CENTER FOR INFORMATION SYSTEMS RESEARCH

Sloan School of Management

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CASE STUDY

**United Parcel Service:
Delivering Packages and E-Commerce Solutions**

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CISR WP No. 318

☐ **Research Article:** a completed research article drawing on one or more CISR research projects that presents management frameworks, findings and recommendations.

☐ **Research Summary:** a summary of a research project with preliminary findings.

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CISR Working Paper No. 318

Title: **United Parcel Service: Delivering Packages and E-Commerce Solutions**

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Abstract: This case study describes how UPS has successfully migrated from a bricks-and-mortar environment to a clicks-and-mortar environment. It focuses on the development of an IT capability that positioned UPS to aggressively pursue e-business opportunities. It then describes the firm's wide ranging e-business initiatives, which include providing UPS functionality in vendor software packages, providing downloadable functionality on its website, and creating and e-Ventures group to seek out new business opportunities. The case addresses the challenge of moving quickly to provide e-business solutions while leveraging UPS' robust infrastructure.

14 Pages

UNITED PARCEL SERVICE:
Delivering Packages and E-Commerce Solutions

The business model is changing, and our focus is changing. Our customers are demanding broader, deeper services, whether that's running telephone centers for them or doing their billing for them or going out and repairing and replacing their computer parts for them. We're doing all kinds of things we didn't dream of doing ten years ago.

> —Jim Kelly, CEO and
> Chairman of the Board, UPS

Jim Kelly, CEO of United Parcel Service (UPS), a company best known for reliable, efficient package delivery, was commenting in late 2000 on how his company had become far more than a package delivery company. For a decade, UPS had been capitalizing on opportunities created by information technology to increase the efficiency and flexibility of its core business. More recently, the Internet had presented a rapidly expanding set of business opportunities. Kelly observed that his challenge was to "walk the fine line" between a focus on enhancing UPS' core business and a focus on developing new business opportunities.

Background

American Messenger Company (later renamed United Parcel Service) was founded in 1907 by James E. Casey to provide local messenger and delivery services in Seattle. By 2000, UPS had grown to become the world's largest integrated package delivery company, delivering an average of 13.6 million packages a day sent by 1.8 million shippers to 7 million consignees. UPS employed approximately 359,000 people in 200 countries around the world. International revenues represented only about 15% of UPS' $27 billion in revenues in 1999, but international business was growing at a double-digit rate. (See Exhibit 1 for the firm's financial summary.) Despite its size UPS was mostly a centralized business. Core functional units included U.S. operations, International Operations (both of which had regional offices as well), Sales and Marketing, Finance, Legal, Human Resources, and UPS Airlines. UPS started to introduce subsidiaries in the 1980s. (Exhibit 2 lists UPS subsidiaries as of late 2000.)

UPS emphasized efficiency in its delivery services. The firm employed a large industrial engineering staff, which studied ways to increase the efficiency of its operations. For example, included in its driver

training programs are instructions on which foot a driver should first put into the truck to minimize the time between boarding and driving. While efficiency was important to the firm's profitability and pricing structure, UPS management attributed the company's long-term success to the efforts of individual drivers who provided reliable, trusted service to their regular customers.

In 2000, UPS was named by *Fortune* magazine as both America's and the World's Most Admired mail, package and freight delivery company[1] and by *Forbes* magazine as Company of the Year.[2] UPS' information technology unit, which had been the recipient of the Computerworld Smithsonian award in 1991 and 1997, earned the firm a place among *Red Herring's* 100 Most Important Companies in 2000 and *PCWeek's* Fast-Track 100. MIT's Sloan School gave UPS a "Clicks-and-Mortar" award in April 2000, calling it the most advanced company in integrating physical and online business practices. These citations recognized that UPS was transforming itself from a package delivery firm to one that would, as senior managers described it, "offer total solutions to customers' global commerce needs."

Becoming a Technology-Driven Firm
Many of the awards UPS received in 1999–2000 recognized UPS' information technology capability, but UPS had not always emphasized information technology in the delivery of its services. In 1985, when UPS offered a single package delivery service at a single price and was generating revenues of about $8 billion, the corporate IT unit numbered approximately 100 people and had a budget of approximately $50 million. Some of the firm's regional operating units relied on their own IT staffs to support local needs, so that total IT spending was about $75 million.

Around this time, the competition was introducing services—most notably package tracking—that were heavily dependent upon information processing. UPS management was not convinced that customers really cared about tracking so they were initially reluctant to invest in a tracking capability:

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[1] *Fortune*, "The world's most admired companies," 01 October 2000.
[2] Barron, Kelly, "Logistics in Brown," *Forbes*, 10 January 2000. According to Barron, "UPS used to be a trucking company with technology. Now it's a technology company with trucks."

