

Customer Fulfillment in the Digital Economy

Ford

Automotive clicks-and-mortar revolutionary

“There’s a revolution underway in the automotive industry—and the consumer is driving it. Ford intends to stay on the cutting edge and be the global on-line leader.”

—Jacques Nasser,
CEO, Ford Motor Company

“We have to figure out how to be part of a value chain that delivers a car in two to three days. The implication is if you’re not prepared to do that, Ford will find someone else.”

—Dugald Campbell,
CEO, Tower Automotive Inc.

“Ford benefits [from the build-to-order initiative] because it will no longer build 50,000 red Tauruses that nobody wants.”

—Sheldon Sandler,
CEO, Bel Air Partners
(a firm that advises publicly traded auto-dealers)

 DIGITAL 4SIGHT
360 Adelaide Street W, 4th Floor
Toronto, Ontario, Canada M5V 1R7
Tel 416.979.7899. Fax 416.979-7616
www.digital4sight.com

Scorecard

B-web type

- ValueChain/Agora/Aggregation Hybrid

KEY PARTICIPANTS

Customers

- Individual car buyers and users of post-sale value-added services
- Fleet buyers

Context providers

- ford.com
- Ford dealers
- Brokers such as MSN CarPoint, Autobytel, Priceline and Yahoo

Content providers

- Ford
- Ford suppliers
- Vendor neutral online auto-brokers such as MSN Car Point, Autobytel and CarsDirect
- Yahoo!

Commerce services

- Ford and its dealer network
- Online auto brokers such as CarsDirect.com
- Ryder Logistics and other supply-side third party logistics (3PL) providers

Infrastructure providers

- Ford and its dealer network
- Ford suppliers
- Technology vendors (Oracle, Microsoft)
- 3PLs

Offering

- Automotive products and services

CFN value proposition

- Convenience, lower search costs, mass customized vehicles, and value-added services over the life cycle of vehicle ownership

URL

- <http://www.ford.com>

Ford

Ford is transforming itself from a legacy auto manufacturer into the world's largest provider of automotive products and services. Ford has always had a clear mandate: make and sell vehicles. The company required huge investments to generate meager returns. The Internet, however, has rendered the value chain transparent and turned the industry on its head.

Most bricks-and-mortar companies find the Internet intimidating and therefore avoid it. Ford, however, wants to exploit the Internet for competitive advantage by using it as a giant pipeline (a virtual value-chain or customer fulfillment network[CFN]) that will synchronize customer demand signals with real-time inventory information from its suppliers. By leveraging knowledge of customer needs, Ford is "rewiring its brains" and extending its CFN across its business web (b-web), from the customer and the dealer, to its tier three suppliers upstream, to create and deliver customized products and value-added services to the customer, beyond the initial sale. As well, creating an internetworked automotive marketplace (AutoXchange) that seamlessly integrates suppliers, trading partners, and third party logistics (3PL) providers with Ford's supply chain, engineering, and manufacturing, will enhance efficiency, time-to-market, and cash-to-cash cycles, and cut interaction, inventory, and working capital costs. New CEO Jacques Nasser is leading the company's metamorphosis from product-centric manufacturer to clicks-and-mortar customer-centric automotive solutions provider.

Business context

Vehicle manufacturing, a competitive, low margin, cyclical business, is highly susceptible to economic downturns. During the boom market of 1998, Original Equipment Manufacturer (OEM) net margins remained below 5%, primarily due to chronic industry over-capacity and commoditization of the car.⁴ Vehicle manufacturers worldwide can build 20 million more cars and trucks than they can sell every year.⁵ Commoditization occurred because no one understood precisely what the customer wanted: product lines have been near replicas of one another, which has led to severe price erosion for all but the most innovative vehicles.

The Big Three auto-makers are now repositioning themselves (figure 1) as transportation solutions providers, outsourcing as much manufacturing as possible to tier one⁶ suppliers. This repositioning involves a shift in strategic mindset from return-on-fixed-assets (ROFA) to return-on-vehicle-ownership (ROVO).⁷ The former is a legacy manufacturer mindset: product-centric, build-to-stock, obsessed with capacity

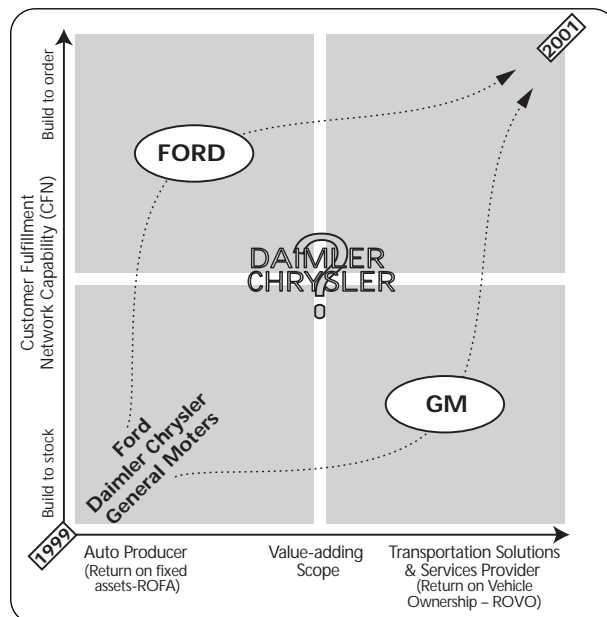


Figure 1. Strategic Repositioning: The Big-Three Automakers.⁸

and asset utilization. The latter is a more customer-centric, "sense and respond" perspective: offer the customer value-added and margin-rich services for the duration of vehicle ownership.

