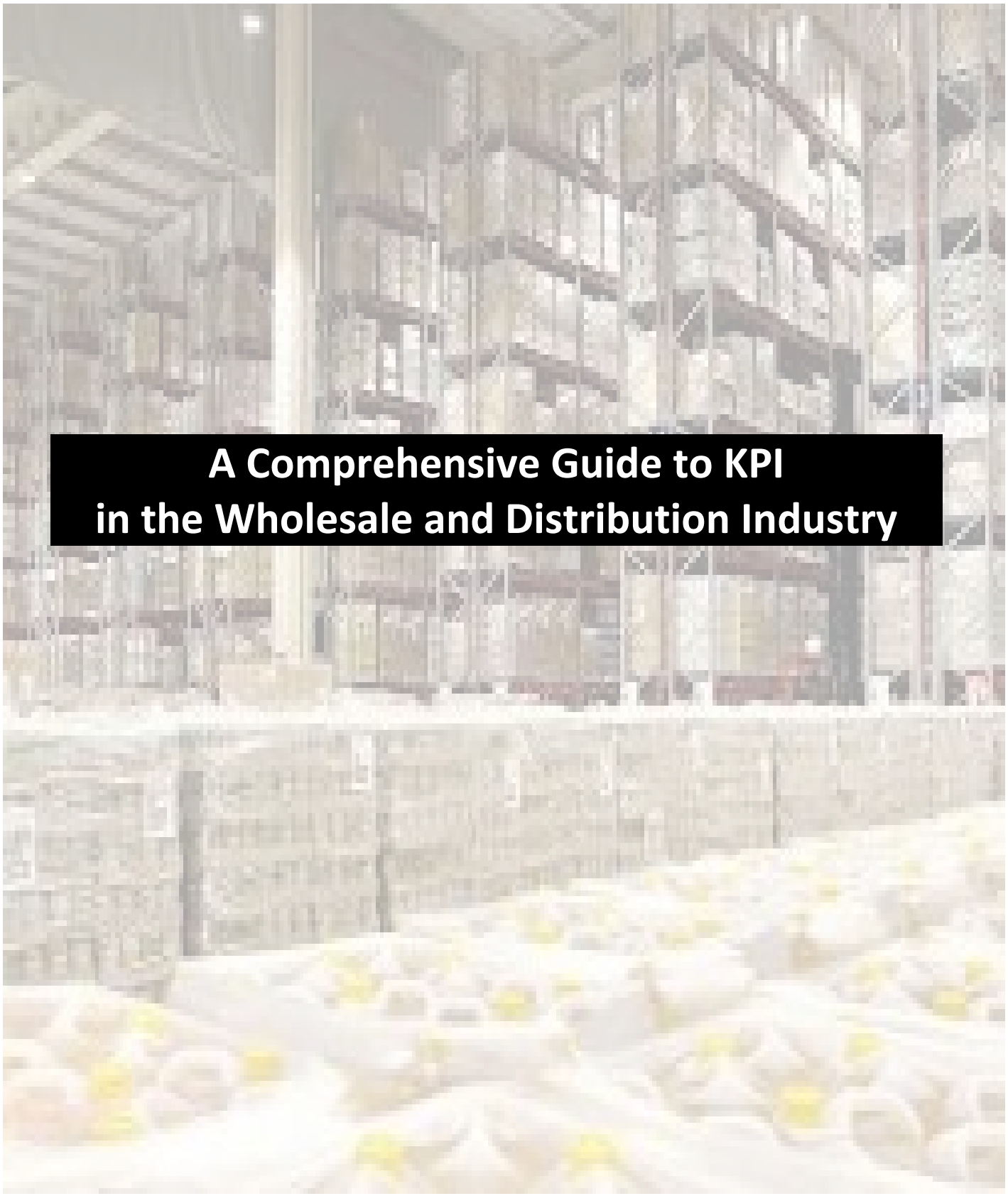

A Comprehensive Guide to KPI in the Wholesale and Distribution Industry

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1 Introduction

Every business involved in the physical product supply chain, whether manufacturers, wholesalers, or logistics providers, must have the knowledge and tools to efficiently oversee and manage their distribution operations. This necessity spans across various industries, including retail, e-commerce, health, electronics, consumer goods, and industrial equipment.
Measurement is essential for monitoring business activities, documenting achievements and obstacles, and guiding management decisions. While some measurements are obligatory for accounting and reporting, savvy management integrates these metrics into actionable intelligence to enhance operational effectiveness and efficiency. These metrics are known as Key Performance Index or KPI. KPIs play a crucial role in measuring and evaluating the success of various processes.
This comprehensive guide aims to provide an understanding of KPIs, their importance, and a comprehensive list of KPIs for each process associated with distribution.

