

NEURALVILLAGE HEALTHCARE AND TECHNOLOGY LTD. NATIONAL NEUROSCIENCE TECHNOLOGY HACKATHON 2026

Document Type	National Programme Concept & Implementation Report
Programme	National Neuroscience Technology Hackathon 2026
Lead Organisation	NeuralVillage Healthcare and Technology Ltd.
Institutional Partner	National Mathematical Centre (NMC), Abuja
Proposed Host	Kwali Area Council, FCT, Abuja
Geographic Scope	19 Northern States + FCT
Residential Cohort	60 selected students
Grand Innovation Award	US\$5,000
Strategic End Goal	Neurotechnology Innovation Hub + NBHDI ecosystem

A National University Innovation, Research and Neurotechnology Development Programme

In Collaboration With

National Mathematical Centre (NMC), Abuja
Department/Programme of Theoretical Physics, NMC
MathWorks
g.tec Medical Engineering
Nigerian Brain Health Data Initiative (NBHDI)

PROPOSED HOST LOCATION

Kwali Area Council, Federal Capital Territory, Abuja, Nigeria

PROPOSED RESIDENTIAL COHORT: 60 STUDENTS

GRAND INNOVATION AWARD: US\$5,000

1. EXECUTIVE SUMMARY

The National Neuroscience Technology Hackathon 2026 is proposed as a multidisciplinary national innovation programme designed to bring together university students, researchers, academics, engineers, neuroscientists, physicists, data scientists, software developers and technology innovators to develop practical solutions to challenges in brain health and neuroscience.

The programme will be organised through a strategic collaboration between NeuralVillage Healthcare and Technology Ltd., the National Mathematical Centre (NMC), the Department/Programme of Theoretical Physics at NMC, MathWorks and g.tec Medical Engineering, with participation from selected universities across Northern Nigeria.

The programme will provide participants with an opportunity to investigate and develop solutions in neuroscience, brain health, neurotechnology, brain-computer interfaces, biomedical engineering, computational neuroscience, artificial intelligence, machine learning, medical data science, signal processing, theoretical and computational physics, neuroimaging, digital health and assistive technologies.

The programme is designed not merely as a competition, but as the foundation for a sustainable national neurotechnology innovation ecosystem. The principal long-term outcome will be the establishment and development of a Neurotechnology Innovation Hub, anchored in Kwali and connected to participating universities, research institutions, government agencies and industry partners.

2. BACKGROUND

Nigeria has a growing need to strengthen capacity in neuroscience, neurological research, brain-health data generation and technology-enabled healthcare. Nigerian universities also possess significant human capital in physics, mathematics, computer science, engineering, medicine, biology and related disciplines. There is therefore a strong opportunity to create a structured platform through which these disciplines converge around real-world health and technology challenges.

The National Neuroscience Technology Hackathon is conceived as a platform for converting academic knowledge into practical innovation.

Education → Research → Experimentation → Prototype → Validation → Innovation → Commercialisation → Impact.

3. PROGRAMME TITLE AND THEME

National Neuroscience Technology Hackathon 2026

Theme: “Building the Next Generation of Nigerian Neurotechnology Innovators.”

Technical Theme: “From Brain Data to Neurotechnology: Building Innovative Solutions for Nigeria's Brain Health Future.”

4. VISION

To establish Nigeria as a leading African hub for neuroscience, neurotechnology, brain-health data research and technology-driven neurological innovation.

5. MISSION

To identify, train, connect and support the next generation of Nigerian neurotechnology innovators through interdisciplinary research, technology development, mentorship, competition and institutional collaboration.

6. CORE OBJECTIVES

1. Identify promising university students working in neuroscience and related disciplines.
2. Introduce students to modern neurotechnology tools and research methodologies.
3. Promote interdisciplinary collaboration between physics, mathematics, engineering, medicine, biology and computer science.
4. Encourage locally relevant brain-health technologies.
5. Generate innovative solutions using real-world brain-health challenges.
6. Develop a pipeline of young Nigerian neurotechnology researchers.
7. Strengthen collaboration between universities, government agencies and technology companies.
8. Promote computational tools for neuroscience research.
9. Create opportunities for students to develop prototypes and research projects.
10. Establish a sustainable Neurotechnology Innovation Hub in Kwali.
11. Support the Nigerian Brain Health Data Initiative.
12. Create a model that can become an annual National Neuroscience Technology Hackathon.