The strategic repositioning map above shows that while GM is moving aggressively to enhance its offering of value-added services with Onstar (a suite of satellite and wireless enabled services), Ford is driving towards a build-to-order CFN capability and a value-added solutions provider (high ROVO) position.⁹ The strategy mirrors the aggressive e-business transformation underway at Ford. Daimler Chrysler's e-business plans remain well-kept secrets.

Traditionally, the franchise dealer has been the sole contact point for the customer. Limited selection, pressure selling, and price haggling characterized the car buying experience. Dealers have controlled—typically quite poorly—customer relationships and customer data, and manufacturers had limited ability to analyze customer trends.¹⁰ Auto-infomediaries (Web-brokers) such as MSN Carpoint, Autobytel, and CarsDirect are empowering customers by giving them vendor-neutral information, increased control in the buying process, pricing information, 24/7 shopping convenience, and lower search costs.

Figure 2 illustrates the importance of vendor-neutrality for building a critical mass of e-customers. In addition to its vendor-specific business-to-customer (B2C) ford.com and business-to-business (B2B) AutoXchange initiatives (detailed in the following section), Ford has

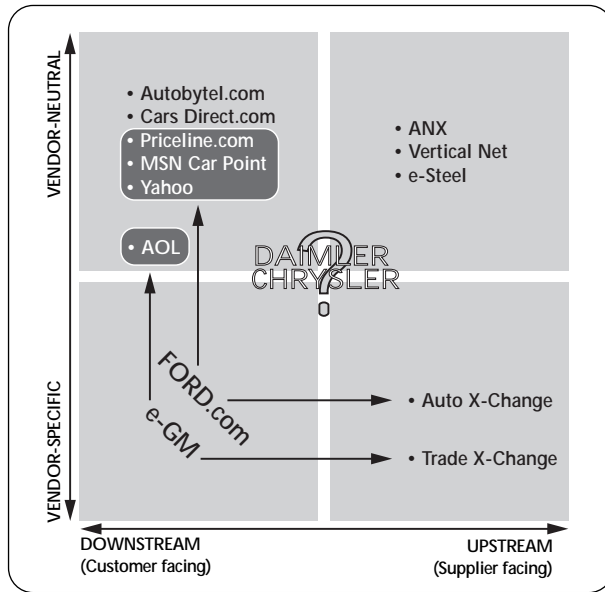


Figure 2. Big Three Automakers: vendor-neutral versus vendor-specific e-business initiatives.¹¹

aligned itself with vendor-neutral infomediaries like Microsoft’s Carpoint and, more recently, Priceline and Yahoo! (for content). GM’s e-GM (B2C) and TradeXchange (B2B) initiatives are largely vendor-specific (except for the e-GM/AOL alliance announced in January 2000), and Daimler Chrysler has not yet clearly articulated its B2B and B2C strategies.

For the first time, the Internet empowers auto manufacturers to communicate directly with the customer. Understanding the customer improves value-creation: customer data helps tailor customized offerings and improve the base product. Proprietary (vendor-specific; e.g. ford.com) sites gather useful information but only in a Ford-centric context; more valuable “information exhaust” (customer buying patterns and demographic/psychographic data) will come from Carpoint, Priceline and Yahoo!. Ford holds an equity stake in Carpoint.com but has no direct influence on the site, which will remain vendor neutral under the Microsoft brand (this neutrality is vital to customer perceptions of the site’s integrity). Ford receives rich, unfiltered data on the new breed of e-customers, which will allow it to create tailored offerings.

The Web-enabled manufacturer-customer connection threatens the existence of dealerships; smarter dealers are re-positioning themselves for e-commerce through relationships with numerous Web-brokers like Autobytel and CarsDirect. Others are fighting change as hard as they can, using the law to protect the status quo.¹² Theirs is probably a losing battle: in the digital economy, you either create value or perish.

