

Dell-on-Line: A Build-to-Order PC Supply Chain

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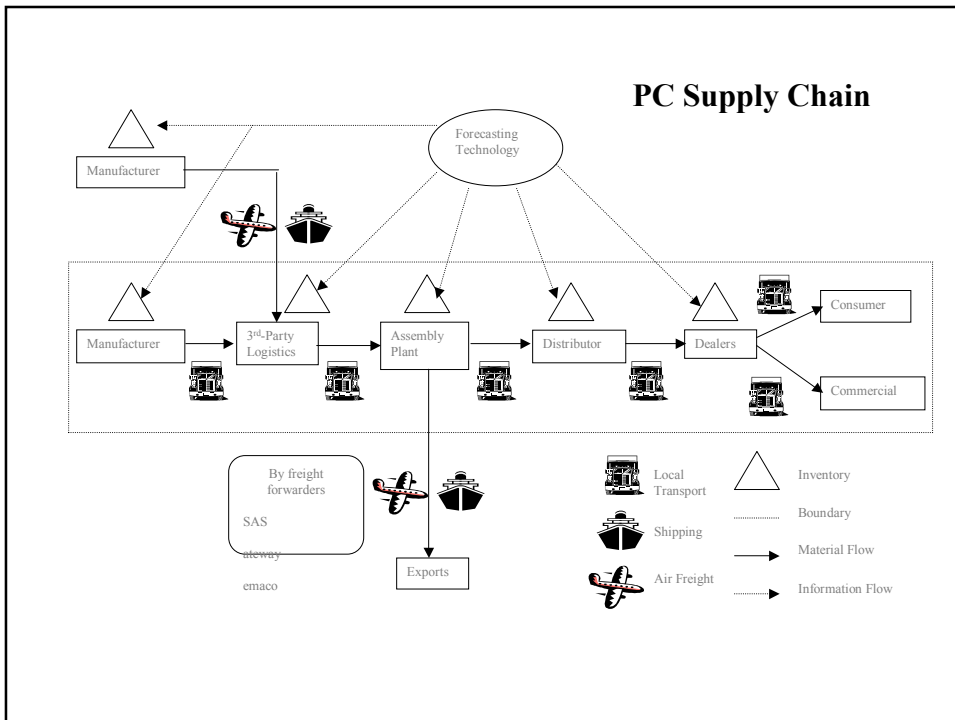
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Outline

- PC manufacturing
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- Build-to-order
- Dell-An Integrated Network
- Customer Facing Processes
- www.dell.com



Key Players In The PC Supply Chain

- *Component Manufacturers:*
 - The suppliers of high-tech components, such as **microprocessors and software provided by firms such as Intel and Microsoft**, and the low-tech, low-differentiation components manufacturers who compete on prices and availability.
- *OEMs:*
 - The OEMs traditionally would receive all the parts from their suppliers, assemble the computers in their production lines and ship them over to their distributors, or Corporate resellers.
 - It is a **build-to-inventory system** with high costs associated with carrying the inventory, which includes financing costs and the obsolescence costs of computers not sold through the channel.

Key Players In The PC Supply Chain

- *Distributors*
 - They generally supply to corporate resellers and other distributors.
 - They carry large quantities of different products, to increase their leverage when dealing with their customers.
 - They also provide specific software, peripherals, furniture, etc, as well as service.
 - **Ingram Micro, Tech Data, Computer 2000, and Santech .**
- *Corporate resellers/System Integrators*
 - The corporate resellers or systems integrators generally buy systems directly from manufacturers and install these systems at their corporate clients.
 - These are firms whose main purpose is to provide **customization to their clients**. They normally integrate software, hardware, and network capabilities on a per-customer basis and offer customer service after the installation as well as support for posterior updates

Key Players In The PC Supply Chain

- *Retailers*
 - These are essentially the stores that sell computers to the end users. The end users are home or small office users .
 - The stores tend to supply other products, such as furniture, peripherals, and stationery.
 - Wal-Mart, Office Max, Computer City, CompUSA and Micro-Center are some of the examples.

Order Fulfillment Policies

Categories of Order Fulfillment

- Make-to-Stock
- Make-to-Order
- Build-to-Order
- Configure-to-Order

Traditional industry types

- BTO Intensive

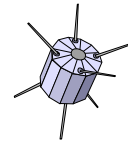
- Airplanes, Ships, Custom Furniture, etc.



- Low volume

- Long manufacturing time

- Custom Products



- MTS Intensive

- Computers, Furniture, Electronics, etc.



