

Appendix - B

THE STORY OF FEDEX – A CHRONICLE OF ACHIEVEMENTS

In certain respects, the story of FedEx is not unlike the origins of many other great corporations. An innovative entrepreneur begins by identifying a market need that is not being met. Through hard work, skill and tenacity, the entrepreneur pulls together start-up funds, recruits a core team, and begins to put the pieces together. The firm encounters resistance, technical constraints, and lean times. Ultimately, the “Horatio Alger” storyline takes hold, and the company takes off.

While this script certainly fits, FedEx is truly unique because it is perhaps the first *bone fide* company of the “New Economy.” If it is not the first, then FedEx has at a minimum served as a key bridge between the Old Economy and the New Economy. FedEx has displayed the following New Economy characteristics:

The power of an idea over past performance. Bringing the FedEx vision into reality and making it flourish required the launching of an enterprise on a massive scale in terms of infrastructure, equipment, and systems. This was not a case where the operation could embark on a small, pilot basis, with testing, “tweaking,” and gradual growth. Providing an effective overnight delivery service on a national scale required an immense infrastructure and reach. FedEx came into being in that manner, attracting capital and employees on the basis of an idea that promised future profit streams.

Fusions of technologies with hardware. FedEx began its operations with the technological capabilities of aircraft and delivery trucks in existence at that time, but immediately fused them with the “hub-and-spoke” system that now dominates the transportation and logistics industry. Since then, FedEx has continued to pioneer the application and fusion of newly available technologies, from its centralized computer system to manage operations (COSMOS®) in 1979, to the FedEx SuperTracker®, the hand-held bar-code system that captures detailed package information in 1986, to its launch of Internet-based customer services in 1994.

Employing New Economy Drivers. FedEx epitomizes the New Economy characteristics and drivers noted in the previous section. Yet, in actuality, FedEx was practicing such “prime directives” as loyalty to employees, customer satisfaction orientation, and total quality control under the FedEx philosophy of “People-Service-Profit” well before they were preached by the hoards of management consultants and business gurus in the 1980s and 1990s.

This section sets forth a history of FedEx, which is important to follow as a basis for tracking the impacts and contributions of the company. In fact, this section presents five histories, each covering an important aspect of FedEx’s legacy:

- The history of the company itself;
- Product offerings and services introduced over time;
- The geographical growth and scope of FedEx operations;
- Technological advances pioneered by FedEx; and
- The company’s contributions to deregulation and the opening of markets.

A. A Brief Company History

The story of FedEx is synonymous with that of Fred Smith, its extraordinary founder and continuing “guiding light” to this day. The basic idea for FedEx came to Smith while he was studying political science and economics at Yale; he wrote a paper on the logistical challenges facing firms in the newly-emerging information technology sector. The theme of the paper posited that companies could not afford to maintain large inventories of expensive spare parts for computers and other data processing machines. Smith concluded that a new system to move parts quickly through overnight, door-to-door delivery provided the solution.

Fred Smith reportedly received only an average grade from his professor, a fact that has created something of a legend at Yale, but the kernel of an idea germinated in that paper eventually was transformed into FedEx. The driving concepts of speed and reliability were to become the hallmarks of the air express industry that Smith pioneered. Prior to FedEx, these concepts had never been the core values of the air cargo industry, which commonly consigned shipments in the bellies of passenger planes as a sideline of their main business.

A Company and Industry is Born – The 1970s

It took a while for Fred Smith to bring his vision into reality. First, he developed his interest and skills in flying. He learned how to fly at the age of 15. Then, after serving one “hitch” in ground combat for which he was highly decorated, Smith flew 230 air missions as a U.S. Marine during the Vietnam War. After returning from Vietnam in 1969, he entered the airline business by “turning around” the financially troubled Arkansas Aviation in 1969. In 1971, at the age of only 27, Smith made his move to implement his vision. He incorporated Federal Express and began the search for investors. Smith put up \$4 million of his own money, and eventually secured another \$80 million from investors, all on the promise that Smith’s vision would be transformed into future income streams.

The nucleus of Fred Smith’s concept was the notion that Federal Express could maximize efficiency and minimize time through a “hub-and-spoke” method of collection and distribution. Under this system, packages would be collected from various sites, sent to a central point for sorting, and then reloaded onto planes flying to their ultimate destination. Smith developed this concept after studying the way in which the banking industry sent cancelled checks to a central location to be sorted and then distributed to individual banks. The hub-and-spoke logistical system has since become the industry standard for moving both freight and people.

The “backbone” of this proposed air express service had to be aircraft. Smith decided to use the Dassault Falcon, a French-made corporate jet, which if modified could carry 6,500 pounds over a range of 1,400 to 1,800 miles. By 1972, Federal Express had purchased 33 Falcons, 8 used and 25 new.

During this start-up period, the company negotiated with the airport authorities in Little Rock, Arkansas, where Federal Express was incorporated, to establish the company’s operational base in Little Rock. Smith was attracted to Little Rock because of its central location. The city’s airport managers, fearing that the city would risk losing millions of dollars on new facilities in support of a novice airline, declined. The more entrepreneurial airport authorities in Memphis, Tennessee, had a different view. Utilizing some old Air National Guard hangars to reduce the required investment in facilities, they concluded that the overnight delivery operation could generate new jobs, use the airport at night, and position Memphis as a trans-shipment center. In March 1973, Federal Express moved its Airline Operations Department to Memphis, and the rest of the company eventually followed.

The “beta test” for the air express concept was conducted in March 1973. Federal Express ran the operation for 12 cities in the East and Midwest,

with a squadron of Falcons. Packages shipped were generated by a small sales force and were picked up by couriers using cars and vans. Only seven packages were received that night, less than one for each plane owned by the company. The packages were all delivered overnight, but the test was deemed less than successful. The company determined that 12 cities did not provide a market of sufficient size, and so additional cities were added, and the service offerings were “tweaked.”

On April 17, 1973, Federal Express inaugurated its operations that continue to this day. The company’s network consisted of 25 U.S. cities, comprising a radius of 25 miles around each city. Fourteen Falcons were deployed. The company’s workforce, including pilots and ground crew, package sorters, couriers, and sales representatives, totaled 389. A total of 186 packages were collected that night, and all were delivered on time the next day. The air express industry was born, and as indicated in the following table, FedEx continued to flourish.