Value proposition

CEO Jacques Nasser wants to make Ford “the world’s leading consumer company that provides automotive products and services.”¹³ Digital 4Sight believes that Ford’s value proposition is evolving from “making and selling cars” to “providing high quality customized transportation solutions over the lifecycle of vehicle ownership.” A customer buying a \$20,000 car generates about \$68,000 in total spending (calculated over a 10 year, 100,000 km life cycle of ownership), including purchase, parts, maintenance, gas, and insurance,¹⁴ and over \$300,000 over the customer’s lifetime if repeat vehicle purchases are factored in.¹⁵ Under Nasser, Ford wants to position itself to capture the margin-rich revenues beyond the vehicle purchase and enhance its return on vehicle-ownership (ROVO).

Ford is giving customers access to information on their terms. The company recognizes that some mechanism must always be in place for service, test drives, and human contact, and wants to re-orient its dealers from inventory carriers to “partners in customer relationship management and delivery of value-added services.”¹⁶

To bridge the physical and virtual world, Ford is piloting a project in the Atlanta region where customer can deal directly with company representatives via telephone or Internet.¹⁷ Using buyerconnection.com, customers can choose options and packages to customize vehicles. If they decide to order, they can get a quick quote from a local dealer, secure financing and delivery, and sign-up for extended service contracts and insurance (a co-branded offering from Hartford Insurance). The suite of after-market value-added services such as in-vehicle communications and telematics will also involve the dealer as “service partner,” with higher margins as incentive. Ford is also testing a “name your own price” initiative with Priceline.¹⁸

To extend its value proposition beyond the original sale, Ford has created a virtual community (ownerconnection.com) where owners can meet, update a maintenance schedule, and link directly to Hertz and other Ford services. iCollection.com offers a virtual mall where customers can shop for a variety of Ford products. Other community initiatives range from iVillage to Sesame Street to NASCAR.

Ford’s marketing strategy is consistent with its new value proposition. It was the first OEM to establish exclusive relationships with community sites (iVillage.com, Digital Entertainment Networks). iVillage, a portal exclusively for women, and Ford co-developed programming that focuses on three key areas: safety, preventative maintenance and repair, and financing. This site creates strong relationships with women, an audience OEMs have often ignored, and is a

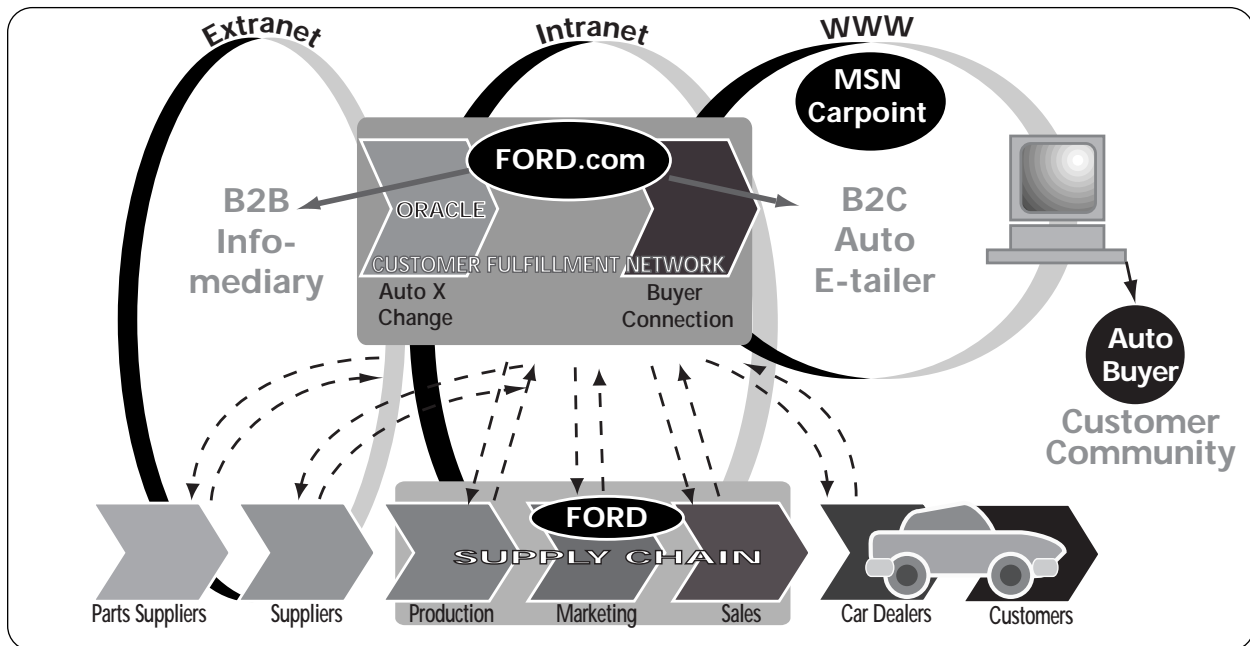


Figure 4. High-level schematic of Ford's Internet-enabled CFN (circa 2001).²⁷

valuable source of customer data. The new Ford Focus, which is targeted at young customers, offers an array of unique, customizable options to help customers “distinguish” themselves.¹⁹

The recently (January 2000) announced alliance with Yahoo! seeks to make information such as owner guides, recall notifications, and service reminders accessible to registered Ford owners on the Yahoo! and ownerconnection.com sites.²⁰ As well, the partnership aspires to stream Web content into the vehicle such that the Ford dashboard becomes an “information portal.” These initiatives seek to extend the relationship beyond the initial car purchase and transmit customer data across the b-web through an integrated CFN, to enhance the customer value proposition and reclaim brand identity.

