

# Receipt OCR Enhancement with LLM

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- ☐ 💡 Functional Design
- ☐ 🛠️ Technical Design
- ☐ 🧑‍🔬 Architecture Assessment
- ☐ 🧪 Testing Strategy

- **Epic** - <Add Epic reference here>
- **Design** - <Add design ticket reference here>
- **Owners** - <Add owners here>
- **Reviewers/Watchers** - <Add reviewers and watcher users here>
- **Architecture Steering Group** ( @Alan Cima @Amit Utreja @Amit Vijayant @Chris Mayor @Mark Reed @Matt Pasquini @Sameer Ghate )

## Summary of the Design

### Problem Statement

- End user needs to manually enter expense details
- AP approvers needs to cross check information on receipt vs. expense details
- Receipt OCR feature today only extracts 4 fields: amount, currency, merchant and expense date

### Proposed Solution

- Use LLM fill more details in an expense lines based on details on the receipt
  - Expense category
  - Taxes
  - Custom Fields
- Use LLM to flag approvers and admins when information on receipt is not matched with details at line level

### Solution Benefits

- End users will spend less time manually enter details
- Approver and admin will spend less time cross check receipt vs. line details

### Success Measure / Usage Metrics

### Business Value Engineering (BVE) Value Driver and Success Metrics

### Observability and Monitoring

Reference: [Business Value Success Metrics & Benchmarks](#)

## Functional Product Requirement & User Experience

### Functional Design (in priority order)

Title	Summary	Scope
Auto Categorize Receipts	Choose the most appropriate expense category from a list based on the	In Scope

	information provided in the receipts	
Data Extraction	Extracted following details from the receipts: transaction date, total amount, currency, merchant, merchant location, tax amount	In Scope
Generate description	Generate the most appropriate description based on the information provided in the receipts	In Scope
Custom Fields	Understand the queries on the expense reports and provide the corresponding answers	Out of Scope

#### 1. What information user need to provide on an expense:

- a. Select an expense category
  - i. Each customer instance have a list of expense category configured and this list will be different customer from customer. The end expense user will need to select the correct expense category. Today, this is one of the top pain point for admin and approver. When wrong expense category is selected, it impacts the Chart of Account selection
- b. Enter expense date
  - i. Already support (85% accuracy)
- c. Enter total
  - i. Already support (85% accuracy)
- d. Select currency
  - i. Already support (85% accuracy)
- e. Reimburse to Employee
  - i. Default value is always 'Yes'
- f. Description
  - i. This can be a combination of expense category, project name etc. The definition of this can have a wide range.
- g. Merchant
  - i. Already support with 65% accuracy
- h. Taxes
  - i. Not supported. Very important as it drives the downstream VAT reporting
- i. **Other customer fields**
  - i. Location: Asked quite often by customers to be extracted from receipt parser as this relates to the Tax reporting etc.

#### 2. Data required

- a. Receipts Examples (50)
  - i. Receipts type: pdf, image files(JPEG, JPG etc.)
  - ii. Receipts category (5 Receipts in each category)
    1. Meal - Lunch
    2. Meal - Breakfast
    3. Meal - Dinner
    4. Meal - Group
    5. Office Supplies
    6. Entertainment - Other

7. Transportation - Other

8. **Airfare**

9. Rental Car

10. Hotel

11. **Training**

12. Relocation Expenses


b. 20 different lists of expense categories

c. Correct responses

3. Evaluation










4. Some suitable models for research:

a.  [PaliGemma | Google AI for Developers](#)

b.  [GPT-4o: The Comprehensive Guide and Explanation](#)

## UX Mockups & Experience (mapped to functional design)

### Use Cases

		Preconditions (given)	Scenario (when)	Expected behavior (then)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

## Technical Design

### Design Approach

## Design Diagrams

### Architecture Assessment

Please answer the following:

	Question	Reference guideline(s)	Answer and/or Link to document
1	<b>Integration exception (if any):</b> Is there a conscious decision not to support <b>APIs and/or Loaders</b> in one or more areas? If yes, please include justification for such an exception.		
2	<b>UI exception (if any):</b> If the team could not develop in <b>React</b> (Coupa's preferred UI framework), please include justification  Similarly, if the team could not utilize (or contribute) to <b>CCJS</b> for their UI component needs, please include justification	<a href="#">UI Projects &amp; Frameworks</a>  <a href="#">CCJS Contribution Guidelines</a>	
3	<b>AI driven:</b> If the feature is powered by AI, please provide link to the AI Design Review document (Or comment on why AI Design review was deemed ok to be skipped)		
4	<b>App Security:</b> Does the application or service deal with sensitive information (Password, Tokens, Private key, PII)? Is an open source or third party package being introduced? Does the customer data leave our hosting environment?  If Yes, please confirm you have consulted the AppSec team		
5	<b>DevOps:</b> If you are introducing a new technology, new microservice, new application or new Cloud services, please complete DevOps questionnaire and attach link <a href="#">Create DevOps checklist</a>		
6	<b>SecOps:</b> If you are introducing a new technology, new micro service, new application or new Cloud services, please complete Ops Security questionnaire and attach link <a href="#">Create SecOps checklist</a>		
7	<b>Legal and Privacy:</b> Any new personal data points collected, processed, or shared? Or any new recipient of the data or discontinuation of any data sharing? Or any new use or purpose of the data collected? Or anything else that requires an update to your privacy questionnaire?  Please confirm that you have completed or will complete the Privacy Questionnaire.		
8	<b>GRC:</b> If you are introducing a new Vendor, please complete Vendor onboarding questionnaire and attach link	<a href="#">Vendor Risk Management Policy</a>	

	Create Vendor Risk checklist		
9	<b>3rd party evaluation:</b>  If adding a new technology or a new vendor dependency, please attach link to evaluation doc  Create Product Eval checklist  If adding a 3rd party UI/React library, please attach link to UI component evaluation doc  Create React eval checklist		

## Test Strategy (including Hulk Test Approach)

Identify the test strategy needed to cover all use cases mentioned above as well as appropriate additional coverage. Include the appropriate type of test coverage, such as unit, controller, UI integration, etc.

Please refer to [Test Automation Design Review Process](#) for changes to the automation framework.

		Preconditions (given)	Scenario (when)	Expected behavior (then)
1	😭			
2	😭			
3	😭			
4				
5	😬			
6	😬			
7	😬			
8				
9	😬			
10	😬			
11	😬			


## Questions

Below is a running list of questions to be discussed and addressed to complete the design

	Questions	Participants	Comments
1			
2			

## Reference Information

 This is an information only section with links to important pages:

 [Design Review Practice](#)

 [Design Review Recordings](#)

 [Functional Teams](#)

 [Coupa Architecture](#)

## Additional Watchers

▼ Click here to expand...

- **Services Team** [@Ben Mlynash](#) [@Eshwar Valluripalli](#) [@Ibrar Akram](#) [@Allison ReidQureshi](#) [@Andreas Tibblin](#) [@Andrew Vijayakumar](#) [@Sarah Limbert](#)