Business to Consumer Impact on Urban Freight
Chuck Holland, UPS Vice President, Industrial Engineering
Evolution

Messenger → Retail → Common Carrier → Global → Air → Technology → Logistics
Founded in Seattle, WA in 1907

397,100 Employees

220+ Countries & Territories

96,394 package cars, vans, tractors, motorcycles, etc.

230 owned / 332 chartered
(9th largest airline)

949 U.S. / 982 Int’l
Daily flight segments

16.3 Million Packages a day

8.8 Million Daily Customers
Research Identified the Following Mega Trends

- Eco-Friendly / Sustainability
- Broadband Penetration
- Healthcare Reform; Increased Expenditure
- Work-life Balance / Flexibility
- Energy Scarcity
- Emerging Economies
- Privacy / Security
- Big Data
- Urbanization Megacities
- Aging Populations
- Humanitarian Logistics
- Online Migration
- Local vs. National Government
- Personalized Healthcare
Mega Trends Identified as Most Relevant to Transportation and Freight

**Big Data**
Large pools of data that can be captured, communicated, aggregated, stored, and analyzed

**Urbanization**
Urbanization: the convergence of people and resources in urban areas

**Megacities**
Megacity: an urban area with a population greater than 10 million people

**Online Migration**
The movement of people, services, and activities to online forums via digital connectivity
Investigating Big Data

**Description**
*Large pools of data that can be captured, communicated, aggregated, stored, and analyzed*

**Facts / Supporting Evidence:**
- The average visit to a Web page triggered 56 instances of data collection, up from just 10 instances in November 2010 (30 billion pieces of data shared on Facebook every month).
- The size of the digital universe in 2012 was tenfold what it was just five years earlier.
- 51% of executives in a McKinsey global survey indicated that Big Data & analytics was a top 10 corporate priority.
- The global cloud computing market will reach $148.8 billion by 2014.
- The global market for Big Data Technology and Services is projected to reach $33.2 billion by the year 2018.
- Companies are monetizing databases (e.g. Equifax analyzes a database with over 800 billion records to create reports & supplement datasets sold to their 46,000 business clients).
Implications of Big Data

**Description**

Large pools of data that can be captured, communicated, aggregated, stored, and analyzed

**Implications:**

- Changes to marketing and sales tactics (e.g., microsegmentation, real-time & custom location based offers, etc.)
- Increased demand for wide-ranging customer information in all sectors
- Increased interest in shipping data by 3rd party vendors
- Advancement of “smart” technologies and machine learning
- Retailers using Big data to implement efficiency improvements in supply chains and network planning
- Big Data also has implications to fraud protection, visibility, and procurement
- Big Data movement is linked to the online migration and mobile connectivity trends
Investigating Urbanization and Megacities

**Description**
*Urbanization: the convergence of people and resources in urban areas*
*Megacity: an urban area with a population greater than 10 million people*

**Facts / Supporting Evidence:**
- The world’s urban population will double by 2050
- Urbanization trends are occurring faster in emerging markets than in established markets
- By 2025, the world will add another eight megacities to the current list of 19—all except one of these eight will be in Asia and Sub-Saharan Africa
- By 2030, 1 billion inhabitants are projected to live in China’s cities and 68 cities in India will have populations greater than 1 million
- The annual total cost of traffic congestion is growing; today, Istanbul’s traffic congestion costs an estimated $3.12 billion
- In the next 15 years, the 259 largest US cities are expected to generate more than 10% of global GDP growth
- To reduce pollution levels and congestion, cities are beginning to regulate traffic flow
Implications of Urbanization

Description
Urbanization: the convergence of people and resources in urban areas
Megacity: an urban area with a population greater than 10 million people

Implications:
- “City Logistics” services and “Smart Cities” are emerging due to rising demand for land-use, housing and transportation planning services
- Localization is on the rise: “instead of bringing goods into a city, those goods may be produced there”
- People in developing countries are flocking to cities; resulting in an increase and expansion of “slum cities”
- Traffic congestion as well as environmental concerns are causing cities to regulate traffic (including freight and delivery vehicles)
- Pop-up shops and mobile devices will become more important to retailers selling to consumers in these areas
- Alternative delivery services could rise in popularity
Investigating Online Migration

