Module Three

Managing Transportation

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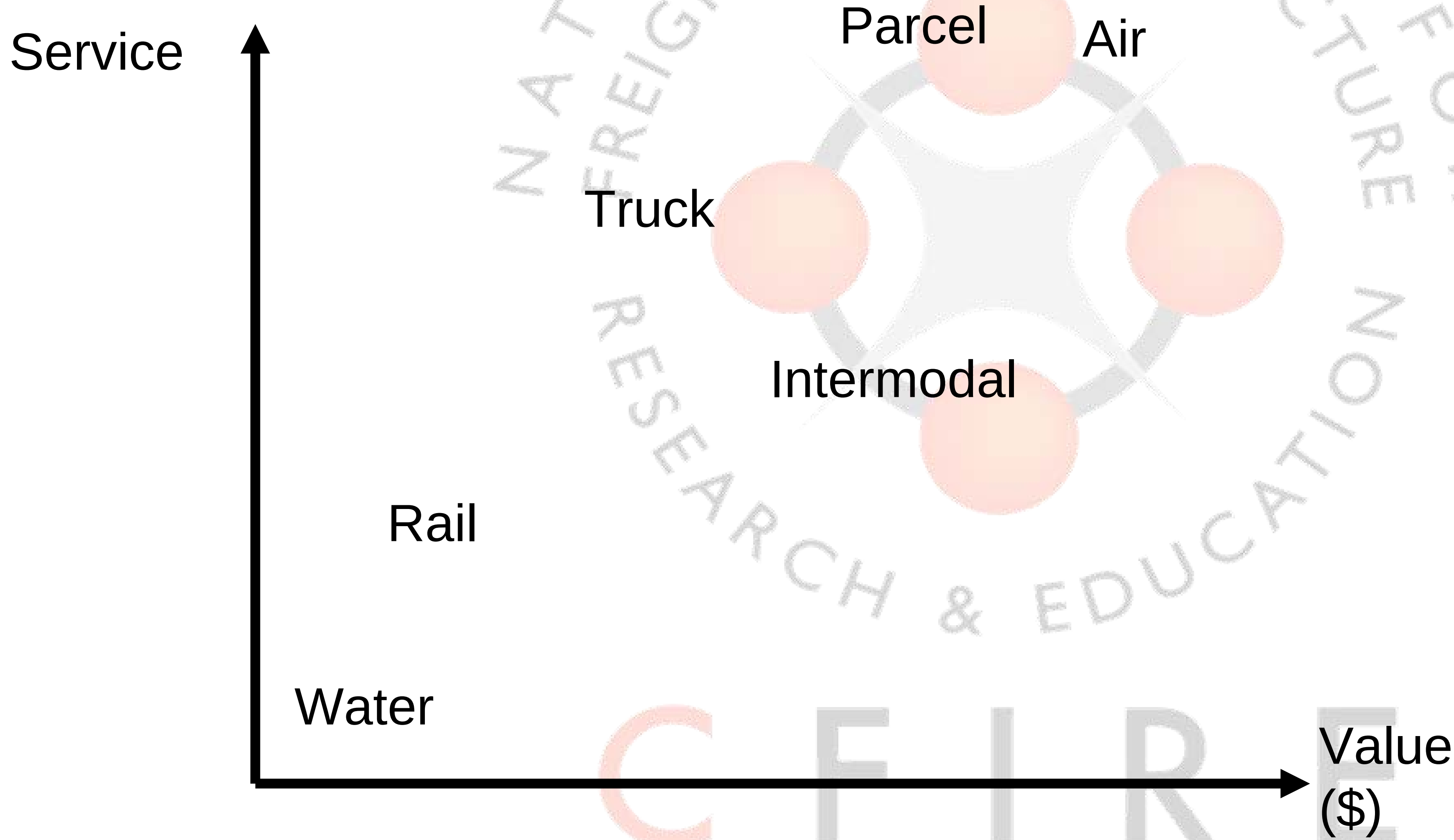
Managing Transportation