2 Understanding KPIs

2.1 Definition of KPIs

Key Performance Indicators (KPIs) are the critical (key) indicators of progress toward an intended result. KPIs provide a focus for strategic and operational improvement, create an analytical foundation for decision making and help focus attention on what matters most. The primary difference between a KPI and a metric is that a **KPI explains what is being measured**, while a metric is the numerical value of the measurement itself.

A good set of KPIs will give you the tools to:

- Monitor the health of the company
- Measure the evolution of your goals
- Make proper adjustments and corrective action plans
- Solve problems and detect opportunities for improvement
- Analyze trends and patterns

2.2 Importance of KPIs

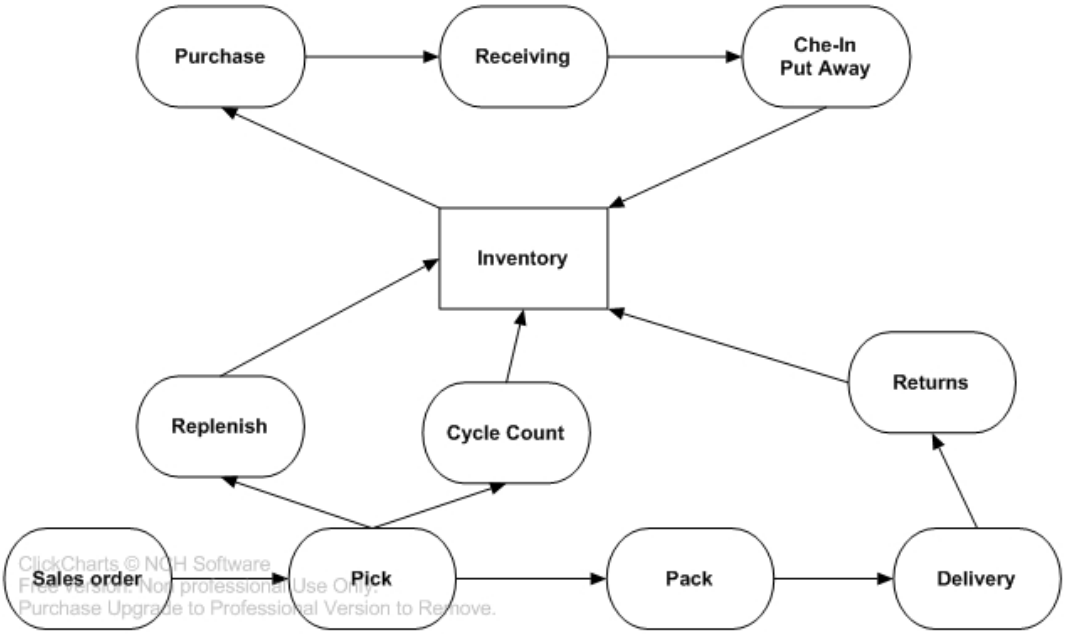
- **Performance Measurement**: KPIs help assess the effectiveness and efficiency of business operations, providing insights into areas of improvement.
- **Goal Alignment**: KPIs align organizational objectives and strategies with day-to-day activities, ensuring that efforts are focused on achieving desired outcomes.
- **Decision Making**: KPIs provide valuable data to support informed decision-making, enabling organizations to allocate resources effectively and drive growth.
- **Continuous Improvement**: By regularly monitoring KPIs, businesses can identify trends, anticipate challenges, and implement proactive measures for ongoing improvement.

2.3 Key Characteristics of Effective KPIs

- **Specific**: KPIs should be well-defined and aligned with strategic goals.
- **Measurable**: KPIs should be quantifiable to enable meaningful tracking and comparison.
- **Attainable**: KPIs should be challenging yet realistic to motivate performance improvement.
- **Relevant**: KPIs should be directly related to the success of the business and its processes.
- **Time-bound**: KPIs should have a defined timeframe to create a sense of urgency and accountability.

3 Workflow of a Typical Distribution Operation

The diagram illustrates the relationship between the processes associated to a distribution operation.



