United Parcel Service (UPS) is using modern technology to revolutionize supply chain management. The shipping company is expanding its business to involve a symbiotic relationship between itself and any outside company that will integrate their technologies into their processes. UPS is growing its wireless, billing, freight and international technologies to truly offer a well rounded solution for any small to large company’s shipping and supply chain management requirements. Largely web-based the technology solutions simplify and increase cost efficiencies of any company. One of the best parts of the UPS software and product offerings is that companies can mix and match and add on any element that will benefit them. Supply chain management is an increasingly complex issue within companies, especially in today’s day and age. As companies increasingly need to compete on an international landscape UPS technologies are leveling the playing field.

Wireless Technologies

The United Parcel Service of America, Inc is constantly improving and implementing wireless technology around the world. These wireless technologies are strengthening the company’s value chain. UPS is the world’s largest package delivery company. The two related wireless technology topics that will be emphasized in this section are: wireless logistics and wireless solutions for customers. The pros and cons of deploying these technologies will be discussed, as well as the current competitive forces and corporate strategy.
UPS has already started its global roll-out of wireless technologies including: Bluetooth, Wi-Fi, and various cellular systems. Their plan for wireless logistical deployment started in Europe. These technologies are used in package sorting centers. A Bluetooth finger ring enables the package sorters to quickly and easily scan bar codes. Data travels from the ring to a belt-worn Wi-Fi device. UPS planned to have 55,000 ring scanners deployed in 118 countries by 2007. Deployment of these technologies is part of their competitive strategy. They believe that the cost increases will provide sufficient additional value. These technologies will provide enormous time savings to the company; and provides for a flexible work environment. “UPS will install about 12,000 access points across 2,000 facilities as part of this rollout.” The resulting network will become one of the largest in the world.

DIAD (Delivery Information Acquisition Device) is the latest technology UPS is testing in the U.S. UPS developed and deployed the first Delivery Information Acquisition Device in 1991. DIAD IV is the latest generation device. This device allows connections with multiple wireless connectivity points and combines GPS (for positioning), Bluetooth, Wi-Fi, and GSM networks. The built in 802.11b wireless local area network connectivity allows transmission in UPS centers. GPS (Global Positioning Satellite) will provide drivers detailed navigation to customer sites. The DIAD IV contains 128 megabytes of memory. This added memory will allow for an increase in customer services. Delivery information is sent to UPS via the DIAD as soon as it is entered into the device. On-Demand Services enable real time communication with the driver. Text messages may be sent and received by dispatchers and management. Furthermore, this service allows UPS to take advantage of the most ideal geographic
locations for pickups. UPS does have the most comprehensive tracking device in the delivery industry. The UPS truck delivery system contributes directly to their competitive advantage.

The wireless solutions that UPS offers to customers are invaluable. Customers may access UPS applications wherever they are to download shipping and tracking information. These services aid business customers by keeping their mobile employees informed and up to date on shipping information. Providing customers timely and accurate information allows them to facilitate their client relationships, this benefits both businesses tremendously. There are a vast amount of resources available wirelessly through UPS. Customers may search for the nearest UPS location on their wireless phone or PDA. Calculating rates and tracking shipments is quick, easy, and convenient with UPS wireless solutions. Updated status reports of your shipments are available with just a few quick commands to your PDA.

In 2000 FedEx expanded into the ground market and became the biggest competition for UPS. FedEx offers an abundance of technology solutions. Getting rate quotes and finding drop-off locations is easy from your web-enabled mobile device. FedEx is continually enhancing their wireless solutions to improve efficiency and productivity. Their strategic alliance with w-Technologies, Inc, a global provider of wireless software products, has improved their wireless solutions. They know that an expanding mobile work force will require leading-edge technology for those hand-held devices. “FedEx long ago realized that information about a package is as important as the package itself,” Said Mike Glenn, an executive vice president of corporate communications. FedEx continues to be the leader in wireless solutions. They have a
strong competitive advantage because of their ability to deploy information technology.

“FedEx pioneered the use of wireless technology for shipping nearly 20 years ago when it began using its Digital Assisted Dispatch System (DADS), one of the world’s largest private radio networks.” The Infrared data-transmission capability allows employees to scan bar codes more quickly.