- Characteristics of modes
  - Service
  - Value
- Efficiency
- Intermodal

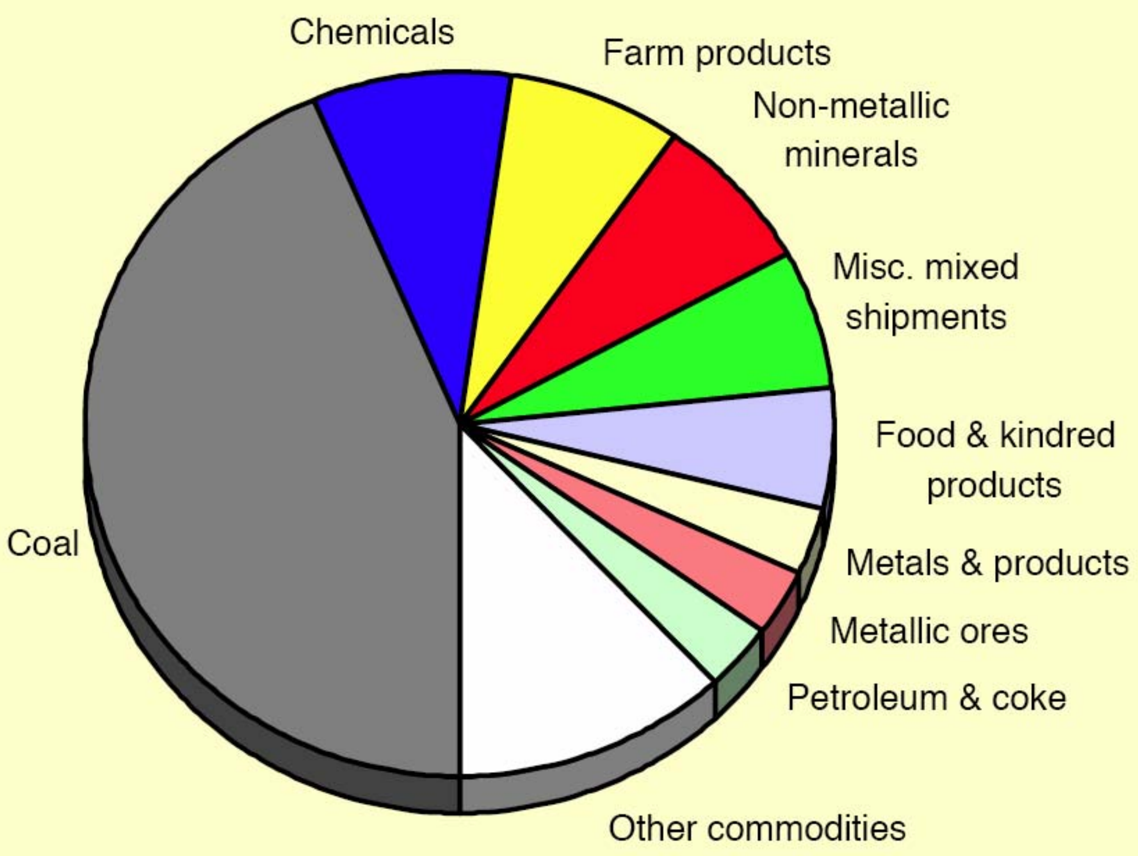
Service/Value



Mode and Value

Mode	Average value ($) per Ton
Truck	793
Rail	166
Water	131
Air (includes truck and air)	70,468
Parcel, U.S.P.S. or courier	38,715
Intermodal (truck and rail)	1,627
Truck and water	616
Rail and water	32

Class I Rail Commodities



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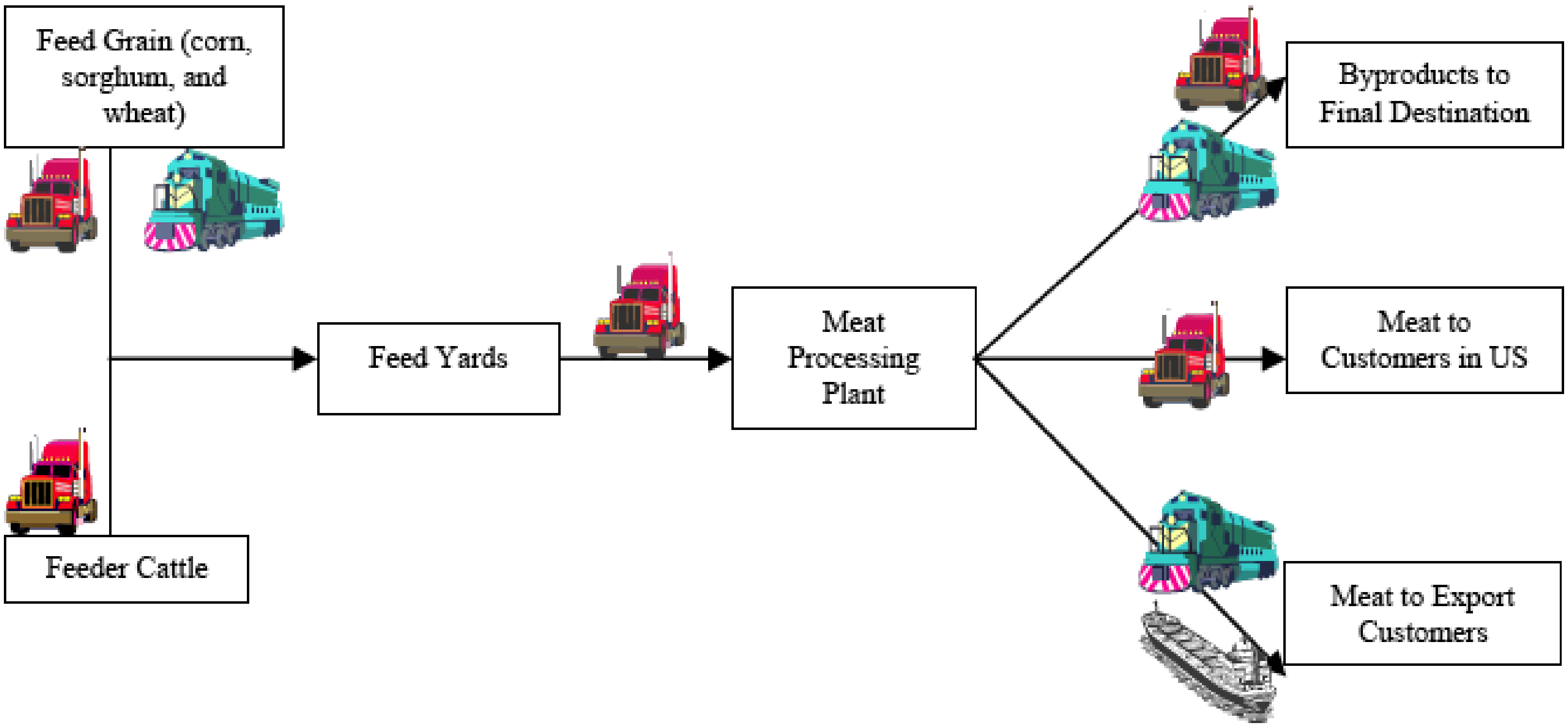
U.S. Waterborne Traffic by Major Commodities in 2005

