ExpenSense Reimbursement Policy

1. Introduction

This Reimbursement Policy establishes the rules, approval logic, and documentation requirements for employees seeking financial reimbursement for valid business-related expenses.

The policy is enforced by the automated **ExpenseSense multi-agent system**, which incorporates:

- Policy Vector Database (for semantic matching)
- Employee Database
- Email + Document Management Agents
- Human-in-the-Loop Admin review

Portions of system logic referenced from proposal: auto-approval rules, frequency rules, manual review flow, and constraints.

2. Definitions

2.1 Employee

An individual eligible to submit reimbursement requests for approved business expenses.

2.2 Approver / Admin

A designated administrator who reviews, approves, rejects, or overrides reimbursement requests.

2.3 Business Expense

A cost incurred by an employee while performing authorized work-related duties.

2.4 Reimbursement System (ExpenseSense)

An automated expense processing system.

3. Eligible and Ineligible Expenses

3.1 Eligible Business Expenses

Examples include but are not limited to:

Travel

- Airfare

- Hotel accommodations

- Ground transportation (Uber/Lyft, taxi, mileage reimbursement)

- Parking fees

- Tolls

Meals

- Business meals with clients

- Team meals during business travel

Conference

- Registration fees

Other

- Approved by manager if apply

3.2 Ineligible Expenses

- Personal or leisure expenses

- Alcohol (unless pre-approved)

- Fines, penalties, traffic tickets

- Luxury accommodations beyond business necessity

- Lost or stolen personal property

- Any expense without receipt (→ Auto-deny under Rule R4)

4. Documentation Requirements

4.1 Required Uploaded File (PDF / Image)

Employees must upload the **original expense receipt**, in one of the following formats:

- **PDF** (preferred)

- **JPG / PNG** (photo or scanned image)

The uploaded receipt must clearly show:

- Vendor name

- Date of transaction

- Itemized list of charges

- Total amount paid

- Payment method (if available)

- Any taxes, fees, or surcharges

Missing or unreadable receipts result in automatic denial (Rule R4).

4.2 Required Filled Form (Structured Fields)

Along with the uploaded receipt, employees must complete all required form fields:

Required Form Fields

- **Expense Category**

  - travel / meal / conference / other

- **Amount**

  - Exact amount matching the receipt

- **Date of Expense**

- **Business Justification**

  - Short explanation of why the expense was necessary

- **Payment Type (optional)**

- corporate card / personal card

5. Submission Frequency Limit

5.1 Daily Auto-Approval Eligibility

- Employees are allowed **one (1) auto-approval-eligible request per day** (≤ $500).

- Additional same-day requests will be flagged for review or rejected (Rule R2).

5.2 Multiple Requests

Beyond the daily limit:

- Requests ≤ $500 → **rejected or queued for manual review**

- Requests > $500 → **manual review mandatory**

6. Tiered Approval Rules (Core Policy)

These rules define the official, enforceable reimbursement approval logic for the ExpenseSense system.

Rule R1 — Automatic Approval (≤ $500, First Request of the Day)

A request may be **automatically approved** only when **all** of the following conditions are met:

Eligibility Conditions

- The **expense amount ≤ $500**

- The employee has **not submitted any other** expense request on the same calendar day

  (including auto-approved, auto-rejected, or pending submissions)

- Documentation is complete and consistent

- No anomalies or policy conflicts are detected by the Agent

Agent Evaluation Requirements

The Expense Agent must perform the following checks before approving:

1. Firestore Submission History Check

- Verify that the employee has **no existing submission today**
- Check for patterns of:
    - duplicate claims
    - repeated same-amount submissions
    - unusually frequent reimbursements

2. Receipt Consistency Check (OCR)

- OCR amount **must match** the amount provided in the form
- OCR date **must match** the reported date
- Receipt must be **readable** and contain merchant name, total, and timestamp
- File must be a **valid PDF/JPG/PNG**

3. Policy Vector DB Check

- Confirm the **expense category is reimbursable** according to policy documents
- Validate:
    - category limits (e.g., meal caps, supply item limits)
    - special constraints (e.g., alcohol, luxury items, non-business items)
- Agent must not auto approve if policy retrieval indicates **conflict. → flag for manual review**

4. Frequency and Behavior Analysis

- Detect unusual submission patterns within the **last 7 days**, including:
    - multiple similar claims
    - high-volume small claims
    - sequential micro-transactions (possible "split receipts")
- Identify anomalous timing or repetitive merchant behavior

5. Expense Reasonableness Evaluation

The Expense Agent must assess whether the **expense is inherently reasonable** given the context, category, and historical employee behavior.

This includes:

5.1 Category-Reasonableness

- Meals: amount within typical range (e.g., $10–$80)

- Transportation: amount consistent with local trip patterns

- Supplies: cost aligned with common office items

- Travel: cross-check with typical hotel/airfare ranges

Agent should **flag expenses that are abnormally high** for their category.

5.2 Merchant Reasonableness

- Verify merchant is consistent with the expense purpose

  - e.g., "Uber" for transportation is reasonable

  - "Louis Vuitton" for supplies is not

- Detect merchants known to be:

  - non-business

  - luxury

  - entertainment-only

  - inconsistent with category

5.3 Contextual Reasonableness (Semantic Check)

Using LLM reasoning + policy retrieval:

- Does the justification **match** the type of expense?

