

Lean Supply Chain



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What is Supply Chain Management?

Supply Chain Management - *Traditional View*

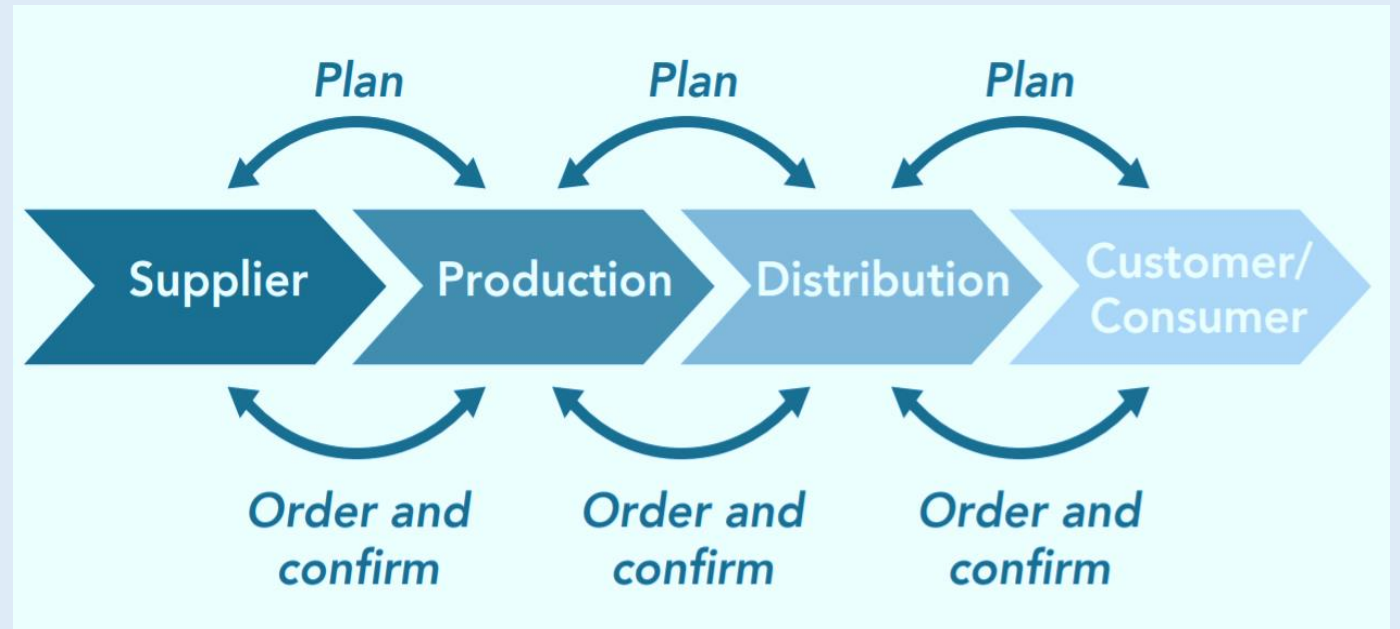
“Supply chain management is the practice of coordinating the various activities necessary to produce and deliver goods and services to a business’s customers.”

5 Key Phases:

- ✓ *Procurement*
- ✓ *Manufacturing*
- ✓ *Distribution*
- ✓ *Delivery*
- ✓ *Reverse Logistics*

3 Key Objectives:

- ✓ *Demand Fulfillment*
- ✓ *Inventory Optimization*
- ✓ *Transportation Cost/Quality optimization*



What changed ?



Political/Legal

- Globalization
- Taxations
- Labor Laws
- Regulations
- Political stability



Economic/Environment

- Economy growth
- Disposable Income
- More Companies
- More Products
- More Competition
- More Suppliers
- Economic disparity
- Market Cycle
- Buying power
- Environmental policies
- New Channels of distribution



Socio-cultural

- Population
- Demography
- Lifestyle
- Life standard
- Social disparity
- Health & Safety emphasis
- Exposure to more products
- Social Media
- Consumer behavior
- Buying behavior
- Access to Internet



Technology

- Digitalization
- Automation
- Data Science
- Analytic tools
- Disruptive technology
- Potential for innovation
- Access to technologies
- Information and communication
- High Speed Internet

“In a predictable and consistent business environment, the traditional model was good to yield results. However, in the current digital and disruptive environment (VUCA), the overall Business and Operational model needed an overhaul, with more responsibility assigned to Supply Chain Management.*”

Supply Chain Management – *New Era*

“Supply chain management is no longer only about delivering the product, at the lowest cost and the agreed service level; Now, it is now “also” about Increasing Sales Revenue, by creating more Value to the Customer and capturing it.

Additional Objectives:

- ✓ *Improve access to Customers*
- ✓ *Reduce the time to order and delivery*
- ✓ *Improve personalization of the product*
- ✓ *Enhance Customer experience*
- ✓ *Identify opportunity for higher Revenue & lower Cost*
- ✓ *Predict the Demand mix and variations with time & geography*



Flexible

Agile

Smart

Transparent

What is Lean Management?

Lean Management

“Lean management refers to managing the operation with the objective of continuously minimizing the process waste, and maximizing the value of the product or service to the customer, without compromising the quality.”

Three Core Objectives:

- 1. Deliver value from Customer’s perspective*
 - Value Stream Mapping*
- 2. Eliminate waste -“Muda” (things that don’t bring value to the end product)*
 - 5S, Kanban, Poka-yoke, Six-Sigma*
- 3. Continuous improvement*
 - Kaizen*