UPS has established its competitive advantage by strategically choosing which information systems to develop. This organization’s strategy is facilitated by its information systems. Offering better services and competitive prices across the industry are their fundamental strategies. The new technologies at UPS play a key role in obtaining advantages among its competitors. Their technology established barriers to entry by reducing the risk of new entrants, competitor rivalry, and substitutions. UPS differentiates their products from rival companies by using these new technologies for faster and more efficient delivery of products to customers. They will also help set up e-commerce sites for businesses that use their shipping services. By increasing supply chain outsourcing UPS is reducing its supply chain costs by 20% which allows for more innovations in technology.

Yahoo and UPS have entered into a partnership which allows customers to open their own online stores. The discounted pricing and integrated shipping tools benefit the customer tremendously. UPS Online Tools are easy-to-use and are built-in to the site, this allows businesses to print shipping labels and provide accurate shipping rates. By partnering with Yahoo, UPS can offer their customers a secure and reliable platform backed by Yahoo. UPS handles the threat of substitutes by offering these services. Businesses utilizing these online tools can offer their customers enhanced service.
Flexible shipping options and Web-enabled shipping procedures allow customers to shop and track from one location. Costs are reduced through more efficient shipping, reduced errors, and decreased customer support calls. The whole process is simplified as a result of these information systems.

Employees at UPS are scanning the bar codes on over 13 million parcels every day. The customers demand for real time tracking is constantly increasing. In 2001 UPS started bidding on a wireless scanning system that utilized Bluetooth short-range radio. Thanks to the newly available 802.11b wireless standard all tracking data was sent to the facility’s server at double the rate of before. This program called for UPS to invest $120 million, but the increased productivity and reduced equipment repair costs have more than offset the costs. RFID tags have been considered by the UPS information technology division, however, they were not chosen for several reasons. The RFID tags are not as accurate as bar code scanners and replacing current scanners with RFID would be too costly.

Most digital wireless phones work with UPS wireless services; however, Short Message Service (SMS) and a Web-enabled connection are required. The micro browser on the phone allows access to UPS account information. It is also possible to set up multiple wireless devices which can be stored in a Wireless Profile.

UPS also provides high tech consulting services to a variety of businesses. They can provide independent evaluations of supply chain strategies and suggest technological improvements. These flexible solutions are capable of paying for themselves within the first year. Companies such as Cisco Systems turn to UPS for Supply Chain Solutions. Even though Cisco is a worldwide leader in networking solutions, the input that UPS
Billing Solutions

Billing solutions are some of the most important elements in the delivery package industry. Billing Solutions provide customer satisfaction which is a critical factor to be a successful company. With more accurate billing solutions less claims can be brought against the company. UPS offers a number of options for viewing and analyzing bills to help companies allocate payments. These options also reconcile UPS charges more effectively by using many technologies.

The UPS Paper Bill is the most popular and standard billing system. The system provides information about UPS charges and is sent via U.S. Mail for delivery every week. Compared to the other systems, it is a longer process, however many customers, especially non-business purpose customers are satisfied with the weekly speed. UPS Paper Bill is also good for the customers who have no training or special technology to receive and review. Customers will receive the UPS Paper Bill automatically if no other billing solution is selected.

The UPS Billing Center is a Web site that allows all customers to view their UPS domestic and import invoices. Customers are able to get their invoices faster and access real-time information. Another option is that they can also pay their invoices online. This system helps customers to eliminate excess paper work and improve productivity and streamline invoice and payment processes.
UPS PDF Invoice is a system to show invoices faster, for the UPS Domestic, Import and LTL invoices. UPS PDF Invoice is an exact copy of the UPS paper bill but in an electronic PDF format. For customers, receiving an e-mail copy of the invoices is much faster and easier than receiving a paper bill. As soon as invoices are ready UPS will send the information. This system is good for small companies because UPS will send the invoice e-mail to up to five e-mail addresses of their choice. Also, a link in the five e-mails allows recipients to download the PDF copy of the invoice so the customer can print out the invoice from any computer.

