

Benchmarking Your Warehouse

How Does Your Performance
Stack Up to Industry Leaders?



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Introduction

In the pages ahead, we'll walk you through the most important warehouse performance metrics that supply chain leaders are using to assess and improve their operations. For each one, we'll explain what it measures, why it matters, and how your numbers compare to industry benchmarks. Whether you're looking to uncover hidden inefficiencies, set performance goals, or simply understand where you stand, this guide will help you turn data into action. And if you want to lead the pack, Rebus can help. Ask us how.

Here's what we'll cover:

- **Labor Productivity:** How efficiently your team processes orders and what top performers are achieving.
- **Inventory Accuracy:** Why stock accuracy is the backbone of operational reliability—and how to improve it.
- **Order Cycle Time:** How quickly your warehouse can process and fulfill an order, and how that impacts customer satisfaction.
- **Space Utilization:** Making the most of your physical footprint without compromising flow or safety.
- **On-Time Shipments:** Delivering on your promises, and the KPIs that reflect shipping performance.
- **Cost-to-Serve:** Understanding what it really costs to fulfill an order—and where you can reduce spend.
- **Technology Adoption:** The role of digital tools in driving efficiency, visibility, and scalability. Add Rebus to your tech stack for seamless real-time visibility and labor management.
- **ESG Metrics:** Measuring environmental and social impact within the warehouse—and why it's gaining importance.

Each section is designed to help you evaluate your current performance and identify practical steps for improvement. Let's dive in.

Labor Productivity

Measuring Output per Labor Hour

Labor productivity stands as a key performance driver in warehouse operations. It affects cost, efficiency, order fulfillment speed, and overall customer satisfaction. Measuring key performance indicators (KPIs) such as orders picked per hour per employee, warehouse managers can identify areas for improvement and implement strategies to enhance operational efficiency.



Note: These figures offer a broad overview but may not account for the nuances of specific warehouse types. For example, an e-commerce fulfillment center handling small, lightweight items might achieve higher orders per person hour compared to a warehouse dealing with bulky or hazardous materials.

Labor Productivity

Key Metrics and Industry Benchmarks

Orders Picked and Shipped per Person Hour

Performance Level	Orders per Person per Hour
Best-in-Class	≥ 35 orders/hour
Median	10 orders/hour
Typical Range	6.08 – <15 orders/hour
Disadvantage	2.76 – <6.08 orders/hour

Lines Picked and Shipped per Person Hour

Performance Level	Lines per Person per Hour
Best-in-Class	≥ 89.6 lines/hour
Median	35 lines/hour
Typical Range	26 – <47.6 lines/hour
Disadvantage	12 – <26 lines/hour

These benchmarks provide a framework for assessing your warehouse's labor productivity. Achieving or surpassing the best-in-class metric of 89.6 lines per hour indicates a highly efficient operation. Conversely, falling into the disadvantage range suggests significant room for improvement.

Sources:

- *Best-in-Class: Deposco's 2024 warehouse metrics guide*
- *Median, Typical Range, Disadvantage: Honeywell's analysis of distribution center operations*

Labor Productivity

Factors Influencing Labor Productivity

Several elements can impact these KPIs:

- **Warehouse Layout:** An optimized layout reduces travel time and streamlines the picking process.
- **Technology Utilization:** Implementing Warehouse Management Systems (WMS) and automation tools can enhance accuracy and speed.
- **Employee Training:** Regular training ensures staff are proficient in best practices and new technologies.
- **Order Profiles:** The complexity and variability of orders can affect picking times.

Strategies for Improvement

To enhance labor productivity:

- **Adopt Advanced Technologies:** Utilize WMS, voice picking systems, and automation to reduce manual errors and increase speed.
- **Optimize Picking Paths:** Analyze and redesign picking routes to minimize travel distance.
- **Implement Performance Monitoring:** Regularly track KPIs and provide feedback to employees.
- **Cross-Train Employees:** Equip staff to handle multiple roles, increasing flexibility and responsiveness.

