

INTEGRATED FINANCE ANALYTICS:

AP/AR & GST RECONCILIATION

DASHBOARD DOCUMENTATION

PROJECT OVERVIEW

The Integrated Finance Analytics: AP/AR & GST Reconciliation Dashboard is a comprehensive business intelligence solution designed to analyze and monitor Accounts Payable (AP), Accounts Receivable (AR), and Goods and Services Tax (GST) transactions across multiple companies, vendors, and customers. The project combines structured data preparation in Microsoft Excel with advanced data modeling and visualization in Power BI to deliver accurate, real-time financial insights.

The dashboard integrates transactional data over a two-year period and presents it through interactive reports and KPIs, enabling users to track cash flow movements, reconciliation status, tax liabilities, and payment behaviours. With dedicated pages for overall financial performance, vendor and customer analysis, and GST reconciliation, the solution provides a holistic view of organizational financial health while reducing dependency on manual reporting processes.

PURPOSE

- The purpose of this project is to provide finance teams and business stakeholders with a unified and reliable analytics platform that simplifies financial monitoring, reconciliation, and GST compliance.

- By consolidating AP, AR, and GST data into a single dashboard, the project aims to improve transparency, accuracy, and efficiency in financial operations.
- This solution supports faster identification of reconciliation issues, better tracking of outstanding receivables and payables, and improved visibility into GST liabilities and trends.

BUSINESS RULES

- GST Calculation: GST Amount should not exceed 28% of Amount
- Transaction Balance: Total Invoices + Debit Notes should balance with Payments + Credit Notes
- Reconciliation: Transactions marked "Matched" should have supporting documentation
- Date Range: All transactions must be between 01-04-2021 and 31-03-2023
- Payment Terms: Credit transactions should have defined payment terms; COD can be immediate
- Company Codes: Only 5 valid companies in dimension table
- GST Categories: Must align with Dim_GST allowed rates

Technologies Used:

- Microsoft Excel
- Power Query
- Power BI

Prepared By: Manju B

1. DATASET OVERVIEW

- 1 Fact Table: Fact_Transactions (3,600 rows, 10 columns)
- 6 Dimension Tables: Company, Vendor, Customer, Date, GST, and Reconciliation
- Data Period: April 1, 2021 to March 31, 2023 (2 years)

➤ Fact Table: Fact_Transactions

Column	Type	Description
TransactionID	Text	Unique identifier (TXN_000001 to TXN_003600)
TransactionDate	Date	Transaction date between 01-04-2021 to 31-03-2023
CompanyName	Text	Processing company (ABC Manufacturing, XYZ Trading, etc.)
VendorCustomerName	Text	Vendor or Customer identifier
TransactionType	Text	Invoice, Payment, Credit_Note, Debit_Note
Amount	Currency	Transaction amount in rupees (₹1,000 to ₹500,000)
GSTAmount	Currency	GST amount applicable
GSTCategory	Text	5%, 12%, 18%, 28%, or Exempt
ReconciliationStatus	Text	Matched, Unmatched, Partial, or Pending
PaymentTerms	Text	NET_30, NET_45, NET_60, COD, 2_10_NET_30

➤ Dimension Tables

Name of the Table	Records
Dim_Company	CompanyID, CompanyName, CompanyType, RegistrationType
Dim_Vendor	VendorID, VendorName, VendorType, StateCode
Dim_Customer	CustomerID, CustomerName, CustomerType, StateCode
Dim_Date	DateKey, Year, Month, MonthName, Quarter, QuarterName, WeekNumber
Dim_GST	GSTID, GSTCategory, GSTRate (5, 12, 18, 28, 0)
Dim_Reconciliation	ReconciliationID, ReconciliationStatus, StatusDescription

2. DATA CLEANING IN EXCEL

Step 1: Duplicate Check

Excel Function: Remove Duplicates from Data Tab

- Select Fact_Transactions data range
- Data → Remove Duplicates
- Choose TransactionID as unique identifier

Result: All 3,600 rows should be unique

Step 2: Missing Value Analysis

Use Conditional Formatting to identify blanks:

- Select entire fact table
- Conditional Formatting → Highlight Cell Rules → Blank Cells
- Fill any missing numeric values with 0
- Fill any missing text with "Unknown"

Step 3: Data Type Validation

Date Validation:

- Select TransactionDate column
- Use formula =IF(AND(A2>=DATE(2021,4,1), A2<=DATE(2023,3,31)), "Valid", "Invalid")
- Check for any "Invalid" entries

Amount Validation:

- Should be between ₹1,000 and ₹500,000
- Formula =IF(AND(F2>=1000, F2<=500000), "Valid", "Invalid")
- Credit Notes should show negative amounts (optional)

GST Amount Validation:

- For 5% GST: GSTAmount should be ~5% of Amount
- For 12% GST: GSTAmount should be ~12% of Amount
- For 18% GST: GSTAmount should be ~18% of Amount
- For 28% GST: GSTAmount should be ~28% of Amount
- For Exempt: GSTAmount should be 0
- Formula =IF(GSTAmount <= Amount*0.3, "Valid", "Check")

Validate Date Range

- All dates should be between 01-04-2021 to 31-03-2023
- Formula: =IF(AND(A2>=DATE(2021,4,1), A2<=DATE(2023,3,31)), "OK", "Error")

Reconciliation Status Validation

Should only contain: Matched, Unmatched, Partial, Pending

- Use Data Validation (Data → Validity)
- Allow: List
- Source: Matched, Unmatched, Partial, Pending

Step 4: Format Standardization

- Dates: Format as DD-MM-YYYY
- Currency: Format with ₹ symbol and 2 decimal places
- Text: Convert to proper case using =PROPER(text)
- Transaction Types: Ensure consistent naming (Invoice, Payment, etc.)