We have analyzed all of this process in our blogs but for clarity's sake, below we briefly explain each process.

1. **Purchase:** The process of acquiring goods from suppliers or vendors to replenish inventory.
2. **Receiving:** Receiving involves physically accepting the goods into the distribution center, inspecting them for quality and quantity, and recording their receipt.
3. **Check-in or Put Away:** After receiving, goods are stored in the appropriate location within the distribution center, often based on factors like SKU, size, weight, or demand.
4. **Sales Order:** A sales order is a request from a customer to purchase goods. This initiates the process of picking, packing, and shipping the items.
5. **Pick:** The process of selecting and gathering items from the warehouse to fulfill a customer's order.
6. **Pack:** After picking, items are packed securely and appropriately for shipment, often considering factors like fragility and shipping method.

7. **Replenish:** Replenishment involves restocking items in the picking locations from the bulk storage area to ensure items are readily available for order fulfillment.
8. **Cycle Count:** A method of inventory auditing where a subset of inventory is counted on a specific day, rotating through the entire inventory over a period, to ensure accuracy.
9. **Delivery:** The process of transporting goods from the distribution center to the customer's designated location.
10. **Returns:** Handling items that customers have returned, including processing the return, inspecting the item, and returning it to inventory if appropriate.

4 KPIs in the Wholesale and Distribution Industry

4.1 Procurement KPIs

- **Supplier Performance**: Measures the reliability, quality, and delivery performance of suppliers.
- **Purchase Order Cycle Time**: Tracks the time taken to process and complete purchase orders.
- **Inventory Turnover**: Calculates the # times inventory is sold and replaced within a given period.
- **Stock-Out Rate**: Measures the frequency of inventory stock-outs or unfulfilled customer orders.
- **Fill Rate**: Determines the percentage of customer orders fulfilled completely from available inventory.

4.2 Inventory Management KPIs

4.2.1 Stock to Sales Ratio

- Definition: Ratio of stock available for sale to stock that has been sold. This is a vital metric for determining and maintaining optimum inventory levels. Too much will result in increased holding costs.
- Formula: Units Available/Units Sold

4.2.2 Stockouts Cost

- Definition: Stockouts cost is the financial and non-financial loss that a company experiences when it runs out of inventory.
- Formula: Stockouts Cost = (Days out of stock x Average units sold per day x Price per unit) + Cost of consequence

4.2.3 Inventory Turnover

- Definition: Ratio of how frequently inventory sold and was replenished during a specific time period. A low ITR can denote poor sales or excess inventory whereas a high ITR, while preferable if due to strong sales, can also mean pricing levels are too low and need adjustment.
- Formula: Cost of Goods Sold/Average Inventory

4.2.4 Backorder Rate

- Definition: Percentage of customer orders a company cannot immediately fulfill from inventory. This KPI can reflect a broad range of situations. On the plus side, a high backorder rate may mean overwhelming demand, and a low backorder rate can signify excellent demand planning. In contrast, a high backorder rate can also mean poor demand planning while a low rate suggests lethargic demand.
- Formula: (# Orders Delayed due to Backorder/Total # of Orders) x100

4.3 Warehouse and Logistics KPIs

These formulas provide a quantitative measure of various aspects of distribution operations, helping businesses track performance and identify areas for improvement.

4.3.1 Order Picking Accuracy

- Definition: Measures the percentage of orders picked without errors.
- Formula:

  Order Picking Accuracy=(Total # Orders Picked / # Orders Picked Without Errors)×100

4.3.2 On-Time Delivery

- Definition: Tracks the percentage of orders delivered within the promised timeframe.
- Formula:

  On-Time Delivery = (Total # Orders Delivered/# Orders Delivered on Time)×100

4.3.3 Warehouse Capacity Utilization

- Definition: Measures the efficiency of warehouse space utilization.
- Formula:

Warehouse Capacity Utilization = (Total Warehouse Space Available/Total Warehouse Space Used)×100

4.3.4 Order Cycle Time

- Definition: Tracks the time taken from order placement to order fulfillment.
- Formula:

  Order Cycle Time = # Orders/Time Taken for Order Fulfillment

4.3.5 Transportation Cost per Shipment

- Definition: Evaluates the cost efficiency of transportation operations.
- Formula:

  Transportation Cost per Shipment = # Shipments/Total Transportation Costs

4.4 Sales and Customer Service KPIs

These formulas help businesses understand their sales performance, customer satisfaction, and retention rates, enabling them to make informed decisions to improve their operations.