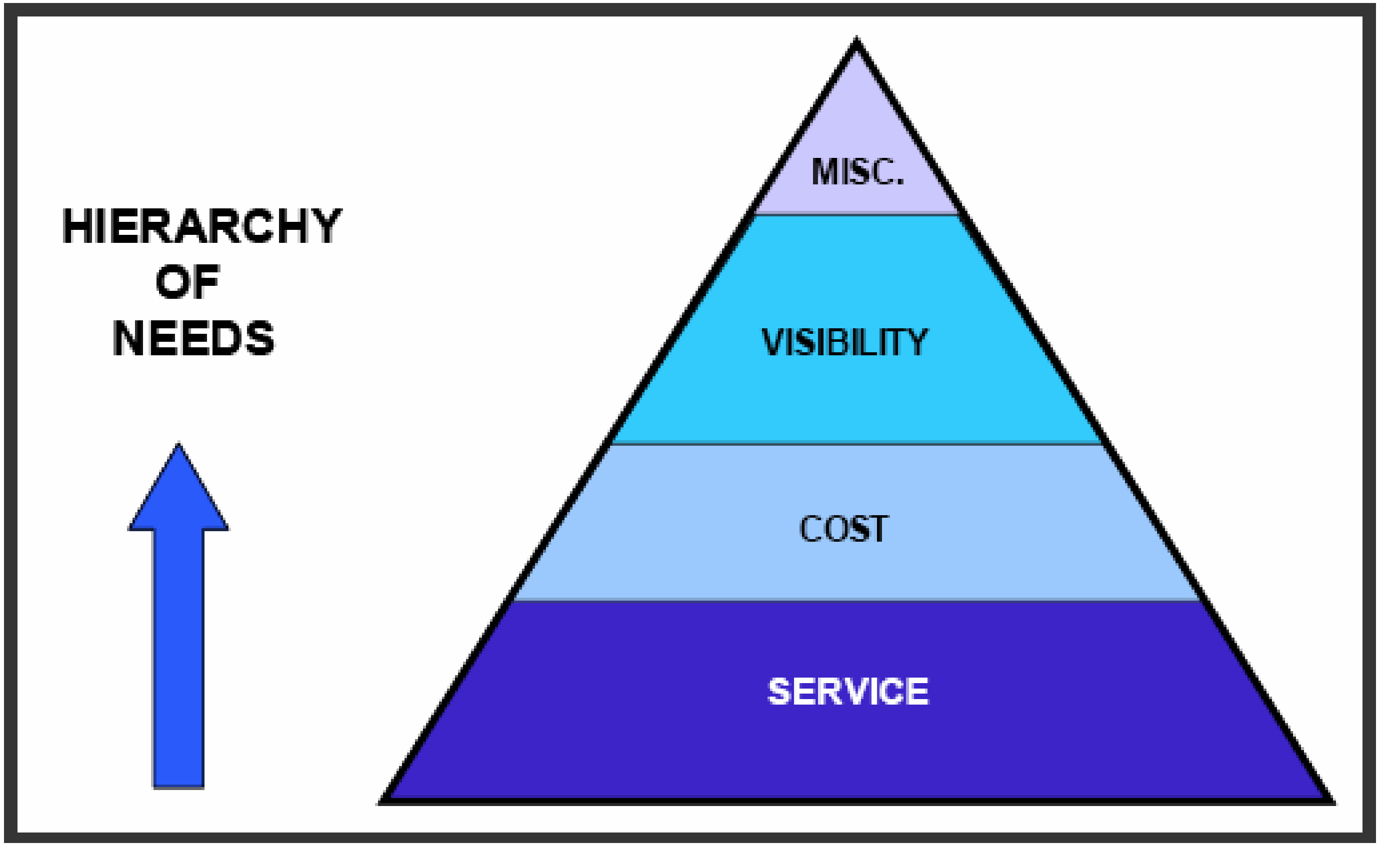
(Millions of Short Tons[1] and Change from 2004)

	Domestic							
	Coastwise		Lakewise		Internal		Total	
Commodities[2]	Tons	%	Tons	%	Tons	%	Tons	%
Total[3]	**213.7**	**-3.1**	**96.2**	**-7.1**	**624.0**	**-0.4**	**1,028.9**	**-1.7**
Coal	9.8	0.0	21.2	5.9	181.9	6.2	228.9	6.1
Coal Coke	**	0.0	0.7	-5.0	5.1	-11.5	6.3	-10.3
Crude Petroleum	44.9	-6.5	**	0.0	33.0	-4.8	79.4	-5.9
Petroleum Products	112.0	-1.4	1.4	-18.0	120.6	3.8	283.3	0.8
Chemical and Related Prod.	10.3	-9.8	0.2	-12.1	50.3	-4.2	72.7	-4.1
Forest Prod., Wood & Chips	2.3	6.9	**	1429.3	6.3	-3.6	9.3	-4.0
Pulp and Waste Paper	**	-64.8	**	0.0	**	-80.2	**	-32.9
Sand, Gravel and Stone	8.4	-14.4	26.6	-11.4	85.3	-0.2	128.8	-4.1
Iron Ore and Scrap	0.7	4.1	40.3	-11.4	10.8	-18.5	55.0	-12.9
Non-Ferrous Ores & Scrap	**	-99.9	**	-100.0	6.2	-10.2	6.2	-12.1
Sulphur, Clay and Salt	0.3	79.8	1.1	40.8	7.6	-9.2	9.2	-4.0
Primary Manuf. Goods	9.1	-0.1	3.9	-0.2	30.7	6.0	44.9	4.5
Food and Farm Products	6.1	8.7	0.3	206.6	70.9	-12.1	77.7	-10.6
All Manuf. Equipment	9.6	-0.7	**	40.1	9.9	-1.6	20.2	-2.1
Waste and Scrap, NEC	**	-80.6	**	-100.0	1.5	14.3	2.0	-34.5

