

# Inventory Management and Supply Chain Planning for a Post- Pandemic World

*Marguerite Thordarson*

*Business Advisor*

*marguerite.thordarson@mso.umt.edu*

1

## Why I want to talk about supply chain solutions

---

- Global supply chains have been disrupted and businesses are having to change the way they order, hold, and manage inventory
- Larger companies are employing all types of technology to create a digital supply chain network
- Small businesses need easy and accessible solutions to better manage their inventory and supply chains

2

**DEMAND PLANNING**

- Predictive Patterns**
  - Monthly, seasonal, and annual trends in sale amounts and activity
- Consumer Behavior**
  - Observations, surveys, feedback
- Competitors**
  - Knowing who else is providing the same goods and services, how you can do it better
- Disruptions**
  - Political, economic, social, or environmental

3

**SUPPLY PLANNING**

- Supplier Relationships**
  - Reliability of prices and availability
  - Trust in quality and convenience
  - Favorable payment or credit terms
- Cost-Effectiveness**
  - Outsourcing and offshoring for cheap labor/cheap goods
  - Lean manufacturing to only produce what is needed
  - Just-in-time inventory to only order what is needed
- Logistics**
  - Speed and reliability of shipping
  - Easy return policy
  - Predictable lead times







4



# WHAT HAS THE POST-PANDEMIC WORLD CHANGED ABOUT HOW WE DO DEMAND AND SUPPLY PLANNING?

5

## CHANGES IN CONSUMER PREFERENCES AND PRIORITIES

-  Price they are willing to pay
-  Amount of disposable income they have
-  Frequencies and trends of spending
-  Products they need and want
-  Places they buy from
-  Values that drive their spending

Effect = demand dips and spikes

6

## CHANGES IN PRODUCTIVITY AROUND THE WORLD

Effect = supply shocks

Increasing costs of materials

Scarcities and shortages

Labor gaps

Shipping delays

Unpredictable lead times

Higher inventories on hand

7

In 2022, retailers are increasing the amount of inventory they are holding

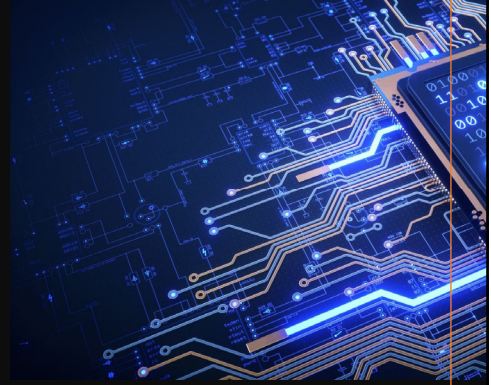
- 32% - Walmart
- 43% - Target
- 26% - Costco
- 17% - Macy's
- 40% - Kohl's and Dick's Sporting Goods
- 37% - both TJX Cos. and Foot Locker
- 34% - Gap
- 45% - Abercrombie & Fitch
- 32% - Urban Outfitters



8

## THE SOLUTIONS

- ✦ More transparency
- ✦ Closer relationships
- ✦ With longer-term commitments
- ✦ And DATA



9

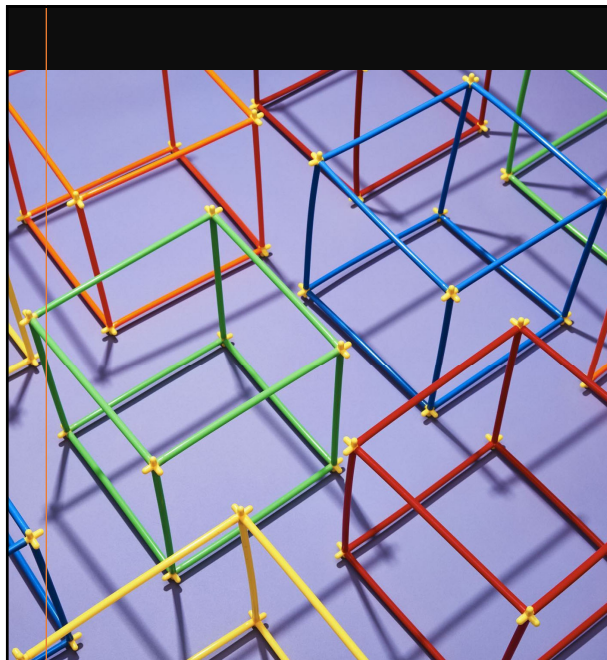
## WHAT MAKES UP A DIGITAL SUPPLY CHAIN?