4.4.1 Sales Revenue

- Definition: Measures the total value of sales generated within a specific period.
- Formula:

  Sales Revenue = # Units Sold × Selling Price per Unit

4.4.2 Customer Satisfaction Score (CSAT)

- Definition: Gauges customer satisfaction levels through surveys or feedback.
- Formula: The formula can vary but is often represented as a percentage of satisfied customers:

  CSAT= (# Satisfied Customers/Total # Survey Responses)×100

  CSAT= (Total # Survey Responses/# Satisfied Customers)×100

4.4.3 Customer Retention Rate

- Definition: Tracks the percentage of customers retained over a given period.
- Formula:

Customer Retention Rate = [(# Customers at End of Period−# New Customers Acquired) / (# Customers at Start of Period] x 100

4.4.4 Average Order Value (AOV)

- Definition: Calculates the average value of each customer order.
- Formula:

$$AOV = \text{Total Revenue} / \#\ \text{Orders}$$

4.4.5 Sales Conversion Rate

- Definition: Measures the percentage of leads or opportunities converted into sales.
- Formula:

$$\text{Sales Conversion Rate} = (\#\ \text{Sales} / \#\ \text{Leads}) \times 100$$

4.5 Supply Chain and Fulfillment KPIs

These KPIs help businesses monitor the efficiency and effectiveness of their order fulfillment processes, ensuring that customer orders are processed accurately and delivered on time.

4.5.1 Perfect Order Rate

- Definition: Measures the percentage of orders fulfilled without any errors.
- Formula

$$\text{Perfect Order Rate} = (\text{Total } \#\ \text{Orders} / \#\ \text{Orders Fulfilled Without Errors}) \times 100$$

4.5.2 Order Cycle Time

- Definition: Tracks the time taken from order placement to customer delivery.
- Formula

$$\text{Order Cycle Time} = \text{Time of Customer Delivery Time of Order Placement}$$

4.5.3 Order Fill Rate

- Definition: Determines the percentage of customer orders fulfilled in full.
- Formula

$$\text{Order Fill Rate} = (\#\ \text{Customer Orders Fulfilled in Full} / \text{Total } \#\ \text{Customer Orders}) \times 100$$

4.5.4 Backorder Rate

- Definition: Measures the frequency of unfulfilled customer orders due to stock-outs.
- Formula

$$\text{Backorder Rate} = (\#\ \text{Backordered Items} / \text{Total } \#\ \text{Ordered Items}) \times 100$$

4.5.5 Lead Time

- Definition: Measures the time taken to fulfill customer orders from the time of purchase.
- Formula: Lead time can be calculated in various ways, but a common formula is:

$$\text{Lead Time} = \text{Total Time Taken to Fulfill Orders} / \#\ \text{Orders}$$

4.6 Financial and Operational KPIs

These financial KPIs provide valuable insights into the financial health and efficiency of a business, helping to identify areas for improvement and drive strategic decision-making.

4.6.1 Gross Margin

- Definition: Calculates the profitability of products or services after accounting for direct costs.
- Formula

$$\text{Gross Margin} = [(\text{Revenue} - \text{Cost of Goods Sold (COGS)}) / \text{Revenue})] \times 100$$

4.6.2 Return on Investment (ROI)

- Definition: Measures the return generated on investments made.
- Formula

$$ROI=(Net\ Profit/Total\ Investment)\times 100$$

4.6.3 Operating Expense Ratio

- Definition: Evaluates the efficiency of cost management by measuring operating expenses as a percentage of revenue.
- Formula

$$Operating\ Expense\ Ratio = (Operating\ Expenses/Revenue)\times 100$$

4.6.4 Order-to-Cash Cycle Time

- Definition: Tracks the time taken from order placement to receipt of payment.
- Formula

$$Order\text{-}to\text{-}Cash\ Cycle\ Time=Time\ of\ Payment\ Receipt-Time\ of\ Order\ Placement$$

Employee Productivity

- Definition: Measures the output or performance of employees in relation to their work hours.
- Formula: Employee Productivity can be calculated in various ways, but a common formula is:

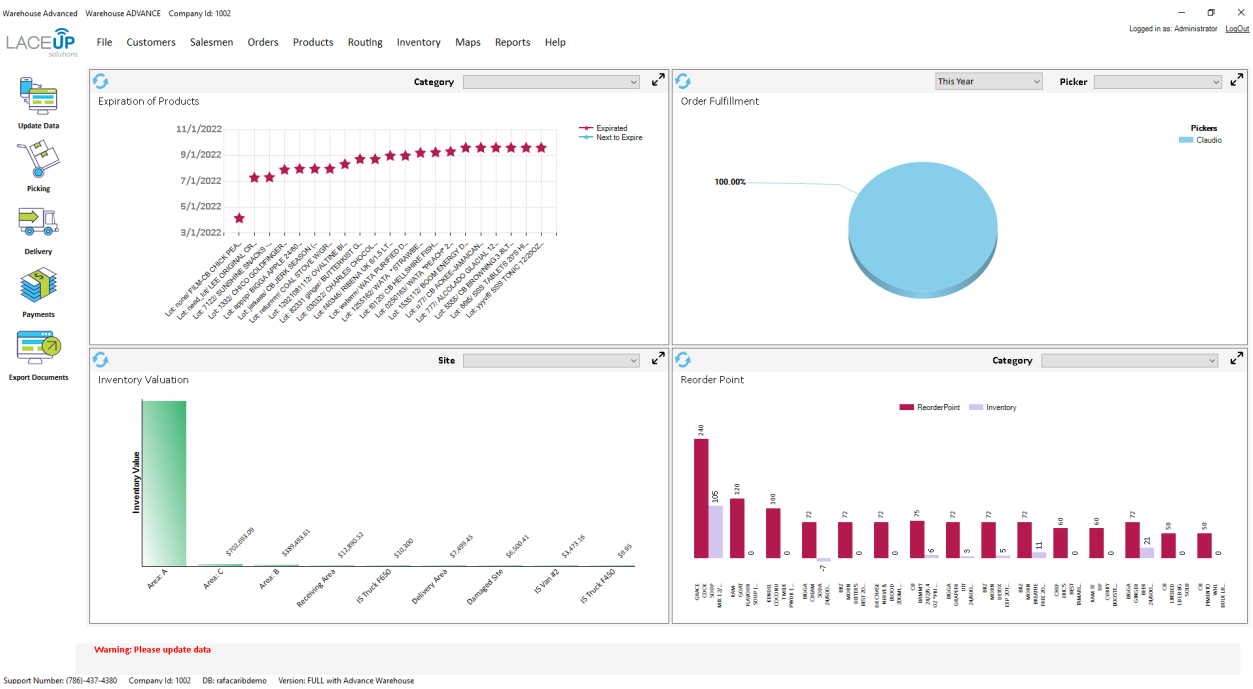
$$Employee\ Productivity = Output\ or\ Performance/Number\ of\ Employee\ Work\ Hours$$

5 Leveraging Technology for KPI Optimization

Technology plays a pivotal role in enhancing key performance indicators (KPIs) for distributors and wholesalers. From streamlining operations to improving customer satisfaction, technology offers a multitude of benefits that can significantly impact business performance. These are some of the technologies to consider.

Automation: Technology enables automation of repetitive tasks such as order processing, inventory management, and data entry. This not only reduces human errors but also improves efficiency, leading to higher KPI performance.
Data Analytics: Advanced analytics tools allow businesses to gain deep insights into their operations. By analyzing data related to sales, inventory, and customer behavior, companies can identify trends, optimize processes, and make data-driven decisions to improve KPIs like order cycle time and inventory turnover.
Inventory Management Systems: Inventory management systems help optimize stock levels, reduce stockouts, and improve order fulfillment rates. These systems track inventory in real-time, enabling businesses to make informed decisions that positively impact KPIs such as order fill rate and warehouse capacity utilization.
Customer Relationship Management (CRM) Systems: CRM systems help businesses manage customer interactions and improve customer satisfaction. By tracking customer preferences and purchase history, companies can personalize their offerings, leading to increased customer loyalty and retention rates.
Supply Chain Visibility: Technology provides enhanced visibility across the supply chain, enabling businesses to track shipments in real-time and identify potential bottlenecks. This visibility helps improve KPIs such as on-time delivery and order-to-cash cycle time.
Mobile Technology: Mobile applications and devices empower employees to access critical information and perform tasks from anywhere, improving productivity and efficiency. This mobility can positively impact KPIs such as employee productivity and order picking accuracy.