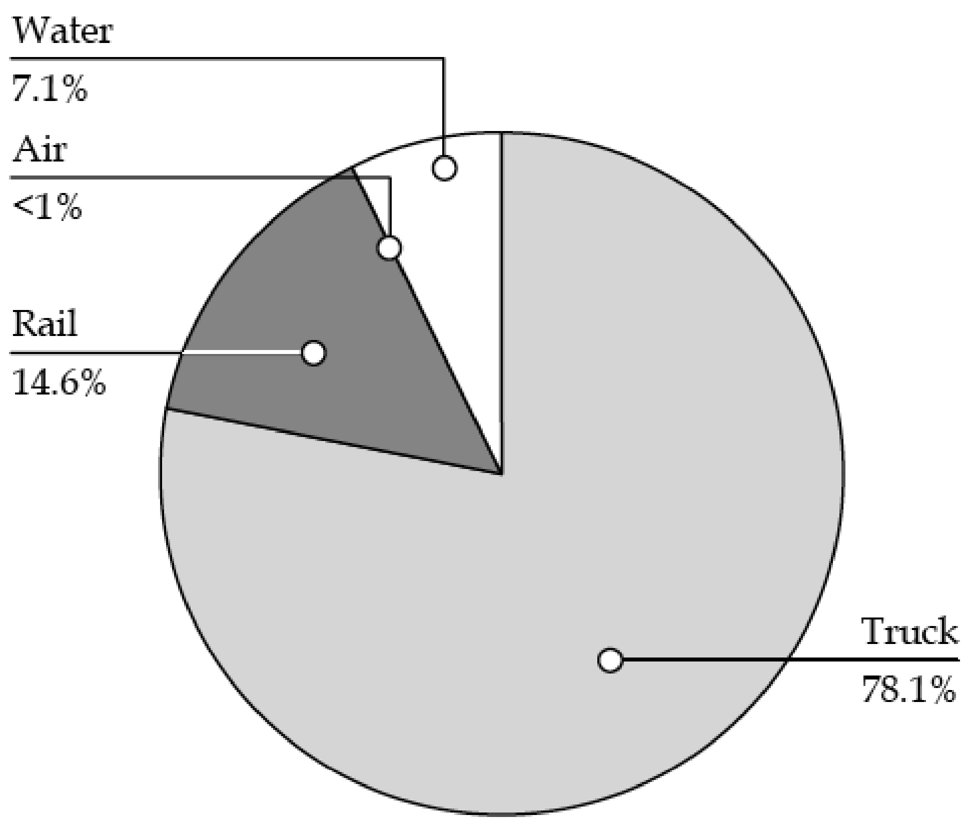
Meatpacking Supply Chain



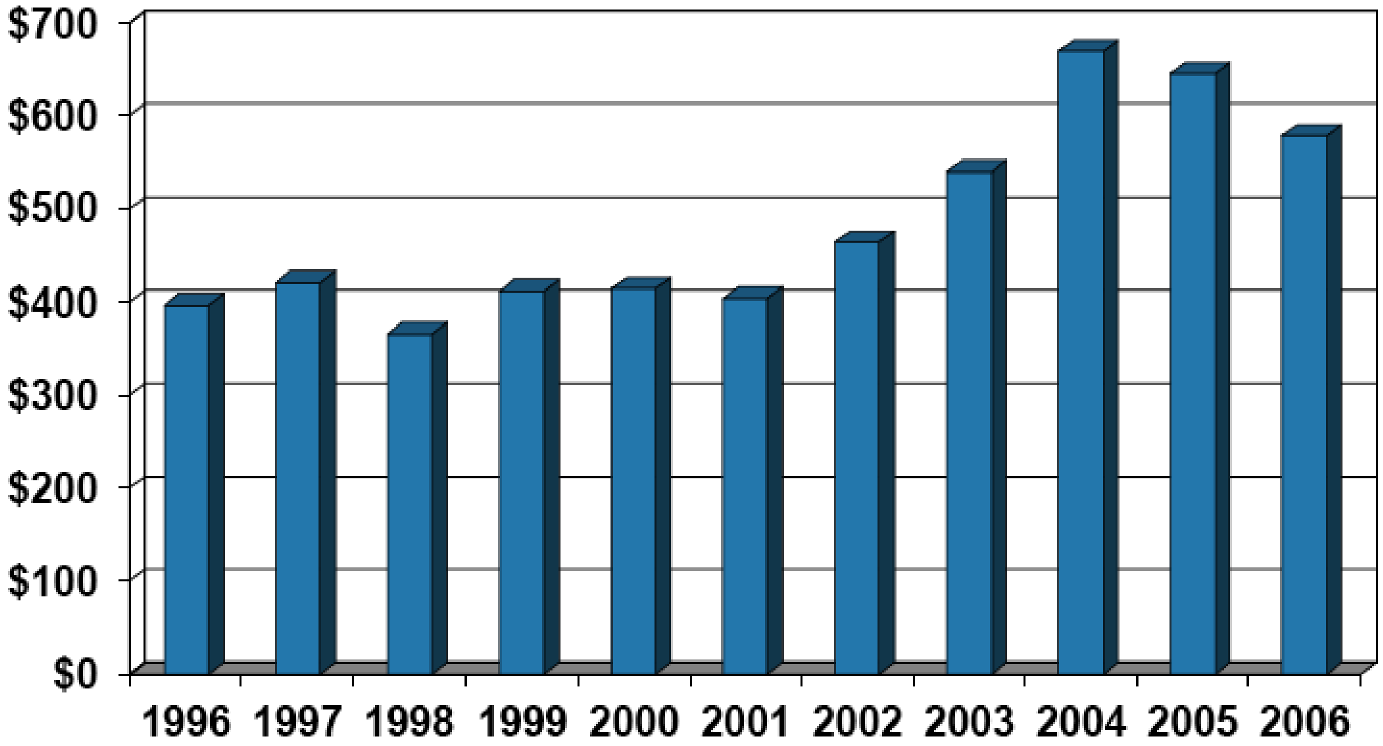
Carrier Requirements



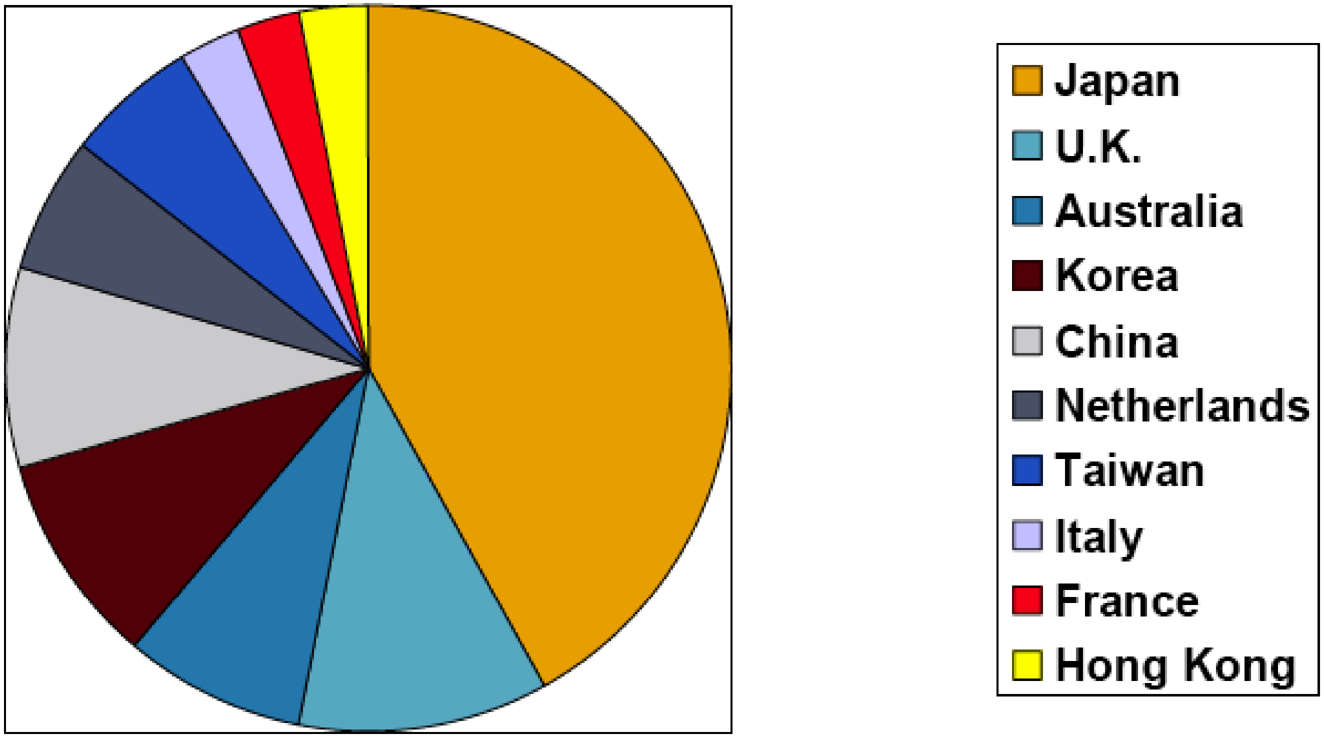
Trips Generated



Growth in CA Airborne AG Exports



Airborne AG Markets



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Rail Revenue Ton Miles

Rail Profitability

Item	2004	2006
Freight Revenue per Mile	2.354c	2.840c
Freight Revenue	$39 B	$50 B
Return on Equity	6.16%	11.3%