CFN strategy

Ford is making the transition from an Industrial Economy vertically integrated manufacturer pushing cars to customers, to a hybrid b-web value chain comprising both mass production and value shops.²¹ The b-web strategy also reflects an interesting mix of e-business models (figure 4): B2C e-tailer (aggregation) at the customer-facing front end and B2B infomediary (agora)²² driving the automotive industry vertical marketplace at the supply end. The company's CFN strategy is comprehensive and premised on enabling an internetworked b-web that effectively matches the customer demand signal (“demand pull”) with inventory information from its three tiers of suppliers to:

- satisfy the customer;
- build and sustain a customer relationship over the lifecycle of vehicle ownership with margin-rich service enhanced solutions; and,
- create a \$30 billion de facto automotive marketplace that will add billions of dollars in margin-rich revenue streams.

Key factors that will drive value and ensure success of this CFN strategy are:

- **TRANSPARENCY ACROSS THE CFN** from the consumer through the dealer to the supplier's supplier, to orchestrate and sustain win-win technology-mediated b-web partnerships that create value for the customer and enhance participation, satisfaction, and loyalty
- **OPTIMIZING VENDOR-NEUTRAL INITIATIVES WITH FORD'S VENDOR-SPECIFIC ONES (FORD.COM)** such as alliances with Carpoint, Priceline and Yahoo!, to drive a critical mass of brand-agnostic e-customers that values vendor neutrality in its buying process
- **OPEN STANDARDS INDUSTRY INFRASTRUCTURE** in a spirit of coepetition to harness a critical mass of trading partners, suppliers, competitors, and 3PLs, to ensure inter-enterprise alignment with business objects, processes, architecture, and standards (e.g. XML)
- **BUSINESS INTELLIGENCE-ENABLED COLLABORATIVE ENGINEERING** resulting from mining and synchronizing the demand signal data with real-time inventory data (available-to-promise capabilities) from suppliers to not only deliver customized

products, but also create profitable demand (dynamic personalization) for value-added, at-sale and post-sale services, in real-time

- RELIABILITY, PORTABILITY, SCALABILITY, AND EASE OF USE of the mission-critical applications that will drive the CFN, to ensure robust 24/7 functionality in a very high volume environment

Business processes and applications

The CFN will integrate the customer relationship management (B2C demand chain) front end (ford.com, buyer, dealer and owner connection) with the B2B marketplace (AutoXchange) and Ford Supply Chain (the Ford Supplier Network—FSN, product design, development and manufacturing) at the back end. Ford's aspiration is to supplant and enhance current proprietary EDI-over-VANs (value-added networks like FSN) with end-to-end internetworking, to build a CFN that will integrate its b-web, extending all the way from the customer and the dealer, through Ford's manufacturing and product development, back to tier three suppliers. This CFN will render build-to-order (BTO) a reality at Ford.

Microsoft and Trilogy are the primary providers of applications for the front end (ford.com, buyer connection, and ownerconnection.com). Trilogy Software provides ford.com's applications for managing relationships between Ford, the dealer, and the customer.²³ Excaliber electronic filing software (supported by IBM RISC System/6000 workstation servers) sorts customer data compiled from various interfaces.

The recently announced AutoXchange will be powered by Oracle Exchange (Oracle's online e-business marketplace) and managed by Oracle.²⁴ AutoXchange will compete head-to-head with TradeXchange (launched by GM and Commerce One on the same day) for the status of largest open automotive e-marketplace in the world. Both the front end e-commerce applications and AutoXchange will be integrated with Ford's legacy IT, FSN and multiple ERP systems, including its proprietary manufacturing-oriented Common Materials Management System (CMMS), People Soft Financials, and SAP at Visteon.²⁵

The front-end customer-facing interface revolves around two main contact points: the Internet and dealerships (see figure 4).

Ford controls and runs its proprietary sites (ford.com, buyerconnection, ownerconnection), and focuses on functionality, ease-of-use, and integration. Consumers can conduct any Ford-related business through these integrated sites, including customizing automobiles (BTO) and placing orders. Ford has also announced an

alliance with Microsoft CarPoint²⁶ to aggregate and use vendor-neutral customer buying data for intelligent demand forecasting. Vendor-neutral sites like Carpoint and Priceline will also have BTO capabilities.

