



# Unlocking Nigeria's Industrial Potentials Through Aerospace Technology as an Economic Catalyst: A Review

**Ezirim Kelechi ThankGod<sup>1\*</sup>, Obi Obichukwu Immanuel<sup>2</sup>, Okoronkwo Iheanyi Chinedu<sup>3</sup>, Sani Abubakar Muhammed<sup>4</sup>, Nwaokolo Ikechukwu Frank<sup>5</sup> & Opara Uchechukwu Victor<sup>6</sup>**

<sup>1,2,3,4,5</sup>Mechatronics Engineering Department; Federal University of Technology, Owerri, Imo State, Nigeria

<sup>6</sup>Mechanical Engineering Department Federal University of Technology Owerri Imo State Nigeria

DOI:10.5281/zenodo.21432445

## ARTICLE INFO

### Article history:

Received : 23-06-2026

Accepted : 01-07-2026

Available online : 18-07-2026

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**Citation:** Ezirim, K. T., Obi, O. I., Okoronkwo, I. C., Sani, A. M., Nwaokolo, I. F., & Opara, U. V. (2026). Unlocking Nigeria's Industrial Potentials Through Aerospace Technology as an Economic Catalyst: A Review. *IKR Journal of Engineering and Technology (IKRJET)*, 2(4), 35-37.



## ABSTRACT

## Review Article

Aerospace technology is globally recognized and appreciated as one of the top high-value, high-multiplier sectors that rapidly drives industrialization, job creation, technology transfer and foreign exchange earnings. This paper analytically assesses the potentials of aerospace technology as a prospective economic catalyst for Nigeria. Using data from CBN, NBS, IATA, NASRDA, and 42 peer-reviewed studies, we quantify current contributions and project future potential. Findings show Nigeria's aviation sector contributed ₦397B ≈ \$490M or 0.6% to GDP in 2023, while satellite and drone services added an additional ₦3.8B annually. Aerospace jobs interestingly pay 4 times the national average wage and create about 2.8 indirect jobs per any direct job. However, \$500M annual forex outflow for aircraft MRO and 90% import dependence on aircraft parts adversely inhibits all of these impacts. Scenario modeling shows that with investment in MRO hubs, drone manufacturing, and satellite data commercialization, aerospace can convincingly contribute well above 2.5% to GDP and without hesitation generate about 50,000 skilled jobs by 2035. The paper concludes that treating aerospace from a different perspective as an industrial catalyst, not just transport infrastructure, is critical and might be the game changer for Nigeria's economic diversification beyond oil.

**Keywords:** Aerospace Technology, Economic Catalyst, Forex, Jobs, Industrialization.

\*Corresponding author: Ezirim Kelechi ThankGod

Mechatronics Engineering Department; Federal University of Technology, Owerri, Imo State, Nigeria

## Introduction

Admittedly, Nigeria's most urgent development challenge and economic emergency revolve around strategic and intentional diversification of her economy to end the monopolistic grip Oil holds on the country.

Regrettably, Oil still accounts for 90% of the country's export earnings but surprisingly accounts for only 8% of GDP and 0.1% of total employment (CBN, 2023). Diversification is an economic game changer as countries that have diversified successfully engaged high-tech manufacturing as catalysts even those that are not among the super world powers like

Brazil used Embraer aircraft to build 21,000 jobs and \$4.5B exports, while India used ISRO to generate \$1.2B from commercial space services (Embraer, 2024; ISRO, 2024).

Aerospace technology is undeniably a "catalyst sector" because it has aggressively both high forward and backward linkages. Each \$1 of aerospace output can generate about \$3.2 in other sectors, and every single aerospace job creates up to 2.8 indirect jobs (Oxford Economics, 2024). Nigeria has previously launched 5 satellites and presently operates 36 airports, but aerospace GDP contribution pitifully remains at 0.6% as against 13% for aviation in Dubai (NBS, 2024; Oxford Economics, 2024).

### This paper addresses among others:

1. The present economic impact of aerospace in Nigeria.
2. The catalytic potentials that exists in the country.
3. What policy levers capable of unlocking the potentials.

## Methodology

An analytical + scenario modeling approach was used. Data sources include: CBN Statistical Bulletin 2020-2024, NBS GDP reports, IATA Africa reports 2020-2024, NASRDA annual reports 2020-2025, NCAA/NAMA publications. Economic impacts on the country were measured using:

1. Direct GDP contribution
2. Employment multipliers
3. Forex savings and
4. Technology spillovers.

In addition, two scenarios were modeled to 2035 to wit: “Business as Usual BAU” vs “Catalyst Investment CI” with MRO hubs, drone manufacturing, and satellite commercialization.

## Current Economic Impact

### Direct GDP Contribution

Nigeria’s air transport sector contributed ₦397B ≈ \$490M or 0.6% to GDP in 2023, up from ₦285B in 2020 (NBS, 2024). Aviation supports tourism, oil & gas logistics, and e-commerce. MMA Lagos handled 7.3M passengers in 2023, generating ₦120B airline revenue + ₦45B airport charges (FAAN, 2024).

Satellite services via NigComSat-1R generated ₦3.2B annually from broadband, DTH TV, and VSAT services 2020-2025 (NASRDA, 2025). Drone services for agriculture, surveying, and security added another ₦600M annually by 2025 (NITDA, 2025).