Description
The movement of people, services, and activities to online forums via digital connectivity

Facts / Supporting Evidence:
• 95% of Americans have broadband access and 38% of U.S. households have a television set connected to the internet via a video game system, Apple TV etc.
• Online sales are growing at 3x the rate of traditional retail sales
• 82% of American adults own a cell phone, and more than 50% of US mobile users own a smart phone
• Cheap Sensors, Micro processors and wireless devices are resulting in more connected and automated computer systems
• US Internet users spend more time on Facebook than any other site
• Cloud computing provides vast amounts of information that is always available and easily shared
• Governments are making decisions regarding regulations at a heightened pace
Implications of Online Migration

Description
The movement of people, services, and activities to online forums via digital connectivity

Implications:
• People will rely on the internet even more to buy products and services, connect with friends and family, share information, and be more involved in society
• People will be connected to the digital world through a broad range of devices like Smart Phones, Tablets, TV, Home appliances etc., each of which has the potential to transform industries.
• Mobile computing is creating a “just in time” lifestyle where customers expect what they need when they need it
• Increased mobility will make traditional points of delivery less relevant
• Mobile payment solutions will expand rapidly in developing countries
• Online retailers will open showrooms instead of traditional B&M stores
### Strategic Shifts in U.S.

<table>
<thead>
<tr>
<th>Strategic Shifts</th>
<th>eCommerce</th>
<th>Delivery</th>
<th>Supply Chain Models</th>
</tr>
</thead>
</table>
| **Marketplaces** | Concentration of Power  
  • Sales on Amazon and eBay represent over 30% of the eCommerce market | Testing of ADL and Same-day  
  • eBay and Amazon both have same-day markets, and Amazon has expanded their locker pilot | Expansion of Capabilities  
  • Amazon will have 40+ fulfillment centers by the end of 2012  
  • eBay acquired GSI Commerce in 2011 and partnered with Pitney Bowes to enable ID2C in 2012 |
| **Retailers** | Cross-Channel Strategies  
  • Web-influenced offline spending and online retail sales combined will account for 52% of all retail sales by 2016 | Providing Delivery Options  
  • The majority of retailers offer a free shipping option; 28% offer in-store pickup for online purchases | Inventory Optimization  
  • Fulfilling out of B&M locations and expanding online fulfillment capabilities |
| **Consumers** | More Purchasing Power  
  • eCommerce sales are expected to reach $327B by 2016; mobile commerce sales are expected to reach $31B by 2016  
  • Growth of price comparison | Free Shipping is Preferred  
  • 73% of consumers view free shipping as very important  
  • 12% of online shoppers belonged to loyalty programs in 2011 | Cross-Channel Shopping  
  • 77% of smartphone owners use mobile internet in retail stores; 29% who use a smartphone to research a product in-store end up purchasing the item online |
# Strategic Shifts in Asia

