption of new technologies. According to the World Bank's *SME Digital Readiness Index 2022* report, 48% of Senegalese entrepreneurs say that a lack of skills in digital tools is an obstacle to the modernisation of their businesses. To address this problem, it is recommended that training programmes be developed that cover everything from the basic use of digital tools to the integration of advanced solutions such as e-commerce, cloud-based business management and artificial intelligence.

The state, in collaboration with universities, start-up incubators and international organisations such as the OECD and the ITU, can design training plans tailored to the needs of each productive sector. Moreover, it is essential that these programmes are accessible in both face-to-face and online formats, with special emphasis on training for women entrepreneurs and young people, who represent a key sector for the digitisation of Senegal's business fabric.

#### *8.1.5.3 Expansion of digital infrastructure and improved connectivity*

Access to a quality digital infrastructure is a determining factor for the technological maturity of SMEs. Although Senegal has made progress in the expansion of fibre optics and the deployment of 4G and 5G networks, the gaps between urban and rural areas remain significant. According to the *Autorité de Régulation des Télécommunications et des Postes* (ARTP, 2023), only 27% of rural SMEs have access to broadband internet, compared to 65% in urban areas.

To reduce this gap, it is necessary to continue the expansion of the fibre optic network and encourage public-private partnerships for the installation of telecommunications towers in regions with low coverage. It is also essential to reduce internet access costs through subsidies and the elimination of taxes on essential digital services. The implementation of free internet access programmes in public spaces and technology parks can be an effective strategy to improve the connectivity of SMEs and foster their inclusion in the digital economy.

#### *8.1.5.4 Fostering digital inclusion in strategic sectors*

Some productive sectors in Senegal, such as agriculture and manufacturing, have shown lags in the adoption of digital technologies. To boost digitisation in these areas, it is necessary to develop specific incentive programmes to facilitate the integration of technological solutions in their production processes.

In the agricultural sector, for example, initiatives can be promoted to facilitate the use of digital platforms for product marketing, access to real-time weather information and crop management through IoT sensors. Similarly, in the manufacturing industry, the use of automation tools and business management software could significantly improve the efficiency and competitiveness of SMEs.

To this end, the government can establish partnerships with technology companies and innovation centres to develop solutions that are accessible and adapted to the specific needs of each sector. It is also key to ensure that workers are trained to take full advantage of these tools.

The success of these strategies will depend on effective collaboration between the public sector, technology companies and financial institutions. The digitisation of SMEs in Senegal will not only improve their competitiveness but will also contribute to economic growth and job creation. It is essential that the country continues to make progress in strengthening digital infrastructure, digital skills training, access to finance and regulation of the digital ecosystem to ensure an inclusive and dynamic environment that drives the technological transformation of small and medium-sized enterprises.

### 8.1.6 Strengthening regulation and digital security

The regulatory framework plays a crucial role in the development of a secure and trustworthy digital ecosystem. In Senegal, the advancement of digital transformation has generated the need to strengthen regulation in key areas such as cybersecurity, data protection and e-commerce. Despite the government's efforts in the formulation of strategic policies such as *Sénégal Numérique 2025*, challenges remain in the effective implementation of regulations to ensure trust and security in the digital environment draft report 2.

Senegal has made progress in defining a regulatory framework for cybersecurity, with the adoption of the *National Cybersecurity Strategy 2022- 2025*, which sets out measures to improve critical infrastructure protection and strengthen national capacities in digital security. However, according to ITU's *Global Cybersecurity Index 2022*, the country ranks in the middle of Africa, indicating that there are still areas for improvement in terms of regulation and prevention of cyber threats.

One of the main challenges lies in the lack of cybersecurity awareness and preparedness within the private sector. A study by the *Ministère de l'Économie Numérique et des Télécommunications* indicates that only 18% of Senegalese SMEs have implemented data protection measures or cyber incident response plans, which exposes them to risks such as digital fraud, ransomware attacks and information theft.

E-commerce in Senegal has grown significantly in recent years, with the proliferation of digital platforms and the increased use of electronic payments. However, regulation of this sector remains insufficient to ensure consumer protection and the security of digital transactions. According to the *Autorité de Régulation des Télécommunications et des Postes* (ARTP), 35% of consumers are wary of making online purchases due to the lack of effective dispute resolution and fraud protection mechanisms draft report 2.

In terms of data protection, Senegal adopted in 2008 Law No. 2008-12 on Personal Data Protection, administered by the *Commission de Protection des Données Personnelles* (CDP). However, digital law experts have pointed out the need to update this regulation to align it with international standards such as the European Union's *General Data Protection Regulation (GDPR)*, especially with regard to the management of consent and the right to be forgotten.

To improve the digital security and regulatory framework in Senegal, the following strategies are recommended for implementation:

1. **Strengthening the legal framework for cybersecurity**: update and harmonise existing laws with international standards, ensuring that companies adopt mandatory data protection and cybersecurity protocols.
2. **Creation of a National Cyber Incident Response Centre (CSIRT)**: implement a specialised body that monitors cyber threats, responds to cyber threats, responds to cyber threats, respond to incidents and provide technical assistance to businesses and government agencies.
3. **Cybersecurity training and awareness programmes**: develop training initiatives aimed at businesses, especially SMEs, to encourage the adoption of good practices in digital security and e-fraud prevention.
4. **Increased supervision of e-commerce**: implement a certification platform for e-commerce sites to ensure consumer protection and transaction security.
5. **Public-private collaboration on cybersecurity**: Establish partnerships between the government, technology companies and international organisations to strengthen the country's digital resilience.

# 9 Gaps and opportunities

The digital transformation process in Senegal has made significant progress in recent years, driven by government initiatives such as *Sénégal Numérique 2025* and the growing dynamism of the private sector in adopting digital technologies. However, the country still faces significant challenges on its path towards a consolidated digital economy. Technology gaps persist in terms of infrastructure, internet access, affordability of digital devices and services, as well as digital skills training and cybersecurity.

Despite these challenges, Senegal's technological environment also presents multiple opportunities that can accelerate its digitisation and consolidate its position as an innovation hub in West Africa. The advancement of digital commerce, the growing adoption of fintech services, the potential of artificial intelligence and the digitisation of the agricultural sector are just some of the factors that can contribute to improving the country's competitiveness.

This section analyses the existing technology gaps and the opportunities that can be seized to drive digital transformation in Senegal. It examines key indicators in terms of access to technology, digital skills, infrastructure and regulation, based on updated data from international organisations and recent studies on the country's digital economy.

## 9.1. Technology gaps

Despite progress in digitisation, Senegal faces significant technology gaps that limit equitable access to technology and reduce the ability of many businesses and citizens to fully benefit from digital opportunities. These gaps can be grouped along the following axes:

### 9.1.1. Internet access and connectivity gap

One of the main technological challenges in Senegal is the inequality in internet access between urban and rural areas. According to the *Autorité de Régulation des Télécommunications et des Postes (ARTP, 2023)*, 65% of the urban population has access to broadband internet, while in rural areas this percentage falls below 30%. This gap directly affects the ability of citizens and businesses in less developed regions to participate in the digital economy.

The country has made significant progress in the deployment of fibre optics and the expansion of 4G, but coverage is still insufficient in peripheral areas. According to the report *État du Marché du Télécommunications au Sénégal 2023 (ARTP, 2023)*, 4G coverage reaches 88 % in the main cities, but in rural areas it remains below 50 %. Moreover, 5G deployment is still at an experimental stage and its adoption will depend on massive investment in infrastructure.

### 9.1.2. High cost of digital services

Internet access remains expensive relative to the average income of the population. According to the *ITU's Global Digital Connectivity Index 2022*, the monthly cost of a mobile data package in Senegal represents 5.2% of the average monthly income, exceeding the recommended threshold of 2% set by the UN Broadband Commission. This situation excludes a significant part of the population from regular use of digital services, particularly affecting small businesses and entrepreneurs who cannot afford advanced connectivity tools.

### 9.1.3. Digital skills deficit

Lack of training in digital skills is another major obstacle to digitisation in Senegal. According to the *African Development Bank's* "Senegal Economic Outlook 2022", more than 40 % of the adult population has never used the internet due to a lack of basic internet skills. In addition, less than 30 % of employees in small and medium-sized enterprises (SMEs) have received training in digital tools, which limits the adoption of technologies in the business environment.

The gender gap is also a relevant factor, as women have less access to ICT training opportunities. According to the *International Labour Organisation (2023)*, only 24% of women in Senegal work in technology sectors, reflecting an under-representation in the digital industry.

### 9.1.4. Insufficient data storage and processing infrastructure

Although Senegal has improved its international connectivity through integration with undersea fibre-optic cables, it still lacks sufficient local data centres to ensure digital sovereignty and reduce dependence on foreign servers. According to the "Global Data Center Market Report" (ITU, 2022), most cloud services used in Senegal rely on servers located in Europe, which creates latency problems and data security vulnerabilities.

## 9.2. Technological opportunities

Despite the aforementioned gaps, Senegal presents multiple opportunities to accelerate its digital transformation. These opportunities can be seized through strategic investments in technological infrastructure, digital skills, promotion of innovation and appropriate regulation. The sustained growth of the digital economy in the country, coupled with a young population and a growing adoption of digital services, offers fertile ground for technological development in various sectors.