By focusing on these areas, warehouses can move towards achieving best-in-class performance, leading to cost savings and improved customer satisfaction.

Inventory Accuracy

Ensuring Stock Reliability

Inventory accuracy is a cornerstone of efficient warehouse operations. It measures the alignment between recorded inventory levels and the actual physical stock. High accuracy keeps the right products in the right place – reducing stockouts, overages, and fulfillment errors.



Inventory Accuracy

Key Metrics and Industry Benchmarks

Inventory Accuracy Rate

- **Best-in-Class:** $\geq 99.9\%$
- **Typical Range:** $98\% - 99.3\%$
- **Disadvantage:** $< 98\%$

Inventory Count Accuracy by Location

<i>Performance Level</i>	<i>Accuracy Rate</i>
<i>Best-in-Class</i>	$\geq 99.8\%$
<i>Median</i>	98.00%
<i>Typical Range</i>	98.0% – 99.3%
<i>Disadvantage</i>	$< 98.0\%$

These benchmarks provide a framework for assessing your warehouse's inventory accuracy at specific storage locations. Achieving or surpassing the best-in-class metric of 99.8% indicates a highly efficient operation. Conversely, falling into the disadvantage range suggests significant room for improvement.

Sources:

- BPWH.ai
- WERC DC Measures Survey – 2024

Inventory Accuracy

Factors Influencing Inventory Accuracy

Several elements can impact inventory accuracy:

- **Inventory Management Systems (IMS):** Utilizing robust IMS or Warehouse Management Systems (WMS) ensures real-time tracking and reduces manual errors.
- **Cycle Counting:** Regular cycle counts help in identifying and rectifying discrepancies promptly.
- **Employee Training:** Well-trained staff are less likely to make errors during receiving, picking, and stocking processes.
- **Technology Integration:** Implementing technologies like RFID and barcode scanning enhances tracking precision.

Strategies for Improvement

To enhance inventory accuracy:

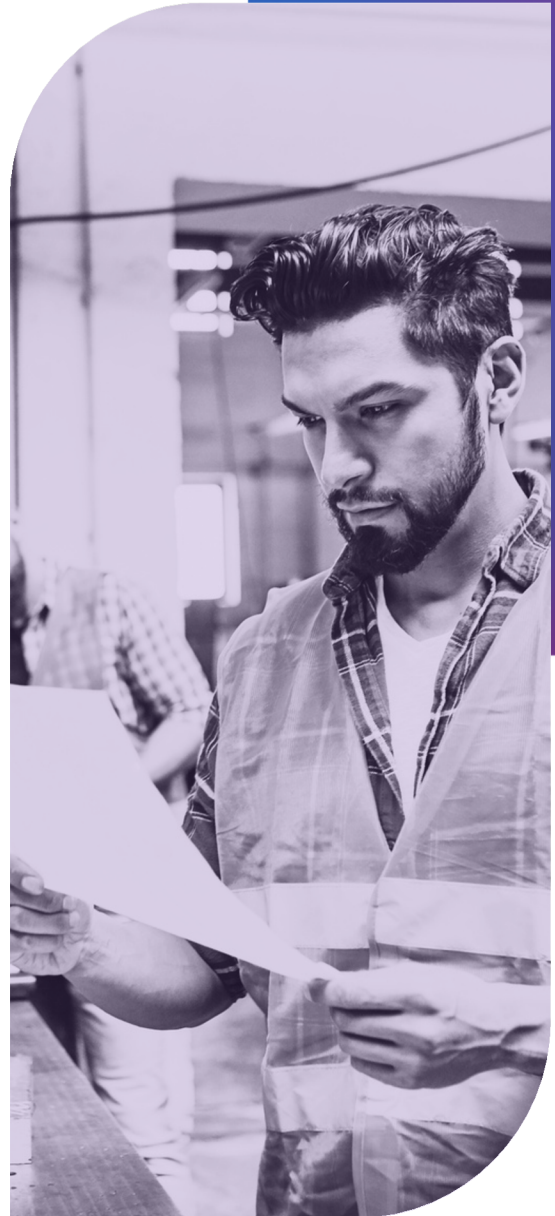
- **Implement Regular Cycle Counts:** Schedule frequent cycle counts to identify and correct discrepancies.
- **Leverage Technology:** Adopt RFID, barcode scanning, and real-time tracking systems to minimize manual errors.
- **Train Staff:** Provide comprehensive training to employees on inventory handling procedures.
- **Analyze Discrepancies:** Investigate the root causes of inventory inaccuracies and implement corrective actions.

