

**THE ROLE OF INFORMATION TECHNOLOGY IN THE DEVELOPMENT OF DEVELOPING COUNTRIES: THE CASE OF THE REPUBLIC OF SENEGAL**

**Isayev Bohodirjon Makhamatshoyevich** Andijan State Technical Institute Senior Teacher,  
Department of "Information Technologies" phone: +99893-444-86-02, e-mail:  
bohodirjonisayev@gmail.com

**Annotation.** This paper examines the evolution, challenges, and socio-economic impacts of Information and Communication Technology (ICT) development in developing nations, utilizing the Republic of Senegal as a primary case study. As part of its national emergence strategies—specifically the "Digital Senegal 2025" and the newly enacted "New Deal Technologique (2025–2034)"—Senegal has positioned digital transformation at the core of its economic reforms. Operating within the structured IMRAD framework, this study analyzes the structural deficiencies inhibiting technology integration in Sub-Saharan Africa and investigates the systemic interventions implemented by the Senegalese government, including the development of the Diamniadio Digital City. The results demonstrate that targeted legislative reforms, infrastructure investments, and international public-private partnerships have significantly enhanced mobile internet penetration (reaching 74% daily active usage) and boosted the ICT sector's contribution to the national Gross Domestic Product (GDP). Ultimately, the paper provides a scalable framework for other developing nations striving to bridge the digital divide under constrained economic conditions.

**Keywords:** ICT Development, Developing Countries, Senegal, Digital Senegal 2025, New Deal Technologique, Diamniadio Digital City, Digital Transformation, Emerging Economies.

**INTRODUCTION**

Information and Communication Technology (ICT) has transitioned from being a luxury sector to a foundational pillar of global economic infrastructure. In developing countries, the strategic adoption of IT serves as an essential mechanism to leapfrog traditional evolutionary stages of industrial development, boosting productivity across agriculture, governance, financial services, and healthcare. However, the path toward comprehensive digital transformation in these nations is fraught with severe economic, structural, and regulatory obstacles.

The Republic of Senegal, situated on the westernmost point of the African continent, serves as an ideal and highly representative model for investigating these dynamics. Over the last decade, Senegal has committed heavily to integrating technology into its national identity. Through the framework of the Plan Sénégal Émergent (PSE) and successive blueprints like the Stratégie Sénégal Numérique 2025 (SN2025) and the recently launched New Deal Technologique (2025–2034), the government has sought to increase the digital economy's contribution to GDP to 10% while generating hundreds of thousands of jobs.[1]

This study uses the IMRAD (Introduction, Methods, Results, and Discussion) methodology to scientifically break down how Senegal has navigated its digital evolution. It addresses the core problems faced by developing infrastructure, presents empirical data on the solutions deployed, and critically analyzes the results to determine sustainable conclusions for the broader developing world.

**METHODS**

To provide a comprehensive assessment of IT development in Senegal, this research employs a mixed-methods approach that combines quantitative macroeconomic indicators with qualitative policy evaluations.

#### **Data collection and sources**

Primary empirical data regarding internet penetration rates, subscriber bases, and infrastructure investments were obtained from quarterly and annual reports published by the Autorité de Régulation des Télécommunications et des Postes (ARTP)-Senegal's independent telecommunications regulatory body. This was supplemented by global readiness metrics drawn from the World Economic Forum's Network Readiness Index (NRI) and the International Telecommunication Union (ITU) database.[2]

#### **Analytical framework**

The policy evaluation aspect focuses heavily on the structural implementation of three core government initiatives:

- The privatization and market liberalization strategies of the incumbent telecom provider, SONATEL (a subsidiary of Orange).
- The architectural, infrastructural, and economic development plans of the Diamniadio Digital City, a 25-hectare dedicated technological hub located 35 kilometers outside of Dakar.
- The newly initiated **New Deal Technologique (NDT)** launched in early 2025 by the Senegalese Presidency, specifically tracking its three primary action channels: Digital Governance, Local Technological Innovation, and Rural Digital Inclusion.