- The Internet of Things (IoT)
- End to End Digital Connectivity
- Cloud Computing
- Blockchain
- Big Data
- Artificial Intelligence
- Predictive Analytics
- Machine Learning
- Virtual & Augmented Reality
- Voice Activated Technology
- Wearable Devices
- Control Towers
- Robotics
- 3D Printing and On Demand, Additive Manufacturing
- Cyber Security
- Autonomous Vehicles
- Drones
- Software as a Service (SaaS)

10



11



## Get your data in order

- Store data in information systems that can sort and filter
- Capture the details you need to see
- Create item and product codes that categorize and sub-categorize for you
- Know how to access, filter, and sort the data for analysis

12

## Analyze data more often, in more detail

---

- Set goals and expectations for shorter periods
- Figure out what's normal, what's abnormal
- Set a plan for a desirable outcome, and a way of measuring success
- Measure performance outcomes, figure out what went wrong
- Adjust then plan for the next period

13

## Do different types of analysis with different expectations

- Analyze products in common together
  - Look at turnover rates for different inventory categories
- Break up the time periods in a way that makes sense
  - Seasonal ratios vs averages

14



## Test your assumptions about customer demand

- Find TRENDS in the DEMAND of your customers
  - Daily sales – amount of sale, time of day, payment method
  - Weekly sales – Day of week, date of the month, season, weather
- Look for SHIFTS in SPENDING behavior
  - Amount - Small sales v. Larger sales
  - Type - Essential v. Non-essential
  - Place – Online v. In-person
- Pay attention to CHANGES in customer VALUES
  - Survey - Ask for feedback about what they like and don't like
  - Engage – respond to comments, build trust

15

## Pay close attention to what your competitors are doing

Don't assume they are doing business as usual

- Check for price increases
- Changes in product or service offerings
- Shifts in operations or strategic direction


There may be new opportunities that weren't there before

- New market share when competitors leave the market
- Innovations and technologies that competitors are using to solve their problems



16






## Understand the vulnerabilities in your supply chain

- Know WHERE your supplies and materials come from, and the about the social and environmental issues of the region
- Know WHO is competing against you for scarce supplies
- Know WHAT supplies are scarce, and HOW to plan for replacement

17



## Diversify your supply network

- **Offshoring**
  - The low-cost option, high risk for
  - Shipping is costly, and no longer unreliable
  - Social and environmental factors increase the risk of supply constraints
- **Re-shoring**
  - Diversity in can provide security
  - Not a single solution - domestic problems cause supply issues too

18

# Rebuild the trust in your vendor network

## Transparency

- Tell vendors about your materials, processes, and customer needs
- Know how much of your supplies they can fulfill and when they will have more
- Be open and seek advice about alternatives to their products and processes

## Loyalty

- Make a commitment to purchase from them long-term
- Collaborate with them to find mutually beneficial solutions



19

## Gross Margin

### GROSS MARGIN

- Sales - Cost
- Amount of profit on sales
- \$500 Sales - \$300 Cost = \$200 Gross Margin

### GROSS MARGIN %

- Gross Margin/Sales
- Percentage of profit on sales
- \$200 Gross Margin/\$500 Sale = 40% Gross Margin Percent

### TARGET SALES

- Target Profit + Operating Expenses / GM%
- Amount in sale you need to cover expenses and make a targeted profit

20

# Inventory Turnover

## INVENTORY TURNOVER

- Cost of Goods Sold/Average Inventory
- How many times inventory turned over in that period
- \$300,000 Cost of Goods/\$100,000 Average Inventory = 3 turns/year

## DAYS IN INVENTORY

- 365/Inventory Turnover
- Shows the number of days inventory was held
- 365 days/3 turns = 122 days in Inventory