By focusing on these areas, warehouses can achieve higher inventory accuracy, leading to improved operational efficiency and customer satisfaction.

Order Cycle Time

Speeding Up Fulfillment

Order Cycle Time (OCT) is a critical metric that measures the total time from when a customer places an order to when they receive it. In today's fast-paced market, customers expect quick and reliable deliveries, making OCT a vital indicator of warehouse efficiency and customer satisfaction.



Understanding Order Cycle Time

OCT encompasses several stages: order processing, picking, packing, and shipping (delivery technically falls under "last mile," and is not included in the times listed below). A shorter OCT indicates a more efficient fulfillment process, leading to higher customer satisfaction and repeat business.

Order Cycle Time

Key Metrics and Industry Benchmarks

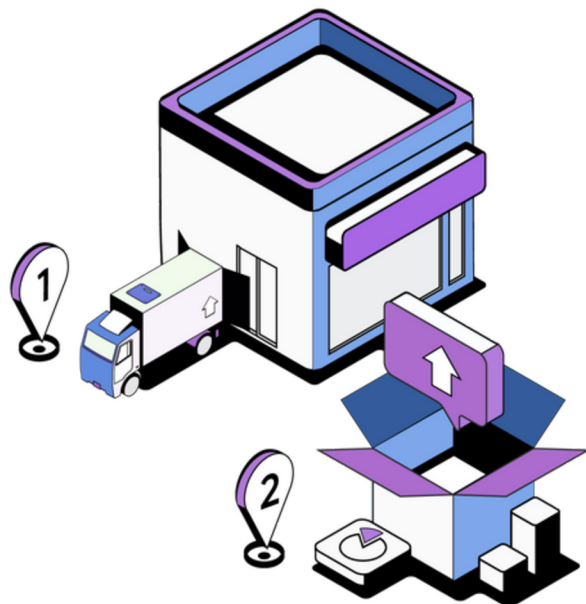
Total Order Cycle Time

- **Best-in-Class:** Less than 3.2 hours
- **Median:** Approximately 8 hours
- **Typical Range:** 6 to 12 hours
- **Disadvantage:** More than 12 hours

Internal Order Cycle Time

(from order receipt to shipment readiness)

- **Best-in-Class:** Less than 2.5 hours



Source:

- *Deposco's 2024 Warehouse Metrics Guide*

Order Cycle Time

Factors Influencing Order Cycle Time

Several elements can impact OCT:

- **Warehouse Layout:** An optimized layout reduces travel time during picking and packing.
- **Technology Utilization:** Implementing Warehouse Management Systems (WMS) and automation tools can streamline processes.
- **Inventory Accuracy:** Accurate inventory records prevent delays caused by stock discrepancies.
- **Employee Training:** Well-trained staff can perform tasks more efficiently, reducing processing times.

Strategies for Improvement

To enhance OTC:

- **Adopt Advanced Technologies:** Utilize WMS, barcode scanning, and automation to expedite order processing.
- **Optimize Picking Paths:** Analyze and redesign picking routes to minimize travel distance.
- **Implement Real-Time Tracking:** Monitor orders throughout the fulfillment process to identify and address bottlenecks promptly.
- **Regularly Review Processes:** Regularly improve your workflows to eliminate bottlenecks.

By focusing on these areas, warehouses can achieve shorter order cycle times, leading to improved customer satisfaction and a competitive edge in the market.

