THE WomEngineers JOURNAL

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EMPOWERING WOMEN. ENGINEERING THE FUTURE.

2nd EDITION

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Celebrating Women Who Design, Build, Innovate, and Transform the World.

Engr. Asher V. U. Achile
Engineer, Energy Economist and Sustainability Leader.

Aisha Bowe
Aerospace Engineer, Entrepreneur, and STEM Advocate.

ENGINEERING BEYOND BOUNDARIES:

IDENTITY, IMPACT, AND INFLUENCE

INSPIRE Real stories. Bold ideas.

INNOVATE Emerging tech. Smart solutions.

EMPOWER Careers. Growth. Opportunities.

IMPACT Building today for a better tomorrow.

PEOPLE • INNOVATION • CAREERS • LIFESTYLE • OPPORTUNITIES

WomEngineers
JOURNAL

From the Editor-in-Chief

Engineering Beyond Boundaries:
Identity, Impact, and Influence

Engineering has never been only about structures, systems, or formulas. It is about people—who they are, what they carry, and how they choose to shape the world around them.

In this edition of WomEngineers, we explore engineering as something far deeper than technical ability, We explore it as identity, as lived experience, and as influence.

We ask what it means to belong in spaces where women are still underrepresented, and how resilience becomes a form of innovation in itself.

Together, these narratives form the foundation of this edition: that engineering is not confined to laboratories or construction sites.

It lives in **decisions**, in **leadership**, in **mentorship**, and in the **courage to persist** when the path is unclear.

> *Engineering is not just what we do— it is how we shape the world.*

Our cover feature on Aisha Bowe reminds us that limits are often imagined long before they are real. Her journey across aerospace engineering, entrepreneurship, and space exploration challenges us to rethink what is possible for women in STEM—especially for those who have had to build their own pathways in systems that were not originally designed for them.

Equally, our featured interview with **Engr. Asher Victoria Achile** brings this conversation home. It is a story of transition, persistence, and purpose—one that reflects the complexities of navigating engineering, leadership, identity, and public service in today's world. It is also a reminder that behind every professional title is a human story shaped by choices, challenges, and conviction.

As women in engineering, we are not only participants in systems—we are contributors to their redesign. We bring perspective, depth, and innovation that expand the meaning of what engineering can be.

May this edition inspire you to see **beyond boundaries**, to embrace your **identity** without compromise, and to recognize your **influence** wherever you stand.

Together,

Because engineering is not just what we do—
it is how we **shape the world.**

— Editor,
WomEngineers

FEATURE INTERVIEW

ENGR. ASHER VICTORIA UNEKWU-OJO ACHILE

ENGINEERING, IDENTITY, AND THE JOURNEY FROM PURPOSE TO PUBLIC SERVICE

Can we meet you?

My name is Engr. Asher Victoria Unekwu-Ojo Ebota-Achile. I was born on the 13th of May to Prince JC Ebota and Princess Matilda Ebota (Iye-Oja)

I come from a distinguished heritage rooted in the rich cultural traditions of southern Nigeria. My paternal lineage is connected to the traditional leadership of the historic Benin Kingdom through the family of His Royal Highness Obaga Ebota, the Onu (King) of Illushi (Ozigono) Kingdom in Edo State, whose ancestry traces to Oba Ozolua of Benin. My paternal grandmother, Queen Isolor, was a descendant of the royal house of Uromi through the lineage of His Royal Majesty Okojie Okolo N'Ogbidi, the Onojie of Uromi. In recognition of this heritage, I bear the traditional family name Isolor II of Illushi Kingdom, honoring the legacy and values passed down through my grandmother's lineage.

On my maternal side, I descend from the royal family of Odiala in present-day Oshimili, Delta State. My maternal grandmother, Queen Monica Alor, was a respected member of the

Odiala/Oyedega (Ibaji) royal lineage. Growing up with the values of leadership, service, and community responsibility associated with these traditions has shaped my outlook as an engineer, educator, and advocate for the advancement of women in STEM.

I was born in Kano State but relocated early in life due to crisis. I grew up in Benin City, where I began my primary education, before later moving through different parts of Nigeria for my academic journey.

Can you tell us about your early life and where you grew up?

I started my primary education in Benin City at Ivbiotor Primary School. Later, I moved to Makurdi, where I completed my First School Leaving Certificate and attended secondary school at Our Lady of Mount Carmel College.

My upbringing exposed me to different cultural environments across Nigeria. These transitions shaped my adaptability, discipline, and understanding of diverse communities early in life.
What kind of environment shaped your childhood and thinking?

Growing up, I was deeply influenced by media, community engagement, and leadership exposure.

I was actively involved in television programs such as Speak Out on NTA, where young people discussed social and political issues. I was also part of children's creative programs like the Tortoise Club and Sunday school educational broadcasts all on NTA.

Because of these experiences, I became known as a "television child." I was constantly engaged in discussions about society, governance, and problem-solving spanning from when I was 11 years into

17 years.

In addition, I had early exposure to political environments through close friendships and interactions with families in leadership positions. These experiences shaped my awareness of governance and responsibility from a young age.

What sparked your curiosity in problem-solving or STEM?

Interestingly, my early interest was not initially in science or technology. It was in problem-solving.

Being part of discussion-based television programs taught me how to think critically about societal challenges. We were encouraged to analyze issues, debate solutions, and understand systems.

That foundation later became more important to my engineering mindset than I realized at the time.

What did you want to become when you were younger?

As a child, I did not have a fixed career vision. I simply wanted independence and the ability to build something of my own. If that was a career, then I wanted to be a teacher.

I also had a natural inclination toward teaching from a very young age. Every day after school, I found myself tutoring students who came to our home to prepare for examinations such as WAEC, JAMB, the Common Entrance Examination, and Junior WAEC. My father recognized this passion and established a dedicated classroom in our home, complete with a separate room where I could teach formally. Those early experiences not only strengthened my communication and leadership skills but also nurtured a lifelong passion for helping others learn and grow. Even today, I find great fulfillment in explaining complex ideas and mentoring young people, a trait that has remained a defining part of who I am.

What was your academic and professional journey like?

My academic journey was not linear.

