



CITI — MODEL RISK MANAGEMENT GOVERNANCE FRAMEWORK

Deployment of LumiqAI Visibility Intelligence for Consumer & Commercial Credit

Prepared for:

Citigroup Executive Leadership

- **Small & Medium Business Lending**
- **Consumer Cards & Lending**
- **Commercial Credit & Working Capital**
- **Digital Banking & Platform Strategy**
- **Model Risk Management (MRM)**
- **Compliance & Fair Lending Oversight**
- **Enterprise Data Governance & Analytics**

Prepared by:

LumiqAI™ — Visibility Intelligence Layer for Banking

Empowering Citi to:

- **Interpret Experian Commercial Bureau Data**
- **Interpret Consumer VantageScore Bureau Attributes**



- Surface Eligible Products to Visibility-Starved Customers
- Increase Approvals without Modifying Underwriting

Scope of Governance:

1. Data Boundary Classification & Containment
2. MRM Model Tiering, Explainability & Traceability
3. Stateless Bureau Interpretation & Zero-Persistence Framework
4. Fair Lending & Anti-Disparate Impact Guardrails
5. Pilot Monitoring, Validation & Reporting Controls
6. Security, Encryption & API Confinement Specification
7. Lifecycle Governance, Change Management & Audit Protocols

Core Model Principle:

“LumiqAI interprets bureau data Citi already owns, surfaces eligibility paths without altering credit decisions, remains stateless, and provides explainable outputs — positioning it as a Tier-2 Decision-Support model compliant with SR 11-7, OCC 2023 AI guidance, FDIC supervisory standards, and Citi MRM expectations.”



Regulatory Positioning Statement:

Not a credit decisioning model. Not a score generating model. Not an approval override. It is an interpretive visibility layer, fully auditable, fair-lending neutral, and regulator-defensible.

- **⬆️ Customer Approvals without Underwriting Changes**
- **⬆️ Revenues from Existing Customer Base (no CAC)**
- **⬆️ Digital Engagement & Retention**
- **⬆️ SMB Lending Pathways Visibility**
- **⬆️ Operational Efficiency & Underwriting Clarity**
- **⬇️ Model Risk Classification**
- **⬇️ Fair Lending Exposure**
- **⬇️ Underwriting System Intrusion**
- **⬇️ Data Storage Risk**
- **⬇️ Compliance Friction**



Pilot Readiness Statement

Turnkey, low-risk, compliance-safe deployment with stateless architecture, reversible exposure, continuous monitoring, and MRM audit traceability — ready for a 60–90 day controlled cohort pilot.

Document Reference Version:

Governance Framework v1.0

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Proprietary Note:

This document contains intellectual property and regulatory positioning guidance originated by LumiqAI™.

It may be shared internally within Citi for appraisal, assessment, and supervisory review. External sharing requires written authorization.



1) MODEL PURPOSE & POSITIONING (MRM Classification)

1.1 Purpose Statement

LumiqAI provides:

- **Visibility,**
- **Eligibility interpretation,**
- **Predictive guidance,**
- **Conversion insights,**

...based on **Citi-provided bureau signals** (Experian + VantageScore) and **Citi internal behavioral indicators**.

The system never:

- Approves loans
- Declines loans
- Changes underwriting models
- Scores customers
- Generates new proprietary bureau-derived signals

Therefore, LumiqAI is formally positioned as a **“Decision-Support Model”** — NOT an underwriting or pricing model.



1.2 Regulatory Interpretation

Under OCC & FRB supervisory expectations, this is:

- **A Tier 2 Visibility Model**
- NOT a Tier 1 Prudential Decisioning Model

Key rationale:

- It does not alter credit determinations
- It interprets already approved bureau inputs
- It provides **non-binding recommendations**
- It does not introduce **compliance materially adverse outcomes**

1.3 Appropriate Citi Risk Domain Ownership

- **Model Risk (MRM)**: Oversees logic, monitoring
- **Data Governance**: Ensures data confinement
- **Compliance**: Audits fairness / fairness outputs
- **Digital Platform**: API implementation boundary
- **Information Security**: encryption / retention controls



2)

DATA INPUTS & SCOPE OF ACCESS

2.1 Citi Bureau Data (Existing)

LumiqAI processes **bureau attributes Citi already owns**, specifically:

Experian Commercial (Business Bureau):

- Tradelines
- Credit utilization
- Payment histories
- Past derogatories
- Public records (if present)
- Age & segmentation signals

Consumer VantageScore:

- Soft pull scores Citi already obtains
- Decline/progression trends
- Risk segmentation buckets



No new bureau pulls originate from LumiqAI.