### 9.2.1. Fintech ecosystem expansion

The fintech sector has experienced exponential growth in Senegal, driven by the high penetration of mobile money services and the consolidation of digital payment platforms. According to the World Bank's "Global Findex Database 2023", more than **60% of Senegalese adults use mobile money services**, representing substantial growth compared to 34% in 2014.

Startups such as **Wave, PayDunya and Wizall** have led the expansion of digital payment solutions, facilitating financial inclusion and reducing reliance on cash. The success of Wave, which eliminated transfer fees on its mobile money services, has spurred greater competition in the sector, benefiting consumers and small businesses.

The rise of fintech has not only revolutionised payments, but has also opened up opportunities in other segments such as:

- **Microcredit and digital finance**: platforms such as **Yup Senegal** are enabling small entrepreneurs to access credit without having to go to traditional banks.
- **Digital investment management**: Fintech tools are democratising access to savings and financing products in sectors such as agriculture and retail.
- **Blockchain and cross-border payments**: the adoption of technologies such as blockchain could streamline remittances and improve the security of financial transactions in the region.

This expanding fintech ecosystem not only strengthens financial inclusion but also positions Senegal as a **regional hub for digital financial innovation**.

### 9.2.2. Digitisation of the agricultural sector

Digital transformation in agriculture is key to increasing productivity and improving resilience to the effects of climate change. According to the FAO report "Digitalisation et agriculture en Afrique de l'Ouest" (2022), technology applied to the agricultural sector has made it possible to improve access to markets, optimise the use of resources and increase the profitability of small producers.

Platforms such as **mLouma, Sen'Agri and Tolbi** have demonstrated their effectiveness in the marketing of agricultural products through real-time information on prices, availability of inputs and access to markets.

Key opportunities for digitisation in agriculture include:

- **IoT sensors and remote monitoring**: companies are deploying smart sensors to measure soil moisture and water quality, optimising irrigation and fertiliser use.
- **Agricultural drones**: the use of drones for crop condition assessment allows for more efficient pesticide and fertiliser application.
- **Agricultural finance platforms**: the combination of fintech and agrotech is facilitating access to credit for smallholder farmers, allowing them to invest in better seeds and technologies.

The government of Senegal has identified agricultural digitalisation as a key axis to modernise the sector and strengthen the country's food security.

### 9.2.3. Opportunities in digital trade

E-commerce in Senegal has grown significantly in recent years, with platforms such as **Jumia Senegal, Maad and Cayor Market** leading the sector's expansion. However, the participation of SMEs in e-commerce remains low.

According to the report "ICT Adoption in SMEs in Africa" (OECD, 2023), only **22 % of Senegalese SMEs have a presence on e-commerce platforms**. This low level of digitisation is due to lack of access to finance, poor digital infrastructure and low digital skills among entrepreneurs.

Key opportunities in this sector include:

- **Digital training for entrepreneurs**: programmes such as the **"E-Commerce Boost"** driven by the Senegalese SME Development Agency aim to strengthen the digital skills of entrepreneurs.
- **Access to finance for digitisation**: banks and fintechs are launching specific credit lines for the technological modernisation of small businesses.
- **Logistics and delivery optimisation**: improved last-mile services and the expansion of digital payments will enable further growth in online commerce.

### 9.2.4. Regulation and cybersecurity

Strengthening the regulatory framework for cybersecurity and data protection is essential to build trust in the digital economy. The implementation of the National Cybersecurity Strategy 2022-2025 represents an opportunity to improve the country's digital resilience and encourage investment in secure technologies.

Progress in this sector includes:

- **Creation of CERT Senegal**: a cybersecurity incident response centre that monitors and mitigates digital threats.
- **Regulation of personal data**: the recent adoption of the Personal Data Protection Law strengthens consumer confidence in digital transactions.
- **Cybersecurity talent development**: training programmes in universities and specialised centres are fostering a new generation of digital security experts.

### 9.2.5. Digitisation of the industrial sector

The industrial sector in Senegal is at an early stage of digitisation but presents great opportunities for modernisation through **Industry 4.0.**

The African Development Bank's "Digital Transformation of Manufacturing in Africa" report (2023) notes that only **18 % of manufacturing firms in Senegal have adopted advanced digital technologies.** However, the growth of special economic zones (SEZs) and investment in automation are accelerating industrial transformation.

Key trends in this sector include:

- **Automation and robotics**: companies in sectors such as textiles and agribusiness are beginning to adopt robots to improve production efficiency.
- **IoT and production monitoring**: connected sensors are optimising machine maintenance and reducing downtime.
- **3D printing and additive manufacturing**: 3D printing technologies are reducing costs and improving product customisation.

The Senegalese government is promoting tax incentives for the digitisation of the industrial sector and attracting foreign investment for factory modernisation.

# 10 Interviews with the key Senegalese stakeholders

Between 24 and 28 February 2025, a series of meetings were held in Dakar with key stakeholders in the field of digitisation, vocational training and employability in the technology sector. These meetings were part of a comprehensive effort to gain an in-depth understanding of the current state of digitalisation in the country, identify existing challenges and explore opportunities for collaboration with local entities. With a growing economy and a clear commitment to digital modernisation, Senegal faces a number of challenges that need to be addressed in a coordinated manner between the public and private sector. The growing importance of digitalisation in all economic and educational fields has made these meetings extremely relevant to define future strategies.

Full details of each of the meetings, including the topics discussed and the conclusions drawn, are presented below:

1. **Centro de Formación Profesional y Técnica de San Juan (CFPT-SJ)**

   **Web:** https://cfptsj.sn/

   **Participants:**

   - Amadou MASSAR SARR, Acting Chairman of the Board of Directors of the CFPT-SJ
   - Navin Khemlani, IBC Spain

   **Notes from the meeting:**

   The meeting with CFPT-SJ focused on exploring various aspects related to vocational training, its alignment with the labour market and the impact of digitalisation on teaching methodologies. During the meeting, Amadou MASSAR SARR provided a detailed explanation on the organisational structure of the CFPT-SJ, highlighting the significant financial support received from Japan to ensure the optimal functioning of the centre.

   A central theme of the discussion was the pressing need to adapt educational programmes to the changing demands of the technology sector. The possibility of implementing online training platforms as part of the centre's modernisation strategy was discussed. In addition, the challenges faced by the institution in terms of integrating pedagogical innovation and digital methodologies in the teaching-learning process were analysed in depth.

The CFPT-SJ has several branches specialised in key industrial areas, including electromechanics, IT and network systems, machinery maintenance and industrial refrigeration, demonstrating its commitment to technical training in strategic sectors for the Senegalese economy.

**Key data:**

- The centre has experienced a steady growth in its student body over the last few years:
    - 2020-2021 period: 1,048 students served by 50 trainers.
    - Period 2021-2022: 1,191 students served by 50 trainers.
    - Period 2022-2023: 1,315 students served by 43 trainers.
- School success rates show positive results:
    - BTI 2020-2021: 73.88% success rate.
    - BTS 2021-2022: 95.47% success rate.
    - BTS 2022-2023: 94.40% success rate.
- During the 2022-2023 academic year, the centre organised visits to 55 companies as part of its strategy of linking with the productive sector.
- The Board of Directors of the CFPT-SJ is composed of 17 members, including representatives of various governmental and private sector entities, such as the Presidency of the Republic, the Ministry of Finance, the Ministry of Employment, the Ministry of National Education, the Chamber of Commerce, employers' organisations and trade unions, reflecting a participatory governance approach.

**Conclusions:**

The meeting with the CFPT-SJ made it possible to identify the importance of this centre as one of the main actors in technical and vocational training in Senegal. Its multi-sectoral governance structure, which includes representatives from both the public and private sectors, facilitates a holistic view of training needs.

Data show a positive trend in terms of student growth and high success rates, indicating a good acceptance and effectiveness of training programmes. However, the need to modernise pedagogical methodologies to incorporate digital tools and adapt them to contemporary labour market demands is identified as a challenge.

International collaboration, exemplified by Japanese support, emerges as a key factor for the sustainable development of this type of educational institutions in Senegal.

## 2. Conseil National du Patronat du Sénégal (CNP)

**Web:** https://www.cnp.sn/

**Participants:**

- Alioune Ba, Executive Director of the NPC Senegal
- Navin Khemlani, IBC Spain

**Meeting notes:**

The meeting with NPC Senegal focused on exploring the state of digitalisation of the confederation's member companies, the obstacles faced by SMEs in this process and the initiatives being undertaken to promote digital transformation.

Alioune Ba, Executive Director of the CNP, explained that the degree of digitalisation of formal companies in Senegal is high compared to other countries in the sub-region, but there are still significant gaps between large companies and SMEs. The most advanced sectors in terms of digitisation include financial services, telecommunications and large industries, while agriculture and retail face greater challenges.

The NPC has offered digitalisation training to its members in the past, but rapid technological progress has forced companies to adapt themselves. Currently, the confederation is looking to boost training in new technologies such as artificial intelligence, blockchain and cybersecurity.

