Turnkey Diagnostic Laboratories

Clinical laboratories configured around sample volume, test menu, biosafety, turnaround time and accreditation target.

Preliminary engineering range; excludes land, finance cost, taxes and import duty. Final scope and price are confirmed at the feasibility gate.

- Indicative CAPEX: USD 0.8–4.5M
- Delivery: 6–12 months from approved design basis to operational qualification.
- Capacity: Tier 1: 500–1,500 samples/day; Tier 2: 2,000–6,000 samples/day; test mix, automation and operating hours dependent.

Process flow

Preliminary basis for zoning, equipment and validation.

- Patient/sample reception and accessioning
- Pre-analytical centrifugation and aliquoting
- Chemistry, immunoassay, haematology and coagulation testing
- Microbiology and molecular workflows where included
- Result validation, LIS release and sample retention
- Internal QC, EQA and nonconformity management

Facility & clean environment

350–1,800 m² gross; molecular, microbiology and sample-processing rooms segregated by risk and workflow.

Routine clinical laboratories generally require controlled, risk-based rooms rather than classified cleanrooms. PCR workflow uses separated reagent, extraction and amplification areas; microbiology uses appropriate biosafety controls.

- Redundant power/UPS, analyser-grade water, HVAC, drainage, medical/laboratory gases where needed, cold storage, network/LIS and infectious-waste pathway.

Equipment architecture

Vendor-neutral equipment classes; final URS is issued at feasibility.

- Pre-analytical and sample-tracking systems
- Chemistry, immunoassay, haematology and coagulation analysers
- PCR, extraction and microbiology platforms as scoped
- Cold storage, biosafety cabinets and autoclaves
- LIS, UPS and water systems

Capacity & programme

Tier 1: 500–1,500 samples/day; Tier 2: 2,000–6,000 samples/day; test mix, automation and operating hours dependent.

6–12 months from approved design basis to operational qualification.

- Capacity assumes stated shifts, qualified inputs, maintenance and validated yield.

Quality & regulatory route

Local laboratory licence, ISO 15189 accreditation readiness and applicable biosafety requirements. Typical readiness: 6–12 months; accreditation decision remains with the body.

- Approval decisions remain with the competent independent authority.

Critical risks & staffing

Indicative 18–80 FTE depending on departments and shifts; method, analyser, biosafety, quality and LIS training over 4–10 weeks.

- Sample identification error
- Cross-contamination and carryover
- Calibration/QC failure
- Turnaround bottlenecks
- Cold-chain, LIS or power interruption

Feasibility gate

Operating economics are issued as a sensitivity model using local labour, utilities, materials, yield, utilisation and financing assumptions; they are not a guaranteed return.

Provide country, site, portfolio, capacity, budget, financing and target date.

- Türkiye — laboratory and QC portfolio
- Nigeria — molecular and QC laboratory integration
- Azerbaijan — diagnostic laboratory integration