AXION
ENGINEERING SOLUTIONS

COMPANY PROFILE



ICT & Renewable Energy
Engineering Solutions

Networks, data centres, cloud, enterprise systems, solar power and energy storage

AXION ENGINEERING SOLUTIONS

DESIGN / INTEGRATION / OPERATIONS

Capabilities & services

Axion Engineering Solutions provides engineering, integration and operational support across ICT and renewable energy for businesses and public institutions. We connect infrastructure, applications and energy systems around the way each site operates.

COMPANY & ICT SOLUTIONS

03 **CEO Message, Mission & Values**
Leadership, purpose and principles.

04 **Leadership Structure**
Executive roles and functional portfolios.

05 **Data Centres & Systems Infrastructure**
Server rooms, compute, storage and virtualisation.

06 **Network Engineering**
Fibre, Wi-Fi, branch connectivity, VoIP and IP CCTV.

07 **Cloud Engineering & Cybersecurity**
Hosting architecture, identity, protection and recovery.

08 **Data Engineering**
Data pipelines, reporting, governance and private AI.

09 **ERP Systems & Integration**
Business modules, workflows, migration and adoption.

10 **Managed IT & Cloud Operations**
Support, monitoring and recurring service plans.

RENEWABLE ENERGY & PROJECT DELIVERY

11 **Sector Solutions**
Digital government, infrastructure and industry.

12 **Renewable energy technologies**
Solar, wind, hydro, bioenergy, geothermal and ocean energy.

13 **Wind, Small Hydro & Bioenergy Solutions**
Resource studies, technology selection and integration.

14 **Storage, microgrids & grid integration**
Battery storage, hybrid systems, protection and controls.

15 **Renewable energy at every scale**
Buildings, agriculture, industry, communities and utilities.

16 **Solar public infrastructure**
Solar street lighting, traffic signals and public-space systems.

17 **Renewable Energy Engineering & Lifecycle Services**
Design, testing and maintenance.

18 **Contact**
Email, telephone and office address.

HOW WE WORK

We agree requirements and acceptance criteria, design the solution, validate it in the client environment and document how it will be operated.

Message from the CEO

A practical commitment to engineering, dependable delivery and client partnership.

A NOTE TO OUR CLIENTS

At Axion Engineering Solutions, we bring technology and energy together to help organisations operate with confidence. Our work spans ICT and digital infrastructure, cloud and cybersecurity, enterprise systems, and renewable energy solutions—from solar power and energy storage to integrated systems designed around each client's needs.

We begin by understanding your priorities, then develop practical solutions with clear scope, sound engineering, and open communication. We value every client's trust and remain committed to dependable delivery and support throughout the project lifecycle.

Chief Executive Officer

Mission

Design and integrate reliable digital infrastructure and renewable energy systems that help organisations operate securely and maintain critical services.

Vision

To be a trusted engineering partner for organisations in Sudan, helping them build resilient digital infrastructure and make better use of renewable energy.

OUR VALUES

Technical rigour

Base design decisions on site data, measurable requirements and documented tests.

Safety & responsibility

Consider electrical safety, cybersecurity and operational risks from design through handover.

Integrity

Communicate scope, assumptions and responsibilities clearly. Raise issues early.

Client partnership

Design with the people who will operate the system and share the knowledge they need to support it.

Leadership Structure

A concise leadership pyramid with clear executive portfolios and independent assurance.

Chief Executive Officer

CEO / STRATEGY & GOVERNANCE

EXECUTIVE LEADERSHIP / FOUR DIRECT REPORTS

CTO	COO	CCO	CFO
Chief Technology Officer	Chief Operating Officer	Chief Commercial Officer	Chief Financial Officer