Benchmark: Aviation contributed 13% to Dubai GDP, 3.5% to Ethiopia GDP, and 0.8% to South Africa GDP in 2023 (Oxford Economics, 2024; AfDB, 2022). Nigeria’s lower share reflects obvious lack of hub status and MRO capacity.

### Employment and Wage Effects

Aerospace jobs are high-skill, high- technical and as well as high-wage paid jobs. Average wage for aerospace engineers in Nigeria is about ₦6.2M per annum as against ₦1.5M national average wage (NBS, 2024). IATA has further estimated that aviation directly employs 45,000 Nigerians and supports 300,000 indirect jobs through tourism and logistics (IATA, 2023).

NASRDA employs 1,200 engineers/scientists. Drone sector created 3,500 jobs between 2020-2025 with 70% of them youths (NITDA, 2025). Each direct aerospace job creates 2.8 indirect jobs in Nigeria, which is higher than 2.1 national average due to supply chain effects (CBN, 2023).

## Forex and Cost Savings

Nigeria loses \$500M annually sending aircraft abroad for C/D-checks because only 1 Part-145 MRO exists in the country presently (IATA, 2023). NigComSat-1R reduced VSAT import costs by ₦1.8B annually for government agencies (FMST, 2023). Local drone assembly by TerraHaptix successfully cut drone import cost by 30%, saving ~\$2M in 2024 (NITDA, 2025).

**Benchmark:** Ethiopia earned \$1.8B forex from Ethiopian Airlines in 2023 which is 12% of its national export earnings (AfDB, 2022). South Africa saved \$200M forex through local MRO before 2020 (DTI, 2022).

## Technology Spillovers

Aerospace R&D definitely spills into other sectors. NIMET’s drone weather profiling improved crop yield forecasts by 18% in Kano, valued at ₦14B for farmers (NIMET, 2025). NAF drone surveillance cut pipeline vandalism losses by 12% between 2022-2024, saving NNPC ₦336B (NNPC, 2024). Materials and software developed for drones are now used in oil & gas inspection.

## Catalytic Potential to 2035: Scenario Analysis

### Business as Usual (BAU) Scenario:

If current trends persistently continue: then it will bring about 3% annual growth in aviation, no new MRO, slow satellite commercialization. Projected 2035 impact: Then it will record 0.9% GDP, 55,000 direct jobs, \$650M forex loss on MRO (calculation based on IATA growth rates).

### Catalyst Investment CI Scenario

With targeted investment 2026-2035:

1. MRO Hub: 2 new Part-145 facilities in Lagos and Kano will capture 30% of West Africa \$1B MRO market = \$300M/year. It will also retain \$4.5B forex 2026-2035 (IATA, 2023).
2. Drone Manufacturing: Scale to 10,000 drones per year for agriculture + security. Export to Sahel. Create 15,000 jobs, \$150M export revenue by 2035 (NITDA, 2025).
3. Satellite Data Commercialization: Private - Public Participation (PPP) company like India’s Antrix sells NigeriaSat data for climate, agriculture, mining. Target \$100M annual export by 2035 (FMST, 2023).
4. Equatorial Launch Feasibility: If Akwa Ibom launch site developed post-2030, Nigeria captures 5% of \$11B smallsat launch market = \$550M/year (BryceTech, 2024).

Projected 2035 CI impact: 2.5% GDP contribution, 50,000 new skilled jobs, \$8B forex savings and earnings 2026-2035. Employment multiplier rises to 3.2 due to stronger supply chains.

## Policy Levers to Unlock Catalytic Potential

The under listed are among the strong policy levers that can unlock the catalytic potential of aerospace sector in Nigeria.

1. **Industrial Policy:** Designate aerospace as “strategic sector” under Nigeria Industrial Revolution Plan. Give something like a 10-year tax holiday for MRO and drone manufacturers.
2. **Funding:** Increase R&D to between 1% - 5% GDP. Ring-fence 2% of FAAN revenue for NASRDA R&D. Create \$200M Aerospace Innovation Fund with BOI + AfDB (UNESCO, 2024).
3. **Regulatory Reform:** NCAA 30-day BVLOS sandbox for research. Fast-track Part-145 MRO certification. Duty waiver for aerospace sensors (NCAA, 2023; NITDA, 2025).
4. **Infrastructure:** Develop Lagos + Kano aerospace free zones with stable power. Feasibility study for Akwa Ibom equatorial launch site (NASRDA, 2025).
5. **Skills:** TETFund sponsorship of about 500 aerospace MSc/PhD scholarships. Mandatory industry attachment for students at tertiary institutions (Nwosu & Okoro, 2024).

## Conclusion

Aerospace technology should not be erroneously mistaken to be just about planes and satellites for Nigeria. It should rather be viewed properly as an economic catalyst that has the capacity to vigorously drive industrialization, to skilled employment, and forex savings at scale. Available data at disposal between 2020-2026 proves the sector is already contributing about ₦400B+ and 300,000+ jobs. The CI scenario shows a credible path to 2.5% GDP and \$8B economic value by 2035. Nigeria, therefore without hesitation whatsoever must shift from viewing aerospace as “transport” to treating it as a healthy “industrial policy”. The Brazil and Ethiopia models prove that this is practically possible even for developing economies and not just for world powers.

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