DAILY VOLUME OF FEDEX PACKAGES	
Date	Volume
April 17, 1973	186
End-year 1973	1,000
1974	10,000
1975	13,500
1976	19,000
1984	500,000
1986	1,000,000
1998	3,000,000

Following a two-year startup period laden with average monthly losses of more than \$1 million, FedEx generated its first monthly profit of \$20,000 in February 1975. The early months were noteworthy for the sacrifices, hardships, and contributions of employees. This experience, along with Fred Smith’s philosophy, established the company’s emphasis on exemplary employee practices, which long preceded the current focus on employee participation and “empowerment.”

FedEx concentrated on building volume, debugging systems, and improving service during its initial years. However, the company soon encountered an externally imposed “growing pain” – airline regulation. Growing volume led to the need for larger aircraft. In September 1975, FedEx formally requested the Civil Aeronautics Board (CAB), the federal agency overseeing the airline industry, to permit the company to acquire and operate five larger-capacity aircraft. These would allow FedEx to transport payloads greater than 7,500 pounds and up to 15,000 pounds, up from the 6,500-pound capacity of the Falcon. Up to that time, only

passenger airlines could operate such larger aircraft. The CAB rejected FedEx's request.

Facing a "glass ceiling" that would relegate FedEx to remaining a niche operation, FedEx orchestrated a concerted effort to convince Congress to deregulate the air cargo industry. After failing to sway Congress in 1976, FedEx organized other freight carriers and commuter airlines; together they presented a strong case to Congress and the Administration, revealing the costs of regulation and benefits of deregulation. They pressed the case that regulation was costing every American family \$250 per year, thus making it a consumer issue. President Carter eventually came to support the cause. Congress passed Public Law 95-163, and President Carter signed it into law on November 7, 1977. This deregulation allowed FedEx and other carriers to use larger aircraft, schedule them without geographic restrictions, and set prices according to market forces.

This event clearly was critical to FedEx's ability to survive and grow. However, more importantly, it served to spur the general deregulation of other forms of transportation and sectors such as telecommunications and utilities which had long operated within very restrictive conditions. This in turn provided the "enabling environment" that supported the emergence of the New Economy.

For the remainder of the decade, Federal Express continued to mature and grow, adding services, customers, employees, and equipment. The company was first listed on the New York Stock Exchange in 1978, using the ticker symbol FDX. By 1979, FedEx's fleet amounted to 12 Boeing 727s, 4 Boeing 737s, 32 Falcons, and 39 other aircraft on lease, as well as 1,454 pickup/delivery vans. In less than a decade, FedEx materialized from little more than a young man's dream into a major corporation. By the end of the 1970s, FedEx had become the nation's leading air cargo carrier, with a daily volume of nearly 100,000 packages. On the way, FedEx gave birth to a new industry.

Expansion and Heightening Service Through Technology – The 1980s

Like most of the U.S. economy, FedEx experienced continued expansion during the 1980s. It was a heady period. The company opened its SuperHub in Memphis in 1981, providing capacity for much greater volume. Two years later, FedEx became the first U.S. company on its own – without mergers or acquisitions – to achieve annual revenues of \$1 billion in less than 10 years. The company's volume of packages sorted in a single night reached 500,000 in 1984, and doubled to over 1 million only two years later.

Expansion was the key characteristic of FedEx in terms of both services and geographic coverage, as discussed below. In brief, FedEx continued to add new customer services during the 1980s, and dramatically increased its reach, particularly internationally, building from its first international service (to Canada) launched in 1979. FedEx continued to pursue its philosophy of “People-Service-Profits.” The company’s performance over this period was capped off with FedEx becoming the first service company to win the Malcolm Baldrige National Quality Award, considered by most to be the “Nobel Prize” of quality assurance, in 1990.

The real hallmark of FedEx during the 1980s was the relentless push to develop and apply newly available technologies to the firm’s operations in order to maximize efficiency and reliability. These technological fusions and applications to FedEx’s operations eventually become the standards used by the logistics industry, and by other industries as well.

Integrating the FedEx “Model” into Clients’ Operations – The 1990s

By 1990, FedEx had achieved essentially all that Fred Smith had originally envisioned. The company served its customers and clients well. It had grown into a major corporation, widely known for its quality and reliability. FedEx had little else to prove.

However, experience has shown time and again that companies that do not grow and adapt to evolving circumstances inevitably face stagnation or decline. After growing rapidly (at annual rates of 20-40 percent in the late-1970s and early-1980s), FedEx’s domestic volume growth leveled off in the face of the U.S. economic recession of the early 1990s, although volume growth rebounded in the mid-1990s.

It had become clear in the early 1990s that the market size for “traditional” FedEx services was limited. In addition to continuing efforts to enhance the efficiency and profitability of its domestic operations, FedEx responded by increasing its product offerings and extending its geographical reach.

A major milestone in the expansion of services was FedEx’s announcement in October 1997, that it planned to acquire Caliber Systems, Inc. and its subsidiaries. The acquisition was completed in early 1998, and provided FedEx with an extensive ground service infrastructure that included RPS, Inc., a business-to-business, non-express package carrier; Roberts Express, Inc., a critical shipment carrier; Viking Freight, Inc., a supplier of regional less-than-truckload freight in the Western states; Caliber Logistics, Inc., a contract logistics provider; and Caliber Technology, Inc., a supplier of information services.

FedEx also placed a major emphasis on expanding overseas. This thrust, which is described later in this section, involved both internal expansion into new territories and also acquisitions to provide a greater international foothold within a short period of time.

Perhaps the most important development of the decade was the decision by FedEx to integrate the systems and technologies perfected by the company, and then to place these capabilities directly into the hands of customers. The implementation of this strategy can be divided into two phases. During the first phase, begun in the early 1990s and continuing to the present, FedEx launched systems for providing customer access to systems for monitoring their own shipments. In 1994, FedEx.com became the first interactive website to give customers the ability to track the status of their shipments online. Increasingly FedEx “empowered” its clients to have greater control, information, and capabilities regarding their relationship with FedEx.

The second phase, initiated in earnest in the latter part of the 1990s, involved combining all of the technologies, systems and approaches painstakingly crafted to perfect FedEx’s internal processes and providing these services to customers seeking to introduce state-of-the-art solutions to their own logistics problems. A recent example is the launching in the year 2000 of the Global Inventory Visibility System – GIVS[®] – a virtual warehousing solution that allows both FedEx and selected customers to view their inventory from anywhere in the world via the Internet. The system includes display of regional or area-specific inventory information, as well as updated on-hand, allocated, or on-hold inventory. Selected customers can order inventory via GIVS, enabling them to plan and reduce their own inventory.