7. STRATEGIC PARTNERSHIP STRUCTURE

Partner	Proposed Role	Key Contributions
NeuralVillage Healthcare & Technology Ltd.	Lead innovation/programme partner	Programme coordination, NBHDI, Hub development, stakeholder mobilisation, incubation
National Mathematical Centre (NMC)	Academic/institutional partner	Theoretical physics, computational modelling, research mentorship, university engagement
MathWorks	Technology partner	MATLAB, AI/ML, signal processing, modelling, training and mentorship
g.tec Medical Engineering	Neurotechnology partner	BCI/EEG education, demonstrations, equipment and technical mentorship

NeuralVillage Healthcare and Technology Ltd. — Programme conceptualisation, coordination, neurotechnology innovation framework, NBHDI integration, student innovation, partnerships, Hub development, stakeholder mobilisation and post-Hackathon incubation.

National Mathematical Centre (NMC) — Academic and institutional collaboration, theoretical physics, computational modelling, mathematical modelling, signal analysis, data science, scientific computing, research mentorship, university engagement and technical judging.

MathWorks — MATLAB-based neuroscience research, signal processing, machine learning, AI, computational modelling, data analysis, simulation, student training and technical mentorship.

g.tec Medical Engineering — Brain-computer interface education, neurotechnology demonstrations, EEG-related technology, technical mentorship, equipment demonstrations and expert judging.

8. PARTICIPATING UNIVERSITIES

Area	Proposed Scope
Geographic coverage	19 Northern States + selected FCT institutions
Target disciplines	Physics, Mathematics, Computer Science, Engineering, Medicine, Biology, Data Science, AI, Public Health, Neuroscience and related fields
Institutional nomination	Universities nominate/endorse qualified students
Selection principle	Academic merit + innovation potential + technical capability + commitment

Selected universities across the 19 Northern States of Nigeria, with participation potentially extended to selected institutions in the Federal Capital Territory.

Relevant disciplines include Physics, Theoretical Physics, Mathematics, Computer Science, Software Engineering, Electrical/Electronic Engineering, Biomedical Engineering, Medicine, Nursing, Biology, Biochemistry, Biotechnology, Psychology, Data Science, Artificial Intelligence, Public Health, Neuroscience and related fields.

9. STUDENT SELECTION FRAMEWORK

Applicants should be enrolled in a recognised Nigerian university; demonstrate interest in neuroscience, technology, healthcare or related fields; possess problem-solving ability; be willing to work in interdisciplinary teams; be available for the full programme; and submit a proposed idea or statement of interest.

The Working Committee should establish a formal minimum academic cut-off before applications open. A recommended starting benchmark is a minimum CGPA of 3.0/5.0 or equivalent, while innovation potential, technical ability, creativity and commitment should also be considered.

10. HACKATHON CATEGORIES

Category	Focus Areas
Brain Health	Neurological disorders, monitoring, prevention, early detection, rehabilitation
Neurotechnology	BCI, EEG, neurointerfaces, assistive technologies
AI & Brain Data	Machine learning, AI, predictive modelling, data visualisation
Computational Neuroscience	Mathematical modelling, simulations, signal processing, theoretical physics

Digital Health	Remote healthcare, screening, tele-neurology, patient monitoring
Creative Neurotechnology	Originality, design and interdisciplinary problem-solving

A. Brain Health — neurological disorders, monitoring, prevention, early detection, rehabilitation and health education.

B. Neurotechnology — BCI, EEG, neurointerfaces, assistive technology and neuroprosthetics.

C. Artificial Intelligence & Brain Data — machine learning, AI, datasets, predictive modelling and data visualisation.

D. Computational Neuroscience — mathematical models, computational simulations, neural modelling, signal processing and theoretical physics.

E. Digital Health — remote healthcare, digital screening, tele-neurology, patient monitoring and health information systems.

F. Creative Neurotechnology — originality, design and interdisciplinary thinking.

11. HACKATHON STRUCTURE

PHASE I — NATIONAL CALL FOR PARTICIPATION

Selected universities receive official invitations and students submit applications.

PHASE II — VIRTUAL DEVELOPMENT

Technical orientation, research resources, expert mentorship, workshops and project-development guidance.

PHASE III — NATIONAL IN-PERSON HACKATHON

Selected teams travel to Kwali for a residential programme providing accommodation, feeding, workspace, internet, technical support, mentorship, equipment access, presentations and judging.

PHASE IV — DEMONSTRATION, JUDGING AND AWARDS

Teams present solutions before an expert panel. Judging will consider scientific merit, technical feasibility, innovation, healthcare relevance, scalability, social impact, sustainability and presentation quality.

12. AWARD STRUCTURE

Award	Recognition
Grand Prize	US\$5,000 — Overall winning team
Gold Medal	Outstanding Innovation / Overall Excellence
Silver Medal	Exceptional Innovation
Bronze Medal	Outstanding Emerging Innovation
Most Creative Work	Exceptional originality and creative problem-solving
Special Category Awards	Best Brain Health, Best Neurotechnology, Best AI/Data, Best Computational Neuroscience, Best Presentation,

	Best Interdisciplinary Team
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GRAND PRIZE: US\$5,000 for the overall winning team, subject to final sponsorship and programme funding arrangements.