7 Types of Wastes



Inventory



Waiting



Defects



Overproduction



Motion

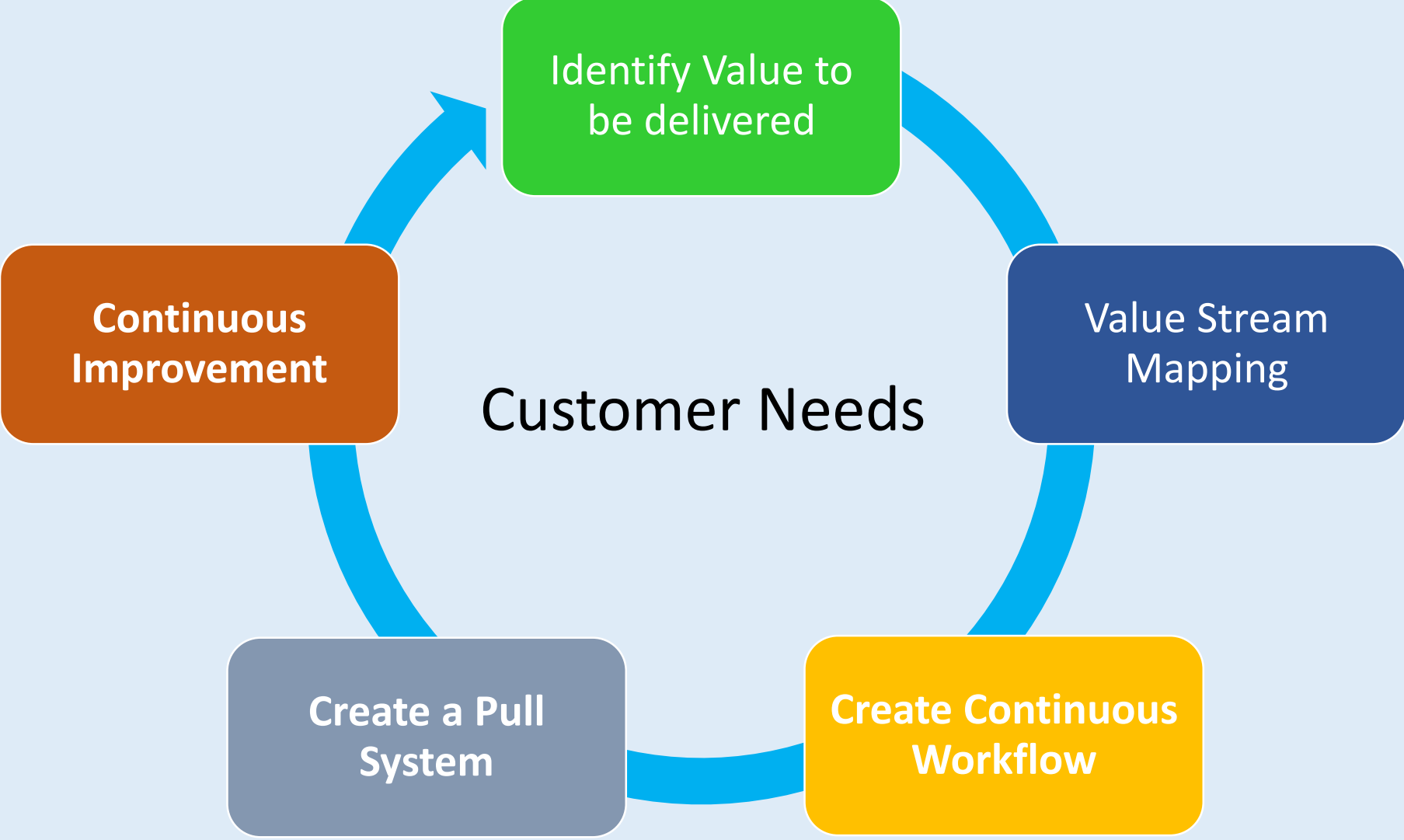


Transportation



Over-processing

Lean Management Framework



What is Lean Supply Chain Management?

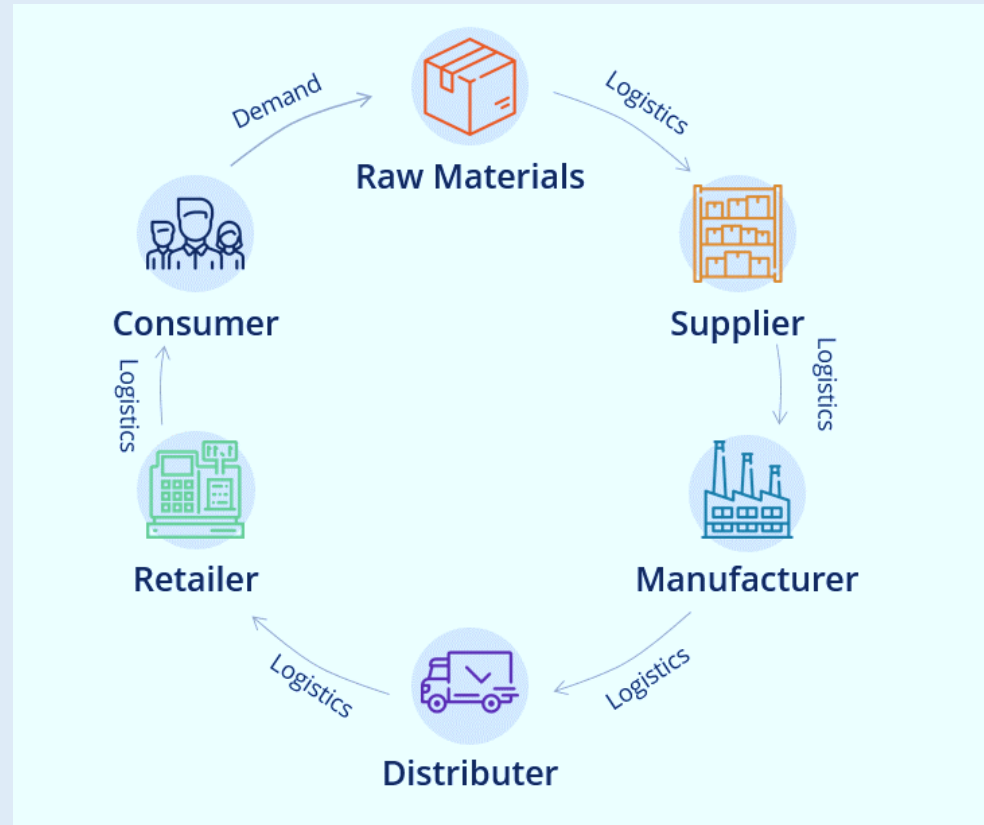
Lean Supply Chain Management

“Applying concepts and tools of Lean Management to the supply chain environment to maximize value for customers and profit for corporations by eliminating waste, “Muda”, through each stage of commerce, and implementing business strategies that enable continuous and sustainable improvement throughout the supply chain. .”

Demand Management

- Keep Supply Chain Flexible and Agile to respond to the Customer needs
- Lesser Lead time to Delivery
- More Value to the customers

Increase Business Revenue

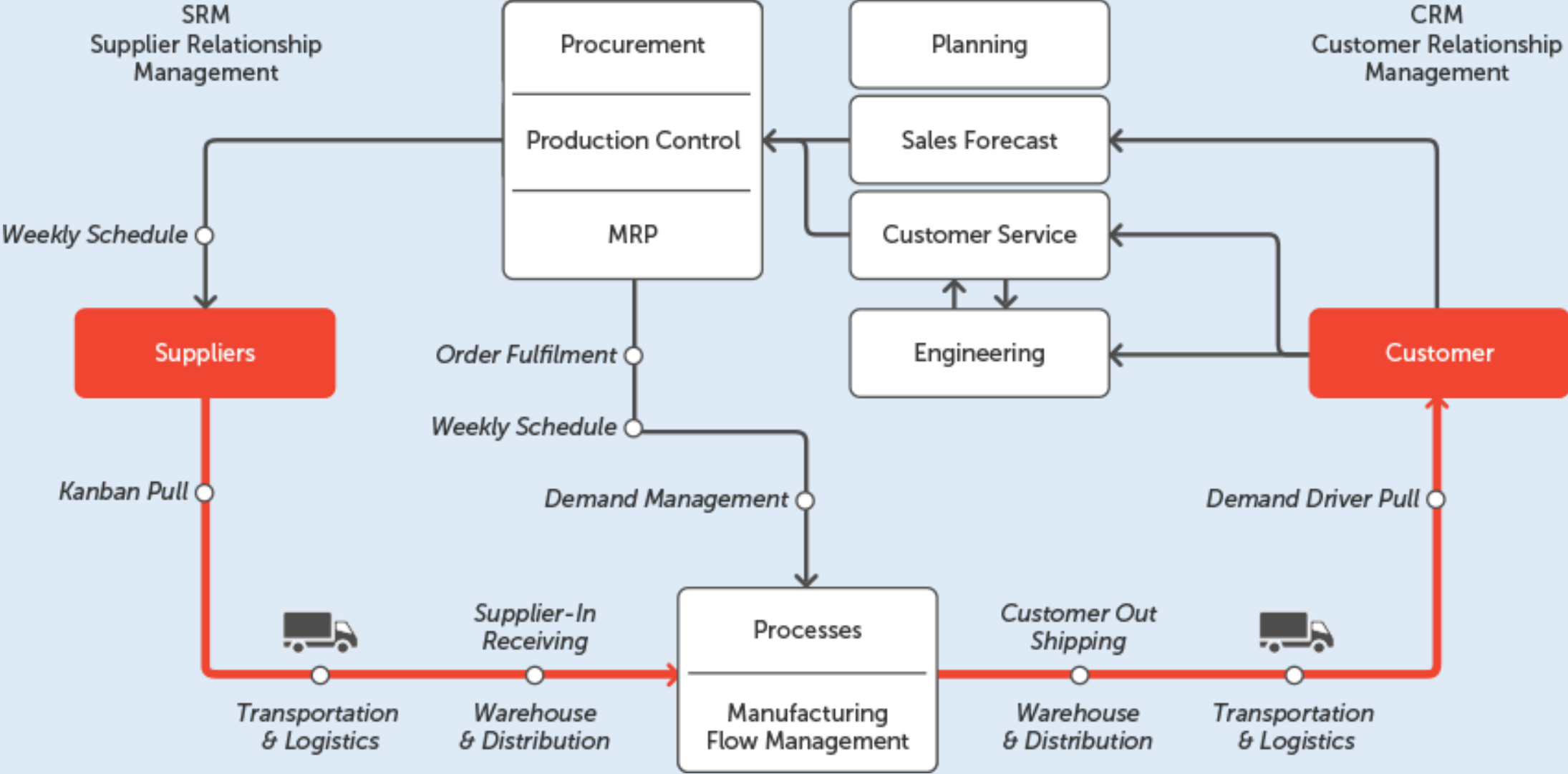


Waste Management

- Identify Waste at each nodes and movement
- Eliminate Waste
- Continuously do so...

