

## **WAREHOUSE FACILITIES: REVOLUTION DRIVING RENOVATION**

*Research Series*

*May 2004*

### **INTRODUCTION**

In this article we summarize and interpret the results of our extensive research and recently completed survey of the SoCal market for **warehouse** and **distribution facilities**.

Based on over sixty interviews representing over forty 3PL, captive operators and real estate developers, significant direct knowledge and analysis of 3PL and captive operators, and an extensive review of authoritative literature, this article provides perspective on the trends and directions in warehousing, business and economic drivers of the industry, key needs of tenants and operators, tenant location and facility selection criteria, and the most desired warehouse attributes as expressed by operators and tenants.

### **REVOLUTIONARY CHANGES**

*“We move boxes, we store boxes and we ship boxes.”*

That was how a warehousing operator once described his business to us a long time ago. But today any 3PL or captive operator (CO) managing and performing with that philosophy is a sure ticket to unemployment and Chapter 11.

In just a few short years, the warehousing and distribution center industry have experienced a **revolution** in its competitive dynamics, economics, and performance requirements. Warehousing operations have changed and will continue a rapid transformation for the foreseeable future as the industry implements more technology, operational innovations, and value-based services.

Where once warehouses were temporary storage sites, they are now *integral parts of the supply chain*. Modern warehouse operations and facilities are highly automated and packed with value-added activities designed to accelerate the accurate and timely movement of product through complex channels to customers. For example:

- Through advanced logistics and warehousing a retailer can reduce costs by \$1.0 million for every \$100 million in revenue.
- Using SKU rationalization one retailer was able to reduce inventory by 20 percent while increasing sales by 4 percent.
- UCC coding rationalization and synchronization can save \$1.0 million per every billion in revenue.
- Wal-Mart has redefined the mass retailing and grocery industries with **hyperefficient** supply chains that allow prices to be 15% below competitors (see page 2).

### **ECONOMIC INDICATORS**

- USDOT predicts 100% growth in freight traffic in SoCal and Southwest and a tripling of imports by 2020
- Inventories, as a percentage of sales have fallen 38% from 3.4% in 1959 to 2.4% in 2000
- 60 percent of all airfreight moves through 5 hubs, including LA and SF and is expected to triple by 2020
- Greater sourcing from China. China is the 4<sup>th</sup> largest US trading partner. China is the 6<sup>th</sup> largest economy in the world, produces 25% of the world's TVs, makes 50% of the world's cameras and 25% of its copiers. China means *more volume* through SoCal ports and free-ways.

### **FOR FURTHER INFORMATION**

**Contact WCL Consulting  
Jon DeCesare or Michael Mische  
562.435.2600  
[www.wclconsulting.com](http://www.wclconsulting.com)**

## WAREHOUSE TRENDS & DIRECTIONS

Business economics, customer demands, margin pressures and the need to accelerate throughput of product are driving significant changes in warehouse design, location, tenant selection criteria, and developer plans.

- Greater demands from customers for more services at lower prices
- Increased specialization among 3PLs
- Increased 3PL competition, followed by industry consolidation
- 3 PL industry is low margin business with constant pressure to reduce costs
- Availability of quality labor, retention and motivation
- Ability to rapidly respond to changing customer demands
- Need for flexible space and larger yards

Whether it's a 3PL or captive operator the biggest challenges confronting warehouse operators are:

1. **Growing revenues** through differentiation strategies and customer centric logistics initiatives (CCLI),
2. **Reducing costs** through collaborative relationships with suppliers
3. **Optimizing facilities** through expanded warehouse services and flexible facility design.

However, growing revenues through differentiation is more difficult as channels merge, become increasingly blurred, and competition between 3PLs and captive operators with surplus space heats up. Given those difficulties, both 3PLs and captive operators are focusing more intensely and investing in technologies designed to help their customers and companies to optimize the operations and logistics as methods for increasing revenues, while reducing costs. Thus, there is a movement in warehousing away from managing the facility as a cost center to managing it as a revenue center.

As a result, increased efforts are applied to forecasting and fast response to consumer needs through Collaborative

### KEY TRENDS TO WATCH FOR!

#### 3PLs and captives will be investing in:

- Facility consolidation and concentration
- More technology in the form of RF, RFID, Bar Coding, Lasers
- More operational advancements for racking, loading, item movement and automation
- More operational specialization in the forms of By-pass, Postponement, Mini-assembly, Kitting, Configuration

Planning, Forecasting and Replenishment (CPFR), methods to compress the supply chain and other trends:

- Greater volume throughput and faster turnarounds (velocity)
- Faster turnaround and compression of the logistics cycle
- Expanded use of technology (RF, RFID, Bar Codes, Automation)
- Greater emphasis on "value-added" services
- Movement to 24 x 7 operations to support global customers

Essential to the competitiveness and profitability of any warehouse is the concept of hyperefficiency. Enabled by technology hyperefficiency is both an operating philosophy and operating process that allows for high velocity of product movement while ensuring that the products are configured for consumers, tailored for markets, and available in quantity to capitalize upon marketing campaigns and consumer sentiment. This is driving a movement in warehousing known as "mini-assembly" or "postponement" which requires higher quality labor force that can assemble tailored products just in time for sale.