MEDALS:

GOLD — Outstanding Innovation / Overall Excellence

SILVER — Exceptional Innovation

BRONZE — Outstanding Emerging Innovation

SPECIAL RECOGNITION:

Most Creative Work; Best Brain Health Innovation; Best Neurotechnology Project; Best AI/Data Science Solution; Best Computational Neuroscience Project; Best Student Research Presentation; Best Interdisciplinary Team; and Most Promising Early-Stage Innovation.

13. FACILITATOR AND MENTOR RECOGNITION

Facilitators, mentors, judges and technical contributors will receive formal recognition through Certificates of Excellence, recognition plaques, national programme certificates, public acknowledgement and facilitator/partner awards.

14. NEUROTECHNOLOGY INNOVATION HUB

The most important long-term outcome of the Hackathon will be the establishment and development of a Neurotechnology Innovation Hub in Kwali Area Council, FCT.

The Hub will serve as a permanent platform for neuroscience research, neurotechnology development, brain-health data research, student innovation, prototyping, artificial intelligence, computational neuroscience, BCI research, medical technology, research training, startup incubation and industry partnerships.

The Hackathon will therefore serve as the launching mechanism for a permanent innovation ecosystem rather than a one-off competition.

15. NIGERIAN BRAIN HEALTH DATA INITIATIVE (NBHDI)

The Hackathon will support the launch and visibility of the Nigerian Brain Health Data Initiative. The NBHDI will provide a strategic framework for brain-health data generation, neuroscience research, population-level brain-health intelligence, research collaboration, data-driven healthcare innovation and neurotechnology development.

16. FEDERAL GOVERNMENT ENGAGEMENT

The programme will seek strategic participation and support from the Federal Ministry of Education, Federal Ministry of Health, and Federal Ministry of Communications, Innovation and Digital Economy.

Priority areas include education and university engagement; brain health and healthcare innovation; artificial intelligence, digital technology, innovation, technology entrepreneurship and data infrastructure.

17. PROPOSED INAUGURATION

The inaugural programme should be positioned as a national milestone combining the National Neuroscience Technology Hackathon, NBHDI launch and Neurotechnology Innovation Hub initiative.

Potential stakeholders include Federal Ministries, National Mathematical Centre, participating universities, research institutions, technology companies, healthcare organisations, development partners, investors and industry leaders.

18. COMMISSIONING OF NEURALVILLAGE IN KWALI

A major strategic component will be the proposed commissioning of the NeuralVillage facility/innovation platform in Kwali. The commissioning can be positioned as the physical foundation for the Neurotechnology Innovation Hub, creating a permanent institutional presence for neuroscience, technology education, research and innovation within Kwali.

19. STUDENT ACCOMMODATION AND FEEDING

Provision	Requirement
Residential students	60 selected students
Accommodation	Safe, accessible accommodation in/near Kwali
Meals	Breakfast, lunch and dinner
Refreshments	Water and scheduled refreshments
Connectivity	Internet-enabled workspace
Safety	Security and welfare arrangements
Transport	Local movement/transport support where required

A residential programme for approximately 60 selected students is proposed. The programme should provide accommodation, breakfast, lunch, dinner, refreshments, drinking water, workspace, internet access, security and transportation support where required.

The accommodation plan should prioritise safe and accessible facilities within Kwali Area Council.

20. FUNDING MODEL

The Hackathon will operate under a joint resource mobilisation model. NeuralVillage and NMC will collaborate in developing the funding framework, while additional financial and in-kind support will be sought from government institutions, technology companies, healthcare organisations, research institutions, philanthropic organisations, development partners, corporate sponsors, universities and private-sector investors.

Potential sponsorship areas include accommodation, feeding, transportation, technology infrastructure, awards, medals, equipment, internet, branding, media, research grants and innovation incubation.

21. WORKING COMMITTEE

Role	Primary Responsibility
Chairperson	Strategic oversight
Programme Convener	Overall programme leadership
Programme Director	Implementation coordination
NMC Institutional Coordinator	NMC participation and institutional liaison
University Engagement Coordinator	University nominations and communication
Technical Committee Lead	Challenges, prototypes and technical quality
Neuroscience/Healthcare Lead	Scientific and health content
Technology Partner Coordinator	MathWorks, g.tec and other technology partners
Student Affairs Coordinator	Welfare, accommodation and feeding
Finance & Sponsorship Lead	Budget, fundraising and financial reporting
Media & Communications Lead	Branding, publicity and media
Logistics Coordinator	Venue, transport and equipment
M&E/Documentation Lead	KPIs, evidence and final report

A permanent Working Committee should oversee planning and execution.

Chairperson — Strategic oversight.

Programme Convener — Overall programme leadership.

Programme Director — Implementation coordination.

NMC Institutional Coordinator — NMC participation.