Decrease Operating Cost

Lean Supply Chain Management: Process Flow

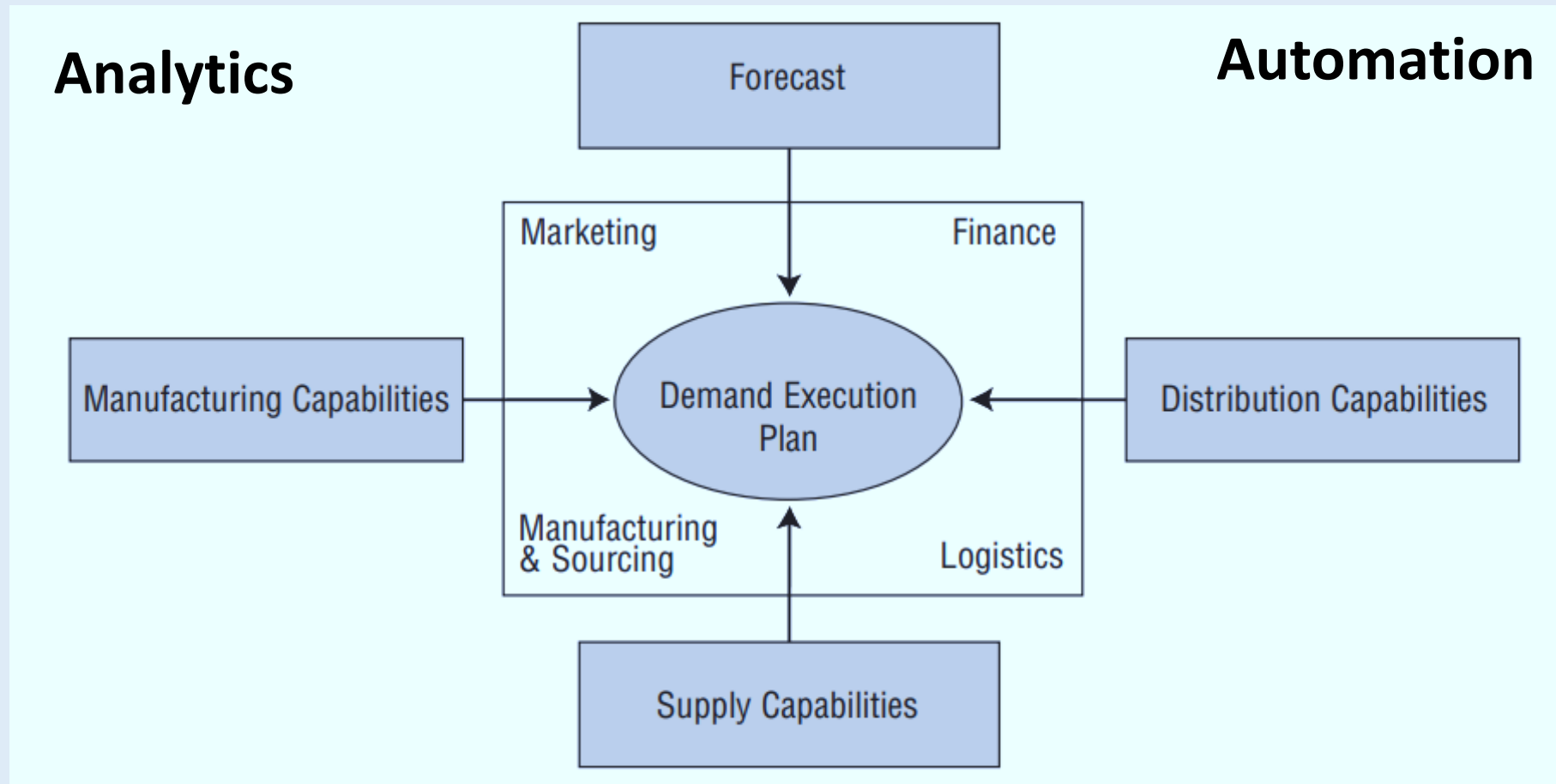


9 Enablers of Lean Supply Chain Management

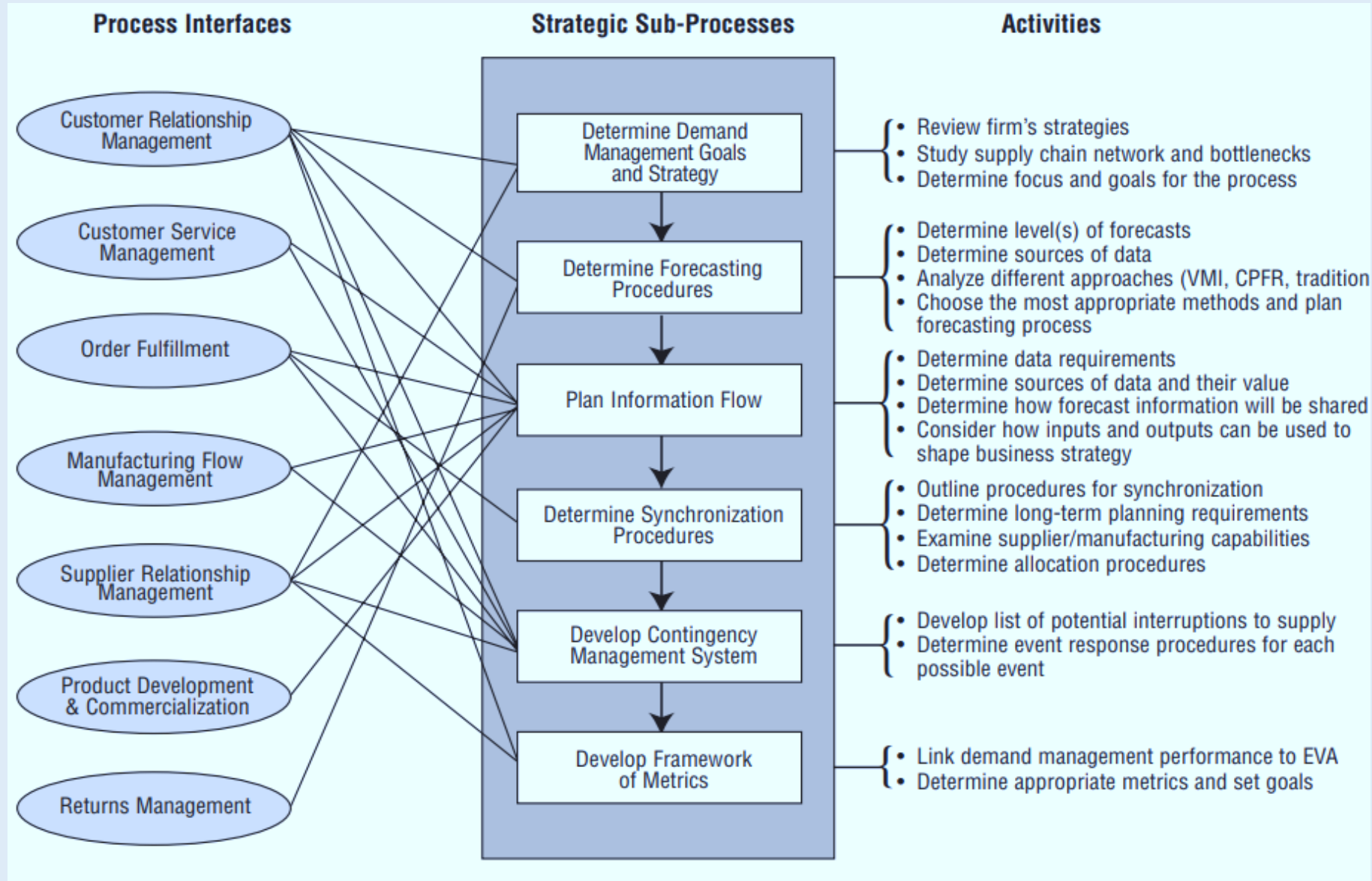


Lean Demand Management

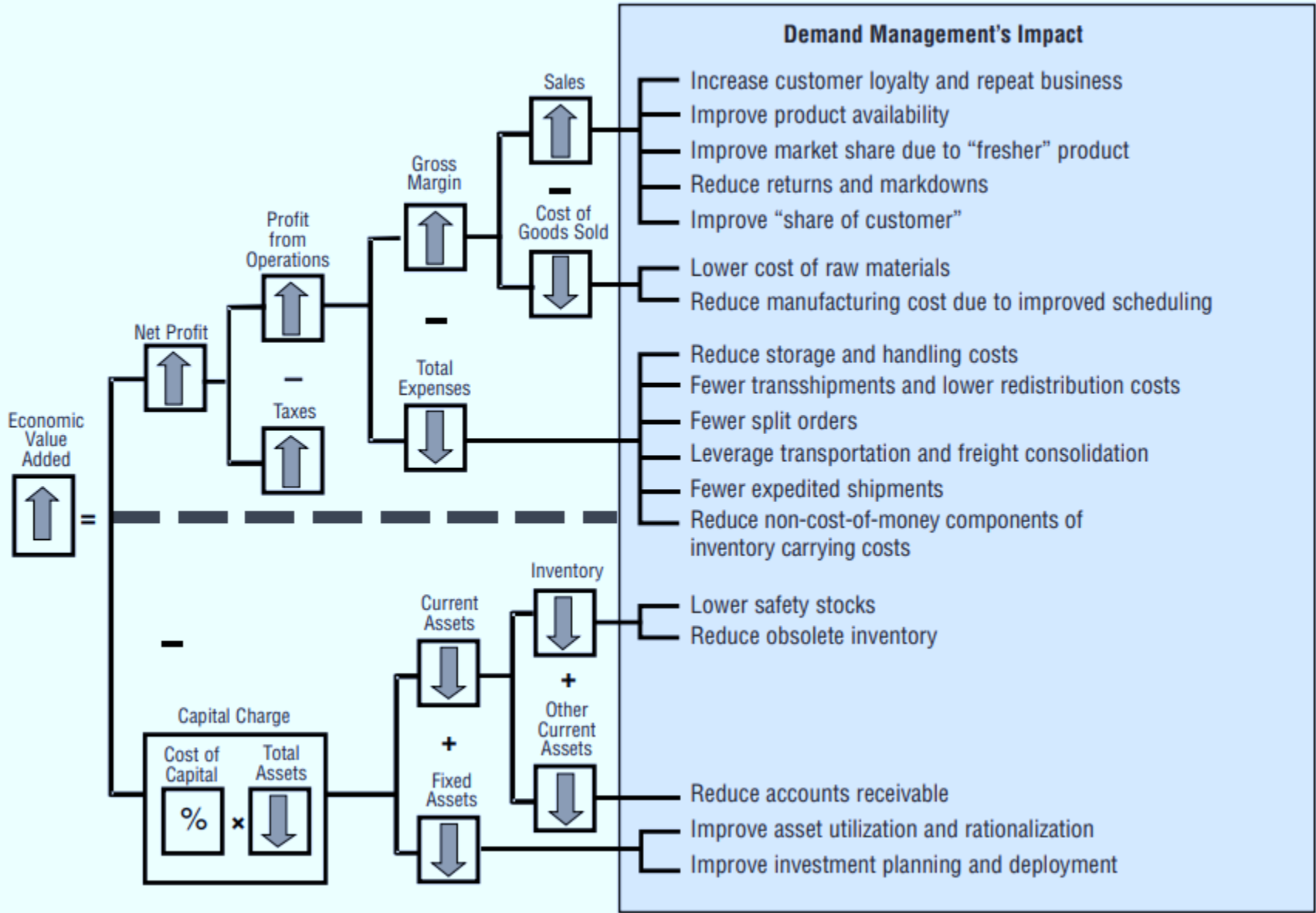
“Lean Demand management is the supply chain management process that closely balances the customers' requirements with the capabilities of the supply chain.”