I initially aspired to study medicine at the University of Benin, but my admission path changed. I was instead offered microbiology, which was not my first choice.

To stay aligned with my long-term aspiration of pursuing a career in medicine, I enrolled in Science Laboratory Technology at the Federal Polytechnic, Idah, with the intention of obtaining a diploma that would facilitate direct entry into medical school. My time in Idah proved to be transformative in ways I had not anticipated. Beyond academics, it immersed me in the language, culture, and traditions of the Igala people, providing me with a deeper appreciation of the kingdom's rich heritage.

In later years, I came to understand that some family members had hoped to position

me for a possible future marriage within the royal household of the Idah Kingdom. While this was not known to me at the time and was never the reason for my educational choices, the experience nevertheless broadened my cultural perspective and enriched my understanding of traditional institutions, leadership, and community values—lessons that have continued to influence my personal and professional life.

After my studies in Science Laboratory Technology, I secured an internship with Shell Petroleum Development Company (SPDC). During my time at Shell, I was attached to the Medical. At the hospital I was posted to the Occupational Health Department, where I worked under the supervision of expatriate physician Dr. R. De Valk and Nigerian medical professionals, particularly Dr. Emmanuel Uduaghan, who later became the Governor of Delta State.

The experience proved transformative. Beyond laboratory work, I was

introduced to the fields of occupational health, safety management, environmental stewardship, and health impact assessment. Working alongside seasoned professionals exposed me to the critical relationship between industry, employee well-being, and environmental sustainability. It was during this period that I began to appreciate how science, engineering, health, and environmental management intersect to solve real-world challenges, laying the foundation for my eventual transition into environmental and safety engineering.

Petroleum Training Institute (PTI), Warri, where I eventually specialized in industrial safety and environmental engineering.

That became my first formal entry into engineering.

Later, I transitioned into engineering roles and eventually worked across oil and gas operations, including field-based safety and environmental response functions.

What shaped your entry into engineering?

My entry into engineering was not accidental—it was strategic.

I chose each stage of my education based on what I needed to do, not just what I wanted to study. Engineering became the pathway that allowed me to solve real-world problems.

What challenges did you face in your journey?

One of the challenges I faced was transitioning without a full traditional engineering foundation in civil engineering when I later pursued it at university level.

At the University of Port Harcourt, I had to adjust to structural engineering and other technical areas I had not previously studied deeply.

However, I overcame this through additional study, private learning, and guidance from lecturers and professionals.

What was your first exposure to engineering practice?

My first real exposure was during my youth service at the Department of Petroleum Resources (DPR), working in oil spill response operations.

I was involved in containment and recovery efforts during oil spill incidents in the Niger Delta. This included environmental protection work and field coordination with technical teams.

That experience gave me practical engineering exposure in real operational environments.

What surprised you most about engineering practice?

I discovered that engineering is not only about technical knowledge—it is about decision-making and leadership. Engineers are often required to guide implementation, not just perform physical tasks. That realization reshaped my understanding of responsibility in the field.

What influenced your career direction changes?

I transitioned across engineering, occupational health, banking, and later oil and gas commercial operations.

A major turning point in my career came during my time in the Crude Oil Marketing Division of the Nigerian National Petroleum Corporation (NNPC), when the writing and discussions surrounding the Petroleum Industry Bill (PIB) were shaping the future of Nigeria's energy sector. Working at the intersection of technical operations, commercial negotiations, and regulatory

reforms exposed me to the complex realities of the industry and broadened my understanding of the forces that drive national energy policy.

It was during this period that I realized technical expertise alone was not sufficient for effective leadership at the highest levels. To contribute meaningfully to strategic decision-making, I needed a deeper understanding of commercial frameworks, public policy, governance, and the economics of the energy industry. This realization became a catalyst for expanding my professional development beyond engineering, equipping me with the multidisciplinary perspective required to navigate both the technical and business dimensions of the sector.

This led me to pursue studies in petroleum economics and energy management at the Emerald Energy Institute, University of Port Harcourt, where I obtained a Postgraduate Diploma in Petroleum Economics, Energy, and Law. I subsequently continued in the same institution to earn a Professional Master's degree in Petroleum and Energy Economics, which further expanded my professional scope and strengthened my multidisciplinary expertise in the energy sector.

How do you define your identity as an engineer?

I see myself as a problem-solver committed to building and safeguarding systems that sustain society.

My engineering journey began in civil engineering at the Nigerian National Petroleum Corporation (NNPC), where I worked in the Pipeline Right of Way unit. There, I developed a strong interest in pipeline infrastructure, particularly in ensuring the safety, integrity, and efficiency of oil and gas transport systems.

That experience deepened my

focus on pipeline retrofitting and infrastructure safety, and shaped my broader commitment to engineering solutions that support both operational excellence and environmental responsibility.

What values guide your professional decisions?

What values guide my professional decisions? My work is anchored on three core principles: delivery, quality, and turnaround time. I prioritize timely execution without compromising standards, ensuring that every project is delivered efficiently, safely, and to the highest level of quality. These values continue to shape how I approach engineering challenges and leadership responsibilities.

What are your current goals as an engineer or leader?

I currently serve as a Lead in NNPC Property Management, where my focus is on strengthening asset integrity, governance, and operational efficiency. In addition, I am actively working to operationalize sustainability as a core ESG priority within my scope of responsibility. My goal is to ensure that infrastructure and property assets are managed not only for performance and value, but also with long-term environmental and governance considerations embedded in decision-making.

What problems in engineering or society are you most passionate about solving?

I am particularly passionate about addressing the issue of abandoned oil and gas infrastructure, especially installations that are left without proper decommissioning. These sites pose environmental, safety, and community risks, and represent a long-term liability if not properly managed. I believe this is both an engineering and governance challenge that requires stronger accountability, regulation, and sustainable lifecycle planning.

If you could change one thing

in your industry, what would it be? I would strengthen the integration of sustainability and lifecycle accountability into all phases of oil and gas asset development. Too often, emphasis is placed on production and operations, while end-of-life planning is under-prioritized. Embedding decommissioning, environmental restoration, and ESG compliance from the beginning would significantly improve long-term industry outcomes.

How has your identity shaped your engineering journey?

