

# Willingness-To-Learn $\uparrow$ Willingness-To-Earn



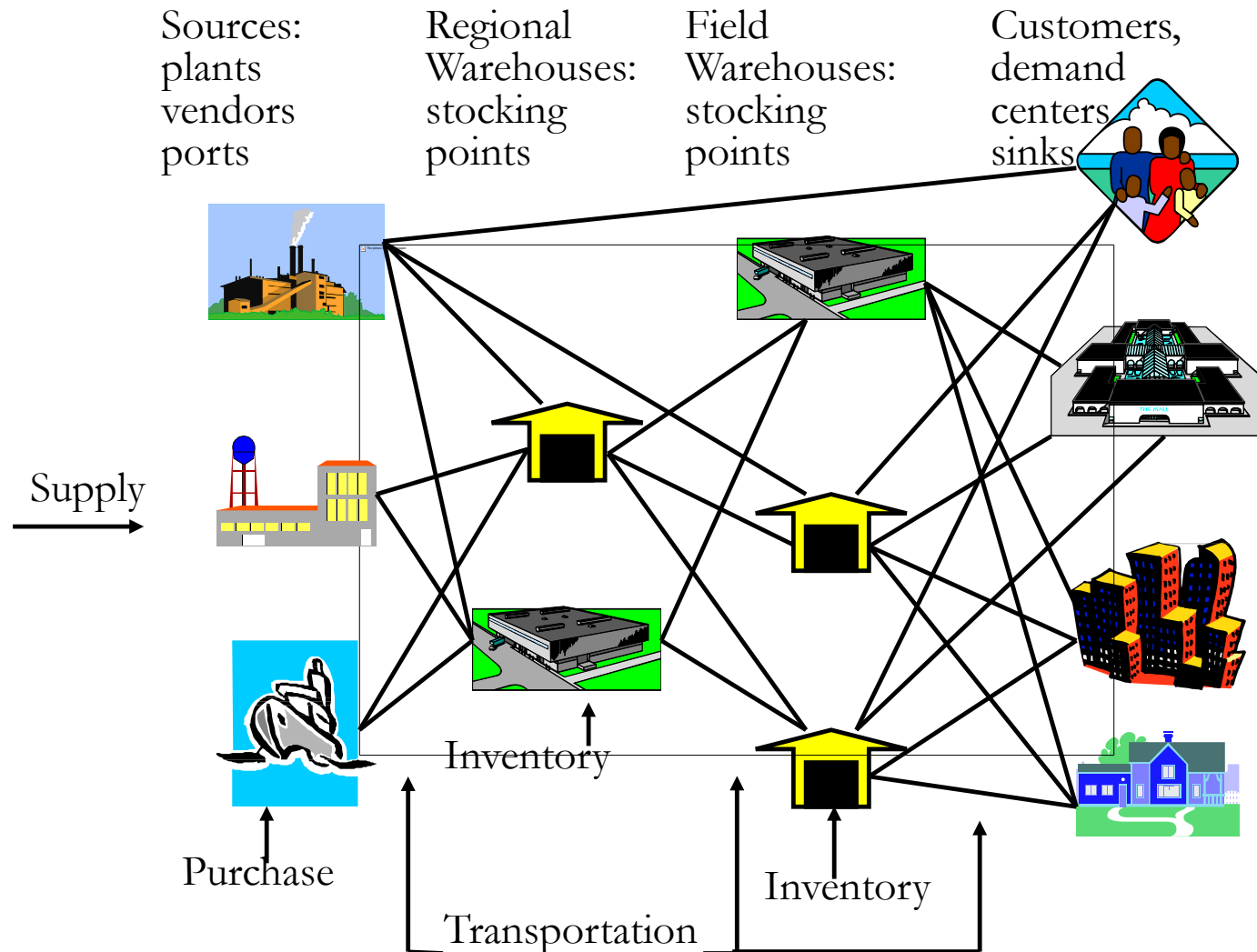
## **What is supply chain management?**

## **Significance of supply chain management**

## **Push vs. Pull processes**

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# A Generic Supply Chain



# Cost Breakdown of A Manufactured Good

- Profit 10%
- **Supply Chain Cost 20%**
- Marketing Cost 25%
- Manufacturing Cost 45%

