



AI for Energy Hackathon & Seminar

Sponsored by **NNPC/CNL JV**





Initiative Summary:

The initiative is an inclusive and Pan-Nigeria learning hackathon and industry seminar focused on solving specific local problems and driving data-driven decision making in the Energy sector with broad-based social and business impact. The event is aimed at building an ecosystem for local talent development and sectoral application in Energy with the broader objective of:

- Increasing employability of young Nigerians through hands-on exposure to data science in a real-world capacity
- Building solution-orientation where theories are applied and deployed
- Enhancing quality of machine learning skill set available in the country, while deepening local content agenda
- To drive real-world application that solves specific business problems whilst finding an intersection between theory and practice.

Theme: AI for Energy - Carbon Reduction

Hackathon focus: Developing Artificial Intelligence Solutions for Carbon Reduction in the Energy Sector.

Background

The energy sector faces pressing challenges and needs to act with urgency. Policy commitments to a net-zero future, such as the Paris Agreement, mean the transformation to a low-carbon economy must come at pace. Major disruption to the electricity sector is on the cards as governments ramp up renewables and transition away from fossil fuels.

As we move into the Fourth Industrial Revolution, grid operators, developers and consumers are harnessing artificial intelligence (AI), paving a path for a smooth transition to greater use of renewables. AI's ability to provide better prediction capabilities is enabling improved demand forecasting and asset management, while its automation capability is driving operational excellence – leading, in turn, to competitive advantage and cost-savings for stakeholders.

Supported by other emerging technologies, such as the internet of things (IoT), sensors, big data and distributed ledger technology, AI can unlock the vast potential of renewables. Failure to embrace it would leave the renewable energy sector falling behind.

Target Audience

Undergraduate and graduate students of Nigerian Universities

Structure/Format of major stages of the initiative:

Activity	Format
Team selection & formation	Virtual
Seminar/Hackathon briefing	Virtual
Hacking/Solution development	Virtual
Mentorship	Virtual
Final pitch event	Hybrid: The physical event will be streamed live. Finalists that cannot travel down will send in a recording of their demo and pitch and will be available online to answer questions from the judges.

Prizes/Rewards

1st prize	N1,500,000
2nd prize	N1,000,000
3rd prize	N500,000

Hackathon Guidelines

Definitions:

"Data Science Nigeria", "NNPC/CNL JV", "we", "our", and "us" refer to project initiators and/or sponsor while "you", "yourself" refers to the Hackathon participant or the parent/legal guardian of any minor or under-aged Hackathon entrant. By entering you agree to be bound by these rules.

Application/Entry periods:

Application for the online hackathon starts on the 23rd of July, 2021 and closes on the 6th of August, 2021 by 11:59 pm West Africa Time (WAT). After the selection of participants, entries for the working prototype/solution opens on the 16th of August, 2021 and closes on the 3rd of September, 2021 by 11:59 pm West Africa Time.

Eligibility:

To participate, you must be an undergraduate or graduate student of a Nigerian tertiary institution with valid proof. You must also be at least 18 years of age or have written consent from a parent or legal guardian.

Participants selection criteria and general conditions:

- Verifiable skill and experience in Artificial Intelligence, Data Science, Data Visualization, Database Management, Front-end development, business development etc. via Kaggle, Zindi, GitHub etc.

- Willingness to work in a team
- Demonstrated experience of taking up similar challenges
- Minimum age of 18. Minors will have to submit legal consent from guardians
- Team's familiarity or understanding of the problem space
- Diversity of the team (members with different skillsets and at least one member with a verifiable understanding of the problem space)

Other key considerations:

- Inclusive talent selection across all the geopolitical zones in Nigeria
- Gender inclusion and opportunity for the physically challenged students

Solution submission requirements:

- A testable prototype with basic UI/UX
- Proper documentation of the solution
- A recorded pitch and demo video

Judging Criteria

- **Relevance:** Does it solve any of the identified problems?
- **Understandability:** Is it easily understood?
- **Value-sensitivity:** Does it align with the values/ethics/morals of its users?
- **Performance:** How well does it solve the problem?
- **Usability:** How easy is it to use?
- **Data Quality:** What is the quality of the data used in building the solution?
- **Reproducibility:** How easy is it to rebuild the solution?
- **Testability:** How easy is it to test the solutions or verify modifications?
- **Changeability:** How easy is it to modify or improve its functionality?
- **Documentation:** Is the solution well documented?

