



THE NIGERIAN ACADEMY OF ENGINEERING

STRATEGIC PLAN

2024 - 2028

JUNE 2024

INTRODUCTION

Background

The Council of The Nigerian Academy of Engineering in recognition of the need to review its Strategic Plan to update its initiatives as well as include the effects of changes in the external environment set up an ad hoc Committee. The Committee led by the NAE Vice President then presented the report of the Committee for adoption. The Academy subsequently adopted the plan at its Annual General Meeting on 26th June 2024. The plan period is from 2024 till 2028.

The Committee members are listed below:

Committee Members

1. Engr. Prof. R. A. Bello - Chairman
2. Engr. K. A. Adeola
3. Engr. (Mrs.) C. O. Adelowo
4. Engr. I. S. Ogunbayo
5. Engr. Dr. (Mrs.) N. E. Denloye
6. Engr. Dr. N. J. D. Erinne
7. Engr. Dr. O. Coker
8. Engr. Prof. M. S. Haruna
9. Engr. Dr. O. J. Mbonu
10. Engr. Prof. C. A. Bolu
11. Engr. C. O. Okoye
12. Engr. F. Atume
13. Engr. S. Z. Abubakar
14. Engr. Dr. (Mrs.) I. Amao
15. Engr. L. O. Asuquo
16. Engr. M. H. Muhammad
17. Engr. (Mrs.) M. M. Adetiba

Methodology

The committee evaluated the performance of the initiatives of the key objectives of the Strategic Plan of the Academy (2018 – 2023), to ascertain areas where the Academy performed and identified those that needed to be re-examined. In addition, it considered necessary revisions that needed to be made because of major changes in the external environment.

The strategic objectives of the Academy for achieving its goal of being the leading TECHNOLOGY think tank to Government and Industry are enumerated as well as the strategic initiatives that need to be embarked upon.

VISION, MISSION AND VALUES

Vision Statement

“To Be a Leading Think-Tank in the Advancement of Science, Engineering, Technology and Innovation”

Mission Statement

“To Promote and Advance Science, Engineering and Technology as a Major Driver of National Development and International Competitiveness”

Core Values

The Nigerian Academy of Engineering and its Fellows shall be guided by the following core values:

Integrity: This captures the character of the Academy and each Fellow

Professionalism: This captures the competence and expertise of each Fellow and the collective expertise of the academy

Diversity: This captures the diversity of disciplines, issues, expertise, etc.

Objectivity: This captures the courage to act independently and objectively

Commitment: This is a demand for commitment from all Fellows.

OUR STRATEGY

Strategic Areas of Focus

The Academy shall concentrate on activities in the following strategic areas:

1. Engineering Research, Development and Innovation
2. Engineering Education and Skills Development
3. Engineering Infrastructure Development
4. Sustainable Engineering Technology in the Manufacturing and Process Industries, Agriculture and Mining)
5. Engineering Operations and Maintenance (Facilities, infrastructures)

Strategic Objectives

In focusing on our five strategic areas, the Academy shall strive to achieve the following ten objectives

1. **Provide Advice to Government, Policy Makers and all Stakeholders:** by articulating policies on science, engineering, technology and innovation across all areas of engineering endeavours.
2. **Support Individual Engineers:** by empowering and promoting innovation, research and the development of the individual engineer.
3. **Promote Engineering Businesses:** by developing strategies for the development of micro, small, medium and large scales engineering enterprises.
4. **Promote Engineering Excellence:** by advocating standards of engineering processes and products with a view to protecting the general public from poor quality engineering and manufacturing.
5. **Promote Sustainability:** by championing the adoption and application of technologies that have low greenhouse gas emissions and environmental pollutants and do not have harmful impacts on public health or waste natural resources.
6. **Collaborate with Other Academies and Institutions:** by learning and sharing best practices in the development of science, engineering, technology and innovation
7. **Effective Leadership:** by developing and implementing a governance and organisational structure for the Academy to be able to deliver on its external objectives.
8. **Membership Commitment and Continuous Development of the Academy:** by developing and implementing policies and processes on admission and retention of fellows to promote active participation and commitment, including promotion of diversity and inclusiveness.
9. **Effective Secretariat:** by developing and implementing a functional secretariat able to deliver on the Academy's commitments
10. **Sustainable Finance:** by developing and maintaining sustainable funding strategies.