My identity has shaped my engineering journey by grounding me in resilience, faith, and responsibility. I come from a background where perseverance and integrity are essential values, and these have influenced how I approach work, challenges, and leadership. Rather than seeing obstacles as setbacks, I see them as part of a refining process that builds both competence and character. My identity has also strengthened my determination to continually grow and to prove, through excellence, that value is defined by capability and consistency, not perception.

What were some of the biggest obstacles you faced in your journey?

One of my most difficult professional challenges came from a workplace conflict with a former boss who was later promoted to General Manager. While I was his direct report, he requested that I become his Technical Assistant at a time I was already dealing with serious tension from a previous role, including allegations and misunderstandings involving another former boss's spouse. I respectfully declined the new role, explaining I needed space to stabilize professionally and personally.

Unfortunately, he took it personally, and over time this led to sustained professional hostility. Even years later, I experienced instances where his influence appeared to affect opportunities and career progression.

Yet, that chapter became one of my greatest leadership lessons. It taught me that perception often shapes workplace realities, that communication must be handled with wisdom, and that not every professional relationship will unfold as expected. More importantly, it taught me resilience. Instead of becoming bitter, I focused on strengthening my skills, expanding my knowledge, and continuing to deliver value wherever I was assigned.

I also encountered moments when my professional identity was questioned. One experience that stayed with me occurred when a senior executive looked at me and remarked, "You don't look like an engineer." While the comment may not have been intended negatively, it revealed how strongly stereotypes can influence perceptions. It challenged me to reflect on how people define competence and professionalism. Rather than allowing such perceptions to discourage me, I focused on developing expertise, delivering results, and proving through performance that engineering excellence is not defined by appearance, gender, or background.

Today, I view those challenges not as obstacles that defined me, but as experiences that refined me. They taught me that leadership is not merely about achievement; it is about character, adaptability, and the ability to continue moving forward with purpose despite adversity.

Did you ever experience doubt, rejection, or bias in your field?

Yes. At various points, I have experienced bias and misunderstanding in my professional space. At times, I have felt that I am not always perceived in a way that aligns with my engineering background or capability. This has occasionally led to feelings of being overlooked. These experiences have strengthened my desire to grow academically and professionally, including pursuing further qualifications that reinforce my expertise and

credibility.

How did you handle moments of self-doubt or pressure?

I draw strength from my Catholic faith and Lay Apostolate practice. In moments of pressure or self-doubt, I rely on reflection, prayer, and spiritual grounding. I also seek counsel within my church community, which helps me regain clarity, balance, and emotional strength.

What kept you going during difficult periods? My faith has been my anchor. I hold firmly to the belief that "He who called me is faithful" and that my journey is guided by purpose. This conviction reassures me that I am not walking alone and that my path has meaning beyond immediate challenges.

What lesson did failure teach you that success could not?

Failure has taught me that lasting success is often built-in seasons of difficulty rather than ease. It has shown me that setbacks can be redirection tools, helping align me with my true purpose rather than personal expectations. In hindsight, some of my most difficult moments became turning points that shaped my resilience, character, and clarity of direction.

What should they expect that most people don't tell them?

They should expect that competence alone is not always immediately recognized, especially in male-dominated environments. At times, they may need to work harder to be heard, and their ideas may be questioned more rigorously. However, consistency, excellence, and professionalism eventually establish credibility that cannot be ignored. It is also important to understand that workplace culture varies, and not every environment will be supportive—but the right environments will recognize and value merit.

How can young women build confidence in male-dominated fields?

Confidence is built through preparation and evidence of capability. When you are technically sound and consistently deliver results, confidence becomes natural rather than forced. It also helps to seek mentors, build supportive networks, and surround yourself with people who reinforce growth rather than doubt. Most importantly, confidence grows when you stop seeking permission to belong and instead

focus on contributing value.

What message would you want every young girl reading this magazine to hear?

You are not limited by the expectations placed on you. Your potential is not defined by your environment, your gender, or early challenges. With discipline, education, and resilience, you can build a meaningful and impactful career in STEM. Stay focused, stay grounded, and do not allow temporary obstacles to define your long-term identity. Your voice, your ideas, and your contribution matter.

How do you balance personal life and work?

I maintain balance in my professional and personal life through structure, prioritization, and faith. These principles help me stay focused, grounded, and intentional in my decisions.

I am married with children, and I also set clear boundaries to protect my well-being and effectiveness. For instance, I reserve weekends for family and personal grounding, which allows me to recharge emotionally and mentally. I also make a conscious effort to take leave during school holidays, ensuring that I remain present in family life while sustaining long-term productivity and balance.

What motivates you beyond career success?

Purpose, impact, and service. I am driven by the desire to improve systems, contribute to society, and leave environments better than I met them.

What lesson did you learn which you didn't sought but appreciated?

One of the most important lessons I learned in my professional journey came from an experience that had nothing to do with engineering calculations or technical expertise.

As a practicing Catholic, my faith has always been an important part of my life. Mid in my career,

I used a blessed salt—a common Catholic sacramental—as part of a personal devotional practice. What I viewed as a harmless expression of faith was misunderstood by some colleagues, creating assumptions and perceptions that were completely different from my intentions.

The experience was deeply instructive. It taught me that in professional environments, perception can sometimes carry as much weight as reality. While our intentions may be positive, people often interpret actions through the lens of their own experiences, beliefs, and assumptions.

For me, that moment became a turning point. I learned the importance of contextual awareness, professional boundaries, and understanding how personal practices may be perceived in diverse workplace settings. It also reinforced the need to communicate clearly and to appreciate that not everyone shares the same cultural or religious understanding.

Rather than allowing the experience to discourage me, I used it as an opportunity for growth. It helped me become more intentional in balancing personal convictions with professional expectations. It also strengthened my appreciation for diversity, inclusion, and mutual respect in the workplace.

Today, I often say that the incident taught me one of the most valuable leadership lessons of my career: perception cannot be ignored. As leaders and professionals, we must not only consider what we intend to communicate but also how our actions may be understood by others. That awareness has made me a more thoughtful leader, a better communicator, and a more effective professional.

What legacy do you hope to leave behind?