- High volume

- Shorter manufacturing time

- “Generic” products



Direct Model vs Indirect Model

- Direct Model:

- The OEMs supply computers after receiving orders through their Web site or through phone calls. Direct sales force also calls on corporate customers.

- Dell has 80% of its sales volume to corporates and 20% to individual consumers. Dell holds very small final product inventory, forcing suppliers to keep bulk of its parts inventory on their sites.

- Dell, Gateway, Micron

Problems in Indirect Channel

- *Price Protection*: The manufacturers, such as Compaq, IBM and others, incur huge costs to guarantee price levels to the channel, through rebates and markdowns to stimulate the channel to carry inventory and to cover obsolescence costs in the channel that are considerable. This represents \$75 million across the industry on a monthly basis for price protection and \$70 million for obsolescence costs.
- *Multiple Touch Assembly*: Purchasers frequently ask for customization of the PCs after assembly incurring in more costs for the retailers, or whoever is performing the assembly, causing frequent damages, returns, additional waiting time in the channel and a need for experienced service.

Indirect supply channel

- *Inventory Financing Costs*: High costs associated to financing the operations, with parts producers financing OEMs, which finance the distributors and so on and on as you move upwards the channel. These financing might come as stretched accounts receivables or loans. An additional cost is the cost of the money attached to the inventory stocked by the different players. This represents US\$ 95 million across the industry in a monthly basis.
- *Price*: Companies such as Dell using the direct model normally have around 20% cost advantage over the other companies using the indirect one. These price advantages are often passed over to the customer.
- *Customization*: Fewer combinations are allowed in order to control the proliferation of SKUs.

Advantages of the Indirect Model

- 1 *Service*: More and more customers are demanding services and maintenance capabilities for their purchases. Since the indirect model is spread throughout the country, it becomes easier for the indirect manufacturers to provide support through the channel than for companies such as Dell, which have to rely on a costly sales and support force or subcontract players of the indirect channel to do so.
- 2 *Value-added services*: Some consumers are requiring more services other than maintenance, such as constant upgrades, asset management, constant visits, etc, which are more easily performed by the members of the indirect channel.

Current Initiatives Taken by Manufacturers

- In response to the disadvantages of the indirect model, manufacturers and the other channel players have focused on shifting away from Build-to-Forecast to Build-to-Order (BTO) and **Channel Assembly programs** (CTO). This is a shift to delivering more customized lower-cost products more quickly to the customer

Channel Assembly

- Upon receipt of an order, OEM's ship "base units" or kits with a variety of components to a reseller or a distributor. These then assemble and modify the machines to conform to the customer's specification.
- This system requires that the resellers and the distributors have the **capability for light assembly** and that the products they produce are **certified by the OEM for quality and warranty protection**.
- Manufacturers have systems to handle component level deliveries and have the capability to forecast demand at the component level.

Channel Assembly: Merits

- *Improve fulfillment.* Building a machine after order receipt, ensures that a customer will get the product of his choice, eliminates the cost of stock-outs and provides better information to the OEM as to which machines are selling which helps him in forecasting future demand.
- *Reduction in the cost of obsolescence:* In the old system, when manufacturers shipped pre-configured machines, the obsolescence of one component affected the value of the entire machine. In the Channel Assembly model, the obsolescence of one component does not affect the value of accompanying components.

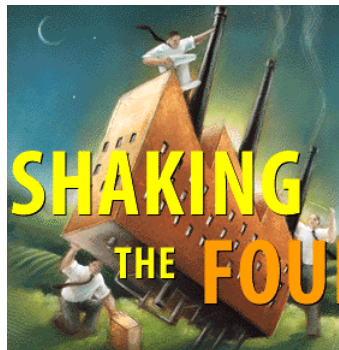
MTS or BTO ?

- Both BTO and MTS in optimum strategy
 - BTO because
 - The cumulative effect of production, inventory and transportation made it cheaper
 - Obsolescence rates and costs very high
 - MTS because
 - Slow moving products with high demand variability
 - Unacceptable delivery times with BTO

Dell Online



Michael Dell
Dell CEO



Dell Online

- In July 1996 Dell computers launched its online website www.dell.com
- Industry analysts agree that Dell Online is an innovation and is a huge success story, just as Dell Direct a decade ago
- Millions of people visit the website each week and generate millions of dollars revenue.
- Dell's business model is to let the customer configure the product on the web and fulfill within 36 hours.
- Customers can check the order status and also get the technical help online.