**Key data:**

- The main obstacle to the digitisation of SMEs is access to finance.
- Lack of knowledge about the impact of digitalisation and resistance to change are also major challenges.
- E-commerce has experienced considerable growth, driven by platforms such as Jumia.
- Fintech services have enabled many businesses to accept digital payments, even in informal sectors.
- The NPC has promoted initiatives such as the 'Tech for Work' programme, developed in collaboration with the ILO and Microsoft.
- Cyber security is a growing concern, especially for SMEs that have not yet adopted adequate protection measures.

**Conclusions:**

The meeting with the CNP made it possible to identify progress and challenges in the digitisation of businesses in Senegal. The importance of improving access to finance for SMEs, strengthening training in new technologies and promoting cyber security was highlighted. The CNP is seen as a key player in the country's digital transformation, with an important role in training, the promotion of good practices and collaboration with the public sector.

### 3. Directorate General for Foreign Trade (DCE)

**Web:** https://industriecommerce.gouv.sn/direction-du-commerce- exterieur/

**Participants:**

- Ahmed Tidiane Dia, Technical Counsellor and Acting Director
- Farah Diop, E-Commerce Manager
- Navin Khemlani, IBC Spain

**Meeting notes:**

The meeting with the Directorate General of Foreign Trade focused on analysing the digitalisation of Senegalese SMEs in foreign trade and assessing the policies for the promotion of e-commerce in the country.

Ahmed Tidiane Dia explained that the Directorate General of Foreign Trade is the entity responsible for designing and implementing the national foreign trade policy in Senegal. Farah Diop detailed that the Directorate has worked on the creation of digital platforms to facilitate the digitisation of local traders and producers.

**Key facts:**

- From 2022 to 2023, a strategy was implemented that included training more than 1,000 economic operators on digitisation and e-commerce, development of a platform for SMEs to sell online and regulations on electronic transactions.
- Several challenges in the implementation of digitalisation in foreign trade were identified: access to finance, bureaucracy, limited digital infrastructure and poorly digitised administrative processes.
- The need to improve interoperability between state platforms and the streamlining of parallel initiatives was discussed.
- How artificial intelligence (AI) can optimise export and foreign trade processes was presented.
- Cybersecurity was addressed, considering the increasing risks of cyber attacks.

**Conclusions:**

The meeting identified key opportunities and challenges in the digitisation of foreign trade in Senegal. The importance of improving inter-agency collaboration and exploring new technologies such as AI was highlighted. It was agreed to explore actions such as the integration of AI tools, the reinforcement of collaboration between the Directorate of Foreign Trade and ADEPME, coordination with the Dakar Chamber of Commerce and the analysis of financial support policies.

## 4. Directorate General of SMEs of Senegal (DPME)

**Web:** https://industriecommerce.gouv.sn/direction-des-petites-et- moyennes-entreprises/

**Participants:**

- Farr Carvalho, Director General for SMEs of Senegal
- Salimata Badji, Head of the Directorate General's Resource Centre
- Navin Khemlani, IBC Spain

**Meeting notes:**

The meeting with the Directorate General of SMEs of Senegal focused on presenting the AFRICANTECH programme, funded by the European MAC programme, and discussing digitisation strategies for SMEs in Senegal.

The difference between the Directorate General for SMEs, which is responsible for the elaboration of policies and development strategies, and the ADPME, which is the implementing arm, was clarified. The National Digital Development Strategy was mentioned, with strategic axes such as access to finance, facilitation of access to markets, formalisation of SMEs and creation of tax incentives.

**Key data:**

- 97% of the business fabric is informal, so measures have been designed to encourage formalisation.
- The creation of a Digitalisation Cluster involving the public, private and academic sectors is proposed.

- Programmes such as PACAO and fiscal measures to incentivise the digitalisation of companies are mentioned.
- Initiatives such as Trade Point Senegal, Ikom Kom and Boutique 221 are presented to improve the digital presence of companies.
- There are specific funds for startups, regulated by the Startups Law.
- The Delegation for Rapid Entrepreneurship, targeting young people and women, is mentioned.

**Conclusions:**

The meeting provided insight into digitisation strategies for SMEs in Senegal and initiatives to foster formalisation and digital entrepreneurship. Possibilities for collaboration to share good practices and promote funding opportunities were explored. It was agreed to request a meeting with the Directorate of Foreign Trade, to send a detailed report and to define mechanisms to structure a dialogue table.

## 5. Digital Sénégal

**Web:** https://digitalsenegal.org/

**Participants:**

- Mohsen Chirara, President of Digital Sénégal
- Navin Khemlani, IBC Spain

**Meeting notes:**

The meeting with Digital Sénégal focused on discussing the level of digitalisation of SMEs in Senegal, the diagnosis of needs in employability and digital training, and the development of the Label Smart C Safe Sénégal.

Mohsen Chirara explained that Digital Sénégal is a cooperative society driven by employers' organisations such as OPTIC, start-ups and support structures such as Jecolab. The initiative seeks to bring together companies to tackle major state and private sector projects in order to strengthen the competitiveness of the digital ecosystem in Senegal.

**Key facts:**

- The need for greater access to finance for the digitisation of businesses was discussed, as well as the importance of better alignment between training and the needs of the digital sector.
- The Label Smart C Safe Sénégal is a certification designed to guarantee the quality of the country's technology companies.
- This initiative stems from the work of the ITBPO Sénégal Committee and aims to facilitate the access of Senegalese companies to national and international markets.

**Conclusions:**

The meeting identified opportunities for collaboration between the Senegalese digital ecosystem and technology companies in the Canary Islands. The importance of strengthening training in artificial intelligence and cybersecurity was highlighted, in addition to fostering international cooperation in digital projects.

## 6. Organisation des Professionnels des TIC du Sénégal (OPTIC)

**Web:** http://www.optic.sn/

**Participants:**

- Secretary General of OPTIC Sénégal
- Navin Khemlani, IBC Spain

**Meeting notes:**

The meeting with OPTIC Sénégal aimed to learn in detail about the role of the organisation in the development of the digital sector in Senegal, as well as the main challenges faced by companies in the sector.

OPTIC Sénégal is the umbrella organisation for ICT companies and professionals in Senegal. Its main mission is to represent and defend the interests of digital businesses, promoting a favourable environment for their development and collaborating with the public sector in the formulation of digital policies and strategies.

**Key facts:**

- OPTIC has 134 members, including startups, SMEs and large companies in the sector.
- It is actively involved in the formulation of public policies related to digitalisation.
- Key challenges for the digital sector in Senegal include market access, access to finance, talent drain and professional training.
- OPTIC implements various strategies to strengthen the sector, including international promotion, sectoral events, promotion of cybersecurity, development of artificial intelligence and creation of the Label Smart C Safe Sénégal.

**Conclusions:**

OPTIC showed interest in strengthening international cooperation, especially with Spanish entities. It was proposed to explore opportunities with Spanish cooperation and to share the final reports of the AFRICANTECH project to identify areas of synergy. The need to improve coordination between the private and public sector to ensure that digital strategies are inclusive and effective was highlighted.

## 7. Agence des Développement et d'Encadrement des Petites et Moyennes Entreprises (ADEPME)

**Web:** https://adepme.sn/

**Participants:**

- Jean Marie MBAYE DIOUF, Secretary General of ADEPME
- Mariane Ndiaye, Technical Director of ADEPME
- Arona Ndiaye, ICT manager at the Dakar Chamber of Commerce
- Navin Khemlani, IBC Spain

**Notes of the meeting:**

The meeting with ADEPME aimed to discuss the level of digitisation of SMEs in Senegal, the role of ADEPME in the digital transformation and opportunities for improvement in training, financing and integration of the private sector in government initiatives.

ADEPME offers training and funding programmes, with grants of up to 75% for the adoption of digital technologies. Programmes such as Ether and Eter have been developed, managing to support more than 5000 SMEs in digitalisation.

**Key data:**

- The level of technology adoption is measured before and after each programme, with a current adoption rate of 15%.
- Challenges for SMEs' digital transformation include lack of digital culture, low adoption of advanced technologies, financial constraints, disconnection between different actors and lack of trust in e-commerce.
- ADEPME was not involved in the structuring of the Technology New Deal, which points to a lack of consultation with the private sector.
- An investment of USD 20 million is estimated to boost digitalisation and the ICT sector.
- Further integration of SMEs in the strategy is required to ensure its real impact.

**Conclusions:**

The meeting allowed to identify progress and challenges in the digitisation of SMEs in Senegal. The need to strengthen coordination with the private sector and to integrate SMEs more actively in the New Technology Deal was emphasised. It was agreed to remain in contact to share key information and assess new funding and training opportunities.

## 8. Dakar Chamber of Commerce

**Web:** https://cciad.sn/

**Participants:**

- Mbaye Chimére Ndiaye, Secretary General of the Dakar Chamber of Commerce
- Awa Gueye, Project Manager at the Dakar Chamber of Commerce
- Arona Ndiaye, ICT Manager at the Dakar Chamber of Commerce
- Navin Khemlani, IBC Spain

**Notes from the meeting:**

The meeting with the Dakar Chamber of Commerce aimed to gather information on the digitisation and modernisation of SMEs in Senegal, in the framework of the AFRICANTECH report. Issues related to capacity building, public-private partnerships and opportunities to improve the adoption of digital technologies were addressed.