As this section and those to follow can attest, FedEx has come a long way from the “single product, single concept” it implemented in 1973. The company is now poised to move well beyond its role as a provider of transportation services, and into a New Economy role of allying with firms of all kinds to maximize the efficiency of their entire value chain processes.

FEDEX CORPORATE MILESTONES

- 1971** Federal Express is incorporated in Little Rock, Arkansas.
- 1973** March. The express-delivery concept is tested, using Dassault Falcon aircraft and covering 12 cities in the East and Midwest. Seven packages are received into the FedEx system, less than one per plane. They are all delivered overnight.
- 1973** April 17. FedEx begins operations, using 14 Falcons covering 25 cities (and a 25 mile radius around them) from Boston to Cleveland to Minneapolis. FedEx has 389 employees at this time.
- 1974** FedEx's volume reaches 10,000 packages per day.
- 1975** February. FedEx turns its first monthly profit – \$20,000 – ending a two-year streak of monthly losses averaging \$1 million.
- 1975** End of Year. FedEx's daily volume reaches 13,500, and the company achieves revenues of \$60 million for the year.
- 1976** FedEx attains a daily volume of 19,000 packages, with service to 75 cities, and earns \$96 million for the year.
- 1978** FedEx is listed on the New York Stock Exchange with the ticker symbol FDX.
- 1979** The corporation's fleet includes 12 Boeing 727s, 4 Boeing 737s, 32 Falcons, and 39 other aircraft on lease, as well as 1,454 vans.
- 1981** FedEx opens its Memphis SuperHub.
- 1983** FedEx becomes the first U.S. company to attain an annual revenue of \$1 billion in 10 years without merger or acquisition.
- 1984** The company achieves a record 500,000 packages sorted in a single night.
- 1986** December 22. The company's volume exceeds 1 million packages per night (1,018,299).
- 1989** FedEx completes its operational merger with Flying Tigers.

FEDEX CORPORATE MILESTONES

- 1990** FedEx becomes the first service company to win the Malcolm Baldrige National Quality Award, considered the “Nobel Prize of quality assurance.”
- 1993** FedEx Ground exceeds \$1 billion in revenue in just nine years, recording the fastest growth of any ground transportation company in history.
- 1994** The company launches “FedEx” as official brand name, with the slogan “The World On Time.”
- 1994** FedEx earns worldwide certification to the ISO 9001 international quality standard.
- 1995** FedEx acquires Evergreen International’s authority to serve China.
- 1998** FedEx acquires Caliber Systems, Inc., as part of a plan to extend its service offerings to address the supply chains of its customers’ businesses.
- 1998** FedEx creates FDX Corporation, a \$16 billion logistics and distribution enterprise. The company handles more than 3 million packages daily. Its fleet makes FedEx the fifth-largest airline in the world, traveling nearly one-half million miles per day.
- 1999** FedEx Logistics acquires air freight forwarder Caribbean Transportation Services.
- 2000** January. The company announces its new branding strategy, involving changing the parent company’s name from FDX to “FedEx Corporation,” and extending the “FedEx” brand to four of its five subsidiary companies. Independent operating companies of the \$18 billion firm delivering nearly 5 million shipments per day include FedEx Express, FedEx Ground, FedEx Custom Critical, FedEx Logistics, and regional less-than-truckload carrier Viking Freight.
- 2000** FedEx Trade Networks is formed with the acquisition of Tower Group International and Worldtariff.
- 2001** FedEx acquires American Freightways.

In January 2000, FedEx re-branded all of its subsidiaries. The current makeup of the corporation is shown in the following table.

CORPORATE STRUCTURE OF FEDEX	
FedEx Express	Formerly Federal Express, FedEx Express is the world leader in global express distribution, offering delivery in 24 to 48 hours to 210 countries that comprise 99 percent of the world's GDP. FedEx Express operates a fleet of 640 aircraft, 45,000 ground vehicles, and 43,000 drop-off locations. The company handles more than three million shipments per day.
FedEx Ground	Formerly RPS, FedEx Ground operates in North America and provides business-to-business, ground, small-package delivery in one to three days. The company owns 9,500 vehicles and employs 35,000 people (including independent contractors). FedEx Ground handles 1.5 million packages per day. In January 2000, FedEx Home Delivery was launched as a new business undertaken within FedEx Ground.
FedEx Freight	FedEx Freight is the parent company of FedEx Logistics, Viking Freight and American Freightways.
FedEx Custom Critical	Formerly Roberts Express, FedEx Custom Critical is a surface-expedited carrier for nonstop, time-critical, and special handling shipments. In 1999, the company handled more than 1,000 shipments per day. Urgent shipments can be loaded onto trucks within 90 minutes of a call, and shipments arrive within 15 minutes of the proposed time at an average of 96 percent of the time.
FedEx Trade Networks	This company was formed in January 2000 to provide customs brokerage, consulting, and trade facilitation solutions.
FedEx Services	This company was formed in January 2000 to bring together the firm's sales, marketing customer services, public relations and IT resources. By June 2001, it also included FedEx Supply Chain Services, which is the combination of the previous Caliber Logistics and FedEx Logistics organizations, and provides customized, integrated logistics and warehousing solutions worldwide.

B. Product Offerings and Market Segments

FedEx Express began with the goal of providing a single product – guaranteed overnight delivery of packages. The client base was to consist primarily of high-technology companies needing to ship high value, time-sensitive items quickly and reliably. The notion of “time certain” delivery (by noon the next day) was certainly revolutionary and ambitious in 1973. As with the Internet at its inception, no one could have foretold at the time the breadth and depth of FedEx services that were yet to come.

Many of the new “services” added in the 1970s in reality revolved around efforts to make the FedEx Priority Overnight Service more “customer friendly.” These consisted on the installation of package drop boxes, begun in 1975, and introduction of the Courier Pak Envelop to meet client’s document shipping needs, and the launching of the Courier Pak box and tube in 1977 to accommodate larger reports and provide better protection for documents and architectural drawings. These improved services took place while FedEx was busy acquiring equipment and expanding its capacity and domestic market reach.

The 1980s witnessed the beginning of serious expansions of service offerings. A key milestone took place in 1981, when FedEx focused on the market for document shipment. The FedEx Priority Overnight[®] system was launched, consisting of Overnight Letter, Overnight Box, and Overnight Courier Pak. The Overnight Letter service brought FedEx from customers’ warehouses to their front offices. By the end of 1981, Overnight Letter achieved a volume of 27,000 pieces.

