

full_note_farmacia_salud_20251001

October 1, 2025

1 Business Intelligence Dashboard

Automated insights for data-driven decisions

```
[182]: input_file = 'data/farmacia_salud/farmacia_salud_transactions.csv' # Input CSV_
      ↪ file

config = {
    'project_name': 'farmacia_salud',      # Project name
    'out_dir' : 'outputs',                  # Output directory

    # Data mapping
    'date_col': 'fecha',
    'product_col': 'producto',
    'description_col': 'glosa',
    'revenue_col': 'total',
    'quantity_col': 'cantidad',
    'transaction_col': 'trans_id',
    'cost_col': 'costo',

    # Analysis settings
    'analysis_date': '2024-11-01',         # Or 'current' for today
    'top_products_threshold': 0.2,
    'dead_stock_days': 30,
    'currency_format': 'CLP',
    'language': 'EN',
}

save = 0 # True or 1 to save outputs, False or 0 to just print
```

```
[183]: from modules.business_analytics import BusinessAnalyzer
      from modules.dashboard import ExecutiveDashboard
      from modules.advanced_analytics import AdvancedAnalytics
      from modules.reports import *
      from modules.utils import *

      # Initialize with AdvancedAnalytics (includes all functionality)
      # AdvancedAnalytics -> BusinessAnalyzer -> Business (inheritance chain)
```

```

analyzer = BusinessAnalyzer(data_source=input_file, config=config)

# Create dashboard and advanced analytics instances
dashboard = ExecutiveDashboard(analyzer)
advanced = AdvancedAnalytics(analyzer)

```

```

Data date range: 2024-09-01 to 2024-10-31
Business initialized with data from:
data/farmacia_salud/farmacia_salud_transactions.csv (12158, 13)
Output directory: outputs\farmacia_salud\20251001_2028
All base metrics calculated
BusinessAnalyzer initialized for project: farmacia_salud
Dashboard output directory: outputs\farmacia_salud\20251001_2028
AdvancedAnalytics initialized for project: farmacia_salud

```

1.1 Quick Summary

```

[184]: summary = dashboard.create_quick_summary()
print_info(summary, analyzer.out_dir, "DASH_quick_summary.txt", save=save)

```

```

=====
DASHBOARD SUMMARY
=====

```

KEY METRICS:

- Total Revenue: \$ 80.523.800
- Growth Rate: 0.2%
- Transactions: 12,158

KEY INSIGHTS:

- Top 20% of products = 44.7% of revenue
- Inventory Health: 20% healthy
- Dead Stock: 0 products

1.2 KPIs

```

[185]: kpis = analyzer.get_kpis()
print_info(analyzer.print_kpis(), analyzer.out_dir, "BA_kpi.txt", save=save)

```

```

Periods considered for growth:

```

- Previous: 2024-09-01 -> 2024-10-01
- Current: 2024-10-01 -> 2024-10-31

```

Growth: 0.2%

```

```

Revenue: $ 80.523.800

```

```

Transactions: 12,158

```

1.3 Alerts & Actions

```
[186]: alerts = analyzer.get_alerts()
print_info(analyzer.print_alerts(), analyzer.out_dir, "BA_alerts.txt",
↪save=save)
```

SUCCESS INDICATORS:

Revenue well distributed across products
Next Step: Maintain current portfolio balance

1.4 Revenue Concentration Analysis

```
[187]: pareto = analyzer.get_pareto_insights()
print_info(analyzer.print_pareto(), analyzer.out_dir, "BA_pareto.txt",
↪save=save)
```

TOP INSIGHT: Your top 7 products (20% of catalog) generate 44.7% of revenue!

