

Purchasing & Inventory Management

Supply Chain Management for the Small Business

Alameda County SBDC

California State East Bay, Oakland

November 13, 2017



Local SBA Ecosystem



Partnership and Hosting



**SMALL
BUSINESS
DEVELOPMENT
CENTER**
ALAMEDA COUNTY



We are the premier provider of Business Advisory Services to the small business community.

Our mission is to create economic opportunity by empowering entrepreneurs



MAIN STREET
LAUNCH

Our Services

Free One-on-One Consulting



Free & Low cost Seminars



Seminar Examples

Access to Capital	Successful Business Plans
Starting a Business	Meet the Lenders
Social Media	Government Contracts
Marketing	Law for Entrepreneurs
Worker Owned Businesses	Buying a Business
Starting a Restaurant	Crowdfunding and Alternatives
Starting a Food Business	How to Pitch Your Company
Finding Your Core Customer	Exporting
Website Development	Home Based Businesses



ACSBDC Consultants



Cynthia Mackey
Social Media



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Food & Restaurants



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Business Technology



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Loans



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Equity Funding



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Operations



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Accounting



Ed Duarte
Construction



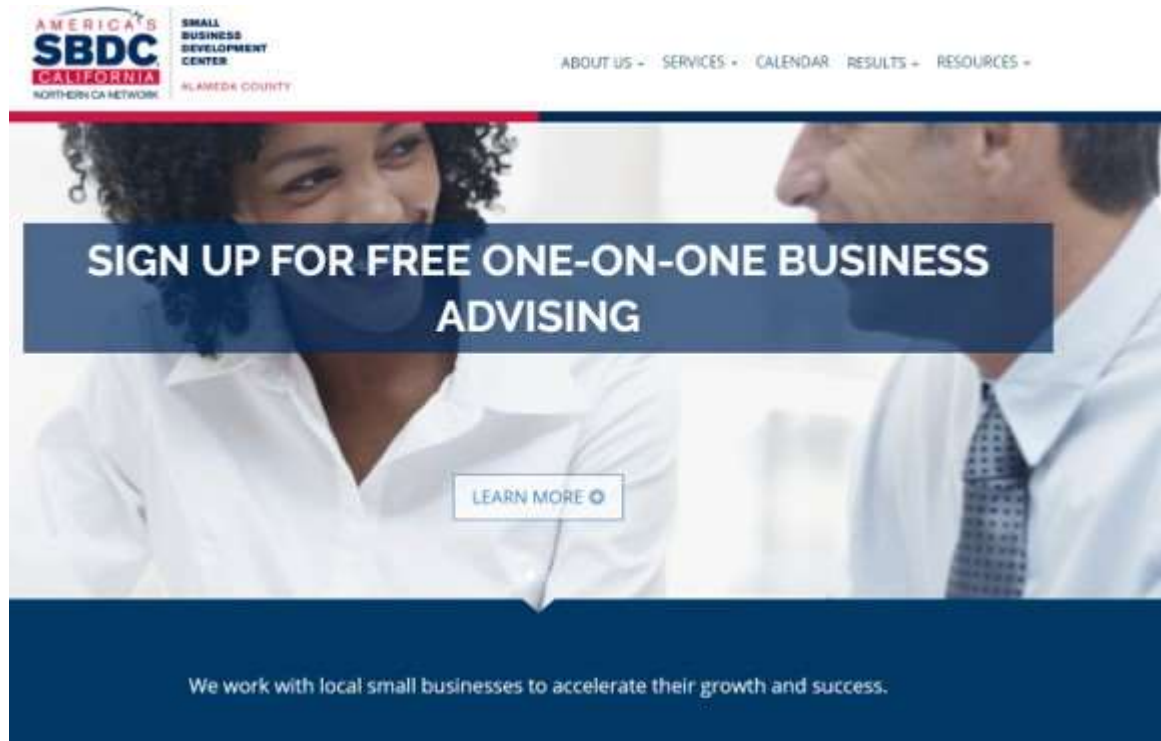
Bob Komoto
Export/Import



Tom Camerato
Financial Modeling

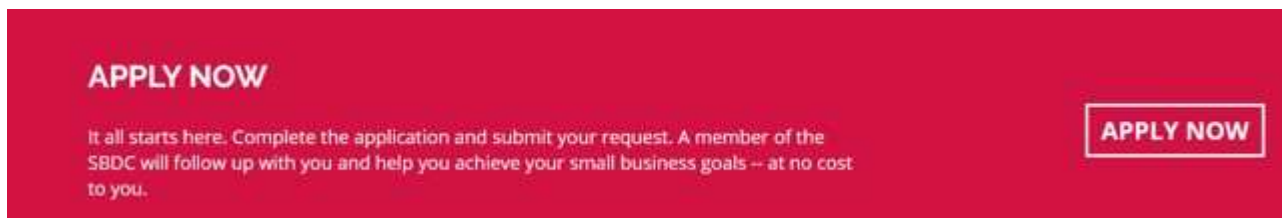


How to register for services



The screenshot shows the homepage of the America's Small Business Development Center (SBDC) for California, Northern CA Network, Alameda County. The header includes the logo and navigation links: ABOUT US, SERVICES, CALENDAR, RESULTS, and RESOURCES. The main banner features a photo of a woman and a man in business attire. Overlaid on the photo is a dark blue box with the text "SIGN UP FOR FREE ONE-ON-ONE BUSINESS ADVISING" and a "LEARN MORE" button with a right-pointing arrow. Below the photo, a dark blue bar contains the text "We work with local small businesses to accelerate their growth and success."

www.acsbdc.org



A red banner with the text "APPLY NOW" in white. Below it, in smaller white text, it says: "It all starts here. Complete the application and submit your request. A member of the SBDC will follow up with you and help you achieve your small business goals -- at no cost to you." To the right is a white button with the text "APPLY NOW" in red.



MAIN STREET
LAUNCH

Our Client Results



Presentation Download

www.acsbdc.org/handouts

Instructor

David Bokash

- Business Advisor, Alameda County SBDC (since May 2008)
- 2012 CARAT Outstanding Trainer in Community Development
- Business consultant for Supply Chain Management, application software and Internet projects

Prior Experience

- IT Project Manager/Consultant for application implementations and Supply Chain Strategy Projects
- Product Manager, CRM and SRM Applications, SAP Labs
- Field Engineer, FedEx Express
- IT Project Manager, FedEx Logistics & Electronic Commerce
- Sr. Consultant, Price Waterhouse Strategic Consulting Group

Education

- Honors Certificate, Project Management, UC Santa Cruz
- MBA, Harvard University
- BS & MS Engineering, Purdue University

David Bokash: SBDC Client Work

WEBSITES & INTERNET COMMERCE

- **Two prior website developers quit complex E-Commerce Website:** Helped document website design and manage transition to new developer; client website has been operational 4 years!
- **Client wanted to adjust pricing by neighborhood income:** Studied method for using Census Bureau data, estimated implementation costs and proposed alternative; client decided to use customer reported income instead!
- Performed dozens of Website Audits: identifying website usability, functionality & optimization improvements

BUSINESS SOFTWARE

- **E-Commerce company wanted to integrate website orders with inventory management system:** Found Zen Cart plug-in that integrated with QuickBooks
- Advised dozens of clients on business software: source selection, functional capabilities, operational work-arounds and application implementations
- Advised several business software companies on: application development project management, product management/marketing issues and product strategy

David Bokash: SBDC Client Work (continued)

SUPPLY CHAIN MANAGEMENT (SCM)

- Home remodeling retailer wanted to improve warehouse and order fulfillment operations: Analyzed procedures, suggested operational changes and helped upgrade user documentation
- Advised dozens of clients on SCM best practices
- Created Purchasing & Inventory Management (P&IM) course for California Resources and Training (CARAT) to teach SCM best practices and software for small business
- Delivered P&IM webinars to hundreds of small business owners

Purchasing & Inventory Management

Supply Chain Management for the Small Business

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Agenda

1. Introduction to Supply Chain Management
2. Common Supply Chain Applications for Small Business
3. Detailed Supply Chain Management Processes

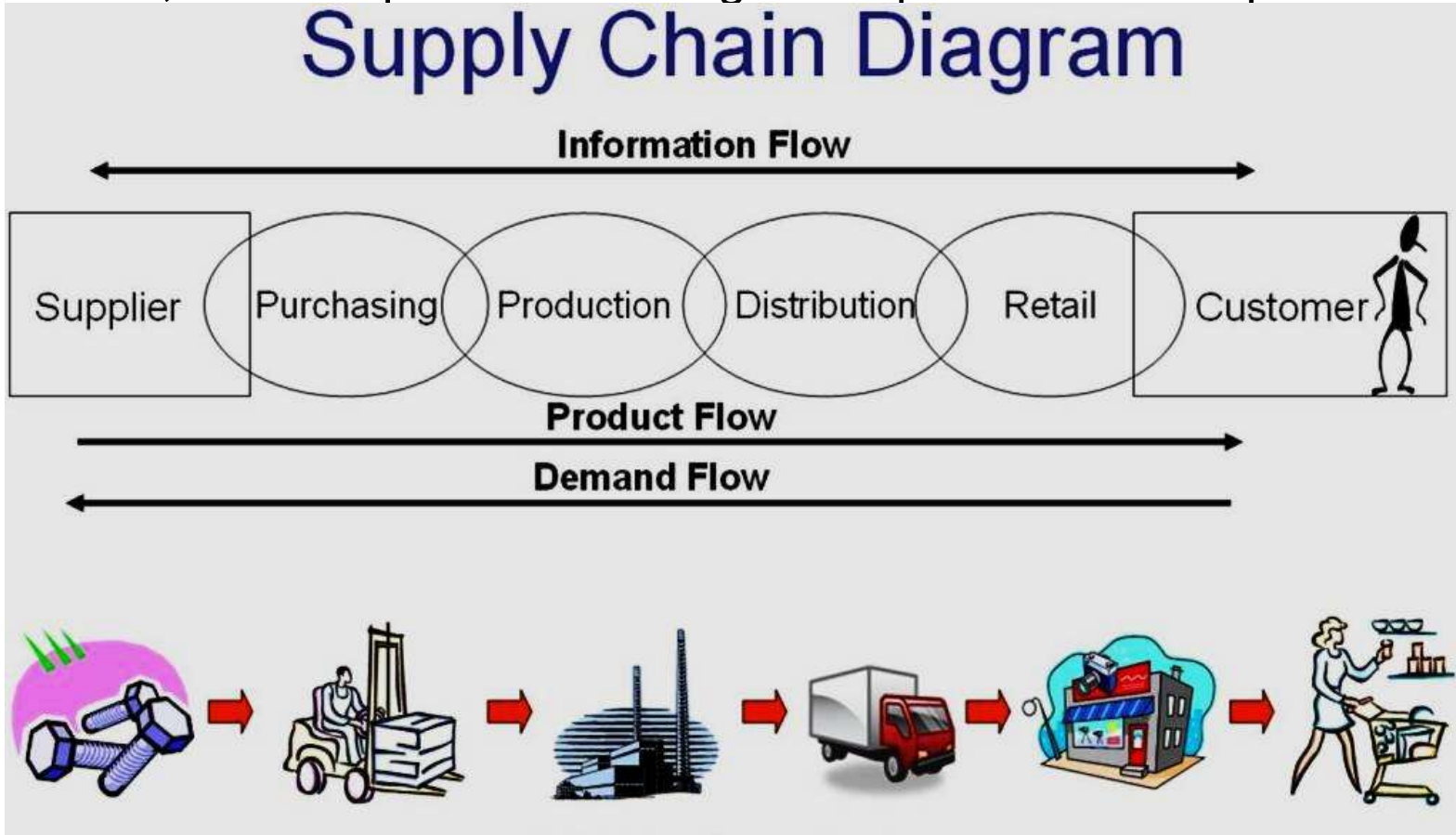
Section Topics

Introduction to Supply Chain Management

1. Supply Chain Management Definition and Principles
2. Supply Chain Management Examples
3. Measuring Supply Chain Management Performance
4. Electronic Document Example
5. Supply Chain Enabling Technologies
6. Reducing Inventory Cost

What is Supply Chain Management?