The Chamber of Commerce has 114 members in its General Assembly and membership is voluntary. Its funding sources include business formalisation services, training programmes and space rental.

**Key facts:**

- Digitalisation in Senegal is at a regular level, with several companies implementing digital solutions, but significant gaps still exist, especially in key sectors such as agriculture, industry and agribusiness.
- Digitisation in the financial and telecommunications sectors is more advanced compared to other sectors.
- The Chamber of Commerce is in the process of digitising its own services and has initiated actions to promote digitisation among businesses.
- It participates in various digital e-commerce platforms.
- They have not participated in the New Technology Deal process of the Government of Senegal because they were not invited.

**Conclusions:**

The meeting made it possible to identify progress and challenges in the digitisation of enterprises in Senegal. While initiatives are underway, there are critical areas that require intervention, especially in industry and agribusiness. Opportunities for collaboration with international entities have been raised and it has been agreed to follow up through surveys and direct coordination with the Chamber of Commerce.

### 9. Confédération Nationale des Employeurs du Senegal (CNES)

**Web:** https://cnes.sn/

**Participants:**

- Yousoupha Diop, Executive Director, CNES Senegal
- Arona Ndiaye, ICT Manager at the Dakar Chamber of Commerce
- Navin Khemlani, IBC Spain

**Meeting notes:**

The meeting with CNES Senegal aimed to discuss the state of digitisation of SMEs in Senegal, CNES initiatives to support digital transformation and possible synergies with the Dakar Chamber of Commerce and AFRICANTECH programme partners.

CNES has approximately 800 members, of which the majority are SMEs. It represents a broad spectrum of the Senegalese business sector and its main role is to serve as the private sector's interlocutor with the government.

**Key facts:**

- Digitalisation in Senegal remains uneven across economic sectors.
- The sectors most advanced in digitisation are services, finance and telecommunications, while those lagging behind include agriculture, industry and agribusiness.
- There is awareness of the importance of digitisation, but the adoption of technologies varies according to the financial capacity and size of the company.
- CNES does not have its own training programmes in digitisation, but is interested in developing this capacity in the future.
- They have not been called to participate in the Government of Senegal's Technology New Deal.

**Conclusions:**

The meeting allowed to identify the main challenges and opportunities in the digitisation of enterprises in Senegal. It highlighted the need for coordination between CNES, the Chamber of Commerce and the public sector to develop effective digital transformation strategies. It was agreed to follow up to strengthen existing initiatives and seek solutions to the structural problems identified.

### 10. CTIC (Centre des Technologies de l'Information et de la Communication)

**Web:** https://www.cticdakar.com/

**Participants:**

- Antoine Ngong, President, CTIC
- Navin Khemlani, IBC Spain

**Meeting notes:**

The meeting with CTIC aimed to understand the role of the institution in the Senegalese digital ecosystem, as well as its role in promoting tech startups in key sectors such as fintech, e-commerce, agritech, logistics and digital health. Antoine Ngong detailed the three main stages of support offered by CTIC: initial formulation, incubation and acceleration, with special emphasis on the fintech sector, identified as a priority due to its high potential.

CTIC's current financial situation, as expressed by Ngong, has been affected by the reduction of state support, which has led the centre to rely increasingly on its own income-generating activities and international collaborations (European Union, GIZ, OIF, AFD, among others). Despite this, financial constraints persist, conditioning the centre's ability to implement broader training programmes and offer more comprehensive services to startups.

**Key facts:**

- CTIC prioritises the alignment of its training programmes with the real needs of the technology labour market.
- The main difficulties identified by CTIC include lack of funding, limited access to markets, and poor inter-institutional coordination.
- CTIC makes active efforts in training, coaching and support in finding funding and commercial opportunities for startups.
- There is a considerable lack of coordination between the different actors in the digital ecosystem, including the public, private and education sectors.
- Government programmes such as the "Technological New Deal" have been criticised for not having sufficiently involved private and technology sector actors in their development.
- There are insufficient statistics and studies on the survival rate and impact of programmes targeting startups in Senegal, an aspect identified as a critical weakness.

**Conclusions:**

The meeting with CTIC provides additional key information that confirms and deepens previously identified findings. In particular, it highlights the importance of improving cross-sectoral coordination, the urgent need for more dedicated financial resources for startups and training programmes aligned with the demands of the digital labour market, and the importance of having reliable statistics on the impact and sustainability of technology initiatives. It also underlines the importance of promoting initiatives such as the Digital Sénégal cooperative to boost access to markets and strengthen the competitiveness of the Senegalese digital ecosystem. The information obtained in this meeting reinforces the findings already identified, especially emphasising the need for coordination, funding and specific training as critical elements for the effective development of the technological ecosystem in Senegal.

The ten interviews conducted provide a rich and nuanced picture of the state of digitisation of companies and institutions in Senegal, their capacity building needs and the challenges and opportunities facing the country's business and technology ecosystem. These interactions have allowed us to gather diverse perspectives from government actors, private associations and training institutions, revealing both progress made and persistent barriers.

Detailed conclusions are presented below, organised into key themes, with a comprehensive analysis reflecting the learning gained:

1. **Disparity in digital adoption:** The findings show heterogeneous digital adoption in Senegal. Sectors such as finance, telecommunications and services lead thanks to the presence of large companies and the implementation of digital payments and platforms such as Jumia and Boutique 221. However, agriculture, industry and agribusiness are notably lagging behind, constrained by a lack of access to technology, finance and training. This disparity, noted by the CNP, CNES and the Chamber of Commerce, suggests that digitisation strategies should be sector-specific and prioritise SMEs, which, although in the majority, lack the means to move forward. Informality, which affects to 97% of enterprises according to the SME Directorate General, exacerbates this gap by excluding many from formal support.

2. **Recurrent structural barriers:** the most frequently mentioned challenges include limited access to finance, identified by virtually all stakeholders as the main barrier to technological adoption; insufficient digital infrastructure, especially in rural areas (Directorate of Foreign Trade); and lack of training aligned with market demands (OPTIC, CFPT-SJ). Bureaucracy and lack of coordination between the public and private sectors, highlighted by CNES and the Chamber of Commerce, generate duplication and dilute the impact of initiatives. In addition, the low uptake of emerging technologies such as AI, blockchain and cybersecurity outside the ICT sector (ADEPME, CNP) reflects a knowledge and resource gap that requires urgent attention.

3. **Institutional fragmentation:** government entities (SME Directorate General, Foreign Trade, ADEPME) and private associations (CNP, CNES, OPTIC, Digital Sénégal) have defined roles, but the lack of inter-institutional coordination limits their effectiveness. The exclusion of key actors such as CNES, the Chamber of Commerce and ADEPME from the New Technology Deal, mentioned in several meetings, is evidence of government planning that does not sufficiently integrate the private sector. Initiatives such as the Digitalisation Cluster (General Directorate for SMEs) and the Label Smart C Safe (Digital Sénégal, OPTIC) could be innovative solutions to align efforts, but their success will depend on concerted implementation.

4. **Potential of emerging technologies:** Artificial intelligence and cybersecurity emerged as areas of great potential. The Directorate of Foreign Trade saw AI as a tool to optimise exports (chatbots, machine translation), while OPTIC and Digital Sénégal emphasised its role in data management and quality certification. However, its adoption requires investment in training and financing, areas where international collaboration with the Canary Islands could be decisive. Cybersecurity, underlined by the CNP and the Directorate of Foreign Trade, is critical in the face of increasing risks in e-commerce.

5. **Training and talent:** current training does not meet the needs of the digital market. CFPT-SJ reports high success rates in higher programmes, but its lack of digital platforms and reduction of trainers limit its reach. OPTIC highlighted the talent drain to foreign companies, while NPC and ADEPME pointed to the need for training in AI, blockchain and cybersecurity. This education gap requires urgent reform to prepare the workforce and retain specialists in Senegal.

6. **International collaboration:** all actors showed interest in collaborating with the Canary Islands, seeing in this alliance an opportunity to import good practices, finance projects and develop joint solutions. The cases of Tunisia and Singapore, presented by Digital Sénégal, offer replicable models that could be adapted with external support, strengthening initiatives such as the Label Smart C Safe or the ADEPME programmes.

7. **E-commerce and formalisation:** E-commerce is growing with platforms such as Jumia and 221A, but faces challenges such as consumer distrust and lack of digital payment culture (CNES, ADEPME). Formalisation, incentivised by fiscal and financial measures (Directorate General for SMEs), is essential to integrate more SMEs into this ecosystem and maximise its economic impact.

In conclusion, Senegal is at a turning point towards digitisation, with remarkable progress but fragmented by structural and coordination barriers. The AFRICANTECH project has the potential to act as a catalyst, promoting public-private collaboration, the adoption of emerging technologies and the modernisation of training. Next steps should include the implementation of agreed actions (questionnaires, dialogue tables, AI integration) and a comprehensive strategy to leverage international support, close identified gaps and position Senegal as a digital leader in West Africa.

