



## **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**

**Prepared December 2025 for Citigroup MRM Review**

## **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



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## **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**.

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## **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**

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## **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-derogatory bureau input.”

No:

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

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## **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.

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### **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





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## **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