Smart Mobility LossDetect® Analysis for XXXXXX

Munich Reinsurance America Services, Inc.
Mobility Domain
June 2019

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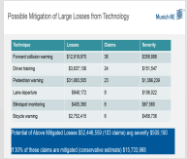
Smart Mobility Overview

Data & Analysis Methodology

Loss Mitigation Potential / Benefits

Recommendation & Next Steps



Appendix

The problem

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The National Safety Council reports that there were over 40,000 traffic fatalities on U.S. roads in 2018. That is almost 5 fatalities every hour!

According to the NAIC, Commercial Auto Insurers are losing money in this market, with loss ratios approaching 70%.

The average cost of a loss related to a commercial fleet vehicle accident in 2018 was almost twice the cost of the average workplace injury.*

* https://www.automotive-fleet.com/303123/fleet-safety-metrics-reverse-negatively-accidents-increase

Image: Emanuel M Schwermer / Getty Images

The solution: Smart Mobility

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ADVANCED FLEET MONITORING

- Mobile App
- Analytics Platform
- Driver / Fleet Scoring
- Targeted Training Modules
- Money Back Warranty

TELEMATICS AND TRACKING

- Vehicle Diagnostics
- Driver and Vehicle Tracking
- Vehicle Warnings
- Detailed Analytics

COLLISION AVOIDANCE

- Crash Avoidance
- Visible and Audible Driver Warning System
- Driver and Vehicle Tracking
- Detailed Analytics

DRIVER COACHING

- Telematics Based Driver Coaching
- Inward/Outward Video
- Capture Option
- Dashboard for Fleet Oversight

Driven By LossDetect™

LossDetect™ “detects” a fleet’s loss savings potential, matches it with the right technology and risk mitigation solution(s), to achieve quantifiable savings while improving safety.

Image: Emanuel M Schwermer / Getty Images

What sets Smart Mobility apart from others?

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1

LOSSES REVIEWED

Analyzed over $4.6bn in commercial auto losses, across 10 industries and 50 insurances entities

2

SAVINGS IDENTIFIED

Over $3.2bn (approximately 70%) of the analyzed losses identified could be prevented

3

Solution Access

Deployed solutions to commercial fleets across multiple industries

4

AWARDS

Received Celent and Accenture awards for Innovation in Insurance

5

CREDIBILITY

We are backed by Munich Re, the largest reinsurer in the world and bring our objectivity and loss analysis skills to our clients

Image: Emanuel M Schwermer / Getty Images

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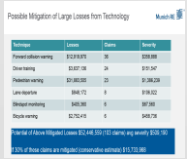
Possible Mitigation of Large Losses from Technology

Appendix

Evaluation of commercial auto claim data

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The Approach

Data

- XXX data sets utilized
  - Loss Data provided from 2010-2019 based on occurrence date
  - Number of records analyzed: XXX
  - xxxr 27% of the records contained total incurreds of zero. 62% of which are Preventable.
  - Total Incurred Losses range from $0 to $900k.

Analysis

- Analysis focused on nominal losses
  - No trending, development or adjustments
- Loss causes were determined based on Loss Descriptions provided
- Non Preventable Losses had no clear mitigation solution

Incurred Loss and Record Counts for key categories

(*inclusive of Zero incurreds)

Total Losses: $25.9m

About 79% deemed Preventable

Evaluation of commercial auto claim data

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Observations

- Rear-End
  - — Highest incurred total, highest frequency
- Left Turn
  - — Highest avg. severity, 4th highest incurred total
- Backing
  - — Second highest frequency, low average severity
- Driver Error
  - — Second highest incurred total and high frequency
- Emergency
  - — Collisions with vehicles occurring when lights and sirens are activated
- Not Auto
  - — Includes injuries to passenger and collisions caused by intentional police maneuvers

❖ Results presented after eliminating records with zero incurreds.