“Supply Chain Management (SCM) is the delivery of enhanced customer and economic value by managing the flow of physical goods and associated information, from the point of sourcing to the point of consumption.”



What is the Goal of Supply Chain Management?

Supply Chain Management Motto:

“Deliver the right product at the right price to the customer at the right place and time.”

Observations:

- Supply Chains are always optimized for the End Customer which maximizes economic value for the entire Supply Chain
- The flow of information can be as valuable as the product

Supply Chain Management Key Principles

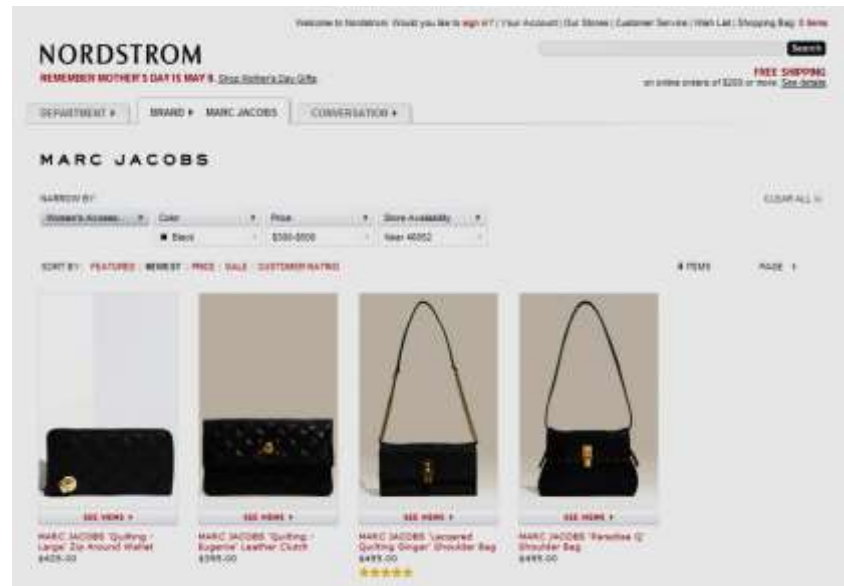
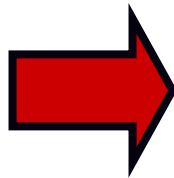
Supply Chain Management key principles lower costs while improving customer service:

- [1] Trade Information for Inventory
 - Knowledge of consumer demand and inventory levels throughout the supply chain reduces the need for safety stocks
 - Partner with buyers & suppliers to achieve greater efficiencies
- [2] Implement Electronic Transactions
 - Electronic transactions (electronic documents) decrease manual data entry: reducing costs, improving data quality and accelerating the business cycle
- [3] Deploy Automation Technologies
 - Automation technologies (e.g. barcodes and Radio Frequency Identification [RFID] tags) decrease data entry, reducing transaction costs and improving data quality

Supply Chain Management Examples

Inventory Innovation: Nordstrom.com

"Nordstrom Links Online Inventory to Real World" by Stephanie Clifford, The New York Times, August 23, 2010



- ❖ **In September 2009, Nordstrom made Inventory from all 115 regular stores available online**
- ❖ **Shoppers could reserve items for pickup at the retail location or have it shipped directly to them**

Inventory Innovation: Nordstrom.com

Performance Improvements:

- Same-store Sales up 8% (11 months since the change) versus down 12% (11 months prior to the change)
- Percentage of Customers who bought merchandise after searching for an item doubled
- Close-out Items sold for full price on the Website versus taking a large markdown in the Store
- Multichannel Shoppers spend four times (on average) what a single channel shopper spends

Retail Innovation: Argos Fast Track

Argos Fast Track Customer Delivery:

- May 2017, Argos a (catalog and E-Commerce) retailer in the United Kingdom awarded Gartner 2017 Retail Supply Chainovator (i.e. “Supply Chain Innovator”).
- **Fast Track** program, supply chain transformation that provides **standard same-day store pickup and home delivery** to 95% of the U.K. for a range of 20,000 SKUs (Shelf Keeping Units), 364 days/year.
- Four delivery windows (7-10 AM, 10 AM-1 PM, 2-6 PM or 7-10 PM) on **orders placed as late as 6:00 PM**. Flat charge of £3.95 (about \$5.21)
- Hired 3000 fulfilment advisors and delivery drivers, and purchased 900 Mercedes Sprinter vans. Enabled them to control the entire customer service experience (order and delivery).

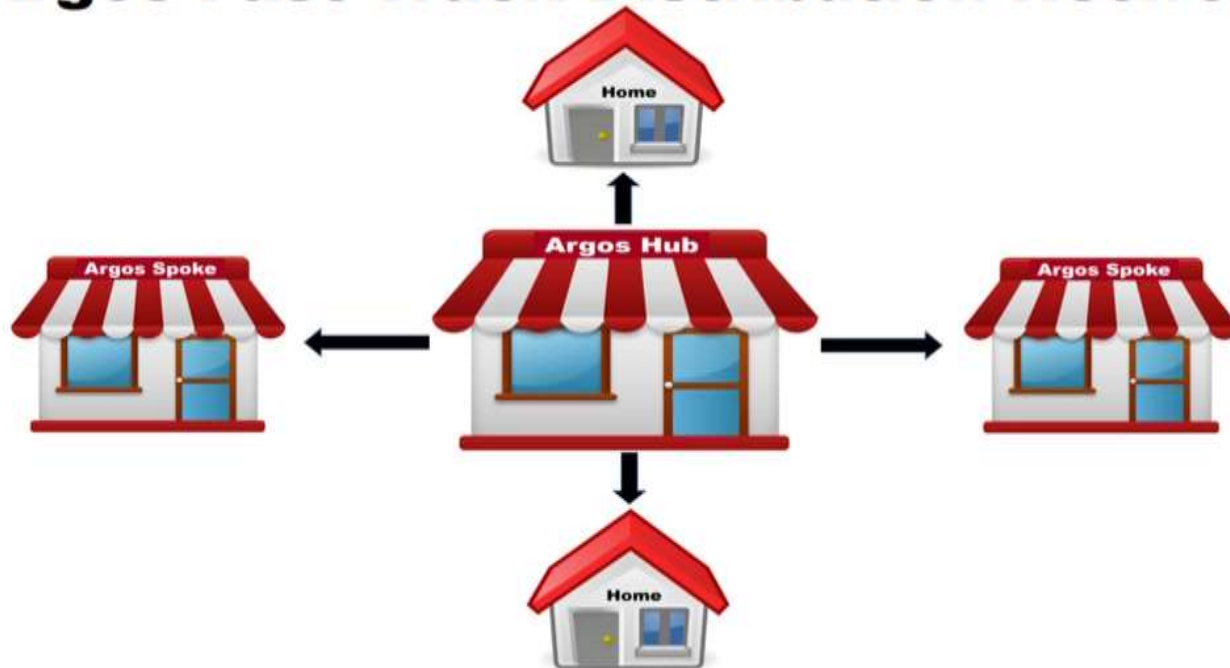


Retail Innovation: Argos Fast Track

Argos Fast Track Reengineering:

- Reengineered network of 850 retail stores into a hub and spoke model.
- 150 of the larger retail stores were converted to **Hub Stores that function as distribution centers** that stock all of 20,000 SKUs
- Hub stores drivers that provide home delivery service, also replenish 600 retail “spoke” locations

Argos Fast Track Distribution Network



Retail Innovation: Argos Fast Track

Fast Track Achievements:

- Home delivery sales nearly double year-over-year.
- £100 million (about \$132 million) reduction of inventory at their retail and hub stores (due to supplier, inventory management and demand planning improvements)
- An improvement in product availability 2 - 3% through standardization of core 20,000 SKUs and optimized demand forecasting
- 4% improvement in the Argos Net Promoter score.

NOTE: Net Promoter Score is an index ranging from -100 to 100 that measures the willingness of customers to recommend a company's products or services to others.



Intelligent Fulfillment: HP Instant Ink

HP Instant Ink program, IoT driven Intelligent Fullfilment:

- May 2017, Hewlett-Packard was named Gartner 2017 High-Tech Manufacturing Supply Chainovator (i.e. “Supply Chain Innovator”).
- Recognized for ink-replacement service that uses Internet of Things (IoT) technology to monitor ink level and replenish cartridges
- Customers buy eligible printer, signup online. Ink cartridges are delivered to their home, based on usage reported by the customer’s HP printer
- Three plans: \$2.99 for 50 pages a month, \$4.99 for 100 and \$9.99 for 300

- 1. Purchase the cartridges.**
HP Instant Ink cartridges have more ink than HP XL cartridges so you'll replace less often.
 - 2. Insert your HP Instant Ink cartridge into your printer.**
 - 3. Sign up at hpinstantink.com/inkbundle using your \$20 credit to begin service.**
Use the HP Instant Ink \$20 Prepaid Card included with your purchase to pay for your first month(s) of service.
 - 4. Your printer tells HP when to send more ink.**
- ✓ **You'll get ink before you need it.**
We'll recycle your used HP Instant Ink cartridges ♻️



Intelligent Fulfillment: HP Instant Ink

HP Instant Ink program, IoT driven Intelligent Fulfillment:

- Instant Ink program delivered in nine months by a joint effort of: supply chain, marketing, R&D, finance and IT functions at HP.
- Provides 50% to 70% savings on ink for HP customers
- Maintains over 99% availability on replacement cartridges delivered to their home.
- Higher than 20% adoption rate, with retailers offering consumers instant ink subscriptions bundled with the sale of HP printers
- Customer retention rate well over 90%
- Reduces customers' carbon footprint related to ink cartridge purchase and disposal by about 70%.



