verisk Telematics

UBI: When the data meets the road

CAS Centennial Meeting
November 11th, 2014

THE SCIENCE OF RISK℠

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Sim City

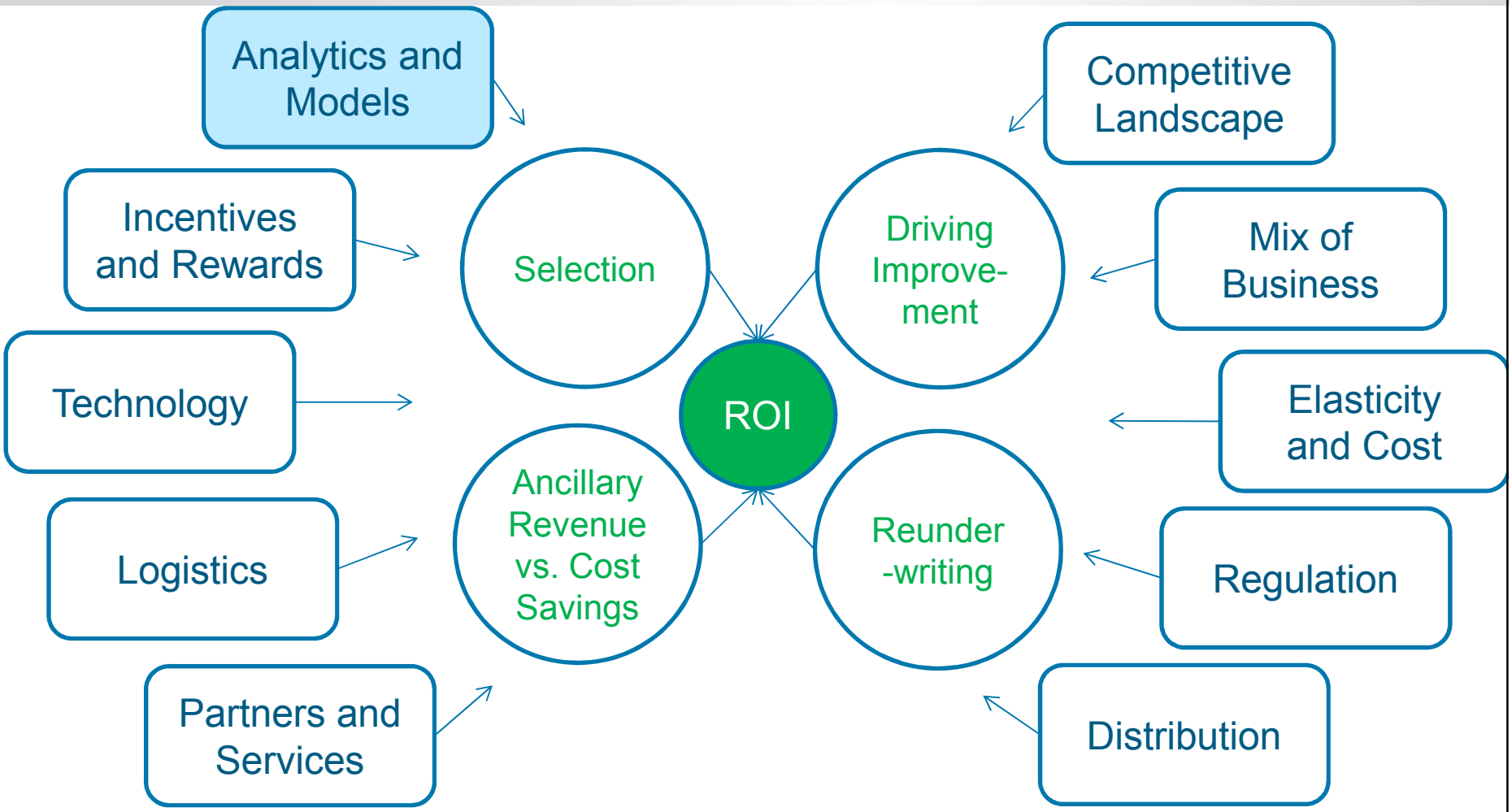
"Google has built a matrix-like simulation of California to test its self-driving cars" --ExtremeTech 8/22/14