Concentration Risk Level: Low

Top 5 Revenue Generators:

1. VITAMINA C 1000MG 30 CAPS: \$ 7.410.000
2. MULTIVITAMINICO ADULTO 60 CAPS: \$ 6.759.000
3. ATORVASTATINA 20MG 30 TAB: \$ 6.075.000
4. FORMULA INFANTIL 900G: \$ 4.312.000
5. LOSARTAN 50MG 28 TAB: \$ 4.104.000

80/20 Rule: Top 20% = 44.7% of revenue

1.5 Inventory Health Check

```
[188]: inventory = analyzer.get_inventory_health()
print_info(analyzer.print_inventory_health(), analyzer.out_dir, "BA_inventory.
↪txt", save=save)
```

Inventory Health Score: 20%

Dead Stock Alert: 0 products

1.6 Operational Efficiency

```
[189]: peak_times = analyzer.get_peak_times()
print_info(analyzer.print_peak_times(), analyzer.out_dir, "BA_peak_times.txt",
↪save=save)
```

Peak Performance Windows:

- Best Day: Wednesdays

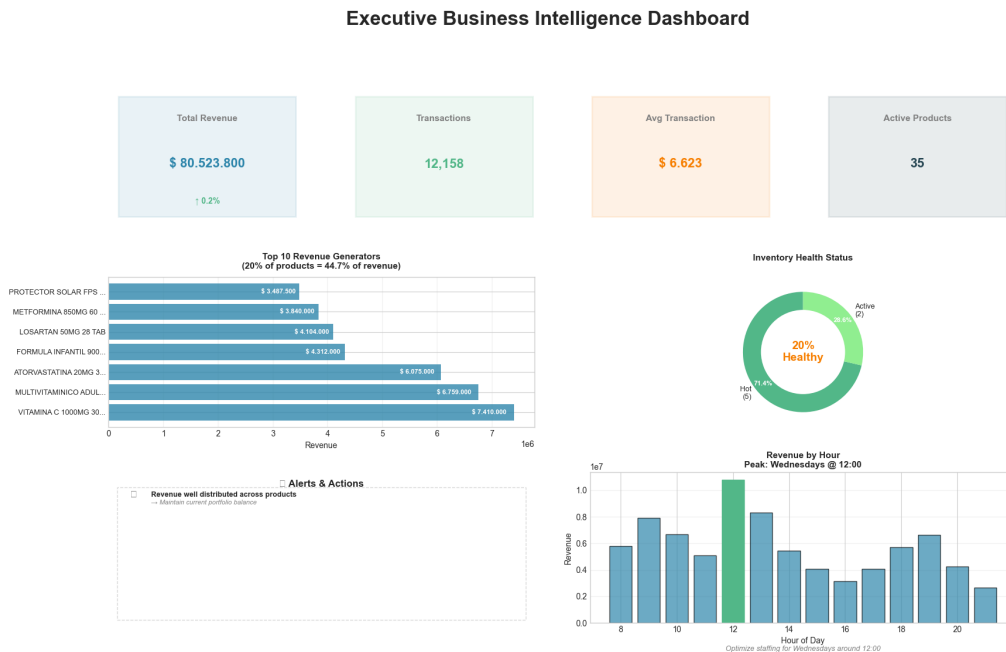
- Peak Hour: 12:00
- Slowest Day: Saturdays

