
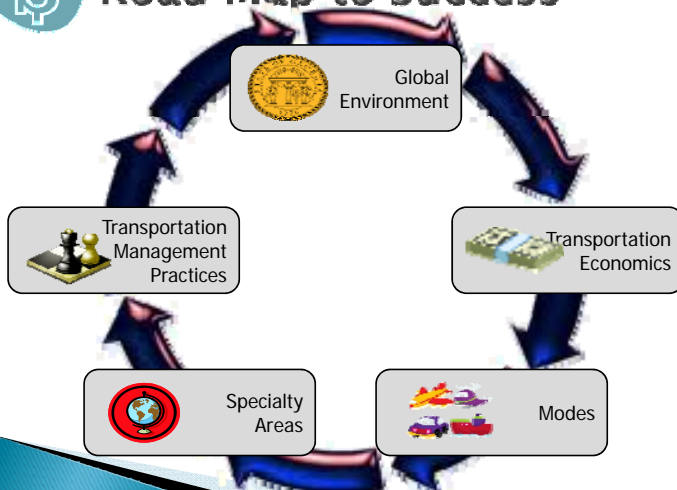


# Transportation and the Economy

Chapter 1 + 2



## Road Map to Success




Global Environment

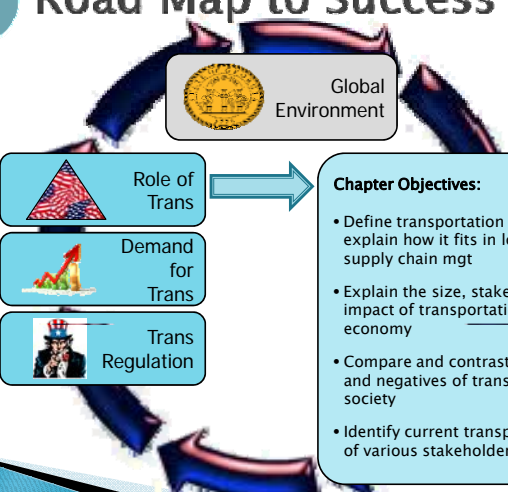
Transportation Economics

Modes

Transportation Management Practices



## Road Map to Success



Global Environment


Role of Trans

Demand for Trans

Trans Regulation


**Chapter Objectives:**

- Define transportation services and explain how it fits in logistics and supply chain mgt
- Explain the size, stakeholders and impact of transportation in the USA economy
- Compare and contrast the positives and negatives of transportation on society
- Identify current transportation trends of various stakeholders



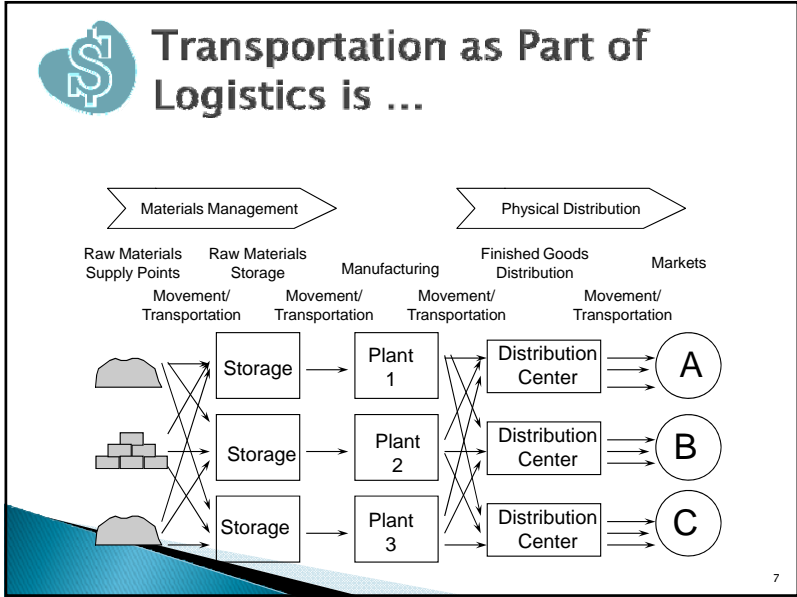
## Transportation is...