Step 5: Create Helper Columns

- Month_Year =TEXT(A2,"MMM-YYYY")
- Quarter ="Q"&ROUNDUP(MONTH(A2)/3,0)
- Fiscal_Year =IF(MONTH(A2)>=4, YEAR(A2), YEAR(A2)-1)
- GST_Rate =VLOOKUP(H2, Dim_GST, 3, FALSE)
- Company_Type =VLOOKUP(C2, Dim_Company, 3, FALSE)

Step 6: Outlier Detection

- Use AVERAGE and STDEV to find unusual amounts:
- Mean =AVERAGE(F:F)
- Std Dev =STDEV(F:F)
- Flag =IF(ABS(F2-AVERAGE(\$F\$2:\$F\$3601))>2STDEV(\$F\$2:\$F\$3601), "Outlier", "Normal")
- Review flagged transactions for correctness

3. POWER BI IMPLEMENTATION

Import Data

- Open Power BI Desktop
- Get Data → Excel
- Select Finance_Analytics_Dataset.xlsx
- Load all tables (Fact_Transactions and all Dimension tables)
- Click Transform Data to apply cleaning transformations

Data Cleaning in Power BI

1. Data Import Validation

- Verified successful import of all fact and dimension tables
- Checked row counts to ensure consistency with source Excel data
- Ensured correct column mapping and table structure

2. Column Renaming and Standardization

- Renamed columns to meaningful, business-friendly names
- Removed spaces and special characters for DAX compatibility
- Standardized naming conventions across fact and dimension tables

3. Relationship Integrity Checks

- Validated one-to-many relationships between: Fact table and dimension tables
- Ensured no ambiguous or inactive relationships
- Confirmed referential integrity across the model

4. Column Reduction and Optimization

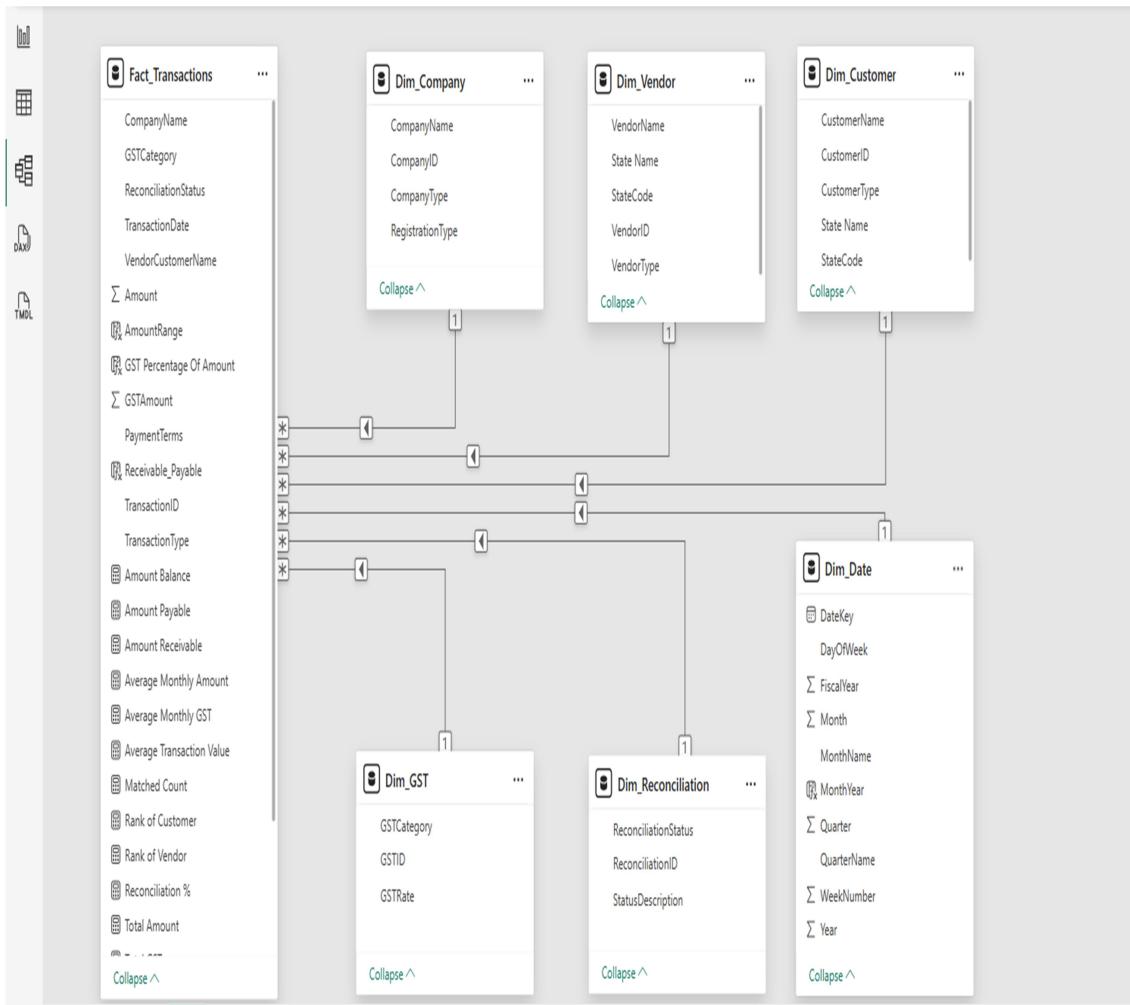
- Removed unused and redundant columns
- Reduced data model size for better performance
- Improved report refresh speed

5. Refresh and Load Validation

- Tested data refresh to confirm transformations apply correctly
- Verified no data loss or transformation errors post-refresh

Create Relationships

1. Go to Model view
2. Create relationships:
 - Fact_Transactions[CompanyName] ↔ Dim_Company[CompanyName]
 - Fact_Transactions[VendorcustomerName] ↔ Dim_Vendor[VendorName]
 - Fact_Transactions[VendorcustomerName] ↔ Dim_Customer[CustomerName]
 - Fact_Transactions[TransactionDate] ↔ Dim_Date[DateKey]
 - Fact_Transactions[GSTCategory] ↔ Dim_GST[GSTCategory]
 - Fact_Transactions[ReconciliationStatus] ↔ Dim_Reconciliation[ReconciliationStatus]



