full_note_estilo_santiago_20251001

October 1, 2025

1 Business Intelligence Dashboard

Automated insights for data-driven decisions

[ ]:
```
input_file = 'data/estilo_santiago/estilo_santiago_transactions.csv'  # Input␣
↪CSV file

config = {
    'project_name': 'estilo_santiago',       # 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': '2024-05-01',      # Or 'current' for today
    'top_products_threshold': 0.2,
    'dead_stock_days': 30,
    'currency_format': 'CLP',
    'language': 'EN',
}

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

[136]:
```
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: 2024-03-01 to 2024-04-30
Business initialized with data from:
data/estilo_santiago/estilo_santiago_transactions.csv (9443, 14)
Output directory: outputs\estilo_santiago\20251001_2024
  All base metrics calculated
BusinessAnalyzer initialized for project: estilo_santiago
Dashboard output directory: outputs\estilo_santiago\20251001_2024
AdvancedAnalytics initialized for project: estilo_santiago
```

1.1 Quick Summary

[137]:
```
summary = dashboard.create_quick_summary()
print_info(summary, analyzer.out_dir, "DASH_quick_summary.txt", save=save)
```

```
============================================================
DASHBOARD SUMMARY
============================================================

  KEY METRICS:
  • Total Revenue: $ 570.911.000
  • Growth Rate: -1.0%
  • Transactions: 9,443

  CRITICAL ACTIONS:
  • 1 products haven't sold in 30+ days
    → Consider liquidation or promotional campaigns

  KEY INSIGHTS:
  • Top 20% of products = 48.8% of revenue
  • Inventory Health: 43% healthy
  • Dead Stock: 0 products

============================================================
```

1.2 KPIs

[138]:
```
kpis = analyzer.get_kpis()
print_info(analyzer.print_kpis(), analyzer.out_dir, "BA_kpi.txt", save=save)
```

```
  Periods considered for growth:
  • Previous: 2024-03-01 -> 2024-03-31
  • Current:  2024-03-31 -> 2024-04-30
```

```
Growth: -1.0%

Revenue: $ 570.911.000
Transactions: 9,443
```

1.3 Alerts & Actions

[139]:
```
alerts = analyzer.get_alerts()
print_info(analyzer.print_alerts(), analyzer.out_dir, "BA_alerts.txt",␣
 ↪save=save)
```

```
CRITICAL ACTIONS REQUIRED:

 1 products haven't sold in 30+ days
 Impact: Cash tied up in non-moving inventory
   Action: Consider liquidation or promotional campaigns

SUCCESS INDICATORS:

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

1.4 Revenue Concentration Analysis

[140]:
```
pareto = analyzer.get_pareto_insights()
print_info(analyzer.print_pareto(), analyzer.out_dir, "BA_pareto.txt",␣
 ↪save=save)
```

```
TOP INSIGHT: Your top 5 products (20% of catalog) generate 48.8% of revenue!

Concentration Risk Level: Low

Top 5 Revenue Generators:
 1. CHAQUETA BLAZER CLASICA BEIGE CAFE: $ 62.985.000
 2. SWEATER CASHMERE CUELLO V CREMA: $ 59.280.000
 3. VESTIDO MIDI LANA AZUL MARINO L: $ 57.265.000
 4. CHAQUETA CUERO MARRON: $ 54.095.000
 5. PANTALON TELA RECTO GRIS GRIS: $ 45.066.000

80/20 Rule: Top 20% = 48.8% of revenue
```

1.5 Inventory Health Check

[141]:
```
inventory = analyzer.get_inventory_health()
print_info(analyzer.print_inventory_health(), analyzer.out_dir, "BA_inventory.
 ↪txt", save=save)
```

```
Inventory Health Score: 43%
```

Dead Stock Alert: 0 products

Products At Risk (Slowing):

- CAMISETA MENSAJE FILOSOFICO L: 37.0 days since last sale

1.6 Operational Efficiency

[142]:
```
peak_times = analyzer.get_peak_times()
print_info(analyzer.print_peak_times(), analyzer.out_dir, "BA_peak_times.txt",␣
↪save=save)
```

Peak Performance Windows:

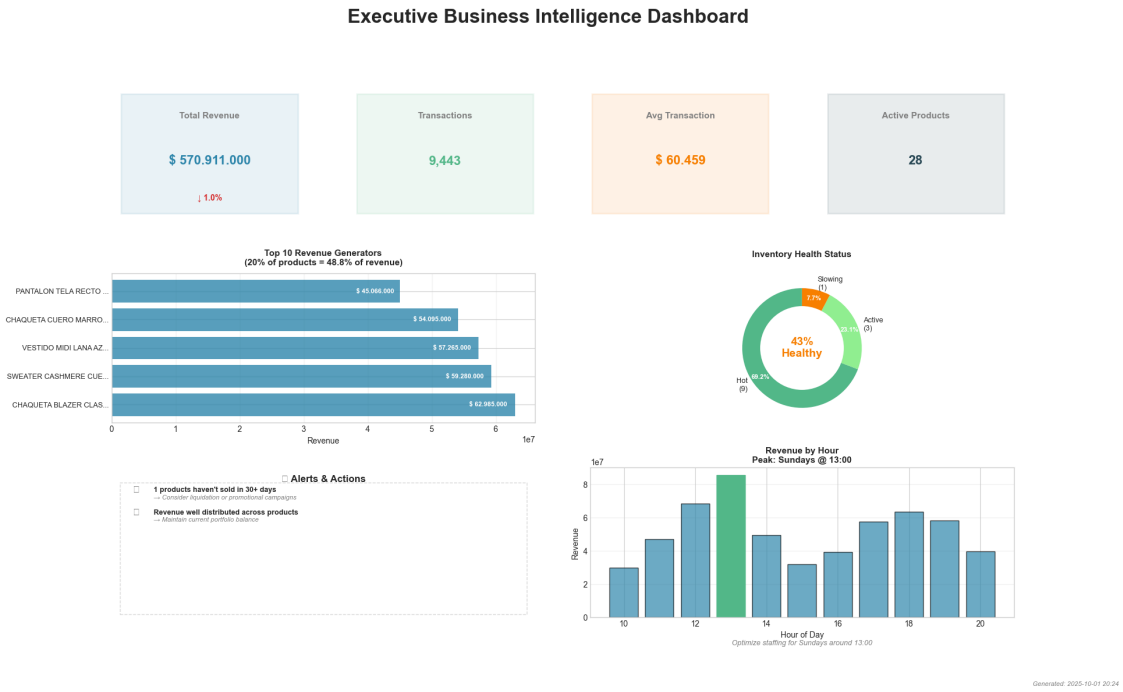
- Best Day: Sundays
- Peak Hour: 13:00
- Slowest Day: Thursdays