Drivers of the Strategic Objectives

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|--|--|
| 1. Advise Government, Policy Makers and Stakeholders | Policy Formulation & Advocacy |
| 2. Support Individual Engineers | Knowledge & Competence Development |
| 3. Promote Engineering Businesses | Innovation, Capacity Building & Business Development |
| 4. Promote Engineering Excellence | Standards, Codes & Practice Manuals Development |
| 5. Promote Sustainability | New Technologies, Environment & Climate Change |
| 6. Collaboration with Others | Strategic Partnerships |
| 7. Effective Leadership | Governance and Operational Structures |
| 8. Membership Commitment | Fellows Admission and Engagement Policies |
| 9. Effective Secretariat | Appropriate Staffing, Infrastructure and Facilities. |
| 10. Sustainable Finance | Sustainable Funding Strategies |

SWOT Analysis

Our Strategy was aided by a SWOT analysis, presented below to determine the Strengths, Weaknesses, Opportunities and Threats

| Strengths | Weaknesses |
|---|--|
| Experienced Fellows | Lack of commitment by Fellows |
| Fellows Network | Weak Administrative structure and lack of opportunities for offline networking |
| Fellows Expertise | Lack of clarity of purpose |
| Diversity of membership | Lack of focus |
| Acceptance of leadership | Not leveraging on strengths of other Engineering Institutions |
| | Weak financial capacity |
| | |
| Opportunities | Threats |
| To raise the profile of the Nigerian engineer | Membership admission policy |
| To fill the vacuum in Engineering thought leadership | Perceived poor image of engineers |
| Potential to mobilise human, material and financial resources | Poor quality of Engineering Education |

THE STRATEGIC PLAN: OBJECTIVES

1. Provide Advice to Government, Policy Makers and all Stakeholders

Policy Formulation & Advocacy: Strengthen NAE's voice on national policy

- 1.1. **Regularly Develop Policy Briefs and Hold Webinars and Public Forums** in areas of **Research, Education, Infrastructure, Production and Operations & Maintenance** for national development.
- 1.2. **Systematically Engage with the Executive and Legislative arms of government** to influence the **appointment of the leadership of engineering institutions.**
- 1.3. **Systematically Engage** with the leadership of engineering **Ministries, Departments and Agencies of Government, Universities and Research Institutes** to develop and promote best practice.
- 1.4. **Regularly Publish and Organise Forums and Webinars** to disseminate information and broaden understanding of key engineering issues and of technology development.
- 1.5. **Maintain NAE's website with information and recommendations on topical policy issues.**

2. Support Individual Engineers

2.1. Knowledge & Competence Development:

Improve the perception and enhance the performance of engineers present and future.

2.2. **Engage with Industry, Academia and Professional Associations** to design and implement **Training and Exposure Programmes** for Technicians, Technologists, Engineers and Faculties, including curriculum, staffing and infrastructure, in the areas of:

1. Conversion of Theory to Practice
2. Design and Construction of Infrastructures
3. Design, Fabrication and Manufacture/Production of Engineering Products
4. Engineering Facilities and Infrastructure Management and Maintenance
5. Sustainability and Emerging Technologies

2.3. Champion/Provide **Sponsorships, Scholarships, Recognition and Awards** for Significant Projects, Research and Innovation

- Champion/Provide Sponsorships, Scholarships, Recognition and Awards for Significant Projects, Research and Innovation
- Champion a student's competition that will boost innovation and create solutions to local and national challenges.

3. Promote Engineering Businesses

3.1. Innovation, Capacity Building & Business Development

Help to promote Sustainable Engineering Enterprises, advancing national capacity for innovation and international competitiveness, and creating openings for rewarding career pathways in the profession.

3.2. Facilitate the Development of Engineering Business Roadmaps for Start-Ups by Professional Associations and others in the areas of:

- Research-Based Businesses
- Design and Construction of Infrastructures
- Design, Fabrication and Manufacture/Production of Engineering Products
- Engineering Facilities and Infrastructure Management and Maintenance
- Emerging Areas of Engineering

3.3. Promote Local Content of Engineering Services and Products

Encourage and facilitate industry-Academia Relationships for local engineering problem solving in both directions.