Create Calculated Columns

- 1) MonthYear = `FORMAT (Dim_Date[DateKey], "MM-YYYY")`
- 2) AmountRange =
`IF(Fact_Transactions[Amount] <= 50000, "0-50K",
IF(Fact_Transactions[Amount] <= 100000, "50K-100K",
IF(Fact_Transactions[Amount] <= 200000, "100K-200K",
IF(Fact_Transactions[Amount] <= 300000, "200K-300K", "300K-
500K"))))`
- 3) Receivable_Payable =
`SWITCH (`
`TRUE(),`

`/ CUSTOMER LOGIC /`
`LEFT ('Fact_transactions'[VendorCustomerName], 8) = "Customer"`
`&& 'Fact_transactions'[TransactionType] IN { "Invoice", "Debit_Note" },`
`"Amount Receivable",`

`LEFT ('Fact_transactions'[VendorCustomerName], 8) = "Customer"`
`&& 'Fact_transactions'[TransactionType] IN { "Credit_Note", "Payment" }`
`},`
`"Amount Payable",`

`/ VENDOR LOGIC /`
`LEFT ('Fact_transactions'[VendorCustomerName], 6) = "Vendor"`
`&& 'Fact_transactions'[TransactionType] IN { "Invoice", "Debit_Note" },`
`"Amount Payable",`

`LEFT ('Fact_transactions'[VendorCustomerName], 6) = "Vendor"`
`&& 'Fact_transactions'[TransactionType] IN { "Credit_Note", "Payment" }`
`},`
`"Amount Receivable",`

`BLANK()`
`)`
- 4) GST Percentage Of Amount =
`FORMAT(DIVIDE(Fact_Transactions[GSTAmount],`
`Fact_Transactions[Amount]), "0.0%")`

Create Measures

- a) Total Amount = SUM(Fact_Transactions[Amount])
- b) Total GST = SUM(Fact_Transactions[GSTAmount])
- c) Total Net Amount = [Total Amount]-[Total GST]
- d) Total Transactions = COUNTROWS(Fact_Transactions)
- e) Amount Payable =
CALCULATE (
SUM ('Fact_transactions'[Amount]),
'Fact_transactions'[Receivable_Payable] = "Amount Payable")
- f) Amount Receivable =
CALCULATE (
SUM ('Fact_transactions'[Amount]),
'Fact_transactions'[Receivable_Payable] = "Amount Receivable")
- g) Amount Balance = [Amount Payable]-[Amount Receivable]
- h) Average Monthly Amount =
AVERAGEX (
VALUES (Dim_Date[MonthYear]),
[Total Amount])
- i) Average Monthly GST =
AVERAGEX (
VALUES (Dim_Date[MonthYear]),
[Total GST])
- j) Average Transaction Value = DIVIDE([Total Amount], [Total Transactions], 0)
- k) Matched Count = CALCULATE([Total Transactions],
Fact_Transactions[ReconciliationStatus] = "Matched")
- l) Reconciliation % = DIVIDE([Matched Count], [Total Transactions], 0)
100
- m) Unmatched Amount = CALCULATE([Total Amount],
Fact_Transactions[ReconciliationStatus] = "Unmatched")

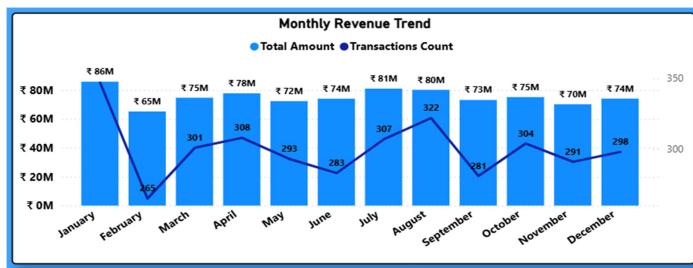
- n) Pending Amount = CALCULATE([Total Amount],
Fact_Transactions[ReconciliationStatus] = "Pending")
- o) Rank of Vendor = RANKX
(ALLSELECTED(Dim_Vendor[VendorName]),
CALCULATE(SUM(Fact_Transactions[Amount])),
,
- DESC,
Dense)
- p) Rank of Customer =
RANKX(
ALLSELECTED(Dim_Customer[CustomerName]),
CALCULATE(SUM(Fact_Transactions[Amount])),
,
- DESC,
DENSE)

4. 11 VISUALIZATIONS & IMPLEMENTATION

1: Monthly Revenue Trend (Line + Column Chart)

Power BI Steps:

1. Insert Clustered Column Chart
2. X-Axis: Dim_Date[MonthName]
3. Y-Axis: Measures[Total Amount]
4. Add secondary axis: Count of Transactions
5. Add Title: "Monthly Revenue Trend"
6. Add Data Labels: On



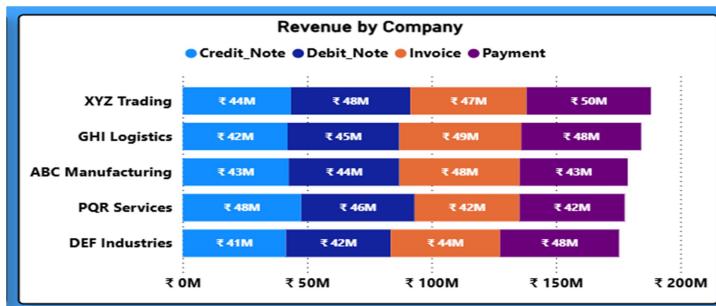
Key Insights:

- Identify seasonal peaks and troughs
- Forecast future revenue based on trends
- Plan GST payment schedule accordingly

2: Revenue by Company (Horizontal Bar Chart)

Power BI Steps:

1. Insert Horizontal Bar Chart
2. Axis: Dim_Company[CompanyName]
3. Value: Measures[Total Amount]
4. Add Legend: Transaction Type
5. Format: Use company brand colors if available
6. Add Data Labels



