FedEx Corporation: Investing in Information Technology for Competitive Advantage in a Dynamic Global Environment

During the late 1960s, Frederick Smith (Smith) chanced upon an idea to start an airline courier company. During this period, it was common practice to send packages as cargo on commercial carriers like American, United or Delta Airlines. This practice had a number of drawbacks because passenger airlines usually operated during the daytime and were grounded at night. In addition, freight forwarders (the company responsible for carrying the packages from the airport to the destination address) usually did not offer home delivery. Smith felt the need to start an airline courier company that would address all these problems...

Leveraging Information Technology

In the late 1970s, FedEx saw a great benefit in using IT to simplify its business processes. Smith had very early on understood that speed, reliability and customer service was an essential factor for success in the global transportation industry...

Using the Internet

The widespread use of the Internet from the early 1990s threw open significant opportunities for FedEx. Since the company already had an EDI based system on which it had spent a lot of money, FedEx decided to use a combination of Internet and the EDI.

One example was the implementation done for the purchasing of products. FedEx purchased a product from a company called Ariba. Ariba was a requisitioning system that was housed on the FedEx intranet. The system was set up so that suppliers could maintain a database of catalogs that could be accessed by any FedEx employee...

IT in Human Resources

FedEx had in place Interactive Video Instructions

(IVI) that allowed employees to take advantage of slack periods to train themselves at any time of the day. The program was used for training and test preparation (Customer service employees at FedEx were tested twice a year on job knowledge)...

IT in Customer Service

FedEx also used IT to improve upon its customer service, by monitoring various aspects of a customer's transaction. The goal was to achieve "100% accuracy, quality, and customer satisfaction" on all transactions. One such system that FedEx used was the Service Quality index (SQI) that quantified every part of a transaction like "Was the package undamaged? Was the customer billed correctly?"...

FedEx Today

In 2003, FedEx operated one of the world's largest computer and telecommunications networks-more than 75,00015-networked computers and thousands of hand-held computers that recorded and tracked shipments. FedEx's data center processed more than 20 million information management system transactions daily, more than any other US company.

As of 2003, the company website hosted more than 6.3 million unique visitors per month and handled on average over 2.4 million package tracking requests daily. More than 2 million customers connected with the company electronically everyday, and electronic transactions accounted for almost two-thirds of the more than five million shipments FedEx delivered daily...

FedEx integrates the use of both old and new technology to perform and provide services to its customers. FedEx is becoming digitally innovative by expanding and adding new facilities worldwide. FedEx also integrates Wireless Solutions, Bluetooth, and RFID, which help to locate facilities such as stations for loading/unloading, dispatch centers and customer packages. FedEx's use of old technology and the adoption to new technology helps to achieve its company's goal: "to provide its customers with a service that is fast-paced, efficient and reliable that benefits both the business and its customers" (FedEx 2006).

Without the Internet, FedEx would not have been able to prosper. "Internet Technology adoption has helped us meet service levels with our customers and it is one of our key strategies to acquire

and retain customers" (Express Computer 2004). FedEx's website allows its customers and business partners to have access to information regarding shipment process, locations, tracking, freight services, and expedited services. The Internet "provides fast, easy and convenient service options for FedEx customers" (FedEx 2006). Ever since FedEx adopted Internet technology, it has currently integrated Wireless and Bluetooth Solutions.

Wireless Solutions & Bluetooth

FedEx has implemented wireless technology which enables efficient package tracking and package scanning for both its business and its customers. "Wireless technology lets these companies shave off precious seconds throughout the delivery process" (Gruman 2004). This technology adoption offers efficiency, productivity, and increased communication between customers and the business.

Package Tracking

The implementation of wireless technology keeps customers informed about package whereabouts. This process is called package tracking which makes use of SuperTracker Technology. "Wireless Solutions is easy to track the status of your FedEx Express, FedEx Ground, and FedEx Freight shipments or find the nearest FedEx Express drop-off location using your Web-enabled wireless device - anytime, anywhere" (FedEx 2006). FedEx benefits from package tracking by using web-enabled devices such as Wireless Application Protocol (WAP) phones, Personal Digital Assistants (PDA), and pagers to notify its customers about the location of their package. The WAP phone provides limited Internet content to mobile phones as the basis for communication between drivers and the business. Thus, FedEx's shippers and receivers still use these web-enabled SuperTracker Technology devices for package tracking but integrate the use of RFID as part of their new technology implementation as mentioned in the sections below.