Total Frequency & Severity Overview

Cause of Loss	Frequency	Avg Severity	Incurred Total
REAR-END	353	$20,891	$7,374,468
DRIVER ERROR	89	$36,512	$3,249,525
INTERSECTION	73	$40,286	$2,940,844
LEFT TURN	33	$75,189	$2,481,224
UNKNOWN	93	$25,332	$2,355,846
NOT AT FAULT	61	$36,125	$2,203,634
TURNING OTHER	50	$30,775	$1,538,763
BACKING	181	$4,919	$890,303
EMERGENCY	36	$18,748	$674,915
PEDESTRIAN	10	$49,196	$491,957
LANE DEPARTURE	7	$58,782	$411,475
LANE CHANGE	30	$12,802	$384,072
MECHANICAL FAILURE	8	$42,320	$338,557
NOT AUTO	16	$15,453	$247,240
COLLIDED WITH PARKED VEHICLE	31	$3,653	$113,247
RIGHT TURN	2	$41,550	$83,099
MOTORCYCLE	1	$65,265	$65,265
ROAD HAZARD	3	$18,031	$54,093
ANIMAL	9	$3,256	$29,300
SIDESWIPE	7	$3,019	$21,131
COLLIDED WITH OBJECT	4	$4,591	$18,362
SLID	4	$4,391	$17,563
WEATHER	1	$3,211	$3,211
BICYCLIST	2	$356	$711
TOWING	2	$147	$293
Grand Total	**1,106**	**$23,498**	**$25,989,100**

Image: Emanuel M Schwermer / Getty Images

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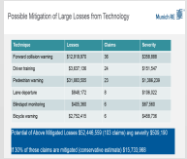

Appendix

Mitigation tools & savings potential

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Claim Type	Associated Payments	Mitigation Tool(s)
Driver Error, Right, Left & Other Turning, Intersection Collision	$10,293,748	• Driver Training
Rear-end	$7,374,468	• Forward Collision Warning
Unknown, Collided with Parked Vehicle, Head-on, Passing	$2,469,094	• Potentially Preventable*
Backing	$890,303	• Rear Backup Camera
Emergency	$674,916	• HAAS Emergency Alert
Lane Departure and Sideswipe	$432,607	• Lane Departure Warning
Lane Change	$384,072	• Blind Spot Monitoring
Slid	$17,563	• Traction Control

Total Prevention Potential
$23.1m

(does not account for savings potential from the Not Auto Category due to earlier warnings or smoother operation)

Preventable
$20.6m

Excludes those items deemed *potentially preventable

Image: Emanuel M Schwermer / Getty Images

Additional direct benefits for XXXXXXX

- Loss savings accrue directly to the insureds as real dollars based on retention, quickly outweighing mitigation costs.

- Reduced claims and claims processing costs associated with less incidents.

- Vehicles and drivers remain on the road, maximizing fleet effectiveness.

Image: Emanuel M Schwermer / Getty Images

Indirect benefits for XXXXXXX

- Operational efficiencies can be realized through better fleet oversight, reduced fuel costs through less idle time, geo-fencing, route optimization.
- With Mobileye/Geotab telematics, roadside assistance is included for each outfitted vehicle.
- Potential reduction in Worker Compensation claims caused by driver injury as well as economic loss (lost wages).
- Enhanced ability to limit settlement payments and fraud through more accurate incident data, Not At Fault Category $2.2m.
- Reduction in passenger injuries (Not Auto Category $247k) due to smoother vehicle operation and stopping – relevant for those involved in passenger or cargo transit.
- Potential ability to address items that would result in Mechanical Failures ($338k) through engine diagnostic reporting.

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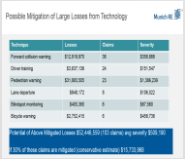
Possible Mitigation of Large Losses from Technology

Technique	Losses	Claims	Severity
Forward collision warning	$12,818,875	36	$356,080
Driver training	$3,827,138	24	$151,547
Pedestrian warning	$11,383,000	23	$1,286,239
Lane departure	$648,172	8	$118,522
Blindspot monitoring	$405,360	6	$67,560
Bicycle warning	$2,752,415	5	$459,736

Total risk of Above Mitigated Losses $52,448,150 (182 claims) avg severity $328,182