I hope to leave behind a legacy of responsible leadership—one that bridges technical excellence with

public accountability and ethical stewardship. My goal is to be remembered as someone who contributed to stronger systems, improved environmental responsibility in the energy sector, and helped develop people and institutions that continue to create lasting impact beyond my direct service.

What societal impact have you made as an engineer?

As an alumna of the Women and Power: Leadership in a New World Executive Program at the Harvard Kennedy School of Government, Boston, I have come to appreciate that engineering extends beyond technical problem-solving; it is also about creating opportunities, empowering communities, and developing future leaders. Consequently, many of my societal projects are anchored on advancing STEM education and nurturing the next generation of innovators across Africa.

One of the societal contributions I am most proud of is founding the Africana STEMA Initiative, a platform dedicated to inspiring young innovators, engineers, scientists, and problem-solvers throughout the continent. Held annually during Juneteenth Week, the initiative provides hands-on STEM experiences through robotics, engineering design challenges, space simulations, innovation projects, and technology-driven learning activities. Our objective is to make Science, Technology, Engineering, Arts, and Mathematics (STEMA) accessible, engaging, and relevant to African youth.

A key component of the initiative is GIST (Girls in STEM TechnoQuodrum), a customized program designed to encourage and empower young girls to pursue STEM careers through competitions, mentorship, leadership development, and practical exposure to emerging technologies. Through GIST, we are helping to bridge the gender gap in STEM by creating pathways for girls to discover their potential and confidently pursue careers in engineering, science, and technology.

Building on this foundation, we are also working toward establishing the Howard STEM Museum, envisioned as a landmark center for STEM education, innovation, and inspiration in Africa. The museum will serve as an interactive learning hub where young people can explore science and engineering through immersive experiences while celebrating African contributions to technological advancement and innovation.

Beyond these initiatives, I continue to advocate for STEM education, technical skills development, innovation, sustainability, and leadership opportunities for young people, particularly girls and underserved communities. Through these efforts, I hope to contribute to raising a generation of African innovators, engineers, and entrepreneurs who will not merely participate in the future but actively shape it.

Where do you see yourself in the next 5–10 years?

In the next 5 years, I see myself expanding my leadership impact beyond technical and operational roles into broader public service, where I can contribute more directly to policy and societal development, ideally as a Senator.

In the next 10 years, my aspiration is to serve at the level of Governor within my state, where I can help shape development outcomes, strengthen institutions, and contribute to sustainable growth. My progression path is driven by a desire to scale impact from operational leadership to strategic public service.

What are your hobbies?

My hobbies include playing golf and chess, which help me stay mentally engaged and strategically focused. I also take time to relax and recharge through spa treatments and

massages, and I enjoy quiet moments of reflection with a glass of wine. In addition, I enjoy writing, which allows me to express my thoughts, document experiences, and reflect on my personal and professional journey.

What else do you want us to know about you?

I am also a creative writer, a talent I have nurtured since childhood. My passion for education and storytelling has shaped much of my personal and professional journey.

I authored a Catholic teen daily devotional titled Christ's Eaglets, published between 2009 and 2017, with over 100 editions published and more than 1,000,000 copies circulated. I also created a biographical children's and teens series, Who Was / Who Is, comprising 70 editions published through the National Library of Nigeria.

Beyond books, I have written two movie scripts: Born of the Python, reviewed by Hollywood script editor Jacob Kruger, who described it as "the next Godfather," and Maidens of Raphael, which was reviewed by veteran actor Pete Edochie, who called it a masterpiece. Both works are currently awaiting production funding.

I continue to write across genres, including contributions to initiatives such as the WomEngineers magazine, reflecting my commitment to education, storytelling, and amplifying voices in STEM and society.

If you had to summarize your journey in one sentence?

My journey is a continuous process of resilience, growth, and purpose-driven leadership—turning challenges into clarity and experience into impact.

Final Word to Young Engineers

Success in engineering is not just employment or financial gain. It is the ability to design solutions, create systems, and solve real problems that improve society.

True engineering is thinking, rethinking, and rebuilding what already exists.

The Professional Edge

STRATEGY, STANDARDS & ADVOCACY IN THE WORKPLACE

Perception vs Competence

What Women Engineers Face in the Workplace

In engineering, competence is supposed to be the ultimate currency—measured by skill, precision, and the ability to solve complex problems. Yet, for many women engineers, another invisible metric often competes with competence: perception.

Perception is how others interpret who you are before your work is fully seen or understood. It is shaped by appearance, gender, communication style, cultural expectations, and long-standing stereotypes about what an "engineer" should look or sound like. For women in engineering, this often creates a silent tension between being qualified and being accepted as qualified.

Many women engineers experience this early in their careers—walking into technical spaces where their abilities are assumed to be secondary, or where they must repeatedly validate their presence. A comment like "you don't look like an engineer" may appear casual, but it reflects a deeper structural bias about identity and expertise. It shifts the burden from performance to proof of belonging.

Competence, on the other hand, is earned through training, discipline, and execution. It is measurable. It is demonstrated through projects delivered, systems designed, problems solved, and risks managed. But unlike competence, perception is not always rational—it is shaped by bias, familiarity, and social conditioning.

The challenge for many women in engineering is not lack of ability, but the constant need to align how they are perceived with what they are capable of delivering. This dual expectation can create additional emotional and professional pressure, where excellence alone is sometimes not enough to shift initial assumptions.

However, over time, competence has a way of redefining perception. Consistent performance, technical mastery, and leadership eventually reshape how individuals are viewed within teams and organizations. Many women engineers discover that while they cannot control first impressions, they can influence long-term credibility through sustained excellence.

There is also a growing shift within the global engineering community. Organizations are beginning to recognize that diversity is not symbolic—it is structural. Different perspectives improve design outcomes, reduce blind spots, and enhance innovation. As a result, competence is increasingly being recognized not as a singular standard, but as something strengthened by inclusion.

Still, the responsibility does not rest solely on individuals. Workplaces must evolve beyond outdated assumptions and create environments where competence is recognized without bias. This includes mentorship structures, inclusive leadership, and intentional efforts to dismantle stereotypes that limit participation.

For women engineers, the journey often becomes one of quiet resilience—navigating perception while continually proving competence. But it is also a journey of transformation: redefining what engineering leadership looks like, and expanding the boundaries of who is seen as capable.