We thought, "Why do they care about tracking? We know we deliver them all. It's really only a creature comfort, because we deliver every package every day. We're so effective that there's no reason to track these packages."
> —Mike Eskew, Vice Chairman
> and Executive Vice President

Nonetheless, when Oz Nelson became CEO in 1986, he pushed the firm to invest heavily in information technology and develop the capability not just to track packages but to offer a wider range of services. Frank Erbrick, who was CIO at the time, commented on the motivation to change UPS' technology strategy:

Federal Express' strength with regard to the power of their tracking system and the things they were doing with technology was really eroding what little share of the market we had in air services. The board was immensely concerned that Federal would not only take the air business away, but also start doing daily ground business. They also saw the profitability of the air business and said, "We just can't continue as we are. We have to put a lot of money into technology."

Between 1986 and 1996 UPS invested more than $11 billion in information technology, growing the IT unit to more than 4,000 people by 1997. Convinced of the importance of moving aggressively on IT, senior management did not require traditional financial justifications for infrastructure investments. This gave Frank Erbrick the freedom to build infrastructure with a long-term view. He broke ground for a large data processing facility in Mahwah, New Jersey, hired technical experts from outside the company to address the firm's need for network and database capabilities, and started to develop a centralized customer database. Erbrick noted that package tracking provided the rallying point for IT infrastructure:

There were some applications that were really critical to us, but tracking was always the Holy Grail. People were talking tracking this and tracking that. I said, "Look, we don't have anything in place to do tracking. We have no network. We have no databases. We have no repository for packaging. We are several years away from a sophisticated tracking system."

While the IT unit focused on developing a centralized infrastructure, a senior management committee[3] established the direction for IT and ensured that UPS' expanding products and services both leveraged and directed IT investments. By 1990, UPS had a global network called UPS Net, three centralized databases (people, customers, packages), and a centralized data processing facility. UPS began to build applications around this infrastructure, starting with package tracking and billing.

The centralized IT infrastructure supported deployment of enterprise-wide applications. For example, in 1993 UPS introduced the DIAD[4] (Delivery Information Acquisition Device). This device captured a customer signature with every delivery and uploaded data in real time to the package information database. The device was estimated to save each driver thirty minutes per day by automatically summarizing the day's results. With 60,000 drivers, the cost savings represented by one-half hour per person were significant, but the real value of the DIAD was in the additional information it collected about each package and customer. By capturing delivery data on every package, UPS enhanced its package database with information that it could use to better understand the profitability of individual customers and packages. The company used this information to make routing and pricing decisions, and, ultimately, to provide its customers with information on their individual shipping habits.

In the mid-1990s Frank Erbrick assigned a small team to study Web technologies, and UPS became one of the first companies to create its own web page. Although the initial web page was static, early experiments indicated that the Internet could facilitate linkages among UPS and its existing and potential customers. Accordingly, Joe Pyne, then Vice President of Marketing, assigned a team to study the impact of Internet technology on a supply chain. UPS management had not yet heard the term 'e-commerce,' but they believed that Internet technologies could tighten the supply chain and lead to fewer intermediaries. Eighty percent of UPS'

revenues were generated by businesses shipping goods to other businesses and individual customers. If businesses increasingly used the Internet to sell directly to end customers rather than to wholesalers and distributors, the Internet would prove to be a boon to UPS' business:

> *Fewer intermediaries result in smaller, more frequent shipments and that plays right into UPS' hands. That's what we do well.*
> *—Ross McCullough, Senior Director of E-Commerce*

Extending the Core through E-Commerce
UPS' goals in electronic commerce were to enable more business and to establish a branded presence in global commerce solutions. From the beginning, management believed that electronic linkages with customers would allow UPS to get more deeply into their customers' businesses.

To establish tighter linkages with customers, UPS developed tools that could be embedded into customers' applications. Tracking was the first application. The IT unit built a web front-end onto the existing tracking system as well as an API[5] that individual companies or vendors could integrate into their applications. Putting the tracking tool on the UPS web site generated immediate benefits by reducing call center traffic. Telephone calls were costing UPS more than $2.00 each, while web inquiries cost only ten cents. Marketing considered the internal cost savings to be just the tip of the iceberg. The real benefit would come when customers integrated UPS into their own customer service systems:

> *We've gotten into customers' systems and shown that we can save them money, because if your customer calls and asks a question about your order, nine times out of ten, customer service can't answer it. They have to call shipping and shipping often calls somebody else. So now that one call is*

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[3] This seven-member team, consisting of functional unit heads, was later replaced by a four-person IT Steering Committee.
[4] An early version of the DIAD was introduced as early as 1991 but it had minimal capabilities and was not fully rolled out.

