# Engineering Requirements Document – Negotiation Agent

## 1. Overview

The Negotiation Agent manages supplier negotiations by surfacing Negotiation Action Cards in the Review Actions Hub.   
These cards provide supplier context, draft messages (via Email Drafting Agent), and negotiation strategy suggestions.   
Users interact through guided pop-ups rather than a separate negotiation dashboard.   
The Negotiation Agent orchestrates multi-round exchanges in the background, while keeping the UI simple and action-oriented.

## 2. Scope

In-Scope:  
- Negotiation Cards injected into Review Actions Hub.  
- Pop-up interaction for drafting/validating/sending supplier messages.  
- Inline display of supplier responses and counteroffers.  
- Background tracking of rounds and SLA status.  
  
Out-of-Scope (MVP):  
- Standalone Negotiation Dashboard.  
- Multi-lingual negotiation AI simulation.  
- External integration with supplier negotiation platforms.

## 3. Functional Requirements

3.1 Negotiation Positioning  
- Negotiation Agent generates target strategy (price, terms, warranty).  
- Strategy context shown inside Negotiation pop-up.  
  
3.2 Drafting & Messaging  
- Drafts generated via Email Drafting Agent.  
- Pop-up allows Regenerate, Validate, Edit, Send.  
  
3.3 Multi-Round Negotiation  
- Supplier responses ingested and surfaced in Review Actions Hub as updated Negotiation Cards.  
- Regen loop for revised counteroffers if thresholds unmet.  
  
3.4 Approvals  
- Out-of-policy terms trigger Approval Card injection automatically.  
  
3.5 Audit  
- Immutable negotiation history logged and viewable in Global Dashboard.

## 3.7 Acceptance Criteria

1. All negotiations surfaced as Negotiation Cards in Review Actions Hub.  
2. No standalone Negotiation Dashboard exists.  
3. Pop-ups show supplier, baseline vs. offer, target, and draft messaging.  
4. Supplier responses appear as updated cards in Review Actions Hub.  
5. Out-of-policy terms always trigger Approval Card creation.  
6. Immutable history available in Global Dashboard.

## 4. Non-Functional Requirements

- Scalability: 5,000+ concurrent negotiations.  
- Latency: <3s for strategy/draft generation.  
- Auditability: All rounds logged.  
- Security: Comms encrypted.  
- Reliability: 99.9% uptime.

## 5. Data Model (Core Entities)

NegotiationSession  
- negotiation\_id, supplier\_id, opportunity\_id, initiator\_id, status, created\_at.  
  
NegotiationRound  
- round\_id, negotiation\_id, offer\_terms, counteroffer\_terms, delta\_value, outcome, timestamp.  
  
NegotiationMessage  
- message\_id, negotiation\_id, round\_id, sender, body, sent\_at.

## 6. Workflows

1. Opportunity Agent flags supplier quote above benchmark.  
2. Negotiation Agent injects Negotiation Card into Review Actions Hub.  
3. User clicks → Negotiation pop-up with draft email + strategy opens.  
4. User validates, edits, sends message.  
5. Supplier response ingested → Negotiation Card updates.  
6. If out-of-policy → Approval Card created.  
7. Audit log updated, visible in Global Dashboard.

## 7. Integration Points

- Opportunity Agent → triggers negotiation cards.  
- Supplier Ranking Agent → provides risk score context.  
- Quote Comparison Agent → provides benchmarks.  
- Email Drafting Agent → embedded for drafting messages.  
- Approvals Agent → approval card triggered for out-of-policy outcomes.  
- Review Actions Hub → main UI surface.  
- Procurement Knowledge Graph → negotiation history storage.

## 8. Security & Compliance

- RBAC for buyer vs approver.  
- Comms encrypted in transit/storage.  
- Immutable audit trail.  
- GDPR-compliant.