

Abstract

The ability to adapt road vehicles for use on rail has existed for sometime, yet the incorporation of such technology has not led to significant collaborative efficiencies between road and rail systems. Systemic change and organizational biases potentially limit the benefit of rail/road system productivity gains. The Alaska Railroad Flag-Stop service, a passenger train in a fifty-five mile section of remote wilderness provides the framework for study.

Introductions

Overview:

Problem Statement: Gain efficiencies by system interaction via technology

Definition: "Dual Mode" = Vehicles that can operate on road and rail

Research Focus: Three Areas

1. Systemic Change
 - a. Requirement Migration: "Roman Bridge"
 - b. Solution Transformation: "The MP3 Player"
2. Difference Framing - "We are different here"/"That's how we've always done it."
 - a. Good Case: Air Cargo - "Fall on Ice"
 - b. Bad Case: Military Mobility - "What about the connex?"
 - c. How tell if things are different?

Is Something Different? Income statement nested in a soft pillow

Benefit
- (Total Costs) Cradled by Environment of Safety
= Sustainability

3. Safety and Perception of Risk
 - a. Started on applying decision making methods to an transportation organization
 - b. Safety Awareness impact in risk/reward relationship
 - c. Do transportation people who get safety training less likely to take a risk?

Summary: Solicit input prior to completing the dissertation triathlon.

Problem Identification

1. NDSU Coursework: Public Transit & the Holiday Inn
2. Problem Solving
 - a. System Design
 - i. Specific Purpose: Low Friction, Speed & Flexibility
 - ii. Given Assumptions: Things will stay reasonably the same
 - b. Framing: We are the experts; we know best.
3. APTA Costing Data: Transit Operating Costs Universally lower than Rail
4. Number of road / rail common nodes: +/- 287,000 road rail crossings
5. Note a giant step to predict occurrence of potential. Ought to be existence of inefficiencies that can be reduced by collaborative system integration: Vehicles that can operate on rail and road systems

Case Study: Alaska Railroad Hurricane "Flag Stop" Train Case

1. Background
 - a. Railroad
 - b. Parks highway
 - c. 55 mile section isolated
2. Systemic Change:
 - a. Requirement Migration:
 - i. Road Network isolated passengers
 - ii. Rail secondary mode for most
 - b. Solution Transformation:
 - i. Locomotive and Rail Diesel gap fillers: Tech. allowed cont. operations
 - ii. Dual-Mode trucks contracted for cargo and hazardous
3. Difference Framing
 - a. Freight versus passenger: Primarily still think of self as a railroad with property
 - i. Expansion to Port McKenzie
 - ii. Railroad Towns
 - iii. Strong promotion of tourism: wilderness
 - b. Collaborative efforts with Forest Service
 - i. Diesel Multiple Unit (DMU) - Video
 - ii. Grandview Development – Spencer Glacier

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Opinion: Total costs should include abuse, depletion, & end state costs

	2008	ARR	POP	AZCR	PARN
Revenue Passengers/Mo		16,683	66,074	7276	36655
Employee Hours/Mo		<u>133,030</u>	12,161	9523	14152

	2008	ARR	POP
Total Accident/Incident Freq. Rate		<u>53.7</u>	16.47 (x1M/Tot Rail miles)
On Duty Employee Rate		<u>9.15</u>	2.07 per 200,000 hours
Highway / Rail Incident Rate		.70	3.12 per million rail-miles

What Need to Ask Railroad?

- Employee Hour Data
- Incident Rate Discrepancies
- Flag Stop Passenger Data
- Operating Cost Data
- (Transit Operating Cost of \$70/hour)
- Verify Strategic Planning Goals

4. Safety and Risk Perception

- a. How determine if safety training impacts prudent risk taking?
- b. By Observation / Measureable

Survey employees on reportable incidents in their personal life....and compare to population data.

- Speeding tickets
- Car Insurance Claims
- Trips to the emergency room
- 401k returns
- Play Gambling games for entertainment
- Etc...

Summary: Interaction / Observations / Notes

Tom Flanagan Biography

In his current position as Business Advisor for the Alaska Small Business Development Center Tom assists business owners that serve more than half of all Alaskans. Tom specializes in helping existing, profitable businesses improve operational efficiencies and enjoys quantifying dollar improvements for owners and managers. Tom has a BS from the United States Air Force Academy, a MBA from Chapman University, a MS in Global Supply Chain Management from the University of Alaska Anchorage, and is working on a PhD in Transportation and Logistics from North Dakota State University. Tom has researched the use of dual mode vehicles in remote areas since the fall of 2006.