2.2 Internal Citi Data (Behavioral)

- Deposit activity patterns
- Liquidity sequencing
- Historical repayment behavior
- Relationship tenure
- Product interactions

Used only for:

- Eligibility model calibration
- Recommendation guardrails
- Intent detection (non-regulated)



2.3

Stateless Computation Requirements

Zero data persistence:

- No caching
- No local writes
- No replicas
- No external sharing
- No attribute lineage mapping outside session

This matters because:

- Bureau contracts prohibit redistribution
- FDIC supervisory frameworks require containment
- OCC AI interpretability requires traceability

Thus **LumiqAI returns only interpretations, not raw bureau facts.**



3)

BOUNDARY CONDITIONS & FUNCTIONAL RESTRICTIONS

3.1 What LumiqAI Does

- Interprets eligibility
- Forecasts pathways
- Surfaces recommendations
- Provides conversion analytics
- Highlights risk-aligned next steps

3.2 What LumiqAI Does NOT Do

- Issue approvals
- Decline applications
- Override underwriting rules
- Modify scorecards
- Generate synthetic bureau profiles
- Alter credit policy thresholds

This protects:

- **Regulatory exposure**
- **Underwriting governance**



- **Risk Model integrity**

4)

TECHNICAL & ARCHITECTURAL SAFETY

4.1 Data Flow

Citi → Secure API → LumiqAI

LumiqAI → Interpreted Output → Citi UI Layer

There is no:

- Direct Citi database exposure
- Third-party storage
- External routing

4.2 Cryptographic Controls

- AES-256 encryption at rest (Citi boundary)
- TLS 1.3 in-flight encryption
- Ephemeral memory execution
- Zero persistence after inference



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EXPLAINABILITY REQUIREMENTS (SR 11-7)

Every eligibility output:

- Must be traceable to specific bureau attributes
- Must provide deterministically explainable reasoning
- Must avoid opaque “black box” inference

The required pattern for MRM signoff:

“Eligible due to stable historical tradelines, consistent deposit behavior, and non-discriminatory bureau input.”

No:

- demographic inference
- geographically correlated proxy reasoning
- alternative data heuristics



6)

MONITORING & PERFORMANCE GOVERNANCE

6.1 Drift Monitoring

We monitor:

- Bureau input consistency
- Output classification shifts
- Eligibility recommendation variance
- Conversion funnel metrics

6.2 Stability Expectation

Model outputs must:

- Produce repeatable interpretations
- Not oscillate due to numeric instability
- Maintain proportionality against bureau factor movements



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FAIR LENDING & ANTI-DISPARATE IMPACT SUPERVISION

Guardrails:

- Model never uses race, gender, ethnicity, or correlated proxies
- Bureau data is inherently race-neutral
- Outputs audited across protected class slices using:
 - Population Stability Index (PSI)
 - Segmented eligibility rates
 - Comparative Lift Profiles

Key compliance statement:

LumiqAI cannot introduce disparate impact because it does not generate decisions — only interpretable visibility.



8)

MODEL VALIDATION STANDARDS (MRM)

Validation includes:

- Replication studies
- Output variance audits
- Sample audit paths (input → logic → output)
- Lineage tracing against bureau attributes
- Independent challenge function by Citi MRM team

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TESTING & CONTROL REQUIREMENTS (FOR PILOT)

Pilot metering includes:

- Controlled cohort exposure
- 4-node KPI tracking:
 - Eligibility accuracy
 - Approval uplift
 - Manual review reduction
 - Revenue pull-through
- Weekly monitoring snapshots
- Model rollback switch



- Static rules fallback mode

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MODEL CHANGE GOVERNANCE

LumiqAI cannot autonomously update:

- Weightings
- Mapping functions
- Interpretation thresholds

All updates:

- Must be documented
- Must pass MRM review
- Must be deterministic
- Must avoid data drift side effects



11)

SECURITY & PRIVACY CONSTRUCTS

11.1 Bureau Data Segregation

LumiqAI never:

- Stores bureau attributes
- Persists commercial or consumer bureau facts
- Derives new bureau-dependent features

11.2 Privacy Model

We comply with:

- GLBA
- OCC Bulletin 2023-16
- Citi InfoSec Standards



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AUDITABILITY REQUIREMENTS

The framework supports:

- MRM audit attestation
- External audit traceability
- OCC examiner review
- CFPB inquiry defensibility
- FDIC systemic monitoring expectations