► The physical movement of people and goods



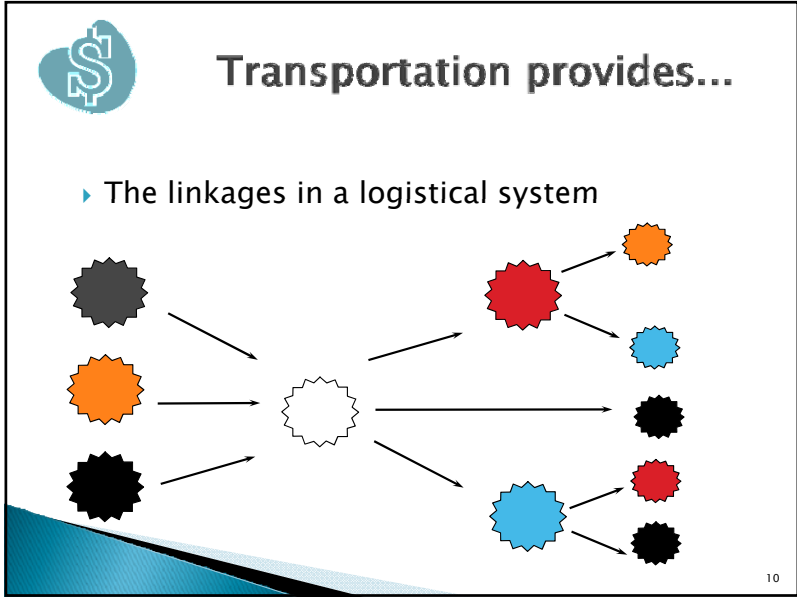
### Transportation is ...

- ▶ ... A “ .”
  - Speed, movement, cost, equipment moved, etc.
- ▶ ... The creation of utility or value
  - utility
    - When the product is needed = at the “right place”
  - utility
    - Where the product is needed = at the “right place”



### Transportation is...

- ▶ One component of a logistical system, which also includes:
  - Forecasting/scheduling
  - Inventory management
  - Materials handling
  - Order processing
  - Customer service
  - Information management



### A Brief History of Transportation


"... the growth of material civilization has only been possible as a result of constantly improving the means of movement, for when men can move freely and fairly rapidly that any interchange of ideas is possible."

**Century of Introduction**

Mode	17	18	19	20
Air				
Motor				
Pipe				
RR				
Water				

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### A Brief History of Transportation



- ▶ Before 4000 B. C.
  - Reliance on physical capabilities
  - Tied to rivers, lakes, and oceans
  - Limited interaction, struggle for survival
- ▶ 4000 B. C. – 400 A. D.
  - Domestication of animals, invention of wheeled carts, development of roads
  - Increased mobility, speed, and capacity
  - Development of commercial trade, exploration of different lands, and military activity

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### A Brief History of Transportation



- ▶ 400 A.D. – 1400 A.D.
  - Advances in water transportation
  - Development of intercontinental trade
- ▶ 1400 A.D. – 1700 A.D.
  - Invention of four wheel coaches, rail methods
  - Improved passenger safety & comfort
- ▶ 1700A.D. – 1900 A.D.
  - Development of steam engine, rail technology, communications capabilities

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### A Brief History of Transportation




- ▶ 1900 A.D. – today
  - Development of automobiles, trucks, paved roads, interstate highways, airplanes, etc.
  - Ability to travel farther, faster, more safely, and more economically than in all the preceding 1000 years
  - Creation of global markets, dissemination of information, expansion of prosperity and leisure time pursuits

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### Transportation Stakeholders

- ▶ Cost efficiency
  - Low taxes
- ▶ Sound infrastructure
  - Profitability
- ▶ Competition
  - Safety
  - Revenues




Govt.

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### The Economic Impact of Transportation

- ▶ Major component of GDP
- ▶ Determines the value of goods
  - utility
  - utility
- ▶ Creates opportunities
  - Specialization
  - Competition
  - Large scale production



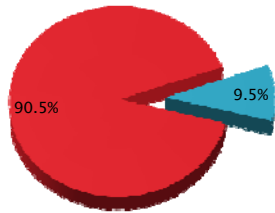
U.S. Logistics System Costs 2004

- Customer Service
- Inventory
- Warehousing
- Transportation

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### Financial Impacts of Transportation

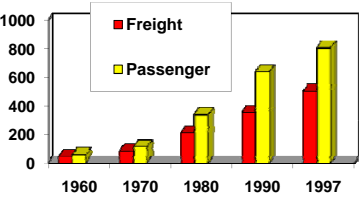
GDP = \$14.2B (2009)



90.5%

9.5%

The Nation's Freight and Passenger Bill



\$ in Billions

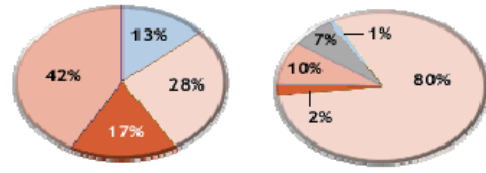
- Freight
- Passenger

1960 1970 1980 1990 1997

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### General Transportation Revenues 2006