So how will AutoXchange (B2B) work with the e-commerce (B2C) front-end to drive the build-to-order (BTO) model? Here is a hypothesis:²⁸

AutoXchange (a joint venture with Oracle) will initially facilitate Ford's \$80 billion in procurement from its 30,000 suppliers and, eventually, the \$300 billion extended automotive marketplace.²⁹ Additional supply chain planning, inventory visibility software, and middleware from Oracle and other vendors will enhance AutoXchange with "collaborative engineering and supply chain intelligence capabilities," seamlessly integrating the customer-facing BTO configurator (ford.com and buyerconnection) with the product development, manufacturing, and JIT (just-in-time) supply capabilities at the back end (figure 4).³⁰ Ford's goal is to deliver a customized BTO vehicle to the customer through the nearest dealer in about 10–15 days (down from the current 45–60 days) and, once all the pieces are in place, in as little as two to three days.³¹

Customer buying and search data from the front end will be used not only for demand forecasting but also for complexity reduction (80% of BTO orders come from 20% of configurations like color, trim levels, etc.) in the auto-configurator for the BTO.³² As soon as an e-customer orders a BTO vehicle, its availability will be checked in real-time across dealer inventory, in-process inventory, and scheduled (production) order bank. If the car ordered is present in any one of the above, the available-to-promise (ATP) function will inform the customer of the delivery date from the nearest dealer.

If the car is not available in the pipeline, then order, demand, and inventory optimization will generate a bill of materials for yet-unscheduled production. Integrating the real-time inventory information across the three tiers of suppliers (and optimizing for material, manufacturing and transportation constraints through supply chain planning and inventory visibility software) will enable intelligent scheduling, planning, and ATP functionality that will inform the consumer in real-time of the expected delivery. As well, decision-support systems (DSS) intelligence will enable the customer to amend the BTO car configuration based on real-time incentives, subject to supplier capacity (e.g. if a certain class of wheel rims are unavailable, substituting ones in the supplier inventory could lower delivery cycle time by two or more days). A feature-agnostic customer may well prefer this option for faster delivery. According to Kevin Vasconi, chief technology officer, Customer Connect Group at Ford, BTO has been tested

in a laboratory environment and will be ready for roll out in 2000. The challenge is to integrate current legacy, EDI and client-server based systems (e.g. ERP and FSN) with the end-to-end TCP/IP-based internetworked architecture for the CFN, and migrate mission-critical applications provide the level of supply chain intelligence that will enable BTO, as explained above.

B-web organization

Ford has four main businesses: Automotive, Ford Credit, Visteon, and Hertz (figure 3c). Automotive accounts for 75% of revenues and 70% of profits. Ford is changing its organizational structure by creating more customer-centric strategic units so that it can effectively manage all points of customer contact.

As part of its B2C strategy, Ford is initiating a comprehensive training program for its dealers in early 2000. The program will train dealers to handle e-customers through a new sales process, and also help them build dealer Web sites which seamlessly link with ford.com and buyerconnection.com.

At the back end, the B2B initiative to bring suppliers on board AutoXchange and “plug them in” electronically to its CFN for JIT b-web relationships that will enable the BTO model, is imperative. Ford’s suppliers benefit from participating in Ford’s CFN and AutoXchange: not only do they drive a closer, more transparent and significantly more cost effective (from eliminating paper-based transactions and significantly reducing inventory buffers) relationship with Ford, but they also allow suppliers to conduct business seamlessly with other players in the automotive industry. AutoXchange will be spun off as a separate profit center in 2000 and is expected to generate significant margin-rich revenue streams for the company.

A global organization will be in place for product development, quality assessment, manufacturing, marketing, purchasing, and other functional organizations. Optimized effectively, these will combine the economies of scale of production and purchasing with a nimble customer-focused decision making structure: the ultimate clicks-and-mortar model.

Ford must ensure that performance rewards harness and drive the customer-centric focus and behavior it is trying to leverage. If it evaluates performance solely along business/functional lines, the customer-centric organization may deteriorate into competitive “silos,” which could be fatal for the new e-business paradigm.

Key Lessons

Ford’s strategy in the new millennium, as articulated by Jaques Nasser, comprises three elements:³³

- Continue to improve the base business (automotive products and services)
- Transform the business for e-commerce and offer customized, value-added solutions
- Grow the business with high margin revenue streams that enhance the market cap.

Ford’s holistic and comprehensive e-business strategy epitomizes its new customer-centric paradigm:

- A B2C strategy endeavors to integrate Ford’s dealerships with ford.com to enhance the buying experience. Ford will re-orient dealers from inventory carriers to its de facto “customer relationship managers.” The company is empowering customers to customize their vehicles and will build the car to order (if not available in the distribution pipeline) for delivery from the nearest dealer within two weeks.
- A B2B strategy commences with e-procurement (AutoXchange) and will evolve into a comprehensive end-to-end Internet-enabled CFN once integrated with the front end and endowed with “intelligence capabilities” as discussed. Once implemented, this will integrate customers and dealers downstream in the value chain with Ford’s constellation of tier 1, 2, and 3 suppliers, upstream manufacturing, and product development, to make the BTO model a reality.