Finally, 3PLs and captives are **consolidating** the number of facilities that they operate. This **centralization** movement is reducing the number of facilities from an average of 10 to 12 locations for large companies, to 5 super-facilities. Within retailing, respondents IRMA indicated that they operated 4.2 facilities, on average, down from 4.8.

### FACTORS DRIVING DEMAND

- 3PL industry has averaged 25% growth since 1990. Growth will continue, but consolidation will occur
- Operator Business Model
- Operator Business Needs
- Customer Demands
- Emergence Demand-Pull v. Push Models and Inventory Level Plans
- Business Sentiment and Economic Expectations of Management

### KEY INFLUENCES IN SUPPLY

- Investors are seeking 12 to 15% IRR on class A, A- and B+ facilities
- Availability of land
- Ability to build, restrictions, and permits
- 2003 YE Occupancy Rate fell to 83%, a 24 % decline since 2000
- Estimate of only 25 to 30 million new square feet to be delivered in 2004, down 77% from 130 million in 1999

## WAREHOUSE ATTRIBUTES...CHANGING REQUIREMENTS

### SELECTION CRITERIA

*What Do Operators Consider When Evaluating Facilities & Locations?*

- **Operator Business Objectives & Financial Goals** (Costs!)
- **Operator Strategies & Business** (Sentiment/Expectations)
- **Source of Products**  
Port of Entry  
Country of Origin
- **Industry and Business Practices-** Retailers Tend to Be Captive, Manufacturers use 3PLs
- **Logistics Network Design**  
Rationalization, Specialization & Consolidation of Network  
Reduced Number of Locations  
Less Reliance on "Safety Stock"  
Faster and Greater Throughput
- **Customers and Markets**  
Number of Customers/Stores  
Size of Market and Volumes  
Demographics of Market  
Growth Potential of Market  
Stability and Motility of Market  
Specific Customer Needs
- **Types of Products**  
As value & volume increases, locations decrease
- **Operational Needs**  
Technology  
Labor Availability & Quality
- **Utilities Costs & Stability**
- **Local Regulations & Political Environment**
- **Infrastructure** (Transportation, Education, Services)

Changes in the industry and trends in warehouse operations and economics will necessitate modifications in the design of facilities. No longer will "just cubic feet" be sufficient to support the sophisticated technologies and advanced operational capabilities of the warehouse operators.

According to the Center for Real Estate Enterprise Management, approximately 85 percent of industrial space in the US is over ten years old. Much of this portfolio is multi-storied and a significant percentage is located in urban areas. The age, construction, location and infrastructure related to these facilities cannot support modern warehouse operations.

To support these needs, facilities must *enable* operational efficiencies, the integration of technologies and communications, and increased volumes through flexible designs that can be optimized based on changing needs.

Some of the key attributes that the **Facility of the Future** (FOF) will include:

- Higher ratio of doors to square footage
- Higher ratio of doors to yard spots
- Design for greater volumes and operational efficiencies
- Design for technology, automation, min-assembly and more natural light
- Greater employee amenities such as, food parks, public transportation

With the centralization and consolidation into fewer but larger facilities, there is an increase in the need for additional environmental capabilities to support increased office space and automated materials handling systems. Mini-assembly and postponement require additional on-site storage capabilities and 250 to 400 feet is common for single sided operations and cross-docking respectively. Parking space ratios will improve to 2.0-3.0 per 1000 feet.

Operator business dynamics are also redefining tenant needs for more flexible leasing terms that will allow them to expand, contract, exit and purchase facilities based on changes in their business and economic position. In general, leasing tenants prefer shorter term leases of 24 to 36 months with options to purchase.

### FUN FACTS!

#### Did you know?

- One Rail Car equals 3 to 5 truck loads
- Rail uses 3 times less fuel trucks
- Rail has 10 times less air emissions
- Build to suit properties run almost 2:1 over standard builds
- Wal-Mart estimates that RFID will reduce warehousing space by 10%
- A one-tenth reduction in invoice errors can yield \$1.0 million on \$1.0 billion of revenues

## ***MOST DESIRED ATTRIBUTES...FACILITY OF THE FUTURE***

### **SO WHAT DOES THE FACILITY OF THE FUTURE LOOK LIKE? WHAT DO OPERATORS REQUIRE FROM A WAREHOUSE?**

- There is commonalty and consistency for facility attributes and characteristics among operators.
- More square footage will be used for *staging* and *assembly* than traditional storage of product.