The Dell Direct Model

- PC manufacturers generally use the indirect sales channel
 - The distributors or resellers purchase the PCs from the manufacturer and distribute them to corporate customers after customization
 - Retail chains sell to the consumers
- Dell's direct model is based on direct sales to the consumers as well as corporate customers over the phone and the Internet

Direct Model: Characteristics

- The Dell model is characterized by
 - focus on specific market segments
 - high velocity-low cost distribution
 - **build-to-order** and direct-to-customer relationships
 - JIT manufacturing and strong **supplier management**
 - Minimum Inventory (13 days): Allows sooner introduction of new products
 - Service and repair through telephone and third parties.
- Each customer order may be unique in terms of manufacturing, procurement, packaging, and logistics requirements.

Direct Model: Advantages

- Direct model has several key advantages
 - By eliminating the intermediaries, Dell reduced the channel costs from 13.5%-15.5% to 2% of product revenue.
 - Every Dell system is BTO and so customers get what they ask for.
 - Dell used the customer knowledge for tailoring the service and also to forecast the future
 - Latest technology is used in products since inventory carried is small

Dell-An Integrated Network

Dell is an Integrated Network

- Dell uses the Internet to achieve high degree of coordination
 - Suppliers are told exactly what the daily requirements are and are asked to make door delivery.
 - It is not, every week deliver wxyz to this warehouse, put it in the shelves and take them of again to send it to the factory.
 - Most of Dell's suppliers are less than 20 min away
 - Suppliers assign engineers to Dell's design teams and these are stationed in Dell plants
 - Trust is **cemented by Internet**. Suppliers have real time sales data.
- Dell essentially operates likes a **private exchange**

Dell is an Integrated Enterprise

- Dell works with customers and suppliers to determine the right levels of component inventory.
- Data on margins, selling price, and overhead are tracked closely by customer segment, by product and by geography
 - This way company is aware of problems with the mix of products sold to a country or segment
 - Dell does analysis with components defects and helps the supplier with the product or process redesign
 - Dell works with fewer suppliers (47 in 1997)

Dell keeps no Inventory

- Every PC manufactured by Dell is **configured to order**, the facility has no warehouse space, no inventory other than WIP.
- Components arrive in a JIT mode through factory cargo doors, Manufacturing is synchronized to avoid any inventory.
- Finished goods are taken out of factory doors as soon as built.
- Dell focuses on reducing inventory levels and increase speed.
 - It trusts Sony to provide high quality monitors and these are shipped direct to the customer
 - Dell trusts UPS and Caliber to manage the logistics so the PC coming from Round Rock and the Monitor coming from Mexico are **merged in transit**.

Customer Facing Processes

Customer Service

- Dell places strong emphasis on service and support.
 - Employs 1300 technical service personnel accessible 24hrs
 - System identifiers used in manufacturing become post-sales Ids and system configuration displayed on service reps screens when customer calls
 - Dell employs Third Party Maintenance providers such as Wang, Unisys, Decision one consulting,.. for on-site support
 - Dell is accountable for customer service

Customer Service

- Dell provides telephone support for customers for trouble shooting their systems
 - Maintenance Engineers are given access to
 - Information on the customer's past purchases
 - Knowledge base of known problems and fixes for Dell's and third party hardware and software products
 - Processes for handling returns, exchanges and spare part shipments
 - Third parties are called for on-site service
 - The infrastructure
 - Customer and their purchase information
 - Help desk knowledge bases
- gave Dell a lead to move to Internet

Customers and Segmentation

- Two kinds of customer segments
 - Transactional customers (30%)
 - Relationship customers (40%)
 - Remaining are a mix (30%)
- The customer segmentation drives the organizational structure of the company
- Dell targeted customer segments where the revenues grow faster than expenses.

Transactional Customers

- These are consumers or small businesses who make transaction-by-transaction buying decisions.
 - They focus on **economics of purchase** and look for factors such as **performance and features**.
 - They shop from a variety of vendors and use an array of information sources including reviews, editorials, word of mouth in making their purchasing decision.
- Dell focuses on computer literate customers.
- First time buyers look for low prices and help from sales person.

Relationship Customers

- These are consumers who treat computer purchases as **Total cost of ownership** over the life cycle of its use and price is a secondary consideration
 - They focus on attributes such as service, reliability, vendor reputation and product standardization
 - They are the govt. education and business accounts.
- Dell competes with resellers such as IBM, HP, Compaq etc in this segment
- Dell competes by being a being more than a hardware vendor driving down the total cost of ownership with Dell Plus and Dell financial services
- Dell has 25% of fortune 500 companies as exclusive accounts and is fast penetrating into small and medium segments.