UPS offers the downloadable Billing Analysis Tool to analyze charges quickly and easily. The tool works with billing data to produce insightful reports quickly and support companies’ business processes. The tool makes reporting UPS shipping information fast and simple by offering a variety of expense summaries and subtotals, which can be arranged by companies’ cost codes, by UPS service, shipping method, and more. UPS Billing Data is a detailed global electronic billing file providing shipping and brokerage charges in a CSV or XML format. The Billing Analysis Tool will be good for many companies which wish to have their billing data to generate professional reports, such as company's global shipping costs, domestic and import charges, or LTL charges. UPS provides both for the owners of Microsoft Access and a standard version that does not require Microsoft Access.

The UPS Flat File Bill is an electronic billing file that contains UPS billing data and provides shipping charges in a CSV format. Like PDF invoices, the UPS Flat File Bill will be sent weekly to five e-mail addresses. The Flat File Bill makes expense management a lot easier than with a paper bill. UPS provides the Flat File Bill Tool, and
it is good for managers who wish to make the billing data even easier to analyze. The system works with a billing data to quickly produce beneficial reports that support its company’s business processes. The tool simplifies the analysis and reporting of companies’ UPS shipping expenses by offering summary reports and subtotals, which can be organized by the companies’ cost codes, by UPS service and shipping methods.

The EDI bill is designed for larger enterprises with the technical resources necessary to integrate the billing data with internal systems. This system allows customers to integrate UPS billing information into accounting and other business systems. The system automates the transfer of billing data between UPS and customer’s computer systems. It also consolidates invoices for multiple shipping locations into an EDI invoice file to aggregate all charges for the company.

UPS offers many different solutions for each level of different customers needs. By providing many kinds of technological systems for billing solutions UPS can maximize customer’s convenience. As the result of that UPS can reduce major claims about billing and be successful in keeping their customers. It seems very expensive to develop and improve those billing systems and databases. However, once customers get familiar and comfortable with the systems or the databases, companies tend to hesitate to change their systems.

Freight Technology

In sustaining competitive advantage in domestic and global marketplace, United Parcel Service continuously expands its services and improves its technologies to help companies manage their shipping operations. Due to globalization and significant
advances in technology in today’s businesses, customers are expecting higher performance levels and more options for shipment solutions. To be on the competitive edge, UPS has expanded and improved its supply chain shipment technology capabilities to meet these demands. These enhancements are visible when UPS introduced its improved version of WorldShip and Quantum View software technology a few months ago. Also this year, in its efforts to stay ahead of their competitors domestically, UPS has changed its delivery services to include the new Intercept service, and the integration of the former Overnite Corporation into UPS Freight(SM) in 2006 has led to the deployment of hardware technology and also improves its UPS Internet Shipping Web page. These technology improvements help customers to track packages and freight shipping between trucking, air, rail and ocean transportation modes. The implementation of technologies has positioned UPS as the world’s largest package delivery, top motor freight carrier in the U.S., and the leading global freight provider for small and large businesses today.

According to McKinsey and Company, global package and freight shipments are expected to more than double over the next decade. Therefore, UPS has made it easier for its corporate customers to manage their global shipping operations by focusing on improving its software technologies. UPS WorldShip is a management tool that allows customers to track multiple types of shipments whether domestic or international, small package or heavy freight. More than 550,000 customers globally have downloaded WorldShip which has made it one of the most popular and widely used transportation software applications. UPS has recently enhanced its WorldShip to empower customers with information beyond the traditional functions. With the new WorldShip 9.0, available in 14 languages, shipping information can be imported into user’s computers.
WorldShip has made international shipping much simpler by giving users the opportunity to choose from three time-of-day shipping options. WorldShip 9.0 allows customers to prepare shipping labels for small package, link to UPS Internet Shipping to create Bill of Lading for freight shipments, determine who pays shipping charges, and determine who pays duties and taxes for international shipments right from their desktop computer.

