

SmartLynx

The Intelligent Semi Trailer

Team/Thesis

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Less than Truckload (LTL) carriers need a solution that monitors trailer safety systems, location and transported assets.

Customer Interviews

Cold calls

1. Old Dominion Freight Line - David Morales
2. YRC Regional - Sam Houge
3. YRC Regional - Joe Sturtz
4. Saia Motor Freight Line - Charlie
5. Holland Regional - not given
6. Southeastern Freight Lines - John Kernes
7. Gilbreath Transportation - Josh
8. Texas Elite Logistics - Effraim Hernandez
9. Fleetwood Transportation - Tim Gordon

Phone calls - coordinated

10. Robert Turner - Owner/Op
11. Earl Short - Owner/Op
12. TriStar Freight Systems
13. Transpo Logistics
14. Arc Best - Shane Jennings
15. Arc Best - Patrick Sullivan
16. Penske - Mike Flynn
17. XTRA Lease - Craig Nolle
18. XTRA Lease - Anthony Elwin
19. Women in Trucking - Ellen Voie
20. Stemco - Mark Kranz

Key Takeaways

- Getting drivers to do inspections on trailers (and tractors) is a big problem for all trucking companies
- Tires are greatest concern for most - pressure
 - Tire pressure checking is inaccurate
 - Tire pressure equalization systems are not automated
 - Replacing tires on the road is \$1000+
- Brakes are second most concern
 - Air pressure
 - System leaks can get the equipment taken out of service
 - Some systems alert driver in the tractor when air pressure is off
 - Brake pads - thickness
 - Breaking mechanisms

Key Takeaways

- Lighting systems
 - Tail lights are key concern - Turn signals and brake lights.
License plate lights
 - Lights are a reason to be pulled over for a DOT inspection
- DOT Inspections
 - Fines
 - Taken out of service
 - Warnings for minor violations
- Most all of these are preventable with technology
- Door operation is a key problem for LTL carriers - sticking
- Some indicated roof and flooring damage as a problem
- Two indicated hub temperature was an issue
- One indicated that rough driving was an issue

Key Takeaways

- Hub odometers are not that important to most LTL operators
- Knowledge of issues should be sent to
 - Driver immediately
 - Prefer on ELD (electronic logging device)
 - Drivers are not to be on cell phones while driving
 - Maintenance shop - description of most is like a NOC
 - Location, issue reporting
- Many LTL carriers have tablets for delivery notification - no paper to track - sometimes the ELD does this function

Interview Description

1. Key frustrations pain points of maintenance?
 - a. Drive down each topic to core issues
2. Costs associated with breakdowns?
 - a. Tires especially
 - b. Safety issues? How they mitigate safety issues on the side of the highway.
3. Do you use hub odometers? Why?
4. Use of systems to monitor in use today?
5. Use of any other technology on trailers?
6. If money were no object, what would a system look like that could monitor the systems?

Updated Market Analysis

Trucking Industry

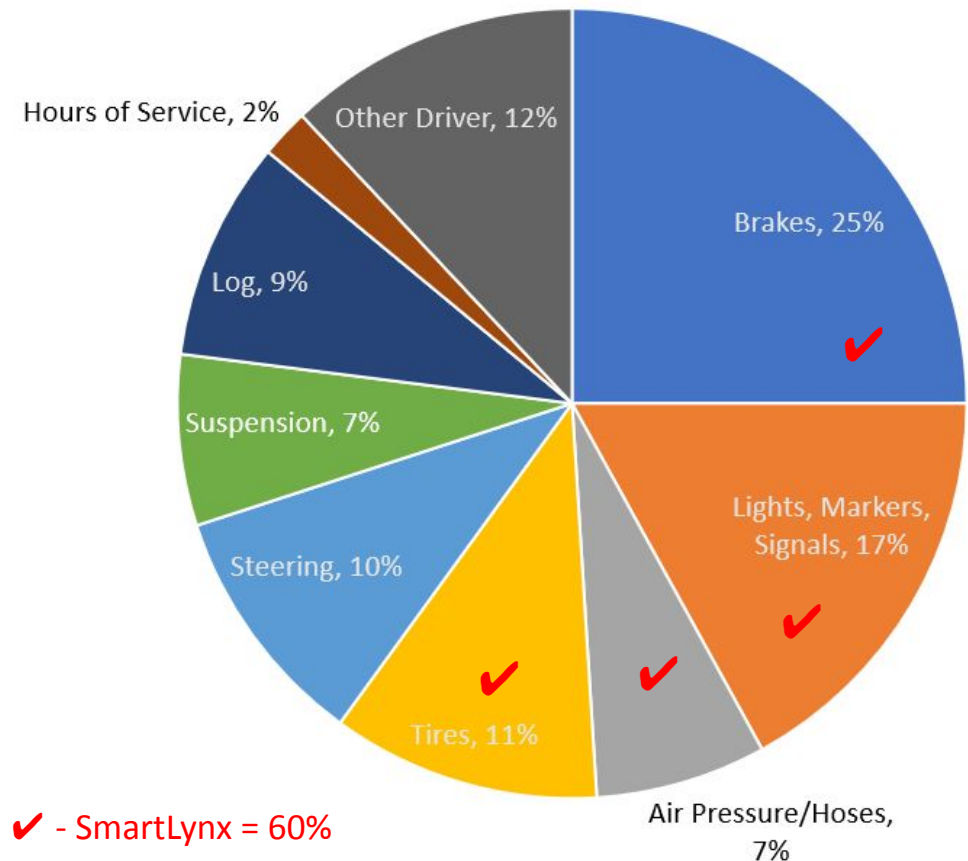
- \$796.7 billion in revenue (2018)
- 777,240 Trucking companies in US (2017)
- 5.6 Million Semi Trailers in the US (2014)
- 246,000 Semi Trailers produced each year (2017)