[5] API stands for application program interface. An API is a program that allows two different applications to communicate and exchange data. In this case UPS provided an API that allowed a different company's application to retrieve data from the UPS tracking system. The external system initiated a request for tracking information in a format understood by the API and then the API selected the appropriate data from the UPS tracking system and returned it to the external system.

generating a minimum of two other calls. If we assume the $2.00 rule, now you've got $6.00 in cost, where if I can give you a tracking number when you order—which we can do in our system—and send you to our page, you can self-service. So the customer gets better service. You take away the attitude of poor service providers and you get the right information when you want it.
—Joe Pyne, Senior VP, Marketing and Corporate Development

Although many customers were able and willing to integrate UPS' tracking API into their home-grown software, many others purchased software, including ERP systems. To meet the needs of these customers, UPS established alliances with key vendors. Companies like Oracle, Peoplesoft, Harbinger, IBM, and eventually SAP built the UPS tracking API into their software. UPS followed three principles in developing alliances with software vendors: the APIs would be developed by UPS; they would be embedded into the software of the alliance partner; and the service would be branded—when individual customers accessed UPS systems, the UPS logo would be on their screens.

To enable this strategy, UPS followed a policy of open standards. Management noted that having open standards distinguished its approach to e-commerce from that of competitors like Federal Express, which used proprietary systems:

We realized that we could get to larger groups of people quicker if we would embrace open standards. There were people out there, like IBM and Andersen and Harbinger, and hundreds of other folks that we've done alliances with, that did an awful lot of things better than we did. That really put us in the lead. Our competition wanted to do it all themselves, and that really gave us a leg up as we built these things. It was a good move for us.
—Mike Eskew, Vice Chairman and Executive Vice President

UPS' concern with its software distribution approach was that someone might sell UPS software externally. The firm was developing IT and legal mechanisms that would register users and establish a contractual agreement that limited how the software could be used. An alliance group was actively

"scouring the environment" looking for the vendor solutions that were prevalent among UPS customers. A UPS marketing team would sell those vendors on the value of embedding UPS tools in their software:

A lot of vendors wanted us to pay them to get the tools into their software, and we said no, we're giving you the value of our brand. We're increasing the functionality. Your customers will see greater value in what you're offering.
—Joe Pyne

Following the launch of the Tracking API, UPS introduced a Rates and Services tool that allowed UPS customers to link their own customers to a menu of UPS shipping options and costs. By late 2000, UPS had six OnLine Tools available to customers for downloading, and had compiled a list of 30 services, some functional, others informational, that the company intended to make available through UPS Online Tools. (See Exhibit 3 and the UPS website at www.ups.com for a description of tools available at the end of 2000.)

These tools leveraged the UPS infrastructure by accessing data from the centralized package and customer databases. For example, the tracking tool used data on package delivery transmitted by the DIAD. Because the DIAD confirmed receipt, UPS customers could immediately bill for goods that their customers had received. One UPS customer documented a reduction in days' sales outstanding from 48 to 34 days after tying UPS tracking into its accounts receivable system.

In addition to its OnLine Tools, UPS developed a wide range of web-supported products and services. UPS Document Exchange allowed firms to transfer large electronic files in a secure, encrypted environment, with full visibility real-time tracking and confirmation of delivery. UPS Returns Services supported the return process for shippers who wanted to make their customers' return process hassle-free. Finally, UPS shippers could enter package information on-line and receive the same services as firms that had downloaded the OnLine Tools (See Exhibit 4 and the UPS website at www.ups.com for a description of UPS' web-supported products and services.) These products and services were intended to bring UPS deeper into its customers' businesses and increasingly provide global commerce solutions:

*We are driving deeper into our customers'
systems so that they get a benefit. Then when
we're in there, it's harder for them to get us
out. If we are just talking to them at the dock,
we can be replaced in a day. If we are in
their order entry system, if we're adding
value in their picking system, if we're adding
value in their customer service system, in
their warehousing system, it's harder to be
replaced.*

*—Joe Pyne, Senior Vice President,
Marketing and Corporate Development*

By mid-2000 more than 50,000 firms had
downloaded UPS' OnLine Tools and integrated
them into their shipping or accounting applications.
On December 19, 2000, UPS received 6.5 million
tracking requests, approximately double the number
of tracking requests on the busiest day in 1999. In
1995, UPS had received only 100,000 tracking
requests during the entire month of December. A
UPS press release stated:

*The surge in online tracking requests is a
clear indication of the rapidly growing use of
Internet technology, by UPS and its
customers, to manage the "supply chains" of
everyone from Fortune 500 companies to
individual consumers.*

Managing e-Commerce

UPS located responsibility for e-commerce in an
electronic commerce team with two branches. One
branch focused on alliance building and
communication, strategy development, and
technology. A group within this team defined
technology requirements for OnLine Tools and
handed them off to IT for development. This group
then created marketing plans for each tool that
clarified target customers and the specific,
quantifiable value proposition for the tool.