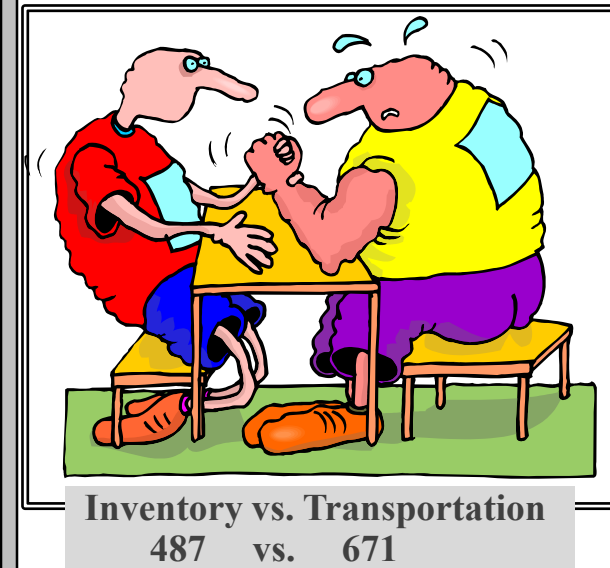
Profit
Supply Chain Cost
Marketing Cost
Manufacturing Cost



Effort spent for supply chain activities are invisible to the customers.

# Supply Chains in US Economy

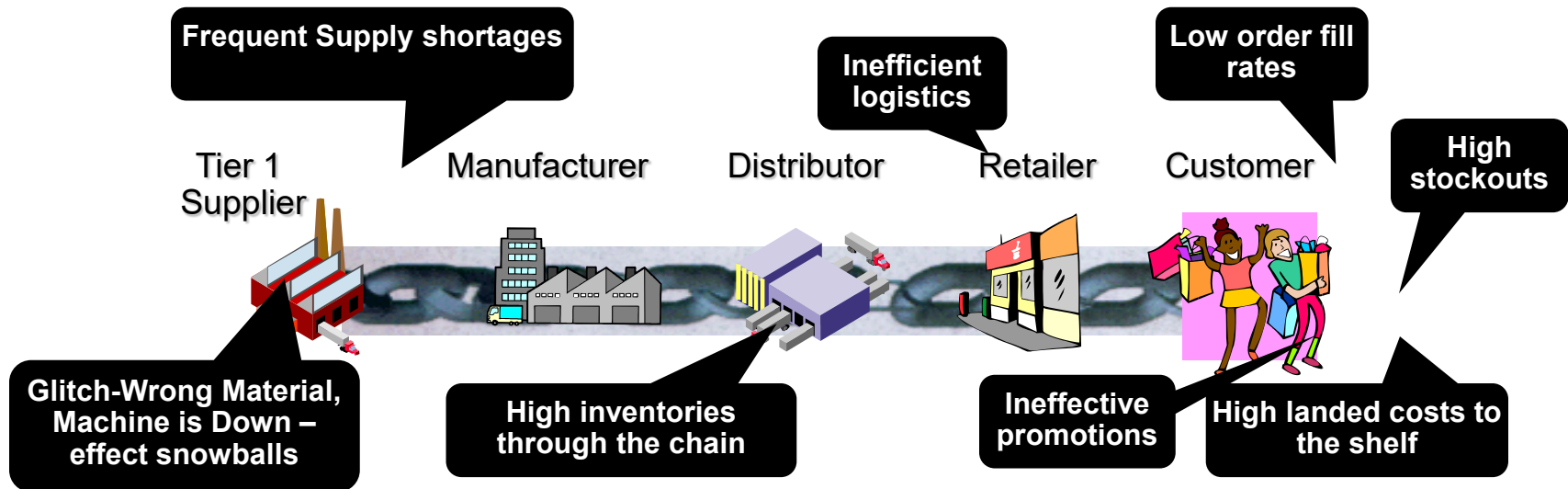
❑	Logistics related activity	11%, 10.5%, 10.1% of GDP in 1990, 1996, details for <b>2007</b> are below.	
❑	Inventory Carrying Costs – 2,026 B inventory		487 B
	– Interest	103 B	
	– Taxes, Obsolescence, Depreciation, Insurance	273 B	
	– Warehousing	111 B	
❑	Transportation Costs		671 B
	– Truck – Intercity	455 B	
	– Truck – Local	216 B	
	– Railroads	58 B	
	– Water (International 33 + Domestic 5)	38 B	
	– Oil pipelines	10 B	
	– Air (International 16 + Domestic 25)	41 B	
	– Forwarders	30 B	
❑	Shipper Related Costs		8 B
❑	Logistics Administration		54 B
	<b>Total</b>		<b>1397 B</b>