Although Ford has led the automotive industry into e-business, success depends on effective execution of its articulated vision and strategy. Transforming a behemoth like Ford with its “cultural baggage of mass production” is fraught with challenges and threats. Daimler-Chrysler, for instance, could join GM’s TradeXchange and render Ford’s AutoXchange impotent. A vendor-neutral site such as CarPoint, Autobytel, or the Michael Dell-backed CarsDirect could partner with a tier one automotive supplier like Magna for instance, to produce its own brand of car that could be serviced by the Midas chain. Agile competitors like Toyota or Honda, with their extremely efficient supply chains, could orchestrate a more efficient Web-enabled BTO model and a suite of value-added service offerings that could undermine Ford’s efforts.

Under Nasser, Ford is leading the industry in orchestrating a winning b-web of partners. Operational benefits like higher inventory turns, lower inventory,

and higher cash flow aside, successful transformation into an e-business-ready automotive solutions provider will place Ford in the driver's seat in the new millennium.

Key Performance Indicators:
Refer to Table 1 & Figures 3a through 3d

- Ford is the number one ranked OEM website by Media Metrix
- In 1998, average daily inventory was four percent of average daily sales (figure 3a), and Ford had 17 days of inventory (half that of the competition) and turned inventory over 21 times, twice as much as GM and DCX³⁴
- With \$144.4 billion in revenues and \$5.9 billion in net earnings in 1998 (figure 3b), Ford is the most profitable of the Big Three, and is on track to surpass GM in 2001 to become the world's biggest auto-maker³⁵
- While returns on sales from manufacturing (Ford automotive and Visteon, a Ford subsidiary) are about

four percent (figure 3c), earnings from Ford Credit and Hertz are higher (around 5.8 and 7.5% respectively). Ford is offering value-added services to enhance margins as part of its new ROVO strategy.

- In addition to running more efficient, lean, and cost-effective supply chain and operations (as evidenced by the above), Ford, in 1998, also had the highest returns-on-capital-invested (ROCE) of the big three (13.8% [figure 3d]) and added the most economic value (EVA): \$2.55 billion versus the competition (figure 3d). This is significant because successful implementation of an integrated end-to-end CFN will further enhance revenues, drive out interaction and inventory costs, and accelerate cash-to-cash cycles. Value-added customer services and revenue streams from AutoXchange will further enhance profit margins. This could enable Ford to further augment its EVA in 1999-2000, triggering possible increments in its market capitalization versus GM and Daimler Chrysler.

—Arindam (Andy) Dé and Denis Hancock

	FORD	GM	DCX
Revenues in \$ billions (1998)	\$144.42	\$161.32	\$154.62
Market cap. in \$ billion (November 1999)	\$65.68	\$52.52	\$71.12
Return on sales (1998)	4.2%	1.8%	3.7%
Inventory turnover (1998)	21	11	9
Days in inventory (1998)	17	34	42
Inventory per dollar of sales (1998)	\$0.04	\$0.08	\$0.09
Return-on-capital invested (ROCE) (1998)	13.8%	2.0%	10.1%
Weighted-ave. cost-of-capital (1998)	9.5%	9.4%	7.1%
Economic value added (EVA) in \$ billions (1998)	\$2.55	(\$5.50)	\$2.31
<i>Ratio Analysis based on P&L and Balance Sheet figures sourced from www.hoovers.com</i>			
<i>ROCE WACC and EVA data sourced from Stern Stewart and Company</i>			

Table 1. Big Three Auto-makers: Comparison of 1998 Operational Performance.³⁶

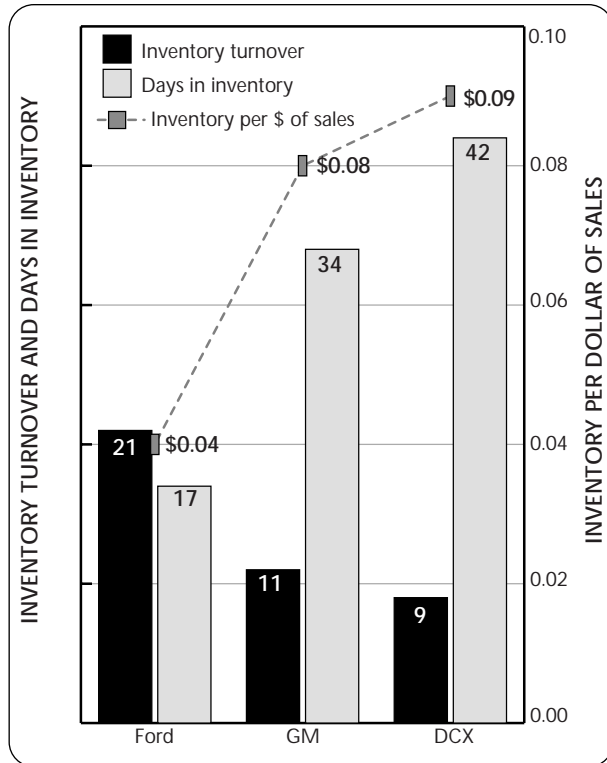


Figure 3a. Inventory turnover, days in inventory & inventory per dollar of sales (1998).³⁷