Soon thereafter, FedEx also zeroed in on new delivery schedules to meet clients’ differing needs and cost preferences. In 1982, the noon next-business-day delivery commitment for Priority Overnight[®] was advanced to 10:30 a.m. In addition, this commitment included a money-back guarantee – the first such guarantee offered by the express mail industry. Also in 1982, the two-day (E-2) delivery service, which was previously available to a small number of large customers as filler freight, was offered to all customers. Finally, 2Day Freight and Overnight Freight services were unveiled in 1989. All of these new services required considerable adjustments in FedEx’s logistical structure.

Not all new service initiatives proved successful. During this period, FedEx began to experiment with new “forms” of services. ZapMail, a faxed-document delivery system, was introduced in 1984. The market penetration of facsimile machines rendered ZapMail a failure, however, and the service was eliminated within two years.

Finally, the geographical expansion of services, particularly to Europe and Asia, took place during the latter half of the 1980s.

The decade of the 1990s witnessed the introduction of even more delivery services by FedEx, offering further customer choices. In 1991, Standard Overnight[®] was inaugurated in response to the results of a 1988 survey in which customers said they wanted the choice of afternoon delivery at a lower price. A year later, Express Saver gave qualified business customers lower cost services, and this was extended to the retail market in 1997. Collapsing the time envelope even further, FedEx initiated FedEx SameDay[®] and FedEx First Overnight[®] delivery in 1995, the latter of which included an 8 a.m. next-business-day delivery in 5,000 ZIP codes. Sunday delivery was added as an option in 1998, but later discontinued.

In 1996, Express Saver Freight service was launched. This made FedEx the first express company to provide time-definite service for freight.

Inauguration Dates of Key FedEx Express Services

Type of Service	Start Date
Domestic Services	
Packages	
1. Priority Overnight [®]	1973
2. FedEx 2Day [®] (FedEx Economy 2day Service, Standard Air)	1976
3. Overnight Letter, Box, and Courier Pak	1981
4. FedEx Standard Overnight [®]	1991
5. FedEx Express Saver [®]	1992
6. FedEx Same Day [®]	1995
7. FedEx First Overnight [®]	1995
Freight	
9. FedEx Overnight Freight [®]	1989
10. FedEx 2Day Freight [®]	1989
11. FedEx Express Saver Freight [®]	1996
International Services	
Packages	
12. FedEx International Priority [®]	1979
13. FedEx International Priority Direct Distribution [®]	1991
14. FedEx International Priority Plus [®]	1992
15. FedEx International Mail Service [®]	1992
16. FedEx International Economy [®] (Canada)	1992
17. FedEx International Economy [®] (Rest of World)	1995
18. FedEx International First [®]	1996
Freight	
19. FedEx International Express Freight [®]	1989
20. FedEx International Airport-to-Airport [®]	1989
21. FedEx International Priority Freight [®]	1994
22. FedEx International Economy Freight [®]	1996
Options on Services	
23. Saturday Service	1984
24. On Call Same Day Pickup	1985
25. Money-Back Guarantee	1985
26. Collect On Delivery (COD)	1990
27. International Broker Select	1992
28. Sunday Service	1998

Moreover, during the 1990s FedEx introduced suites of “technology services” to its customers. The product shipment handling and reporting services are described as technology innovations later in this section. In addition, FedEx went online, developing and unveiling its interactive www.fedex.com website in 1994. Once again achieving an industry “first” (a corporate website that “did” something), FedEx continued to enhance the ability of customers to communicate with FedEx and control/monitor their shipments and relationships.

In 1999, FedEx formed an alliance with SAP to craft the first “one stop” portfolio of supply chain services, including planning, management, and implementation. FedEx also launched FedEx MarketPlace[®], a portal for consumer purchases from top FedEx online merchants such as L.L. Bean and Hewlett Packard. In addition, FedEx eCommerce Builder was inaugurated as a full-service Internet platform to assist small- and medium-sized businesses to build and manage an online store. As if these new services were not enough, FedEx also introduced GIVS[®] – the Global Inventory Visibility System – a virtual warehousing solution that allows selected customers to view their inventory from anywhere via the Internet.

The acquisition of the Caliber companies in 1998 also expanded FedEx service offerings to include ground, expedited and supply chain services. Further acquisitions enabled the addition of FedEx Freight, for regional less-than-truckload freight transportation, and FedEx Trade Networks, for electronic customs clearance and freight forwarding solutions. In March 2000, FedEx Ground introduced FedEx Home Delivery to accommodate the growing business-to-consumer market ignited by e-commerce.

In summary, FedEx began with a “core” activity that offered an important service to its customers. Subsequently, over its first quarter century of operation, FedEx persistently added new services. Some provided additional delivery time/cost options, others accommodated specialized shipping requirements, and still others introduced advanced technologies to offer ever-increasing assistance to meet customers’ overall logistical needs and goals.

MILESTONES IN PRODUCT OFFERINGS BY FEDEX

- 1973** Priority Overnight[®] Service is inaugurated to provide a highly reliable overnight package delivery service, specializing in high value and time-sensitive items such as computers, electronics, medical, and pharmaceutical products. Delivery is made by noon the next day.
- 1975** The first FedEx drop box is installed. Currently, FedEx customers have more than 40,000 places to drop off shipments.
- 1976** The company launches Standard Air Service.
- 1976** The Courier Pak Envelope is introduced to serve document shipping needs, such as computer printouts and reports.
- 1977** The Courier Pak box and tube are added to accommodate larger reports and provide more protection for documents (box) and architectural drawings (tube).
- 1981** FedEx Priority Overnight[®] commences, including Overnight Letter[®] (with change of U.S. Postal regulations, allowing private companies to deliver legal papers, blueprints, and other documents), Overnight Box, and Overnight Courier Pak (Box and Tube).
- 1982** Priority Overnight[®] is upgraded to a 10:30am Next-Business-Day Commitment and money back guarantee – the first in the express mail industry to offer money back guarantees, and 10:30am next day delivery.
- 1982** E-2 (2-day) service is formally offered as a product available to all customers. This service was previously available to select large customers as filler freight.
- 1984** Saturday delivery is offered as an option (the first in the industry).
- 1984** FedEx launches ZapMail, an experiment in state-of-the-art, satellite-connected, fax document, to-the-door delivery. The experiment fails within two years due to low-cost fax machines flooding the business market. FedEx shut down ZapMail and reassigned ZapMail employees to other activities.
- 1984** The first PC-based automated shipping system, later named FedEx PowerShip[®], is introduced.