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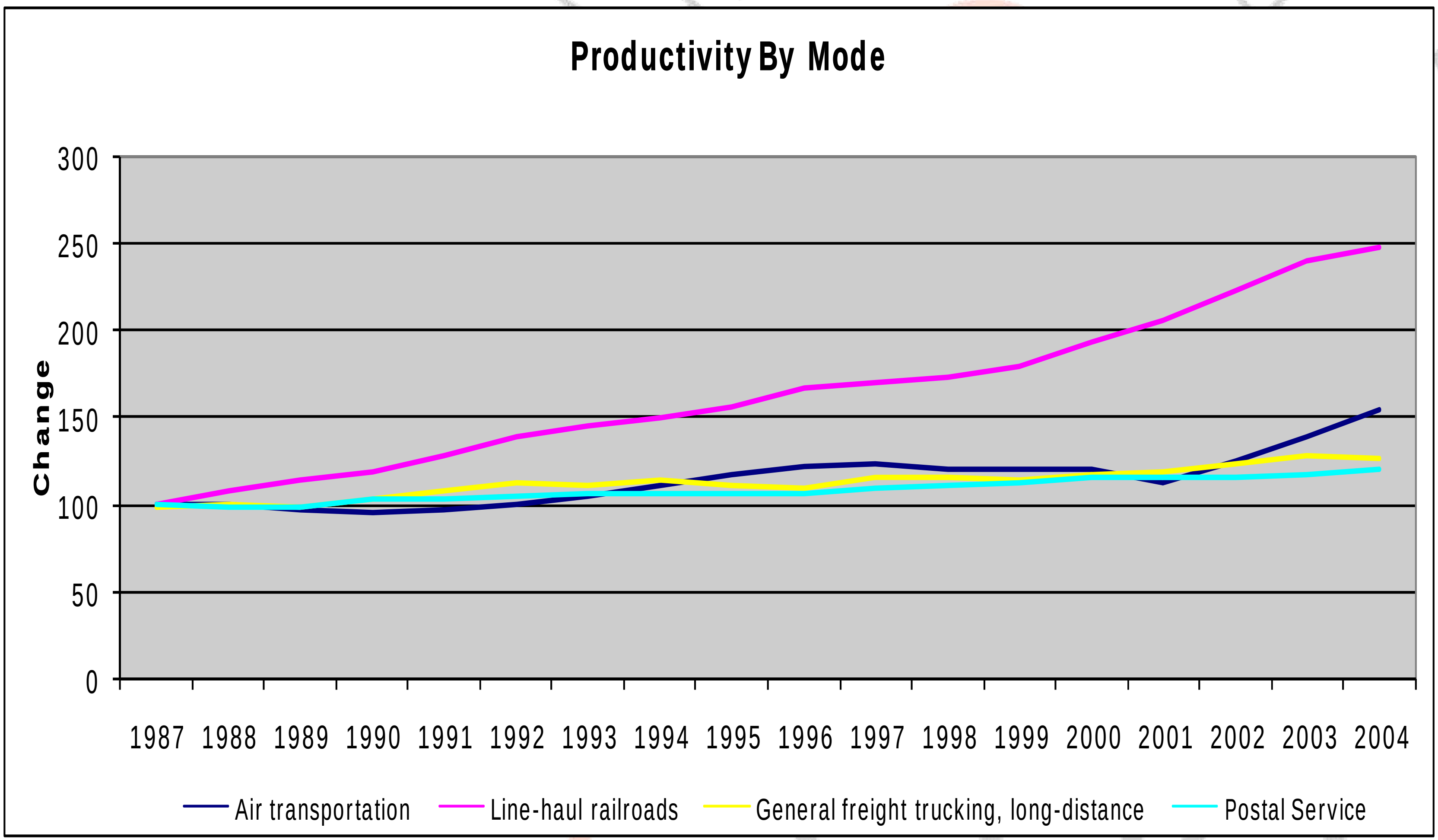

Productivity By Mode
Change
300
250
200
150
100
50
0
1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004
Air transportation
Line-haul railroads
General freight trucking, long-distance
Postal Service