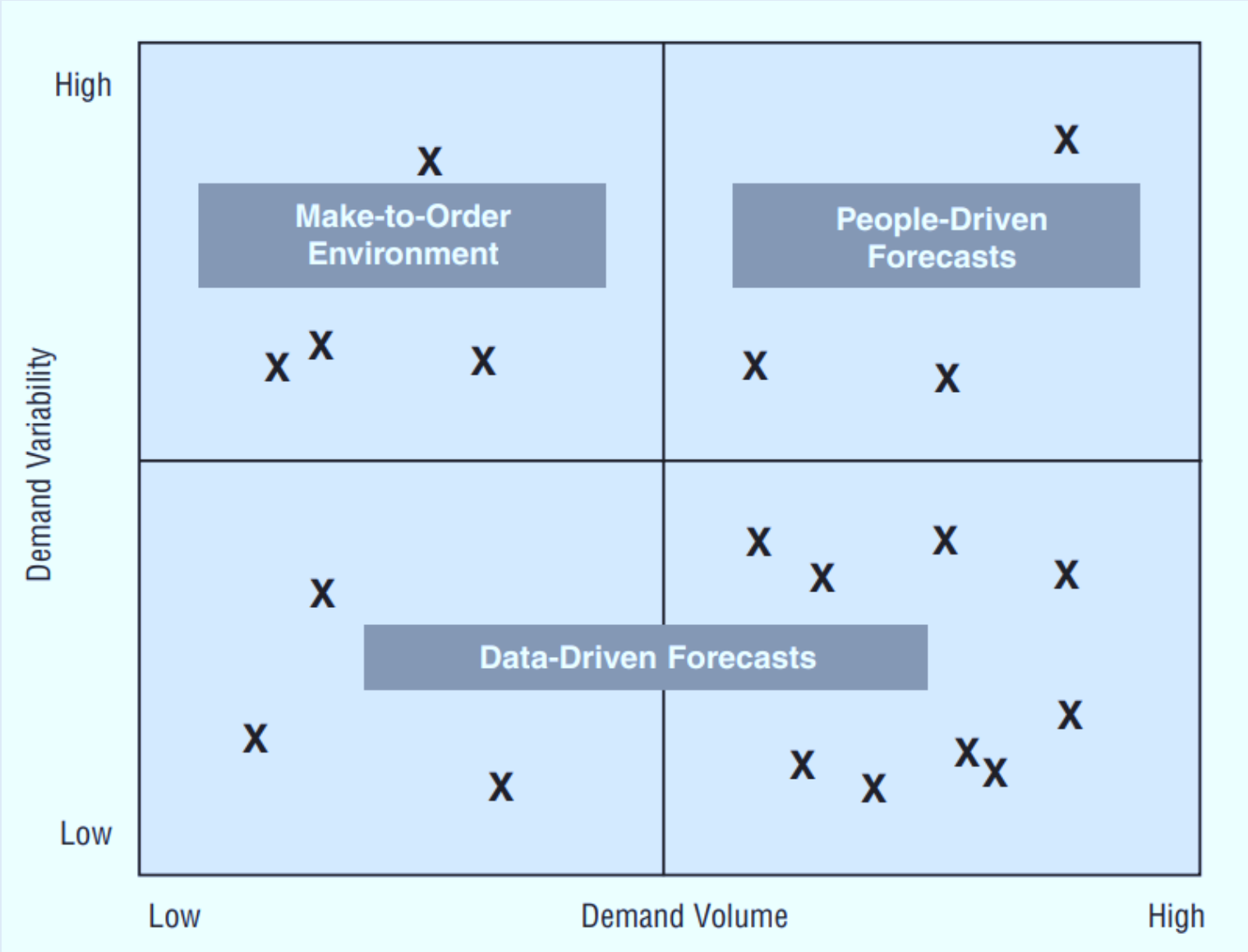
Lean Demand Management: Framework



Lean Demand Management: Impact on EVA



Lean Demand Forecasting Approaches



Lean Demand Forecasting: Quantitative Methods

- **Moving average forecasting** is one of the simpler methods of forecasting, which is based on historical averages. However, it treats all data equally and doesn't take into account that more recent information may be a better indicator of coming trends than say, data from three or five years ago – and it doesn't allow for seasonality or trends.
- **Exponential smoothing** also considers historical data but does put more emphasis on recent data – as well as accounting for seasonality. This makes it ideal for short-term forecasts.
- **Auto-regressive integrated moving average (ARIMA)** is a method of forecasting that is known for being highly accurate, but also very time-consuming and costly. It's a time series forecasting methodology, and well-suited to forecasting up to 18 months or less.