University Engagement Coordinator — Participating universities.

Technical Committee Lead — Technical challenges and project development.

Neuroscience/Healthcare Lead — Neuroscience and health content.

Technology Partner Coordinator — MathWorks, g.tec and other partners.

Student Affairs Coordinator — Welfare, accommodation and feeding.

Finance and Sponsorship Lead — Fundraising and financial management.

Media and Communications Lead — Publicity and media.

Logistics Coordinator — Venue, transport and equipment.

Monitoring, Evaluation and Documentation Lead — Outcomes and final reporting.

22. LONG-TERM ANNUAL PROGRAMME

Year 1 — Establishment and Inaugural Hackathon.

Year 2 — Expansion to additional universities.

Year 3 — National Neurotechnology Innovation Challenge.

Year 4 — African Neurotechnology Innovation Programme.

Year 5 — International Neurotechnology and Brain Health Innovation Summit.

23. EXPECTED OUTPUTS

Student neurotechnology projects; research prototypes; university collaborations; brain-health technology concepts; computational neuroscience projects; AI and data-science applications; research partnerships; student innovation teams; potential startups; research publications; technology partnerships; a national neurotechnology talent pipeline; a Neurotechnology Innovation Hub; and increased visibility for NBHDI.

24. EXPECTED IMPACT

The programme will contribute to STEM development, university-industry collaboration, neuroscience capacity building, healthcare innovation, technology entrepreneurship, youth development, research commercialisation, digital health, brain-health awareness and national innovation capacity. It will also position Northern Nigeria as a growing centre for advanced neuroscience and technology innovation.

25. KEY PERFORMANCE INDICATORS

KPI	Proposed Target
Northern States represented	19
Residential students	60
Major innovation award	US\$5,000
Innovation categories	6+
Technical mentors	15+
Facilitators	10+
Federal Government stakeholders	3+ Ministries
Technology partners	2+
Innovation prototypes	10+
Annual continuation	Yes
Neurotechnology Innovation Hub	Established

Participating Northern States: 19
Universities: Selected institutions across the 19 states
Residential students: 60
Major innovation award: US\$5,000
Innovation categories: 6+
Technical mentors: 15+
Facilitators: 10+
Government stakeholders: 3+ Federal Ministries
Technology partners: 2+
Innovation prototypes: 10+

Annual continuation: Yes
Neurotechnology Innovation Hub: Established

IMPLEMENTATION ROADMAP

Phase	Indicative Activity	Lead/Supporting Parties
1. Institutional Alignment	Confirm partners, governance and MoUs	NeuralVillage / NMC / Partners
2. Funding & Sponsorship	Develop budget, sponsor packages and funding commitments	Finance Committee / Partners
3. University Mobilisation	Issue official invitations and receive nominations	University Engagement Committee
4. Selection & Training	Assess applicants, publish teams and commence virtual training	Technical Committee
5. Residential Hackathon	Kwali-based mentoring, building and testing	Programme & Logistics Teams
6. Demo Day & Awards	Pitching, judging, medals and US\$5,000 award	Judging Panel
7. Incubation	Select high-potential projects for further development	NeuralVillage / Hub
8. Annualisation	Institutionalise as an annual national programme	Working Committee

26. CONCLUSION

The National Neuroscience Technology Hackathon 2026 is designed to become more than a student competition. It is the first major building block of a Nigerian neurotechnology innovation ecosystem.

Through collaboration among NeuralVillage, the National Mathematical Centre, Theoretical Physics, MathWorks, g.tec Medical Engineering, universities and relevant Federal Government institutions, the programme can establish a sustainable pipeline connecting:

Students → Universities → Research → Technology → Healthcare → Innovation → Startups → National Impact.

The proposed establishment of the Neurotechnology Innovation Hub in Kwali, combined with the launch of the Nigerian Brain Health Data Initiative, provides the programme with a long-term institutional purpose.

ULTIMATE STRATEGIC GOAL:

“From a Hackathon to a National Neurotechnology Innovation Ecosystem.”

27. PROPOSED APPROVAL AND ENDORSEMENT

This document is submitted as a strategic programme framework for institutional review, partnership confirmation, funding mobilisation and implementation planning.

For NeuralVillage Healthcare and Technology Ltd.:

Name: _____ Signature: _____

For National Mathematical Centre (NMC):

Name: _____ Signature: _____

For Strategic Technology Partners:

Name: _____ Signature: _____

Date:

Name: _____ Signature: _____

APPROVAL AND ENDORSEMENT

This report is submitted for institutional review, partnership confirmation, funding mobilisation and implementation planning.

Institution / Partner	Authorised Representative	Signature	Date
NeuralVillage Healthcare and Technology Ltd.		_____	_____
National Mathematical Centre (NMC)		_____	_____
Strategic Technology Partner		_____	_____
Programme Working Committee		_____	_____