Inventory Burn Rate Analyzer

Client Simulation: GlowUp Beauty Co.

Disclaimer

This is a fictional case study created for portfolio purposes. “GlowUp Beauty Co.” embodies trends observed in the beauty retail industry; any resemblance to real companies is coincidental.

Executive Summary

Inventory mismanagement is a critical issue in beauty retail. In 2023, the global beauty market reached **$446 billion in retail sales**, growing 10% year-over-year, while volume increased only ~2%, signaling tight demand margins (McKinsey, 2023). Retailers also lose approximately **4% of annual revenue** due to stockouts (Slimstock, 2024). This report proposes the **Inventory Burn Rate Analyzer**, a web-based tool designed to track product depletion, forecast stockout dates, and assist GlowUp in preventing lost sales and overstocks.

Company Profile – GlowUp Beauty Co.

Industry: Beauty & Personal Care Retail
Channels: E-commerce + Physical storefront
Products: Skincare, cosmetics, haircare, fragrance, and gift sets
Peak Sales Periods: Valentine's Day, Summer promotions, Black Friday, Holiday season

Problem Statement

GlowUp lacks timely insight into inventory health, resulting in:

- **Stockouts** during promotional campaigns
- **Excess carryover** of seasonal stock
- **Idle capital** tied up in slow-moving SKUs
- **Delayed restocking decisions** due to manual processes

Why Burn Rate Matters

Inventory Burn Rate measures the pace of stock depletion, which is essential for proactive replenishment and avoiding both shortages and surplus. Identifying fast-depleting products allows optimization of reorder timing and quantity.

Industry Benchmarks & Cost of Errors

- Stockouts cost retailers about 4% of sales annually (Corsten & Gruen, 2004; Slimstock, 2024).
- The global beauty market grew 10% in 2023 to $446 billion (McKinsey, 2023).
- Inventory turnover for major beauty retailers averages 3.3–3.5x per year (ECRLoss, 2020).

Proposed Solution: Inventory Burn Rate Analyzer

A lightweight **HTML/CSS/JS dashboard** with Chart.js visualizations, featuring:

1. **CSV upload interface**
2. **Burn rate & days-until-stockout estimates**
3. **Alerts** for fast-depleting items
4. **Category filters** (e.g., “Skincare”, “Fragrance”)
5. **Charts**: bar (burn rate) + line (stock trends)

Use Case Scenario: Holiday Campaign

In December, GlowUp launched a holiday gift promotion. Within 5 days, “Winter Glow Kit” sales surged 300%, resulting in a mid-campaign stockout. With the Analyzer, low-stock alerts on day 3 would trigger proactive restocking, safeguarding ~$10K+ in revenue and preserving campaign momentum.

Business Impact & Value

KPI	Improvement
Lost Sales Avoided	4% reduction in stockouts preserves ~$40K on $1M annual revenue
Inventory Turnover	From 3.3× to 4.0× annual turnover—reduces holding costs significantly
Markdown Reduction	Fewer end-of-season markdowns on slow movers
Operational Efficiency	Automated tracking saves manual inventory reporting time

This tool is specifically designed for roles involved in inventory oversight, purchasing, and retail strategy:

- **Retail Operations & Inventory Managers**
  Monitor product movement and stock levels across locations. The burn rate analyzer helps them identify which items need restocking and which can be deprioritized — minimizing stockouts and overstock.
- **Procurement Analysts**
  Rely on data-driven insights to make cost-effective purchasing decisions. This tool supports procurement by highlighting fast-moving SKUs that require immediate reordering and helping forecast future inventory needs.
- **Supply Chain Coordinators**
  Need visibility into how quickly products are depleting to adjust logistics and vendor schedules. The analyzer offers projected stockout timelines, allowing for more accurate and timely supply chain planning.
- **Store Managers & Small Business Owners**
  Often wear multiple hats and need quick, visual summaries of inventory health. This tool provides easy-to-read charts and restock signals, helping them act fast without deep analytical skills.

Limitations & Assumptions

- Uses CSV uploads; no ERP integration
- Linear burn-rate forecasting only—future versions may introduce predictive drivers
- Seasonal surge modeling based on industry trends, not extract from proprietary data

Conclusion

The Inventory Burn Rate Analyzer equips GlowUp with essential tools to reduce stock-related losses, improve inventory efficiency, and make proactive purchasing decisions. The result: growth driven by intelligent operations and real-time data.

References

Corsten, Daniel, and Thomas Gruen. *The Hidden Cost of Stockouts: Why Retailers Can't Afford Empty Shelves*. Slimstock, 2024.

ECRLoss. *Grow Sales by Improving Inventory Records: 4–8% Sales Increase*. ecrloss.com, 2020.

McKinsey & Company. "The Beauty Boom and Beyond: Can the Industry Maintain Its Growth?" *McKinsey Insights*, 2023.

Dashboard in Action: Example Analysis

Scenario

GlowUp Beauty Co. is gearing up for a holiday campaign featuring curated skincare and beauty bundles. To support this, the **Inventory Burn Rate Analyzer** was used to assess product performance based on current inventory levels and daily sales velocity.

Analysis Results

The uploaded dataset includes five products across four categories. The analyzer calculates each item's **burn rate** and estimates the number of days remaining before stockout.

Key insights:

- **Vitamin C Serum** is the top-selling product, burning through **10 units per day**, and is projected to run out in **12 days**.
- **Hydrating Face Mist**, despite a slower sales pace, has **very limited stock** and is expected to run out in just **6 days**.
- **Lavender Body Lotion** maintains the most stable inventory with an estimated **20 days** remaining, making it a lower restocking priority.