Optimize staffing for Wednesdays around 12:00

2 Visuals

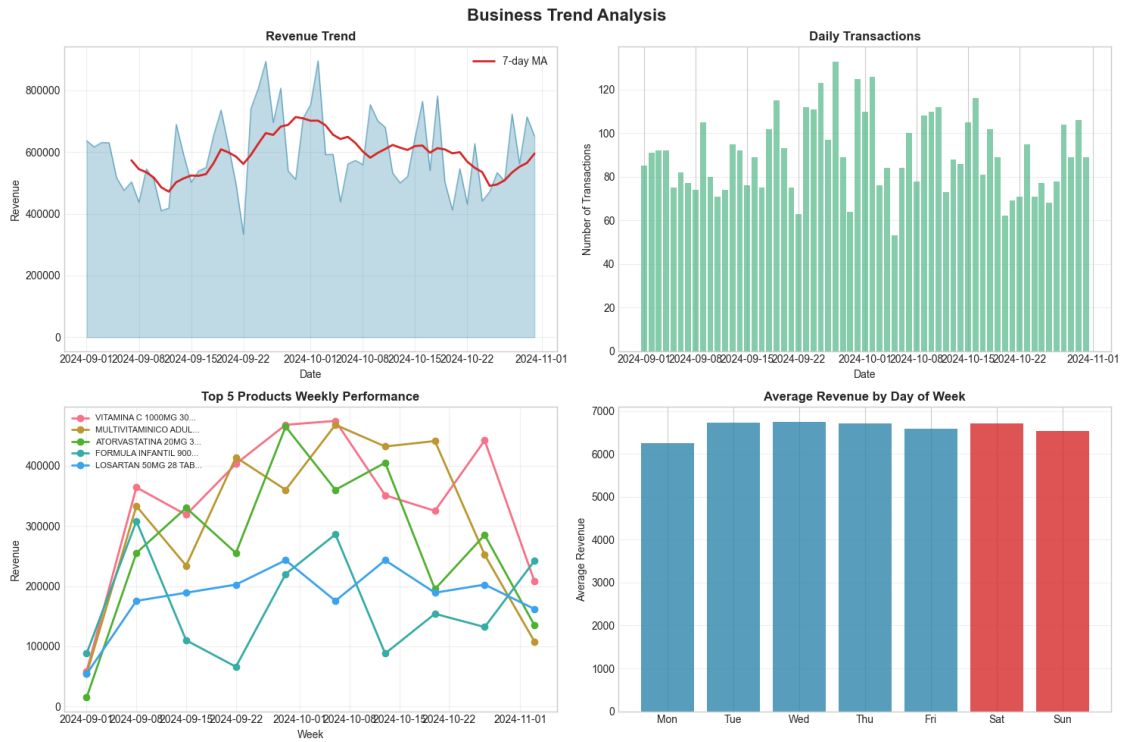
2.1 Executive Dashboard

```
[190]: # Create and display the executive dashboard
fig = dashboard.create_full_dashboard(figsize=(20, 12))
print_fig(fig, dashboard.analyzer.out_dir, "DASH_executive.png", save=save)
```



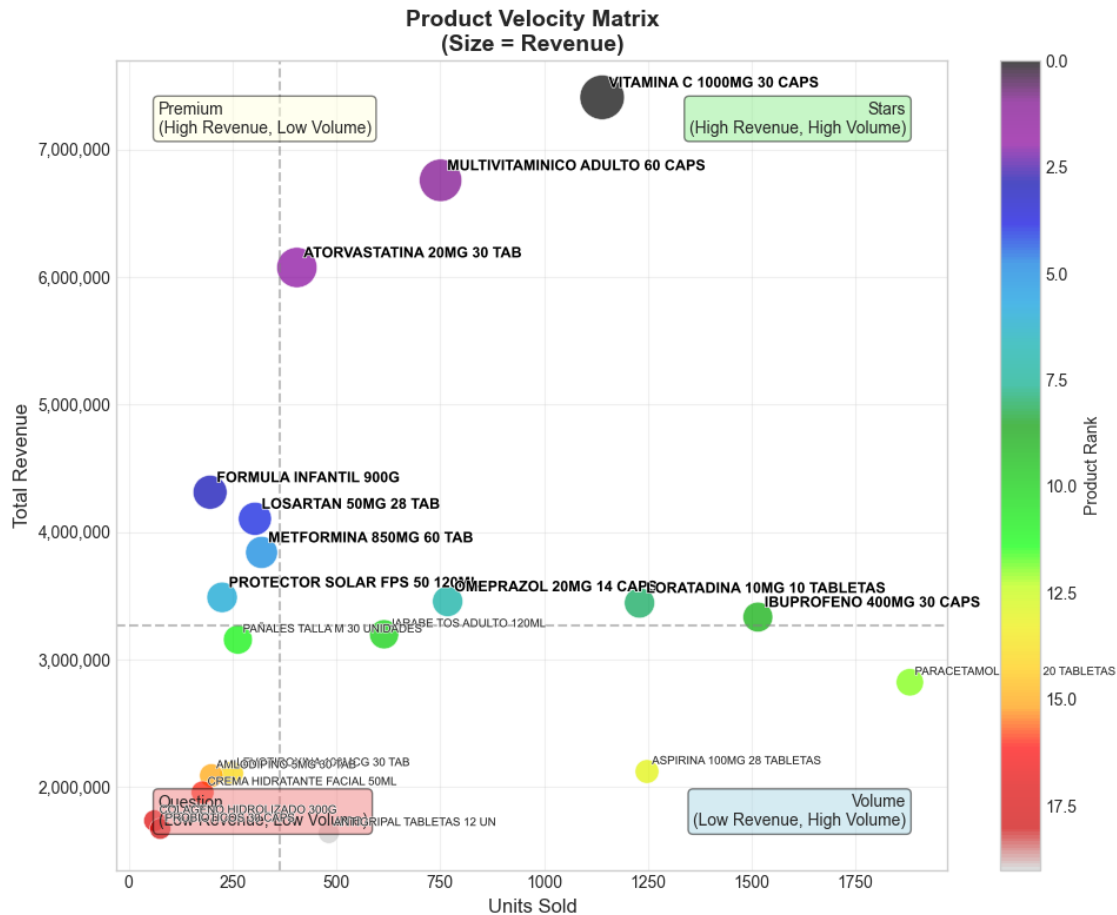
2.2 Trend analysis

```
[191]: trend_fig = advanced.create_trend_analysis(figsize=(15, 10))
print_fig(trend_fig, dashboard.analyzer.out_dir, "DASH_trend.png", save=save)
```