- Industry requiring solutions to production problems
- Academia wanting to test concepts and innovations
- Commercialisation of viable research outputs

4. Improve Quality of Engineering

4.1. Establish, Maintain and Monitor Standards, Codes & Best Practices:

Help to develop and entrench a culture of high standards and engineering excellence. Provide advice on engineering best practices.

4.2. Engage with Relevant **Professional Bodies/Institutes** on the **Development and Utilisation of Standards and Best Practices** in Research, Education, Infrastructures, Manufacture/Production and Operations & Maintenance.

4.3. Create and Maintain a Database of Major Engineering Projects in the country and periodically review and influence policy and practice.

5. Promote Sustainability

Encourage and promote the following:

- The development and deployment of low greenhouse gas emission technologies.
- A rapid transition to low cost renewable energy.
- The efficient use of energy in the industrial, commercial and residential sectors.
- The reduction in the emission of environmental pollutants from industry and from the use of fuels.
- The effective management of domestic and industrial waste and the phase out of single use plastics.
- The adoption and application of construction standards and technologies for durability to reduce vulnerability to climate change.
- The use of modern technology and machinery to enhance agricultural production with minimal environmental impact and minimal deforestation.

6. Collaboration with Other Academies and Institutions

Strategic Partnerships with Academies & Other Institutions

Forge strategic partnerships for synergy and enhancement of delivery of objectives.

- 6.1. **Provide leadership** for the coordination of engineering institutions in Nigeria.
- 6.2. **Establish and maintain relationships** with key International Engineering Academies and the International Council of Academies of Engineering and Technological Sciences (CAETS).
- 6.3. **Establish** relationships and build synergy with non-engineering local and International Development Institutions such as NESG, NIIA, UNESCO, etc.

7. Effective Leadership

Governance and Operational Structure

7.1. Review the existing system that places responsibilities for governance and operations on the president and executive committees.

7.2. Consider full time head of operations of the cadre of a Fellow.

8. Membership Commitment and Continuous Development of the Academy

Policies on Admission and Engagement of Fellows

8.1 Review conditions and process of admission of fellows to consider not only past achievements but potentials.

8.2. Promote Inclusion and Diversity: Ensure membership takes care of inclusion and diversity with respect to gender, discipline and professional practice (e.g. military).

9. Effective Secretariat

Appropriate staffing and infrastructure

- 9.1. **Consider** hiring high calibre staff that can take responsibilities for strategic execution of Academy's operation.
- 9.2. **Provide** adequate infrastructure for effective operation.
- 9.3. **Apply modern technological systems** for effective communication with Fellows and with society as a whole; effective use of the website and other systems.

10. Sustainable Finance

10.1. Sustainable Funding Strategies

Consider All Potential Sources of Finance for the Academy, Including:

- Advisory services for fees
- Subscriptions
- Endowments
- Sponsorship of value addition.