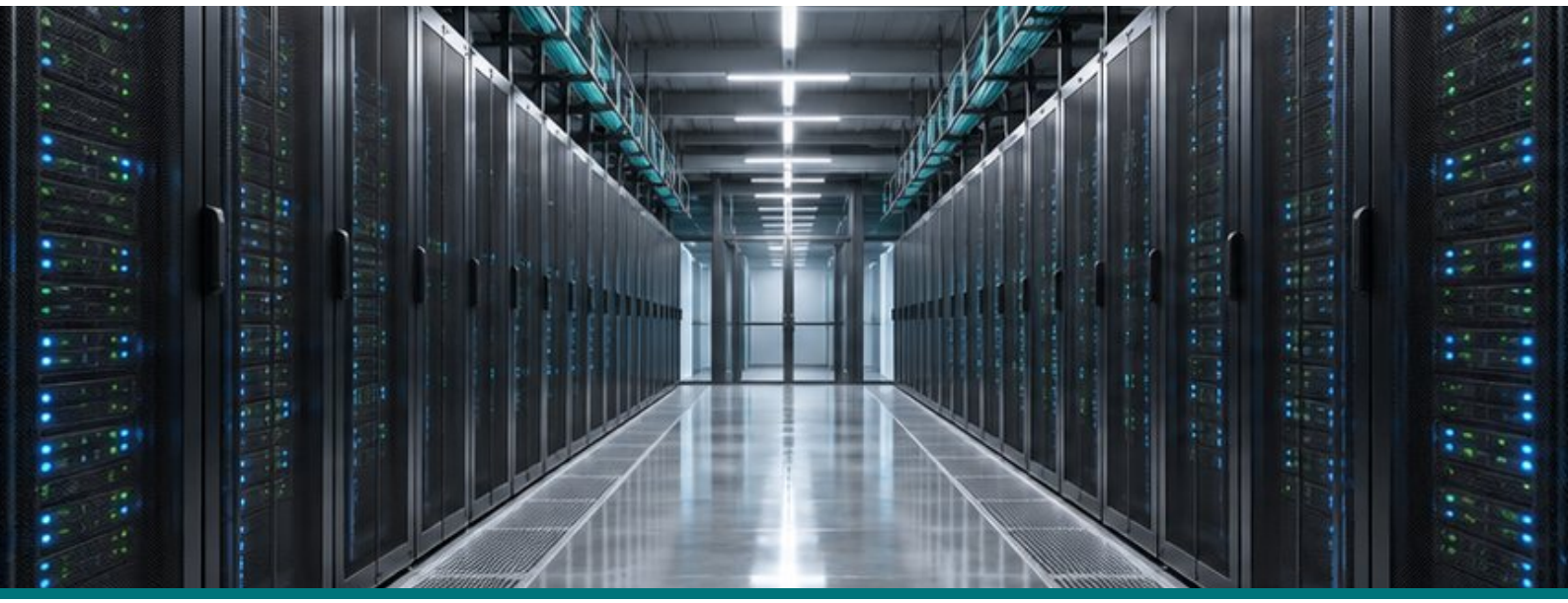
FUNCTIONAL PORTFOLIOS

Technology & Engineering	Projects & Operations	Commercial & Growth	Finance & Corporate
ICT, digital infrastructure, cloud and cybersecurity; renewable energy engineering and design.	Project delivery, commissioning, managed services, operations, maintenance and supply chain.	Business development, sales, key accounts, tenders, proposals, partnerships and marketing.	Finance, accounting, commercial controls, human resources and administration.

INDEPENDENT DIRECT REPORT

Quality, HSE & Risk Manager

Assurance, compliance and risk oversight / Direct access to CEO



Data centres & systems infrastructure

Design, supply and integrate IT infrastructure for server rooms, on-premises data centres and hybrid environments. Size the deployment around workloads, availability requirements and expected growth.

Server rooms & rack infrastructure

Plan rack layouts, equipment placement, patching and cable routes. Coordinate electrical capacity, backup power, cooling and environmental requirements with the client's facility team.

Compute, storage & virtualisation

Size servers and storage for processing, memory, capacity and I/O demand. Select standalone or clustered platforms according to availability and growth requirements.

Migration & resilience

Map workload dependencies, plan cutover and rollback, and identify single points of failure. Test recovery from backup and service failover separately where included.

Monitoring & operations

Set up monitoring for server and storage health, capacity and environmental readings where available. Document alerts, escalation, asset inventories and configuration records.