The second branch of the e-commerce team was a
group of over one hundred ECAMs (electronic
commerce account managers). The ECAMs worked
closely with traditional UPS account managers,
accompanying them on their visits to large UPS
customers:

*So where the account manager has breadth
about the entire UPS portfolio, the ECAM*

*can walk in and give depth to the power of
process and transportation technology. They
can go in and talk about how we save them
$4.77 per returned package because we
provide visibility, or $2.40 because we
provide tracking.*

*—Ross McCullough
Senior Director of E-Commerce*

Both branches of the e-commerce team were
committed to integrating e-commerce into all of
UPS:

*The one key thing is that we did not create a
separate organization in and of itself. In
other words, my team is the core—the
driving component of e-commerce, but it is
not like we went off in a new building and
closed the door and said "Don't come in,
UPSers." We knew that we had to raise
everyone up to know and understand 21st
Century commerce. We are making sure that
the entire IT organization knows and
understands the implications of integration
and how important it is to our future
platform.*

—Ross McCullough

Identifying New Business Opportunities

In addition to enhancing its core business, UPS
believed that the Internet offered new opportunities
to provide global commerce solutions for its
customers. To identify these "out of the box"
opportunities, Joe Pyne created UPS e-Ventures, a
wholly owned subsidiary of UPS. e-Ventures was an
incubator that explored ideas generated either
internally or by potential alliance partners. The
group had assessed more than thirty ideas in its first
year and senior management was funding four of
those concepts as new business initiatives. Each of
the four businesses was expected to quickly deliver
profits:

*We're in the business of making money. Our
investors are not going to be thrilled if we
start losing money as a result of entering a
new arena. So we don't have the luxury of
going into those kinds of things and saying
well, maybe 5 or 10 years from now we'll
start to make a profit. The rules are a little
different for dot-coms than they are for us.*

*—Jim Kelly, CEO and
Chairman of the Board*

UPS launched its first e-Venture, UPS e-Logistics, in August 2000. This venture recognized that many dot-com organizations were focused almost entirely on the front-end of their businesses and were incapable of fulfillment. UPS e-Logistics provided a complete menu of "behind the scene" services that would manage the entire back-end logistics process from the time an order was placed on a customer's web site to the time the order was delivered. Services included warehousing, inventory management, order fulfillment (pick, pack and ship), shipping and delivery, management reporting, returns management, customer care, and telephone support:

> *If you have a good idea and you're a marketing company or a service company, but you have no idea how to fulfill, we'll bring our expertise to do that for you. So then you just have to market, sell your product or your service. And we'll do everything else.*
> —*Joe Pyne, Senior Vice President, Marketing and Corporate Development*

If e-Logistics succeeded, UPS management would have to decide whether to fold it into an existing business unit, such as Worldwide Logistics, or continue to operate it as a separate subsidiary. Management expected that the proliferation of new businesses that would grow out of the e-Ventures unit would make UPS a more complex business.

Managing IT for E-Commerce
UPS' e-commerce initiatives were built on an IT infrastructure that was highly centralized and standardized. A data center in Atlanta replicated the operations of the main data center in Mahwah. Sensing that UPS could not afford down-time, Ken Lacy, the CIO, switched operations on a daily basis between the two data centers to ensure that they could hand off operations without interruption in case of a disaster.

Centralization and standardization led to highly cost-effective IT operations, which had long been a priority at UPS. In the mid-1990s, however, management wanted to leverage its infrastructure to become more flexible and responsive to customer needs. UPS identified a variety of ways that it could leverage its infrastructure to generate value for its customers. For example its customer information

database maintained information on each customer's shipping habits:

> *Customers give us information so that we can provide them with origin and destination management. If they're shipping different products, then that's fine, but if they're shipping similar products, we can say, "You are shipping the same product out of six different warehouses, and if you really wanted to minimize warehouses, minimize the staffing for those warehouses, reduce your inventories, then you can do that out of one or two warehouses. Let us show you how to do that with our logistics group." That lets us come in with our site locators and help them determine the right location to be able to staff, size, and fulfill their orders out of the minimal number of warehouses. That's the kind of thing we can do with data.*
> —*Mike Eskew, Vice Chairman and Executive Vice President*

In addition, the IT unit had started to create more modular applications that could be re-used. This reduced development time, so that applications could be delivered faster:

> *With the Internet, tracking was the first application, and that was just reusing mainframe-based technology. We wrote an interface module that was used originally to interface customer service to our tracking environment. Then we extended it to the Internet, and then extended it for IVR.[6] It's just a query entrance, so basically here's the API, do a query, submit this data. It will go out, peruse all the databases in two different data centers, pull the data together, present it back in this file format, and your application just uses it.*
> —*Jim Medeiros, UPS Information Services*

As the firm learned to leverage its infrastructure, the IT unit found that ideas for new systems applications rapidly multiplied. Meanwhile, the emergence of e-commerce exacerbated the overwhelming demand for IT resources. CIO Lacy noted that heavy demands for IT resources led to a tendency on the

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[6] IVR stands for Interactive Voice Recognition, which is technology that accepts spoken input and converts it to digital data.

part of business units to try to build their own solutions.

> *How do you satisfy the appetite? We could distribute IT resources [to address immediate needs] and later bring them back. Because we keep IT centralized, people say, "Well, I can do it cheaper and faster on my own so I'll go do it myself." We are fighting this all the time. But every time they go out and do the front-end piece with $250,000, then the back end piece doesn't work and they have to come back to me.*
> *—Ken Lacy, Senior Vice President and CIO*

Despite an annual investment in IT of almost $1 billion, UPS could not respond to every system development request that could show a positive ROI. UPS management observed the need for governance structures that would (1) allocate IT resources to the most strategic opportunities and (2) preserve, as appropriate, infrastructure standards.

Establishing IT Investment Priorities
An IT Steering Committee, consisting of four senior executives,[7] was charged with ensuring technology direction. This included determining investment priorities. By the late 1990s, it was clear to senior management that customer solutions demanded end-to-end processes and they wanted to focus IT investment on supporting cross-functional processes within the firm. They identified four key processes: customer relationship management, customer information management, package management, and product management. For each core process, a cross-functional team, headed by a senior executive, determined its IT priorities. Anyone could submit to any of the cross-functional teams a project charter that spelled out the expected costs and benefits of a potential project. The process teams then submitted their highest priority project charters to IT, who could provide the needed resources or negotiate ways to scale back the required resources. Dave Spedden, a representative to the Customer Relationship Management Process, explained the funding process:

> *There was a time at UPS where just about any idea was approved and worked on. We've gotten more into a budgetary process and people are starting to see that all worthy ideas may not get funded. The program management group (cross-functional team) takes all the charters and decides whether or not each project is worth doing. Among those, they develop a cross-prioritization of where each belongs based on return on investment, impact on other functionalities, whether it is really good for the customer and the business, etc. It's a pretty complicated process that we go through once every year usually in the third or fourth quarter to set up the following year's project budget, but it does continue throughout the year because ideas evolve all the time.*

Spedden noted that process managers encouraged business unit managers to submit short-term projects, because "if it takes more than 12 months to deliver, the business will probably change while you're in your cycle."

In addition to funding new development and maintenance, CIO Lacy emphasized to the other IT Steering Committee members the importance of "refreshing" the infrastructure. The increasing use of packages meant that UPS needed to periodically update systems in order to retain vendor support. In addition, standard technologies became outdated, making them expensive to maintain. Of course, no business unit wanted to pay to upgrade systems that were still working, so senior management provided central funding and Lacy decided when systems and technologies needed to be refreshed:

> *On the infrastructure I know that we must bite this off and do some each year. You can put things off, but eventually you're going to get caught. So I try to make sure there are funds available to continually refresh, which is not a real popular thing.*
> *—Ken Lacy*

Protecting Infrastructure Standards
The IT Steering was committed to the principle of technology standards, and members recognized that IT standards meant lower operations costs and easier integration:

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[7] The Steering Committee consisted of Mike Eskew, Vice Chairman and Executive Vice President; Joe Pyne, Senior Vice President, Corporate Development and Marketing; Jack Duffy, Senior Vice President, Corporate Strategy; and Ken Lacy, the CIO.

The scale, the size, the integration with all the other systems, and the maintenance all beg for centralization and standardization. In so many cases, though, our [IT unit] has been the slave of the masters (the business units) that drive them. If you told them what you wanted, they'd take care of your needs. Probably, IT has been overly generous... We have a product management group responsible for developing new [IT] products. They use templates so that we don't bring in one group to develop a Saturday delivery system and then another group to develop a Sunday delivery system a totally different way. Those are the kinds of things that we've struggled with in the past. We've learned those lessons.

