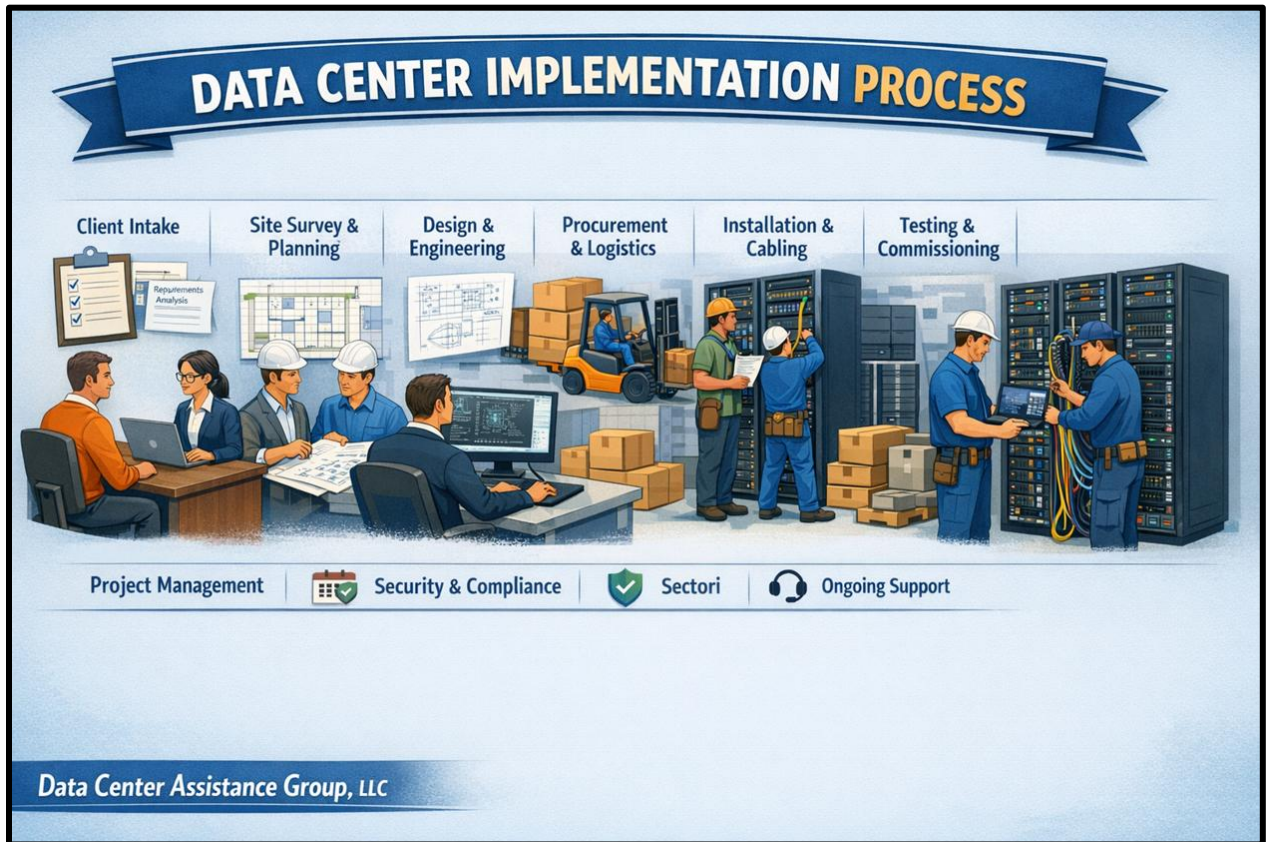


# Building Data Centers to match Client Requirements



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# Controlled Client Onboarding & Hyperscale Data Center Delivery White Paper

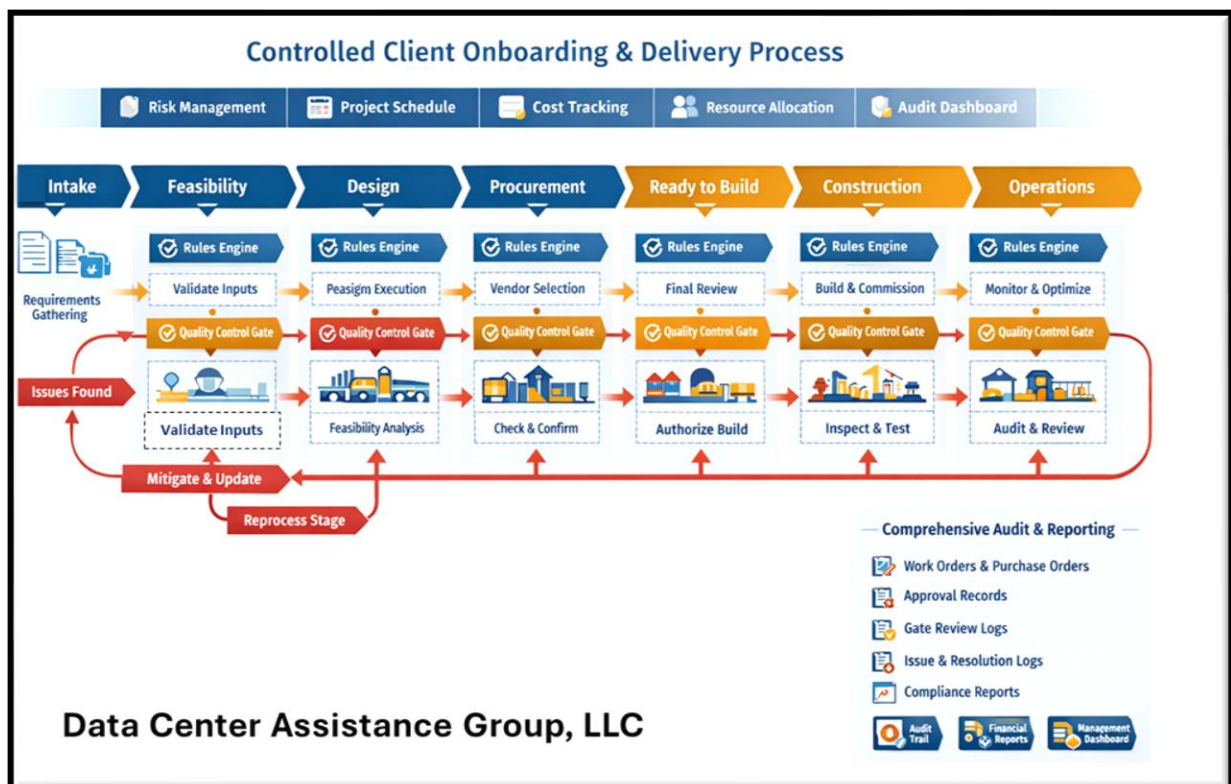
*A Governance-Controlled, Stage-Gated Model for Predictable, Auditable Infrastructure Delivery*