When is a \$150 Bag Worth \$300 or More?

ANSWER: When you need it now!

HOME | COLLECTION | ABOUT US | CONTACT US | LOCATIONS | PRESS | ONLINE STORE | CART



Style Number : 9-10
Dimensions : 18.75" W x 11.5" H x 6.25" Gusset
Description :
The Doctor's Bag adds some distinction to every day. It has a characteristically professional air that is perfect for today's businessman, and is an optimal size

Metro-Doctor's Bag

Retail Price: \$150.00

Colors:
Black Polyester

Quantity:
1

ADD TO CART

BACK << >> NEXT

Peasants & travelers - Windows Internet Explorer

http://www.peasantsandtravelers.com/index.php?main_page=popup_shipping_estimator

[Close Window]

Estimate Shipping Costs

Total Items: 1 Weight: 5.4lbs Sub-Total: \$150.00

Country: United States
State/Province: Indiana
Post/Zip Code: 46052

UPDATE

Shipping quotes are based on the address information you selected:
INDIANA 46052 UNITED STATES

Available Shipping Methods	Rates
United Parcel Service (1 x 8.40lbs) (Next Day Air Early AM)	\$151.42
United Parcel Service (1 x 8.40lbs) (Next Day Air)	\$116.39
United Parcel Service (1 x 8.40lbs) (Next Day Air Saver)	\$105.32
United Parcel Service (1 x 8.40lbs) (2nd Day Air)	\$69.83
United Parcel Service (1 x 8.40lbs) (3 Day Select)	\$49.89
United Parcel Service (1 x 8.40lbs) (Ground)	\$22.01

[Close Window]

Done Internet 100%

Supply Chain Management Value

Supply Chain Management Value

“The typical differentiators for a consumer product are price and quality. Supply Chain Management changes the rules to deliver other value in exchange for a premium price.”

What are some value added services for which customer are willing to pay a premium?

- Time (Want/Need it Now!)
- Financing or Payment Terms
- Vendor Managed Inventory
- What are some others?

Supply Chain: Value Added Services

ACTIVITY: Please take a moment to think about value added services for which your customers would be willing to pay a premium.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

ANSWERS: Supply Chain Value Added Services

1. Parts/Subassemblies for Just-in-Time (JIT) Manufacturing
2. Vendor Managed Inventory (VMI)
3. Payment Terms/Financing/Discounts (e.g. 2% 10, Net 30)
4. Superior Customer Service
5. Consignments (“Retailer doesn't pay until the item sells”)
6. Multichannel Shopping Support
7. Customized/Personalized Products

Measuring Supply Chain Performance

SCM Performance Measurement: 2011 versus 2017

Supply Chain Performance Measurement: 2011 versus 2017:

- First version P&IM webinar (2011), users had free access to supply chain benchmarking database through The Performance Measurement Group (PMG) of PRTM (Pittiglio, Rabin, Todd & McGrath) Consulting
- There were also sample reports available that provided representative data from a few industries
- PRTM was acquired by Pricewaterhouse Coopers Consulting (PwC) in August 2011, chose to provide Benchmarking Service to corporate members of APICS (American Production and Inventory Control Society). Level I Corporate Subscription is \$12,500/year

APICS SCORmark Benchmarking Process

APICS SCORmark Benchmarking Process:

- 250 codified SCOR metrics organized in hierarchical structure from Organization (Strategic) Level One metrics to Process Level Two metrics to Diagnostic Level Three metrics
- The SCORmark Benchmarking Metrics are categorized into five performance attributes: reliability, responsiveness, agility, costs and asset management efficiency
 - **Reliability** is the ability to perform tasks as expected, focuses on the predictability of the outcome
 - **Responsiveness** is the speed at which tasks are performed, and products to the customer
 - **Agility** is the ability to adapt to external influences or marketplace changes.
 - **Costs** of operating the supply chain processes, includes labor, material, management and transportation
 - **Asset Management Efficiency** is the ability to efficiently utilize assets, includes inventory reduction and insourcing vs. outsourcing

SOURCE: “Benchmark Your Supply Chain” APICS Website

<http://www.apics.org/apics-for-business/products-and-services/benchmarking>



SCORmark Benchmarking Performance Attributes

SCORmark Benchmarking: Ten Level One Metrics

- **Perfect Order Fulfillment** (RL 1.1), Reliability

The percentage of orders delivered on-time, in full.

CALCULATION: Perfect Order Fulfillment (%) = [Total Perfect Orders] / [Total Orders]

- **Order Fulfillment Cycle Time** (RS 1.1), Responsiveness

The average actual cycle time (days) achieved in fulfilling customer orders.

- **Upside Supply Chain Flexibility** (AG 1.1), Agility

The number of days required to respond to an unplanned 20% increase in quantity (ordered by and) delivered to customers.

- **Upside Supply Chain Adaptability** (AG 1.2), Agility

The maximum sustainable percentage increase in order quantity delivered that operation can achieve in 30 days, without back-orders, cost penalties, excess inventory or other penalties.

- **Downside Supply Chain Adaptability** (AG 1.3), Agility

The maximum sustainable percentage reduction (%) in order quantity delivered can achieve within 30 days of notice, without incurring inventory or cost penalties.



SCORmark Benchmarking Performance Attributes

SCORmark Benchmarking: Ten Level One Metrics

- **Overall Value at Risk** (AG 1.4), Agility

The sum of the probability of risk events multiplied by the monetary impact of the events which can impact any core supply chain function or key dependency.

- **Total Cost to Serve** (CO 1.001), Costs

All direct and indirect expenses associated with the operation of the supply chain.

- **Cash-To-Cash Cycle Time** (AM 1.1), Asset Management Efficiency

The time it takes (days) for cash invested in raw materials to flow back into the company after finished goods have been delivered to customers.

- **Return on Supply Chain Fixed Assets** (AM 1.2), Asset Management Efficiency

The return an organization receives on its invested capital in supply chain fixed assets.

CALCULATION: Return on Supply Chain Fixed Assets = [Supply Chain Revenue + COGS + Supply Chain Management Costs] / Supply-Chain Fixed Assets.

- **Return on Working Capital** (AM 1.3), Asset Management Efficiency

Investment relative to working capital position versus revenue. Components include receivables, payables, inventory, supply chain revenue/costs and cost of goods sold.

CALCULATION: Return on Working Capital = (Supply Chain Revenue - COGS - Supply Chain Management Costs) / (Inventory + Accounts Receivable - Accounts Payable)

SCM Performance Measurement

Metric	Median (Middle 20%)	Best In Class (Top 20%)
Delivery to Request (percentage)	87.9%	96.5%
Order Fulfillment Lead-Time (days)	6.6 days	1.5 days
Upside Production Flexibility (days)	45.0 days	4.0 days
Total Supply Chain Costs (percentage)	12.6%	6.1%
Inventory Days of Supply (days)	56.9 days	14.2 days
Cash to Cash Cycle Time (days)	53.7 days	9.5 days
Net Asset Turns	1.4	5.4

SOURCE: "Supply Chain: Are you optimizing your performance?" July 13, 2009, Performance Measurement Group (PMG), available on the PMG Website: www.pmgbenchmarking.com

SCM Example Using 2011 Benchmarking Data

- **QUESTION:** What is the difference in financial performance between a company with an average Supply Chain (i.e. Middle 20% performance as defined by PMG) versus a company with best-in-class Supply Chain (i.e. Top 20% performance).
- **ANSWER:** Let's calculate the Total Supply Chain Cost for a fictional manufacturer in the bay area at the Best-in-class rate of 6.1% and the Median rate of 12.6%.

Fictional Bay Area Manufacturer

- Total Annual Revenue: \$1.0 Million (Period Ending: December 31, 2016)
- Annual Supply Chain Performance Savings: \$65.0 Thousand (Net Savings from Best-in-Class Supply Chain Performance versus industry Median Performance)

	Total Supply Chain Cost (% of Revenue)	HP Projected Supply Chain Costs
Median SCM Performance	12.6%	\$126 Thousand
Best-in-Class SCM Performance	6.1%	\$61.0 Thousand
Net Difference: Best-in-Class versus Median	6.5%	\$65.0 Thousand

Gartner Supply Chain Benchmarking Program

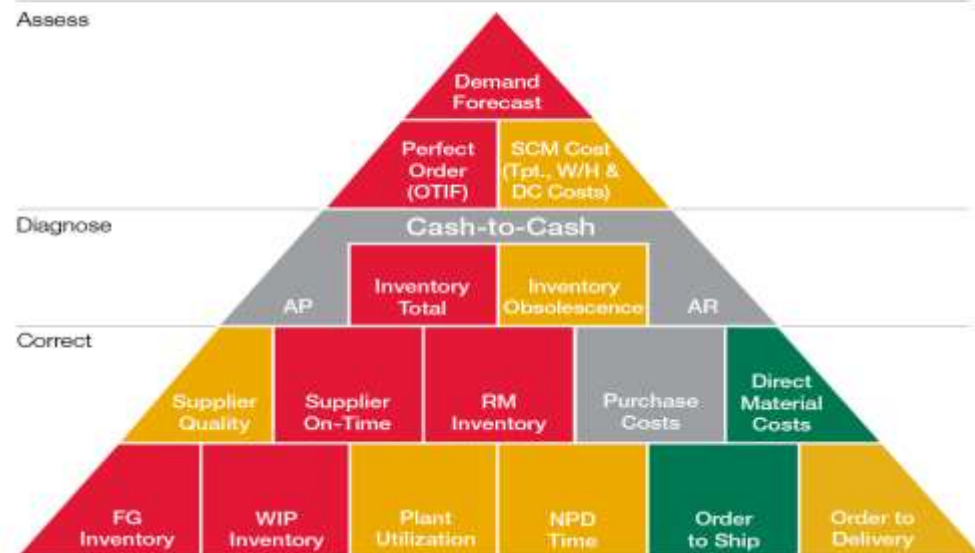
Gartner Supply Chain Benchmarking Program

Gartner (a leading research & advisory company) also provides Supply Chain Benchmarking services. They have separate benchmarking programs for the Manufacturing and Retail Industries. The Gartner supply chain benchmarking database for manufacturing includes 17 metrics across seven core process areas spanning multiple industries and geographies.

NOTE: There are fees associated with the Gartner Benchmarking Service, but no fee schedule on the website. Contact Gartner for pricing details.