37.50% of those claims are mitigated (conservative estimate) $15,732,965

Appendix

Loss mitigation focus areas for XXXXXXX

Loss Type	Technology-Driven Risk Mitigation
For Loss Types XXX	• **Recommendation 1**
For Loss Types YYY	• **Recommendation 2**
For Loss Types ZZZ	• **Recommendation 3**

Value proposition for XXXXXXXX

Technology-Driven Risk Management

- Driver and Fleet Scoring across your portfolio
  - — Collect data from multiple sources in a single repository
  - — Score each driver based on multiple data points to create a driver index
  - — Incorporate collision and or incident history from your internal sources
  - — Options include driver MVR checks
  - — Index’s can compared within an account or across accounts
  - — Provides portfolio benchmarks by industry type

The process

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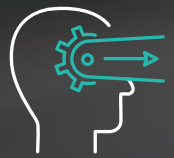
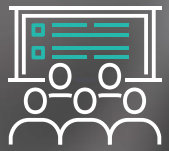


ANALYZE & MATCH

PILOT



LEARN

LAUNCH

SCALE

INCREASE SAFETY

Image: Emanuel M Schwermer / Getty Images

The value

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PREFERRED PRICING

REDUCE LOSSES

INCREASE OPERATIONAL EFFICIENCIES

INCREASE SAFETY

Image: Emanuel M Schwermer / Getty Images

Next steps for XXXXXXXXX

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1

Results Review

- Review results of LossDetect® full analysis

2

Secondary Analysis by Insured

- Augment provided data with vehicle types and existing safety options deployed, additional description for unknowns if available.
- Perform a second analysis at the member and vehicle type level and recommend solutions for select members based on a year by year profile (fee involved).

3

Provide Access to Munich Re Preferred Pricing for solutions

- Munich Re has pre-negotiated lower prices with many vendor partners based on our volume capacities. We make these discounts available to our clients.

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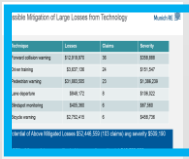

Appendix

Commercial auto market – telematics usage

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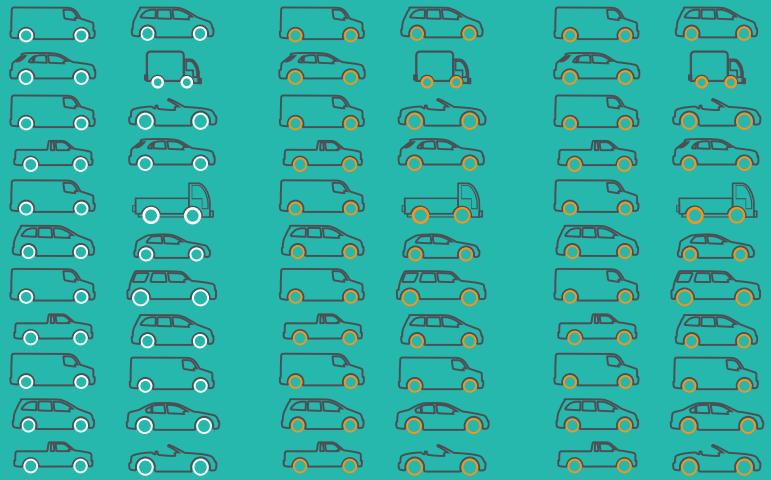
13 million commercial vehicles in use



Only 30% have devices installed

Source: http://www.telematics.com/a-comprehensive-guide-to-fleet-tracking-systems/fleet-tracking-systems-its-industry-in-the-us-uk-europe-and-other-major-markets/
Image: Emanuel M Schwermer / Getty Images