"Uber simulated a city to teach drivers how to optimize their earnings" -- VentureBeat 8/11/14

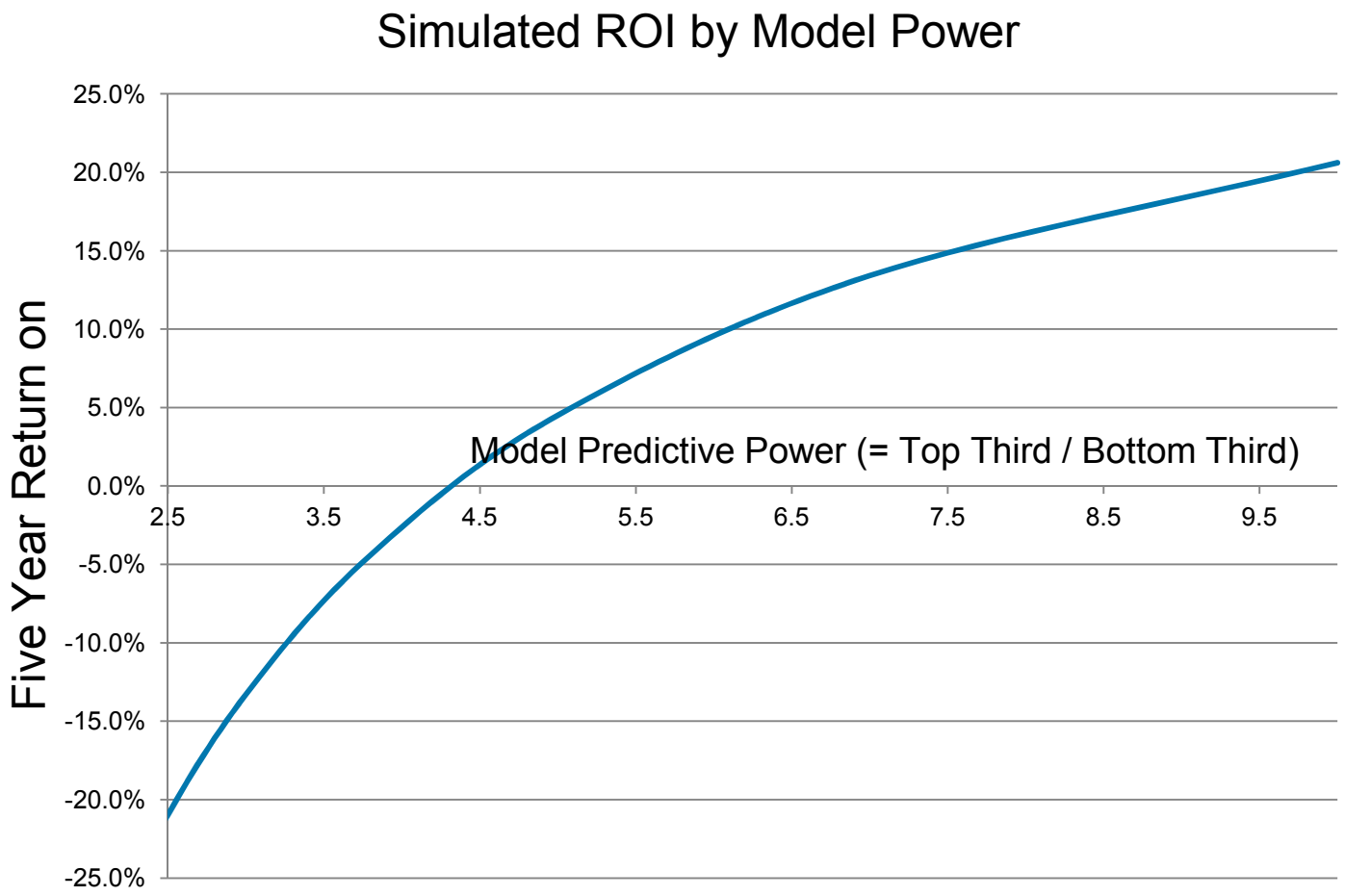
"University building simulated city to test driverless cars" – Computer World 6/9/14

