# Engineering Requirements Document – Supplier Interaction Agent

## 1. Overview

The Supplier Interaction Agent manages the secure and traceable communication layer between the procurement system and suppliers.   
It ensures all supplier-facing interactions (negotiation messages, clarifications, quote requests, data exchanges) are delivered, tracked, and logged across supported channels.   
Unlike the Negotiation Agent (strategy) or Email Drafting Agent (content generation), this agent focuses on message delivery, state management, channel orchestration, and supplier engagement tracking.

## 2. Scope

In-Scope:  
- Managing communication channels: email, portal, API.  
- Supplier identity management and authentication.  
- Delivery assurance and retries.  
- Read receipts, SLA timers, and response status tracking.  
- Logging all communications in Procurement Knowledge Graph.  
- Exposing supplier interaction history to other agents.  
  
Out-of-Scope (MVP):  
- Drafting/authoring messages (done by Email Drafting Agent).  
- Negotiation logic or strategy (done by Negotiation Agent).  
- Supplier onboarding/KYC (future Supplier Management Agent).

## 3. Functional Requirements

3.1 Communication Channel Management  
- Supports email, portal, and API channels.  
- Routes messages based on supplier profile.  
  
3.2 Message Delivery & Tracking  
- Guarantees delivery with retries.  
- Logs sent, delivered, read, replied events.  
  
3.3 Supplier Authentication  
- Portal suppliers must authenticate via SSO, MFA, or token.  
- All messages tied to verified supplier ID.  
  
3.4 SLA & Response Monitoring  
- Tracks response times per message.  
- Flags overdue responses in Review Actions Hub.  
  
3.5 Audit & Knowledge Graph Logging  
- Logs all interactions with metadata and timestamps.  
- Links logs to negotiation sessions, approvals, opportunities.  
  
3.6 Review Actions Integration  
- Creates Interaction Cards in Review Actions Hub when supplier response needs review.  
- Pop-ups show context and available actions (Acknowledge, Escalate, Route).

## 3.7 Acceptance Criteria

1. All supplier communications logged in Procurement Knowledge Graph.  
2. Supplier responses surface as Interaction Cards in Review Actions Hub.  
3. No drafting capability included (Email Drafting Agent responsibility).  
4. No negotiation logic included (Negotiation Agent responsibility).  
5. SLA monitoring: overdue responses flagged within 1 minute.  
6. Delivery assurance: ≥ 99% successful delivery logged.  
7. Supplier authentication enforced.  
8. Immutable audit trail exportable in CSV/PDF.

## 4. Non-Functional Requirements

- Scalability: 50,000+ concurrent threads.  
- Latency: Delivery confirmation within 2s.  
- Availability: 99.9% uptime.  
- Security: TLS encryption, MFA enforced.  
- Auditability: Immutable records.

## 5. Data Model (Core Entities)

SupplierMessage  
- message\_id, supplier\_id, channel, direction, status, body\_ref, timestamp.  
  
SupplierChannelProfile  
- supplier\_id, preferred\_channel, auth\_method, SLA\_target.  
  
SupplierInteractionLog  
- interaction\_id, negotiation\_id/opportunity\_id, message\_ids, status, last\_updated.

## 6. Workflows

Example: Supplier Response Handling  
1. Negotiation Agent triggers Email Drafting Agent → draft generated.  
2. Supplier Interaction Agent delivers via supplier's channel.  
3. Supplier replies via email/portal/API.  
4. Interaction Agent authenticates and logs response.  
5. Interaction Card created in Review Actions Hub.  
6. If strategic action needed → routed to Negotiation Agent.

## 7. Integration Points

- Negotiation Agent → sends strategy context needing comms.  
- Email Drafting Agent → provides draft message.  
- Approvals Agent → may attach approvals to responses.  
- Review Actions Hub → main UI for interactions.  
- Procurement Knowledge Graph → stores logs.

## 8. Security & Compliance

- All channels encrypted.  
- Supplier identity verified (login/API keys).  
- No anonymous comms allowed.  
- GDPR compliant.  
- Immutable communication logs.