AI READINESS CHECKLIST FOR LABS

This checklist helps you evaluate whether your lab is ready to support AI/ML workflows using structured, traceable, and high-quality data. It's ideal for biopharma, diagnostics, CDMOs, and medical device organizations preparing for AI-based discovery, process optimization, or simulation tools.

Give yourself 1 point for every check.

- 22–30: AI-ready! You're prepared for simulations, predictive analytics, and automation
- 15–21: Strong foundation—focus on consistent exports and metadata alignment
- 8–14: Start by structuring SOPs, protocols, and the way data is logged
- < 7: Consider implementing an ELN like SciNote to build your AI foundation

DATA CAPTURE & CONSISTENCY

□ Our lab uses an ELN system (e.g., SciNote) across teams and locations

□ All experiments are documented using standardized, structured templates

□ Metadata (e.g., timepoints, reagent lots) is captured uniformly

□ SOPs and protocols are version-controlled and linked to the data they generate

□ Input fields in our ELN are mandatory and consistency is enforced (e.g., dropdowns, units)

DATA QUALITY & STRUCTURE

□ Results are stored in digital formats (CSV, JSON) that are machine-readable

□ Templates are used to reduce manual error and ensure uniform structure

□ Taxonomies, naming conventions, and labels are standardized

□ Free-text or spreadsheet-only workflows have been phased out

□ Data variables (e.g., concentration, units) are standardized using fields

TRACEABILITY & LINKING

□ Every piece of data is linked to inventory items, instruments, and users

□ Deviations and edits are tracked with a full audit trail

□ Records include time-stamped approvals and version history

□ Materials and results can be traced by project and experiment

□ Batch IDs or lot numbers are tied to results via inventory/experiment links

EXPORT & AI INTEGRATION READINESS

□ Structured datasets can be exported easily via JSON or CSV

□ APIs are available to connect ELN data to AI/simulation models

□ Our lab can curate labeled datasets for model training

□ Datasets have minimal missing fields and require minimal cleaning

□ Experiment context (metadata, standards used) accompanies exported files

GOVERNANCE, ROLES & COMPLIANCE

□ Role-based access control is configured to secure sensitive data

□ SciNote or equivalent system is compliant with 21 CFR Part 11, ISO 27001, or GDPR

□ All changes to data are traceable and securely logged

□ Users can view who modified or reviewed data records: when and why

□ Access is restricted across research, QA, and simulation teams as needed

AI WORKFLOW PLANNING

□ We've identified an AI or modeling use case (e.g., simulation, QC prediction)

□ Lab and data science teams define what "AI-grade" data looks like

□ SciNote templates align with what the model or platform expects

□ Data extraction is repeatable, automated, or API-enabled

□ We collaborate with external partners or internal AI teams

SciNote