SOURCE: “Gartner Supply Chain Benchmarking Program” Gartner Website

www.gartner.com/technology/research/supply-chain/



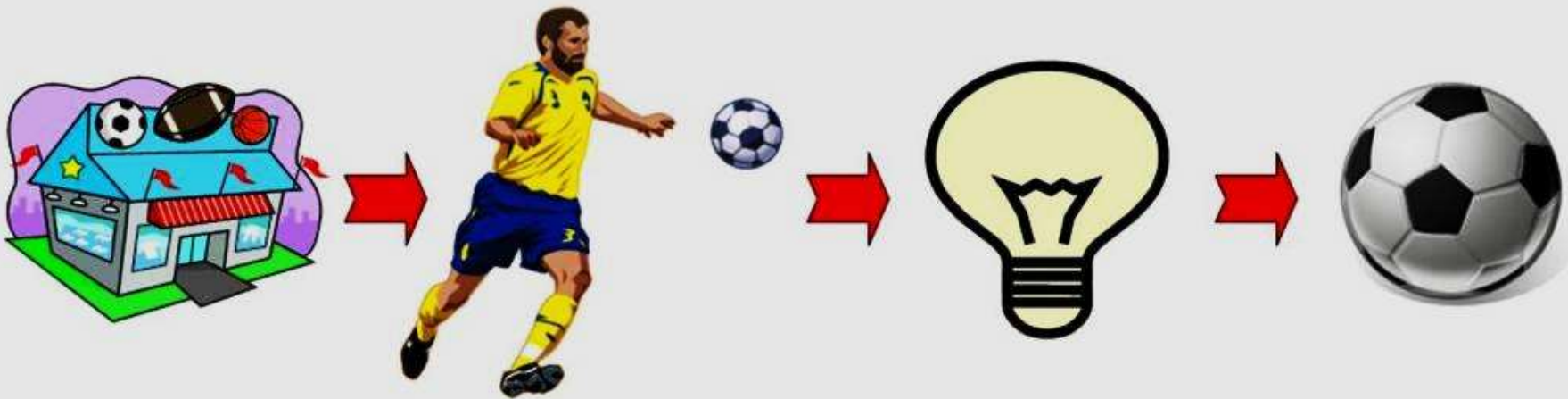
Electronic Documents

Electronic Documents

“Retailer Orders Items for His Store”

Electronic Transactions

The Story of Bob and Sally



- Robert Retailer owns a sporting goods store in Small Town, California.
- One night while playing soccer on his men's league team, Robert realizes that he needs to stock up on Soccer Balls since the World Cup will be starting next month.

Electronic Documents

- STEP 1: Retailer orders Items for His Store
- STEP 2: The Supplier confirms the Retailer's Order

Electronic Transactions (continued)

The Purchase Order

Robert Retailer



Sally Supplier



- Robert Retailer sends an Order to replenish his Soccer Ball supply to Sally Supplier.
- Sally accepts the Order which then prints in her Warehouse, is picked and packed by warehouse personnel.



Electronic Documents

- STEP 3: The Supplier ships the Order to the Retailer

Electronic Transactions (continued)

The Shipping Notice

Sally Supplier



Robert Retailer



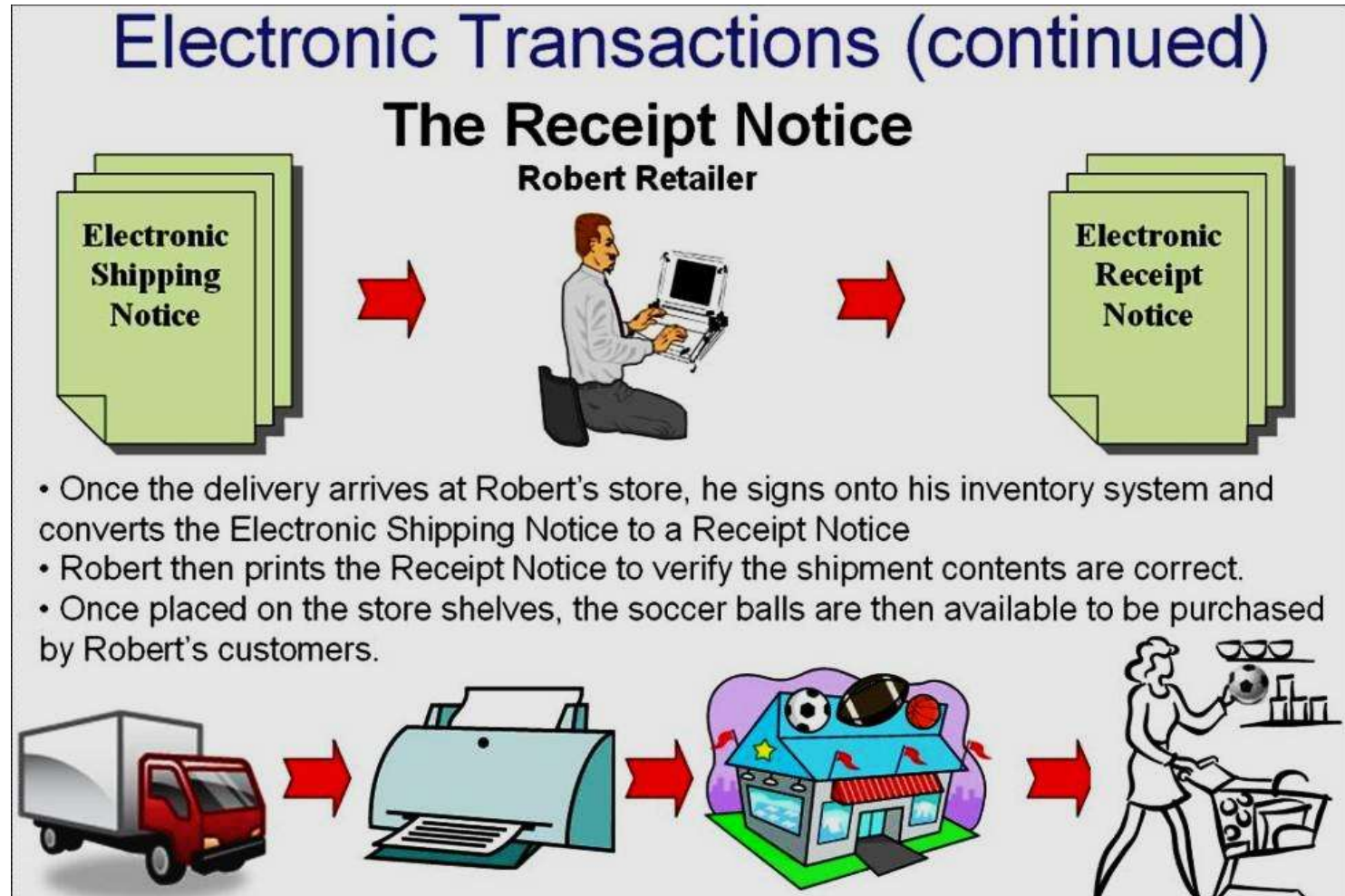
- Once the Warehouse personnel have finished filling Robert's Order, Sally ships the order, which automatically generates a shipping label and sends an Electronic Shipping Notice to Robert.
- While the Shipment is in-transit, Robert can check the status of the Order Online.

Robert Retailer



Electronic Documents

- STEP 4: The Retailer receives the Order from the Supplier



Supply Chain Enabling Technologies

SCM Enabling Technology

Supply Chain Management Enabling Technologies:

- Automatic Identification Technologies
 - Barcodes
Optical Machine-readable Label
 - Radio-Frequency Identification (RFID)
Electronic Tag sends a radio signal
- Electronic Documents
 - Electronic Data Interchange (EDI):
Older Technology uses Phone Lines
 - Extensible Markup Language (XML)
Newer Technology uses the Internet
- Internet of Things (IoT) Devices
 - Able to transform consumer/industrial process: Internet enabled devices being rolled out in Consumer, Industrial and Government sectors
 - Significant obstacles and concerns need to be overcome/addressed before businesses should pursue widespread adoption

SCM Enabling Technology

Advantages of SCM Enabling Technologies

1. Lowers Transaction Costs[^]
 - Eliminates manual processes
2. Improves Data Quality
 - Eliminates re-keying and the resulting potential errors
 - Eliminates errors from illegible, lost or damaged documents
3. Speeds Up the Business Cycle
 - Time saved re-keying data
 - EDI/XML transactions exchanged in minutes instead of days

[^] Each Electronic Requisition saves \$13.62 in North America (Aberdeen Group Study, April 2008)

Automatic Identification Technologies for SCM

- **Radio Frequency Identification**

Electronic Tag attached to the Product, Carton or Pallet communicates product information via radio waves to reader

- **Barcodes**

A barcode is an optical machine-readable representation of data, which provides information about the item

Conclusion: “Small business with high value inventory items (especially those with serial numbers or lot numbers) should consider using barcodes and RFID technologies.”

Electronic Document Technology

Two competing electronic communication technologies for supply chain management:

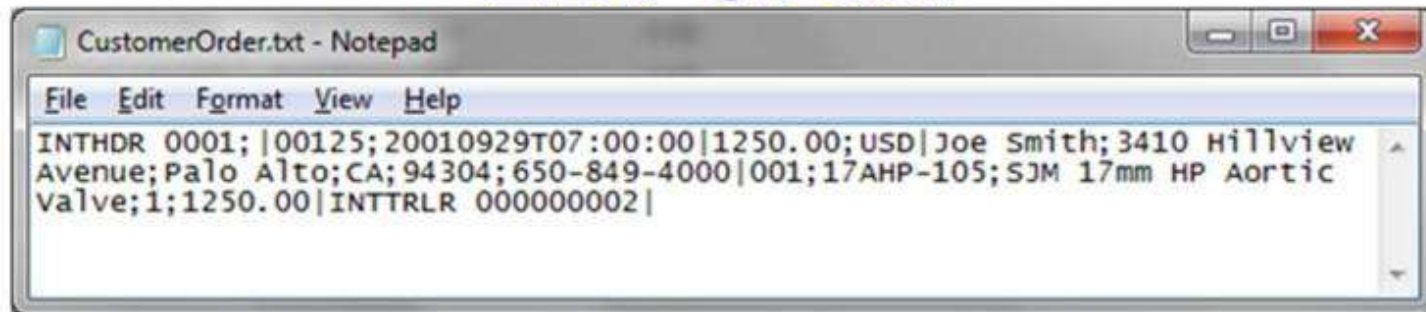
- Electronic Data Interchange (EDI)
- Extensible Markup Language (XML)

Electronic Document Technology (EDI)

Electronic Data Interchange (EDI)

- EDI Messages sent via phone lines, usually requires a Value Added Network (VAN)
- EDI Messages in machine readable format
- Used by large retailers since the 1960s
- National & international standards since the 1980s (e.g. ANSI X12 and EDIFACT)

EDI Order



Electronic Document Technology (XML)

Extensible Markup Language (XML)

- XML Messages sent via the Internet, in Plain Text
- Created in the late 1990s. There are competing standards from application and integration providers

XML Order

```
<?xml version="1.0"?>
<?soxtype urn:x-commerceone:document:com:commerceone:XCBL35:XCBL35.sox$1.0?>
- <CustomerOrder>
  <OrderNumber>00125</OrderNumber>
  <OrderDate>20010929T07:00:00</OrderDate>
  <OrderAmount>1250.00</OrderAmount>
  <CurrencyCoded>USD</CurrencyCoded>
  <Name>Joe Smith</Name>
  <Street>3410 Hillview Avenue</Street>
  <City>Palo Alto</City>
  <State>CA</State>
  <PostalCode>94304</PostalCode>
  <ContactNumber>650-849-4000</ContactNumber>
  <OrderLine>001</OrderLine>
  <ItemNumber>17AHP-105</ItemNumber>
  <ItemDescription>SJM 17mm HP Aortic Valve</ItemDescription>
  <Quantity>1</Quantity>
  <Price>1250.00</Price>
</CustomerOrder>
```

Conclusion: “The simplicity and lower cost of XML has made electronic documents feasible for even the smallest Small Business!”