- **Multiple Aggregation Prediction Algorithm (MAPA)** is a newer method of quantitative forecasting which is specifically designed for seasonality – making it perfect for businesses producing seasonal items.

Lean Waste Management



Procurement

Avoid duplicate procedures in different departments.

Manufacturing

Improving quality and precision prevents defects and returned goods.

Warehousing

Keep inventory levels as low as is reasonable.

Transportation

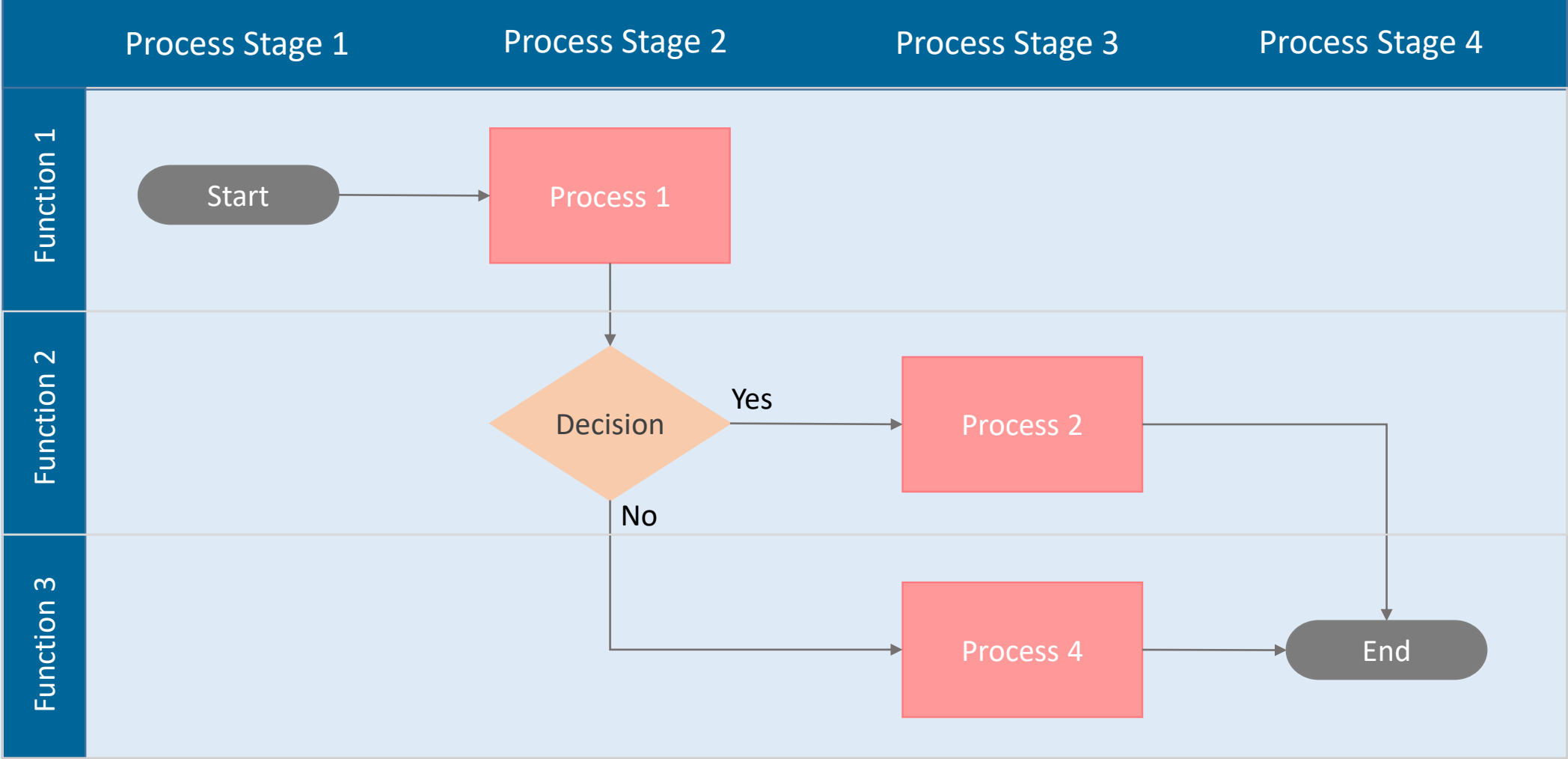
Consolidate multiple products into a single shipment.

Value Stream Mapping

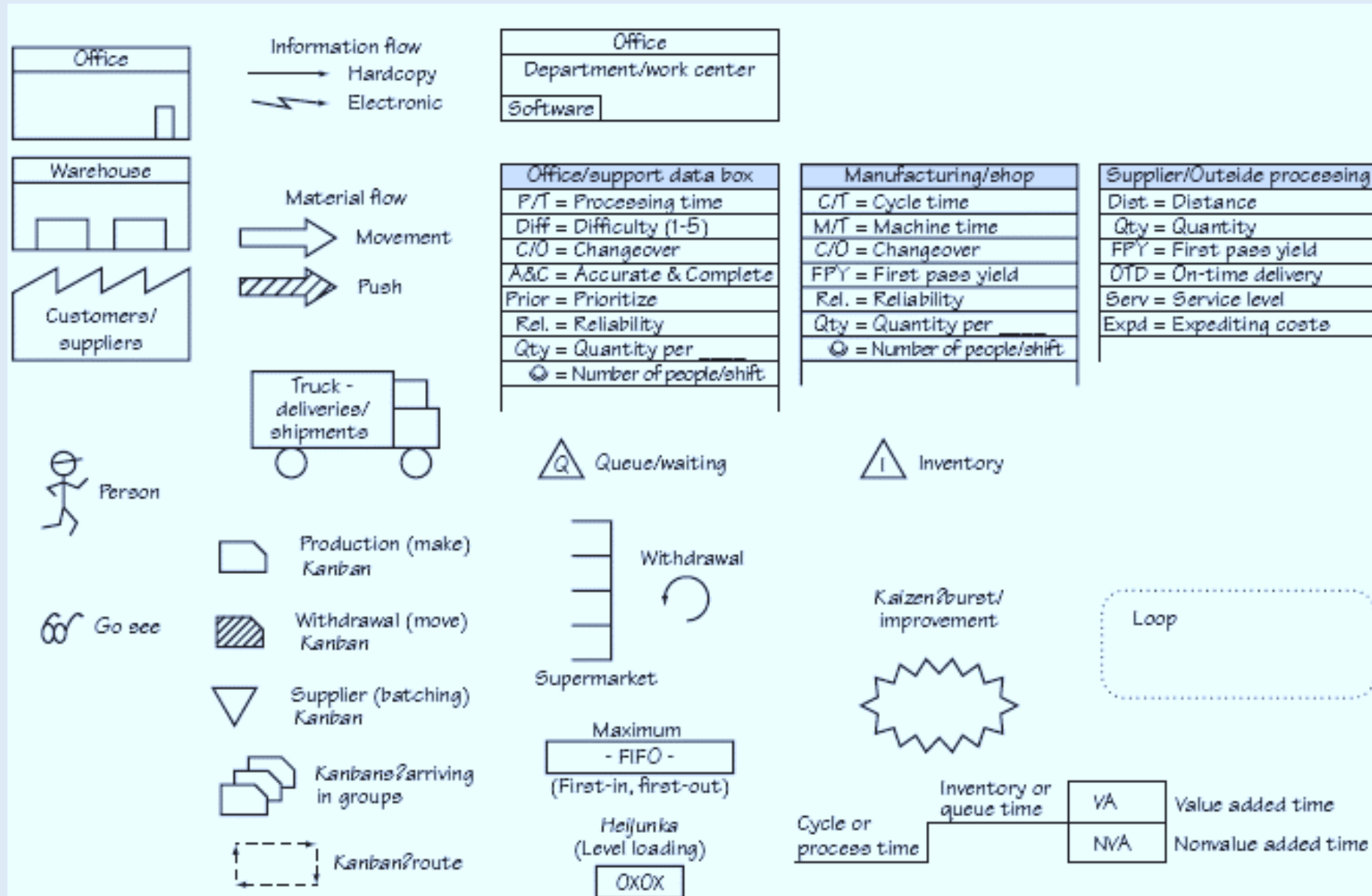
“Value stream mapping is a Lean management method that allows you to visualize, analyze and improve all the steps in a product delivery process.”

