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| --- | --- | --- | --- | --- |
|  | **SURFACE/LAND** | | **AIR** | **WATER** |
| **TRUCK** | **RAIL** |
| **Pertinent history (e.g. technology, policy)** | * Until the mid ‘60s, regulated by Interstate Commerce Commission; Deregulated in 1980; reduced rates, also created more competition; * Permitted more truck load operations in comparison to less than truckload * Trucks able to provide JIT or door to door * Dominant mode of freight by tonnage or value; Strong growth until recent economic downturn * Interstate Highway Act signed by Eisenhower in 1956; * 20,000 – 37,000 miles of interstate from 1960 to 1975; enhancing truck freight * USDOT established in 1967 to create freight truck policy, weight and size regulations (among other oversights) |  |  |  |
| **Infrastructure (e.g. quality, reach, connectivity)** |  |  | * Airports can be publicly or privately owned. Most large US airports are publically owned. * Air traffic control is run by the federal government; * Airports need to be large enough to sustain larger planes; * Types of runways – single, parallel, intersecting or open-V runways; * Air Cargo Terminals – complex, labor intensive, becoming more computerized |  |
| **Typical goods movement, Common services** |  | * Typically low value, heavy goods traveling over long distances. * Large share of grain and coal, and many new automobiles. * As of today, 30% of nation’s freight (tons) is carried on rail. This represents 7% of the value of the United States freight and is carried by rail via 1.6 million rail cars. |  |  |
| **Vehicles**  **(and kinds of services)** |  |  |  | * Breakbulk – general cargo * Bulk – vessel carries unpackaged goods, i.e. grains, wood chips, vegetable or petroleum * Roll-on, roll-off – ship allows for cargo to be rolled on and off by vehicle as vessel reaches port, packaging and vehicle makes the vessel’s amount of cargo held as less efficient * Automobile ship – cargo is automobiles, similar to RORO ships where cars can drive off as ship reaches port. * Panamax ships – 110 ft maximum width, fit the panama before expansion. Usually containers of general cargo. * post panama ships – larger ships that carry more TEU’s than panamax ships. Wider, and deeper. Usually containers of general cargo * LASH – Lighter Abroad Ship, barges lifted directly onto ship, more common in Europe |
| **Overseeing Agencies**  **(public and private)** |  | * FRA (DOT) * Association of American Railroads * Surface Transportation Board - broad economic regulatory oversight of railroads |  |  |
| **Technology** | * CVISN Weigh in Motion – Checks information on driver and vehicle while truck is on the road. Only pulls truck over if there is a problem reducing idling time. * On-board monitoring systems – safety, efficiency * GPS – real-time routing * New design trucks and engines reduce emissions and fuel consumption * RFID used for tracking |  |  |  |
| **Current Issues** |  |  | * Dependent on fuel prices * Closely tied to the economy * Noise * Increased security – September 11th * Pilferage |  |
| **Advantages**  **(over other modes)** |  |  |  |  |
| **Disadvantages**  **(over other modes)** |  |  |  |  |
| **Within Washington state** |  |  |  | * Closest US West Coast port to Asia * Sea/Tac 3rd largest ports * Competition from Port of Prince Rupert * Panama Canal expansion predicted to take business away from PNW * Washington is a major source of incoming manufactured goods from Asia and point of export for materials and resources * Only 30% of goods imported into Sea/Tac stay in the state |