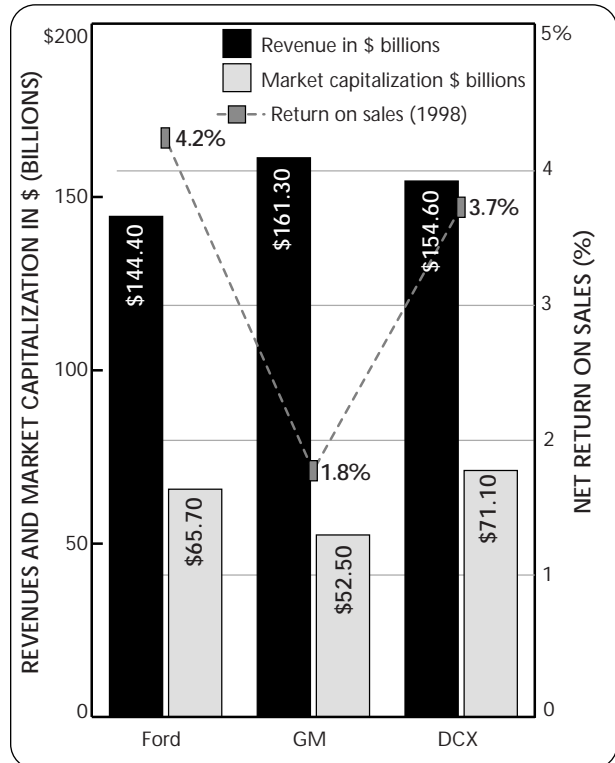


Figure 3b. Big three: revenues (1998), return-on-sales (1998) and market cap. (November 1999).³⁸