Example: Electronic Document ROI

Return on Investment for Electronic Purchase Orders

- Costs (\$1500)
 - 3rd Party Purchasing Application for QuickBooks (\$500)
 - Consultant Fees to implement XML Purchase Orders (\$1000)
- Savings (\$2043 per year)
 - 150 Purchase Orders per Year ($150 \times \$13.62^{\wedge}$)
- Payback (268 days)
 - $\$1500 / \$2043 \text{ per year} = 0.7342 \text{ years}$

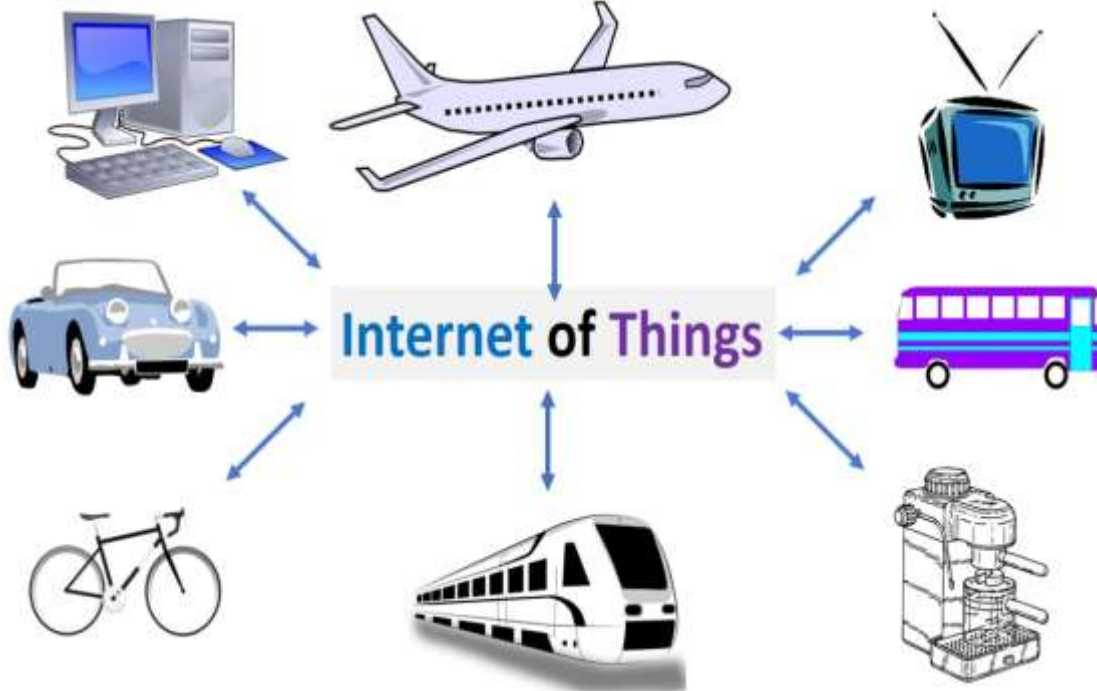
Conclusion: “Electronic Document ROI Driven by Transaction Volume and Savings per Transaction”

[^]Aberdeen Group Study, April 2008

Internet of Things (IoT)

SCM Enabling Technology: Internet of Things (IoT)

The Internet of Things (IoT) is the network of internet enabled devices (such as vehicles, home appliances, etc.) with a microprocessor, operating system, software applications, sensors, actuators and network connectivity which enable these devices to interact and exchange data. IoT functionality allows these devices to be controlled remotely via existing networks or the internet.



IoT SCM Applications

- IoT Equipped **Elevators**
Allow remote diagnostics and repair by technicians
- IoT Enabled **Factory Equipment**
Can monitor usage and adjust settings to optimize performance
- IoT Equipped **Logistic Vehicles**
Can provide location, speed and condition. And, can schedule service appointments when necessary

IoT Device Barriers to Adoption

Barriers to Adoption of Internet of Things (IoT) Devices

1. Internet Protocol Limitations

IPv4 Internet Protocol only allows 4.3 Billion addresses, yet projections estimate 20 Billion IoT devices by 2020, making global adoption of IPv6 Protocol critical

2. Broadcast Spectrum Congestion

Already fierce competition for broadcast spectrum from TV, wireless providers and others. IoT device proliferation will require growing percentage of broadcast spectrum

3. Lack of Interoperability

Lack of operating system and hardware standards, especially Application Programming Interfaces (APIs). No business trade group or government agency able to establish a consensus and implement standards. Various manufacturers have adopted their own standards, making device compatibility problematic

4. Environmental Impact

IoT devices contain heavy metals, rare-earth elements and highly toxic chemicals. Proliferation of IoT devices will lead to substantial environmental impact, since current computer recycling and reclamation operations are inadequate

IoT Device Business & Consumer Issues

1. Security Vulnerabilities

Since each IoT device has operating system and network access, every IoT device:

(A) presents a point of access to exploit everything connected to that network

(B) will require current system patches and updates, firewall and antivirus updates

2. Privacy Issues

Since IoT devices have cameras and microphones, could be in any room, they have unmatched ability to invade privacy. Few regulations for data collection and sale, and data can be stolen by anyone with internet access

3. Premature Device Obsolescence

Manufacturers can exploit IoT device support to intentionally disable devices, especially after mergers/acquisitions, forcing customers to replace older devices. Once standards are established, devices with incompatible technology will be obsolete

4. Device Hijacking

IoT Devices in industrial equipment, automobiles, etc. can be hijacked and remotely controlled. Onboard systems of cars and medical devices have demonstrated vulnerability to hacking

Geoff Webb, Wired Editorial: “You aren’t just going to lose your privacy, you’re going to have to watch the very concept of privacy be rewritten under your nose. That’s because while the Internet of Things (IoT) is going to add a lot to our lives, it’s probably going to take our privacy in payment, whether you want it to or not.”

IoT Device & Operational Recommendations

Internet of Things (IoT): Device and Operational Recommendations

1. Deploy IoT Devices Only when necessary!

Deploy IoT Devices only when hardwired alternatives are impractical. Privacy, security and obsolescence issues not worth risking when other technologies can meet needs

2. Establish and Maintain a Separate Network for IoT Devices

Build a separate network for the IoT Devices. This reduces risk to corporate mainframes, personal computers, mobile phones and other devices that are on a different network. Passwords of connected devices should be changed during setup. Make sure that all default IDs (e.g. device admin, etc.) have unique/strong passwords.

3. Establish and Maintain a Database of Devices and User Agreements

Maintain record of IoT Device User Agreements and Privacy Policies, conduct legal review and replace any problematic devices. Also have a record of devices, with locations and roles. Include manufacturer, model name/number, serial #, and administrative access information.

4. Establish Security Audit Process for IoT Devices

Establish internal procedures to periodically check operational IoT devices, verifying operating systems and software have current security patches. Also deploy the latest firewall and antivirus applications when/if possible.

Reducing Inventory Cost (by using Supply Chain Management)

Cost of Excess Inventory

The cost of holding inventory includes: financial costs, warehousing costs and the risk of loss or damage.

Financial Cost (Inventory Carrying Cost) is a function of the inventory value and length of time the inventory is held:

$$\text{Inventory Carrying Cost} = \text{Inventory Value} \times \text{Cost of Capital} \times \text{Time}$$

Cost of Excess Inventory

$$\text{Inventory Carrying Cost} = \text{Inventory Value} \times \text{Cost of Capital} \times \text{Time}$$

Inventory Carrying Cost of \$100,000 Excess Inventory:

Yearly Cost: \$10,000 (Cost of Capital at 10%):

\$100,000 x 10% per year x one year

Yearly Cost: \$20,000 (Cost of Capital at 20%):

\$100,000 x 20% per year x one year

CONCLUSION: “Reducing excess inventory will improve your bottom line and free working capital for investment in other areas.”

Cost of Excess Inventory: Other Costs

ACTIVITY: In addition to the financial costs, the cost of maintaining inventory includes warehousing costs and the risk of loss or damage. Please take a moment to think about some of these other costs. Use the WebEx Text Entry Tool to share your ideas in the space below with the class.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

ANSWERS: Other Cost of Excess Inventory

1. Larger facility leads to higher rent, equipment, insurance and utility costs
2. Increased risk of damage, theft, spoilage or product obsolescence
3. Increased labor costs for cycle counts and physical inventory
4. Increase put away (time) cost
5. Increased order picking (time) cost

Reducing Inventory Costs with SCM

Supply Chain Management provides two major techniques for reducing inventory costs:

[1] Share Information with Trading Partners

- Knowledge of consumer demand and inventory levels throughout the supply chain reduces the need for safety stocks for every trading partner in the Supply Chain