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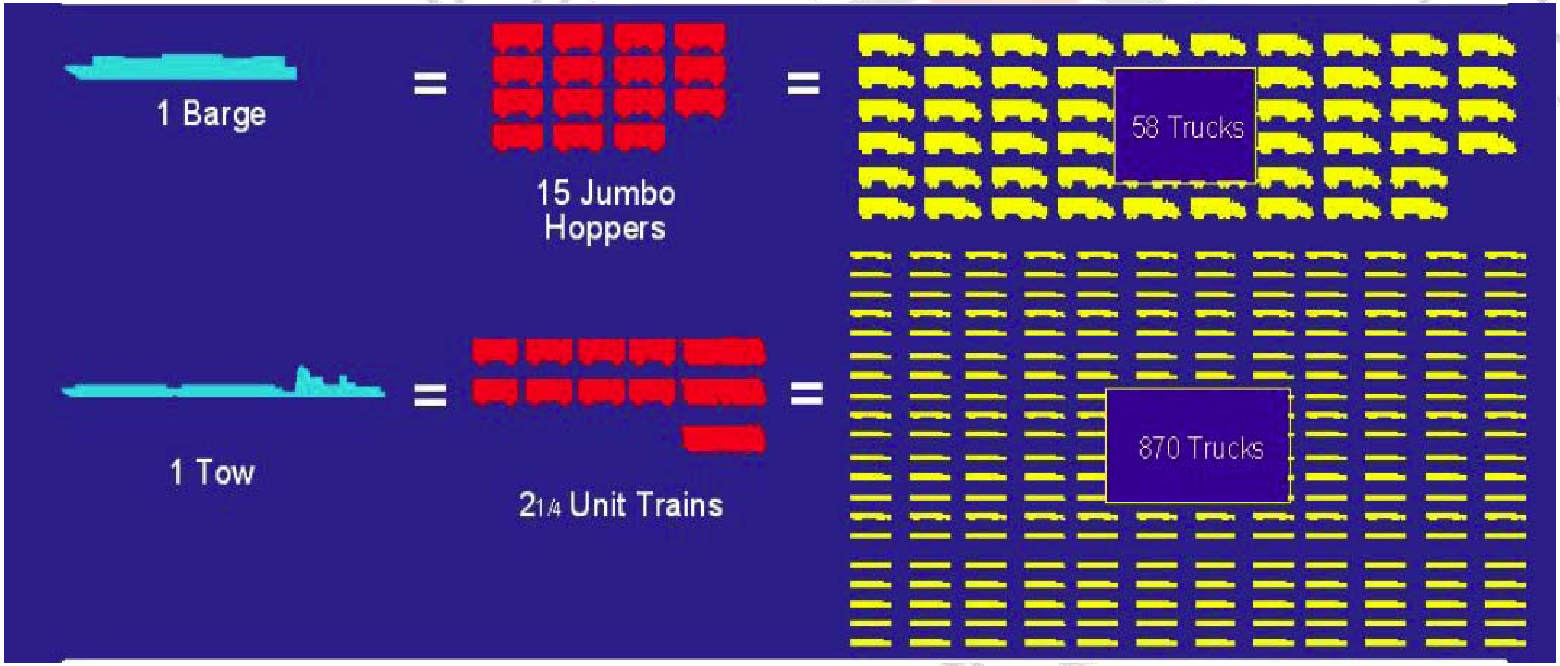