Segmentation

- Dell let its competitors introduce the low-margin PCs for first time users and targets Consumers who are buying the second and third machines and who require less hand-holding.
- Dell cuts its market into finer and finer segments
 - Large, medium, small companies, Higher Educational Institutions,...
 - Platinum (> \$10 million), Gold (\$ 5-10 million)
- Platinum councils

Demand Management

- Dells close relationship with its customers improves the demand forecasts.
 - Tries to understand the future computing needs of large accounts by jointly planning the company infrastructure and discussing their needs.
 - With transaction accounts the sales reps will steer the accounts towards product configurations that are readily available.
- This customer information allows Dell to inform their suppliers the production schedules

www.dell.com

WWW.Dell.com

- Internet commerce is a natural and logical extension of Dell direct and proved to be more efficient.
- Costs of configuration, ordering, tracking, and support went down by 15%
 - Dell used to mail catalogues to prospective buyers. On the average 10% of these lead to sales calls and 20% of this number resulted in actual sales.
 - 0.5% of site visits resulted in actual sales and 5% in phone calls.
 - Calls from web customers were shorter and more productive
 - More than 65% phone calls are regarding the status of shipments and these are now shifted to the website.
 - Dell's web based technical support also resulted in savings
- Dell designed customized websites called Dell Premier pages for all its corporate customers.

WWW.Dell.com

- Dell moved all day to day information to the Intranet.
- Using extranets information is given to both customers and suppliers.
- Dell thus became a virtually integrated enterprise– an organization linked by information using a private exchange.

Dell is a manufacturing enterprise with coordinated relationships with suppliers, vendors and maintenance providers

Why are other companies not succeeding?

- With the success of Dell many other PC firms are moving to the Internet BTO model.
- Compaq announced a new BTO model and shipping direct to customer. Compaq was overwhelmed by channel conflict and product diversity.
- IBM and HP have outsourced their PC assembly to their distributors
- The Dell like model did not work for any one.
- Companies good at indirect, can they be good at direct?.

Why Dell Succeeded with the Internet

- Dell is a prominent example of successful migration to the Internet—a success that is largely due to the company's ability to leverage pre-Internet capabilities.
- For Dell, the Internet was a sustaining force that improved upon its existing resources and processes.

Why Dell Succeeded with the Internet

- Small-to-medium size businesses and home computer users called 1-800-BUY-DELL, where trained sales representatives helped them understand the company's products and assess the compatibility of the components that they wanted.
- When the customer had arrived at a compatible system configuration, the sales representative entered the order into the company's IT system.

Why Dell Succeeded with the Internet

- By building a telephone-ordering infrastructure for its transaction clients, Dell had already invested in **capabilities and processes** that fit the **self-help** Internet model.
- Internet further reinforced the processes and values inherent in Dell-direct business model.
 - The customer can get all the information on the web and make good purchase choices and seek the help of a sales person if needed.
 - Dell's website offers hundreds of thousands of pages service and support information along with hundreds of trouble shooting scenarios
- There is no channel conflict

Companies disrupted by Internet

- Compaq is a compelling example of such an organization.
- Compaq's existing processes, such as its
 - **heavy reliance on distributors, resellers and retail chains**were incompatible with the processes involved in Internet retailing.
- Internet retailing involves tailoring orders for individual customers, dealing with the logistics of lean production techniques, and shipping direct-to-customers.

Compaq

- Conducted its sales mainly through 44,000 distributors, resellers, and retail chains.
- Compaq attempted to launch an online catalog in 1993, but resistance from its retail channel was so fierce that the company withdrew from the effort.
- Unlike Dell, Compaq's processes and values were not compatible with those required to do business successfully on the Internet.
 - The result: Compaq has been unable to establish a viable online sales presence
- As consumers have turned increasingly to ordering customized systems thru the Internet, the company suffered .

Take-Aways

- Direct-to-customer model gives you demand information which you can use for managing production.
- Seamless multi-mode interaction with customers via web, telephone, fax,.. Is what customers want
- Easy experience in configuring products on the web, tracking them till delivery and finally in trouble shooting and repair
- Design separate website for premier customers and integrate it into their intranet

The Future

- Dells model looks surprisingly simple.
- Behind this simple model is the complex hard to imitate core capabilities developed over 15 years.
 - Company has never done an acquisition choosing virtual approach instead.
- Internet is the nail in the indirect coffin
- CTO is now a catch word for other products such as Cars.