A value stream map displays all the important steps of your work process necessary to deliver value from start to finish. It allows you to visualize every task that your team works on and provides single glance status reports about each assignment's progress.

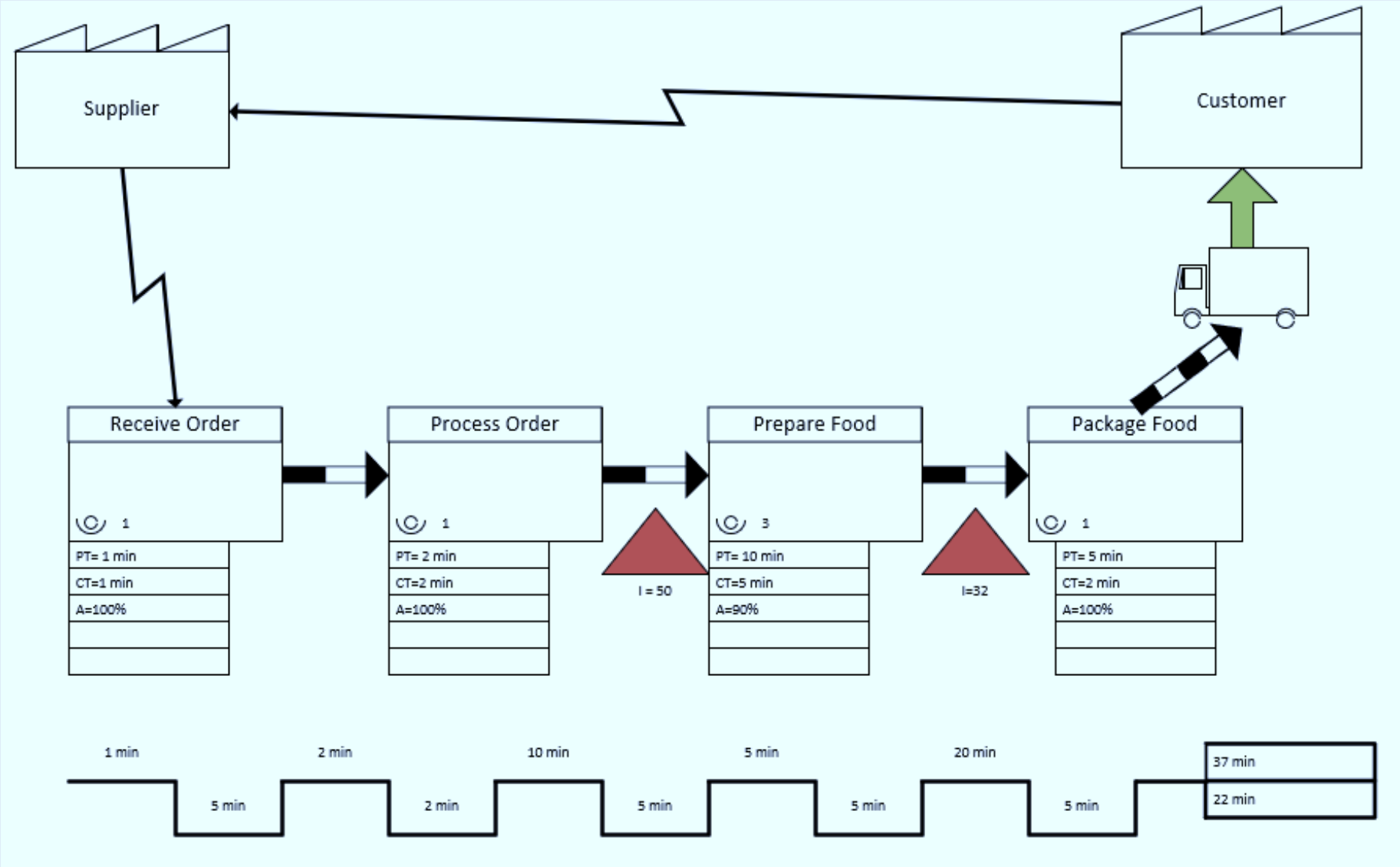
