Warehouse Profiling →

Key to achieve Operational Excellence at your Warehouse

Warehouse profiling *is an analytical process used to understand the unique characteristics, requirements, and operational flows of a warehouse. It involves gathering and analyzing data about inventory types, storage layouts, order volumes, picking frequencies, seasonal variations, and other operational metrics to identify opportunities for optimization.*

Warehouse Profiles: Key Aspects

1. *Inventory Analysis*
2. *Storage Layout*
3. *Order Volume and Pattern*
4. *Picking and Packing*
5. *Seasonal and Demand Variability*
6. *Workflow and Labor Requirements*
7. *Equipment and Technology Usage*

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1. Inventory Analysis

- Gather SKU data, categorize items by demand (e.g., ABC analysis), storage requirements (size, weight, special conditions), and turnover rate.
- This helps prioritize fast-moving items and optimize storage locations.
- An Inventory Profiling Template can include columns for SKU, Category (A, B, C), Turnover Rate, Storage Requirement, Pick Frequency, and Location Recommendation.

Template

SKU	Category	Turnover Rate	Storage Requirement	Pick Frequency	Location Recommendation
SKU1	A	High	Temperature Controlled	Daily	Zone 1
SKU2	B	Medium	Standard	Weekly	Zone 3
SKU3	C	Low	High Stack	Monthly	Zone 5
SKU4	A	High	Hazardous Material	Daily	Zone 2
SKU5	B	Medium	Standard	Weekly	Zone 3
SKU6	C	Low	Cold Storage	Monthly	Zone 4

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2. Storage Layout

- Map the warehouse layout, noting aisle dimensions, storage zones, and storage types (e.g., racking, shelving). Identify areas for improvement based on inventory analysis results.

- Use a layout map with storage zones, aisle designations, and labels for specific storage types.
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Template

Zone	Storage Type	Aisle Width (ft)	Optimal SKU Type
Zone 1	Pallet Racks	12	High-turnover
Zone 2	Shelving	10	Small items
Zone 3	Bulk Storage	15	Bulk items
Zone 4	Cold Storage	10	Temperature Sensitive
Zone 5	Hazardous Storage	8	Hazardous Material

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3. Order Volume and Pattern

- Analyze historical order data to understand daily, weekly, and seasonal demand patterns, including the proportion of single-line versus multi-line orders.

- Include fields for Order Type (single-line, multi-line), Volume, Frequency, and Seasonal Demand Indicators.

Template

Order Type	Average Volume (monthly)	Frequency	Seasonal Demand Indicator
Single-line	500	High	None
Multi-line	300	Moderate	High in Q4
Bulk	100	Low	High in Q2
Express	150	High	High in Q1
Subscription	200	Moderate	Steady

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4. Picking and Packing

- Document current picking and packing methods (e.g., batch, zone) and analyze pick paths. Look for opportunities to streamline by reorganizing high-frequency items.

- Include sections for Picking Method, Average Pick Time, Common Pick Paths, and Picking Accuracy.

Template

Picking Method	Average Pick Time (mins)	Common Pick Paths	Picking Accuracy (%)
Batch	15	Aisle 1-4	98
Zone	20	Zone 3	95
Single	10	Zone 2	99
Wave	18	Aisle 5-8	96
Cluster	22	Zone 1	97

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5. Seasonal and Demand Variability

- Assess demand spikes or drops throughout the year, noting any seasonal patterns that affect stock levels, storage needs, and labor.

- Use a monthly demand chart and add columns for SKU, Demand Seasonality, and Stocking Level Adjustments.

Template

SKU	Demand Seasonality	Stocking Level Adjustment
SKU1	High in Q4	Increase in Q4
SKU2	Steady	No change
SKU3	High in Q2	Increase in Q2
SKU4	Peak in Summer	Extra Stock in Summer
SKU5	Low in Winter	Reduce in Winter
SKU6	High in Q1	Increase in Q1

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6. Workflow and Labor Requirements

- Outline warehouse workflows from receiving to shipping, noting labor hours, process times, and resource allocation. Identify any bottlenecks or redundant steps.