# Importance of Supply Chain Management

- In 2000, the US companies spent \$1 trillion (10% of GNP) on supply-related activities (movement, storage, and control of products across supply chains).

Source: State of Logistics Report



- Eliminating inefficiencies in supply chains can save millions of \$.

# What can Supply Chain Management do?

- **P&G (Proctor&Gamble)** estimates it saved retail customers **\$65 M (in 18 months)** by collaboration with retailers resulting in a better match of supply and demand.
- Estimated that the grocery industry could save \$30 billion (10% of operating cost) by using effective logistics and supply chain strategies
  - A typical **box of cereal** spends **104 days** from factory to sale
  - A typical **car** spends **15 days** from factory to dealership
  - Faster turnaround of the goods is better?
- **Laura Ashley** (retailer of women and children clothes) turns its inventory 10 times a year five times faster than 3 years ago
  - inventory is emptied 10 times a year, or an item spends about 12/10 months in the inventory.
  - To be responsive, it relocated its main warehouse next to FedEx hub in Memphis, TE.
- **National Semiconductor** used air transportation and closed 6 warehouses, 34% increase in sales and 47% decrease in delivery lead time.



# Top 25 Supply Chains

AMR research <http://www.amrresearch.com>  
publishes reports on supply chains  
and other issues.

The Top 25 supply chains report comes  
out in Novembers.

The table on the right-hand side is from  
*The Second Annual Supply Chain  
Top 25* prepared by Kevin Riley and  
Released in November 2005.

Vendor	2004 Rank (change)	AMR Research Opinion <sup>1</sup> (40%)	ROA <sup>2</sup> (25%)	Inventory Turns <sup>3</sup> (25%)	Trailing 12 Months Growth (10%)	Composite Score <sup>4</sup>
1 Dell	1	346	13.1%	86.8	18.7%	19.37
2 Procter & Gamble	3 (+1)	289	11.4%	5.7	18.5%	13.23
3 IBM	4 (+1)	278	13.2%	16.7	8.0%	12.89
4 Nokia	2 (-2)	234	14.1%	12.7	7.0%	11.54
5 Toyota Motor	6 (+1)	213	4.8%	11.1	34.0%	11.24
6 Johnson & Johnson	7 (+1)	191	16.0%	3.0	13.1%	10.91
7 Samsung Electronics	New to Top 25	110	15.7%	9.2	31.5%	10.67
8 Wal-Mart Stores	5 (-3)	241	8.5%	7.3	10.3%	10.41
9 Tesco	9 (0)	207	6.7%	24.3	8.5%	9.66
10 Johnson Controls	8 (-2)	172	5.4%	24.2	17.3%	9.21
11 Intel	19 (+8)	131	15.6%	3.7	13.5%	9.18
12 Anheuser-Busch	20 (+8)	129	13.9%	11.7	5.6%	8.29
13 Woolworths	12 (-1)	80	8.7%	12.1	31.1%	8.18
14 The Home Depot	21 (+7)	108	12.9%	4.7	12.8%	7.81
15 Motorola	New to Top 25	92	5.0%	7.9	35.3%	7.79
16 PepsiCo	10 (-6)	89	15.1%	8.0	8.5%	7.55
17 Best Buy	18 (+1)	112	9.6%	7.2	11.8%	7.13
18 Cisco Systems	New to Top 25	59	12.5%	4.7	16.8%	6.74
19 Texas Instruments	New to Top 25	24	11.4%	4.3	27.9%	6.55
20 Lowe's	22 (+2)	68	10.3%	4.0	18.2%	6.53
21 Nike	New to Top 25	57	13.8%	4.1	12.2%	6.50
22 L'Oreal	23 (+1)	29	19.9%	4.7	3.6%	6.41
23 Publix Super Markets	New to Top 25	42	13.7%	12.9	10.3%	6.31
24 Sysco	New to Top 25	43	11.6%	16.7	12.2%	6.17
25 Coca-Cola	17 (-8)	54	15.5%	4.8	4.4%	6.09