Use of solution entry

By submitting a solution/prototype, you grant us an irrevocable, royalty-free, worldwide right and license to use, review, assess, test and otherwise analyse your Submission and all its content in connection with this project, and use your submission in any media whatsoever now known or later invented for any purpose deemed fit by the project initiators.

Hackathon structure and timeline

- *Application:*

You can apply to be part of the hackathon as an individual or as a team. Each team contains a minimum of 3 members and a maximum of 5 members. Selected individual applicants will be paired to form new teams. The application portal will be opened on the 23rd of July, 2021 and will close on the 6th of August, 2021 by 11:59 pm West Africa Time (WAT).

- *Mandatory live virtual seminar and hackathon briefing session:*

If selected, you will be invited to attend a mandatory live briefing session on the 14th of August 2021, where the hackathon theme and focus will be discussed by experts and more details of the hackathon will be shared. You will also have the opportunity to ask questions to gain more clarity about the challenge.

Note: Any team that fails to attend the briefing session will be automatically disqualified and replaced with another team on the waitlist.

- ***Team – Mentor pairing:***

To provide your team with expert support and guidance through the solution development stage, each team will be assigned a mentor on the 11th of August, 2021. The mentors will be required to play an advisory role throughout your participation in the competition.

- ***Solution development:***

Each team will have a minimum of 3 weeks, from the 16th of August, 2021 to the 3rd of September, 2021 to develop and submit a solution. You are allowed to use any programming language, open-source platform, APIs, design and development tools in the development of a solution.

- ***Change of solution focus:***

You are allowed to change the focus of your solution development should you want to from the start of the hackathon till the 20th of August, 2021.

- ***Solution submission:***

The deadline for solution submission is the 3rd of September, 2021. Each team is required to submit a testable prototype with little or basic UI/UX, proper documentation of the solution and a recorded pitch and demo video

- ***Announcement of finalists:***

After the solution submission rounds, top teams with the highest-ranked solutions will be announced on the 13th of September, 2021 and invited to the final pitch and award ceremony.

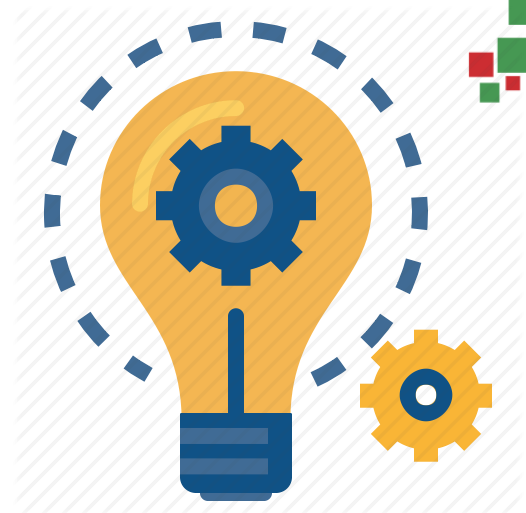
- ***Final pitch and award ceremony:***

Top-ranked teams from the hackathon will be invited to pitch and demonstrate their solutions to a live audience and a panel of judges on the 18th of September, 2021. The top-ranked 3 teams from the hackathon will be awarded cash prizes and rewards.

Expected Outcomes

The following are the expected outcomes of this hackathon:

- ✓ Academic Papers and Posters
- ✓ Proof of Concept & Mockups
- ✓ Analytical Model
- ✓ Software Solutions
- ✓ Hardware Solutions



Helpful Resource Links

The following are some resource links to get you started *(Please note that the resources are only meant to provide guidance):*