Overall, the meetings provided a comprehensive picture of the state of digitalisation in Senegal, identifying the main challenges and opportunities for the development of an inclusive and sustainable digital ecosystem. The information gathered will be fundamental for the elaboration of the AFRICANTECH project reports and for the definition of collaboration strategies between Senegal and the Canary Islands.

## 10.1 Surveys carried out

In order to assess in depth the current situation and the degree of technological maturity of small and medium-sized enterprises (SMEs) in Senegal, a questionnaire addressed to key actors of the Senegalese entrepreneurial ecosystem. This questionnaire, distributed between 28 January and 8 March 2025 to representatives of SMEs, business associations, technology incubators and government institutions linked to the business sector, made it possible to identify both the current level of digitisation of companies and the existing barriers and opportunities to boost their technological transformation. The results obtained provide a solid basis for defining specific actions and recommendations aimed at strengthening the technological maturity of SMEs in Senegal.

Details of the questionnaire are included in the annexes, while the results obtained are analysed below:

1. **Predominant private sector participation:**

   Private companies have shown a high interest in digitalisation and technological training, accounting for more than 70% of the responses. This confirms a strong commitment and interest of the private sector in overcoming digital barriers and improving their technological competences to remain competitive.

2. **Predominance of SMEs and specific challenges:**

   The majority of the organisations surveyed are small businesses (less than 10 employees). This predominance implies specific challenges related to financial constraints, lack of adequate technological infrastructure and significant difficulties in accessing advanced training.

3. **Limited use of advanced technologies:**

   Currently, Senegalese organisations mainly use basic digital tools such as e-commerce, digital marketing and office technologies, while advanced technologies such as artificial intelligence, cloud computing or big data have a low penetration, evidencing a significant gap.

4. **Widespread low levels of technology adoption:**

   Most organisations recognise a low or medium level of technology adoption, revealing ample room for substantial improvements in advanced digitisation, especially in small and medium-sized enterprises.

5. **Persistent key barriers:**

   The most commonly cited barriers to advancing digitisation are the lack of adequate technological infrastructure, the high costs associated with technology adoption and the significant shortage of skilled personnel. These factors are structural barriers that cut across the entire business ecosystem.

6. **Significant digital skills gap:**

The majority of respondents perceive the current digital skills of their employees as insufficient, rating them mainly as basic or intermediate. The training currently available does not effectively respond to market needs, limiting the competitiveness of the Senegalese technology sector.

7. **Limited recent supply of specialised technology training:**

A large proportion of organisations have not offered technology training in the last year due to its high cost, lack of qualified providers and infrastructure constraints, creating a considerable gap in upgrading specific technical skills.

8. **High future demand for advanced technologies:**

Organisations clearly highlight the future importance of e-commerce, process automation, artificial intelligence and advanced data management, indicating a clear understanding about the strategic importance of these advanced digital skills for their medium-term competitiveness.

9. **Specialised technological profiles that are difficult to find:**

There is widespread difficulty in recruiting specialised technical profiles, especially in advanced programming, technology project management, data analytics and cybersecurity, considerably limiting the capacity for innovation and business growth.

10. **Urgent need for comprehensive support:**

Very few organisations have received effective support from governmental or non-governmental programmes, revealing a weakness in current policies. The need for comprehensive programmes that combine accessible funding, specialised technology training, direct technical assistance and strengthening of digital infrastructure is emphasised.

11. **Clear and practical strategic recommendations:**

The organisations recommend specific measures to overcome the identified gaps, such as reducing the cost of technology training, promoting training programmes in local languages, improving access to technology equipment, and creating government incentives for companies committed to digitisation and technology training.

These findings provide a clear, structured and reasoned view of the technological, educational and employment reality in Senegal, highlighting the critical areas where action is urgently and effectively needed to drive a successful and sustainable digital transformation.