[2] Increase Cooperation with Trading Partners

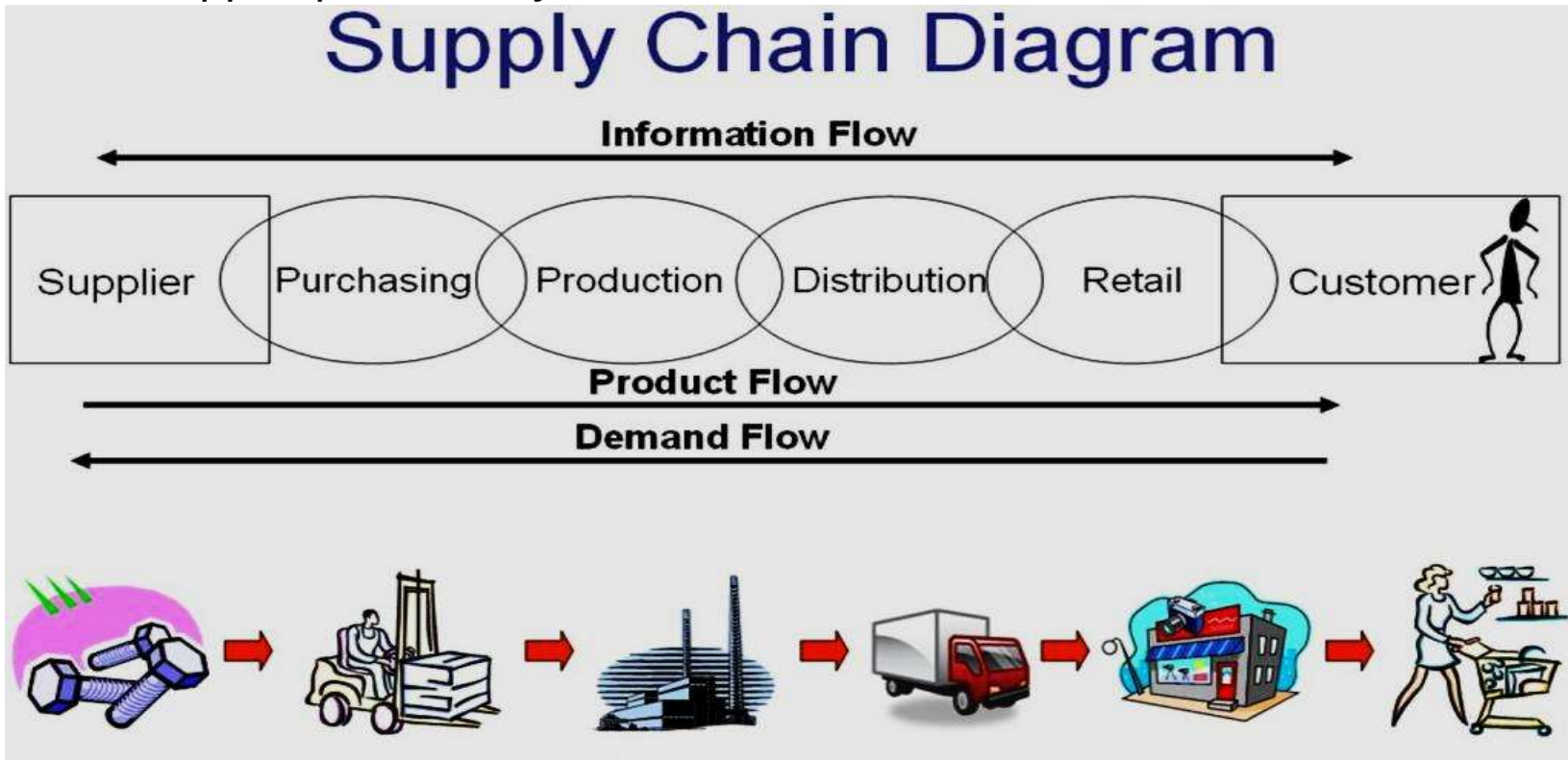
- Better integration with your buyers and sellers increases the velocity of inventory in the Supply Chain

Inventory Carrying Cost = Inventory Value x Cost of Capital x Time

Value of Information in the Supply Chain

Share Information with Trading Partners

- Customer demand information flows backwards from the retailer to every trading partner in the Supply Chain
- Your suppliers are ready to replenish your inventory since they know when you have shipped product to your customers



Contrasting Views of Vendor Relations

	Traditional ("adversarial")	Co-maker ("cooperative")
Selection & Qualification	❖ Buyer wants multiple sources ❖ Suppliers fight for business	❖ Buyer wants few sources ❖ Best suppliers are sought out and retained
Vendor's Production Processes	❖ Arm's length relationship ❖ Focus is on final test ❖ Stability is the goal	❖ Works closely with buyer ❖ Focus is on process control ❖ Improvement is the goal
Pricing	❖ Buyer wants the lowest possible price ❖ Leveraged-based ❖ Short-term agreements	❖ Buyer expects to provide fair return ❖ Trust-based ❖ Long-term agreements

Reference: Table 7-2, "Dynamic Manufacturing, Creating the Learning Organization" by Hayes, Wheelwright and Clark; The Free Press 1988

Vendor Relations: A Historical Perspective

In the 1980's Japanese Automakers began building assembly facilities in North America

- Honda: Marysville, OH (1982)
- Nissan: Smyrna, TN (1983)
- Toyota: Georgetown, KY (1986)
- Subaru: Lafayette, IN (1988)



Vendor Relations: A Historical Perspective

Vendor Relations Continued

Instead of using North American based suppliers Japanese companies chose to recruit their Asian suppliers to North America

- In the 1980's the American Automotive Industry treated their suppliers as adversaries
- Japanese Automotive Manufacturers had always treated their suppliers as valued partners, utilizing techniques like Just-in-Time (JIT) to reduce overall inventory costs

OBSERVATION: “By partnering with their suppliers Japanese Automotive Manufacturers had achieved efficiencies that their domestic competition could not match!”

END: Part One, Introduction to SCM

The Seminar will resume in 10 minutes!
Please return to your seats before then.

Agenda

1. Introduction to Supply Chain Management
2. Common Supply Chain Applications for Small Business
3. Detailed Supply Chain Management Processes

Section Topics

Supply Chain Applications for Small Business

1. Overview: Small Business Supply Chain Applications
2. Small Business Accounting Packages
3. Hosted Enterprise Resource Planning (ERP) Applications
4. Mid-Tier Enterprise Resource Planning (ERP) Applications
5. Recommendations for Selecting an Application

Small Business Supply Chain Applications

Three normal application classes that small and growing businesses should consider:

1. Small Business Accounting Packages

- Limited SCM functionality in base package: purchase add-on applications/modules, and consider industry specific versions, if available
- \$300-400/year/user plus \$500 or more for each add-on application, or \$40-50/month/user for online versions

2. Hosted (Cloud) Enterprise Resource Planning (ERP) Applications

- Also called Software-as-a-Service (SaaS). Rich and growing SCM functionality; some industry specific versions. Software & hardware maintenance included
- ~\$1200/year/user with a minimum of 5 – 25 users

3. Mid-Tier Enterprise Resource Planning (ERP) Applications

- Rich and growing SCM functionality with industry specific applications and versions. Will need to buy hardware and hire/rent IT support. Expensive with minimum of 25 users (or more)
- Typical clients have +100 employees and +\$50 Million revenue

Small Business Accounting Packages

The Inventory Tracking and A/P & A/R Transaction Forms are critical to Supply Chain Management and the Vendor Portals may also be useful. Consequently, there are six of the Small Business Accounting Applications that would work for SCM: QuickBooks Online (4.5/5 Stars), AccountEdge Pro (4.5), Sage 50c Premium Accounting (4.0/5 Stars), Xero (4.0), Zoho Books (4.0) and OneUp (3.5/5 Stars).

SCM Functionality

PC Magazine: Small Business Accounting Software

REVIEWS • BEST PICKS • HOW-TO • NEWS • TIPS • BUSINESS • EXPLORE • COUPONS

+ SUBSCRIBE

TRENDING XboxOneX iPhoneX StrangerThings TrumpsTwitter RussiaFacebookAds

Product	FreshBooks	Xero	Zoho Books	Intuit QuickBooks Online	GoDaddy Bookkeeping	Kashoo	Sage 50c Premium Accounting	Wave	OneUp	AccountEdge Pro
Lowest Price	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT
Editors' Rating	★★★★○	★★★★○	★★★★○	★★★★★ EDITOR'S CHOICE	★★★★○	★★★★○	★★★★○	★★★★○ EDITOR'S CHOICE	★★★★○	★★★★★ EDITOR'S CHOICE
Good For	Freelancers	SMBs	SMBs	SMBs	Freelancers	SMBs	SMBs, Desktop/Online	Freelancers	SMBs	SMBs, Desktop/Online
Double Entry	—	✓	✓	✓	—	✓	✓	✓	✓	✓
All Major A/R and A/P Transaction Forms	—	✓	✓	✓	—	—	✓	—	✓	✓
Mobile Access	✓	✓	✓	✓	✓	✓	—	✓	✓	✓
Time Tracking	✓	—	✓	✓	✓	—	✓	—	—	✓
Payroll	—	✓	—	✓	—	✓	✓	✓	—	✓
Customer/Vendor Portals	✓	—	✓	—	—	—	✓	—	—	✓
Inventory Tracking	—	✓	✓	✓	—	—	✓	—	✓	✓
Training Available	—	✓	—	✓	—	✓	✓	—	—	✓
Live Support	✓	—	✓	✓	✓	✓	✓	✓	✓	✓
Document Management	—	✓	—	✓	—	—	✓	—	—	—
Estimates Quarterly Taxes	—	—	—	—	✓	—	—	—	—	—
Integrates with CRM	✓	✓	✓	✓	—	—	—	—	—	—
Multi-Currency Support	✓	✓	✓	✓	—	✓	—	✓	✓	✓

Small Business Accounting Packages

The two top rated applications are QuickBooks Online and AccountEdge Pro, both at 4.5 out of 5 Stars.

APPLICATION	QuickBooks Online	AccountEdge Pro
		 AccountEdge Pro
Format	Online or Desktop	Desktop Only
PC Magazine Rating	4.5/5 Stars	4.5/5 Stars
Price Range	Online: ~\$50/month Desktop: ~\$380	Desktop: \$399
Main Website	www.quickbooks.intuit.com	www.accountedge.com

SOURCE: “The Best Small Business Accounting Software of 2017” PC Magazine Review by Kathy Yakal, October 13, 2017

<https://www.pcmag.com/article2/0,2817,2458748,00.asp>

Small Business Accounting Packages (continued)

APPLICATION	QuickBooks Online	AccountEdge Pro
Bottom Line	QuickBooks is the best online accounting application for small businesses, thanks to its depth, flexibility, and extensibility. It's easy to use, well-designed, and built to serve a wide variety of users.	AccountEdge Pro is a top small business accounting solution. Its depth, usability, and customizability are unmatched by competing desktop-based software and cloud-based applications alike.
Positive	Excellent user interface and navigation. Flexible contact records and transaction forms. Customizable report templates. Comprehensive payroll support. Hundreds of add-ons.	Comprehensive double-entry accounting tools. Customizable. Manageable complexity in every area, including inventory, time billing, and reports.
Negative	No dedicated project-tracking. Poor online documentation.	No central dashboard. Extra cost for cloud services. Can't download bank transactions; statements only

Add-Ons for Small Business Accounting Software

Functional Add-Ons for Small Business Accounting Software

Small business accounting applications provide some Supply Chain Management functionality out-of-the-box, but sophisticated functionality (e.g. Electronic Purchase Orders, etc.) will require purchase of third-party Add-on applications.

Applications for QuickBooks Desktop Marketplace

<https://desktop.apps.com/home>

Allows QuickBooks users to find reviewed third-party software applications built to meet their specific business needs. Search applications by Industry, Business Function or QuickBooks Product

QuickBooks Online Application Store

<https://apps.intuit.com/>

Allows QuickBooks users to find reviewed third-party software applications built to meet their specific business needs. Users can browse applications by category.