Datasets, Solutions and Publications



40 Institutions from across Nigeria



Participating Institutions



South-West

UI, UNILAG, MTU, CU,
FUTA, REDEEMERS,
OAU, OOU, LANDMARK,
FUOYE, LASU,
EKSU, LASPOTEC,
UNIOSUN, AFAUD

North-East

ATBU

North-West

ABU, NDA, BUK,
FUGUS, FUD,
FUDUSTIMA
KASU

North-Central

FUTMINNA, UNILORIN
FULOKOJA
IBB, NOUN
NSUK, NILE

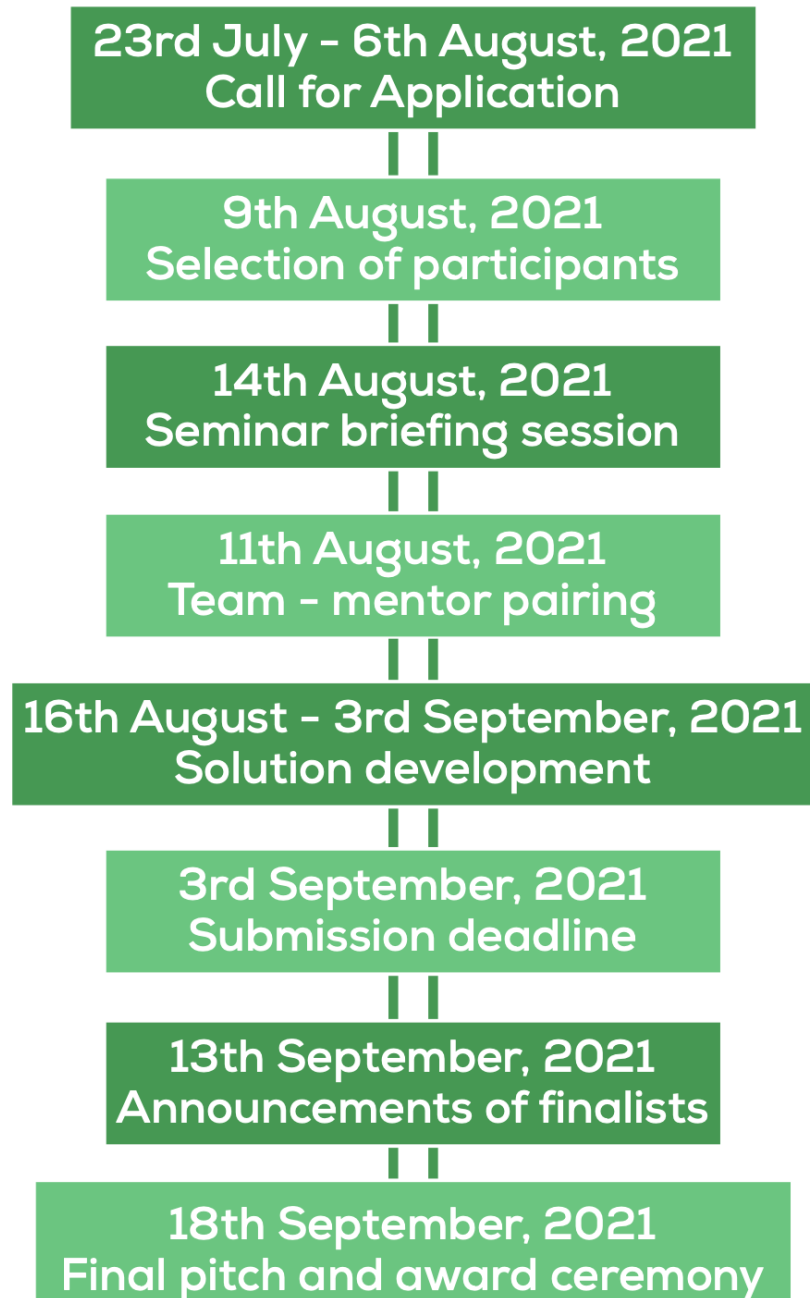
South-South

AAU,
UNIUYO, CRUTECH,
UNIBEN, DELSU
PTI

South-East

FUTO,
ESUT,
UNN, UNIZIK

Timeline



General conditions, terms and release of liability

To the extent allowed by law, by participating in the competition, you agree to release and hold harmless, Data Science Nigeria, and sponsors from and all liability or any injury, loss, or damage of any kind arising in connection with any prize won.

For further enquiries or special request, email:
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