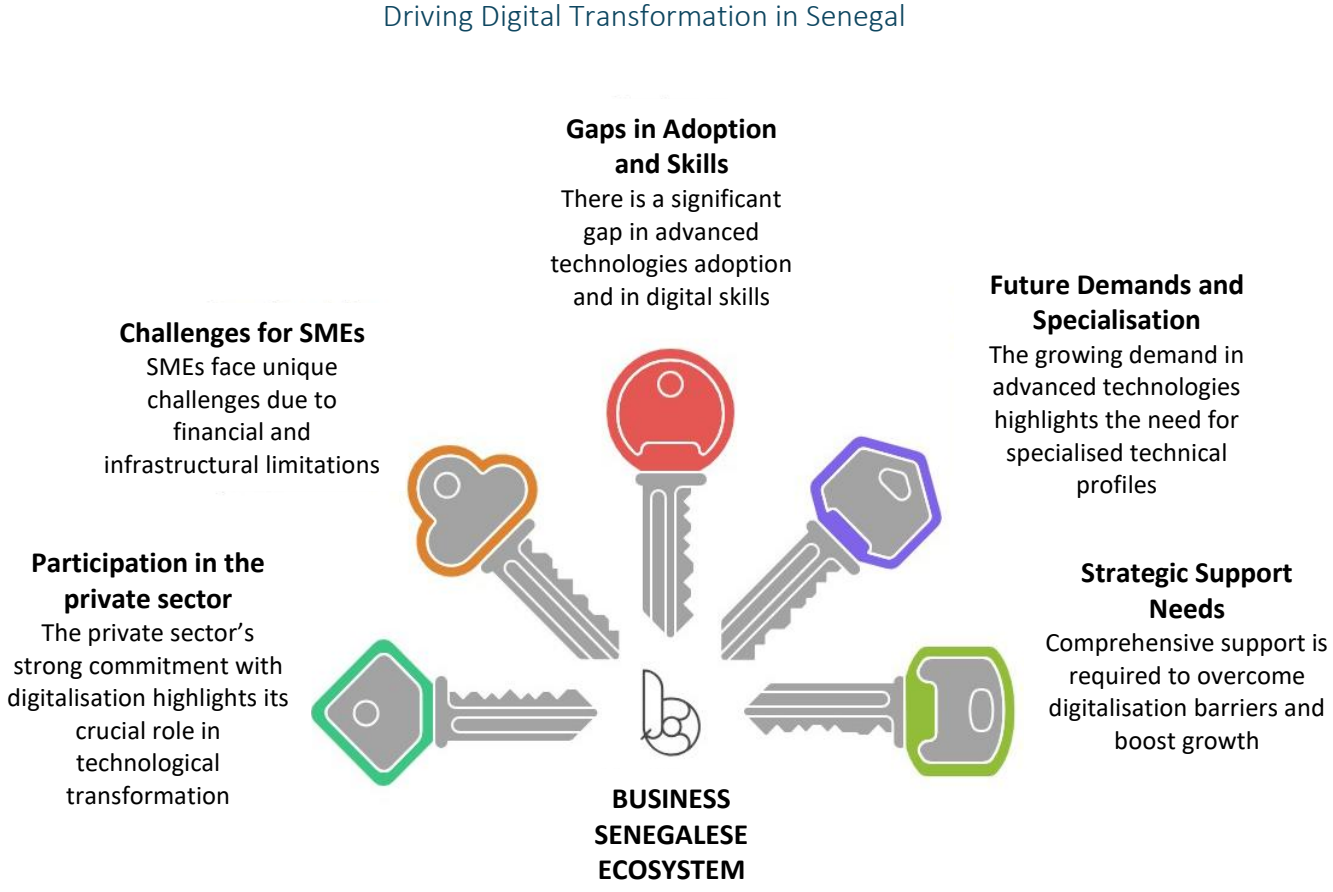



*Illustration 12. Main findings of the surveys conducted. Own elaboration*

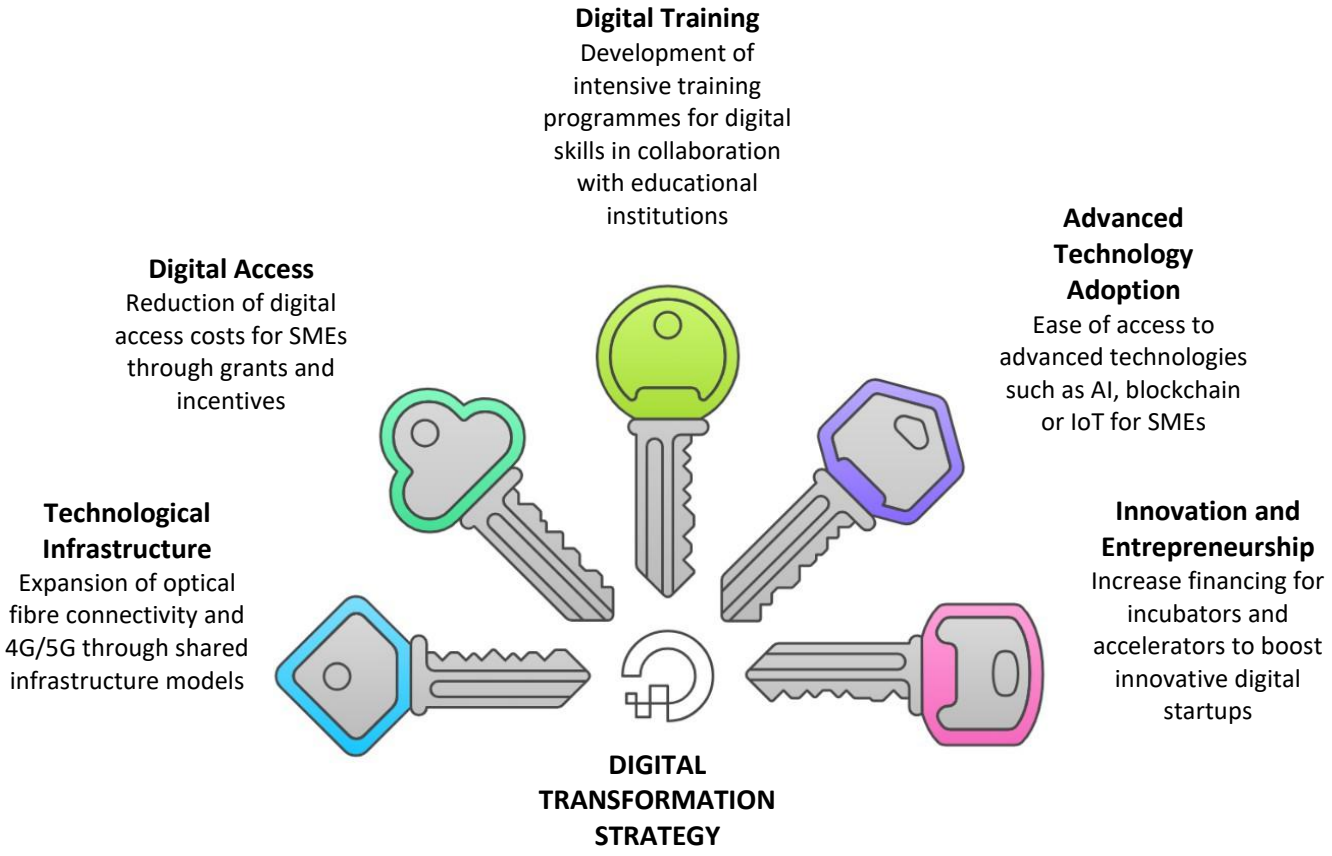
# 11 Recommendations for improving the technological maturity of Senegalese SMEs

The technology maturity diagnostic conducted on SMEs in Senegal reveals substantial challenges, but also numerous opportunities to move towards a more competitive and digitised business ecosystem. Despite recent progress driven by the Emerging Senegal Plan (PSE) and the Senegal Numérique 2025 strategy, significant barriers persist in terms of technological infrastructure, insufficient digital connectivity, high internet access costs and digital skills deficits, factors that limit the full exploitation of emerging technologies such as fintech, e-commerce and advanced digital solutions.

Against this backdrop, the proposed recommendations aim to provide clear, practical and actionable strategic guidelines to enable public and private institutions to collaborate in driving an effective digital transformation. On the one hand, they address the need to strengthen technological infrastructure, reduce the costs associated with digital access and train human talent to meet the needs of an increasingly digitally-oriented labour market. On the other hand, it promotes the adoption of advanced technologies and emphasises the need to strengthen cybersecurity and data protection, which are critical to ensure a secure and trustworthy digital environment that fosters investment and sustainable growth.

Finally, these recommendations seek to activate a virtuous circle between innovation, technological adoption and economic growth, favouring a more inclusive and diversified participation of the Senegalese business fabric in the digital economy, thus contributing to the achievement of the objectives of the Emerging Senegal Plan and the Senegal Numérique 2025 national strategy.

Comprehensive Boost for the Digital Transformation of SMEs




*Strategic recommendations for Senegal's digital maturity. Own elaboration*

## 11.1 Improving technological infrastructure

Senegal shows important progress in technological infrastructure thanks to significant investments in telecommunications and connectivity, especially in urban areas. However, there are still notable disparities, with large connectivity gaps in rural or less densely populated areas, limiting the participation of many SMEs in the digital economy. According to **the National Development Strategy 2025-202G**, effective structural transformation requires substantial strengthening of the country's digital infrastructure (Government of Senegal, "Vision Sénégal 2050 - Stratégie Nationale de Développement 2025-2029", 2023).

Specifically, it is recommended to promote an effective and mandatory model **of passive and active infrastructure sharing** (towers, antennas, fibre optics, shared RAN networks) between public and private operators, following successful practices implemented in Ghana and Nigeria (Ministère des Postes et Télécommunications, "Étude sur le partage des infrastructures des TIC au Sénégal", 2019). The deployment of fibre optics in secondary towns and rural regions should also be accelerated through public-private partnerships, drawing on the resources of the Fund for the Financing of Vocational and Technical Training (3FPT) and the government's initiatives to improve universal access (Government of Senegal, "Plan Sénégal Émergent - PAP3 2024-2028", 2023).

## 11.2 Reducing the costs of access to digital technologies

One of the most important barriers to the effective digitisation of Senegalese SMEs is the high cost of access to internet and digital services. According to the "Sénégal Numérique 2025" strategy update (Government of Senegal, 2023), some progress has been made in reducing regulatory barriers, but there are still high costs that limit small businesses' access to digital technologies.

It is therefore crucial to promote substantial cost reductions through targeted fiscal and regulatory incentives for digital service providers and telecommunications operators to provide affordable high-speed internet access. In particular, priority should be given to lowering tariffs for SMEs through specific packages negotiated with digital service providers and telecoms companies, as well as promoting competition in the market through regulatory simplification for new players wishing to enter the digital market.

## 11.3 Reducing the costs of access to digital technologies

In addition to technological infrastructure, it is essential to reduce the costs of access to digital technologies through clear policies and concrete programmes that actively involve the private sector. International experiences, collected in studies conducted by the World Bank and the Strategy Group (Défis C Stratégies), show that affordable access to digital technologies is crucial for the sustainable and competitive development of SMEs (World Bank, "Skills Development TVET", 2021; Défis C Stratégies, "Étude sur le partage des infrastructures TIC au Sénégal", 2019).

It is proposed to implement a specific policy of tax exemptions for the import of technological devices intended for SMEs, such as computer equipment and business software. It is also recommended to negotiate lower prices with operators through public-private partnership agreements, which could include tax benefits for suppliers offering preferential rates for small businesses.

## 11.4 Digital skills training

The digital skills deficit in Senegal represents one of the biggest obstacles to the effective adoption of digital technologies by SMEs. According to UNESCO, technical vocational training in the country is not yet fully aligned with the demands of the digital market ("World TVET Database Senegal", UNESCO-UNEVOC, 2015). In this context, it is a priority to strengthen training initiatives aimed at SMEs, taking advantage of the existing infrastructure of the Senegalese technical-vocational education system.

It is therefore recommended to establish specific training programmes in collaboration with centres of technical excellence, public universities such as the Virtual University of Senegal (UVS) and the National Centre for Technical Vocational Training (CNFMETP), oriented towards critical skills in fintech, e-commerce, data analytics and digital business management (AUDA-NEPAD, "TVET Country Profile Senegal", 2023). These programmes should incorporate hybrid modalities (face-to-face and virtual), using digital platforms and flexible modalities to reach a larger business population.

## 11.5 Encouraging the adoption of advanced technologies

The adoption of advanced technologies such as artificial intelligence, blockchain, fintech or Internet of Things (IoT) solutions remains nascent among Senegalese SMEs. The World Bank study notes that the country has favourable conditions for the growth of sectors such as fintech and digital commerce (World Bank, "Skills Development TVET", 2021).

To take advantage of these opportunities, it is recommended to develop a public strategy to support technological adoption that includes specific tax incentives, preferential access to financing for technological acquisition and sectoral pilot programmes with the support of the Diamniadio Digital Technology Park (PTN). A public-private fund should also be set up to finance technology transformation pilot projects and facilitate the scaling up of digital solutions in key sectors such as agriculture, commerce, manufacturing and digital financial services.

## 11.6 Boosting innovation and digital entrepreneurship

The innovation and digital entrepreneurship ecosystem in Senegal, although growing, requires greater coordination and funding efforts. Initiatives such as the CTIC Dakar incubator have demonstrated their potential to foster tech startups, but their reach remains limited (Government of Senegal, "ABC des TIC au Sénégal", 2019).

It is recommended that the entrepreneurial ecosystem be strengthened with greater institutional coordination, significantly increasing the funds dedicated to incubators and accelerators, and providing seed funding for tech start-ups. Also, fostering national and international digital entrepreneurship competitions in collaboration with Senegalese and international entities such as CTIC Dakar, Orange Sonatel and international cooperation can provide a decisive boost to local innovation.

## 11.7 Improving cybersecurity and data protection

Finally, the accelerated development of the digital sector in Senegal urgently requires strengthening national capacities in cybersecurity and data protection. According to the National Cybersecurity Strategy (SNC2022), the country urgently requires robust regulatory frameworks and adequate technical capacities to respond to cyber-attacks and ensure digital trust (Ministry of Communication, Telecommunications and Digital Economy of Senegal, "Stratégie Nationale de Cybersécurité", 2022).