Space Utilization

Maximizing Warehouse Capacity

Efficient space utilization is a cornerstone of effective warehouse management. It not only optimizes storage capacity but also enhances operational efficiency, reduces costs, and improves overall productivity. As warehouses face increasing pressure to handle more inventory without expanding their physical footprint, maximizing your existing space matters more than.



Understanding Space Utilization

Space utilization refers to the percentage of a warehouse's total available space that is actively used for storage and operations. It's calculated by dividing the amount of space used by the total available space and multiplying by 100. This metric helps identify underutilized areas and opportunities for optimization.

Space Utilization

Industry Benchmarks

According to the 2024 Warehouse/DC Operations Survey:

- **Average Peak Warehouse Space Utilization: 73.2%**

Best-in-class warehouses aim for higher utilization rates without compromising safety and operational efficiency. While 100% utilization is theoretically possible, it's generally recommended to maintain some buffer space to accommodate fluctuations in inventory and ensure smooth operations.

Strategies for Improving Space Utilization

- **Implement Vertical Storage Solutions:** Utilizing the vertical space in a warehouse can significantly increase storage capacity. Installing taller shelving units and mezzanines allows for more inventory to be stored without expanding the warehouse footprint.
- **Optimize Warehouse Layout:** Reconfiguring the layout to minimize aisle widths (while maintaining safety standards) and reorganizing storage areas can free up additional space. Employing slotting techniques to store high-velocity items closer to shipping areas can also enhance efficiency.
- **Adopt Automated Storage and Retrieval Systems (AS/RS):** Automation can reduce the need for wide aisles and manual handling, allowing for denser storage configurations. AS/RS can also improve picking accuracy and speed.
- **Regularly Review Inventory Levels:** Conducting periodic audits to identify slow-moving or obsolete inventory helps in freeing up valuable space. Implementing just-in-time (JIT) inventory practices can also reduce the amount of stock held on-site.
- **Leverage Warehouse Management Systems (WMS):** A robust WMS can provide real-time data on inventory locations, helping in better space planning and utilization. It can also assist in forecasting and demand planning to prevent overstocking.

Maximizing space utilization is not just about storing more products; it's about creating a more efficient, responsive, and cost-effective warehouse operation. By understanding current utilization levels and implementing strategic improvements, warehouses can better meet the demands of today's dynamic supply chain environment.

Source:

- *Supply Chain Management Review*

On-Time Shipments

Meeting Delivery Commitments

In the fast-paced world of supply chain management, ensuring that shipments depart on time is crucial for maintaining customer satisfaction and operational efficiency. On-Time Shipment (OTS) rate is a key performance indicator that measures the percentage of orders shipped at the planned time, meaning off the dock and in transit to the customer.



Understanding On-Time Shipment Rate

The OTS rate reflects a warehouse's ability to meet scheduled shipment times, directly impacting customer and carrier trust, and likely repeat business. Late shipments erode trust, drive up costs, and risk losing customers. Always be aware that companies can choose a "shipper of choice" that they prefer to work with.

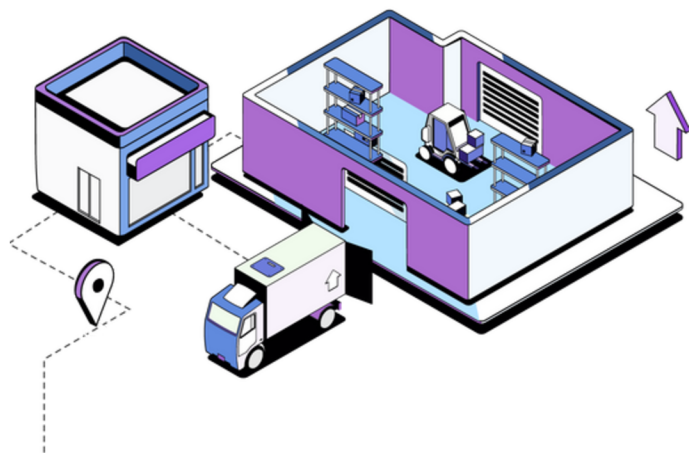
On-Time Shipments

Industry Benchmarks

According to the 2023 WERC DC Measures Report:

- **Best-in-Class:** $\geq 99.5\%$
- **Median:** Approximately 92%
- **Typical Range:** 90% – 98%
- **Disadvantage:** $< 90\%$

These benchmarks provide a framework for assessing your warehouse's performance in meeting delivery commitments. Achieving or surpassing the best-in-class metric of 99.5% indicates a highly efficient operation. Conversely, falling into the disadvantage range suggests significant room for improvement.



Source:

- *Benchmarking and Improving Distribution Center Metrics* – Yale

On-Time Shipments

Factors Influencing On-Time Shipments

Several elements can impact the OTS rate:

- **Order Processing Efficiency:** Delays in order entry or processing can cascade into shipment delays.
- **Inventory Accuracy:** Inaccurate inventory records can lead to picking errors and delays.
- **Labor Management:** Insufficient staffing or inadequate training can slow down order fulfillment.
- **Technology Utilization:** Lack of automation or outdated systems can hinder efficient operations.
- **Replenishment Configuration:** Delays in replenishment could result in delays for pickers able to complete orders.

Strategies for Improvement

To enhance OTS rates:

- **Implement Advanced Technologies:** Utilize Warehouse Management Systems (WMS) and automation tools to streamline operations.
- **Optimize Inventory Management:** Maintain accurate inventory records to prevent delays caused by stock discrepancies.
- **Enhance Employee Training:** Ensure staff are well-trained in order processing and fulfillment procedures.
- **Monitor Performance Metrics:** Regularly track OTS rates and identify areas for improvement.

By focusing on these areas, warehouses can achieve higher OTS rates, leading to improved customer satisfaction and a competitive edge in the market.

Cost-to-Serve

Understanding Operational Expenses

In the dynamic landscape of supply chain management, understanding the Cost-to-Serve (CTS) is pivotal for maintaining profitability and operational efficiency. CTS encompasses all expenses associated with fulfilling customer orders, including labor, storage, packaging, and shipping. By analyzing CTS, businesses can identify cost drivers, optimize processes, and make informed decisions to enhance their bottom line.



Cost-to-Serve

Key Metrics and Industry Benchmarks

Fulfillment Cost per Order:

- **Best-in-Class:** Approximately \$5.00 per order
- **Median:** Around \$7.50 per order
- **Typical Range:** \$6.00 – \$10.00 per order
- **Disadvantage:** Exceeding \$10.00 per order

Labor Costs:

- Labor constitutes a significant portion of CTS, often accounting for 50–60% of the total cost. This includes wages for activities like picking, packing, and shipping.

Storage Costs:

- Average storage fees can range from \$0.50 to \$0.75 per cubic foot per month, depending on location and facility type.

Note:

- *These figures can vary based on factors such as order complexity, product type, and service level agreements.*

Cost-to-Serve

Factors Influencing Cost-to-Serve

Several elements can impact CTS:

- **Order Volume and Complexity:** High-volume, standardized orders typically incur lower costs per unit compared to low-volume, customized orders.
- **Geographical Distribution:** Shipping to remote or international locations can significantly increase costs.
- **Inventory Management:** Excess inventory leads to higher storage costs and potential obsolescence.
- **Technology Utilization:** Implementing advanced systems can streamline operations and reduce manual labor costs.