Package Scanning

FedEx Express and FedEx Ground perform the process of package scanning from pickup to delivery at every step of the shipping process. "FedEx uses wireless data collection devices to scan bar codes on shipments" (FedEx 2006). The packages' barcode is scanned to record time, destination, and delivery information that are immediately updated on FedEx's supercomputer for its customers to retrieve. This offers customers 'convenience' to track the status of their shipment in the transport process using FedEx's RFID technology. For example, a customer can

enter their parcel reference number on the FedEx website and immediately identify the location of their parcel.

Microsoft PowerPad & Bluetooth

FedEx currently uses a [Bluetooth](#) radio to send package information – a data collection device for couriers called the PowerPad. The FedEx PowerPad is a Microsoft Windows-Powered Pocket PC that works by scanning a package and the PowerPad immediately uploads information such as signatures, proof of delivery, and time stamp into the FedEx network. "The PowerPad incorporates a micro-radio for hands-free communication with a printer and mobile computer in the courier's delivery vehicle" (FedEx PowerPad 2003). The PowerPad enables FedEx to retrieve current information about customer package delivery. This boosts courier efficiency and maximizes package visibility, thus, saving time for both FedEx and its customers.

Digital Pen

FedEx also uses a digital pen that incorporates a wireless transceiver and infrared camera that takes images of user writing patterns.

The digital pen is a device that enables FedEx to take handwritten information and transform it into digital data in a way that is completely unobtrusive and requires no behavioral changes on the part of our customers (FedEx PowerPad 2003).

This provides security and proof of a user's inputted information and is immediately transmitted in real time. "Digital data can be sent via general packet radio service (GPRS) to another mobile phone, PC, personal digital assistant (PDA), fax machine or other information bank" (FedEx PowerPad 2003). The adoption of Bluetooth wireless technology tends to offer FedEx's customers and businesses with efficiency, productivity, and cost reduction. FedEx faces problems using the Bluetooth technology – "signal interference from its 3-year-old 802.11b network, which used the same frequency, as well as from the radio noise emitted from sorting belts' engines and from the lights" (Gruman 2004). Technically, the use of the digital pen offers reliability of information and reduces paper waste.

Radio Frequency Identification (RFID)

FedEx has been using [RFID](#) technology since 1999. FedEx Ground currently uses wireless RFID technology for asset tracking in a business to consumer (B2C) environment. RFID makes the leap from the old handheld scanners to the new Bluetooth Pocket PCs making FedEx the efficiency expert. **"R**adio **F**requency **Id**entification (**RFID**) is an integrated technology allowing businesses to easily monitor the arrival and automatically retrieve data" ([Wikipedia](#) 2006). For example, if a shipper wants to know where Customer A's package is, the shipper just has to enter a reference number into the Pocket PC and it will directly tell you where the package is located in inventory.

The use of RFID helps to reduce inventory overload in storage as well as the tracking and monitoring of shipments. "FedEx, using Bluetooth and GPRS, ensures efficient dissemination of information in which customers are able to clearly locate packages in shipment" (Emigh 2004). Tracking enables one to locate packages in a country, storage/inventory or in delivery. Hence, it is like a secret key to the transportation process. For instance, a customer sent a parcel to his friend in China, but would like to know where it is – this can be found using a RFID tag that will obtain information that the parcel is on the FedEx Ground truck crossing Country 'X'.

Velcro Wristband RFID
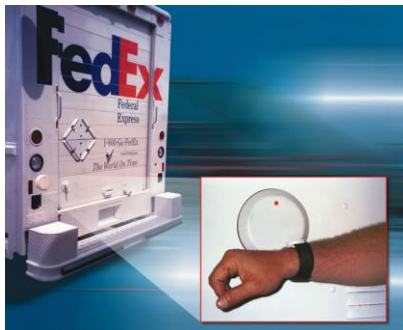
FedEx adopted *Velcro Wristband RFID transponders* for couriers to restructure FedEx's delivery process. "FedEx uses an automatic keyless entry and ignition system" (TIRIS Group 2004). The wristband offers FedEx's delivery employee a 'hands-free' vehicle access rather than having to scramble around to find keys while holding customer packages. The wristband is beneficial to FedEx because it provides efficiency for the couriers to get products out to their customers without difficulty. Thus, RFID is an efficient tracking device for FedEx in terms of inventory as well as providing its customers with speed, reliability, and visibility.