Racks & cabling	Compute & storage	Operations monitoring

TYPICAL DELIVERABLES

Rack layouts, capacity estimates, bill of materials, deployment and migration plans, test results and an operations handover.



Network engineering

Design connectivity around coverage, traffic demand and service continuity. Document how users, devices, applications and branches connect before equipment is selected.

Physical network design
Specify fibre and copper pathways, rack layouts, termination, labelling and the materials needed for installation.

LAN & wireless design
Plan switching, routing, Wi-Fi coverage and network segments for staff, guests and connected devices.

Branch & campus connectivity
Design fibre links, WAN or encrypted site connectivity. Define routing and failover for agreed business services.

Testing & handover
Test cabling and fibre links against agreed limits, verify Wi-Fi coverage and check routing and failover where in scope. Deliver as-built diagrams and test records.

VoIP & IP Telephony
Integrate IP phones and IP PBX systems. Plan extensions, voice VLANs, Quality of Service (QoS) and the Power over Ethernet (PoE) budget. Test call quality where agreed.

IP Video Surveillance (CCTV)
Design IP camera connectivity and recording. Size network bandwidth, PoE and storage for the agreed retention period. Segment camera traffic and restrict viewing and export.

Fibre, LAN & Wi-Fi	Switching, VLANs & PoE	Users, phones & cameras

TYPICAL DELIVERABLES

Network topology, equipment schedule, installation scope and acceptance test record.



Cloud engineering & cybersecurity

Design public, private or hybrid cloud environments around workload requirements, access, data location and recovery. Define responsibilities across the customer, service provider and operations team.

Cloud architecture & migration

Size compute and storage, define network boundaries and map dependencies. Plan migration waves, rollback and acceptance checks.

Identity & access management

Configure single sign-on, multi-factor authentication, role-based access and account lifecycle controls for supported services.

Network & endpoint security

Define network segments, firewall policies and endpoint controls. Agree vulnerability scans, remediation ownership and incident escalation.

Backup & disaster recovery

Agree the Recovery Point Objective (RPO) and Recovery Time Objective (RTO). Set retention and backup isolation requirements. Test restores and, where in scope, disaster recovery.

Cloud workloads	Access & protection	Backup & recovery

DATA SOVEREIGNTY REQUIREMENTS

Agree processing, storage and backup locations, administrative access and external dependencies. Verify controls against the agreed requirements.



Data engineering & private AI

Make operational data usable across ERP, business applications, cloud services and field devices. Define the source of each metric so teams can trace it back to the originating record.

Data integration

Connect approved applications through APIs, scheduled imports or event feeds. Map identifiers and define how failed transfers are detected, retried and reconciled.

Data models & quality

Define shared data fields, validation rules and ownership. Address duplicate records and reconcile migrated or transformed data.

Analytics & reporting

Build dashboards around agreed operational measures. Define refresh schedules, permissions and the source of each calculation.