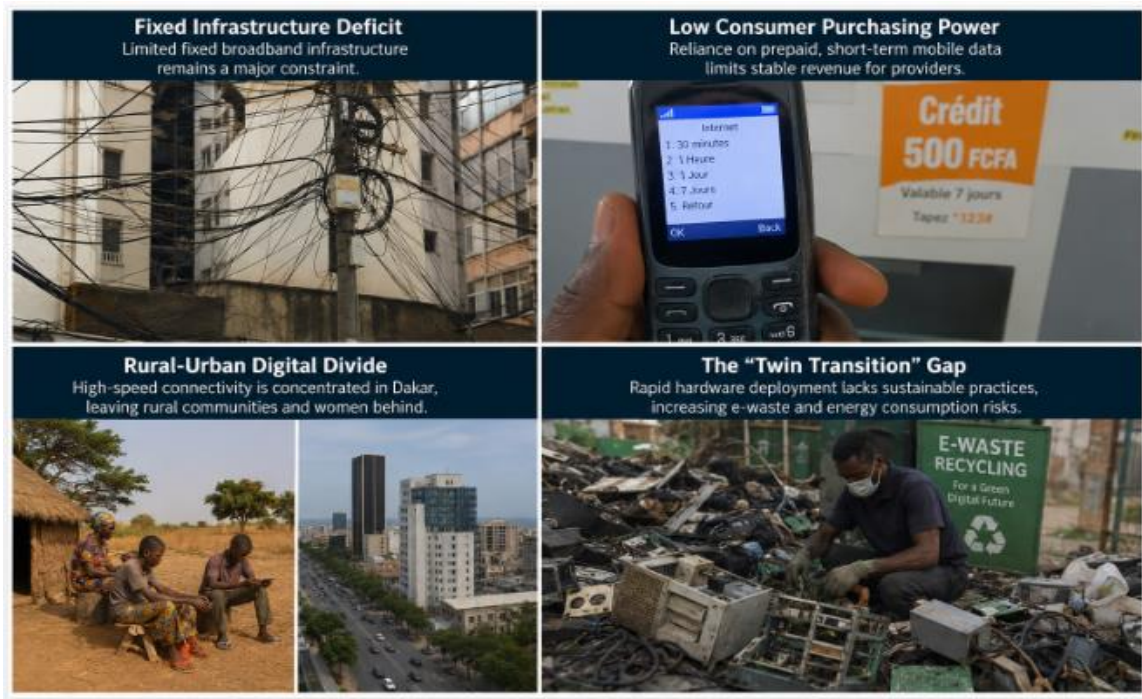
Statistical trends covering the period from 2016 to 2026 were compiled to evaluate the correlations between targeted legislative changes (such as the Telecommunications Law N° 2011-01) and actual consumer market expansion.

### **RESULTS AND DISCUSSION**

#### **Identified problems and structural bottlenecks**

Despite rapid strides, Senegal's initial IT ecosystem faced severe foundational challenges typical of developing nations:

- **The Fixed Infrastructure Deficit:** While mobile connectivity expanded exponentially, fixed broadband infrastructure remained severely limited and financially inaccessible for the average citizen. This created an over-reliance on mobile data networks, hindering high-capacity corporate computing and institutional software development.
- **Low Consumer Purchasing Power:** The consumer market is overwhelmingly dominated by low-income individuals utilizing prepaid, short-term mobile internet packages. Only a minute percentage of the population maintains stable, contract-based home or business connections, creating an unpredictable revenue stream for service providers.
- **The Rural-Urban Digital Divide:** Technological advancements and high-speed fiber-optic connectivity have historically been heavily centralized in the capital city of Dakar, leaving rural agrarian populations and women marginalized from the digital economy.
  - The "Twin Transition" Gap: Until recently, the rapid deployment of hardware lacked green, sustainable methodologies, risking environmental degradation, high energy consumption in data management, and inadequate e-waste recycling structures.



**Photo-1. Identified problems and structural bottlenecks  
Deployed solutions and national initiatives**

To counteract these challenges, the Senegalese state initiated a series of aggressive legal and structural reforms:

Strategic Initiative	Core Objectives & Interventions	Funding & Regulatory Structure
Market Liberalization	Introduction of competition into the mobile and internet sectors; creation of ARTP to regulate fair pricing.	Financed through private investment and supervised by the State.
Diamniadio Digital City	Construction of 33,000 m <sup>2</sup> of office spaces, commercial incubators, research centers, and a Tier III Data Center.	€70 Million total (€61M from the African Development Bank; €9M from the State).
New Deal Technologique	Digitalization of the public administration; spreading inclusive tech access to rural zones; greening the IT sector.	Managed by the Ministry of Communication, Telecommunications, and Digital Affairs.

**Quantifiable impacts and outcomes**

The results of these targeted interventions indicate that Senegal has successfully established itself as a regional technological leader in West Africa.

According to regional data trends, Senegal boasts the highest number of daily active internet users among comparable West African states, with an unprecedented 74% daily internet utilization rate among its population, outperforming regional peers like Ivory Coast (49%) and Mali (58%).

The country is actively linked to global networks through four major submarine fiber-optic cables (Main One, Atlantis-2, SAT-3/WASC, and the Africa Coast to Europe - ACE cable), providing a

robust foundation for outsourcing. The local IT market has expanded to include major global enterprises alongside thriving local software development firms (such as Baamtu, Gainde 2000, and Sensoft), which specialize in big data analytics, automated customs software, and educational technology.

### **CONCLUSIONS**

The analysis of Senegal's IT trajectory yields critical insights for the advancement of technology in the developing world. The research proves that market liberalization alone is insufficient; it must be accompanied by proactive state-led infrastructure programs, such as the Diamniadio Digital City, to anchor private capital and foster an indigenous innovation ecosystem.

Furthermore, Senegal's transition from the Digital Senegal 2025 strategy into the New Deal Technologique demonstrates that mature digital transformation strategies must evolve past simple "connectivity" metrics. True technological independence and economic resilience require an explicit focus on governance digitization, the bridging of the rural-urban gender divide, and the implementation of eco-friendly, green computing solutions.

Ultimately, Senegal's model proves that despite constrained financial resources, a developing nation can build a vibrant, competitive, and highly connected digital economy through calculated regulatory enforcement, regional specialization in IT-enabled services (ITES), and targeted international development partnerships.[6]

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