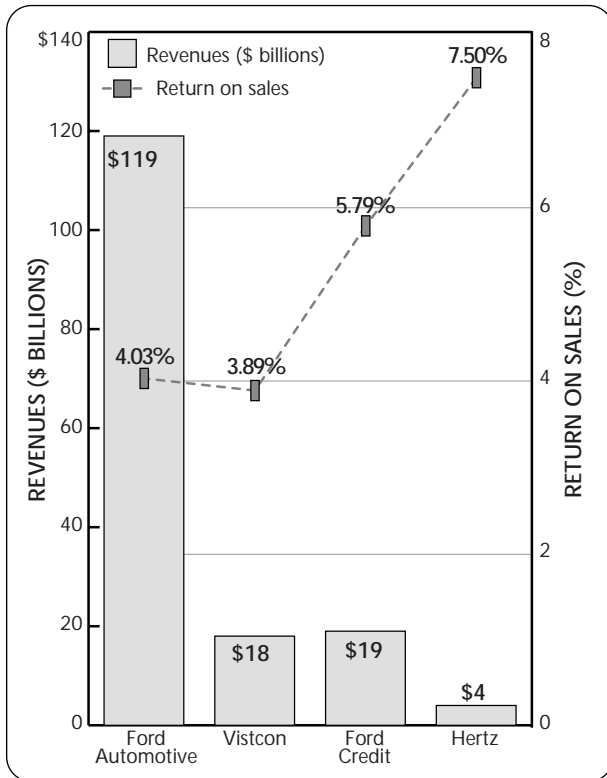


Figure 3c. Ford's portfolio of businesses: Return on sales (1998).³⁹

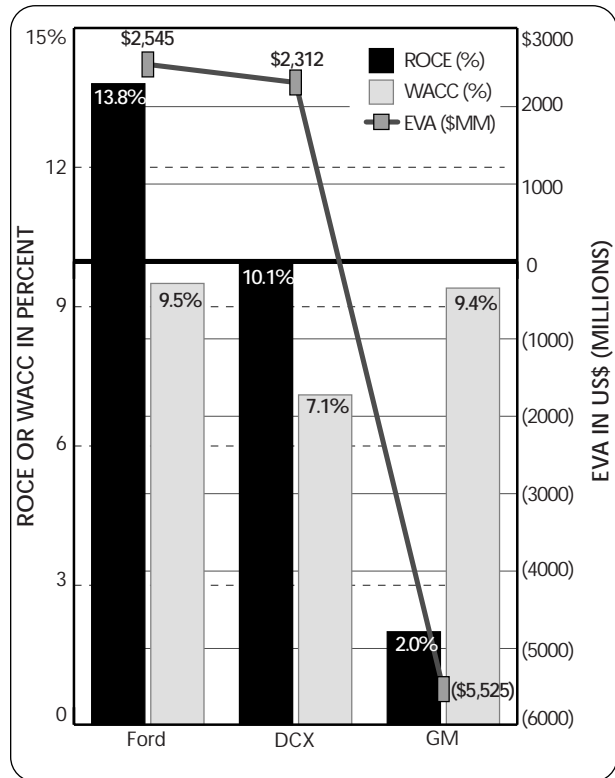


Figure 3d. Value creation by the Big Three: ROCE, WACC and EVA (1998).⁴⁰

1. Greg Gardner, "Microsoft joint venture helps Ford cut out the middle men," *The Detroit News*, 21 September 1999.
2. As cited by Alorie Gilbert, "Exchanges Get Into Gear" *www.informationweek.com*, issue 760, 8 November 1999. Tower Automotive is a \$1.8 billion dollar supplier for Ford Motor Company.
3. Greg Gardner, op. cit.
4. "It's all about the commodization of the car. As people become more and more price sensitive, we can say 'here's the commodity price: pay it today'" —CarsDirect CEO Scott Painter in "Shifting Gears" by Alex Lash, *The Industry Standard*, 24 September 1999.
5. Kathleen Kerwin and Keith Naughton, "Remaking Ford," *Business Week*, 11 October 1999.
6. Currently, the American auto industry has three tiers of suppliers: tier one suppliers like Magna produce sub-assemblies and modules, while tier two and three suppliers produce/supply less critical components and parts.
7. Return-on-vehicle-ownership (ROVO) was coined by Digital 4Sight as part of a strategic study of the Automotive industry.
8. Digital 4Sight rendition based on research and analysis of e-business strategies in the automotive industry.
9. Digital 4Sight analysis as part of research into the e-business landscape in the auto industry.
10. Digital 4Sight interview with Teri Takai, Director, Supply Chain Strategy, Ford Motor Company, 16 June 1999.
11. Digital 4Sight automotive e-business strategy analysis.
12. According to North American Dealers Association, 39 states protect dealers by not allowing manufacturers to own dealerships. As seen in "Shifting Gears" by Alex Lash, *The Industry Standard*, 24 September 1999.
13. Ford Vision and Strategy Pyramid, 1998 Annual Report.
14. Kathleen Kerwin and Keith Naughton, op. cit.
15. As cited by Julie Landry in "Car makers put pedals to the metal", *Redherring.com*, 11 January 2000, URL: <http://www.redherring.com/insider/2000/0111/news-gmford.html>.
16. Digital 4Sight interview with Teri Takai, Director, Supply Chain Strategy, Ford Motor Company, 16 June 1999.
17. Lincoln Mercury press release "Lincoln Mercury Targets Southern Surfers Personal Consultants provide human touch to online auto shopping," as seen on www.prnewswire.com.
18. Ford Motor Company press release, 15 November 1999, as seen at www.hoovers.com.
19. "We don't believe in the one-size-fits-all theory. Young people really define themselves, and they don't conform to the masses. So we need to be able to offer them alternatives and a choice." Julie Roehm, Ford Focus brand manager, in Ford press release "Express Yourself: Designing Your Ford Focus Dream Car." Options include "pet packages," customizable steering wheels and a bevy of other options.
20. Julie Landry, op. cit.
21. Based on Digital 4Sight terminology on value chain b-webs from *Digital Capital-Harnessing the Power of B-webs*, (forthcoming from Harvard Business School Press, May 2000).
22. B-web typology, Digital 4Sight, ibid.
23. Ford Motor Company press release, "Ford Connecting to Consumers Via E-business," 15 September 1999, as seen on www.prnewswire.com
24. Oracle press release, "Ford and Oracle to create multi-billion dollar business-to-business Internet venture," 2 November 1999.
25. Interview with Kevin Vasconi, Chief Technology Officer, Customer Connect Group, Ford Motor Company, 14 January 2000.
26. Greg Gardner, op. cit.
27. Digital 4Sight rendition based on research and analysis of Ford's e-business and supply chain strategy.
28. Kevin Vasconi, op. cit.
29. Alorie Gilbert, "Exchanges get into gear," *Informationweek*, 8 November 1999.
30. Oracle press release, op. cit.
31. Kathleen Kerwin and Keith Naughton, op. cit.
32. Kevin Vasconi, op. cit.
33. Ford Strategy pyramid, as seen in Ford Motor Company 1998 Annual Report.
34. Financial ratio analysis based on P&L and Balance Sheet data reported on www.hoovers.com.
35. Kathleen Kerwin and Keith Naughton, op. cit.
36. Digital 4Sight Financial Ratio analysis based on P&L and Balance Sheet numbers sourced from www.hoovers.com.
37. Ibid.
38. Ibid.
39. Ford Strategy Pyramid, op. cit.
40. ROCE=Return on capital employed; WACC-weighted average cost-of-capital; EVA (economic value added) = {ROCE-WACC}x capital (both debt and equity) employed. Data sourced from Stern Stewart and Company, January 2000.