<table>
<thead>
<tr>
<th>Strategic Shifts</th>
<th>eCommerce</th>
<th>Delivery</th>
<th>Supply Chain Models</th>
</tr>
</thead>
</table>
| **Marketplaces** | **Concentration of Power**  
• Sales on Taobao and 360buy.com represent over 52% of the market in China  
• Online marketplace Rakuten is the dominant player in Japan | **Payment Issues**  
• Payment issues force many retailers to ship COD and mobile payment solutions are growing  
• Free shipping and same-day | **Expansion of Capabilities**  
• Alibaba (owns Taobao) and 360buy.com are both investing in their warehousing and distribution capabilities |
| **Retailers** | **Cross-Border Retail Sales**  
• 32% of online shoppers said they shopped on int’l websites (2011)  
• 50% of online retail sites visited by Australian shoppers are int’l | **Infrastructure Limitations**  
• Lack of reliable transportation options and infrastructure deficiencies can limit delivery choices | **Mobile is Guiding Strategy**  
• Mobile shoppers account for 48% of all eCommerce shoppers in Singapore ($328M in 2011 rev.)  
• QR code ordering is becoming popular sales method in Japan |
| **Consumers** | **Rapid Growth**  
• eCommerce forecast for 2016: CN $356B; JP $97.6B; AU $35.4B  
• Large number of internet users | **Free Shipping is Preferred**  
• Free shipping is becoming more common in the mature Asian eCommerce markets  
• ID2C is prevalent in much of the region | **Cross-Channel Shopping**  
• There are over 1B mobile subscribers in China, with 152M 3G subscribers  
• 5% of online revenue in Australia came from mobile devices in ’11 |
<table>
<thead>
<tr>
<th>Strategic Shifts</th>
<th>eCommerce</th>
<th>Delivery</th>
<th>Supply Chain Models</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marketplaces</strong></td>
<td><strong>Concentration of Power</strong>&lt;br&gt;• Amazon and eBay are the market leaders for product/service research in Europe&lt;br&gt;• Amazon accounts for over 21.4% of online sales in Germany</td>
<td><strong>Same Day and ADL Offerings</strong>&lt;br&gt;• Marketplaces are able to utilize same day delivery and ADL solutions to provide delivery options (Amazon Same Day and Delivery Lockers)</td>
<td><strong>Improving ID2C</strong>&lt;br&gt;• eBay Global Shipping Program: calculates total shipping and import charges associated with purchases</td>
</tr>
<tr>
<td><strong>Retailers</strong></td>
<td><strong>High Growth</strong>&lt;br&gt;• eCommerce continues to have double-digit growth in Europe&lt;br&gt;• Each European country is dominated by a few major retailers; Amazon and Tesco are the 2 market leaders (22%) in the UK</td>
<td><strong>Same Day and ADL Offerings</strong>&lt;br&gt;• Same day delivery and ADL are prominent service offerings in Europe&lt;br&gt;• 300 retailers, 130 in France, use Kiala: major players include Zara, H&amp;M and Espirit</td>
<td><strong>International Payment Options</strong>&lt;br&gt;• Retailers expect to serve customers internationally, but providing consumers with locally preferred payment options, including credit cards, remains a challenge</td>
</tr>
<tr>
<td><strong>Consumers</strong></td>
<td><strong>Fraud and High Transaction Costs</strong>&lt;br&gt;• Majority of consumers that do not shop online, avoid it due to fraud concerns or high transaction costs on Internet payments</td>
<td><strong>Missed Deliveries and Flexibility</strong>&lt;br&gt;• Consumers demand flexibility and the ability to choose delivery times; 40% of shoppers will pay for next day delivery, 22% would pay for delivery within a 2-hour slot in the UK</td>
<td><strong>Rapid Mobile Adoption</strong>&lt;br&gt;• Consumers with mobile devices are expected to buy online at a faster rate than using the computer</td>
</tr>
</tbody>
</table>
### Strategic Shifts in Emerging Markets