Strategies for Reducing Cost-to-Serve

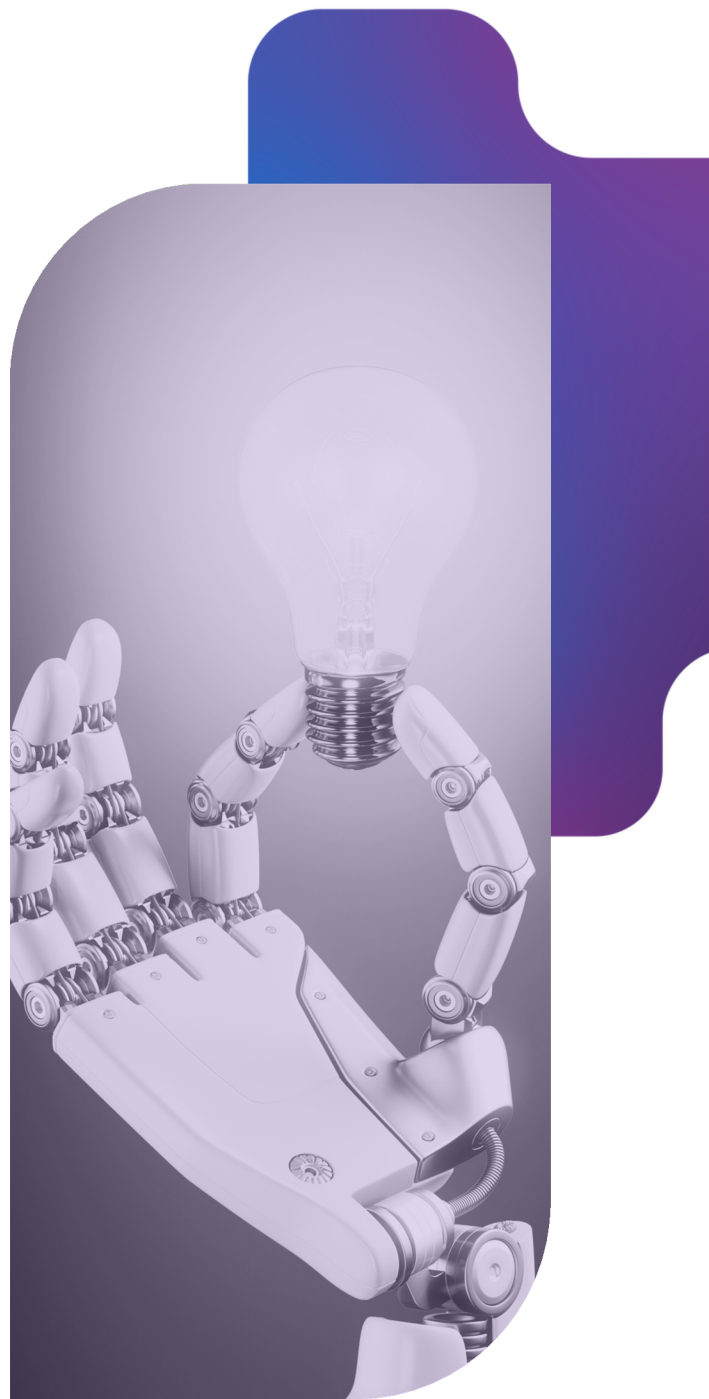
- **Process Optimization:** Analyze and refine warehouse workflows to eliminate inefficiencies.
- **Technology Integration:** Adopt Warehouse Management Systems (WMS) and automation to enhance accuracy and speed.
- **Inventory Control:** Implement just-in-time inventory practices to reduce holding costs.
- **Labor Management:** Crosstrain employees to increase flexibility and productivity.
- **Supplier Collaboration:** Work closely with suppliers to streamline inbound logistics and reduce lead times.

A comprehensive understanding of Cost-to-Serve enables businesses to identify cost-saving opportunities and enhance customer satisfaction. By benchmarking against industry standards and continuously monitoring key metrics, organizations can drive efficiency and maintain a competitive edge in the market.

Technology Adoption

Leveraging Innovation

In the rapidly evolving landscape of warehouse operations, technology adoption has become a critical driver of efficiency, accuracy, and competitiveness. The integration of advanced technologies not only streamlines processes but also addresses challenges such as labor shortages and increasing customer expectations.



Technology Adoption

Key Metrics and Industry Benchmarks

1. Warehouse Management Systems (WMS):

Adoption Rate: 93% of warehouses have implemented some form of WMS, reflecting a significant shift towards digital management of inventory and operations.