6 Examples of reports you can get with a WMS



Warehouse Advanced

Sales Analysis Report

From 2/2/2021 To 4/11/2024

Printed Date: 4/11/2024
9:42:57AM

Username: Alberto DSD

	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Grand Total	
Date	Qty	Total Sales	Qty	Total Sales	Qty	Total Sales	Qty	Total Sales	Qty	Total Sales	Qty	Total Sales	Qty	Total Sales	Total Qty	Total Sales
3/23/2021			25	$217.69											25	$217.69
3/25/2021							17	$177.62							17	$177.62
3/26/2021									58	$458.55					58	$458.55
3/29/2021	42	$355.74													42	$355.74
3/30/2021			16	$130.10											16	$130.10
4/5/2021	9	$84.98													9	$84.98
4/6/2021			14	$134.73											14	$134.73
4/8/2021							1	$40.30							1	$40.30
4/12/2021	7	$84.64													7	$84.64
4/13/2021			6	$128.70											6	$128.70

Warehouse Advanced

Cycle Count Difference Report

From 4/5/2021 To 4/11/2024

Printed Date: 4/11/2024
9:34:10AM

Inventory Site Description	Responsible Name	Expected Qty	Counted Qty	Differences		
				Quantity	Cost	Total
A-21-01-1-A	Steve	43.00	24.00	-19.00	$4.50	$(85.50)
Default Site	Melissa P	0.00	24.00	24.00	$4.50	$108.00
Truck In House Return Site	Claudio	-6.00	0.00	6.00	$4.50	$27.00
Truck In House Return Site	Claudio	6.00	0.00	-6.00	$4.50	$(27.00)
Sub Total Category	**Special Products for In House Only**	**43.00**	**48.00**	**5.00**		**$22.50**

Warehouse Advanced
Order Differences Report

Printed Date: 4/11/2024
9:38:50AM

From 2/2/2021 To 4/11/2024

Vendor: SPICY WORLD OF USA, INC

Product Name	Document No.	UoM	Qty Ordered	Qty Picked	Qty Delivered	Backorder Qty
PALM OIL, RED 24/500ML (17OZ) OMNI CS/24	265117		1.00	0.00	0.00	1.00
PALM OIL, RED 24/500ML (17OZ) OMNI CS/24	265222		1.00	0.00	0.00	1.00
PALM OIL, RED 24/500ML (17OZ) OMNI CS/24	265238		1.00	0.00	0.00	1.00
PALM OIL, RED 8/2LTR(68OZ) **OMNI** CS/8	254986		-1.00	0.00	-0.12	-0.88
PALM OIL, RED 8/2LTR(68OZ) **OMNI** CS/8	257862		5.00	5.00	0.00	5.00
PALM OIL, RED 8/2LTR(68OZ) **OMNI** CS/8	262461		-2.00	0.00	-0.25	-1.75
PALM OIL, RED 8/2LTR(68OZ) **OMNI** CS/8	263208		2.00	2.00	1.00	1.00
PALM OIL, RED 8/2LTR(68OZ) **OMNI** CS/8	266194		-1.00	0.00	-0.12	-0.88
	Total Vendor: SPICY WORLD OF USA, INC		**-81.00**	**11.00**	**-5.09**	**-75.91**
		Grand Total	**-657.63**	**2,494.00**	**917.86**	**-1,575.49**

Warehouse Advanced
Profit Margin Report

Printed Date:4/11/2024
9:47:29AM

From 12/30/2018 To 4/11/2024

Invoice Date	Customer	Invoice #	Type	Unit	Quantity	Cost	SalesPrice	Total Cost	Total Sales	Profit Margin ($)	Profit Margin (%)
9/21/2021	SEDANO'S SUPERMARKET #18	9209212105	Invoice		1.00	$9.75	$13.94	$9.75	$13.94	$4.19	30.06%
9/21/2021	SEDANO'S SUPERMARKET #29	9209212102	Invoice		1.00	$9.75	$13.94	$9.75	$13.94	$4.19	30.06%
9/22/2021	SEDANO'S SUPERMARKET #42	9209222104	Invoice		1.00	$9.75	$13.94	$9.75	$13.94	$4.19	30.06%
9/22/2021	SEDANO'S SUPERMARKET #5	9209222102	Invoice		1.00	$9.75	$13.94	$9.75	$13.94	$4.19	30.06%
9/23/2021	SEDANO'S SUPERMARKET #27	9209232105	Invoice		1.00	$9.75	$13.94	$9.75	$13.94	$4.19	30.06%