> —Mike Eskew, Vice Chairman and
> Executive Vice President
> Member, IT Steering Committee

Senior management wanted to leverage the infrastructure wherever possible, but they also wanted to recognize when exceptions to standard were appropriate. For large projects, Joe Pyne might work directly with CIO Ken Lacy to determine whether the technology to enable a particular new business venture should be developed within or outside the core infrastructure. In other cases, an IT Governance Committee resolved issues around infrastructure standards.[8] Jim Medeiros, who orchestrated infrastructure support of all subsidiaries, including e-Venture projects, noted that a natural tension existed between those who defined unique business needs and those who protected infrastructure standards. His role was to negotiate these tensions so that each new development project within the subsidiaries was built on the most appropriate platform. Senior management, he commented, encouraged ongoing debates around the appropriateness of using standard platforms:

> *I was giving a presentation to our Vice Chairman and I was talking about a particular [non-standard] technology that one of the subsidiaries was looking to use. He stopped me in my tracks and said, "Why are you even discussing it with them?"*

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[8] The IT Governance Committee, which was headed by CIO Ken Lacy and consisted of top IT managers, resolved most disputes so that the IT Steering Committee could focus on technology strategy.

> *Because in his view, it sounded like what we had they could use. And that wasn't the case. But what he was trying to reinforce was, "You know, you've got the stick." But he'll also turn around in other meetings and say to business leaders, "Yes, go out there and push the envelope on the technical side," because these are all technology-based businesses and sooner or later it comes down to the technology.*

> —Jim Medeiros, UPS Information Services

Lacy wanted to be sure that, whenever possible, old architectures were leveraged but that the IT infrastructure did not limit business creativity. Moreover, with e-commerce initiatives, business units were often anxious to deliver systems quickly to test customer reaction. To provide additional flexibility to the business units, Lacy noted that sometimes it would be appropriate for the business units to build new systems on their own, using local contractors. He insisted, however, that they comply with UPS standards:

> *When little companies start up, they want to make things happen. They don't want to wait in line for Big Brown. So where they can use the core, we'll build on that. Where they have to move forward quickly, they'll get their own applications development staff and develop their own applications. They can put their servers in our data center, and we'll give them 24 X 7. But we'll make sure they know our standards.*

> —Ken Lacy, Senior Vice President and CIO

Looking Ahead
In 2000 UPS had, arguably, exceeded Federal Express' IT capability:

> *We did studies years ago and found that Federal Express is perceived as the high technology company in transportation. Well, we track all those key factors by customers now and we've narrowed that gap to where they may have an advantage in two or three areas out of maybe 15 areas. Five to seven years ago, they had the advantage in all but two or three.*

> —Joe Pyne, Senior Vice President,
> Marketing and Corporate Development

In the future, UPS expected to be able to leverage its data and systems to further improve service. For example, if a consignee would not be home to receive a delivery, that consignee could specify where the package should be dropped off. UPS would enter the address into the database and the truck-loading algorithm would recognize the change so that the package could be re-routed without delay:

> *We're going to treat each package and each customer like it's the only one we have.*
> *—Mike Eskew, Vice Chairman and*
> *Executive Vice President*

Even as it looked to enhance customer service in the package delivery arena, UPS was committed to expanding its services and entering new businesses. Jim Kelly noted that in attempting to address customer needs, UPS would enter new businesses that could leverage UPS' infrastructure, brand, and reputation. In doing so, he explained, UPS was addressing the inevitable:

> *You can't stop e-commerce and you can't stop globalization. So you'd better figure out a way to participate in that environment.*
> *—Jim Kelly, CEO and*
> *Chairman of the Board*

Income Statement:	1997	1998	1999(a)
Revenue	$ 22,458	$ 24,788	$ 27,052
Compensation and Benefits	(13,289)	(14,346)	(15,285)
Other Operating Expenses	(7,471)	(7,352)	(7,779)
Total Operating Expenses	(20,760)	(21,698)	(23,064)
Operating Profit	1,698	3,090	3,988
Other Income (Expense)	(145)	(188)	(114)
Pre-Tax Income	1,553	2,902	3,874
Income Taxes	(644)	(1,161)	(1,549)
Net Income	909	1,741	2,325
EBITDA	2,803	4,241	5,241

Balance Sheet:	1997	1998	1999
Cash & Marketable Securities	$ 460	$ 1,629	$ 6,278
Accounts Receivable	2,405	2,713	3,167
Other Current Assets	1,612	1,083	1,693
Property, Plant & Equipment (Net)	11,007	11,384	11,579
Other Assets	428	258	326
Total Assets	15,912	17,067	23,043
Current Liabilities	3,398	3,717	4,198
Long-Term Debt	2,583	2,191	1,912
Accumulated Postretirement Benefit Obligation	911	969	990
Deferred Taxes, Credits, & Other Liabilities	2,933	3,017	3,469
Shareowners' Equity	6,087	7,173	12,474
Total Liabilities and Equity	15,912	17,067	23,043

Notes:

(a) 1999 Net Income excludes the tax assessment charge incurred in the second quarter. The tax assessment reduced 1999 net income by $1.442 billion.