2. Warehouse Execution and Control Systems (WES/WCS):

Adoption Rate: 13% of warehouses utilize WES or WCS to orchestrate automation, up from 8% the previous year, indicating a growing trend in automation integration.

3. Artificial Intelligence (AI):

Planned Adoption: 84% of supply chain leaders plan to adopt AI technologies within the next five years, aiming to enhance decision-making and operational efficiency.

4. Robotics and Automation:

Planned Adoption: 82% of organizations are planning to implement robotics and automation solutions to improve productivity and reduce manual labor dependencies.

5. Wearable and Mobile Technology:

Planned Adoption: 75% of companies are looking to adopt wearable technologies to enhance worker productivity and safety.

Technology Adoption

Trends in Technology Investment

The 2024 MHI Annual Industry Report highlights a significant increase in technology investments:

- **Investment Growth:** 55% of supply chain leaders are increasing their technology and innovation budgets.
- **High-Level Spending:** 88% plan to invest over \$1 million, with 42% allocating more than \$10 million towards technological advancements.
- These investments are primarily directed towards enhancing supply chain resiliency, transparency, and addressing workforce challenges.

Best Practices for Technology Adoption

- **Strategic Planning:** Develop a clear roadmap for technology integration, aligning with organizational goals and operational needs.
- **Employee Training:** Invest in training programs to ensure staff can effectively utilize new technologies, fostering a culture of continuous improvement.
- **Pilot Programs:** Implement pilot projects to test new technologies on a smaller scale before full-scale deployment, mitigating risks and ensuring compatibility.
- **Data Analytics:** Leverage data analytics to monitor performance metrics, identify areas for improvement, and make informed decisions.
- **Continuous Evaluation:** Regularly assess the effectiveness of implemented technologies and remain adaptable to emerging innovations.

Embracing technological innovation is no longer optional but essential for warehouses aiming to stay competitive in a dynamic market. By adopting and effectively utilizing advanced technologies, organizations can achieve significant improvements in efficiency, accuracy, and overall operational excellence. Platforms like Rebus make this adoption seamless—connecting systems, surfacing insights, and helping teams adapt in real time.

ESG Metrics

Embracing Sustainable Practices

Sustainability and social responsibility are no longer optional in today's supply chain, they're operational imperatives.

As businesses face growing pressure from customers, investors, and regulators to operate ethically and reduce environmental impact, Environmental, Social, and Governance (ESG) metrics have become essential performance indicators.



In warehousing, these metrics go beyond cost and efficiency to measure how well a facility manages energy use, workplace safety, waste reduction, diversity, and more.

This chapter explores the ESG benchmarks that matter most, and how leading organizations are aligning their operations with long-term sustainability goals.

ESG Metrics

Key Metrics and Industry Benchmarks

Environmental Metrics:

- **Greenhouse Gas (GHG) Emissions (Scope 1 and 2):** Leading organizations aim for a year-over-year reduction of 5%-10% in GHG emissions.
- **Energy Consumption:** Best-in-class warehouses target energy usage below 1.5 kWh per square foot annually.
- **Waste Diversion Rate:** Top performers achieve waste diversion rates (recycling and composting) of 90% or higher.

Social Metrics:

- **Employee Turnover Rate:** An annual turnover rate below 10% is considered favorable in the warehousing sector.
- **Workplace Safety (Recordable Incident Rate):** Best-in-class facilities report incident rates under 1.0 per 100 full-time employees.
- **Diversity and Inclusion:** Leading companies report workforce diversity (e.g., gender, ethnicity) percentages aligning with or exceeding regional demographics.

Governance Metrics:

- **ESG Policy Implementation:** Top organizations have formal ESG policies integrated into their corporate governance structures.
- **Supplier ESG Assessments:** Best practices include conducting ESG assessments for 100% of key suppliers annually.
- **Transparency and Reporting:** Leading companies publish annual ESG reports aligned with recognized frameworks such as GRI or SASB.