# SCM Generated Value

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Minimizing **supply chain costs**

while keeping **a reasonable service level**

**customer satisfaction/quality/on time delivery, etc.**

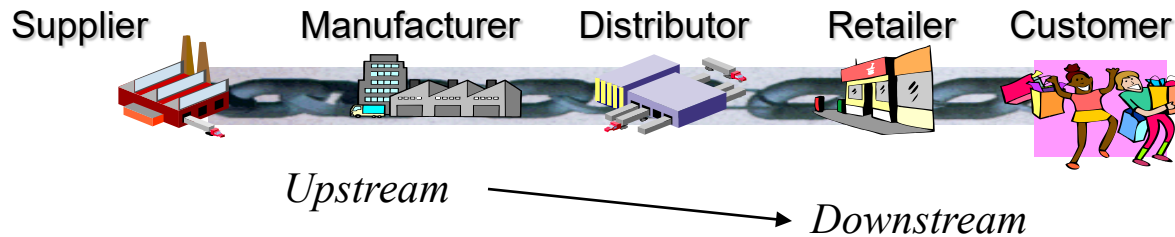
This is how SCM contributes to the bottom line

SCM is not strictly a cost reduction paradigm!

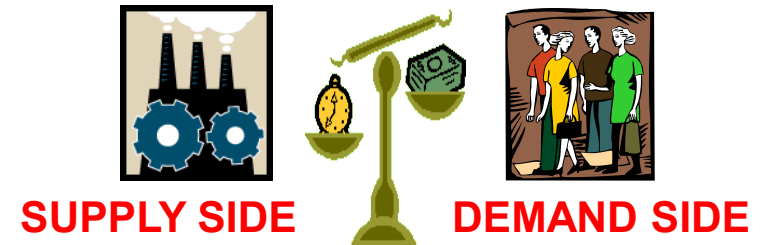
# A picture is better than 1000 words!