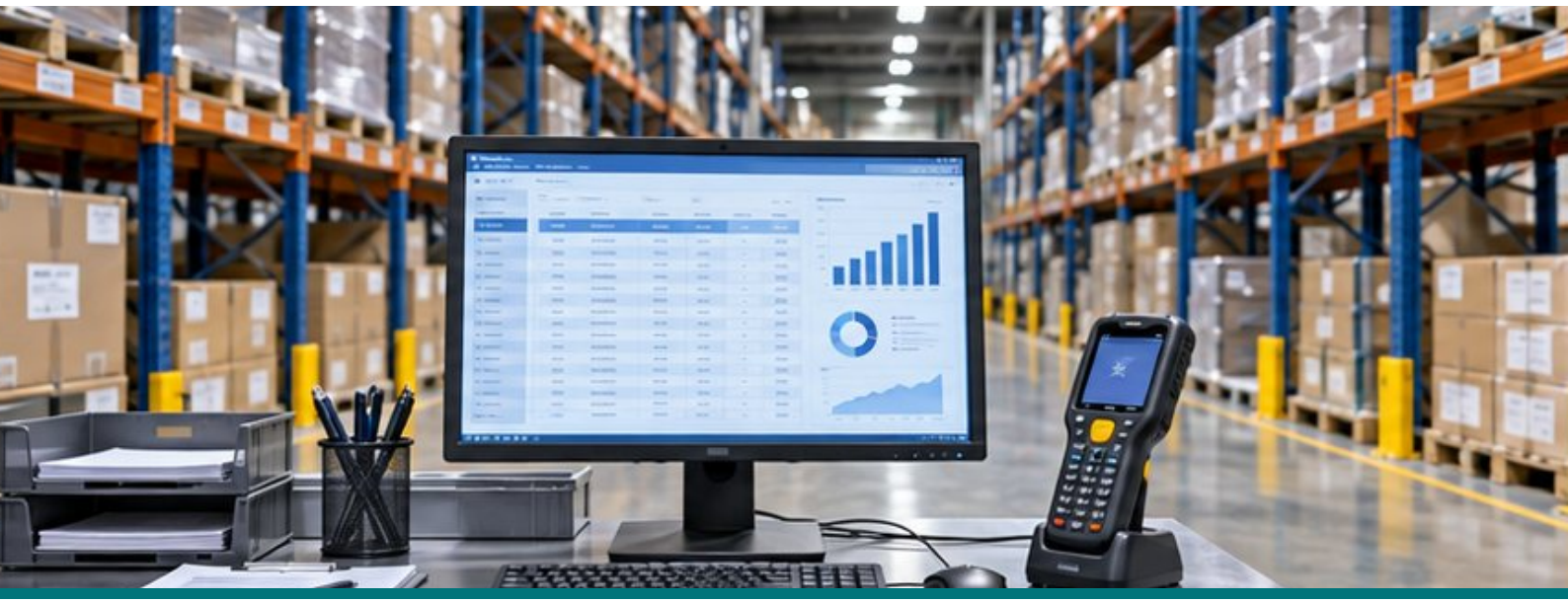
Private AI for enterprise operations

Deploy private AI assistants on premises or in a private cloud for staff support, document search and summarisation, data analysis and routine workflows. Enforce source permissions, audit usage, test accuracy and require human approval for sensitive actions.

Approved sources	Validation & storage	Reports & private AI

TYPICAL DELIVERABLES

Data flow map, integration and validation rules, access matrix and tested reports.



Enterprise resource planning

Select and configure ERP modules around the client's business processes, approval rules and reporting requirements. Deploy them in phases that match the operating model.

Finance & accounting
General ledger, payables, receivables, invoicing and financial reporting. Confirm the chart of accounts, approval rules and reconciliation procedures.

Procurement & supplier management
Purchase requests, approvals, quotations, purchase orders and goods receipt. Define controls for matching orders, receipts and supplier invoices where applicable.

Sales, inventory & distribution
Quotations, sales orders, stock reservations, transfers and fulfilment. Add barcode, serial or batch tracking when the process requires it.

Manufacturing, assets & workforce
Production planning, bills of materials, work orders and quality checks. Add maintenance, HR or payroll modules where in scope and validate local requirements.

Integration & reporting
Connect approved portals, payments, identity systems and dashboards. Map interfaces and ownership, separate sensitive duties and define access and audit requirements.

Migration, testing & adoption
Clean and map master data and opening balances. Reconcile financial and stock totals, test full business workflows with users, train staff and plan cutover and support.

ERP IMPLEMENTATION PATH

Map & configure	Migrate & reconcile	Test, launch & support

SELECTED ERP VENDORS

odoo · SAP · ORACLE · Dynamics 365



Managed IT & cloud operations

Operate agreed systems after deployment. Set the service scope, hours, escalation contacts and response targets so both teams know how requests and incidents will be handled.

Managed workplace
Support users, devices, email and shared resources. Coordinate account changes, onboarding, offboarding and licence reviews.

Cloud & infrastructure operations
Monitor agreed networks, servers and hosted services. Maintain configuration records, schedule updates and report incidents and availability.

Managed security & recovery
Review endpoint and identity controls, triage alerts, track backup failures and test restores on an agreed schedule.