UPS’s new version Quantum View applications, when used with WorldShip 9.0, allows extensive options for managing global shipping. With this application tool, shippers can keep their customers notified of shipment status with Quantum View Notify, and when shipments are on their way, Quantum View Manage provides visibility into where exactly the shipment is in the supply chain. Quantum View Manage allows customers to monitor and track small package shipments as well as air, ocean, and ground freight shipments without the need for a tracking number. It also enables customers to have access to freight document images and historical freight data up to 120 days. With Quantum View Manage, users can also search, sort, filter, e-mail, and download shipment data functions. Quantum View Manage has been enhanced to help U.S. importers clear shipments into the country; WorldShip and Quantum View software enhancements not only make it easier for customers, but also strengthens UPS’s main technology offerings.

To differentiate its services from its competitors, UPS has introduced a new delivery service called UPS Delivery Intercept, released a few weeks ago. This new automated service makes it easy for shippers to correct their shipping mistakes. UPS Delivery Intercept provides customers with the ultimate flexibility and control by allowing shippers to intercept and reroute packages before they are delivered. Customers
who use UPS package applications such as UPS WorldShip or UPS Internet Shipping can simply click on the tracking number and request a reroute. Also they can receive notification that the interception was successful when using Quantum View Notify and can view the intercept status on any UPS visibility system. UPS Delivery Intercept is a 24/7 service and can intercept packages being shipped from anyone and to anywhere in the United States and Puerto Rico.

The integration of UPS Freight has led to the deployment of new technology called the DIAD IV. The DIAD IV is a handheld computer that was introduced and put to use by UPS drivers this year. In the United States about 4,800 DIAD IVs are being deployed by UPS Freight to provide customers with improved visibility into the movement of their ground freight shipments. The UPS drivers have a competitive advantage by being connected through the DIAD. Drivers use the handheld computers to collect and transmit shipping data so that customers can have immediate visibility at any point of the shipping process. The DIAD IV is UPS’s latest hardware technology. Today the DIAD IV has many capabilities, such as Internet access, more memory storage, wireless connectivity options, and Global Positioning Satellite.

United Parcel Service is turning to software technologies that are Internet-based to better integrate shipping and tracking. Because of its technology capabilities UPS was able to provide its customers with a full range of domestic and global shipping services. On a single Web page called UPS Internet Shipping customers can ship and track small package shipments, air freight, ocean freight, and ground freight using either a tracking number or a customer-created reference number. Customers can simply create LTL bills of lading, request a freight pickup, and e-mail ship notifications to customers with just a
mouse click. UPS has enabled its customers with the ability to know where goods shipments are at all times. UPS customers who are using Flex Global View or Quantum View software will have access to the tool directly from the UPS Internet Shipping Web page. With Flex Global View users are able to send and receive delivery notification as well as get detailed visibility of the progress of their shipments and with Quantum View small package shippers are able to set up automatic delivery status alerts to their customers.

Amidst much competition UPS is known for its integrated worldwide ground and air network. UPS extensive international expansion and wide range of service options has made it a global leader in supply chain services. By focusing on advancing technologies and supply chain management solutions for companies worldwide, UPS has gained its competitive edge over others in the industry.

Import/ Export, International Shipping Technology

In the modern business world the barriers between countries are becoming non-existent and the need for all businesses small and large to operate on a global level is rapidly increasing. UPS Trade-Sense Software Business Suite is a package of software that does just this. The software enables any business to facilitate their global operations by easing import and export processes. There are 5 elements of the Trade-Sense software system that include: Drawback, Export, Import, NAFTA and Trade Data Repository; these elements cover all the needs of small, medium and large size businesses in a manner that takes work off of the IT and shipping managers at the company and puts it onto a very experienced and highly functional third party.
The most impressive element and foundation of the Trade-Sense Suite is the Trade Data Repository which enables the Import and Export elements of the Suite. The Trade Data Repository is a program that will update tariff and duty information on individual products using the SKU, and given this information can verify that the amounts paid on your shipments are accurate; this is a very valuable element as researching customs and trade restrictions/pricing can be time consuming and expensive. This design saves additional unexpected miscalculated costs and keeps accuracy within the company. The program also is designed to enhance accuracy in the reporting and storage of forms and information for the company’s imports and exports. “The Trade Data Repository can improve cross-border inventory and supplier management by verifying that items are classified and the correct duties paid in order to make the customs process flow efficiently (UPS Trade-Sense Trade Data Repository, 2007).