## How many words would be better than 3 pictures?

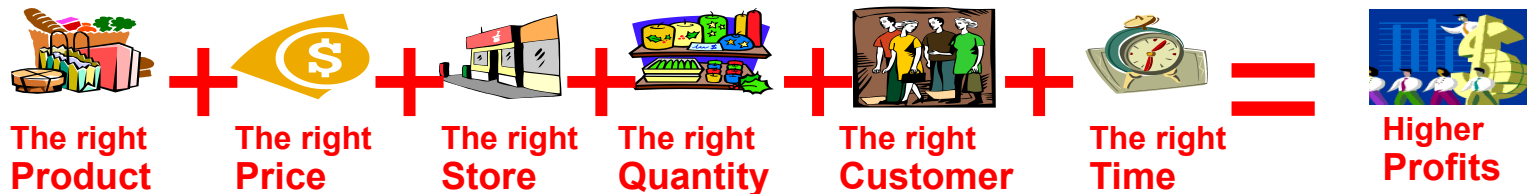
- A supply chain consists of



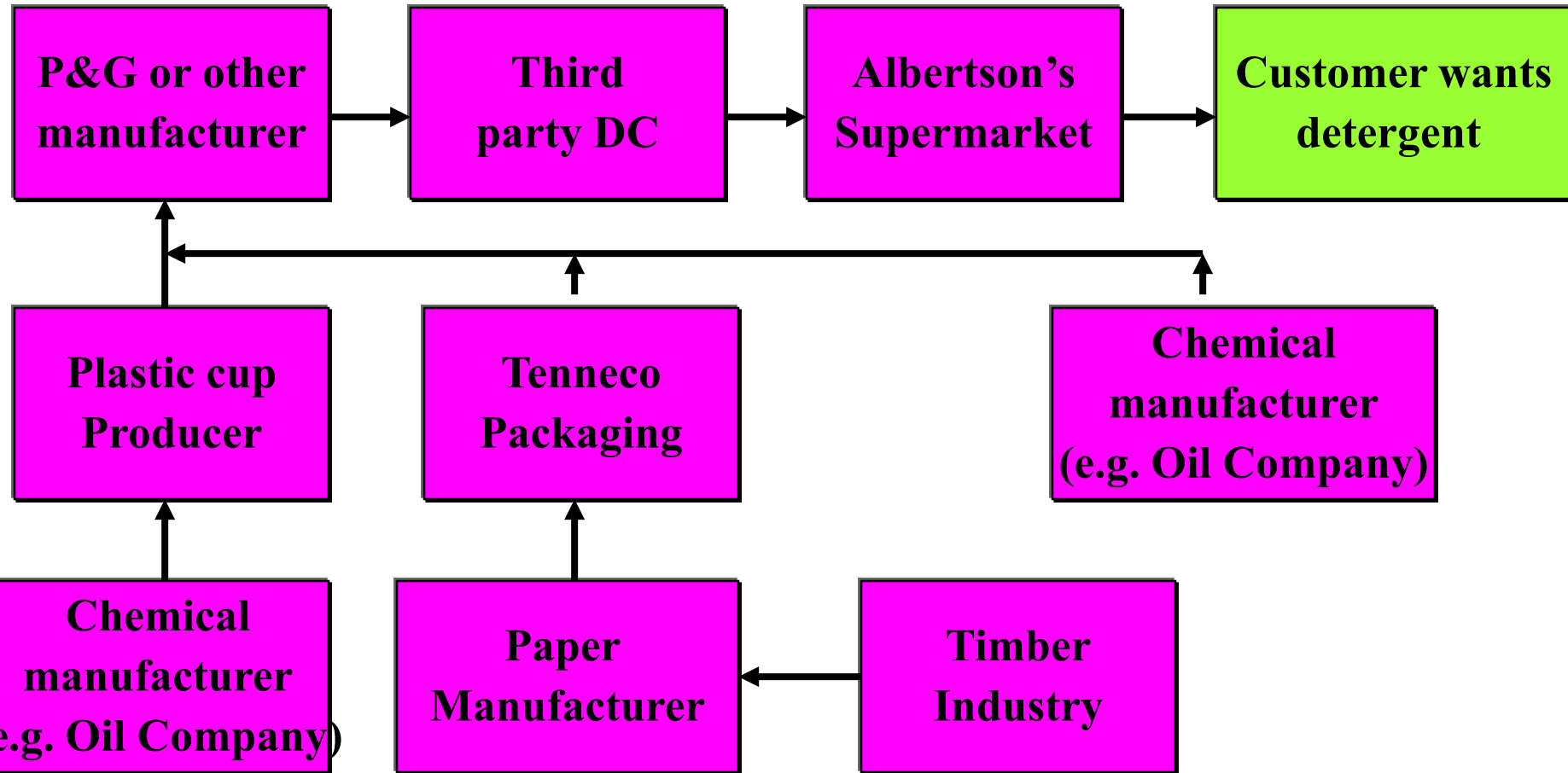
- aims to Match Supply and Demand, profitably for products and services