Service reporting & improvement
Review support requests, recurring faults, capacity and risks. Agree corrective actions and priorities for renewals and upgrades.

Additional managed services
Scope cloud hosting, IP video or private AI operations around the covered sites, applications and reporting needs.

Commercial model
Quote onboarding separately. Base recurring fees on covered users, devices, workloads or sites. Itemise licences, cloud consumption and out-of-scope work.

Service requests	Systems monitoring	Service reporting

SERVICE AGREEMENT

Define scope, support hours, incident priorities, response and restoration targets by plan, exclusions and reporting frequency.



Digital solutions by sector

Combine networks, cloud platforms, applications and data to support a defined operating process. Each example below can be scoped as a pilot with an agreed baseline, owner and measure of success.

Digital government
Digitise service requests, records and approvals for authorities and public institutions. A municipal pilot can measure the time from complaint assignment to closure.

Smart infrastructure & agriculture
Integrate approved sensors, gateways and operational data. An irrigation pilot can track readings and alert delivery for one sector.

Smart factory & logistics
Connect production, quality, warehouse and dispatch data. Start with one production line or loading area and measure downtime or turnaround.

Health, education & enterprises
Link existing systems to support workflows such as stock alerts, student services, maintenance requests and customer transactions.

Public services	Smart infrastructure	Industry & enterprise

PILOT SCOPE

Agree data sources, connectivity, integrations, roles and acceptance measures before deployment. Expand after reviewing the pilot results.



Renewable energy technologies

We design and integrate solar PV, storage and microgrids. For wind, hydropower, bioenergy, geothermal and ocean energy, we assess feasibility and define the specialist studies needed to progress.

Solar photovoltaic & solar thermal

Evaluate rooftop, carport, ground-mounted and floating PV. Assess solar water heating, process heat and concentrated solar power where site and scale support them.

Wind power

Screen distributed, onshore and offshore wind options. Assess resource measurements, siting, turbine selection, logistics and grid connection.

Hydropower

Assess micro and small hydro, run-of-river schemes and larger projects where suitable. Review hydrology, civil works, environmental flows and water use.

Biomass, biogas & biofuels

Assess feedstock supply and sustainability, conversion options, emissions controls and uses for electricity, heat or fuel.

Geothermal & ocean energy

Screen geothermal power and direct heat, tidal and wave options. Define the resource investigations and specialist studies needed before design.

Resource assessment	Technology selection	Concept design

FEASIBILITY OUTPUTS

Compare viable options by expected yield, cost, environmental constraints, delivery risk and grid or site requirements.



Wind, Small Hydro & Bioenergy Solutions

Assess the resource, select the technology and define the studies needed to move from feasibility to design.

Wind turbines
Plan wind measurements and screen sites for access, terrain and environmental constraints. Use wind data and turbine power curves to estimate annual generation and shortlist suitable turbine ratings.

Small hydropower turbines
Assess seasonal flows and usable head for run-of-river or existing water infrastructure. Compare turbine options and identify civil works, sediment management and environmental flow requirements.

Biogas & biomass
Assess the quantity, quality and continuity of feedstock. Compare anaerobic digestion and biogas use with solid-biomass conversion for electricity, process heat or combined heat and power.

Grid & hybrid integration
Compare stand-alone and grid-connected operation. Where appropriate, assess how wind, hydro or bioenergy can complement solar PV and batteries, and define metering, controls and interconnection studies.

Project development
Use the feasibility findings to identify specialist surveys, permits and design tasks. Agree the engineering, procurement and implementation responsibilities for each project.

Resource assessment	Technology shortlist	Integration studies

FEASIBILITY OUTPUTS

Resource assumptions, technology comparison, preliminary energy yield, site constraints and a plan for specialist studies.



Storage, microgrids & grid integration

Integrate generation, storage and controls around the site load profile, grid conditions and required operating modes.

Battery energy storage systems (BESS)

Size power (kW) and usable energy (kWh) for backup, peak demand or renewable firming. Specify conversion, battery management, thermal and fire safety controls. Test critical-load runtime against an agreed scenario.