21

## What ratios are good for my inventory?



### FOOD AND OTHER PERISHABLE GOODS

- Quicker Inventory Turnover

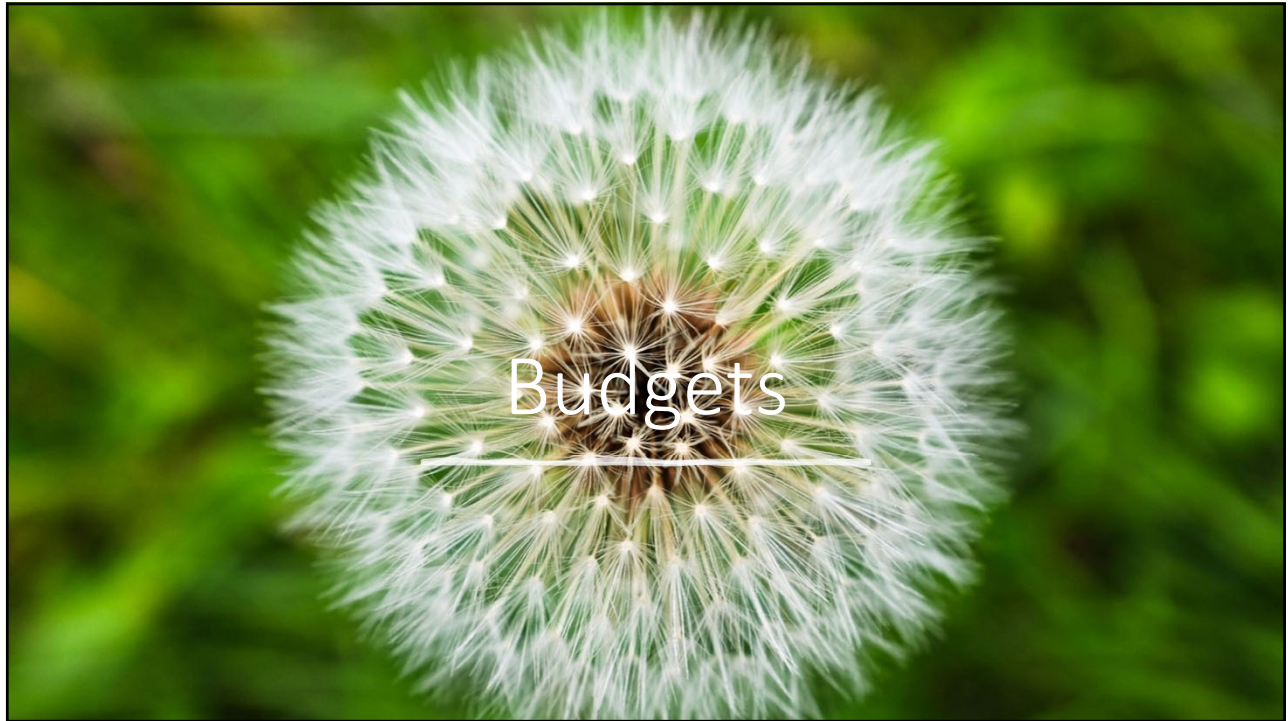
### NON-PERISHABLE GOODS

- Apparel and electronics can have a shorter shelf-life, and a quicker inventory turnover
- Most other non-perishable goods have a Longer Inventory Turnover