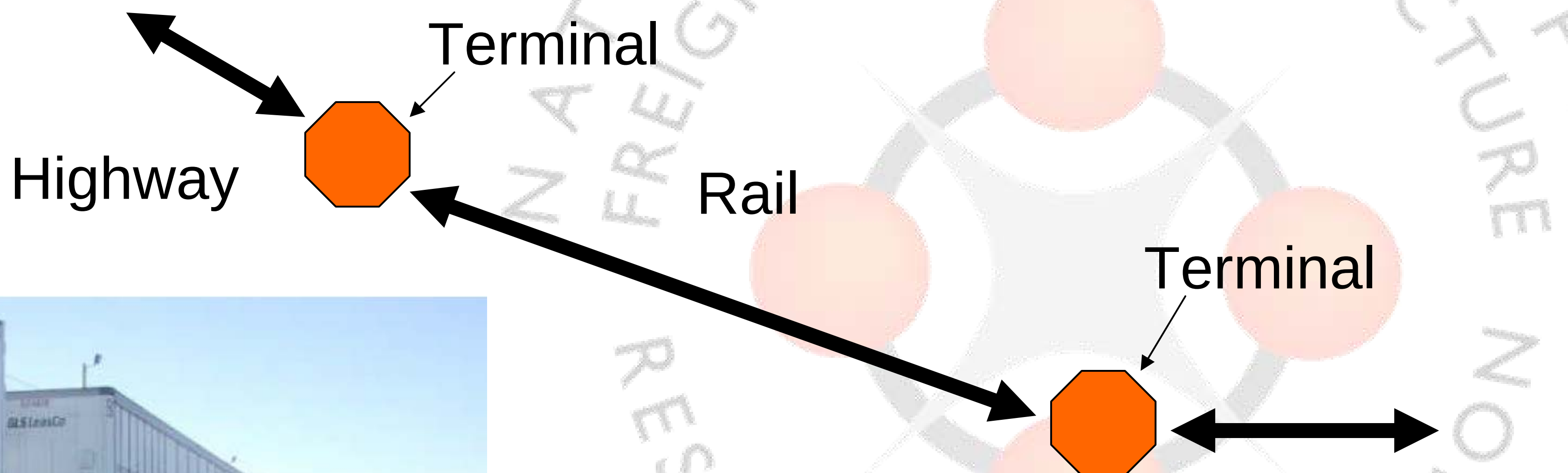
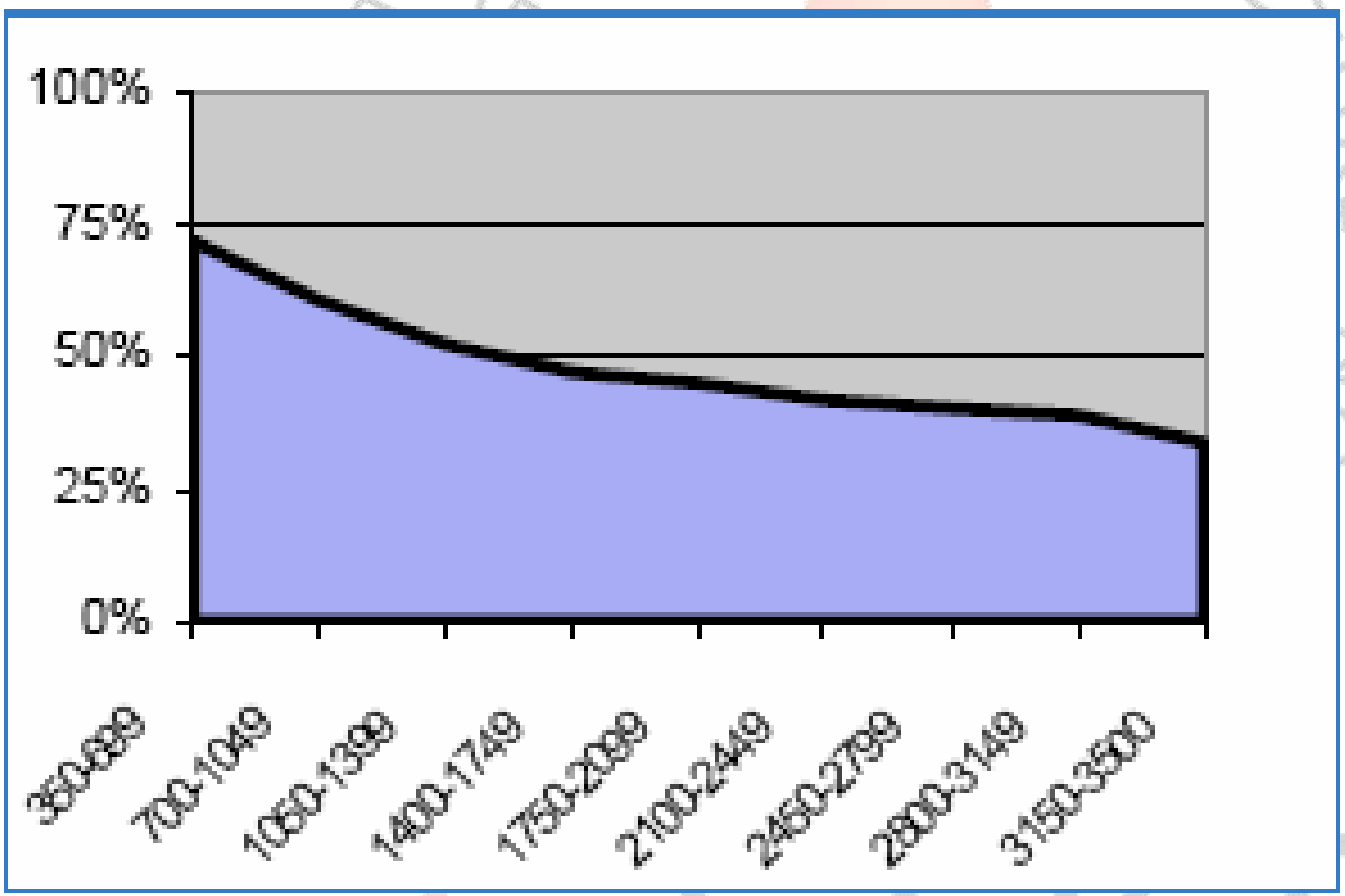
Modal Capacity Equivalents