Optimize staffing for Sundays around 13:00

2 Visuals

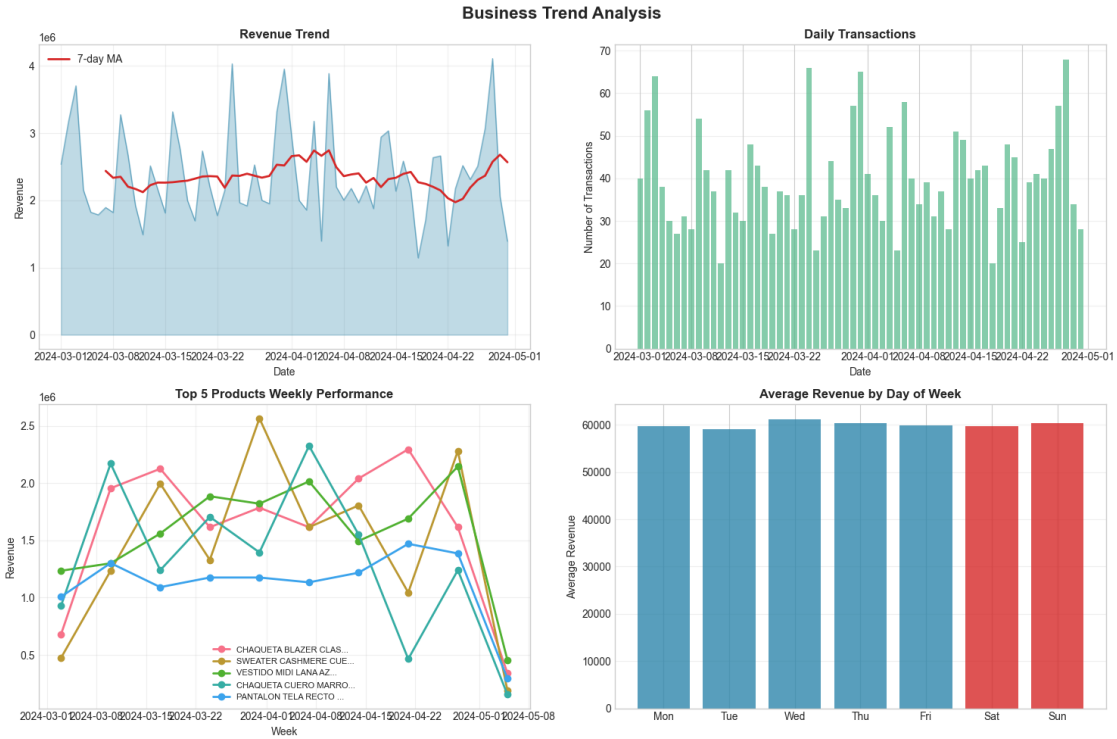
2.1 Executive Dashboard

[143]:
```
# 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)
```



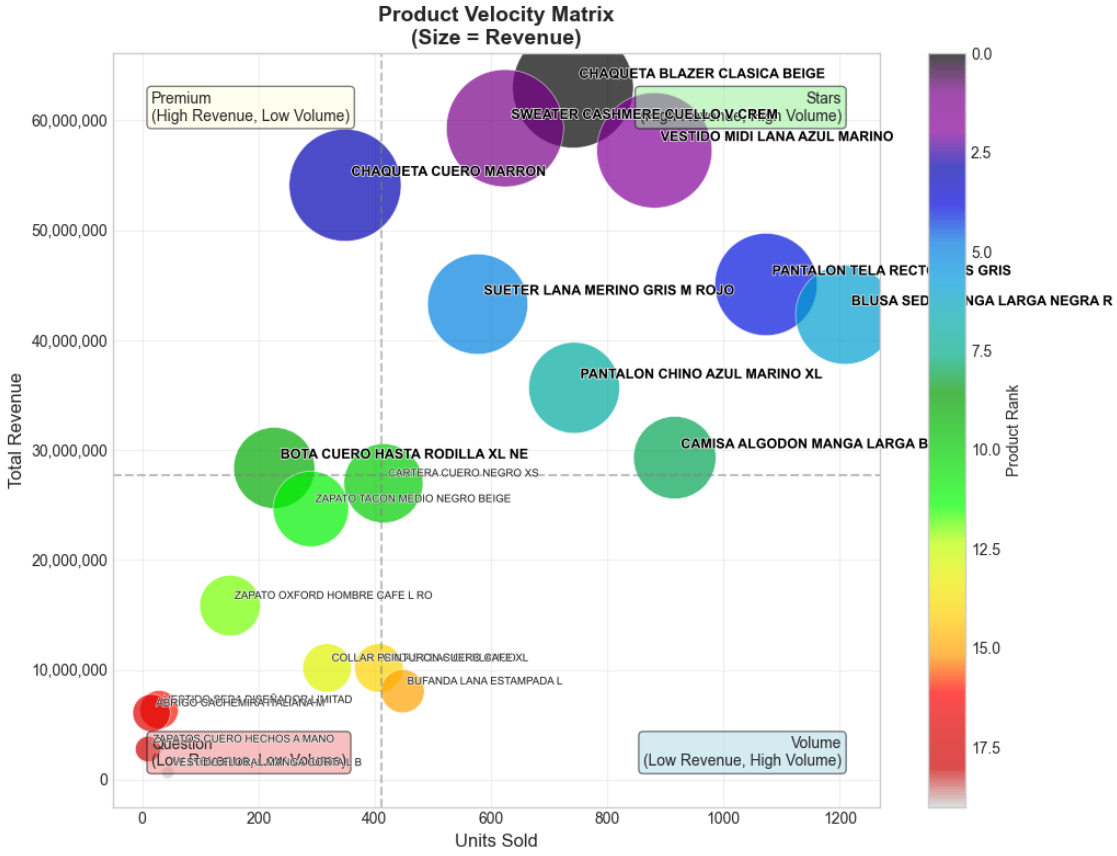
2.2 Trend analysis

[144]:
```
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

[145]:
```
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

[146]:
```
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: $ 2.567.571
- Std Dev: $ 695.586
- 95% Confidence Interval: ($ 1.204.223, $ 3.930.919)
Total:
- Forecast: $ 77.027.143
- 95% Confidence Interval: ($ 36.126.701, $ 117.927.585)
- Trend: Increasing
```

3.2 Cross-sell opportunities

[147]:
```
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

[148]:
```
anomalies = advanced.calculate_anomalies(limit=3)
print_info(advanced.print_anomalies(), analyzer.out_dir, "ADV_anomalies.txt",␣
 ↪save=save)
```

```
Anomalies Detected:
• Unusual revenue on 2024-04-28: $ 4.110.000
```

3.4 Top Recommmendations

[149]:
```
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

[150]:
```
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:     $ 3.451.000
  Previous Week: $ 18.020.000
  Change:          ↓ 80.85%

Transactions:
  Last Week:     62
  Previous Week: 317
  Change:          ↓ 80.44%

Products Sold:
  Last Week:     17
```

```
  Previous Week: 22
  Change:          ↓ 22.73%

Avg Transaction:
  Last Week:     $ 55.661
  Previous Week: $ 56.845
  Change:          ↓ 2.08%
```