- Include steps for each workflow (Receiving, Put-away, Picking, Packing, Shipping), Labor Hours, and Productivity Metrics.

Template

Workflow Step	Labor Hours (weekly)	Average Process Time (mins)	Productivity Metric
Receiving	120	10	Units/hour
Put-away	80	15	Bins/hour
Picking	150	20	Picks/hour
Packing	100	25	Packs/hour
Shipping	90	18	Orders/hour
Quality Check	60	12	Items/hour

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7. Equipment and Technology Usage

- Inventory current equipment and technology, noting usage rates and identifying outdated or underused assets. Consider any new technology needs based on operational analysis.

- List equipment types, Usage Rate, Maintenance Schedule, and Recommendations for Upgrades.

Template

Equipment Type	Usage Rate (%)	Maintenance Schedule	Upgrade Recommendation
Forklift	85	Monthly	None
Conveyor	75	Quarterly	Consider upgrade
RFID Scanner	90	Monthly	Upgrade in 1 year
Automated Picking Arm	65	Semi-Annually	Upgrade recommended
Pallet Jack	80	Quarterly	Routine maintenance

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Identify High-Turnover SKUs:

Use inventory analysis to locate fast-moving items and position them in easily accessible locations.

Reduces picking time and improves order fulfillment speed.

Optimize Storage Layout:

Adjust storage zones based on SKU demand (e.g., high-demand items closer to picking stations).

Implement different storage types (e.g., pallet racks, bulk storage) as per SKU size and turnover.

Maximize storage density while maintaining accessibility.

Streamline Order Picking Paths:

Use data from order patterns and picking analysis to streamline pick paths.

Group frequently ordered items together or place them in easily accessible zones to reduce picking time.

Consider automation options like conveyors or automated picking arms to handle repetitive tasks.

Balance Seasonal Demand with Stock Levels:

Analyze seasonal demand patterns to adjust stocking levels accordingly.

Avoid overstocking or stockouts by aligning inventory levels with predicted demand variations

Improve Workflow Efficiency:

Map each workflow step (e.g., receiving, put-away, picking) and identify bottlenecks.

Reorganize tasks, eliminate redundant steps, or consider automation to streamline operations.

Ensure labor is allocated efficiently based on workload data.

Optimize Labor Allocation:

Use labor requirements analysis to match staffing levels with demand, avoiding under or overstaffing.

Assign workers to tasks based on peak hours or shifts, improving overall productivity.

Upgrade or Maintain Equipment:

Regularly assess equipment usage rates and performance, upgrading when necessary to avoid downtime.

Use automation for repetitive or high-frequency tasks, reducing manual workload and error rates.

Enhance Picking Accuracy:

Implement technologies like RFID or barcode scanning to improve picking accuracy and reduce errors.

Regularly evaluate picking accuracy and adjust processes to address recurring issues.

Implement Continuous Improvement:

Use profiling data to measure performance metrics, set benchmarks, and monitor improvements over time.

Conduct periodic warehouse profiling to identify new opportunities for optimization as operations evolve.

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Reach me if you need help….

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A business leader and expert in building and managing complex supply chain organizations with experience in designing and deployment of strategy, planning, and operations. Overall profit and loss responsibility, lead large and diversified teams, and manage transformations. Drive global programs and projects, roll-out strategic initiatives, build corporate competencies and provide strategic direction. A strategist and expert in strategy execution, supply chain excellence, digital transformations, business process re-engineering, performance management, operations strategy, and ERP implementations.

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- Business Planning, Forecasting & Budgeting
- Manufacturing Excellence
- Business Process Re-Engineering/Management
- Enterprise Resource Planning & EPM
- Supply Chain Execution Systems (WMS, MES, TMS, GTM,DP,CT, SCO)
- Project Management & PMO
- AI/ML & IIoT
- Organizational Transformations

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- Mining
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- CPIM
- LSSBB
- EPM (IBM PA)
- ERP
- Explaining Strategy

- Middle East, Africa, India
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