AccountEdge Add-on Services & Solutions

AccountEdge allows for integration with some third-party applications (such as Shopify), see the Add-on page on their website for more information:

<https://www.accountedge.com/addons/>

Hosted (Cloud) ERP Applications

Hosted (Cloud) ERP Applications

The Hosted ERP application vendors will normally want a minimum of 5 – 25 users. Top SCM choices for hosted ERP applications include NetSuite (now owned by Oracle), and SAP's Business One Cloud ERP Software and Plex Online.

1. NetSuite

www.netsuite.com

NetSuite unifies CRM, e-commerce, inventory and order management into one cloud ERP software suite. More than 30,000 organizations use it worldwide, and it claims to be the number one cloud ERP product. NetSuite was built for the cloud from the start and incorporates real-time analytics.

2. SAP Business One Cloud ERP Software

www.sap.com

SAP's Business One ERP software is a comprehensive solution designed for 1 to 30 users. Deployed on-site, it also offers remote support and Development Kit for customizability.

3. Plex Online

www.plex.com

Plex was first SaaS player to target manufacturing in 2001. The Plex Manufacturing Cloud platform addresses the management of manufacturing operations via modules for accounting, financials, customer management, sales, scheduling, inventory, production, quality control and SCM.

SOURCES

1. "11 Cloud ERP Software Options" EnterpriseAppsToday.com By Drew Robb; April 12, 2016
2. "Cloud ERP Software" Buyer's Guide by Lisa Hedges, Software Advice, August 19, 2017

Mid-Tier ERP Applications

Midmarket companies (according to Gartner) are generally considered to have 100-999 employees and annual revenue between \$200 Million and \$2 Billion. The Leaders in the Mid-Tier ERP applications are SAP's Business One and IFS Applications.

1. SAP Business One www.sap.com/products/business-one.html

SAP Business One is an integrated ERP system developed by SAP in Germany. It caters to business software requirements of small & medium sized businesses.

2. IFS Applications www.ifsworld.com/us/solutions/ifs-applications/

During the past 10 years, IFS has grown from a specialized Swedish ERP vendor to a global provider of a broad ERP suite for a variety of industries, spanning asset-intensive ones (e.g. aerospace and defense, oil and gas) to volume-based ones (e.g. automotive, retail), but also process manufacturing and professional services.

There are two applications in the Visionaries Quadrant: Microsoft Dynamics AX and Epicor. And, there are two applications in the Challengers Quadrant: Oracle E-Business Suite and Oracle's JD Edwards EnterpriseOne.

SOURCE

“Magic Quadrant for Single-Instance ERP for Product-Centric Midmarket Companies”

Gartner ID:G00272540; December 9, 2015

Recommendations: Selecting a SCM Application

Some issues to consider when evaluating small business supply chain applications include:

1. Choose an application that you can use for a minimum of five years (10 years would be better)

- Application implementations require: management attention, personnel time and monetary expense (Do not be fooled by terms like: “rapid cycle” or “simple implementation”)
- You must consider what the application will look like in 5 – 10 years (Will the application provider still be in business then?)

2. The simplest solution is often the best solution

- Systems integrators (software consultants) can recommend solutions that result in larger consulting expenditures
- Application providers can recommend alternatives that will provide higher training and maintenance revenues

Recommendations: Selecting a SCM Application

Issues to Consider (Continued)

3. Industry Specific Solutions

- Some small business accounting applications (e.g. Peachtree) available in industry specific versions (e.g. apparel, automotive, chemicals, electronics, etc.)
- Businesses should consider utilizing industry specific applications, if available!

4. Beware of Customized Solutions

- Systems integrators (software consultants) have a huge incentive to recommend customized solutions that result in larger consulting expenditures
- Businesses need to consider not only the cost and risk of a customized solution, but also that these customizations will be incompatible with all future releases of the base software

QUESTIONS: Supply Chain Applications



- Are there any questions on the potential Supply Chain Applications for Small Business?

Agenda

1. Introduction to Supply Chain Management
2. Common Supply Chain Applications for Small Business
3. Detailed Supply Chain Management Processes

Section Topics

Detailed Supply Chain Management Processes

1. Recommendation: Considering Detailed Supply Chain Management Functionality
2. Electronic Commerce (Online Sales)
3. Purchasing/Procurement/Supplier Relationship Management (SRM)
4. Inventory Management System
5. Warehouse Management System (WMS)
6. Retail and Point of Sale Management (POS) System

Recommendation: Supply Chain Functionality

Supply Chain Management Functionality

Supply Chain Management is composed of many individual process (e.g. Purchasing, Inventory Management, etc.) and not all businesses will require sophisticated functionality for each process

Functionality Recommendation

Businesses should evaluate their specific needs for each of the supply chain management process and seek to acquire advanced capabilities only when necessary!

Electronic Commerce

Inventory Management, Order, and Payment Integration for Online Sales

Electronic Commerce: Inventory Related Functionality Only!

NOTES: Electronic Commerce for the Purchasing and Inventory Management Training Seminar

Since there are ACSBDC training sessions available for E-Commerce, Internet Marketing, Website Development & Optimization, Electronic Commerce in this training session will concentrate on backend integration aspects, such as: order processing, inventory management and payment processing.

If you have an online store, we recommend that you also attend the E-Commerce, Internet Marketing and Website Development/Optimization training sessions.

Electronic Commerce Defined



What is Electronic Commerce?

Electronic Commerce (also called Internet Commerce, Online Sales, E-commerce (or eCommerce)) is the buying and selling of products or services over the Internet. It includes the entire process of developing, marketing, selling, delivering, servicing and paying for products online.

Business versus Consumer Electronic Commerce

- Electronic Commerce between businesses is called business-to-business or B2B
- Electronic Commerce between businesses and consumers is called business-to-consumer or B2C

Electronic Commerce Software

What is Electronic Commerce Software?

- Provides online merchants with tools that automate all facets of selling products on the Internet
- Supports all related activities, including online product catalog, marketing, payment processing, inventory management and order processing

Key Benefits of Electronic Commerce Software

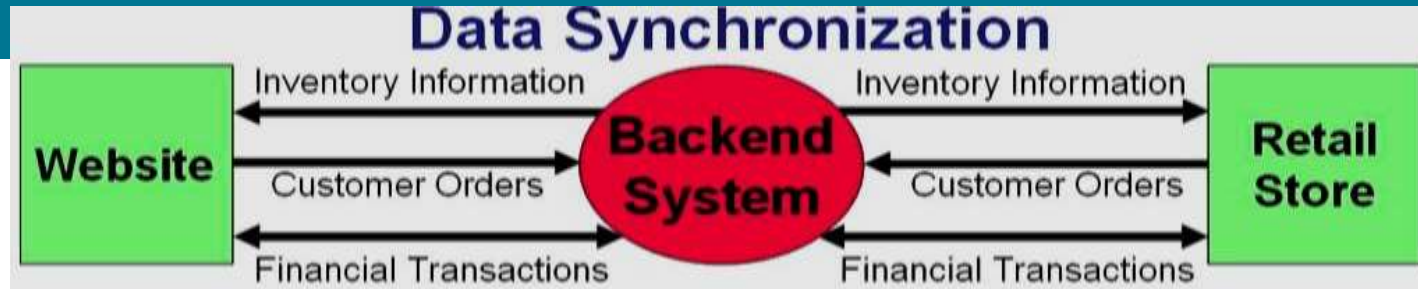
- Electronic Commerce software provides operational efficiency and enhanced functionality to online retailers, including:
- Enhanced efficiency with integrated order processing, inventory management and financial records
- Improved service customer functionality and service
- Greater efficiency through full process automation and minimized site administration

Electronic Commerce Software: Key Features

Modern Electronic Commerce software is a robust, feature-rich application that provides:

- Centralized database for product listings, order records and customer history
- Product catalog, with comprehensive product descriptions, images, pricing and other features.
- End-to-end checkout automation with dynamic calculation of prices, taxes and shipping charges
- Integration with third-party payment gateways and shipping providers
- Integration with backend accounting applications, for managing invoices, payments, financial reports and taxes

Electronic Commerce: Essential Functionality



Real-time Inventory Management

- Automatically adjusts inventory quantities as orders are processed across all channels (including retail store, Website, etc.)
- Provides superior operational efficiency and reduced overall inventory, versus maintaining separate inventory stocks

Batch Inventory Synchronization

- Alternative to Real-time Inventory Management, synchronizes inventory at predetermined intervals, instead of when each order is processed
- Possible for the same item to be sold in two channels before problem is discovered during the synchronization

Payment & Financial Transaction Integration

- Integrate payment information and sales transactions with the backend accounting system, this allows online transaction records to automatically be incorporated in accounting reports and business tax records

Purchasing

Including Procurement and Supplier Relationship Management (SRM)

Purchasing

Purchasing

Purchasing [sometimes called Procurement or Supplier Relationship Management (SRM)] is the acquisition of goods and/or services to fulfill business needs. Normally, the goal is to obtain these items at the best possible total cost of ownership while meeting the customer's needs

Procurement versus Purchasing

Procurement involves a bidding process, i.e., tendering where a company may receive several bids from potential suppliers

Purchasing

Direct versus Indirect Materials

- The purchasing process will in most cases be significantly different for Direct versus Indirect Materials

Direct Materials

- Direct materials are raw materials or other goods used in the production of finished goods
- Direct Materials are typically characterized by large order quantities and more frequent orders

Indirect Materials

- Indirect materials are used in maintenance or repair of production machinery or consist of general operational supplies (such as office supplies)
- Indirect materials normally have small order quantities and less frequent orders

Purchasing

The Procurement Lifecycle in modern business usually consists of several steps:

- 1. Information Gathering** (identify potential suppliers)
- 2. Supplier Contact** (request proposals or bids)
- 3. Background Review** (evaluate proposals or bids)
- 4. Negotiation** (finalize agreements)
- 5. Fulfillment** (receive goods or services)
- 6. Consumption, Maintenance, and Disposal** (use goods or services)
- 7. Renewal** (reevaluate supplier relationship)

QUESTIONS: Purchasing or Electronic Commerce



- Are there any questions on Electronic Commerce Systems or Software?
- Are there any questions on Purchasing, Procurement, or Supplier Relationship Management (SRM) Systems or Software?