Ultimately, engineering is not shaped by perception—it is shaped by results. And results, when sustained, have a way of rewriting every assumption that came before them.

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Spotlight
Nneka Okekearu

Civil Engineering & Infrastructure Leadership (Nigeria)

ENGINEER. INNOVATOR. LEADER. SYSTEMS BUILDER.

Nneka Okekearu is a Nigerian civil engineer and innovation leader focused on infrastructure development, enterprise support, and engineering-driven entrepreneurship ecosystems.

She is the Director General of the **Fate Foundation**, where she supports innovation, entrepreneurship, and capacity building across Nigeria.

- Her work **bridges engineering thinking** with national development strategy, particularly in strengthening systems that enable young professionals to build sustainable careers in technical fields.
- She represents a generation of engineers who have expanded beyond traditional design roles into **policy, innovation, and institutional development**.
- She is widely recognized for promoting **structured problem-solving** approaches in business and engineering systems, emphasizing that **infrastructure is not only physical but also institutional**.

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> *"Engineering is about systems—if the system works, the society works."*

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Through the **Fate Foundation**, Nneka Okekearu continues to build ecosystems that inspire innovation, empower enterprises, and strengthen the future of Nigeria.

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Spotlight
Ndidi Nwuneli

INNOVATION, ENTREPRENEURSHIP & SYSTEMS LEADERSHIP (NIGERIA)

Ndidi Nwuneli is a Nigerian entrepreneur, social innovator, and ecosystem leader working at the intersection of innovation, entrepreneurship, and sustainable development across Africa. She is widely recognized for her work in strengthening enterprise ecosystems, supporting youth innovation, and building platforms that enable scalable social and economic impact.

As the founder and leader of several development-focused initiatives, Ndidi has consistently focused on empowering African entrepreneurs to build sustainable, high-impact businesses. Her work spans agriculture, nutrition, youth development, and innovation systems, reflecting a deep commitment to solving structural challenges through enterprise-driven solutions.

She is also a strong advocate for ecosystem thinking—where innovation is not isolated but supported by policy, investment, education, and leadership structures that allow ideas to grow into scalable solutions. Through her work, she has helped shape conversations around how Africa can move from consumption-based systems to production- and innovation-led economies.

Ndidi represents a generation of African women leaders who operate beyond traditional sector boundaries, combining business leadership with social impact and systems reform. Her influence extends across global development institutions, entrepreneurship networks, and policy platforms.

- **Strengthening enterprise ecosystems** to enable innovative, high-impact and scalable solutions.
- **Empowering African entrepreneurs** across agriculture, nutrition, youth development, and innovation systems.
- **Advocating for ecosystem thinking** that drives policy, investment, education, and leadership for sustainable impact.

> *"Africa's future will be defined not by resources alone, but by the strength of the systems we build to unlock human potential."*

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Ndidi Nwuneli

WEBSITE
https://www.ndidinwuneli.com

From community college classrooms to NASA control rooms and now the emerging frontier of commercial spaceflight, Aisha Bowe's story is one of deliberate boundary-breaking. A former aerospace engineer at NASA, entrepreneur, and STEM advocate, she represents a new generation of women who are not only entering STEM fields but actively reshaping who gets to participate in them.
Her journey reflects a consistent theme: success is rarely linear, and often begins with unlearning limitations.

From Uncertainty to Aerospace Engineering

Aisha Bowe has often spoken about not having a clear direction in her early academic years. Like many students navigating identity and ambition, she initially focused on stability rather than passion. That changed when she discovered a strength in mathematics during a pre-algebra class—an experience that reshaped her academic confidence and ultimately her career path.

That turning point led her to pursue aerospace engineering at the University of Michigan, one of the leading institutions in the field. She has described this period as one where she had to actively confront self-doubt and impostor syndrome while working toward a profession she once believed was out of reach.

What followed was a successful tenure at NASA, where she worked as an aerospace engineer for six years, gaining exposure to advanced aerospace systems, mission design environments, and the broader ecosystem of space exploration.

Life at NASA and the Power of Representation

During her time at NASA, Bowe immersed herself in learning opportunities, leadership programs, and mentorship experiences. She became deeply aware that technical excellence alone was not enough—representation mattered just as much.

She often reflects that being one of few Black women in aerospace engineering spaces shaped her awareness of visibility and access. Her experience eventually led her to a larger realization: technical achievement alone was not her final destination; impact was.

Volunteering in schools became a turning point. Speaking to students who had never met an engineer before made her realize that storytelling itself could be a tool for transformation. Many of those students stayed in touch and pursued engineering pathways, reinforcing her belief that exposure changes outcomes.

Breaking Away to Build Something Bigger

Despite a fulfilling career at NASA, Bowe eventually reached a point of transition. She has described it as a gradual realization that her influence could extend beyond institutional systems.

A pivotal moment came during a STEM conference conversation that reframed her entire trajectory: instead of launching a nonprofit, she was encouraged to build a company based on her expertise and scale her impact through entrepreneurship.

That insight led to the creation of STEMBoard, an engineering and technology company serving government and enterprise clients. Starting with limited resources and no venture capital backing, she built the company through contracts and service delivery, focusing on sustainable growth and reinvestment.

Today, STEMBoard is recognized among fast-growing companies in the United States and has contributed significantly to STEM education initiatives.

Expanding Impact Through Education: LINGO

From STEMBoard's early education outreach efforts emerged LINGO, an education technology company focused on making engineering concepts accessible to young learners.

The company's coding kits, developed in alignment with learning standards, have reached thousands of homes and schools and are now used in multiple countries. These tools are designed to introduce learners to computational thinking and engineering fundamentals in a hands-on way.

Bowe has consistently emphasized that STEM is not just about producing engineers—it is about democratizing access to problem-solving skills that shape the future of work.

Space, Purpose, and the Future of Exploration

Beyond entrepreneurship, Bowe remains closely connected to the aerospace sector. She is part of the growing movement of commercial space participants helping redefine who gets to experience space.

She describes space exploration as both a scientific frontier and a source of perspective—one that reveals how much remains unknown about the universe, from planetary systems to the possibility of life beyond Earth.