MILESTONES IN PRODUCT OFFERINGS BY FEDEX

- 1988** FedEx Custom Critical forms White Glove Services[®] for special handling needs. This service is extended to Europe in 1989.
- 1989** FedEx International Priority[®] is inaugurated.
- 1989** International Express Freight[®] – IXF – is offered.
- 1989** 2Day Freight and Overnight Freight is introduced.
- 1991** Standard Overnight[®] is initiated in response to the results of a 1988 survey in which customers said they wanted the choice of afternoon delivery at a lower price.
- 1991** CharterAir, a service of FedEx Custom Critical, has its inaugural flight.
- 1995** FedEx Same Day[®] and FedEx First Overnight[®] are launched. This includes 8 a.m. next business day delivery in 5,000 zip codes with FedEx First Overnight[®].
- 1996** Express Saver Freight[®] is offered, providing time-definite, 3-day delivery. FedEx is the first express company to offer time-definite service for freight.
- 1998** Sunday delivery is provided as an option (first in the industry).
- 1999** September. FedEx and SAP announce an alliance to develop the first ever “one-stop” portfolio of supply chain services, including planning, management and execution.
- 1999** FedEx MarketPlace[®] debuts at www.fedex.com as a convenient link to online shopping. Through this new portal, shoppers have one-click access to several top online merchants that utilize FedEx’s delivery services, including L.L. Bean and HP Shopping Village (Hewlett Packard’s consumer EC Website).
- 2000** March. FedEx Home Delivery, a subsidiary operation within FedEx Ground Services, is launched in response to the expanding business-to-consumer market.
- 2000** July. FedEx inaugurates FedEx eCommerce Builder[®], a full-service Internet platform designed to make it easy for small and medium-sized businesses to build and manage an online store.

MILESTONES IN PRODUCT OFFERINGS BY FEDEX

2000 August. FedEx announces its next generation of electronic shipping services. Through the FedEx Ship Manager™ portfolio, customers can conveniently access FedEx Ground, FedEx Home Delivery, FedEx Express and, in some cases, other carriers from one of several electronic solutions.

C. Geographical Coverage

The story of FedEx's geographical expansion is relatively straightforward in theory, but much more complex in practice. The difficulty lies in the regulatory environments that effectively protect domestic markets for local firms against new entrants from overseas.

FedEx began in 1973 with express service to 25 U.S. cities. For the remainder of the 1970s, the company focused primarily on extending its service throughout the United States, while simultaneously increasing its carrying and sorting capacity to accommodate the growth in overall volume. The only foray into the international arena consisted of the inauguration of service to Canada in 1979.

In 1981, the "SuperHub" in Memphis was opened, thus dramatically increasing the capacity of FedEx. The SuperHub represented a substantial achievement in logistics, since it covered 294 acres and a system consisting of 172 miles of conveyors, chutes, and automatic sort belts. It is at this facility, that the massive and intricately choreographed "ballet" of receiving, sorting, and sending of about one million shipments takes place. Such shipments account for about 30 percent of FedEx's total volume.

Starting at around 11 p.m., some 143 aircraft land in at the SuperHub at a rate of 85 landings per hour. The aircraft range in size from mammoth McDonnell Douglas MD-11s and DC-10s to small, short-hop Cessnas. Portable conveyor belts attach themselves to the aircraft, extracting customized containers. The jets are unloaded in as little as 17 minutes. The packages then enter the maze of conveyors, down slides, and through diverters, under measurement lasers and past sorting apparatuses.

For a few short hours, the sorting process continues at a frenzied pace, with some 8,000 FedEx employees participating. The payloads are transferred to the awaiting aircraft, which soon take off at the same rate they landed. The sorting process must be completed by 2:07 a.m., the

time that the plane bound for Maine, the easternmost route in the system, must depart in order to make its morning deliveries. The one million documents and packages have just passed through the “hub” and are on their way to their desired destination.

A second major U.S. hub was opened in 1987 several hundred miles away in Indianapolis. FedEx Express also operates regional U.S. hubs along both coasts, in Newark, Miami, Dallas/Fort Worth, Oakland, Los Angeles, and Anchorage. Throughout this period, FedEx acted to expand the domestic scope of its ground service. Ultimately, FedEx Ground achieved 100 percent coverage of the North American market in 1996.

The 1980s brought FedEx’s concerted initiatives to expand its market reach into international markets. FedEx often utilized a strategy of acquisition not only in order to reduce the time needed to build capacity and market networks, but also to gain extensive landing rights. In 1984, operations were initiated in Europe following the acquisition of Gelco Express International. Shortly thereafter in 1985, FedEx Express opened its Brussels hub to serve Europe. The European hub was moved to the Charles de Gaulle Airport in Paris in 1996.

Initiation of International Direct FedEx Express Service	
Region/Country	Start Date
Americas	
Canada	1979
Puerto Rico	1980
Brazil	1989
Argentina	1989
Venezuela	1989
Mexico	1990
Colombia	1998
Europe	
United Kingdom	1984
France	1984
Germany	1984
Italy	1984
Belgium	1989
Netherlands	1989
Switzerland	1989
Sweden	1997
Denmark	1998
Asia	
Japan	1988
Korea	1989
Taiwan	1989
Hong Kong	1989
Singapore	1989
Thailand	1989
Malaysia	1989
Australia	1989
Philippines	1995
China	1996
India	1997
Indonesia	1998

In 1988, FedEx offered direct scheduled service to Japan and Mexico. This service was expanded to major Asian markets after the 1989 acquisition of Flying Tigers, the world's largest cargo airline with particularly strong links to Asia, Latin America, and Europe. At about this same time, FedEx launched its International Priority, International Express Freight, and International Airport-to-Airport services.

To support its growing Asian business, FedEx opened its hub at Subic Bay, The Philippines in 1995. Also in that year, the company acquired Evergreen International's route in order to facilitate its service to China. By 1997, shipments originating throughout Asia arrived in the United States by 10:30 a.m. on the next business day, thus fully integrating Asian markets into the overall FedEx system.

The international division of FedEx turned profitable in 1993. Following its initial focus on service between North America and overseas destinations, FedEx quickly transformed its operation into a global network encompassing 210 countries and representing 90 percent of the world's economic activity.