5.4 Historical Behavior Comparison

- Compare amount to the employee's past expenses

- Identify outliers:

  - sudden spike

  - unusually expensive meal

- atypical merchant

5.5 Policy-Semantic Alignment

- Query vector DB with:

  > "Is this type of expense reasonably aligned with company policy expectations?"

- If policy text implies limits or contextual constraints → flag for manual review

Outcome of Reasonableness Evaluation

- **If reasonable:** continue approval flow

- **If borderline or clearly unreasonable:** send to **admin-review**

Action

✔️ Auto-approve

✔️ Update Financial DB

✔️ Set `status = "auto-approved"` in Firestore

✔️ Trigger Email Agent to send confirmation

Rule R2 — Frequency Violation (≤ $500 but Additional Submission Today)

A request **≤ $500** becomes **ineligible for auto-approval** when:

- The employee has **already submitted one or more** expense requests earlier on the same day

This safeguard prevents repeated micro-claims and potential abuse.

Agent Evaluation Requirements

The Expense Agent must:

1. **Detect Daily Submission Conflict**

   - Query Firestore for any existing submissions today

2. **Evaluate Frequency Patterns**

- Identify similar amounts or merchant names

- Detect repeated submissions across short periods

- Identify possible "split receipts" attempts

3. **Policy Retrieval**

- Query vector DB for policy sections governing frequency limits

Actions

If the frequency violation is detected:

❌ **Reject** the request

or

⚠ **Route to manual admin review** (when intent is unclear or borderline)

Firestore update:

- `status = "rejected"` with note `"Rule R2: Frequency Violation"`

  or

- `status = "admin-review"` with note `"Rule R2: Needs Review"`

Rule R3 — Large Amount (> $500)

Any reimbursement request **exceeding $500** is considered **high-value** and requires mandatory **manual review**, regardless of documentation quality.

Agent Evaluation Requirements

The Expense Agent must:

- Validate receipt and form consistency

- Extract OCR fields for admin review

- Retrieve relevant policy rules from vector DB

- Package all documents into the Admin Dashboard queue

Action

⚠ Flag for admin review

✔️ Forward receipt, parsed OCR data, and justification to Admin UI

✔️ Set Firestore `status = "admin-review"`

Rule R4 — Missing or Invalid Documentation

Requests lacking essential supporting documents are **automatically denied**.

Examples of Invalid Documentation

- No receipt uploaded

- Receipt unreadable or corrupted

- Amount/date mismatch between OCR and employee form

- Incomplete explanation or missing category

- Wrong file type

Agent Evaluation Requirements

The Expense Agent must:

- Attempt OCR extraction

- Compare OCR results to structured form fields

- Detect missing essential fields

Action

❌ Auto-deny

✔️ Set `status = "rejected"`

✔️ Email Agent sends rejection with explanation

✔️ Log reason in Firestore for auditing

Rule R5 — Post-Approval Processing

After a request is approved—either automatically or by admin review—the system must perform standard post-processing.

Actions

- **Financial DB update:** reimbursement balance and transaction log

- **Email Agent notification:** approval confirmation sent to employee
- **Audit logging:** store decision details, OCR summary, policy references, and agent reasoning
- **Status update:** Firestore record updated to `"approved"` with corresponding metadata

7. Manual Review Process

If flagged under Rules R2–R4, the Admin will:

1. Validate legitimacy of receipt
2. Review justification
3. Match against policy rules via Policy Agent
4. Audit employee's past submissions
5. Approve, override, or reject

Admins may override automatic decisions where appropriate and provide a comment for the audit log.

8. Reimbursement Limits

8.1 Daily Limit

- One automatic approval ≤ $500.

8.2 Weekly Limit

- Total weekly reimbursement amount should not exceed **$2,500** without manager review.

8.3 Category Limits

- Meals: ≤ $120/day
- Supplies: ≤ $200 per item
- Hotels: ≤ $500/day

9. Compliance & Auditing

All actions by the Expense Agent and Admins are logged, in alignment with the **MAESTRO** framework's:

- Logging & metrics

- Anomaly detection

- RBAC (role-based access control)

Audit Logs Include:

- Request metadata

- Approver actions

- System decisions

- Policy rule matched

- Vector retrieval evidence

10. Payment Processing

Once approved:

- Reimbursement is recorded in the Financial DB

- Employees receive email confirmation

11. Violations & Penalties

Submission of fraudulent claims may result in:

- Rejection of request

- HR disciplinary action

- Audit investigation

- Loss of reimbursement privileges

- Possible termination depending on severity

13. Appendix — Quick Decision Table

Condition	Rule	Action
≤ $500 & first request today	**R1**	Auto-approve or manual review

Condition	Rule	Action
≤ $500 & second+ request today	**R2**	Reject or manual review
> $500	**R3**	Manual review
Missing receipt/invalid format	**R4**	Auto-deny
Approved by system or admin	**R5**	Process payment + email

14. Appendix — Required Receipt Examples

Acceptable:

- Clear PDF or photo

- Full merchant name

- Itemized charges

- Date + total amount

- Payment method

Unacceptable:

- Cropped photo missing totals

- Editable documents with missing metadata

- Screenshots without timestamp