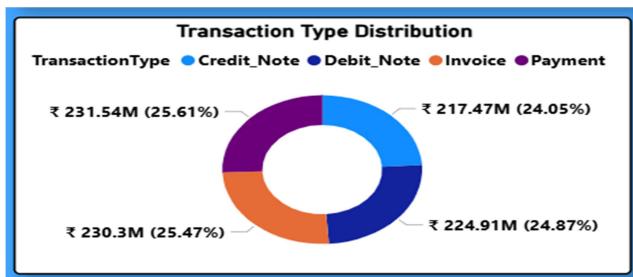
Key Insights:

- Identify top-performing business units
- Compare performance across companies
- Resource allocation decisions

3: Transaction Type Distribution (Donut Chart)

Power BI Steps:

1. Insert Donut Chart
2. Legend: Fact_Transactions[TransactionType]
3. Values: Measures[Total Amount]
4. Add Data Labels: Category
5. Add Tooltip showing count



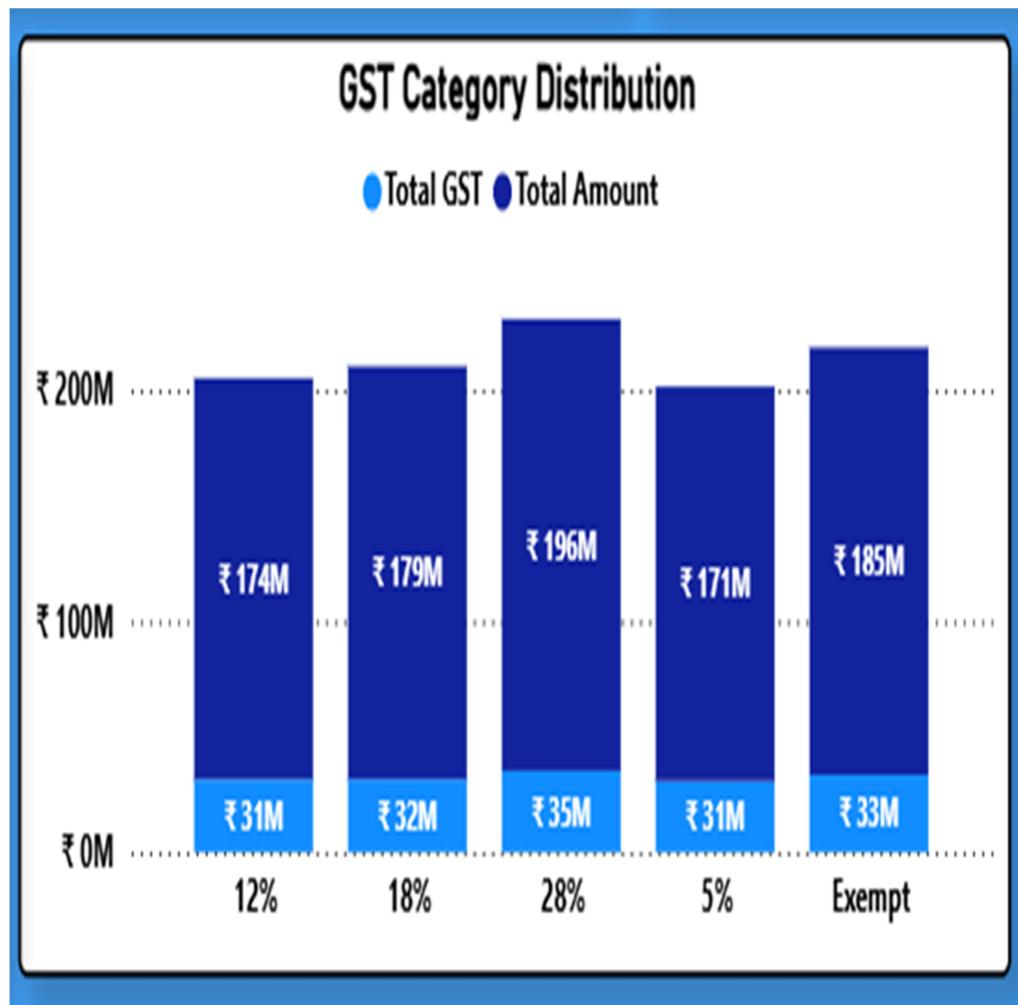
Key Insights:

- Understand transaction mix
- Invoice vs Payment ratio
- Credit Note/Debit Note frequency

4: GST Category Distribution (Stacked Column Chart)

Power BI Steps:

1. Insert Stacked Column Chart
2. X-Axis: Dim_GST[GSTCategory]
3. Y-Axis: Measures[Total GST] and Measures[Total Amount]
4. Format: Use color coding (darker for higher %)



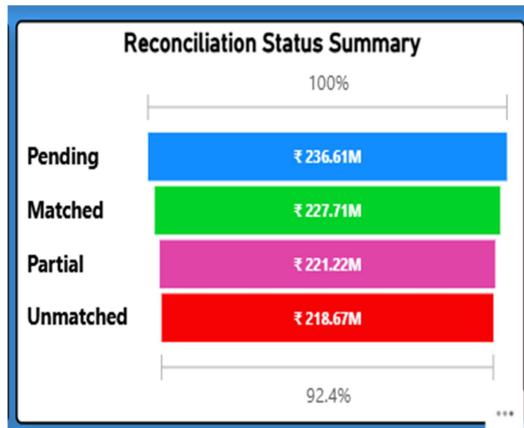
Key Insights:

- GST liability planning
- Identify high-tax transactions
- Compliance reporting

5: Reconciliation Status Summary (Funnel Chart)

Power BI Steps:

1. Insert Funnel Chart
2. Category: Dim_Reconciliation[ReconciliationStatus]
3. Values: Measures[Total Amount]
4. Add Data Labels: Value and percentage
5. Format: Green for Matched, Red for Unmatched



Key Insights:

- Reconciliation health
- Outstanding items to resolve
- Process efficiency metrics

6: Payment Terms Analysis (Combo Chart)