MILESTONES IN THE EXPANSION OF FEDEX EXPRESS INTERNATIONAL COVERAGE

- 1973** Operations begin with service to 25 cities.
- 1979** The first international service to Canada is inaugurated.
- 1981** The Memphis SuperHub is opened. The SuperHub covers 294 acres and encompasses a 172-mile maze of conveyors, chutes, and automatic sort belts.
- 1984** International operations are expanded to Europe and Asia, following the acquisition of Gelco Express International.
- 1985** The Brussels hub is opened as the European hub, and transatlantic two-day service is launched. The hub is later moved to Paris.
- 1988** FedEx offers direct scheduled service to Japan and Mexico. This service is expanded to next-business-day service for major Asian markets.
- 1989** Flying Tigers, the world's largest cargo airline with particularly strong links to Asia, Latin America, and Europe, is acquired. This provides FedEx not only increased capacity, but also extensive new landing rights.
- 1989** International Express Freight[®], International Airport-to-Airport[®], and FedEx International Priority[®] are introduced.
- 1990** FedEx pioneers the expansion of air express services to Russia and other Eastern European and Central Asian countries.

MILESTONES IN THE EXPANSION OF FEDEX EXPRESS INTERNATIONAL COVERAGE

- 1991** International Priority Direct Distribution[®] is launched.
- 1993** The international division turns profitable. After focusing initially on service linking North America and overseas destinations, FedEx soon gives customers access to a global network that tops 210 countries, representing 90 percent of the world's economic activity.
- 1995** Subic Bay, the Philippines hub, is opened, offering more comprehensive service to Pacific Rim nations.
- 1995** FedEx acquires Evergreen's China route, facilitating the expansion of service to China.
- 1995** FedEx unveils AsiaOne[®], a regional express-distribution network patterned after the hub-and-spoke model. The AsiaOne[®] network allows next-business-day delivery by 10:30 a.m. between such major trade centers as Hong Kong, Singapore, Tokyo, Manila, Bangkok and Seoul.
- 1996** The European hub in Paris' Charles de Gaulle Airport is opened.
- 1997** FedEx opens a hub at Alliance Airport in Dallas/Ft. Worth, Texas.
- 1997** Shipments from throughout Asia are delivered in the United States by 10:30 a.m. on the next business day.
- 1999** The EuroOne[®] network is launched to link 16 cities to FedEx's Paris hub by air and another 21 cities by road-air. Like AsiaOne[®], this is a transportation routing system.

D. Overcoming Regulatory Barriers

Any “new entrant” into an industry faces hurdles to access, especially forms of resistance from existing companies. In addition, any new industry encounters barriers erected from those with a stake in the status quo. Finally, any company from one country seeking to do business in another country can expect opposition and even outright protectionism. FedEx has experienced all of these forms of resistance, in some cases all at the same time.

Fred Smith and FedEx have, from the outset, been champions of open markets, free of excessive regulation and permitting competition. This was in part caused by necessity, for FedEx would never have become what it is today if the restrictive regulations encountered by the firm had remained unchanged. Beyond this, FedEx has continuously served as an agent of change – a catalyst for achieving deregulation, open skies, and open markets.

The early experience of FedEx challenging the Civil Aviation Board’s ruling against the company’s use of larger aircraft, which was noted earlier in this section, proved to foretell FedEx’s ongoing efforts to challenge regulatory “status quos” (e.g., deregulation of the skies, air rights to emerging markets, pushing for efficient customs clearance, etc.). As FedEx sought to expand internationally, it faced continual regulatory battles to secure international routes and landing rights.

Working closely with the U.S. State and Transportation Departments, FedEx broke through many trade barriers. FedEx pioneered the expansion of air express services to Russia and the former communist bloc nations of Central and Eastern Europe. FedEx patiently negotiated for six years to establish its own cargo facilities, and emerged victorious. FedEx played a key role in spearheading efforts to open new markets through open skies deregulation.

In 1994, FedEx encountered another major regulatory issue back in the United States. Forty-two states at that time regulated trucking operations, setting rates and restricting other types of business. FedEx argued that it should be exempt from these regulations, since its fleet of trucks represented an extension of the company’s network of interstate and international air system. Therefore, FedEx went back to Washington to press for comprehensive trucking industry deregulation. Its efforts were rewarded in 1994, when Congress passed deregulation legislation. FedEx’s push benefited the entire nation, by removing consumer costs caused by regulation and reducing business costs associated with the need for manufacturers to maintain their own fleets of trucks.

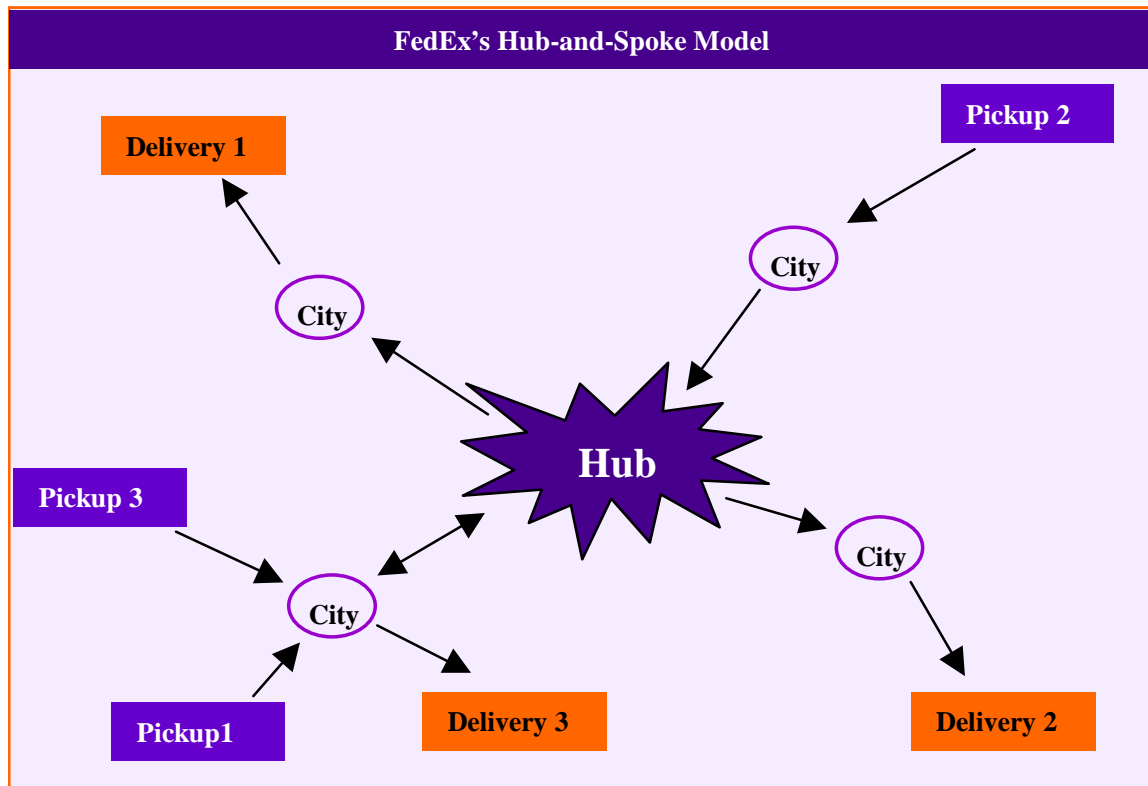
MILESTONES IN FEDEX'S DEREGULATION CAMPAIGNS