STRATEGIC PLAN INITIATIVES

| | STRATEGIC OBJECTIVES | STRATEGIC INITIATIVES | TIMELINES | | | |
|---|---|--|-----------|--------|--------|--------|
| | | | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 |
| 1 | Provide Advice to Government, Policy Makers and all Stakeholders | 1.1. Regularly Develop Policy Briefs in areas of Research, Education, Infrastructure, Technology, Production and Operation and Maintenance for national development and publish and achieve wide circulation of such Briefs. | | | | |
| | | 1.2. Systematically Engage with the Executive and Legislative arms of government to influence the appointment of the leadership of engineering institutions, legislation and executive decisions | | | | |
| | | 1.3. Systematically Engage with the leadership of engineering Ministries, Departments and Agencies of Government, Universities and Research Institutes to develop and promote best practice | | | | |
| | | 1.4. Regularly Organise Forums and Webinars to disseminate information and broaden understanding of key engineering issues and of technology development and publish the proceedings. | | | | |
| | | 1.5. Maintain NAE's website with information and recommendations on topical policy issues | | | | |
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| | STRATEGIC OBJECTIVES | STRATEGIC INITIATIVES | TIMELINES | | | |
|---|---------------------------------------|---|-----------|--------|--------|--------|
| | | | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 |
| 2 | Support Individual Engineers | 2.1. Liaise with engineering and other relevant organisations to ensure effective post qualification exposure and training for engineers, technologists and technicians | | | | |
| | | 2.2. Establish annual engineering awards on Innovation and Engineering Best Practice as part of the annual conference | | | | |
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| 3 | Promote Engineering Businesses | 3.1. Consolidate efforts with ARCO on commercialisation of viable research outputs and extend the partnership to other stakeholders | | | | |
| | | 3.2. Establish a structure to support the effective deployment of Executive Order No. 5 on local content and other similar orders for engineering businesses. | | | | |
| | | 3.3. Promote the development of Engineering business roadmaps for startups in areas of engineering. | | | | |
| | | 3.4 Encourage energy transition businesses including local manufacture of solar panels, CNG engine conversion and value added installations of EV charging points | | | | |
| | | 3.5 Encourage innovation and the adoption of new technologies such as modern digital technology and bio engineering. | | | | |
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| | STRATEGIC OBJECTIVES | STRATEGIC INITIATIVES | TIMELINES | | | |
|---|---------------------------------------|---|-----------|--------|--------|--------|
| | | | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 |
| 4 | Promote Engineering Excellence | 4.1. Engage with relevant Professional Bodies/Institutes to drive best practice in Research, Education, Manufacturing, Operations and Maintenance | | | | |
| | | 4.2. Complete the establishment of an archival services centre for the collection, storage, review and analysis of engineering data. | | | | |
| | | 4.3. Establish a liaison with COREN, CODET, MAN & NUC to effect active Industry-Academia cooperation for improved engineering training and practice. | | | | |
| | | 4.4 Engage with ITF and the private sector on the establishment of competence development programmes for engineers in industry | | | | |
| 5 | Promote Sustainability | 5.1. Collaborate with MOE and other bilateral and multilateral agencies to achieve full implementation of the agreements on greenhouse emissions and climate change to which Nigeria is a party | | | | |
| | | 5.2. Work with government, bilateral and multilateral Agencies on measures to develop climate change resilience and to mitigate impacts. | | | | |
| | | 5.3 Encourage sustainable use of resources, and the reduction of pollution, single use plastics and organic waste. | | | | |

| | STRATEGIC OBJECTIVES | STRATEGIC INITIATIVES | TIMELINES | | | |
|---|--|---|-----------|--------|--------|--------|
| | | | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 |
| | | 5.4 Promote diversity and inclusiveness and enhance the role of women in the Academy and the profession. | | | | |
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| 6 | Collaborate with Other Academies and Institutions | 6.1. Collaborate with NAS and other Academies on development of policy initiatives for Government. | | | | |
| | | 6.2. Consolidate on the relationship between NAE and CAETS. | | | | |
| | | 6.3. Develop new relationships with Academies of Engineering on the African Continent while maintaining cordiality with RAEng and others partnering with NAE. | | | | |
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| 7 | Effective Leadership | 7.1. Employ a high calibre Head of Secretariat to take responsibility for operations to enable the President and the executive concentrate on policy issues. | | | | |
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| 8 | Membership Commitment and Continuous Development of the Academy | 8.1. Continuously improve the conditions and process of admission of Fellows to make it flawless while considering not only past achievement but future potentials. | | | | |
| | | 8.2. Intentionally admit qualified professionals to satisfy gender, discipline and professional inclusion and diversity | | | | |
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| | STRATEGIC OBJECTIVES | STRATEGIC INITIATIVES | TIMELINES | | | |
|----|------------------------------|--|-----------|--------|--------|--------|
| | | | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 |
| 9 | Effective Secretariat | 9.1. Apply modern technological systems for effective communication with Fellows and with society as a whole; effective use of the website and other social media systems. | | | | |
| | | 9.2. Provide adequate infrastructure for an effective Secretariat. | | | | |
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| 10 | Financial Stability | 10.1. Determine and effect a sustainable financing scheme for the Academy. | | | | |
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