## Executive Summary

This white paper defines a controlled, repeatable onboarding and delivery system for hyperscale data centers. It integrates Rules Engines, Process Execution, Quality Control Gates, and Feedback Loops into each lifecycle stage, ensuring that all inputs are validated, outputs verified, and risks mitigated before progression. The model provides full audit traceability, financial visibility, and executive-level decision support. Process optimization occurs when problems are eliminated through a feed-back loop.

## System Architecture Overview

The system operates as a closed-loop control pipeline: Intake → Feasibility → Design → Procurement → Ready-to-Build (R2B) → Construction → Operations. Each stage enforces input validation through a Rules Engine, executes defined tasks, and passes through a Quality Control Gate. Failures trigger feedback loops for mitigation and reprocessing, ensuring optimal outcomes before advancement.



## Controlled Pipeline Model

Each stage follows a standardized structure:

1. **Rules Engine:** Validates completeness, policy alignment, and constraints.
2. **Process Execution:** Performs tasks, assigns resources, and defines duration.
3. **Quality Control Gate:** Verifies outputs, compliance, and readiness.
4. **Feedback Loop:** Identifies issues, applies mitigation, updates controls, and repeats the process until successful.

Field personnel and clients can leverage this controlled methodology through a structured web-based interface to input requirements and operational parameters. The system validates and processes this information in real time, providing clear visibility into projected schedules, resource allocations, and associated costs (CapEx and OpEx). This enables informed decision-making while ensuring that all inputs meet defined control, compliance, and quality standards prior to progression through each stage of the pipeline.

## Governance & Control Overlay

A persistent governance layer spans all stages, including Risk Management, Integrated Master Schedule (IMS), Cost Models, Resource Allocation, Compliance Tracking, and Executive Dashboards. This ensures alignment with business objectives and regulatory requirements.

## Audit Trail & Logging

All stages generate structured outputs captured in a centralized log repository. This includes Work Orders (WO), Purchase Orders (PO), Gate Decisions, Approval Records, Issue Logs, and Mitigation Actions. These logs support real-time dashboards, management reporting, and audit readiness for GRC compliance.

## Risk Matrix

Risk	Impact	Likelihood	Mitigation	Owner	Decision Trigger
<b>Incomplete Intake</b>	High	Medium	Rules Engine validation	Program Lead	Missing inputs
<b>Design Errors</b>	High	Medium	QC Gate validation	Engineering Lead	Gate failure
<b>Procurement Delay</b>	High	High	Vendor diversification	Procurement	Lead time drift
<b>Cost Overrun</b>	High	Medium	Financial controls	Finance	Budget variance

## KPI Dashboard

KPI	Metric	Target	Threshold	Decision Trigger
<b>Gate Pass Rate</b>	% first-pass success	>90%	<80%	Process review
<b>Rework Rate</b>	% loops triggered	<10%	>20%	Control adjustment
<b>Schedule Variance</b>	IMS deviation	±5%	>10%	Escalation
<b>Cost Variance</b>	Budget deviation	±5%	>10%	Financial review

## Financial Model

Element	Assumption	Sensitivity	Decision Impact
<b>CapEx</b>	\$9M/MW	Scale	Investment approval
<b>OpEx</b>	Energy dependent	Power cost	Margin
<b>Procurement Cost</b>	Lead-time dependent	Vendor capacity	Schedule
<b>Rework Cost</b>	Loop frequency	Process quality	Efficiency

## Controlled Onboarding Pipeline

Stage	Rules Engine Validation	Control Gate Criteria	Output
<b>Intake</b>	Requirements complete	Validated inputs	Intake Package
<b>Feasibility</b>	Power/site verified	Feasible design	Feasibility Report
<b>Design</b>	Engineering completeness	Constructability	Design Package
<b>Procurement</b>	Vendor validation	Supply secured	Procurement Plan
<b>R2B</b>	Risk closed	Budget approved	Build Authorization
<b>Construction</b>	Execution readiness	Inspection passed	Commissioned Facility
<b>Operations</b>	Monitoring readiness	Performance verified	Operational Metrics

## Executive Dashboard Mockup



## Conclusion

This controlled onboarding and delivery model transforms hyperscale data center development into a predictable, auditable, and optimized system. It enables executives to make informed decisions based on validated data, financial transparency, and continuous performance monitoring.