- 1975** September. FedEx formally requests that the Civil Aeronautics Board (CAB) to allow Federal Express to acquire and operate five larger aircraft, which would provide a load capacity greater than 7,500 pounds. The CAB rejects the request.
- 1976** FedEx begins a rigorous campaign to change the law that prevents air taxi services from operating with a load capacity over 7,500 pounds.
- 1977** November 7. President Carter signs Public Law 95-163, allowing Federal Express to use larger aircraft, schedule them on routes without geographic restrictions, and set prices to match market demand. The company promptly purchases seven Boeing 727s, each with a load capacity of 40,000 pounds, from United Airlines, and puts the planes into operation in January 1978.
- 1990** In Taiwan, FedEx successfully completes six years of patient negotiations to gain its own cargo facilities. FedEx emerges as the only express carrier with the right to move intra-Asia traffic to and from Hong Kong, which had some of the world's most restrictive air regulations. In Latin America, FedEx wins access to more restricted points than any of its competitors.
- 1994** The trucking industry is deregulated through Congressional legislation after several years of lobbying by FedEx and others. Deregulation is estimated to bring billions of dollars in annual savings to U.S. consumers.

E. Technology Innovations and Applications

The core business of FedEx is logistics – moving shipments from point A to point B. The three key goals set forth by Fred Smith – speed, reliability, and customer service – coupled with the continuing need to minimize costs of operation, combine to make the application of advanced technologies essential. Accordingly, a key ingredient in the success of FedEx has been the fact that the company is a major user and provider of technological solutions. Unlike most Old Economy businesses, FedEx was built from the very beginning on an information-driven architecture. This section highlights only a few of the major innovations achieved by FedEx.

The Hub-and-Spoke Model. The overnight delivery service revolutionized the distribution industry. At the time of FedEx's birth, the transportation system consisted of a fragmented patchwork quilt of airlines, hauling freight as a sideline, along with local trucking companies without any network outside their own market areas. The integrated express delivery system pioneered by FedEx required a new technical approach, and that approach was the hub-and-spoke model.



The hub-and-spoke “approach” was in fact used in some activities, such as the example of bank check clearing noted previously, before the arrival of FedEx. Nevertheless, Fred Smith is widely acknowledged as pioneering, articulating, and putting the model into practice. What now seems to be common sense, since it has been copied extensively by other carriers of goods and people, was not even contemplated by the industry before FedEx made it work.

Making this new technique work required an enormous capital investment, since all the moving parts of the hub-and-spoke system had to be controlled. It also required a complex array of innovative equipment and process systems to meet the goals of speed and reliability. The hub-and-spoke model is clearly as much an example of technological innovation as the invention of a new electronic device.

COSMOS®. The hub-and-spoke system requires a sophisticated transportation logistics information system. One of Fred Smith's key tenets is that information about a shipment is as valuable as the contents of the shipment. In 1979, FedEx introduced COSMOS® – the Customer, Operations, Service Master On-line System – the first centralized computer system in the industry used to keep track of all packages handled by the company. This system not only gave FedEx employees the ability to obtain real-time information on the exact status and location of a shipment, but also made the information available to customers who phoned the FedEx toll-free number.

In a central database located at the Memphis headquarters, COSMOS® maintains data on package movement, pickup, invoicing, and delivery. A barcode is attached to each parcel at the point of pickup, and scanned up to 20 times (for international shipments) en route, at each stage of the collection and delivery cycle. The COSMOS® system handled 63 million transactions per day in 1999.

GOC. The Global Operations Control Center houses huge electronic displays that track weather patterns and the real-time position and movement of FedEx aircraft and trucks. New systems have also been introduced to predict with great accuracy the amount of inbound traffic, allowing FedEx to prioritize the hundreds of variables involved in the successful pickup, sorting, and delivery of shipments. COSMOS® and the GOC are ideally suited to work in tandem to control the hub-and-spoke model. These systems have been adopted by many other carriers.

DADS®. The Digital Assisted Dispatch System was put into place in 1980. Under this system, small terminals were installed in vehicles for the purpose of transmitting digital information on orders, thus guiding couriers to their next pickup.

FedEx PowerShip®. FedEx determined that providing COSMOS®-generated information to customers – to allow them to “order” shipping by instantly transmitting the information to relevant couriers, accounting personnel, and hub personnel – would greatly enhance efficiency and customer service. In 1984, the company pioneered its PC-based automated shipping system, later named FedEx PowerShip®, giving a stand-alone PC terminal free of charge to its high-volume customers. Powership® used telephone lines to link customers with the COSMOS® system, permitting customers to place their own shipping orders electronically and print airbills. The system provided users with real-time tracking and a long list of reporting functions. Users could complete an entirely automated business transaction with electronic data. FedEx PowerShip®, today a component of FedEx Ship Manager, was one of the

earliest “e-commerce” tools, well before the term e-commerce was even contemplated.

FedEx SuperTracker®. In 1986, FedEx introduced SuperTracker®, a hand-held bar-code scanner system that captures detailed package information. Couriers and package sorters had their own bar-code scanners – the world’s first use of bar-code technology to track package status in transit electronically – turning FedEx workers into distribution processors and information gatherers. This innovative system has since become synonymous with logistics and inventory control throughout the world.

