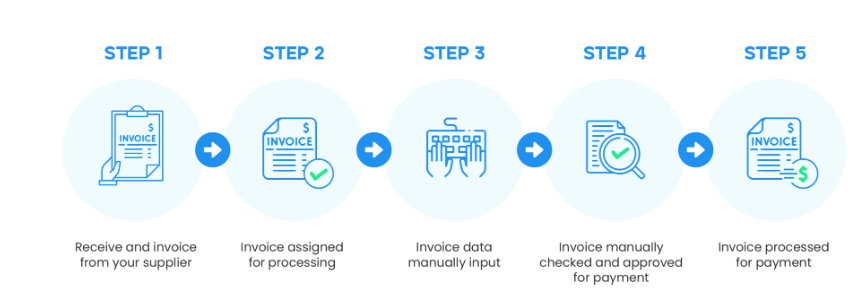
Although finance is an essential function in every company, finance teams spend too much time gathering data, staring at spreadsheets, completing the close, and generating reports.

Digital tools can reduce and even eliminate these tasks, freeing up finance to add more value as a strategic business partner.

**Business Case**: Automated Expense Categorization

**Objective:** The objective is to develop an automated system that categorizes business expenses from accounts payable transaction history, streamlining the bookkeeping process and enhancing financial analysis accuracy.

**Problem Statement:** Manual expense categorization is time-consuming, prone to human error, and inefficient, leading to inconsistencies in financial reporting and delayed decision-making (step 2&3 below))

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<https://planergy.com/blog/accounts-payable-cycle/>

**Proposed Solution** An automated system leveraging machine learning will categorize expenses based on transaction descriptions. This will reduce processing time and increase accuracy.

**Use Case:** A.Qureshi submits an invoice for $100K. Accounting Clerk must determine what project/department received the service (say average 12 minutes). If ML could predict the department served by Ms.Qureshi based on previous invoices the clerks processing time might be reduced to say 9 minutes. Let’s hire an accounting clerk for $50K per annum to process 10k transaction lines per year, a 25% reduction saves $12.5K a year, and gives the clerk more time to analyse the accounts payable results.

**Benefits:**

Efficiency: Reduces manual effort and time in expense tracking.

Accuracy: Minimizes human errors, ensuring consistent financial records.

Scalability: Easily handles growing transaction volumes.

**Key Technologies**: Python Pandas, Scikit-learn, JavaScript Plotly.

**Data** : Data extracted from a project team. Sensitive data has been removed  
anonoymous\_invoice.csv

|  |  |  |
| --- | --- | --- |
| Feature | Data Type | Description |
| Vendor Name | Text | name of vendor sold the service/product |
| Month | Text | month of purchase |
| Year | Text | year of purchase |
| PO# | Text | purchase order number issued by Cheshire to the vendor the intention to purchase a certain quantity of goods/services for the negotiated amount |
| Invoice Date | date | Date the vendor sold the service to Cheshire |
| Invoice# | Text | invoice number issued by the vendor to identify the transaction |
| total Invoice Amt | currency | total amount the vendor expects to be paid per invoice number |
| TRS | Text | project number |
| Project2 | Text | Description of project |
| Amount | Currency | Amount of the individual service or line item on the invoice |
| Cost Centre | Text | Organisational unit that will pay the invoice |
| Order# | Text | Cheshire number used to track expenses for particular activities |
| Column3 | integer | Department that will pay for the individual service good provided |
| Column1 |  | index number |

Meta Date

Input Black box Final output

csv file with details of each service purchased

Predict cost centre (a cost centre is the organisation al unit) that will pay for the service

MODEL

Goes to approval

(flask/website/….)

Thoughts

-creates bins for vendor /description

-key words in description to predict who will approve

- Unit cost could identify the product/service purchased

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