The export application of the program runs in unison with the data repository and will allow for buyers and suppliers to track international shipments. The program reduces compliance errors and increases accuracy of company documents. The program is easily integrated into other management applications and thus facilitates creation of reports that otherwise would not have been viable. By facilitating customers and suppliers while also easing the processes of employees the company becomes vastly more effective and desirable to deal with.

On the other end the Import application of the program allows the company to monitor its imports in all three stages of the process. This program enables the user to self file the customs documents and enhances the individual accuracy and efficiency and reduces costs proving to be an all around benefit.
In a company with high turn around on imported and exported products there come large issues with calculating duties and duty drawbacks, which are refunds on duties paid on goods that are ultimately exported. UPS Trade-Sense Duty Drawback is a piece of software that can be integrated into your own system/program, used to calculate duties/drawbacks, or works as a standalone program. By tracking all of the companies imports and exports, duties and drawbacks are easily managed or retrieved. The major benefit of the program is to increase efficiency and lower costs. The program also facilitates collection of monies owed to the company for overpayments.

The final element of the Trade-Sense Suite is the program that checks a shipment for NAFTA compliance. The program will examine the bill of materials item by item to verify their compliance with US Borders and Customs law. This helps the company remain compliant with every shipment made and keep costs accurate.

Moving beyond the shipping side of import and export UPS also offers the Flex Global View Suite of software that has elements which aid in a company’s monitoring of trends and problems within their supply chain. The Advanced Analytics element of the suite is a database that stores relevant information to query a multitude of reports for analysis on a large or small scale. A key report is to monitor trends in the supply chain and see how changes effect different geographic locations which aids in creating a more efficient and informative supply chain. This helps to increase efficiency in any business small or large.

UPS is truly on the cutting edge of supply chain management; with all they are doing they are really allowing businesses at any level to easily and effectively operate on the global level and manage their supply chain, while reducing costs and waste; however
there are still some issues related to supply chain management beyond their scope that impact the flow. “While UPS has set a standard for its part in supply chain management scenarios, most enterprises could not be classified as operationally efficient. One major issue, according to Barnes, is that most supply chains are incapable of handling emergencies or crises” (Farber, 2006). (The identified person Barnes, in the quote is UPS Chief Information Officer.) Other problems associated with international supply chain are visibility, complexity and the growing distance amongst the supply chain. These however are issues that UPS is successfully addressing. Through time and experience adjustments in the UPS programs and technologies will further reduce problems with supply chain management on an international level.

One example of how UPS is effecting business operations of companies is with Ikor, a company who manufactures specialized industrial filtration products, who were growing rapidly and needed help implementing and managing their supply chain. “So Ikor turned to UPS Supply Chain Solutions, a unit of United Parcel Service that now handles all customs brokerage and ground, air, and ocean transportation for Ikor, using its UPS Trade Direct Cross Border software. The proprietary software compiles and consolidates orders, routing them for transport and expediting customs clearance. Having a single point of contact for all its logistics needs has made a world of difference to Ikor, Lesniak says. It enables his company to focus its resources on its core business, while benefiting from UPS's expertise in logistics processes, systems, and infrastructure. Ikor no longer spends time setting up the logistics and tracking of orders” (Malykhina, 90). It just goes to show how UPS is using technology to plan intelligent ways to improve
supply chain management and while improving business in outside companies increasing and improving their own business as well.

UPS technology solutions are allowing small companies to compete on the same level as large companies, and opening up competition on an international level. By facilitating the ease at which companies bill and calculate cost overpayments and collections have increased efficiencies. The technology solution such as the DIAD IV allow increased efficiencies in the warehouses speeding up the shipping process and increasing accuracy in tracking goods and shipments. By facilitating international import and export UPS allows any company worldwide to do business worldwide. With everything UPS is successfully achieving in regards to supply chain management the ease at which companies operate is increased and costs are decreased. UPS has set the standard in supply chain management and by pioneering technology solutions have gained the competitive advantage.
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