UPS Logistics Group provides comprehensive global supply chain solutions using its expertise to streamline customers' distribution networks to gain efficiencies, save money, improve customer service and better utilize assets and capital. The group operates in the primary areas of:

Supply Chain Management

UPS Logistics provides global supply chain management solutions across a number of industries, including high-tech, telecommunications, healthcare, e-commerce and electronics. The company's inbound, outbound and international logistics services include global distribution, inventory and order management, transportation network management, value-added services, customer service and reverse logistics.

The unit analyzes, designs and manages complex global supply chains. Value-added services include kitting, product configuration, quality inspection, customized packaging and labeling, returns management and international trade management.

Service Parts Logistics

UPS Logistics Group-Service Parts Logistics includes the analysis, design and management of critical parts distribution networks. A worldwide network of transportation carriers, central distribution facilities, and field stocking locations make it possible to deliver critical parts in 1,2,4 and 24 hour time windows.

The Service Parts Logistics unit also provides technical repair services for telecommunications and computer equipment, providing warranty turnaround service in 24-48 hours.

Transportation Services

Transportation Services includes the reengineering, design and management of multimodal transportation networks. Customer benefits include load optimization, improved transit times, more reliable delivery schedules and greater cost efficiency.

Transportation management includes:
- Design: network analysis and reengineering

- Planning: shipment processing, multimodal carrier selection and routing, load building and consolidation; backhaul management

- Customer service: shipment visibility, call centers, documentation

- Management: carrier selection and performance reporting, claims administration, liability and risk management, staffing, auditing and freight payment, on-site management.

Other specialized services include:
- Dedicated Contract Carriage - dedicated transportation solutions, enabling companies to use their resources more efficiently; gain transportation flexibility; eliminate insurance and liability issues; and reduce overall distribution costs. These solutions frequently involve providing a complete package that includes fleet equipment, fuel, maintenance systems, skilled drivers and an experienced management team.

- Freight Services: a full spectrum of shipping options regardless of destination, size, weight or special handling requirements. This includes scheduling pick-up and delivery, preparing the bill of lading, providing full track and trace services, auditing and paying the carrier's invoice.

- Intermodal Services: UPS Logistics Group owns and operates the largest trailer-on-flat-car (TOFC) fleet of temperature-controlled trailers in North America.

Logistics Technologies

A team of in-house IT professionals develop proprietary technologies and integrate them with best-of-breed technology to create supply chain management information systems that provide total visibility of orders and products as they move from origin to destination. This information enables UPS Logistics Group to better manage complex global supply chains for improved reliability, order accuracy, cost management and market responsiveness.

In addition to supply chain solutions support, the Logistics Technologies unit also creates commercial software, specializing in routing, scheduling and dispatching. These products are sold under the brand names Roadnet 5000 and MobileCast.

UPS Capital Corp. is a subsidiary whose mission is to provide a variety of financial products and services that enable and assist companies in growing and expanding their business.

UPS e-Ventures is the research, development and incubation arm of UPS e-commerce. This company's goal is to identify and develop new businesses related to e-commerce and supply chain management.

UPS e-Logistics is the first company developed by UPS e-Ventures. The group plans to offer complete, end-to-end business solutions for the rapid, cost effective launch of e-commerce startups.

UPS Customhouse Brokerage Inc., one the five largest Custom brokerages in the world, operates in 31 countries. This company provides duty services for shippers moving goods across national borders and also provides a full range of customs documentation.

UPS Aviation Technologies, Inc. is a top provider of advanced aviation electronic equipment. This company is the leading designer of new ADS-B technology that promises to transform airspace safety systems.

UPS Strategic Enterprise Fund is a corporate venture capital fund created to research, evaluate and invest in emerging companies that are exploring new markets and technologies.

Business Communication Services (BCS) is a call center services division that offers a full range of customer care services and solutions customized to individual businesses needs. BCS uses the most advanced computer telephone technology in the industry.

Professional Services, Inc. (PSI) is a global management consulting firm that offers business solutions by using innovative technologies, providing financial analysis and time-proven logistics know-how.

Source: Derived from information found on www.pressroom.ups.com/about/subsidiairies

At the end of 2000, UPS allowed customers to download, free of charge, electronic tools (APIs) that interfaced with UPS systems to provide the following services:

- <u>UPS Tracking</u>: Both the shipper and recipient of a package can track the status of the package directly from the UPS website. Information available from the tracking system includes location of the package on its journey from shipper to recipient and estimated time of delivery of the package.