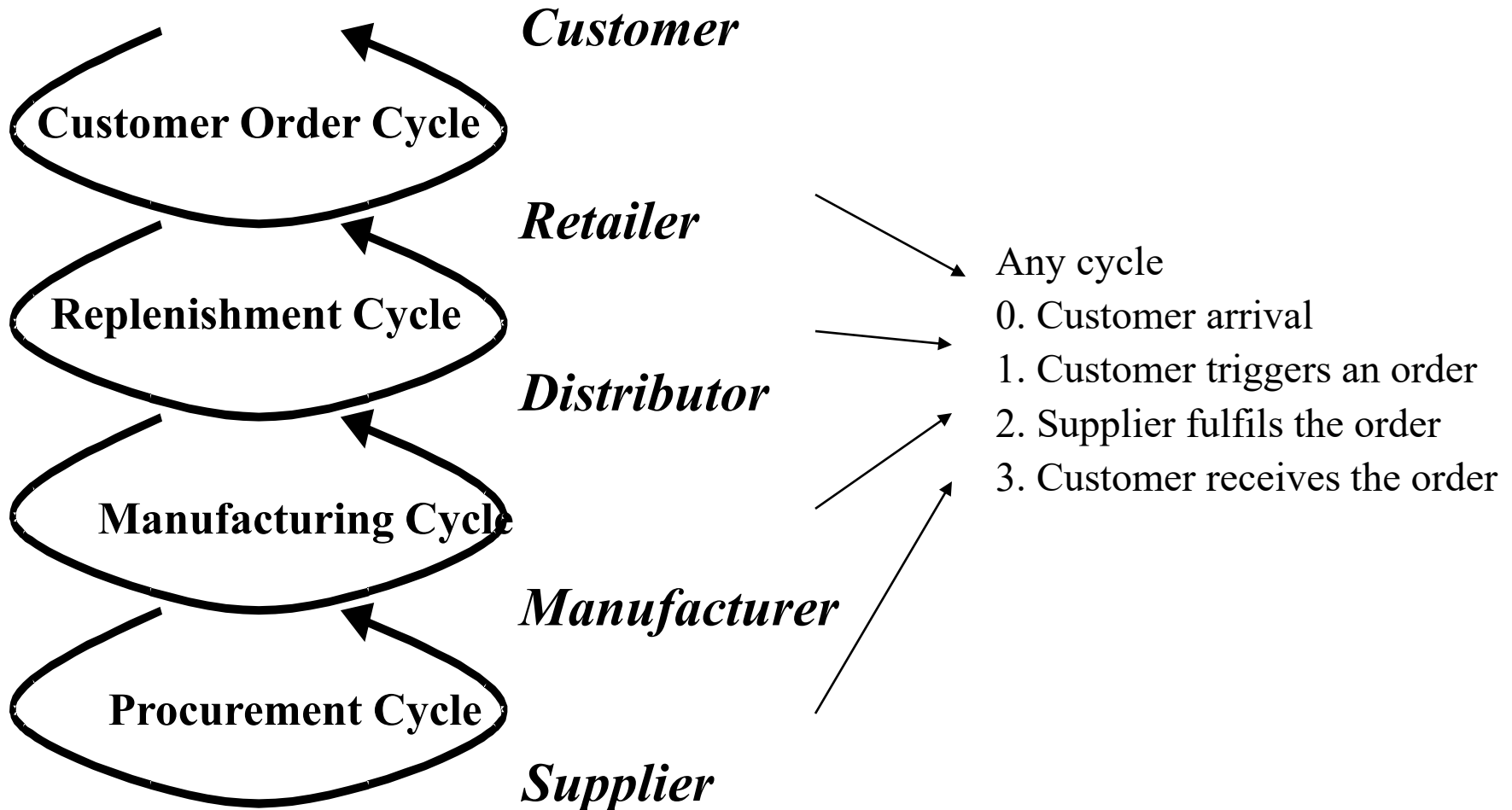
- achieves



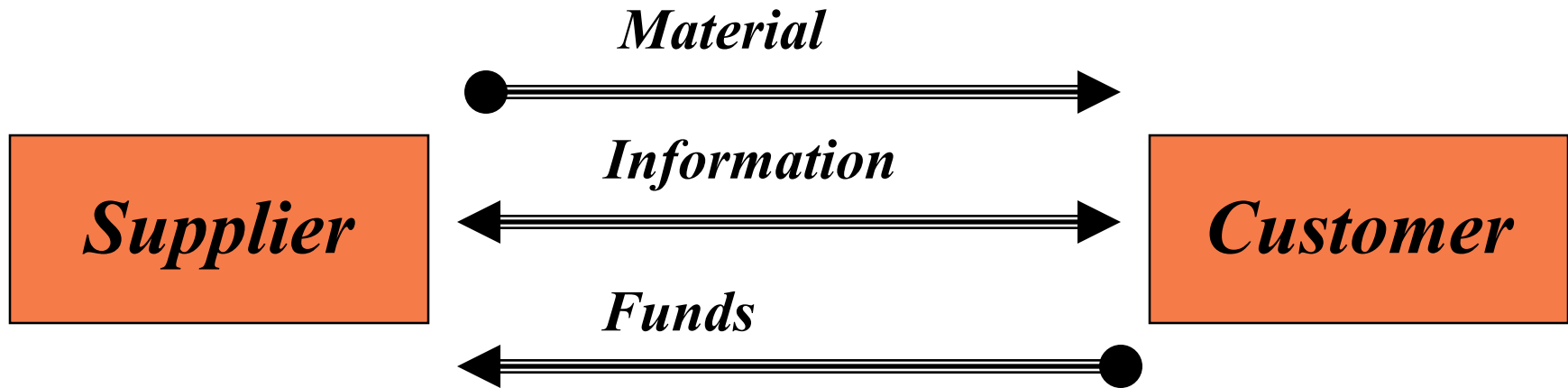
# An example: Detergent supply chain



# Cycle View of Supply Chains



# Flows in a Supply Chain



The flows resemble a chain reaction.