#### **Top attributes most often cited by respondents and various research.**

<b>ATTRIBUTE</b>	<b>CHARACTERISTIC</b>
1. Building Style:	Square, but "L" square is gaining popularity for hybrid use
2. Sourcing Trend:	More RFPs and build to suit outpacing standard building by 2:1 ratio
3. Ceiling Clearance:	32 to 36 foot, in general.
4. Dock Doors to Trailer Spots:	At least 1:3, with overflow for peak periods
5. Dock Doors:	10 x 12 foot with screens or scissor doors for circulation, light and security
6. Dock Plates:	Embedded risers and levelers
7. Dock/Truck Wells:	Level, no wells, good sight lines
8. Column Spacing:	50 x 52 for more open and flexible bays
9. Building Depth:	250 to 600 feet, with emphasis on shallower depth
10. Lighting:	Halogen with Skylights; 30 Candles @ 30 inches off floor
11. Fire Suppression:	ESFR or equivalent for insurance, fire code and safety purposes
12. Office Space:	5 to 25 percent depending on business, more resources at point of execution
13. Square Footage Per Dock:	2,500 to 3,500 square feet per dock location <i>equals</i> more doors
14. Floor Capacity/Thickness:	Varies by racking, equipment and product weights and usage
15. Floor Level/Flatness:	Level, varies by tenant and tenant's business needs

- Needs will vary by industry, specialization and product and service mix....*see below!*

## ***INDUSTRY SPECIALIZATION...DRIVERS VARY NEEDS***

- Although there are many common themes and trends among warehouse tenants and operators, each industry has particular needs that drive its requirements for warehousing and decisions to commitment for warehousing.
- Below is a partial summary of some of the key drivers that are defining warehousing requirements by industry.

<b>INDUSTRY</b>	<b>KEY DRIVERS FOR WAREHOUSING (Partial)</b>
Food & Beverage	Markets location, Population density, Operating costs, Transportation costs
Pharma	Product value, Pricing, FDA regulations, Market locations, Special storage
Mass Retail	Costs, Store locations, Product types, Origin of products, POS technology, Assembly of products, Number of stores supported
Specialty Retail	Costs, Origin and Product types
Automotive	Origin, Part value and failure rates, Dealer stock requirements, Market locations
Airlines	Hub Concept, Labor, Costs, FAA requirements
Consumer Electronics	Higher value, Labor, Configuration
Hardware/Housewares	Look for more By-pass and Direct to store
Appliances	Higher value, Market locations, Market growth rates and potentials
Catalog/Fulfillment	Cost, Transportation access, More use of high technology and high automation

## **WCL CASE HISTORY...ACCELERATING THROUGHPUT WMS SOFTWARE AND PROCESS ELIMINATE HIDDEN COSTS**

### **BACKGROUND**

Buried deep in all warehousing and distribution center operations are hidden costs. Hidden costs are the

costs that are deeply embedded in legacy business practices, old technologies, unnecessary labor, contracts, misaligned processes and measurements, and poor decision making.

Finding the hidden costs requires that the company objectively perform a comprehensive review of its operations, organization, processes, customer service levels and terms, and technology with an eye on:

- Reducing cycle time for processing orders.
- Reducing total transaction costs.
- Improving organizational accountability for performance.
- Improving inventory accuracy, availability and location accuracy.
- Improving customer satisfaction.
- Streamlining workflows, personnel deployment and productivity.

### **Performance...Before**

- Admin. v. production: 400 hrs
- Technology as a % of process 10%
- Avg. total elapsed time to process an order: 3 days
- Avg. number of items picked per hour: 328 per worker
- Pick accuracy: 99%
- Total transaction cost per order:

### **SITUATION**

For several years, company management had been involved in internal debates about customer service, back orders, stocking and cycle times. Two solutions came under study but both involved increasing inventory levels. Estimates for renovating and adding space ranged from \$10.0 to 18 million, depending on the solution.

Operationally the company was under tremendous competitive and performance pressures. The *As-Is* analysis indicated that there are at least 35 different task steps, a minimum of 15 different people, and five different departments associated with processing an order.

### **SOLUTION**

Using a comprehensive work plan, proven diagnostic tools and analytical methods, the WCL team completed an analysis of current business processes, business policies, decision-making practices and technology to identify the hidden costs.

- ⇒ Reengineered key business processes
- ⇒ Redesigned warehouse layout
- ⇒ Procured and implemented new WMS software
- ⇒ Reconfigured inventory management and material movements
- ⇒ Implemented new performance measurements

The investment to eliminate the hidden costs and automate the warehouse with new technologies was around \$7.0 million, significantly lower than either of the two solutions originally contemplated by management.