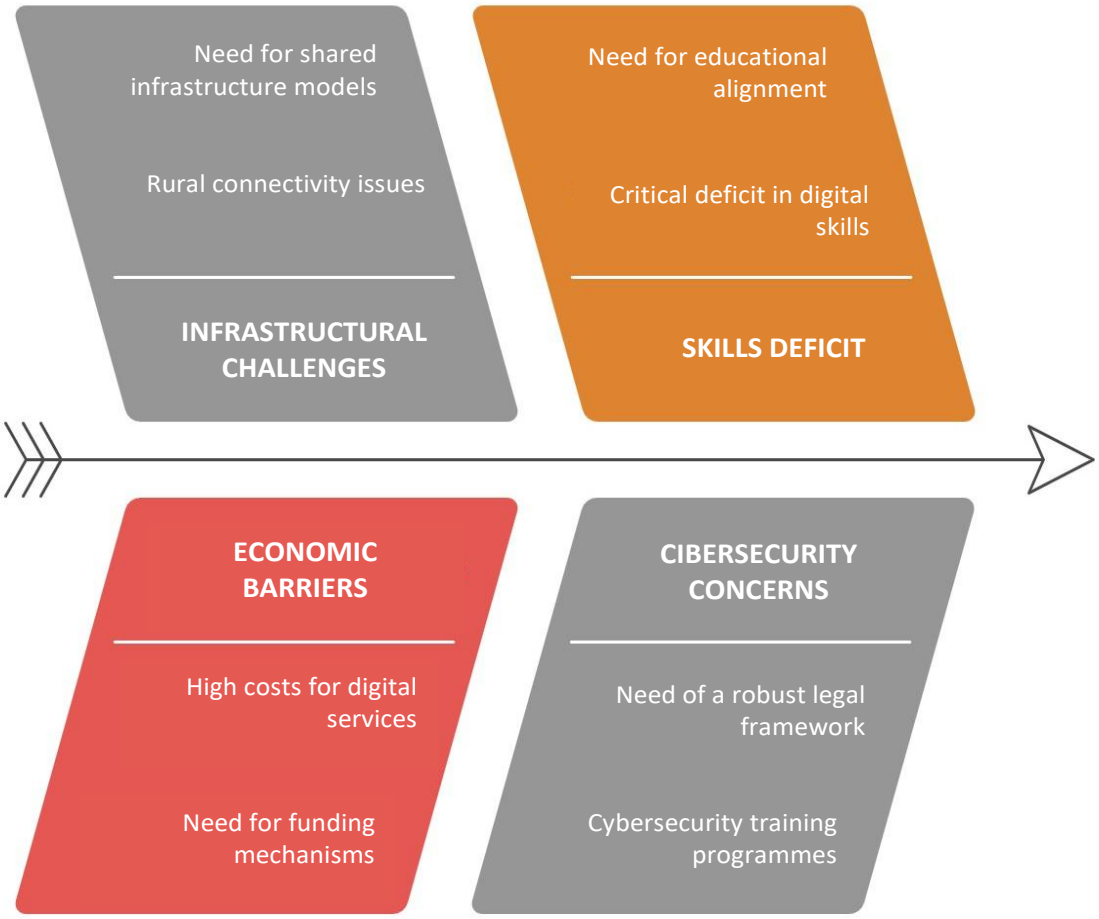
It is recommended that the national legal framework be strengthened, a specialised national centre (Computer Security Incident Response Team - national CERT) be created and permanent cybersecurity awareness and education campaigns be promoted. At the same time, digital security training should be integrated in a cross-cutting manner into technical and higher education programmes, establishingstrategic alliances with international institutions of reference in this field.

# 12 Conclusions

A comprehensive diagnostic of the technological maturity of SMEs in Senegal has identified multiple strengths, challenges and opportunities that allow a comprehensive picture of the degree of business digitalisation in the country to be sketched out. The findings show that, although Senegal has made significant progress in technology infrastructure and connectivity, there are still significant challenges that limit the full exploitation of the digital potential of small and medium-sized enterprises.

The conclusions presented below synthesise the main areas identified in the study, highlighting outstanding challenges and proposing concrete lines of action that could be addressed through strategic partnerships between public and private actors, both local and international. In this regard, special attention is paid to the identification of key areas for technological cooperation between Senegal and the Canary Islands, highlighting the potential for creating synergies that generate sustainable economic growth and skilled employment.

Challenges and Opportunities for Digital Transformation in Senegal



## 12.1 Infrastructure and connectivity

Senegal has made significant progress in technological infrastructure, especially in urban areas, thanks to the development of 4G mobile networks and incipient 5G deployment projects. This progress has enabled a considerable increase in access to and use of basic digital services in major urban centres such as Dakar. However, it still faces significant challenges in connectivity, especially related to an insufficient and not widespread telecommunications infrastructure in rural and peri-urban areas.

The marked differences between urban and rural areas are clearly manifested in the limited access to advanced digital services, such as fixed and mobile broadband, as well as in the uneven availability of fibre optics. This situation particularly affects SMEs located in peripheral regions, which face serious constraints to fully participate in the digital economy.

To overcome these difficulties, it is imperative to adopt clear policies and innovative models that actively promote the mandatory sharing of technological infrastructures between telecommunications operators. This would optimise resources, significantly reduce operating costs and ensure more homogeneous digital coverage throughout the Senegalese territory. In addition, strengthening the regulatory framework to facilitate the entry of new operators and investment in technological infrastructure would help accelerate the national and regional digitisation process.

## 12.2 Costs and accessibility

The analysis reveals that the high cost of access to digital services remains a significant barrier for small and medium-sized enterprises in Senegal. Despite some recent regulatory improvements, internet connection fees and the costs of acquiring computer equipment remain high, which considerably limits the competitive capacity of these businesses.

This situation particularly restricts the potential for innovation and the development of activities based on emerging technologies, hindering their effective insertion in the national and international digital economy. Moreover, high costs aggravate the digital divide between large and small companies, increasing economic inequalities and limiting the productivity of the business fabric.

To improve this situation, decisive intervention through clear regulatory policies that promote competition among digital and telecommunications service providers is recommended. This includes the implementation of targeted subsidies or financial support programmes aimed at substantially reducing upfront costs for SMEs, as well as public-private financing schemes to facilitate the acquisition of affordable technological equipment. These measures will contribute to substantially improve the digital accessibility and competitiveness of Senegalese SMEs.

## 12.3 Digital skills and training

There is an important need to strengthen digital skills training in Senegal, especially as a high percentage of the labour force lacks specific training in digital technologies. This skills deficit translates into a limited capacity to innovate and adapt to technological advances, which considerably restricts the competitive potential and productivity of Senegalese SMEs.

Although public and private initiatives are in place, they are not yet fully aligned with real market needs. The formal education system does not yet offer a sufficiently effective and rapid response to the current technological evolution and the emerging demand of the business fabric. It is therefore essential to reformulate the educational offer towards a more agile and practice-oriented model that ensures the incorporation of skills in critical areas such as programming, e-commerce, digital marketing, data analytics, cybersecurity and fintech.

To address this gap, it is crucial to establish specific programmes based on public-private partnerships. These partnerships can facilitate the creation of centres of technological excellence, offering specialised training directly adapted to the real needs of SMEs. It would also be beneficial to promote a greater role for the private sector in the definition of curricular content, as well as in the delivery of practical training through flexible modalities such as short courses, practical workshops, dual training and internationally recognised professional certifications.

Finally, the effective integration of digital skills at all levels of education, from technical to university level, as well as the creation of continuous retraining programmes, will contribute to creating a workforce that is more technologically prepared and aligned with current and future market needs.

## 12.4 Adoption of advanced technologies

Although Senegal shows promising growth in innovative areas such as fintech, telecommunications and e-commerce, the effective adoption of advanced technologies in Senegalese SMEs is still incipient. The constraints identified are diverse and range from the difficulty in accessing specific financing to the lack of knowledge to integrate these emerging technologies into business processes. Technologies such as artificial intelligence, blockchain or Big Data, although they have a huge potential to significantly improve business efficiency, productivity and competitiveness, are still perceived by SMEs as solutions that are too complex or too distant from their daily reality.

To overcome these barriers, it is necessary to create specific financing mechanisms to facilitate technological acquisition and adaptation, including public investment funds and mixed financing programmes, capable of offering advantageous conditions for small enterprises. In parallel, an effective and accessible technical support network should be developed, based on specialised technology transfer centres acting as direct intermediaries between technology providers and local firms. These centres could play a key role in providing advice, training and practical support for the implementation and full exploitation of these solutions.

In addition, sectoral pilot initiatives should be encouraged in collaboration with local and international technology companies, universities and public institutions such as the Parc des Technologies Numériques (PTN). These pilot experiences would generate clearly visible and replicable local success stories, thus facilitating widespread technological adoption in key sectors such as agriculture, commerce, digital financial services and manufacturing.

## 12.5 Cybersecurity

The rapid expansion of the Senegalese digital ecosystem has exposed small and medium-sized enterprises to an increasing risk of digital threats. Most of these companies lack sufficient resources, both financial and technical, to adequately protect themselves against cyber attacks or breaches in the protection of personal data. In this context, strengthening cybersecurity is not only necessary but urgent in order to ensure reliable and sustainable digitisation.