Power BI Steps:

1. Insert Line and Clustered Column Chart
2. X-Axis: Fact_Transactions[PaymentTerms]
3. Y-Axis: Measures[Total GST] and Measures[Total Amount]
4. Sort by Total Amount (descending)
5. Add Measures[Total transactions] as secondary axis
6. Format: Use payment term colors

Key Insights:

- Cash flow management
- Working capital analysis
- Customer credit profile

7: Quarterly Performance (Combo Chart)

Power BI Steps:

1. Insert Line and Clustered Column Chart
2. X-Axis: Dim_Date[QuarterName]
3. Line: Measures[Total Amount]
4. Column: Measures[Total GST]
5. Format: Show quarter-over-quarter change

Key Insights:

- Business performance tracking
- GST quarterly filing preparation
- Growth trajectory

8: Top 10 Vendors/Customers (Filled Map and Table)

Power BI Steps:

1. Insert Filled Map and Table
2. Axis: Top 10 by Fact_Transactions[VendorName]
3. Value: Measures[Total Amount]
4. Add Rank column using RANKX function
5. Format: Highlight top 3 in different color
6. Add Tooltip with transaction count and avg value

Key Insights:

- Concentration risk analysis
- Key relationship management
- Dependency assessment

9: Transaction Amount Distribution (Histogram)

Power BI Steps:

1. Insert Clustered Column Chart
2. X-Axis: Fact_Transactions[AmountRange]
3. Y-Axis: Count of Transactions and Measures[Total Amount]
4. Legend: Transaction Type
5. Format: X-axis in logical order (0-50K, 50K-100K, etc.)

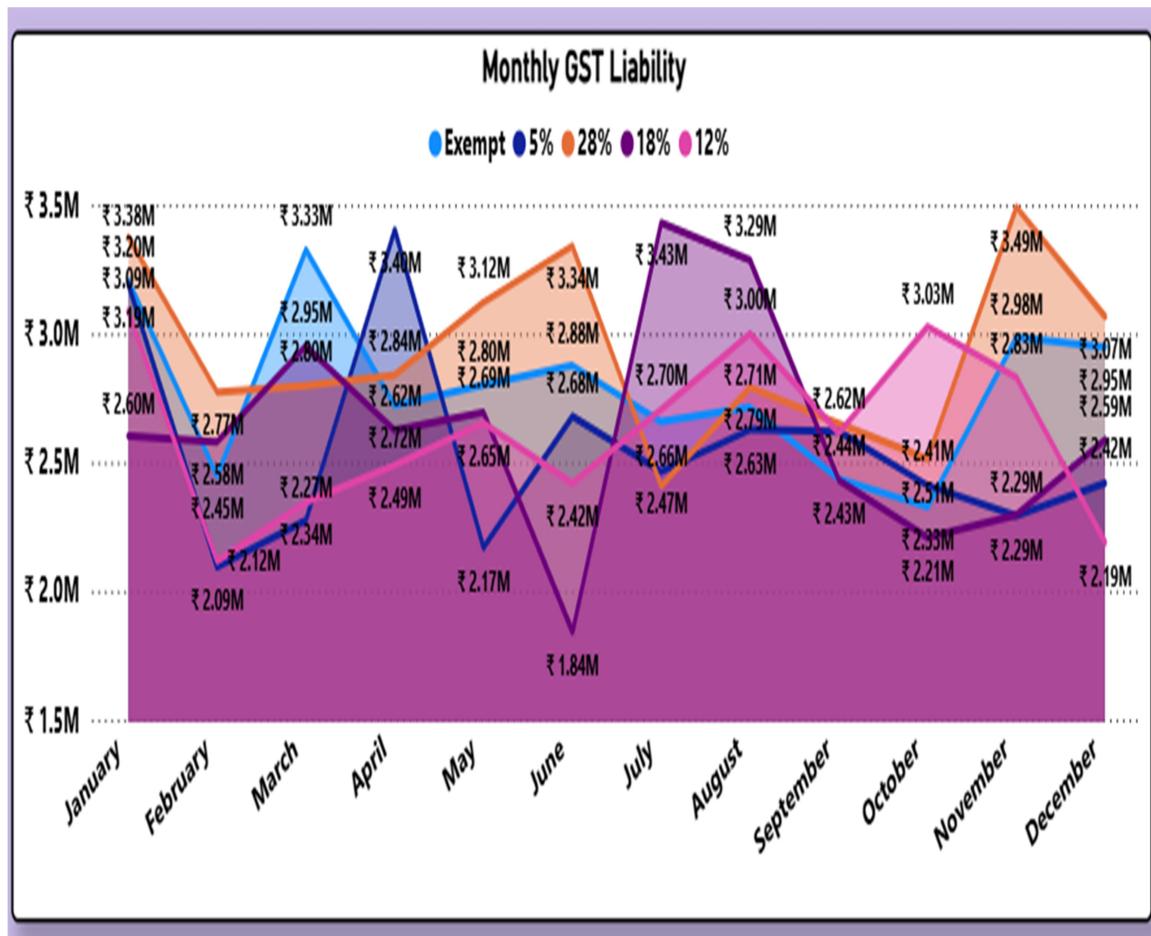
Key Insights:

- Transaction profile
- Exception handling thresholds
- Automation opportunities

10: Monthly GST Liability (Area Chart with Target)

Power BI Steps:

1. Insert Area Chart
2. X-Axis: Dim_Date[Month]
3. Y-Axis: Measures[Total GST]
4. Legend: GSTCategory
5. Format: Show as stacked area



Key Insights:

- GST compliance planning
- Payment schedule creation
- Liability forecasting

11: Top 10 Vendors/Customers (Matrix)

Power BI Steps:

1. Insert Matrix
2. Rows: Vendor Name/Customer Name
3. Columns: GSTCategory
4. Values: Total GST
5. Format: Green for Matched, Red for Unmatched