Inventory Management Systems

Inventory Management

Inventory Management

- Inventory Management (or Inventory Control) is the process of managing and locating objects or materials
- An inventory control system can be used to automate a sales order, complete a fulfillment process, manage a flow of material, and provide a real-time view of stock levels for all items

Inventory Management Software

- Inventory management software is a computer-based system for tracking product levels, orders, sales and deliveries
- In manufacturing, it can create a work order, bill-of-materials (BOM) or other production documents
- Companies use inventory management software to minimize product overstock and outages

Role of Inventory Management Software



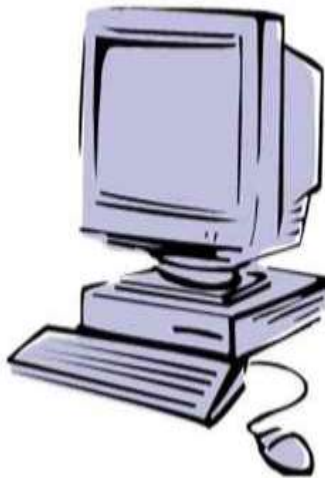
Inventory management software is used for a variety of purposes, including:

- Maintaining the balance between too much and too little inventory
- Tracking inventory as it is transported between locations
- Receiving items into a factory, warehouse, distribution center or other location
- Picking, packing and shipping items from a warehouse
- Keeping track of product sales and inventory levels
- Reducing product obsolescence and spoilage

Inventory Management History

Three Historical Developments in Inventory Management

1. The Universal Product Code (UPC) was adopted by the grocery industry in the 1970's. It helped drive down costs for inventory management by establishing a universal standard.
2. In the early 1980s, personal computers (PCs) debuted pushing down the cost of barcodes and readers, and also allowed the first versions of inventory management software to be put into place.
3. Starting in the early 2000s, manual data entry was significantly reduced due to widespread adoption of barcodes and RFID tags.



Inventory Management Terminology

Physical Inventory Counts

- Verifies that the data records for items, quantity, and location match the physical stock.
- Provides information on the level of inventory control achieved, allowing targets to be set, and monitored.

Buffer Stock and Batch Stock

- Buffer Stock (or safety stock) is used to compensate for uncertainties in the timing and volume of supply and/or demand.
- Batch Stock (or cycle stock) is the stock ordered on a regular basis to meet demand and allow operations to cope with not making all products simultaneously.

Consignment Inventory

- Goods or products that are paid for when they are sold by the reseller, not at the time they are shipped to the reseller. They are owned by the vendor until they are sold to the consumer, meaning that property taxes are not assessed on these items.

Inventory Management Terminology

FIFO and LIFO Accounting

- FIFO and LIFO are accounting techniques used in managing the inventory of produced goods, raw materials or parts
- FIFO stands for first-in, first-out, meaning that the oldest inventory items are recorded as sold first
- LIFO stands for last-in, first-out, meaning that the most recently produced items are recorded as sold first

Radio Frequency Identification (RFID) Tags

- RFID tags streamline and improve inventory management by allowing companies to more efficiently enter and track the flow of goods
- RFID can add a boxful of goods to inventory systems all at once, without having to unpack the carton and scan each piece separately

Warehouse Management System

Warehouse Management System

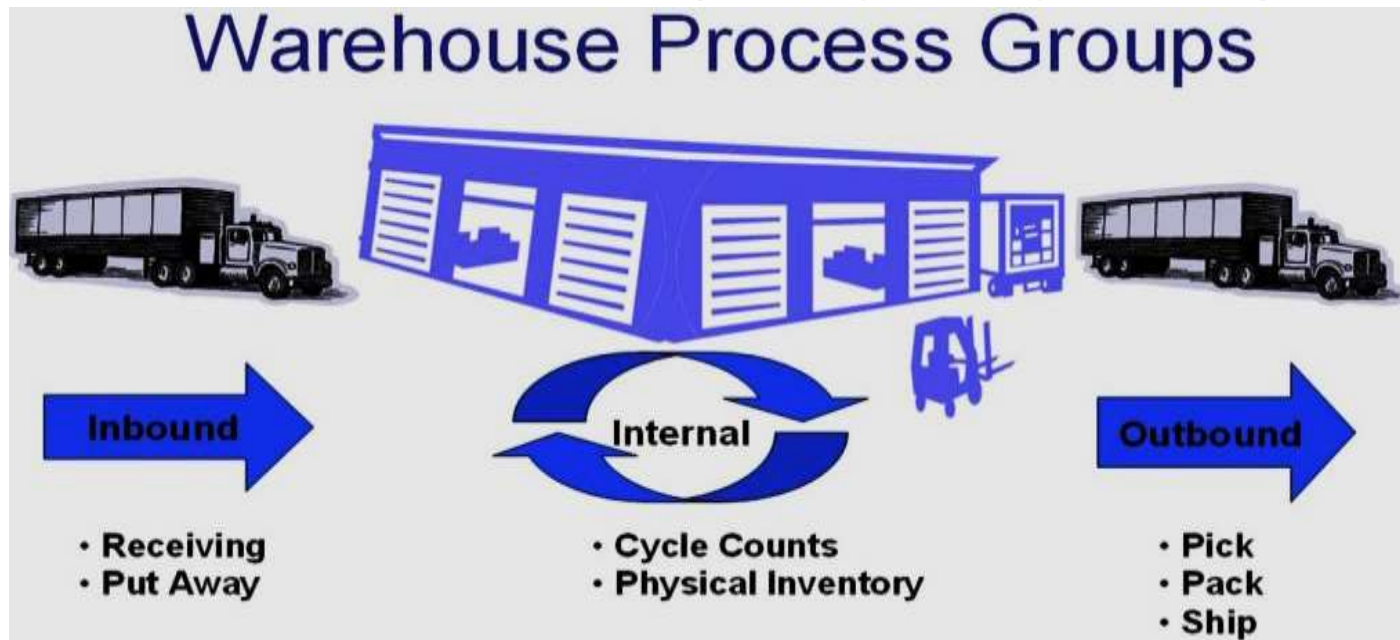
Warehouse Management System (WMS) Roles

- Optimize processes including shipping, receiving, put-away and picking
- Provide real-time information of bin utilization and stock levels
- Utilize Auto ID Data Capture (AIDC) technology, such as barcodes and RFID Tags to monitor product flows
- Provide computerized procedures to handle the receipt of stock and returns into a warehouse facility
- Model and manage the logical representation of the physical storage facilities (e.g. racking, bins, etc.)
- Manage order processing and logistics movements into and out of the facility

Warehouse Management Processes

Warehousing processes include inbound, internal, and outbound processes:

- Receiving, Inspection, and Acceptance
- Proper Storage (a.k.a. “Put Away”)
- Order Preparation & Delivery: “Picking, Packing and Shipping”
- Inventory Audit (checking system versus actual stock)
- Value added services, such as: Co-packing, Kitting, and Repair



Warehouse Management System Functionality

Choose a warehouse management system that matches the unique needs of the business, consider the following:

Bin and Pick Management

- Organizes warehouse bins and tracks the exact location of items

Demand Based Inventory Replenishment

- Provides intelligent inventory replenishment, ensuring anticipated orders are filled while minimizing excess stock

Integrated Inventory Management

- Provides sales representatives and partners with full view of inventory
- Instantaneously adjusts inventory when filling Website, retail or sales orders

Warehouse Management System Functionality

Warehouse Management System Terminology (continued):

Multi-location Inventory Management

- Manages inventory in multiple locations
- Ability to designate warehouse and location that will fulfill the order

Lot Numbers

- Provides complete history for each lot number
- Allows expiration dates to be set and notes entered for each lot number

Serial Numbers

- Allows orders to be placed for specific serial numbers

Warehouse vs. Inventory Management

Common situations that require a Warehouse Management System versus a less sophisticated Inventory Management System:

- Inventory storage facility organized into Aisles and Bins
- Inventory items have serial numbers, lot numbers, or expiration dates, and orders might be placed for specific serial numbers or lot numbers
- Inventory items consist of more than a few SKUs (Shelf Keeping Units)
- Orders might be filled using a combination of LIFO and FIFO

Retail Management and Point-of-Sale Management Systems

Retail & Point-of-Sale Management Systems

A Retail Management System (RMS) and Point-of-Sale (POS) Management System should integrate and streamline business processes, so that retailers can obtain operational efficiencies, sustain growth and reduce costs.

- **Retailers today face an increasingly complex sales environment:**
 - Ever-growing number of sales channels (retail, Website, call center, catalog)
 - Consumers are demanding more information, better service and more control over the shopping experience
 - Customers want to research products on the Web, place the order via phone, and pick up the merchandise at the store
- **Consequently, retailers must :**
 - Augment traditional in-store retail channel with online sales
 - Provide cross-channel service capabilities and marketing tools
 - Orchestrate successful cross-channel sales initiatives

Point-of-Sale (POS) Management

The Point-of-sale (POS) is the location where the sales transaction occurs:

- A POS terminal manages the selling process and prints the receipt.
- Once the item is scanned, the system automatically calculates the price (including discounts and taxes) and removes the item from inventory.

A retail POS system typically includes a computer, monitor, cash drawer, receipt printer, customer display, barcode scanner, and a debit/credit card reader. It might also include a weight scale, a signature capture device and a customer pin pad device.



Retail & Point-of-Sale Functionality

- The Point-of-sale (POS) System handles all customer transactions such as sales, returns, exchanges, layaways, gift cards, gift registries, customer loyalty programs, quantity discounts and more
- POS system also allows for pre-planned promotional sales, coupons, BOGO (buy-one get-one free), foreign currency handling, and multiple payment types
- Back-office applications handle other functions of the POS system such as inventory control, purchasing, receiving, and product transfers
- The POS system records sales information for reporting purposes and analysis, and stores customer information for receivables management, marketing, and analysis
- The POS system generates shipping labels for UPS, FedEx or USPS, and automatically retrieves package-tracking information

Retail & Point-of-Sale Software

Point-of-sale (POS) software is the most vital retailer system. It enhances the customer's shopping experience, increases productivity, drives sales, and integrates with mission critical systems. Basic POS applications include:

- Point-of-Sale (Hardware) -- Register where sales occur and customer payments are made
- Inventory Control -- Manages inventory, allowing employees to create item descriptions, track orders, count inventory, and make store transfers
- Customer Relations Management (CRM) -- Tracks customer history and stores important details including contact information. Provides real-time access to all customer information across all sales channels
- Credit Card Processing -- Allows for automatic processing of transactions
- Employee Management -- Defines users access and tracks transactions by employee
- Multi-Channel Management -- Provides native E-commerce and fully integrated POS capabilities managing sales channels and back-end operations in real time
- Multi-Location Management -- Manages sales, inventory and all other

QUESTIONS: Purchasing or Electronic Commerce



- Are there any questions on Warehouse Management Systems, Inventory Management Systems or Software?
- Are there any questions on Retail Management Systems, Point-of-Sale (POS) Management Systems, or Software?

Conclusion and Homework

Conclusion

- This concludes the content portion of the Webinar!
- Next, we will provide you with a download of the webinar slides and the companion research tool the “Participant Manual”

Homework

- Use the Participant Manual to explore topics of interest such as Reducing Inventory Costs with Supply Chain Management or E-commerce (Website) Integration
- Contact your local Small Business Development Center (SBDC) if you would like further assistance