At the same time, she highlights the tangible benefits of space science on Earth, including satellite systems, climate monitoring technologies, and innovations that have improved daily life.

Her upcoming participation in Blue Origin's New Shepard program marks another milestone in her evolving journey—one that connects technical expertise, representation, and public inspiration.

Mentorship, Identity, and Becoming the Role Model

A recurring theme in Bowe's reflections is mentorship—not just receiving it, but becoming it. Without a single defined role model early in her journey, she chose instead to build her identity from multiple influences.

She often describes mentorship as a "personal board of advisors," made up of people who reflect different aspects of growth, experience, and leadership. This philosophy has guided how she supports others in her career.

She also emphasizes that visibility matters. In a world shaped by social media and global connectivity, she encourages professionals—especially women—to share their journeys more openly, as someone is always watching and drawing inspiration.

Innovation, Intellectual Property, and Building Sustainable Companies

As an entrepreneur, Bowe has also spoken about the importance of intellectual property in protecting innovation. From trademarks to copyrights, she underscores that safeguarding ideas is essential for long-term competitiveness.

For her, IP is not just legal protection—it is strategic infrastructure. It enables small businesses to scale, attract investment, and maintain control over their innovations.

Diversity as a Driver of Innovation

Across her work in engineering and entrepreneurship, Bowe consistently returns to a central belief: diversity improves outcomes.

She argues that innovation is strongest when multiple

perspectives are included in design and decision-making processes. In her view, diversity is not symbolic—it is functional. It introduces new perspectives to longstanding challenges and ensures solutions are more inclusive and effective.

Legacy and What Comes Next

Looking ahead, Bowe's mission continues to expand across education, entrepreneurship, and global STEM advocacy. She has expressed interest in writing, mentorship expansion, and creating long-term educational opportunities for underrepresented students in engineering.

At the core of her vision is a simple but powerful idea: people should not be limited by what they have seen before.

Her story is ultimately not just about space travel or engineering achievement—it is about rewriting assumptions of who belongs in those spaces in the first place.

Perspective

Aisha Bowe's journey reflects a broader shift in STEM: from exclusive pathways to expanding ecosystems of participation. Her work bridges engineering, entrepreneurship, and education, demonstrating that technical expertise and social impact are not separate tracks—but deeply connected ones.

In redefining her own limits, she is helping redefine the boundaries for an entire generation.

QUOTES BY AISHA BOWE

"Don't put limits on what you think you can achieve! When you accomplish something, set goals to go even further."

"I feel excited, honored and thrilled to be able to play a role in space history."

"The unknown."

"The more we explore space, the more we realize how little we know about our universe."

"The benefits of space exploration to life on Earth are amazing."

"I had to combat impostor syndrome the whole way, but I did it."

"Growing up, I didn't have a role model. I decided to become the role model that I wished for."

"I encourage everyone, especially women, to share their career experiences on social media and to feel more comfortable being public about who they are, and what they've accomplished."

"STEM is a democratizer."

"I could not have done that, if I had agreed to stay at NASA."

"It was a rich six years."

"Your reality becomes your perception. And so, the things that I focused on changed."

"It was incremental, but it was progress."

"I started to realize that how I viewed myself mattered."

"There's a pain people don't talk about when you're living your dream and realize it's not going to be enough."

"Diversity is also about bringing new eyes to an old problem."

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EMPOWERING WOMEN. ENGINEERING THE FUTURE.

Spotlight

Dr. Ibukun Awosika

Engineering, Entrepreneurship & Systems Leadership (Nigeria)

ENGINEER. ENTREPRENEUR. LEADER. SYSTEMS THINKER.

Dr. Ibukun Awosika is a Nigerian business leader, mechanical engineering graduate, and former Chairman of First Bank of Nigeria. While widely known for business leadership, her foundation is in industrial chemistry and engineering thinking applied to systems, manufacturing, and enterprise structure.

She represents the transition of engineering thinking into leadership, governance, and enterprise systems.

Her journey is widely cited as an example of how engineers can influence not only technical spaces but also economic and institutional development.

- Mechanical engineer with a strong foundation in industrial chemistry and engineering thinking applied to systems and manufacturing.
- Former Chairman of First Bank of Nigeria, where she championed governance excellence, institutional strength, and customer trust.
- Founder of The Chair Centre Group, driving furniture manufacturing, training, and enterprise development across Africa.
- Advocate for enterprise systems, leadership development, and sustainable economic growth.
- A role model for engineers transitioning into leadership, governance, and nation-building.

SYSTEMS THINKER
Applies engineering discipline to build scalable, sustainable enterprises.

ENTERPRISE BUILDER
Founded and scaled businesses that create value and employment.

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Strengthened institutional governance and risk management.

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NATION BUILDER
Committed to economic development and social impact.

> *"Leadership is about taking responsibility for systems you did not create, and improving them."*

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EMPOWERING WOMEN. ENGINEERINS THE FUTURE.

Spotlight

Dr. Uduakobong Inam

Petroleum Engineering (Energy Sector, Shell Nigerian Petroleum)

ENGINEER. INNOVATOR. LEADER. ENERGY SOLUTIONS EXPERT.

Dr. Uduakobong Inam is a Nigerian petroleum engineer and energy systems professional with experience in upstream oil and gas operations.

She is known for her work in reservoir engineering, production optimization, and technical leadership within the energy sector.

She represents women engineers working in highly technical and traditionally male-dominated spaces such as oil and gas exploration and production.

- Her career reflects the importance of technical excellence, continuous learning, and operational discipline in the energy industry.
- Women like her are increasingly shaping how energy systems are managed, optimized, and transitioned toward more sustainable frameworks.
- She is committed to driving operational efficiency, mentoring professionals, and advancing excellence in Nigeria's energy landscape and beyond.

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Delivering high-impact engineering solutions in upstream oil and gas operations.

RESERVOIR EXPERTISE
Specialized in reservoir engineering, modeling, and production optimization.

LEADERSHIP IMPACT
Leading technical teams and driving operational excellence in the energy sector.

ENERGY TRANSITION
Supporting smarter, cleaner, and more sustainable energy systems.