ESG Metrics

Importance of ESG Metrics

Integrating ESG metrics into warehouse operations offers several benefits:

- **Risk Mitigation:** Identifying and addressing environmental and social risks can prevent disruptions and liabilities.
- **Operational Efficiency:** Sustainable practices often lead to cost savings through energy efficiency and waste reduction.
- **Stakeholder Trust:** Transparent ESG reporting enhances reputation among customers, investors, and regulators.
- **Regulatory Compliance:** Proactive ESG management ensures adherence to evolving environmental and social regulations.

Strategies for Enhancing ESG Performance

- **Data Collection and Monitoring:** Implement systems to track ESG metrics accurately and in real-time.
- **Employee Engagement:** Foster a culture of sustainability through training and involvement in ESG initiatives.
- **Supplier Collaboration:** Work with suppliers to align on ESG goals and improve performance across the supply chain.
- **Continuous Improvement:** Regularly review ESG performance and set targets for ongoing enhancement.

By focusing on ESG metrics, warehouses can not only improve their sustainability and ethical standards but also drive long-term business success.

Next Steps

Benchmarking is more than just a comparison exercise—it's a strategic framework for continuous improvement. Throughout this eBook, we've explored the most critical dimensions of warehouse performance, from labor productivity and inventory accuracy to order cycle times, space utilization, on-time shipments, and cost-to-serve.

We've presented not only industry-standard KPIs but also best-in-class benchmarks from leaders who are redefining efficiency in supply chain operations.

For example, best-in-class operations pick and ship upwards of 48 orders per person per hour and maintain inventory accuracy rates of 99.8% or higher.

They achieve perfect order rates nearing 98%, ship on time 99.5% of the time, and fulfill customer orders for as little as \$5.00 each.

These aren't just numbers. They're signs of agile, data-driven operations built to weather disruption and exceed expectations.

The goal of benchmarking is to turn data into actionable insights. By comparing your current state to industry norms, you can identify where your operations are excelling and where there is room to grow.

Importantly, benchmarking gives you clarity on what "good" looks like in today's fast-moving logistics landscape—and what steps you can take to get there.



Rebus Turns Insights into Action

Now that you've established some benchmarks, you've gained the insights needed to understand how your business is operating. The next step is to turn those insights into action.

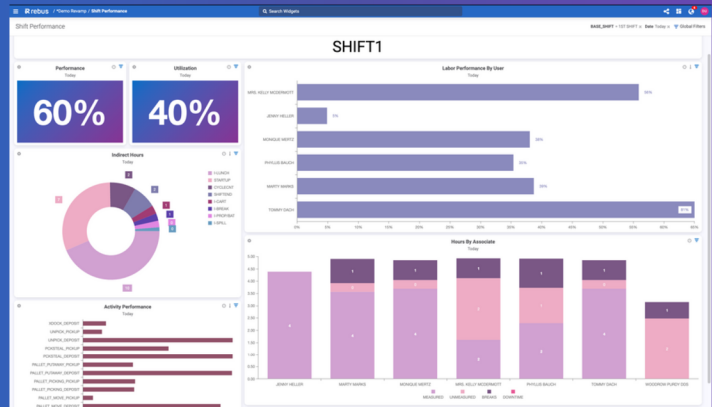
You need a tool that enables you to act on those insights quickly and with confidence.

This is where Rebus comes in.

Rebus empowers warehouse teams with real-time visibility into key warehouse KPIs across their network.

Whether you want to monitor labor efficiency, track order fulfillment accuracy, analyze cycle time trends, or reduce your cost-to-serve, Rebus consolidates performance data across systems, facilities, and teams—so you can make informed decisions in real time.

With intuitive dashboards, automated alerts, and customizable benchmarks, Rebus turns warehouse operations into a strategic advantage. It helps leaders proactively identify problems, uncover opportunities, and build more resilient, efficient businesses.



Visit rebus.io to learn more