# Push vs Pull System

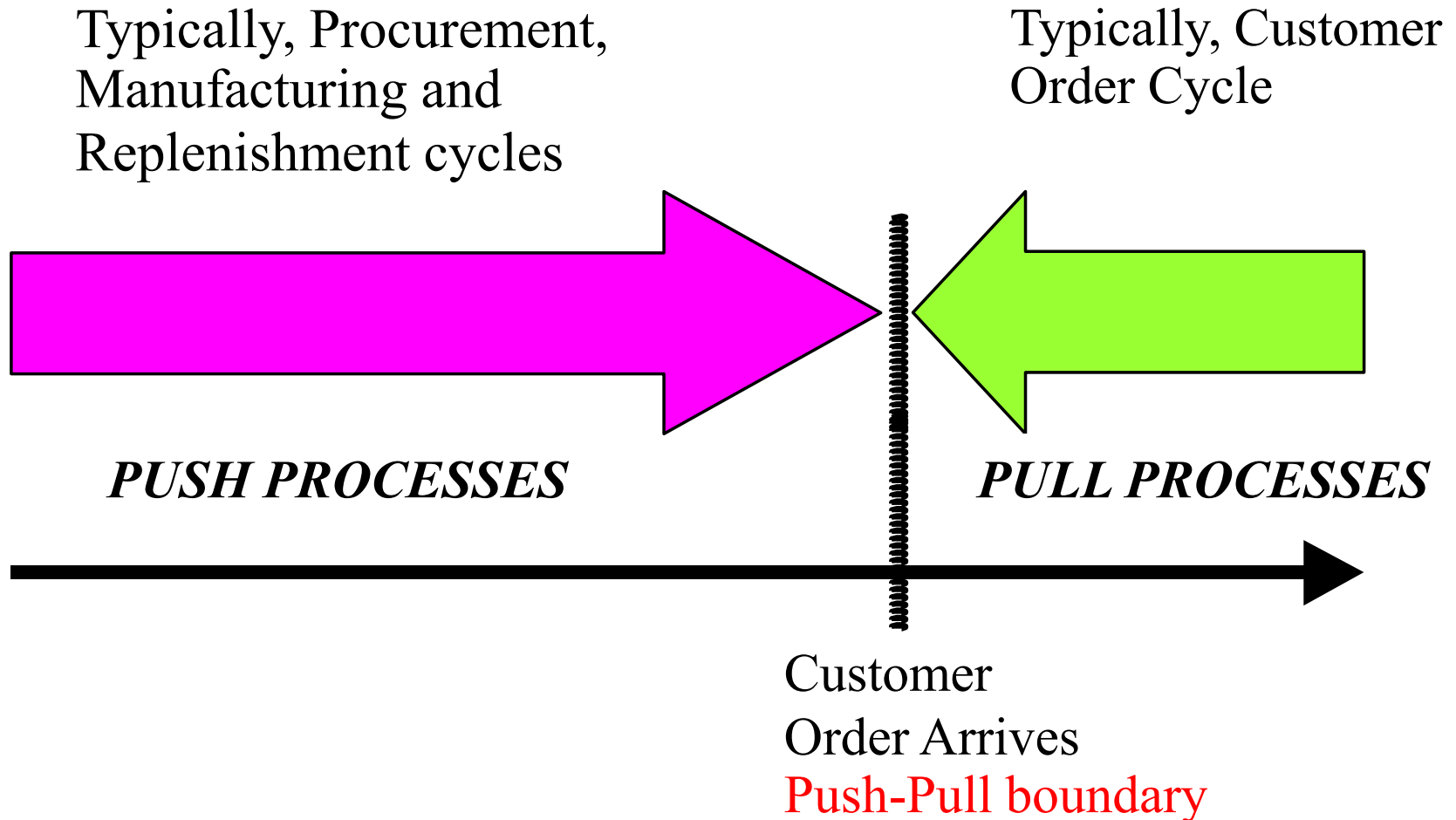
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What does instigate the movement of the work in the system?

- In **Push** systems, work release is based on downstream demand forecasts
  - Keeps inventory to meet actual demand
  - Acts **proactively**
    - » e.g. Making generic job application resumes today (e.g.: exempli gratia)
  
- In **Pull** systems, work release is based on actual demand or the actual status of the downstream customers
  - May cause long delivery lead times
  - Acts **reactively**
    - » e.g. Making a specific resume for a company after talking to the recruiter



# Push/Pull View of Supply Chains



# Examples of Supply Chains

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- **Dell** / Compaq, computer (assembly) industry
  - Dell buys some components for a product from its suppliers after that product is purchased by a customer. Extreme case of a pull process.
- **Amazon** / Barnes and Noble, bookstores
  - Amazon is strictly an online store. Amazon uses more pull processes.
- **Zara** / Benetton, apparel (=clothing) industry
  - Zara is a Spanish company selling apparel with a short design-to-sale cycle to avoid markdowns. Zara uses relatively more pull.
- **Toyota** / GM / Volkswagen, car manufacturers
  - Toyota provides reasonable quality at reasonable cost. Car manufacturing is mostly done as push process.

# Summary

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- **Components of supply chains.**
- **Significance of supply chain management.**
- **Push vs. Pull processes.**