<table>
<thead>
<tr>
<th>Strategic Shifts</th>
<th>eCommerce</th>
<th>Delivery</th>
<th>Supply Chain Models</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marketplaces</strong></td>
<td>Concentration of Power • eBay and MercadoLibre have the strongest presence in emerging markets, but smaller regional marketplaces, such as Yandex.ru (in RU) are also gaining traction</td>
<td>Poor Infrastructure and COD • Marketplaces frequently partner with carriers and provide COD and in-store pick-up options</td>
<td>Improving ID2C • International sales and ID2C are prominent in emerging markets, so marketplaces are adapting to improve the customer experience for international buyers</td>
</tr>
<tr>
<td><strong>Retailers</strong></td>
<td>High Growth, But Low Adoption • In Russia, eCommerce grew at a 31% CAGR since 2006, but is only 2.11% of total retail in 2011 • Lack of electronic payment systems and a low level of debit &amp; credit card penetration slow overall adoption</td>
<td>Legal Restrictions and COD • Certain countries mandate that retailers must specify when they will deliver packages • 41% of Mexican online adults used credit cards for purchases in 2011, while 29% used cash</td>
<td>Multichannel is Still New • Companies starting to recognize the need for multichannel sales and are expanding their operations online or offering in-store returns</td>
</tr>
<tr>
<td><strong>Consumers</strong></td>
<td>Security Concerns • High &amp; middle income households are driving eCommerce growth • Cyber-security concerns and a need to touch and feel products before purchase</td>
<td>Deliveries Challenges • Shipping in metro areas is often free and efficient; however, shipping times and costs in vary greatly depending on where the consumer lives</td>
<td>Mobile Adoption is High • Mobile penetration far exceeds PC-based internet usage in emerging markets; smartphones are the future for cross channel</td>
</tr>
</tbody>
</table>
Global B2C E-Commerce Sales
Significant growth is expected in the future

Global E-Commerce Sales (Billion $)

2009  622
2012  1,115
2015  1,880

21.5% CAGR
19.0% CAGR

Source: IMRG – "Global B2C e-Commerce Overview 2012"

All Regions are expected to maintain double digit growth through 2015

Asia will lead all regions with over 20 percent CAGR from 2012 to 2015

Top 3 Markets*
- US
- China
- UK

* eMarketer 2013 Forecast

Top 3 Markets*
B to C E-Commerce growth is driven by innovation
Innovations are mitigating consumer purchasing barriers

- Global sourcing and selection
- Mobile adoption
- Marketplaces
- Social Media

Connectivity

- Consumer ratings/recommendations
- Video/rich media
- Payment options
- Local language, landed costs

Confidence

- Comparison shopping engines
- Loyalty programs
- Local fulfillment or in-store pickup

Cost Savings

- Broad selection
- Easy checkout
- Delivery choices
- Easy returns

Convenience
### UPS Response

<table>
<thead>
<tr>
<th>Optimize UPS Cost/Profit</th>
<th>Enable Retailers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• SurePost - economy ground service (US)</td>
<td>• Existing Kiala capabilities in Western Europe countries</td>
</tr>
<tr>
<td>• Driver Release (US, CA)</td>
<td>• Global e-Commerce Solutions (Helps retailers easily service international orders)</td>
</tr>
<tr>
<td>• Deliver to Alternate Delivery Location after 1st failed attempt</td>
<td>• Systems integration (UPS Ready Program, Customer Solutions)</td>
</tr>
<tr>
<td>• Single Driver Model</td>
<td>• Ship from Store</td>
</tr>
<tr>
<td>• ORION</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Empower Consumers</th>
<th>New Logistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• My Choice</td>
<td></td>
</tr>
<tr>
<td>• Shipment Visibility</td>
<td></td>
</tr>
<tr>
<td>• Delivery Change Options</td>
<td></td>
</tr>
<tr>
<td>• Mobile apps (iOS, Android, Blackberry)</td>
<td>• Returns Portfolio</td>
</tr>
<tr>
<td></td>
<td>• Contract Logistics – fulfillment capabilities</td>
</tr>
<tr>
<td></td>
<td>• Inbound logistics and transportation</td>
</tr>
</tbody>
</table>
UPS Response
Leveraging technology to drive delivery density

• **Residential Delivery Consolidation**: UPS Lightweight packages are redirected from postal delivery to UPS delivery in situations where the delivery can be matched with other packages destined for the same consignee delivery address

• **ORION**: On-Road Integrated Optimization and Navigation technology, optimizes the driver’s route while meeting all service level requirements
Research areas to continue to make progress

• Optimizations
• Predictive Traffic Conditions
Legislative

- MailBox and Delivery Clusters
UPS has met changing conditions and trends to change and expand its business model over 106 years.

Mega trends provide new challenges and opportunities for UPS and the transportation industry going forward.