Truck Rail Intermodal



Dray and Lift Share of Cost By Trip Length



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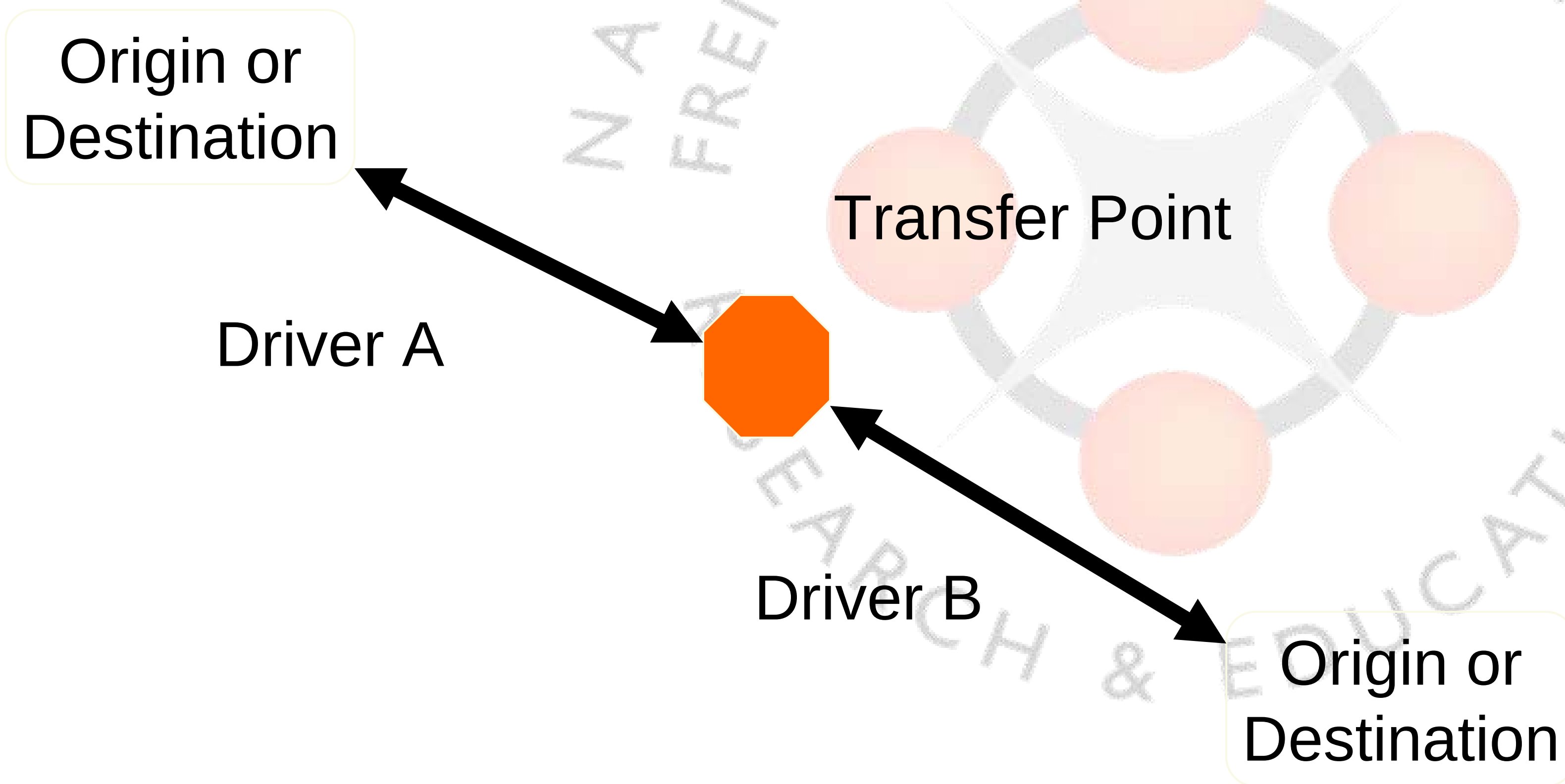
Obstacles to Modal Diversion

Market Viability	Institutional Readiness	Public Barriers
1. Equivalent Services 2. Access limitations 3. Interoperability 4. Density	1. Capacity 2. Capital 3. Institutional Commitment 4. Institutional structure 5. Sustained performance	1. Public acceptance 2. Competitive reckoning

Trucking Strategy



Implications for the Public Sector

- Broader geographic view
- Policy View
- Reliability
- Timed arrivals
- More frequent delivery
- More truck-reliant