Safety Statistics

- 53.1% of all roadside truck disablements are for tire failure
- 36.1% of all truck crashes have braking system failure as leading causation

<https://truckingalliance.org/the-industry/>
<https://hdtruckdrivinginstitute.com/semi-trucks-numbers/>

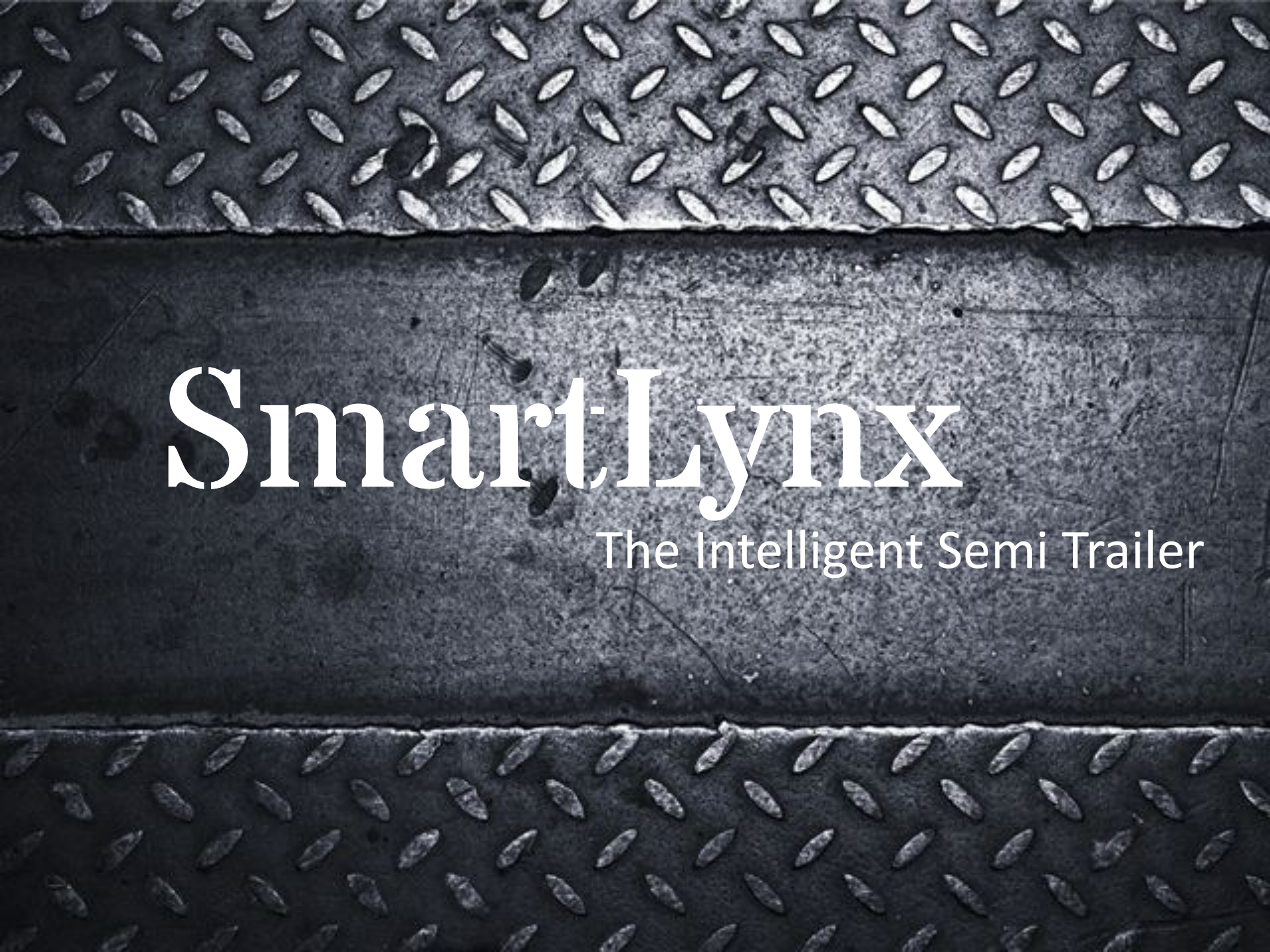
Safety Violations by Category



<https://www.fmcsa.dot.gov/safety/research-and-analysis/large-truck-crash-causation-study-ltccs-analysis-series-using-ltccs>

Travel Plan & Next 15

- Mid-America Trucking Show
 - MARCH 26-28, 2020
 - Louisville, Kentucky
 - Free Registration starting December 1
- More trucking companies - seems to be a variance between trucking companies of the main pain points
- Truck drivers - coordination required to do survey at a truck stop
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