Current impact – ADAS efficacy from various sources

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				Testing Method Assessment				Test Parameter Assessment		
ADAS Technology	Collision Type	Source	Reduction Estimate	Estimate Method	Weather	Geography	Speed	Sample Size	OEM Diversity	Publication Date
Forward Collision Warning	Rear	IIHS	27%	✓	✓	✓	✗		✓	✓
	Rear	DOT	27%	✓	✓	✓	✓			✓
	Rear	IIHS	23%	✓		✓			✓	
	All	NCBI	67%	✗			✗	✓		
	Rear	AAA	10%	✓				✗		✗
Automatic Emergency Braking	Rear	IIHS	50%	✓	✓	✓	✗		✓	✓
	Rear	DOT	43%	✓	✓	✓	✓			✓
	Rear	IIHS	40%	✓		✓			✓	
	All	IIHS	17%	✓	✓	✓	✗			
	Rear	EU NCAP	38%	✓	✓	✓	✗			✗
Adaptive Cruise Control	Rear	Academic	10%	✓						✗
	Rear	AAA	17%	✗					✗	✗

Estimate Method: ✓ Collision Data ✓ Simulation ✗ Survey/Other Other: ✓ Inclusive/Favorable ✗ Limited/Unfavorable

Note(s): Missing assessment indicates no information was provided. Assumes collision data assessment of random sample incorporates weather, geography and OEMs, select sources/studies shown for AEB.
Source KPMG LLP 2018
Image: Emanuel M Schwermer / Getty Images

Current impact – ADAS efficacy from various sources

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				Testing Method Assessment				Test Parameter Assessment		
ADAS Technology	Collision Type	Source	Reduction Estimate	Estimate Method	Weather	Geography	Speed	Sample Size	OEM Diversity	Publication Date
Rear Camera	Rear	IIHS	17%	✓	✓	✓	✓		✓	
	Rear	AAA	30%	✓			✓		✗	✗
Lane Detection Warning System	All	IIHS	11%	✓	✓	✓	✓		✓	
	All	NCBI	23%	✓			✓	✓		
	All	EUROPA	33%	✓				✗		
	All	AAA	3%	✓						✗
Blind Spot Detection	Side	IIHS	14%	✓	✓	✓	✓			
	Side	EUROPA	33%	✓						
Cross Traffic Alert	Side	IIHS	13%	✓			✓		✗	✓
	Side	Consumer Reports	31%	✗						
	Side	SAE	39%	✓	✗	✗				✗
	Side	IIHS	2%	✗			✗		✗	✗

Estimate Method: ✓ Collision Data ✓ Simulation ✗ Survey/Other Other: ✓ Inclusive/Favorable ✗ Limited/Unfavorable

Note(s): Missing assessment indicates no information was provided. Assumes collision data assessment of random sample incorporates weather, geography and OEMs.
Source KPMG LLP 2018
Image: Emanuel M Schwermer / Getty Images

Independent research

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The Insurance Research Council

- 56% of 1,135 drivers surveyed said they have made changes in how they drive since installing a telematics device[1]
- Assuming a 100% effectiveness rate for each of the following 3 technologies, (Blind Spot Monitoring, Lane Departure Warning, Forward Crash Warning) study indicated that 1.3 million crashes, 133,000 injury crashes and 10,100 fatal crashes could have been avoided[2]
- Same study indicated that FCW alone could prevent or reduce the severity of close to 800,000 crashes of 14% of all crashes[2]

National Safety Council

- For the first time in nearly a decade, preliminary 2016 data from the National Safety Council estimates that as many as 40,000 people died in motor vehicle crashes last year. That marks a 6% increase over 2015, and a 14% increase over 2014 – the most dramatic two-year escalation since 1964–53 years.

Virginia Tech Transportation Institute

- 93% of the accidents investigated in the study were due to human error, with driver inattention being the primary cause
- Nearly 80% of crashes and 65% of near-crashes involved some form of driver inattention within three seconds before the event
- 40% of rear-end collisions have no brake application whatsoever
- 60% of road accident fatalities are due to unintentional lane departure

1 Telematics Changing Drivers' Behavior: Insurance Research, Insurance Journal 11/18/2015, www.insurancejourncal.com/news/national/2015/11/18/389327.htm
2 Cost and Benefit Estimates of Partially-Automated Vehicle collision Avoidance Technology, Accident Analysis and Prevention, Volume 95, Part A, October 2016, pages 104-115, Corey D Harper, Chris T. Hendrickson, Constantine Samaras

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