Hybrid systems & microgrids

Combine renewable sources, storage and existing standby generation where needed. Design grid-connected, islanded or off-grid operation and verify transfer and load prioritisation.

Grid interconnection & protection

Define transformers, switchgear, metering, earthing and protection. Scope power flow, fault and power-quality studies and coordinate utility review.

Energy management & monitoring

Integrate Energy Management Systems (EMS) and SCADA for dispatch, metering, alarms and reporting. Segment control networks, secure remote access and assign operating responsibilities.

Long-duration storage & green hydrogen

Screen thermal storage, pumped storage or renewable hydrogen where operating duration, end use, site conditions and economics warrant further study.

Generation & storage	Power & controls	Metering & dispatch

INTEGRATION OUTPUTS

Single-line diagrams, protection and control philosophy, operating scenarios and an acceptance test plan.



Renewable energy at every scale

Match system size and operating strategy to the customer, from individual facilities and remote sites to utility-scale projects.

Homes & small businesses

Scope rooftop PV, solar water heating and battery backup for selected loads. Compare self-consumption, backup and export options.

Commercial, industrial & critical facilities

Assess self-generation, peak demand reduction and critical-load resilience for factories, campuses, hospitals, telecom sites and data centres.

Agriculture & water

Assess solar pumping, irrigation and water treatment, plus power for cold storage and processing. Match generation and storage to seasonal demand.

Public services & remote communities

Design power options for schools, clinics and remote public facilities. For community mini-grids, assess demand, distribution, metering and local maintenance.

Utilities & large developers

Scope utility-scale generation and storage, substations and grid connections. Compare delivery and offtake models and define the studies needed for investment decisions.

Buildings & sites	Communities & campuses	Industry & utilities

SIZING INPUTS

Load profile, critical loads, grid availability, resource data, site constraints and the client's operating priorities.

Solar Public Infrastructure

Solar-powered lighting, traffic systems and public-space services for connected and remote locations.



Solar street lighting

LED lighting for roads, pathways, parking areas, campuses, parks and bus stops. Integrate PV modules, batteries, controllers and engineered poles.



Traffic signals & safety

Solar power for traffic signals, pedestrian beacons and illuminated warning signs. Add detection, timing and remote monitoring where specified.



Solar public-space systems

PV bus shelters, parking canopies, public signage, emergency call points, CCTV poles and remote sensors for parks, junctions and off-grid sites.

ENGINEERING & DELIVERY CHECKS

System sizing

Assess local solar resource, load profile, operating hours, battery autonomy, shading and maintenance access.

Roadway coordination

Verify visibility, signal timing, pole and foundation loads, wind exposure, installation safety and the responsible road authority's requirements.

ASSESS RESOURCE | SIZE & ENGINEER | TEST & MAINTAIN



Renewable Energy Engineering & Lifecycle Services

Support renewable energy projects from the initial business case through commissioning and ongoing operations, with responsibilities agreed at each stage.

Feasibility & site assessment
Review energy consumption, critical loads, outage history and site constraints. Compare options by expected yield, backup runtime and lifecycle cost.

Engineering & procurement
Define the system architecture, equipment ratings, protection and controls. Prepare drawings and specifications, evaluate equipment compatibility and review warranty terms.

Installation & commissioning
Define installation scope, inspection points and acceptance criteria. Verify electrical protection, controls and transfer to backup operation where applicable.

Documented handover
Provide as-built drawings, equipment records, test results, manuals and warranties. Brief operators on normal operation, alarms and safe shutdown.

Operations & maintenance (O&M)
Monitor generation, system availability and battery health. Agree preventive maintenance, fault response and reporting schedules for the assets in scope.

Performance review
Compare measured production and backup performance with agreed baselines. Investigate deviations and prioritise corrective actions, upgrades or component replacement.

Feasibility & design	Commissioning & handover	Operations & maintenance

LIFECYCLE DELIVERABLES

Options assessment, design package, acceptance records, as-built drawings and an agreed maintenance and performance reporting plan.

AXION

ENGINEERING SOLUTIONS

info@axion.sd

+249 912 106 617

60th Street, Block 83, Property No. 169, First Floor

Khartoum, Sudan