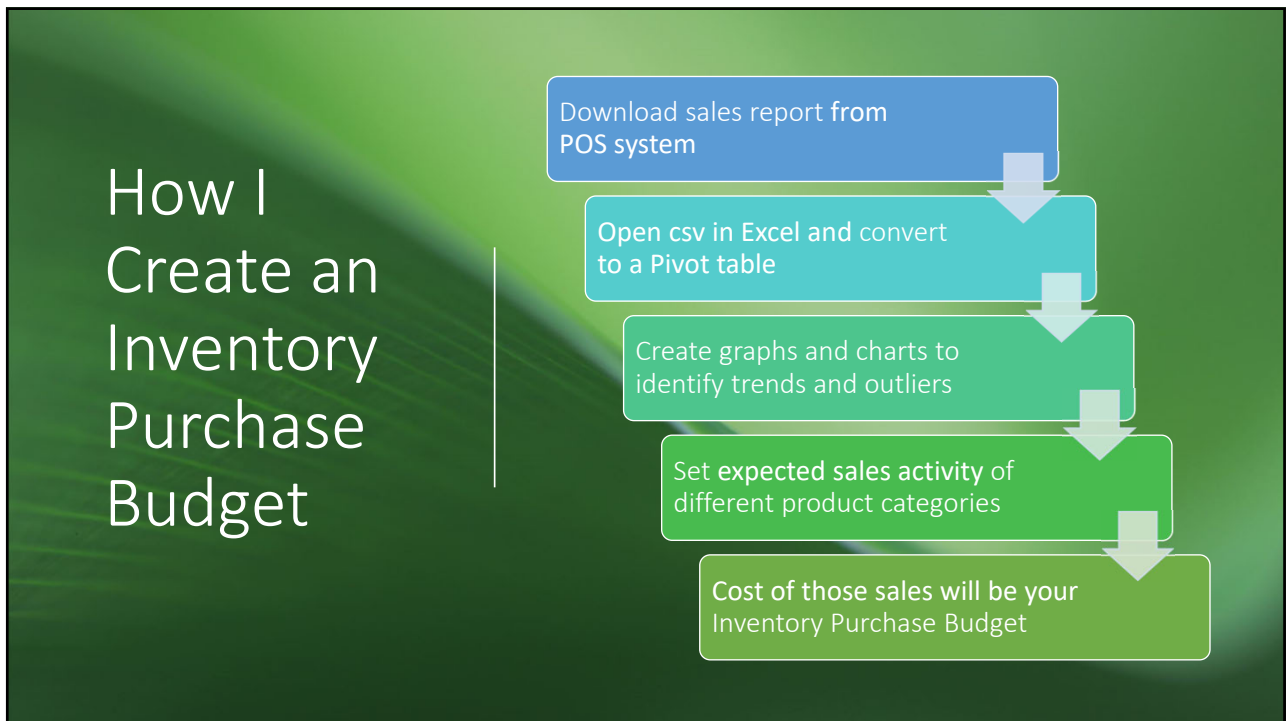
### MANUFACTURERS

- Some Inventory categories have higher turnover rates, and some have lower
- Scarcities and supply shocks create outliers, track those in more detail

22



23



24

# Manufacturers, consider using Enterprise Resource Planning software

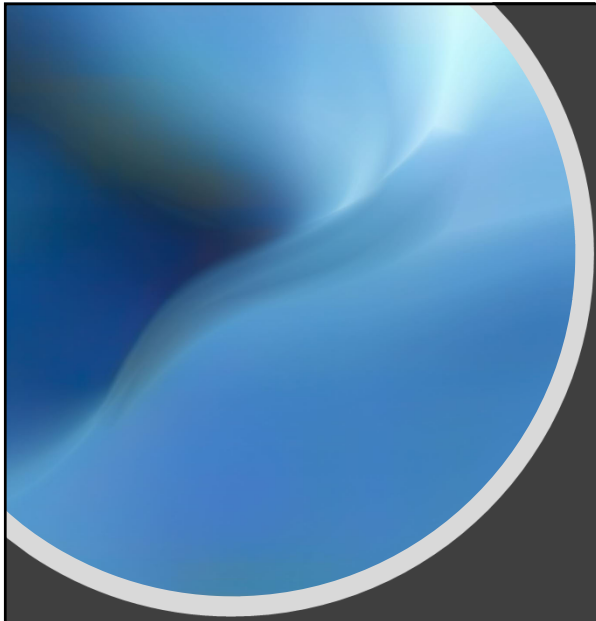
Essential inventory management  
functions are being done for you

- Assesses demand from orders
- Produces a production plan with labor and materials needed
- Converts raw materials and labor into finished goods
- Gives an accurate recognition of the cost and gross margin for a product or a batch

25

Ask for help

26



## KEY TAKEAWAYS

---

Test your assumptions about demand

---

Get closer to your suppliers

---

Keep your data in order

---

Analyze your data and develop metrics you think measure success

---

Set the plan and monitor your performance

27



**Marguerite Thordarson**  
*Business Advisor*  
W.E.L.L. Women's Business Center  
[marguerite.thordarson@mso.umt.edu](mailto:marguerite.thordarson@mso.umt.edu)

W.E.L.L.  
**WOMEN'S  
BUSINESS  
CENTER**

Thank you!

28

[Supplychaingamechanger@gmail.com](mailto:Supplychaingamechanger@gmail.com). (2022, December 6). *What is the digital supply chain?* Supply Chain Game Changer™. Retrieved January 4, 2023, from <https://supplychaingamechanger.com/what-is-the-digital-supply-chain/>

McNamara, M. (2022, April 11). How Much Inventory Should I Stock in a Post-COVID World? [web log]. Retrieved January 4, 2023.

<https://anysilicon.com/semiconductor-supply-chain/>

Gamio, L. and, & Goodman, P. S. (2021, December 5). How the Supply Chain Crisis Unfolded. *New York Times*. Retrieved January 4, 2023, from <https://www.nytimes.com/interactive/2021/12/05/business/economy/supply-chain.html?auth=login-google1tap&login=google1tap>.

Sherman, E. (2021, December 24). Here's Why Supply Chains Are So Broken—And Aren't Really Getting Better. (Zenger News, Ed.) *Forbes*. Retrieved January 4, 2023, from <https://www.forbes.com/sites/zengernews/2021/12/24/heres-why-supply-chains-are-so-broken-and-arent-really-getting-better/?sh=165210c432b9>.