2.3 Product velocity

```
[192]: velocity_fig = product_velocity_matrix(analyzer)
print_fig(velocity_fig, dashboard.analyzer.out_dir, "DASH_velocity.png",
save=save)
```



3 Advanced Analytics

3.1 Forecast

```
[193]: forecast = advanced.calculate_revenue_forecast(days_ahead=30)
print_info(advanced.print_revenue_forecast(), analyzer.out_dir, "ADV_forecast.
↪txt", save=save)
```

Revenue Forecast for next 30 days:

Daily:

- Average: \$ 594.800
- Std Dev: \$ 124.058
- 95% Confidence Interval: (\$ 351.646, \$ 837.954)

Total:

- Forecast: \$ 17.844.000
- 95% Confidence Interval: (\$ 10.549.382, \$ 25.138.618)
- Trend: Increasing

3.2 Cross-sell opportunities

```
[194]: cross_sell = advanced.calculate_cross_sell_opportunities(limit=3)
print_info(advanced.print_cross_sell_opportunities(), analyzer.out_dir,
↳"ADV_cross_selling.txt", save=save)
```

No significant cross-sell opportunities found.

3.3 Anomalies

```
[195]: anomalies = advanced.calculate_anomalies(limit=3)
print_info(advanced.print_anomalies(), analyzer.out_dir, "ADV_anomalies.txt",
↳save=save)
```

No anomalies detected.

3.4 Top Recommendations

```
[196]: recommendations = advanced.calculate_recommendations()
print_info(advanced.print_recommendations(), analyzer.out_dir,
↳"ADV_recommendations.txt", save=save)
```

No actionable recommendations found.

4 Reports

4.1 Weekly Comparison Report

```
[197]: weekly_comparison_report = weekly_comparison_report(analyzer)
print_info(weekly_comparison_report, analyzer.out_dir, "REPORTS_weekly_compare.
↳txt", save=save)
```

```
=====
WEEKLY COMPARISON REPORT
=====
```

Revenue:

Last Week:	\$ 2.651.600
Previous Week:	\$ 3.558.700
Change:	↓ 25.49%

Transactions:

Last Week:	388
Previous Week:	529
Change:	↓ 26.65%

Products Sold:

Last Week:	32
Previous Week:	32

Change: → 0.00%

Avg Transaction:

Last Week: \$ 6.834

Previous Week: \$ 6.727

Change: ↑ 1.59%