Process Mapping



Value Stream Mapping: Icons

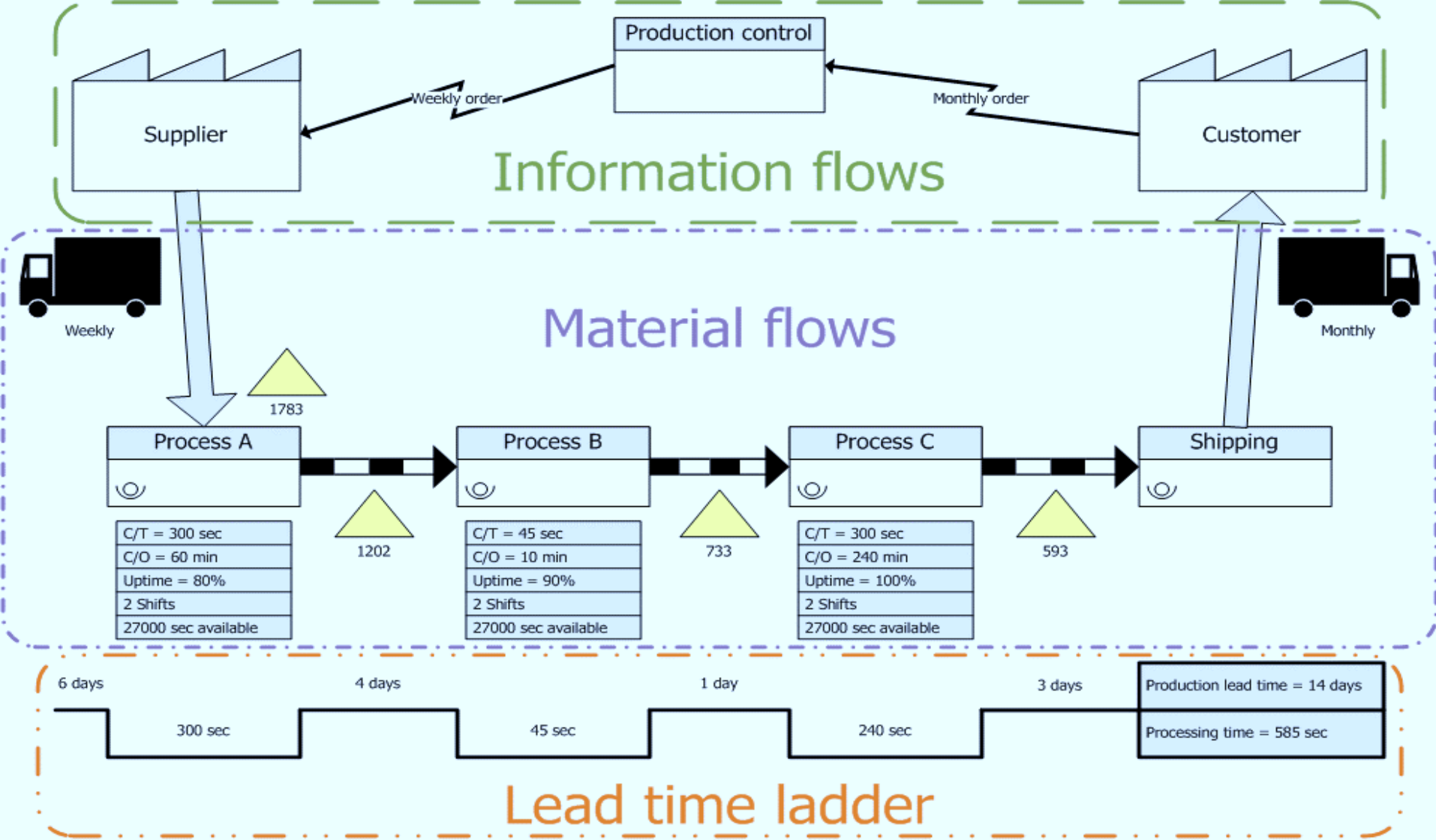


Value Stream Mapping: Example-1



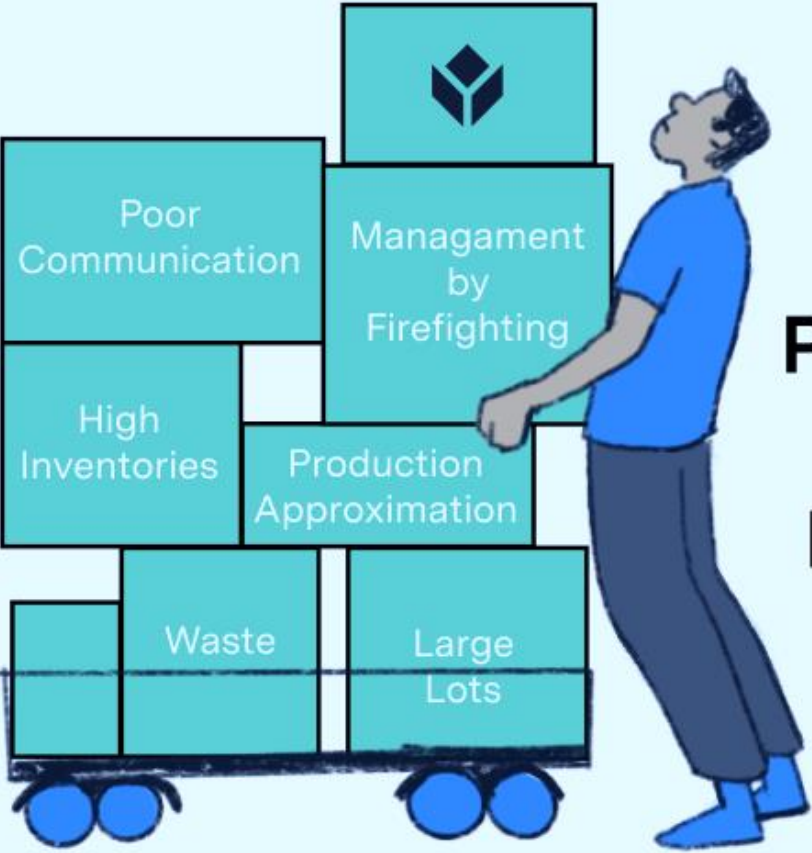
a fast-food delivery restaurant:

Value Stream Mapping: Example-2



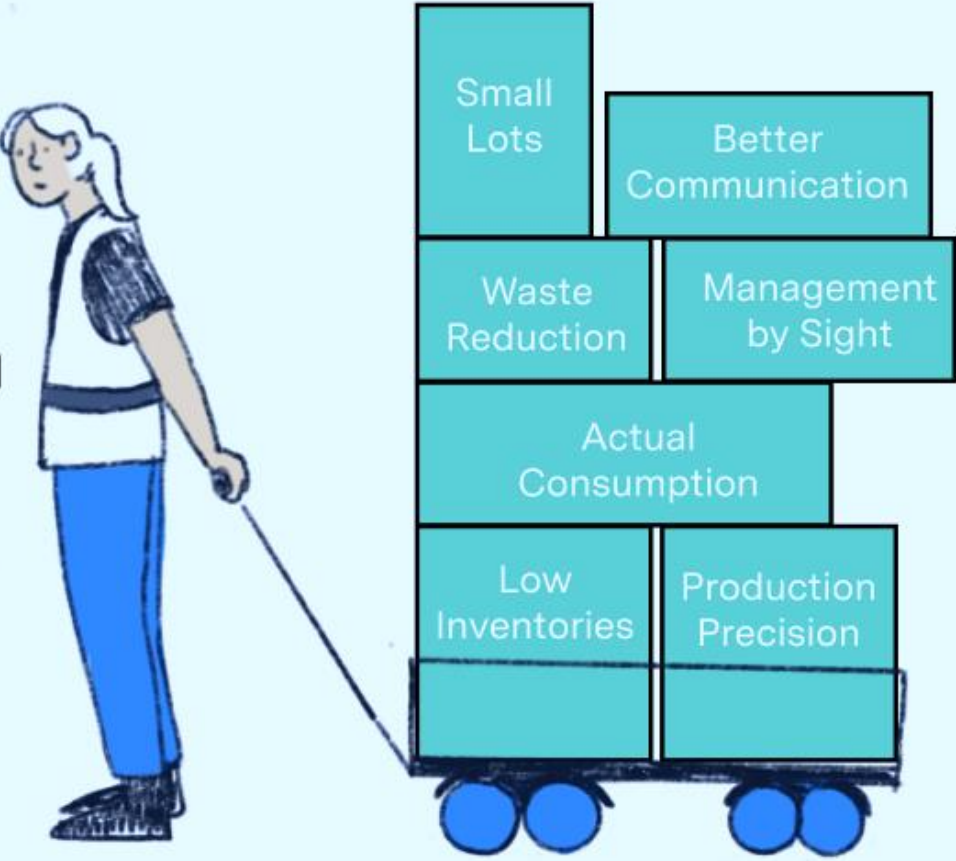
a fast-food delivery restaurant:

Creating Pull Mechanism



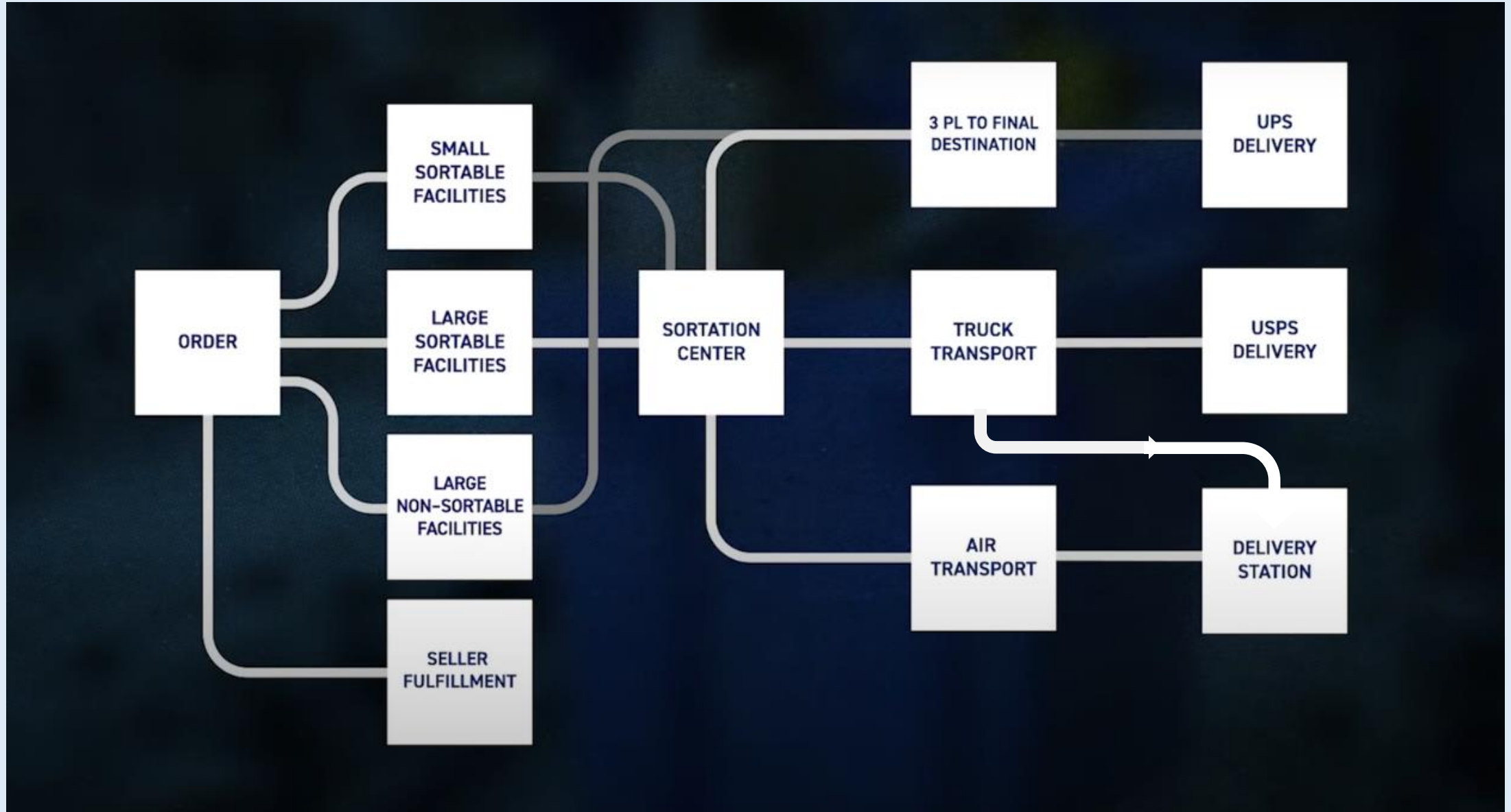
Make all we can just in case

**Push
vs.
Pull**



Make what's needed when we need it

Case Study: Amazon Order-Fulfillment Process (USA)



What makes Amazon's Supply Chain successful?

1. A Vast Warehouse and Distribution Network

- The location, size, and number of warehouses: important factors in Amazon's supply chain success.
- Different warehouses for different kinds of products and customer preferences: two-day delivery, one-day-delivery, Same-day delivery etc.
- Amazon merchants can leverage the company's vast fulfillment network for their own operations via the Fulfillment by Amazon (FBA) program.

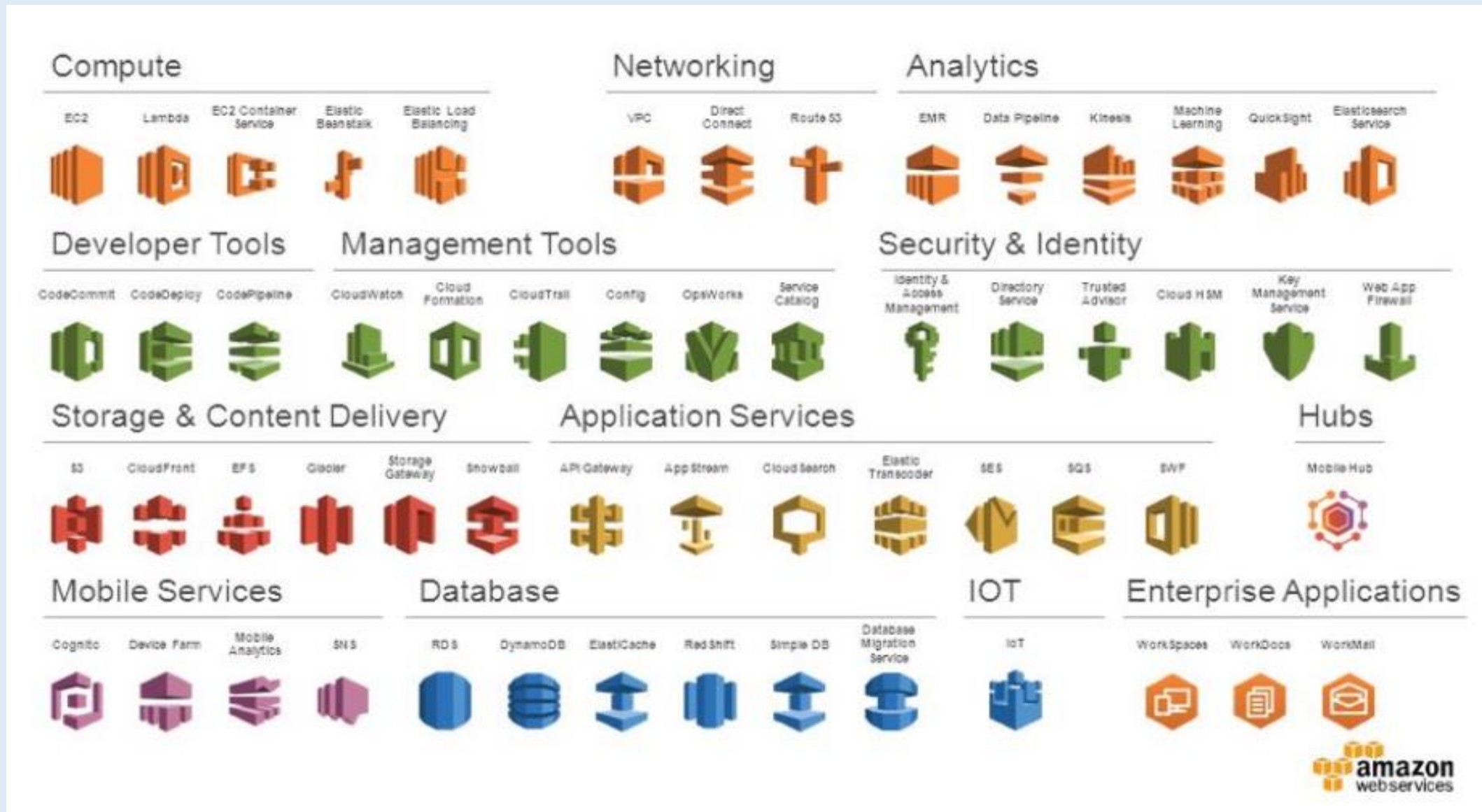
2. A Diversified Distribution/Delivery Fleet

- Amazon leverages a variety of transportation methods and delivery partners to keep up with demand and expediency. It used different transportation method and channels as per delivery promise (2-day delivery, 1-day delivery, Same Day delivery etc.)
- The Delivery Service Partners program strategically expands Amazon's delivery network

3. The Synergy of Humans and Automation

- Innovative technology and automation solutions ensures streamlined processes and efficiency.
- In its warehouses and fulfillment centers, Amazon utilizes robotics to pick and pack orders as well as stack and store inventory, to expedite its processes beyond human speed.

Amazon: Lean Supply Chain Enabler



Thank You

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