Top 10 Vendors							Top 10 Customers						
VendorName	12%	18%	28%	5%	Exempt	Total	CustomerName	12%	18%	28%	5%	Exempt	Total
Vendor_041	₹ 6,41,244.51	₹ 3,91,310.68	₹ 1,41,814.6	₹ 1,89,136.03	₹ 3,04,550.2	₹ 16,68,056.02	Customer_041	₹ 3,91,504.56	₹ 2,10,054.92	₹ 3,20,355.62	₹ 2,98,732.44	₹ 1,18,294.45	₹ 13,38,941.97
Vendor_042	₹ 4,24,073.56	₹ 1,48,440.71	₹ 2,08,006.56	₹ 2,41,439.31	₹ 2,08,093.75	₹ 12,30,053.89	Customer_042	₹ 3,78,816.89	₹ 4,10,209.96	₹ 3,15,998.19	₹ 2,19,688.21	₹ 5,87,321.79	₹ 19,12,035.04
Vendor_043	₹ 3,22,879.27	₹ 4,02,913.86	₹ 3,48,779.96	₹ 3,52,102.4	₹ 5,30,390.12	₹ 19,56,965.51	Customer_043	₹ 2,63,290.33	₹ 1,64,492.02	₹ 3,57,350.48	₹ 4,43,305.35	₹ 2,85,598.23	₹ 15,15,036.41
Vendor_044	₹ 5,17,747.13	₹ 5,97,727.86	₹ 2,00,848.74	₹ 2,99,111.69	₹ 2,35,717.15	₹ 18,51,152.57	Customer_044	₹ 1,69,975.31	₹ 3,80,224.8	₹ 2,38,945.76	₹ 3,07,603.04	₹ 4,10,916.72	₹ 15,07,665.63
Vendor_045	₹ 48,662.85	₹ 2,37,583.11	₹ 3,81,443.31	₹ 91,158.1	₹ 1,98,316.83	₹ 9,57,164.2	Customer_045	₹ 2,84,213.51	₹ 8,46,904.36	₹ 2,02,988.23	₹ 1,81,002.32	₹ 84,602.68	₹ 16,01,791.08
Vendor_046	₹ 3,87,981.23	₹ 3,44,909.95	₹ 2,40,009.99	₹ 2,76,258.43	₹ 6,17,465.2	₹ 18,66,205.8	Customer_046	₹ 5,73,953.49	₹ 1,82,179.12	₹ 1,94,413.7	₹ 3,68,084.45	₹ 2,27,947.72	₹ 15,46,578.48
Vendor_047	₹ 1,96,157.3	₹ 1,90,582.9	₹ 3,96,658.23	₹ 3,69,710.8	₹ 2,04,343.33	₹ 13,57,452.56	Customer_047	₹ 4,00,695.28	₹ 3,26,304.81	₹ 3,61,032.87	₹ 2,99,567.99	₹ 4,09,995.79	₹ 17,97,596.74
Vendor_048	₹ 86,521.41	₹ 199,392.74	₹ 6,81,119.93	₹ 4,72,866.56	₹ 3,66,165.69	₹ 18,05,886.39	Customer_048	₹ 4,74,058.85	₹ 2,48,404.75	₹ 3,13,389.09	₹ 4,49,597.31	₹ 3,31,623	₹ 18,17,073
Vendor_049	₹ 3,59,995.48	₹ 3,68,633.57	₹ 5,61,024.04	₹ 3,61,190.93	₹ 1,44,747.94	₹ 17,95,591.96	Customer_049	₹ 2,54,211.68	₹ 3,31,821.52	₹ 2,22,253.41	₹ 3,72,598.65	₹ 2,17,922.32	₹ 13,98,807.58
Vendor_050	₹ 1,53,064.31	₹ 25,704.35	₹ 5,99,072.74	₹ 3,42,863.61	₹ 2,41,211.05	₹ 13,61,946.06	Customer_050	₹ 85,709.29	₹ 7,56,826.47	₹ 3,11,144.72	₹ 4,97,438.44	₹ 1,20,360.03	₹ 17,71,478.95
Total	₹ 31,38,327.05	₹ 29,06,710.73	₹ 37,58,778.06	₹ 29,95,657.86	₹ 30,51,001.26	₹ 1,58,50,474.96	Total	₹ 32,76,429.19	₹ 38,59,422.71	₹ 28,37,872.07	₹ 34,37,618.2	₹ 27,95,662.71	₹ 1,62,07,004.88

Key Insights:

- Top Contributors to GST
- GST Category Distribution

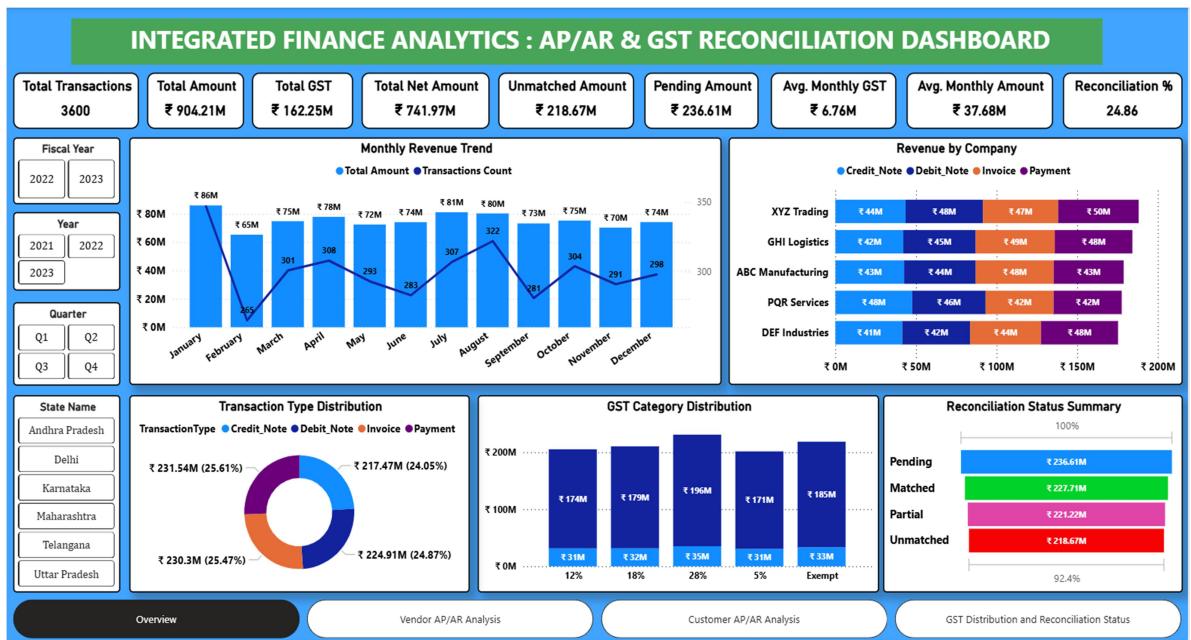
5. PERFORMANCE OPTIMIZATION TIPS

1. Excel: Keep fact table below 1 million rows for optimal performance
2. Power BI:
 - Hide unnecessary columns in model
 - Use summarization at appropriate levels
 - Implement incremental refresh for historical data
 - Use bookmarks for different views
3. Query Optimization:
 - Add indexes on frequently filtered columns
 - Use Date hierarchy for time-based filtering
 - Implement aggregation tables for summary metrics

6. POWER BI DASHBOARDS

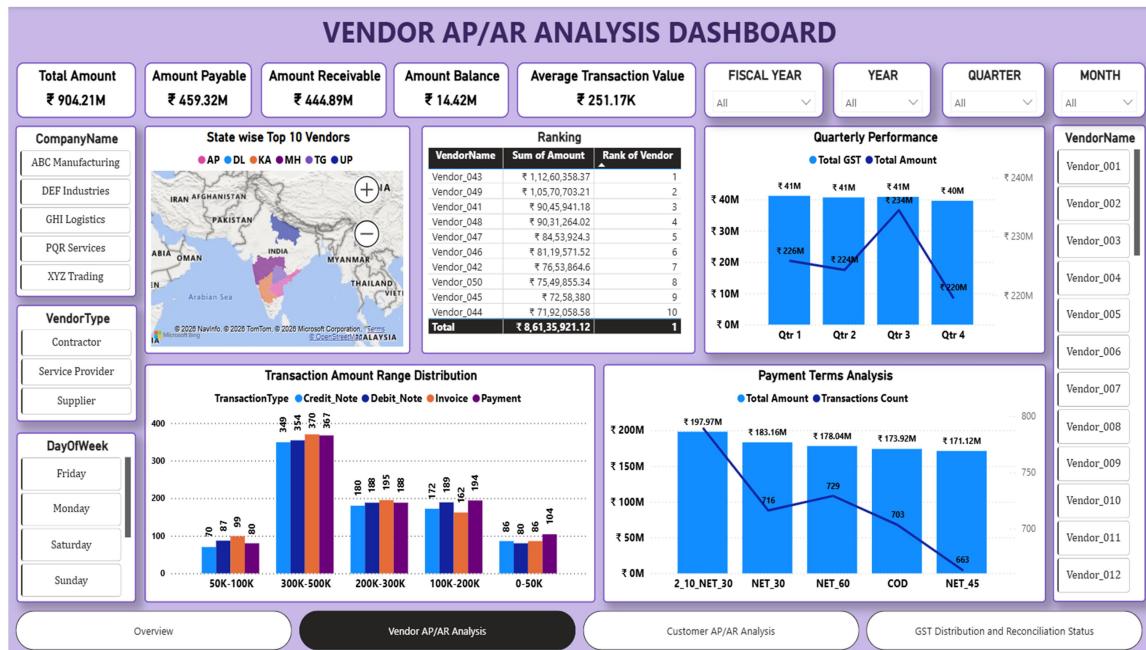
Page 1: Overview

- KPI Cards: Total Transactions, Total Amount, Total GST, Total Net Amount, Unmatched Amount, Pending Amount, Avg Monthly GST, Avg Monthly Amount, Reconciliation %
- Slicers: Company Name, State Name, Fiscal Year, Year, Quarter
- Monthly revenue trend
- Revenue by company
- Transaction type distribution
- GST category distribution
- Reconciliation Status Funnel chart