FedEx Ship®. In 1994, FedEx introduced FedEx Ship, a new software that brought the power of FedEx PowerShip® to “front office” personnel using desktop computers. This package allowed users to dial directly into COSMOS® to ship, print airbills, track, and report efficiently. This reduced overhead costs and improved market service. More importantly, it prepared FedEx for the Internet and World Wide Web boom of the early 1990s.

www.fedex.com. Also in 1994, FedEx launched its website. It contained the usual information about the company and its services; however, the site captured the instant attention of the technology industry because it offered something that few sites had in those early years of the Internet – real functionality. The site provided real-time, on-line tracking information provided by the COSMOS® system. Shortly thereafter, FedEx InterNetShip® was implemented, allowing users to complete and print shipping labels over the Internet. The system has been expanded to include other services, such as allowing customers to maintain an address book of frequently used “ship to” addresses, retaining shipper information such as account numbers, and giving users access to reports concerning their shipping histories.

According to *Business Week* magazine, the website was pivotal: “In the brief annals of doing business on the Internet, Federal Express Corp.’s customer Website has become a legendary success story.”¹ Jim Barksdale, a former CEO at Netscape and previously FedEx CIO and COO, noted, “It was the first outward and visible demonstration of a practical, productive use of the Internet by a real business for a real business purpose.”²

Project GRID. In 1998, FedEx decided to overhaul its internal IT infrastructure under Project GRID – Global Resources for Information Distribution. The project involved replacing 60,000 dumb terminals and some PCs with over 75,000 network systems. The decision to use network

¹ *Business Week*, February 26, 1996.

² D. Joachim, “FedEx Delivers on CEO’s IT Vision,” *Internet Week Online*, October 25, 1999.

computers was to avoid the “desktop churn,” the rapid obsolescence of PCs as new applications eat up processing power. The benefits include easier IT support, lower support and maintenance costs, greater functionality, and improved efficiency. New applications may be loaded onto servers and downloaded from servers to terminals. The network computers link over a global Internet Protocol network aimed to enhance the quality and quantity of services FedEx can deliver to its customers.

FEDEX TECHNOLOGICAL MILESTONES

- 1973** Federal Express “invents” the hub-and-spoke system for logistics management.
- 1979** COSMOS[®] – Customer, Operations, Service, Master On-Line System – a centralized computer system to manage vehicles, people, packages, routes, and weather scenarios on a real-time basis – is launched. This is the first centralized computer system in the industry used to keep track of all packages handled by the company.
- 1980** FedEx implements DADS[®] – the Digital Assisted Dispatch System – to coordinate on-call pickups for customers. Tiny terminals are installed in vehicles for the digital transmission of orders to guide couriers to their next pickup.
- 1980s** FedEx gives away 100,000 sets of PCs loaded with FedEx software to customers. The sets are designed to link and log customers into FedEx’s ordering and tracking systems. Immediately the company’s customer base was transformed into an electronic network.
- 1984** The first PC-based automated shipping system, later named FedEx PowerShip[®], is inaugurated.
- 1986** FedEx SuperTracker[®], a hand-held bar-code scanner system that captures detailed package information, is launched.
- 1991** PowerShip PassPort[®], a Pentium-class PC system that combines the best of PowerShip[®] and PowerShip Plus[®] for customers who ship more than 100 packages a day, is inaugurated.
- 1993** FedEx ExpressClear[®] Electronic Customs Clearance System expedites regulatory clearance while cargo is en route.
- 1993** PowerShip3[®], a client server shipping system for customers who ship three or more packages daily, is launched.
- 1994** FedEx Ship[®] software allows customers to process and manage shipping from their desktop.
- 1994** FedEx.com becomes the first interactive website allowing customers to track status of their shipments.
- 1994** DirectLink, a software that lets customers receive, manage and remit payments of FedEx invoices electronically, is established.

FEDEX TECHNOLOGICAL MILESTONES

- 1996** FedEx InterNetShip[®], allows customers to process packages on the Internet, making FedEx the first company to provide such a service. (Now called FedEx Ship Manager.)
- 1997** FedEx announces e-Business tools for easier connection with FedEx shipping and tracking applications.
- 1998** FedEx initiates Project GRID (Global Resources for Information Distribution) to replace 60,000 dumb terminals and some PCs with over 75,000 network systems.
- 1998** FedEx Ship[®] for workgroups – a windows-based software housed on a server that lets users share information such as address book data, access to shipping logs and a tracking database – is initiated. The server can be connected to FedEx either by modem or the Internet.
- 1999** FedEx PowerShipMC[®], a multi-carrier electronic shipping system, offers a bundled (ground and air) shipping interface for customers.
- 1999** The company reports spending almost 10 percent of its \$17 billion annual revenue on information technology.
- 2000** FedEx launches new customer technology solutions including a redesigned web site to integrate express and ground functionality, FedEx e-Commerce Builder, FedEx Global Trade Manager and FedEx Ship Manager[®].

Over the years, a “core competency” of FedEx has been investing heavily to push the technology envelope, and to fuse advanced technologies to remain on the leading edge of the technology frontier. This has in turn given the company an enormous degree of technological advantage:

- FedEx data centers process more than 20 million transactions daily, more than any other U.S. company.
- FedEx has installed terminals at 100,000 customers’ sites, and given proprietary software to 650,000 customers.
- FedEx operates the most extensive private client-server network in the world, handling more than 100 million information requests from more than 3,000 databases each day.
- FedEx operates the largest digital network of any company in the world. It has built the third-largest private computer network in the world.
- Over 5,500 IT staff are located in “tech centers” that include: Memphis, Hudson (Ohio), Leiden (the Netherlands), Singapore, Orlando, Colorado Springs, Dallas and Pittsburgh.
- FedEx conducts its business through air, ground, and information technology networks communicating through:
 - ▶ 10,000 workstations
 - ▶ 1,000 LANs
 - ▶ 2,500 servers
 - ▶ 50,000 PCs (486 or greater)
- To extend its connectivity with customers, FedEx recently added new service innovations to its website, www.fedex.com.
- FedEx’s staff of meteorologists, the only such staff on a commercial all-cargo airline, can forecast weather at a runway visibility of 700 feet. This pinpoint accuracy exceeds that of the National Weather Service forecasts.
- More than 60 percent of all FedEx packages are generated by customers linked to FedEx electronically.

FedEx was created to serve the emerging New Economy and has continuously operated according to New Economy principles. Upon inaugurating the www.fedex.com site in 1994, Fred Smith observed, “We were originally formed as a child of the computer age to transport

electronics and computer parts. Now we've become its progeny." The company has relentlessly looked for means to identify and fuse newly available technologies to improve customer service and efficiency. According to *Wired* magazine, "What defines a new-economy company? Globalism. Communication. Innovation. Technology. Strategic vision. Only FedEx has all five of these fundamental qualities as core business elements."³

³ *Wired* magazine, June, 1998.