To address these challenges, it is a priority to develop a robust, clear and updated legal framework, aligned with international best practices, as envisaged in Senegal's National Cybersecurity Strategy (SNC2022). This framework should be complemented by specific programmes aimed at continuous training of employers and workers in basic and advanced cybersecurity skills, including secure management of personal data and protection against digital threats.

Additionally, the creation of a national centre specialised in cyber incident response (national Computer Emergency Response Team - CERT) is recommended, which would allow for the rapid response to digital security incidents. This centre should provide immediate technical support to SMEs affected by digital threats, thus contributing to improving the confidence and resilience of the country's business ecosystem. Finally, Senegal should continue to actively participate in international and regional cybersecurity networks, facilitating technical cooperation and knowledge sharing.

## 12.6 Opportunities for Canary Islands-Senegal collaboration

The detailed analysis of technological maturity in Senegal highlights important areas of opportunity for strategic collaboration between Senegal and the Canary Islands. The Canary Islands, given their geographical, cultural and economic proximity, can play a central role in driving the digital transformation of the Senegalese business fabric, offering transfer of specialised know-how and support for business innovation.

Among the opportunities identified, the possibility of joint technical training programmes specialising in emerging digital areas, such as cybersecurity, fintech, software development, e-commerce and data management, stands out. The Canary Islands, thanks to its consolidated experience in these areas and its advanced training infrastructure, could offer specific training adapted to the needs identified in Senegal, facilitating the development of critical digital skills.

Another key line of collaboration lies in joint investment in technological infrastructure, particularly in the development of broadband connectivity networks and regional data centres in Senegal. These investments, structured under innovative public-private partnership models, would allow for efficient use of resources and generate an immediate impact in terms of digital accessibility and more affordable costs for local businesses.

Finally, the Canary Islands can also make a significant contribution to boosting the Senegalese digital entrepreneurial ecosystem by participating in technology incubators and accelerators. The experience accumulated in the Canary Islands in the management of collaborative spaces, open innovation and start-up financing can be used to promote the creation and consolidation of innovative technology companies in Senegal, thus generating synergies that facilitate the insertion of both territories in African and European markets.

# 13 Annexes

## 13.1 Details of the questionnaire

**Section 1: General information about the organisation**

1. Name of the organisation
2. Type of organisation *
    - Private company
    - Professional organisation
    - Public organisation
    - NGO
    - Other
3. Size of organisation (number of employees) * Less than 10
    - Less than 10
    - 10-50
    - 51-100
    - More than 100
4. Main sector of activity *
    - Trade
    - Services
    - Manufacturing
    - Information technology
    - Other

**Section 2: Status of digitisation in the organisation**

5. Which digital technologies does your organisation currently use? (Check all that apply) * (Check all that apply)
    - Core office technologies
    - Cloud computing
    - Process automation tools

- Big Data and data analytics
- Artificial intelligence
- E-commerce
- Digital marketing
- Other

6. What is the level of technology adoption in your organisation? *
   - Low (we use basic technologies)
   - Medium (we have implemented some technological solutions)
   - High (our organisation is highly digitised)
7. What are the main barriers your organisation faces in moving towards digitisation (tick all that apply)?
   - Lack of technological infrastructure
   - High costs
   - Lack of qualified personnel
   - Lack of information on available technologies
   - Lack of awareness of the benefits
   - Other
8. Which digital tools or services do you consider most important for your organisation in the next two years? *

**Section 3: Digital training needs**

9. What is the current level of digital skills of your employees? *
   - Basic
   - Intermediate
   - Advanced
10. Has your organisation provided digital skills training to your employees in the last 12 months? *
    - Yes
    - No
11. If yes, what type of training has been provided? (Please tick all that apply)
    - Basic office skills
    - Digital marketing
    - Cybersecurity

- Digital marketing
- Cybersecurity
- Use of automation tools
- Programming or software development
- Other

12. What digital skills do you see as a priority for your organisation in the next two years?

- Data management
- Software development
- Artificial intelligence
- Process automation
- Digital marketing
- E-commerce
- Other

13. What is your organisation's preferred training modality? *

- Face-to-face
- On-line
- Blended

14. What are the main difficulties in training your employees in e-skills? (Tick all that apply) *
Lack of time

- Lack of time
- Cost of training
- Lack of suitable training providers
- Lack of adequate technological infrastructure
- Other

**Section 4: Employability and skills gap**

15. In your sector, what are the most in-demand technology skills today? *

- Programming and development
- Data analysis
- Technology project management
- IT security
- Other

16. Do you think that the training of technology workers in Senegal is sufficient to meet the needs of your sector? *
    - Yes
    - No
    - Don't know

17. Are there significant skills gaps in your sector? If yes, which ones?
    Which ones? *

18. What are the most difficult technology profiles to recruit in your organisation? *

19. What actions do you consider necessary to improve employability in the technology sector in Senegal (tick all that apply)?
    - Improve the training offer
    - Strengthen the collaboration between educational institutions and companies
    - Create more government incentives for technology training
    - Facilitate access to technological resources
    - Other

**Section 5: Support policies and programmes**

20. Has your organisation received support from governmental or non-governmental programmes to improve its technological capabilities? *
    - Yes
    - No

21. If yes, what type of support have you received (tick all that apply)?
    - Grants or funding
    - Access to technology infrastructure
    - Training programmes for employees
    - Technical assistance
    - Other

22. What types of support programmes do you think are most needed to improve employability and digital skills in Senegal? *

**Section 6: Conclusion**

23. What recommendations would you make to improve digital literacy in your country? *
24. What measures could improve the employability of tech workers in your sector? *

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## 13.3 List of abbreviations

- **ACE** - Africa Coast to Europe (undersea fibre optic cable)
- **ADEPME** - Agency for the Development and Promotion of Small and Medium-Sized Enterprises
- **ADIE** - Agence de l'Informatique de l'Etat (State Information Technology **Agency**)
- **AfDB** - African Development Bank
- **ANCAR** - Agence Nationale de Conseil Agricole et Rurale (National Agricultural and Rural Advisory Agency)
- **ANSD** - National Agency for Statistics and Demography of Senegal
- **APROSI** - Agency for the Development and Promotion of Industrial Sites
- **ARTP** - Autorité de Régulation des Télécommunications et des Postes (Telecommunications and Posts Regulatory Authority)
- **AU** - African Union
- **BNDE** - National Bank for Economic Development
- **CBO** - UN Broadband Commission

- **PDC** - Commission for the Protection of Personal Data
- **CFPT-SJ** - Centro de Formación Profesional y Técnica de San Juan (San Juan Vocational and Technical Training Centre)
- **CIA** - Central Intelligence Agency of the United States of America
- **CNES** - Confédération Nationale des Employeurs du Sénégal (National Confederation of Senegalese Employers)
- **CNP** - Conseil National du Patronat du Sénégal
- **CSIRT** - National Centre for Cyber Incident Response
- **CTIC** - ICT Business Incubation Centre in Dakar
- **DER/FJ** - Délégation Générale à l'Entrepreneuriat Rapide des Femmes et des Jeunes (General Delegation for Rapid Entrepreneurship for Women and Youth)
- **DPME** - Directorate General for Small and Medium Enterprises of Senegal
- **IMF** - International Monetary Fund
- **FAO** - Food and Agriculture Organisation of the United Nations
- **FDN** - Fonds de Développement du Numérique (Development Fund for the North)
- **FONSIS** - Fonds Souverain d'Investissements Stratégiques (Swiss Strategic Investment Fund)
- **FOGAR** - Fonds d'Amorçage, de Garantie et de Capital Risque (Redemption, Guarantee and Risk Capital Fund)
- **GSMA** - Global System for Mobile Communications Association
- **ICT** - Information and Communication Technologies
- **ILO** - International Labour Organisation
- **IoT** - Internet of Things
- **ITU/ITU** - International Telecommunication Union
- **JICA** - Japan International Cooperation Agency
- **MEN** - Ministry of National Education
- **MENT** - Ministry of Digital Economy and Telecommunications
- **MEP** - Ministry of Energy and Petroleum
- **MESRI** - Ministry of Higher Education, Research and Innovation
- **MFPAI** - Ministry of Vocational Training, Apprenticeship and Trades
- **MIE** - Ministry of Infrastructure and Energy of Senegal
- **MLS** - MLS Educational Research
- **OECD** - Organisation for Economic Co-operation and Development

- **ILO** - International Labour Organisation
- **OPTIC** - Organisation des Professionnels des TICs du Sénégal
- **PSE** - Sénégal Émergent Plan
- **RGPD** - General Data Protection Regulation
- **SAS** - Simplified Joint Stock Company
- **SAT-3/WASC** - Submarine telecommunications cable
- **SA** - Société Anonyme
- **SARL** - Limited Liability Company
- **SCS** - Sociedad en Comandita Simple
- **SNC** - General Partnership
- **SN2025** - Sénégal Numérique 2025
- **SURL** - Sole Proprietorship Limited Liability Company
- **ITU/ITU** - International Telecommunication Union
- **UNCTAD** - United Nations Conference on Trade and Development
- **UNESCO** - United Nations Educational, Scientific and Cultural Organisation
- **USAID** - United States Agency for International Development
- **Wave** - Mobile money and digital payments platform
- **World Bank** - World Bank
- **SEZ** - Special Economic Zones