U.S. Intercity Freight Market Share by Mode



Ton-Miles

Revenue

- Railroad
- Trucks
- Water
- Pipeline
- Other

13% 42% 28% 17%

7% 10% 2% 80% 1%

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### Transportation Costs as a Percentage of Product Prices

High-cost Sectors	Stone, clay and glass	27%
	Petroleum products	24%
	Lumber and wood	18%
	Chemicals	14%
Medium-cost Sectors	Paper and allied products	11%
	Primary metals industries	9%
	Textile mill products	8%
	Fabricated metal products	8%
	Miscellaneous manufacturing	8%
Low-cost Sectors	Tobacco manufactures	5%
	Machinery, w/o electrical	5%
	Instruments	4%
	Apparel and other textiles	4%
	Printing and publishing	4%

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### Political Impact of Transportation

- ▶ Resource requirements
  - Development and maintenance of infrastructure
  - Acquisition of land
- ▶ Regulatory needs
  - Availability of service
  - Competition
  -
- ▶ National defense
  - Location of forces
  - Rapid deployment capabilities

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### The Social Impact of Transportation

- ▶ Provides employment to 10% of labor force
- ▶ Increases our mobility
- ▶ Enhances health and welfare
- ▶ Allows distribution of wealth

Employment (2006)

Mode	Percentage
Motor	~65%
Air	~15%
Rail	~5%
Water	~5%
Other	~10%

Source: National Transportation Statistics 2009, BTS

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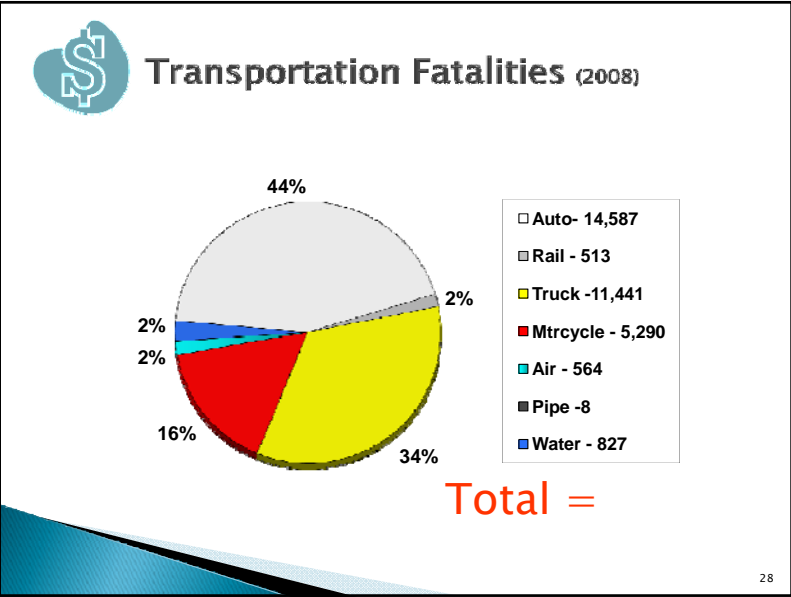
### The Environmental Impact of Transportation

- ▶ Safety
  - Accident rates
  - Drug/alcohol policy
- ▶ Resource availability
  - Air & water quality
  - Noise levels
  - Climate changes
- ▶ Congestion

Year	Fatalities
70	~58,000
75	~48,000
80	~52,000
85	~48,000
90	~45,000
95	~42,000
98	~45,000
06	~45,000
08	~40,000

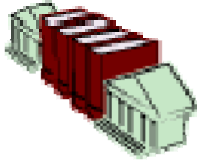
Source: National Transportation Statistics 1999, BTS

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### Transportation Trends

- Less economic regulation
- Increased safety regulation
- Diversion of user fees
- Major changes in agency responsibilities



- Focus on intermodalism
- Rapid deterioration of physical system
- Technological improvements
- Focus on privatization



### Transportation Innovations


- General Transportation– Trailer Tracking
  - <http://www.trailertracking.com>

These small and durable units allow a user to track their trailer or container in real time. The unit is a GPS transmitter sending out its location to allow user to access its location through the internet. This allows the user to better utilize their fleet by knowing when a unit arrives and where that unit is at any given time. These units can be adopted to railcars, truck trailers, and shipping containers.



### Transportation Trends

- Developing multimodal capabilities
- Increasing use of technology
- Increasing focus on service quality
- Regionalization of services



- Establishing strategic alliances
- Outsourcing transportation functions
- Demanding faster, more consistent service
- Narrowing supply base



## Transportation Is A Necessary Tool For...

- ▶ **Prosperity**
  - It promotes our standard of living
  - It shrinks the world around us
- ▶ **Continuity**
  - It allows us to create networks and systems
  - It enhances manufacturing innovation
- ▶ **Security**
  - It supports our national defense system

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