Visual Breakdown

- **Figure 2: Burn Rate Bar Chart** – Compares daily unit sales across products, highlighting fast-moving SKUs.
- **Figure 3: Stock Depletion Forecast (Line Chart)** – Projects how many days are left before each product runs out, helping prioritize restocking efforts.

Interpretation

These insights enable data-driven decisions prior to campaign launch:

- **Immediate restock needed**: Hydrating Face Mist risks stockout mid-campaign.
- **Plan ahead**: Vitamin C Serum should be monitored closely due to high demand.
- **Strategic bundling**: Slower-moving products like Lavender Body Lotion could be bundled or discounted to improve turnover.

Business Impact

Using this analysis, GlowUp can:

- **Avoid lost revenue** from popular products going out of stock.
- **Reallocate inventory budgets** to high-performing items.
- **Optimize promotions** by pushing overstocked or slower-moving items.

Screenshots of Figures

- **Figure 1**:Homepage

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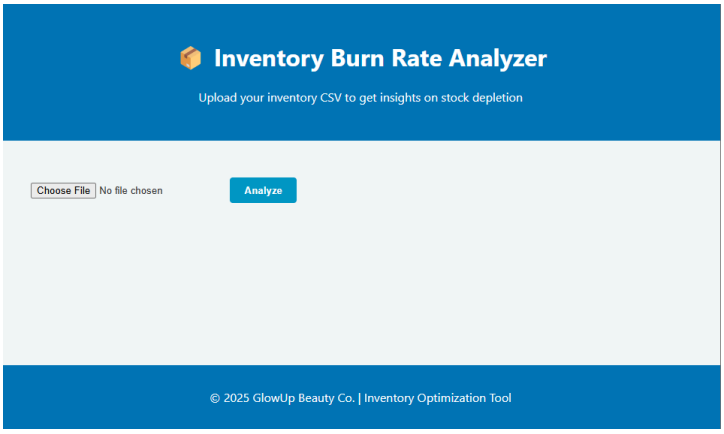
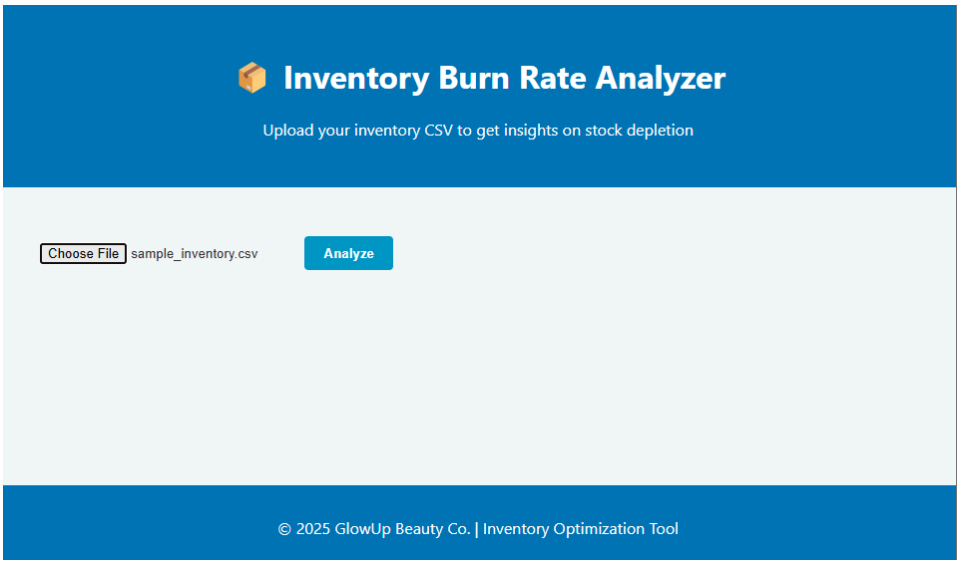


- **Figure 2**:Choose a CSV report to upload



- **Figure 3**: Stock Depletion Forecast (Line Chart)

Product	Category	Stock	Daily Sales	Burn Rate	Days Until Stockout
Vitamin C Serum	Skincare	120	10	10	12.0
Matte Lipstick - Red	Cosmetics	85	6	6	14.2
Lavender Body Lotion	Bodycare	60	3	3	20.0
Coconut Hair Mask	Haircare	45	4	4	11.3
Hydrating Face Mist	Skincare	30	5	5	6.0

Example Run-Through: What the Data Reveals

This sample run showcases how the tool works in practice:

- Vitamin C Serum has the highest sales velocity (10/day), expected to sell out in 12 days.
- Hydrating Face Mist has limited inventory with only 6 days left, indicating urgent action required.
- Lavender Body Lotion moves more slowly (3/day) but has sufficient stock to last 20 days.

The Burn Rate Bar Chart visually highlights the highest-demand items, while the Stock Depletion Forecast Line Chart clearly shows which products are most at risk of running out.

How This Helps Businesses

By clearly visualizing both demand velocity and stock longevity, this tool empowers inventory managers and business owners to:

✅ **Prioritize replenishment** for top-sellers before stockouts occur
✅ **Reduce overstock** of slow-moving items by shifting marketing efforts
✅ **Forecast inventory needs** for upcoming promotions or seasonal spikes
✅ **Avoid revenue loss** by preventing missed sales due to stock unavailability

This type of insight is especially critical for industries like beauty, retail, and consumer goods, where demand shifts quickly and restock delays can mean lost market share.