***DON'T DELAY...FIND YOUR HIDDEN COSTS!  
FOR FURTHER INFORMATION CALL US AT: 562.435.2600***

### **PERFORMANCE...After**

- A 12 percent increase in DC personnel individual productivity.
- A 38 percent increase in inventory turns.
- A 60 percent reduction in order fulfillment cycle times.
- A \$600,000 improvement in cash flows and reduction in transaction costs.
- Successful selection and implementation of RF technology and new WMS software.
- An 80 percent reduction in expedited orders.
- A 22 percent reduction in total transaction costs.

## THE AUTHORS

**Michael A. Mische** is a principal at WCL. A former consulting partner at KPMG and AT Kearney, Michael has 25 years of global management consulting experience. Michael is also an Adjunct Professor of Strategy at the University of Southern California's Marshall School of Business. He is the author of seven books and over 40 articles and has testified as an expert witness in legal and legislative matters. He holds BS and MBA degrees "with honors" from New York University and an MS degree from Golden Gate University. He is currently completing his DBA and a new book on business case analysis.

**Jon DeCesare** is a principal and founder of WCL. Jon has over 30 years of global logistics experience for a variety of industries. Jon received a BA in economics from California State University Long Beach. He completed graduate studies in international management at the American Graduate School of International Management-Thunderbird Program and has completed graduate studies in global supply chain/warehouse operations management at Michigan State University and University of Southern California. Jon is a frequent speaker at corporate outings and management events.

**WCL Consulting** provides strategic planning, logistics, supply chain management, warehousing, and distribution management advisory services to major corporations, shippers, third-party logistics providers, industrial real estate development/brokerage companies and the public sector.

[www.wclconsulting.com](http://www.wclconsulting.com)

## YOU ARE INVITED TO JOIN WCL'S WAREHOUSE LOCATION PROJECT

Where to locate? How much to invest? What do tenants want? What's driving demand and rents? Where's the growth?

**You are invited!** WCL is pleased to invite you to join with other developers, importers, operators/3PL's, lenders, brokers, corporate real estate departments, and other interested parties as a **sponsor** in this cooperative Study for the SoCal logistical, warehousing, and distribution marketplace.

WCL asks and gets the answers to the tough questions that you have:

- What impact is congestion having on distribution?
- What effect will a 300% growth in import volumes and a 6 million growth in population have on SoCal?
- Is the Logistics industry driving shorter or longer facility leases?
- What will the implementation of extended gate hours at the Ports?
- Where are warehouse and distribution centers going after the Inland Empire?

These are just a few of the questions that developers, importers, transportation providers, facilities operators, tenants, lenders and planners have that this comprehensive study will address.

Based on proven research methods, extensive interviews, structured analytical methods, this study will provide the sponsors with insights into the So-Cal market and the key trends that shaping the marketplace. Make better decisions using valid data and timely information!

## WHO BENEFITS?

**The study is designed to be responsive to the needs of:**

- Real Estate Industrial Developers
- Corporate Real Estate Departments
- Transportation Providers and Shippers
- Facility Operators (3PLs) and Captives)
- Commercial Mortgage Brokers and Bankers
- Major Importers, Tenants, Distributors, and Retailers
- Funders, Investors and Lenders, such as Insurance Companies
- REITs, Syndicates and Venture Capitalists
- City Planners, Architects, County Officials, State Officials, CalTrans,

**There are 3 ways to participate.** WCL has *value priced* the Study to make it attractive to your budget:

- The total cost of becoming a **Charter Sponsor** is only \$7,500.00
- The total cost of becoming a **Direct Sponsor** is only \$5,000.00
- The total cost of becoming a **Study Subscriber** is only \$3,000.00

**CALL WCL TODAY AT...562.435.2600 TO PARTICIPATE**

## ***PERFORMANCE MEASURES***

**Top performing warehouse operators use a number of measures:**

### **General Measurements & (Trend)**

(Used by Most WH)

1. Pick Accuracy (Increase)
2. Shipping Accuracy (Increase)
3. Inventory Location Accuracy (Increase)
4. Inventory Count Accuracy (Increase)
5. Turns Per Door (Increase)
6. Turns Per Square Foot (Increase)
7. Billing/Invoice Accuracy (Increase)
8. Delivery Accuracy (Increase)
9. Lines Worked Per Order (Increase)
10. Items, Pounds Worked/Order (Increase)
11. Transactions Costs (CPT) (Decrease)
12. Cash-to-Cash Conversion (Decrease)

### **Specific Measurements & (Trend)**

(Used by Captives, plus above)

13. Inventory Turns (Increase)
14. Days Inventory on Hand (Decrease)
15. Number of SKUs in Inventory (Decrease)
16. Obsolescence Write-offs (Decrease)
17. Scrap and Theft (Decrease)