WHAT ARE THE MAJOR FACTORS/TRENDS?

Technology Trends

Technologies Reviewed

- Current technologies that shippers and freight carriers use (RFID, GPS.)
- Technologies accessible to consumers that are reshaping demand for goods and services (Smart phones)
- Emerging technologies that have the potential to transform the supply chain (3D printing, automated trucks, platoons.)

Radio Frequency Identification

- Contactless/wireless method of identifying objects.
- Short range, few feet.
- Benefits to supply chain:
  - Location and increased visibility.
  - Inventory levels.
  - Sharing shipping information.

RFID Market Trends

- No signs of slowing down even after a decade of use:
  - Price per unit continues to come down.
  - Global market to reach $30 billion (2024.)
  - 4 billion tags sold (2014) compared to 3 billion (2011.)

Global Positioning System

- Satellite based navigation systems.
- Benefits to supply chain:
  - Provides visibility by tracking goods.
  - Estimate arrival times, optimize routes, and manage resources.
- GPS (US), GLONASS (Russia), Galileo (EU.)
- GPS monopoly will end in few years.

GPS Market Trends

- No signs of slowing down even after three decades of use.
- Satellite navigation chips are becoming smaller and cheaper.
- Smartphones and wearables with GPS.
- Hybrid - integrated with RFID to provide identification and location information.

Impact on Supply Chain

- Increased visibility.
- Customer engagement.
- Real-time information to higher level managers.
- Reduced asset loss, insurance costs.

Mobile Devices and Smart Phones

- Appeal of these devices lies largely in their flexibility.
- Provide constant connection to logistics operations.
- Smart phones are part of logistics work force.
- More and more consumers are ordering goods, making payments, and tracking orders using smart phones.

Smart Phone and Mobile Device Market Trends

theblaze.com

Big or Massive Data

Source: IBM

More Space for Growth

Shippers and 3PLs report similar Big Data experiences

Source: *18th Annual Third-Party Logistics Study*, Capgemini Consulting

3D Printing

- Create objects by adding materials (not subtracting.)
- Customization of objects.

3D Printing Market Trends

Source: Alix Partners, 2013

Shifting from hobbyists and prototyping to parts manufacturing (Boeing, GE)

Impact on Supply Chain

- More efficient in providing made-to-order products to customers.
- Could lead to reduced inventory levels:
  - Instead of buying iPhone case, download the design and “print” it in your garage – no need to ship them from China.
- More products will be made closer to their final destination.

Automated Trucks

- Increased safety, less driver fatigue (HOS rules)
- Public acceptance is a concern.
- Many institutional issues– legislation, liability, reliability.

Public Acceptance Trends

Truck Platoons

- Drive in close proximity and collaboratively to reduce drag.
- Could be integrated with automated trucks.
- Public acceptance will be a concern.
- Legislative issues, coordination, insurance.

Impact on Supply Chain

- Automated trucks:
  - Reduced driver fatigue.
  - Increased safety.
  - Ability to haul longer distances.
- Truck platoons:
  - Tests have shown 5-10% less fuel usage.
  - Appropriate for long haul on interstates.

Gartner Hype Cycle of Innovation

Food for Thought

- Pls. think about what would your business do when these emerging technologies become available and affordable?
  - Would you buy automated trucks for your fleet?
  - How would you convince your managers?
  - How would it change your business process?
  - What would you tell your clients?
- Public sector's role in accelerating the growth of these technologies?
- Millennials want these technologies to be part of their daily lives and they will make them happen.