



# LEAN WAREHOUSE OPERATIONS



## BACKGROUND

Warehousing's historical core responsibility has been the storage of goods. However, the scope and core responsibilities of warehouse management operations have evolved to deliver high level inventory management, swift receiving and shipping dock management, accurate and flexible customised pick & pack services, and state of the art storing and safekeeping solutions for all goods.

Best practice warehouse services enable companies to meet their strategic delivery needs by improving materials flow, order pick & pack, replenishment, dock operations and maintenance of a swift information flow from source to delivery point, thus facilitating the coordination of the entire supply chain to get purchased materials in the right way, to the right place, and in the exact time they are expected by the next link in the supply chain up to and including the final consumer.

Because of the development of an increasingly integrated global economy market with production facilities scattered around the globe, warehouse operations are becoming a key factor to cope with demand variations, and inventory management is a critical component of a company's financial performance, smart warehousing has become a vital cog within supply chains because it holds so much potential for improving lead time and cost reductions.

# CHALLENGES

The biggest challenge on today's warehouse managers is to increase productivity and accuracy, reduce cost and inventory while improving customer satisfaction, which ultimately means optimised goods rotation, less frozen capital and efficient use of all resources assigned.

IN AN INTEGRATED SUPPLY CHAIN ENVIRONMENT, WHERE OFTEN ENOUGH WAREHOUSING IS CONSIDERED AS A NON-VALUE ADDING ACTIVITY, APPLYING LEAN CAN ENSURE THE COMPANY HAS THE RIGHT VISIBILITY OF THE VALUE-ADDING ACTIVITIES CARRIED OUT AT THE WAREHOUSE IN ORDER TO GAIN A COMPETITIVE EDGE BY:

- Delivering low-cost and on-time service to distribution centres, productive facilities and/or points of consumption through improving efficiency and productivity while reducing costs, and improving quality and accuracy in preparation of orders
- Improving stock control to prevent production or service disruptions due to lack of material, picking disruptions due to lack of replenishment, loss of sales opportunities, and unnecessary purchases
- Improving the information flow, traceability and service rates between the warehouse and the rest of the cogs in the supply chain
- Managing the constantly increasing complexity of the market by improving flexibility and showing high change-adaptability to meet the customers' fluctuating demands due to seasonalities, rise of new sales channels, etc.

## FOCUS AREAS

Waste in warehousing processes represents tremendous savings potential and thus it should and can, using the right Lean tools, be identified and minimised. While in most warehouse services picking activities generate more than 55% of the costs, Lean principles, Kaizen methods, and re-engineering approaches can be applied in every step of warehouse management. The right Lean Solutions can improve product quality, reduce lead-time and reduce working capital.

### AREAS OF WASTE OFTEN IDENTIFIED IN A WAREHOUSE LAYOUT OR ENVIRONMENT:

#### TRANSPORTATION / CONVEYANCE

Unnecessary internal transport that results in added cost and lower productivity such as storing fast moving inventory in the back of the warehouse.

#### INVENTORY

Any activity that results in excess – or lack – of inventory or placed in a different location where required. Poor visibility or inaccurate information over the existing inventory in the warehouse logistics management systems will impact the preparation of orders and ultimately result in stock being unavailable for sales or shipping, thus increasing the frozen assets in the company.

#### MOVEMENT

Unnecessary movement of people, such as walking, reaching or stretching, due to inefficient layouts, lack of ergonomic workstations, manual picking that involves more than just one “touch” per item to prepare the order and make it ready to be shipped or picking trails not optimised.

#### WAITING

People, systems and material delays due to wasteful processes. Waiting for picking lanes replenishment, material or shipping approvals, waiting for data or waiting for correct materials and services to arrive due to poor replenishment planning.

#### OVER-PRODUCTION / OVER-PROCESSING

Stocking and delivering products before they are needed. Storing palletised goods which shortly will be unpalletised.

#### DEFECTS

Activities that cause re-work, returns or adjustments, such as customer guidelines which require too many manual operations, or delayed customer instructions which are received after the order was prepared, billing mistakes, inventory discrepancies, or materials missing, damaged, defective, wrong or mislabelled.

#### SPACE

The use of space that is less than optimal, such as low or excessive fill-up rates of trailers, containers or cartons, inefficient warehouse management or use of warehouse space, racking systems not aligned to the kind of product and expected flow.

# LEAN SOLUTIONS

Designing and implementing Lean warehouse services can have a great impact on the total supply chain output.

BY APPROACHING THE WASTE FOCUS AREAS MENTIONED ABOVE WITH LEAN SOLUTIONS, SOME OF THE OPPORTUNITIES THAT RESULT TO REDUCE LEAD TIMES IN WAREHOUSING INCLUDE:

- Handling time reduction in order picking, put-away, palletising and shipping
- Reduction in time spent checking and looking for inventory
- Reliability of information to coordinate the rest of the supply chain
- Increased flexibility to adapt to changing market conditions and customer specifications
- Reduction in truck and containers loading and unloading times

We implement Lean Solutions to warehouse management operations. The solutions must fit the challenges.

## LEAN SOLUTIONS - CONTINUED

### PULL

- Enable FIFO at the batch level
- Reduce inventory levels throughout processes
- Avoid over-production
- Increase visibility of bottlenecks in the process

### ONE PIECE FLOW

- Enable FIFO to a single product / service level
- Create transparency of the real process lead time
- Reduce lead time
- Reduce inventory levels throughout process
- Increase quality
- Reorganise the processes in the right sequence

### TAKT

- Process transparency
- Balanced distribution of the workload across resources
- Process flexibility
- Ability to plan resource capacity and / or improve forecasting
- Optimal efficiency in resource utilisation

### ZERO DEFECTS

- Enables problem root cause analysis and solving
- Prevents problems snowballing through the process
- Increases quality
- Enables an open culture of problem solving vs. finger pointing





# TANGIBLE IMPROVEMENTS

## LEAD TIME

- Warehouse Lean project reduced the actual processing time of picking and packing by 50%, thereby shortening the total lead time by 25%
- Optimising the warehouse layout reduced storing times by more than 25% and picking times by 30%
- Lean warehouse to dispatch workshop improved dock scheduling and loading plans which improved filling rates of transports and a reduction in truck loading hours needed, reducing the lead time between 10% to 30% varying on the different SKU categories

## QUALITY

- Lean picking workshop resulted in a decrease of picking mistakes by more than 90% due to the standardisation of the picking process and its interfaces with the order generation and invoicing processes
- Optimised handling approaches and Lean ERP systems impacted a decrease of picking and shipping mistakes by ~40%

## COST

- Optimising cartons filling rate decreased the buying needs by 46% and led to a reduction of 18% in transportation costs while reducing environmental impact
- Inventory accuracy improvements due to optimisation and linking of ordering, data entry and inventory management processes resulted in a reduction of 20% of inventory required to support a growth strategy



Should you be interested to know more about our Lean services regarding this topic, then please contact us:

**Tel**

+971 4 368 2124

**Email**

[info@fourprinciples.com](mailto:info@fourprinciples.com)

**Dubai, UAE Office Address**

Dubai Media City

Building 8

Office 212

P.O. Box 502621

Dubai, UAE