> *"Technical excellence is not gendered—it is disciplined, learned, and proven."*

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SUSTAINABILITY

Environmental Engineering Trends: *Shaping a Sustainable Future*

Environmental engineering is rapidly evolving from a support discipline into one of the most critical fields in global development. As climate change intensifies, urban populations expand, and industrial systems become more complex, engineers are being called to design solutions that protect both people and the planet.

Today's environmental engineering is no longer limited to waste management or pollution control. It has expanded into a multidisciplinary field that integrates climate science, data analytics, renewable energy systems, circular economy principles, and sustainable infrastructure design.

1. Climate-Resilient Infrastructure

One of the most important shifts in environmental engineering is the move toward climate-resilient design. Engineers are now required to design roads, drainage systems, buildings, and coastal infrastructure that can withstand extreme weather events such as flooding, heatwaves, and erosion.

This trend is particularly relevant in regions like West Africa, where rapid urbanization and climate variability are increasing infrastructure vulnerability. The focus is no longer just durability, but adaptability.

2. Circular Economy Engineering

Environmental engineers are increasingly adopting circular economy principles, where waste is not seen as an endpoint but as a resource. This includes:

- Recycling industrial materials
- Converting waste to energy
- Designing products for reuse and regeneration

This shift is redefining traditional engineering systems and encouraging industries to minimize environmental impact from the design stage.

3. Water Resource Innovation

Water scarcity and contamination are driving innovation in water treatment and management systems. Emerging trends include:

- Smart water monitoring systems using sensors and AI
- Decentralized water treatment units for rural communities
- Advanced filtration and desalination technologies

These solutions are critical for improving access to safe water in both urban and rural environments.

4. Carbon Management and Net-Zero Engineering

A major global focus is now carbon reduction. Environmental engineers are actively involved in:

- Carbon capture and storage technologies
- Emissions tracking and reporting systems
- Designing net-zero buildings and industrial systems

Companies and governments are increasingly setting net-zero targets, making carbon management a core engineering responsibility.

5. Environmental Data and AI Integration

Digital transformation is reshaping environmental engineering. Artificial intelligence, remote sensing, and big data analytics are now used to:

- Predict environmental risks
- Monitor pollution levels in real time
- Optimize energy and resource consumption

This integration of data science with environmental engineering is creating more precise and proactive environmental solutions.

6. Sustainable Energy Systems

The transition from fossil fuels to renewable energy remains one of the most significant engineering trends globally. Environmental engineers are working on:

- Solar and wind energy integration
- Energy storage systems
- Microgrid development for remote communities

This shift is not only technical but also economic and political, requiring cross-sector collaboration.

Conclusion

Environmental engineering today sits at the center of global survival and innovation. It is no longer a niche discipline—it is a foundational pillar of modern development.

For women engineers, this field presents not only technical opportunity but also leadership potential. It is a space where innovation meets responsibility, and where engineering decisions directly shape the future of communities and ecosystems.

As the world moves toward sustainability, environmental engineers will not only respond to change—they will design it.

Women Engineers Leading Africa's Energy Transition

Africa's energy transition is one of the most critical development shifts of the 21st century. As the continent balances rapid population growth, industrial expansion, and climate responsibility, engineers are at the center of designing systems that are not only energy-efficient but also sustainable, inclusive, and future-ready.

Within this transformation, women engineers are emerging as quiet but powerful leaders—reshaping how energy is produced, managed, and delivered across the continent.

A Transition Beyond Technology

The energy transition is often discussed in terms of solar panels, wind turbines, hydrogen systems, and carbon capture technologies. But in reality, it is also a transition of leadership, thinking, and inclusion.

Women engineers are increasingly playing a key role in:

- Power systems design and grid modernization
- Renewable energy integration
- Oil and gas decarbonization strategies
- Environmental compliance and ESG systems
- Energy policy and infrastructure planning

Their contribution is not limited to technical execution—it extends to systems thinking, sustainability leadership, and long-term impact design.

Engineering at the Intersection of Energy and Sustainability

Across Africa, engineers are rethinking how energy systems are built and maintained. This includes designing hybrid systems that combine traditional energy sources with renewables, improving efficiency in existing infrastructure, and developing decentralized energy solutions for underserved communities.

Women engineers are particularly visible in:

- Solar mini-grid development in rural communities
- Environmental impact assessment and mitigation planning
- Energy efficiency audits in industrial systems
- Research in low-carbon fuels and cleaner production methods

Their work reflects a growing recognition that energy access and sustainability must evolve together.

Breaking Structural Barriers in a Male-Dominated Sector

Despite progress, the energy and engineering sectors remain largely male-dominated. Women engineers often navigate additional layers of challenge, including limited representation in leadership, unconscious bias, and restricted access to decision-making roles.

Yet, their presence is steadily reshaping the industry culture.

Many women in energy engineering have demonstrated that technical competence, consistency, and leadership excellence are not defined by gender. Instead, they are defined by capability, discipline, and impact.

With each project delivered and each system improved, they are expanding what leadership in engineering looks like across Africa.

The Rise of Systems Thinking in Energy Leadership

One of the most significant contributions women engineers are bringing to the energy transition is systems thinking—the ability to see energy not as isolated infrastructure, but as a connected ecosystem involving policy, environment, communities, and economics.

This approach is critical in Africa, where energy challenges are deeply interconnected with development needs.

Women engineers are helping to bridge gaps between:

- Technical engineering and environmental sustainability
- Industry operations and community impact
- Policy frameworks and on-the-ground implementation

This integrated thinking is essential for building resilient and future-proof energy systems.

From Oil and Gas to a Diversified Energy Future

Africa's energy landscape is transitioning from heavy reliance on oil and gas toward diversified energy systems. This shift does not eliminate traditional energy sectors but redefines them.

Women engineers are contributing to:

- Decarbonization of oil and gas operations
- Carbon capture and emissions reduction projects
- Renewable energy expansion and grid integration
- Asset decommissioning and environmental restoration

Their role ensures that the transition is not only technologically sound but also environmentally responsible.

Inspiration for the Next Generation

Perhaps the most powerful impact of women engineers in Africa's energy transition is their influence on the next generation. Through mentorship, education, and visibility, they are showing young girls that engineering is not only accessible—it is transformative.