- <u>UPS Rates & Service Selection</u>: A tool that allows a customer to estimate the cost of sending a package. The customer enters the size and weight of the package, pick-up and drop-off locations, and requested service type then a quotation is provided for the cost of sending the package.

- <u>UPS Time in Transit</u>: Customers can use this tool to estimate the ground transportation time for sending packages from the package pick-up point to the final destination.

- <u>UPS Address Validation</u>: To reduce the risk of packages not arriving at the correct destination or being delayed; this tool validates the address and ZIP code to which the package is to be delivered while the delivery request is being entered.

- <u>UPS Signature Tracking:</u> In addition to tracking a package, businesses can also obtain valuable Proof of Delivery (P.O.D.) information including a digitized signature and delivery address. This powerful tool enables companies to obtain P.O.D. of goods often needed to collect on an invoice. UPS Signature Tracking provides P.O.D. in seconds, enabling companies to shorten the time between the sale and the collection of funds. This tool advances UPS' tracking technology.

- <u>UPS Shipping:</u> With the UPS Shipping Tool, businesses can bring UPS web-based shipping to their employees' desktops. The tool also allows a company to customize the interface to meet their business needs. Whether it is creating greater efficiencies in the mailroom, increasing the level of customer service or lowering overall costs due to better controls over shipping activities, this UPS OnLine Tool can streamline shipping without the addition of expensive hardware or software. The tool is ideal for shipping from one location to many, or from many locations to one. It's also one way to network the shipping activities occurring within different retail locations, dealers or branch offices.

UPS Document Exchange
This service allows customers to send electronic documents called e-packages to recipients with email addresses. E-Packages are encrypted and password protected when they are transmitted. The sender can also specify the time of delivery irrespective of the size of the e-Package being transmitted. Management tools are provided to manage receipt confirmations, mailing lists, and the content of the message sent.

UPS Returns Services
This service provides firms that ship through UPS (shippers) the ability to facilitate their recipients' processes for returning or exchanging goods. Two levels of service are provided. In the first case the end customer calls the shipper to request return service. The shipper than contacts UPS electronically to arrange for pickup from the customer's site. UPS picks up the package from the recipient and returns it to the shipper. In the second case, the shipper includes return labels with each package sent. The recipient then has the option of notifying UPS for a pickup or of dropping the package off at a UPS collection site. In September 2000, the company introduced UPS Returns on the Web, an advanced, Internet-based returns solution that simplifies the returns process for both businesses and consumers. The new service is designed to provide consumers with an on-screen label that can be printed on standard paper directly from their PC, complete with a list of nearby UPS drop-off locations, as well as color maps to those locations. Alternatively, UPS return packages can be handed directly to one of UPS's 70,000 drivers. Once shipped, shoppers can then track packages directly from the merchant's site or from UPS's site at www.ups.com. Behind the scenes, merchants – even those routing returns back to multiple suppliers -- can use the service to precisely manage their returns process and analyze returns data for customer behavior and logistics trends. Internet superstore buy.com (Nasdaq: BUYX), which offers 950,000 products through 11 online specialty stores, piloted the new service --providing its customers with labels that print in seconds, whereas traditional returns services can leave customers waiting for labels anywhere from five to seven days. The new UPS service also reduced buy.com's incoming returns calls by 40 percent – a clear indication that their customers prefer using the Internet rather than the telephone.

UPS Internet Shipping
This service is a 'one-stop' service to allow customers to complete all their shipping requirements from the UPS web site. The customer is provided with a userid and password to access www.ups.com; once logged in the customer can schedule a pick-up, print the appropriate UPS packages labels and shipping documentation, and finally track the package to its final destination.

MIT SLOAN CISR MISSION

MIT CISR was founded in 1974 and has a strong track record of practice-based research on the management of information technology. MIT CISR's mission is to perform practical empirical research on how firms generate business value from IT. MIT CISR disseminates this research via electronic research briefings, working papers, research workshops and executive education. Our research portfolio includes but is not limited to the following topics:

- IT Governance
- Enterprise Architecture
- IT-Related Risk Management
- IT Portfolios and IT Savvy
- Operating Model
- IT Management Oversight
- Business Models
- IT-Enabled Change
- IT Innovation
- Business Agility
- The IT Engagement Models

In July of 2008, Jeanne W. Ross succeeded Peter Weill as the director of CISR. Peter Weill became chairman of CISR, with a focus on globalizing MIT CISR research and delivery. Drs. George Westerman, Stephanie L. Woerner, and Anne Quaadgras are full time CISR research scientists. MIT CISR is co-located with MIT Sloan's Center for Digital Business and Center for Collective Intelligence to facilitate collaboration between faculty and researchers.

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Mission and Contact Information as of August 1, 2009.