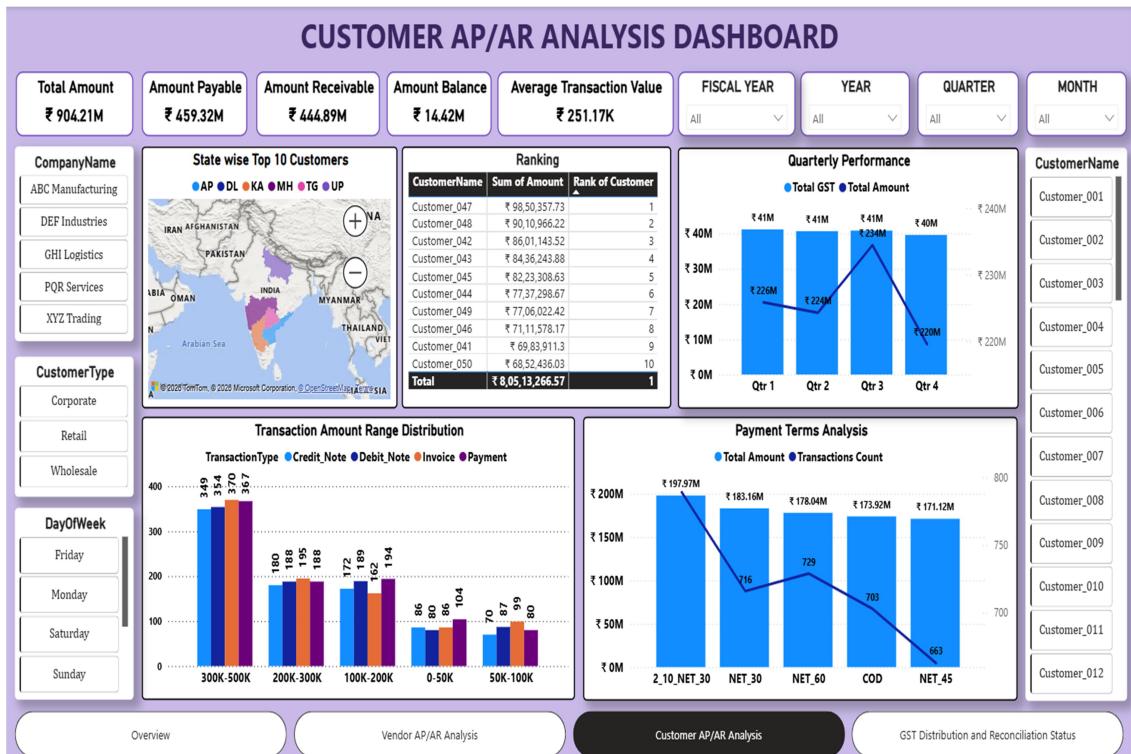
Page 2: Vendor AP/AR Analysis

- KPI Cards: Total Amount, Amount Payable, Amount Receivable, Amount Balance, Average Transaction Value
- Slicers: Company Name, Vendor Name, Vendor Type, Fiscal Year, Year, Quarter, Month, Day of Week
- State-wise Top 10 Vendors
- Ranking Top 10 Vendors
- Quarterly performance
- Transaction Amount range analysis
- Payment terms distribution



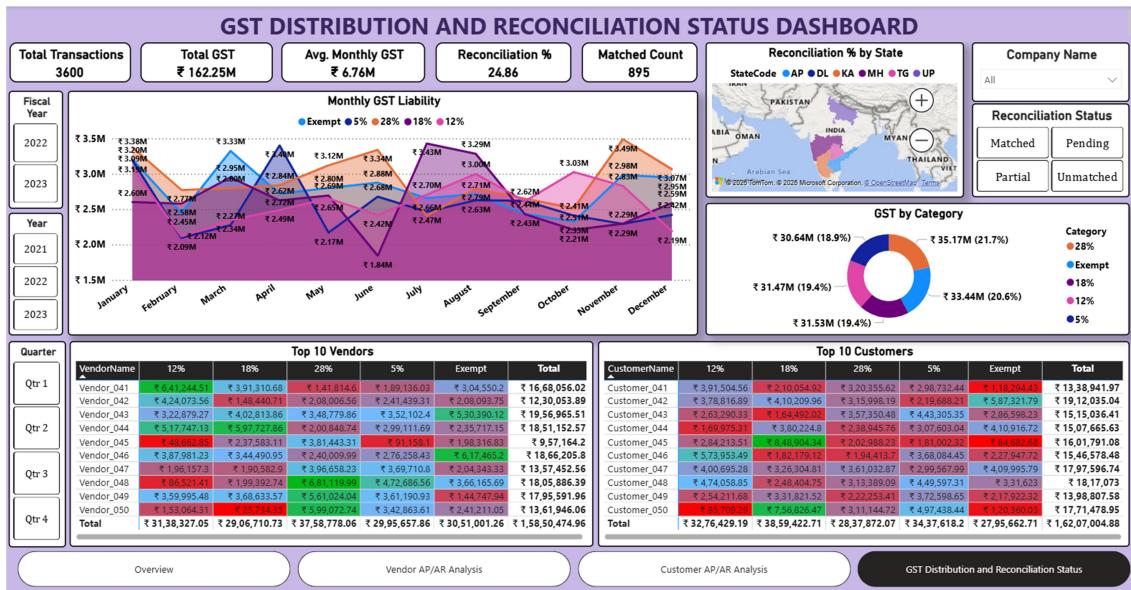
Page 3: Customer AP/AR Analysis

- KPI Cards: Total Amount, Amount Payable, Amount Receivable, Amount Balance, Average Transaction Value
- Slicers: Company Name, Customer Name, Customer Type, Fiscal Year, Year, Quarter, Month, Day of Week
- State-wise Top 10 Vendors
- Ranking Top 10 Vendors
- Quarterly performance
- Transaction Amount range analysis
- Payment terms distribution



Page 4: GST Distribution and Reconciliation

- KPI Cards: Total Transactions, Total GST, Average Monthly GST, Reconciliation %, Matched Count
- Slicers: Company Name, Reconciliation Status, Fiscal Year, Year, Quarter, Month
- Monthly GST liability trend
- GST amount by category
- Reconciliation % by State
- Top 10 Vendors
- Top 10 Customers



7. MAINTENANCE & UPDATES

- Weekly: Review reconciliation status
- Monthly: Run data quality checks and reconciliation
- Quarterly: Review dashboard usage and refresh if needed
- Annually: Archive historical data and update GST rates if applicable

8. CONCLUSION

The Integrated Finance Analytics: AP/AR & GST Reconciliation Dashboard successfully delivers a centralized, data-driven solution for monitoring financial transactions, reconciliation status, and GST compliance across multiple companies, vendors, and customers. By integrating Accounts Payable, Accounts Receivable, and GST analytics into a single Power BI platform, the project significantly enhances financial visibility, accuracy, and operational efficiency.

Through robust data cleaning in Excel, a well-structured star schema model, and optimized DAX measures in Power BI, the dashboard enables real-time tracking of cash flows, outstanding balances, reconciliation exceptions, and tax liabilities. The implementation of interactive KPIs, slicers, and 11 insightful visualizations empowers finance teams to quickly identify risks, resolve mismatches, and make informed decisions.

This solution supports better working capital management, improves reconciliation turnaround time, and ensures adherence to GST regulatory requirements. Additionally, the scalable design allows for future enhancements such as automation, integration with ERP systems, and advanced forecasting.

Overall, this project demonstrates strong practical expertise in financial analytics, Excel-based data preparation, and Power BI dashboard development, making it a valuable and industry-relevant solution for modern finance and analytics roles.