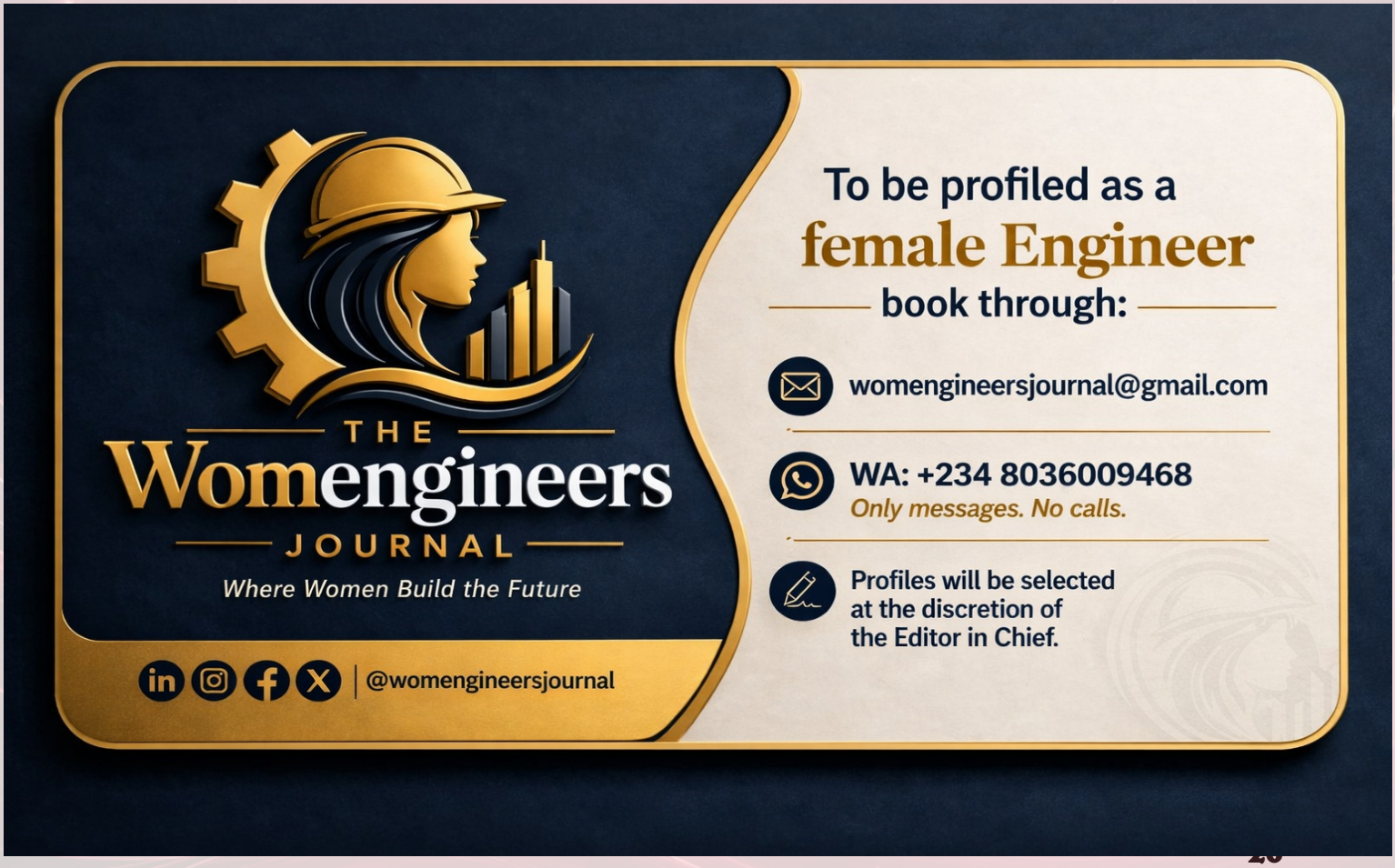
Their presence in boardrooms, field operations, research labs, and policy spaces is redefining what is possible.

Conclusion

The energy transition in Africa is not only about replacing fuels—it is about redefining systems, leadership, and opportunity.

Women engineers are not just participating in this transformation. They are actively shaping it.

Through resilience, expertise, and vision, they are proving that the future of energy in Africa will be built not by a single voice, but by diverse minds working together to engineer a more sustainable world.



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Maiduguri 2026

Theme:

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CAREER LAB

Engineering the Future We Want to See

Every story in this edition carries a common thread—resilience, identity, and the courage to pursue excellence in spaces that are still evolving. From the global inspiration of Aisha Bowe to the lived realities of women engineers shaping systems, policies, and infrastructure, one truth stands clear: engineering is not just a profession, it is a form of impact.

Women in STEM are not waiting for permission to belong. They are building, designing, innovating, and leading in ways that are redefining industries and expanding the boundaries of possibility. Yet, the journey is far from complete. There are still barriers to break, perceptions to challenge, and systems to improve.

This is why WomEngineers exists—not only to tell stories, but to shape a movement.

To every young girl wondering if she belongs in engineering, the answer is yes. You belong in the room where solutions are designed. You belong in the teams that build infrastructure, develop energy systems, write code, and shape policy. Your voice is not secondary—it is necessary.

To every woman already in STEM, your journey is more than personal achievement. It is a blueprint for others. Your consistency, your excellence, and your courage are opening doors that may never close again.

Call to Action

Step into STEM with confidence, not hesitation.
Seek knowledge relentlessly and build strong technical foundations.
Find mentors—and become one.
Document your journey so others can learn from it.
Use your skills not only to succeed, but to solve real problems in society.
Support other women in engineering, because no one rises alone.

The future of engineering in Africa will not be defined by limitation, but by collaboration, innovation, and inclusion. And women are not just part of that future—they are central to it.

As we close this edition, we leave you with a simple reminder:

You are not too early. You are not too late. You are exactly where you need to be to begin shaping the future.


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WomEngineers is more than a publication. It is a movement, and a mirror reflecting what is already happening:
women are **not** entering engineering to be included —they are entering to *lead*, to *build*, and to *transform*.

And as this edition closes, one truth remains:

The future of engineering is already here.

It is just becoming visible

WomEngineers JOURNAL

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