"Traffic jams follow the laws of physics" – nature 11/13/13

Simulating the ROI on UBI

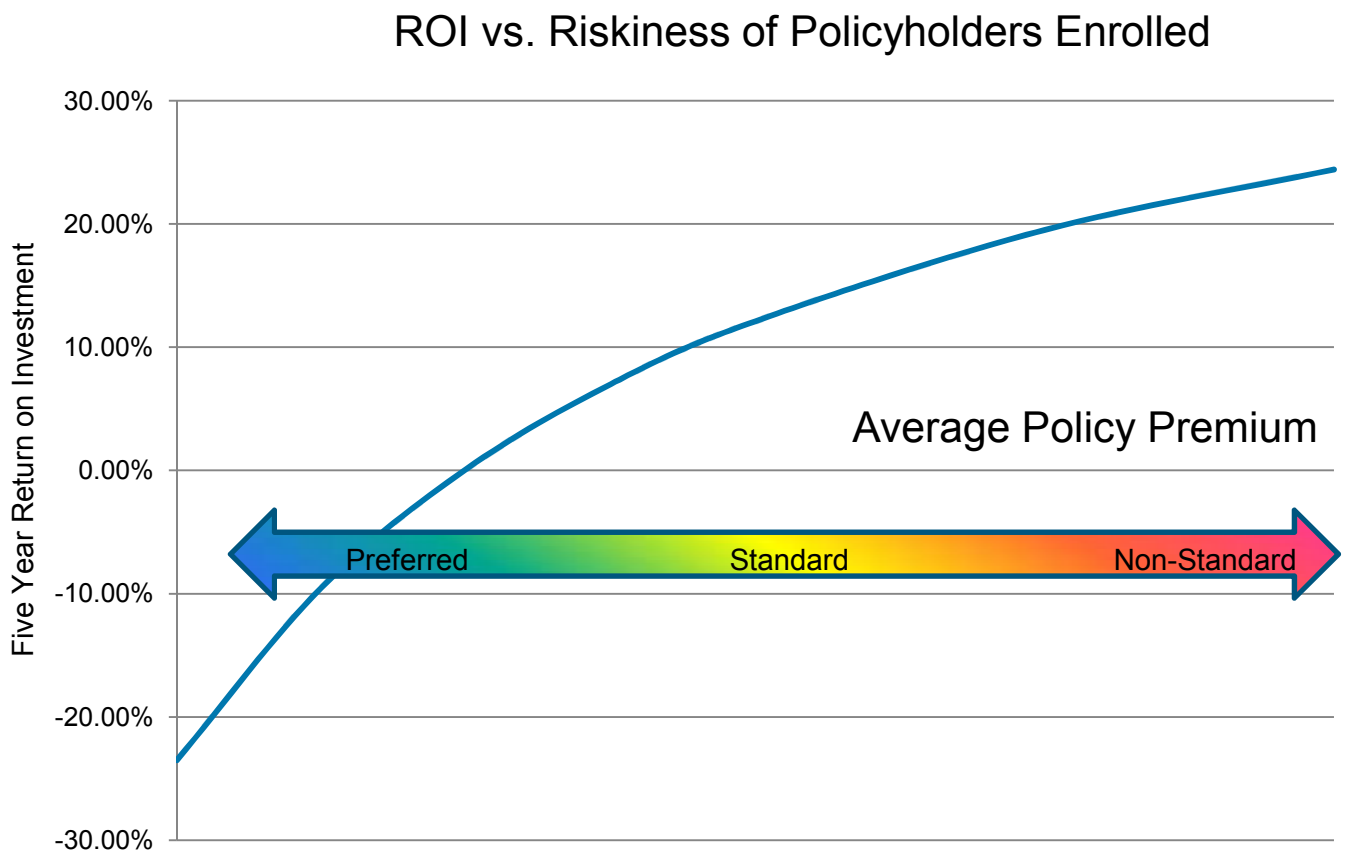


Why the Model Matters



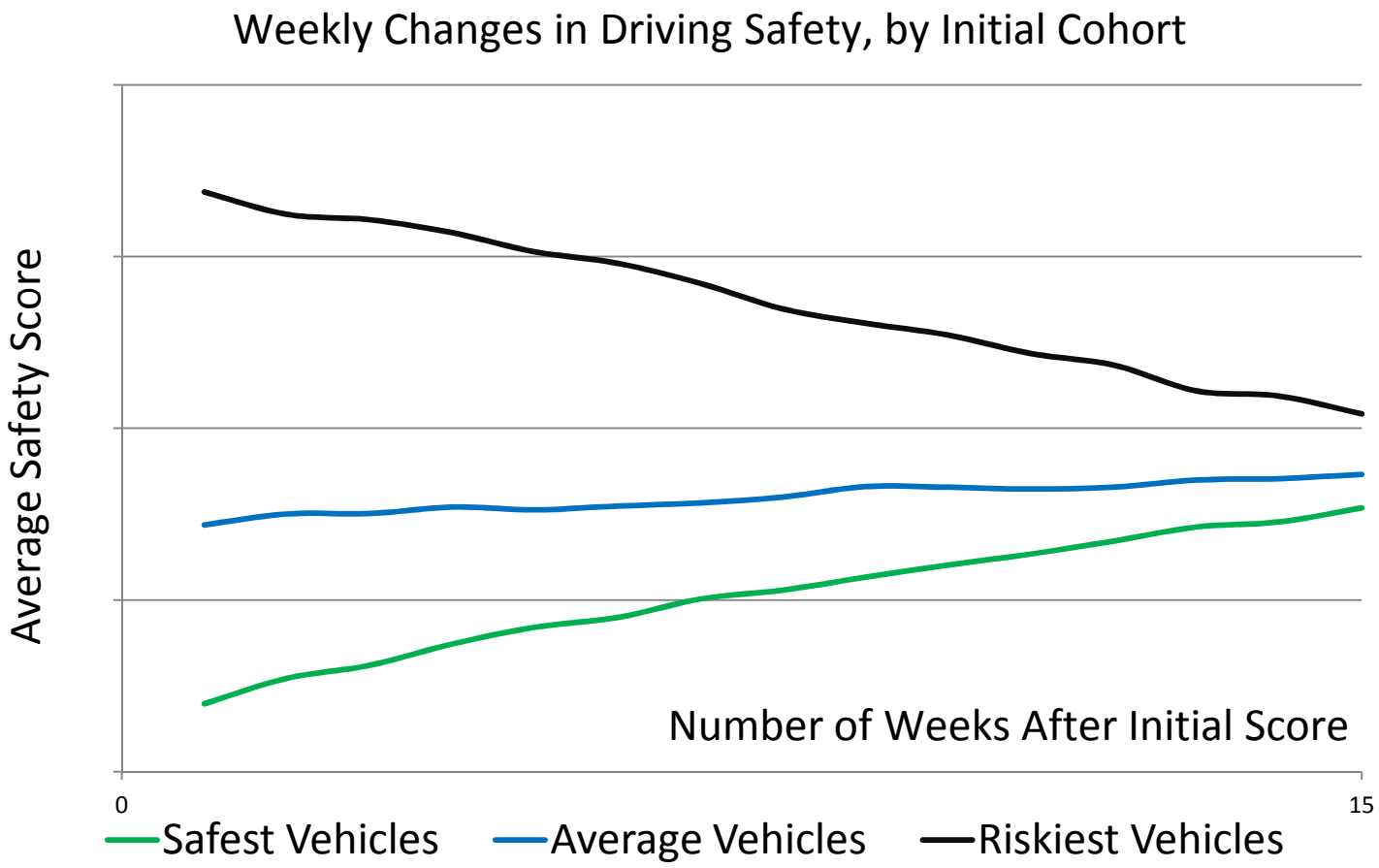
Common Dongle Cost Assumptions

Theory Behind Teen Driver UBI



Common Dongle Cost Assumptions

You Can't Teach That… Or Can You?



Source: > 1,000 Personal Lines Vehicles

Does UBI Drive People Crazy?

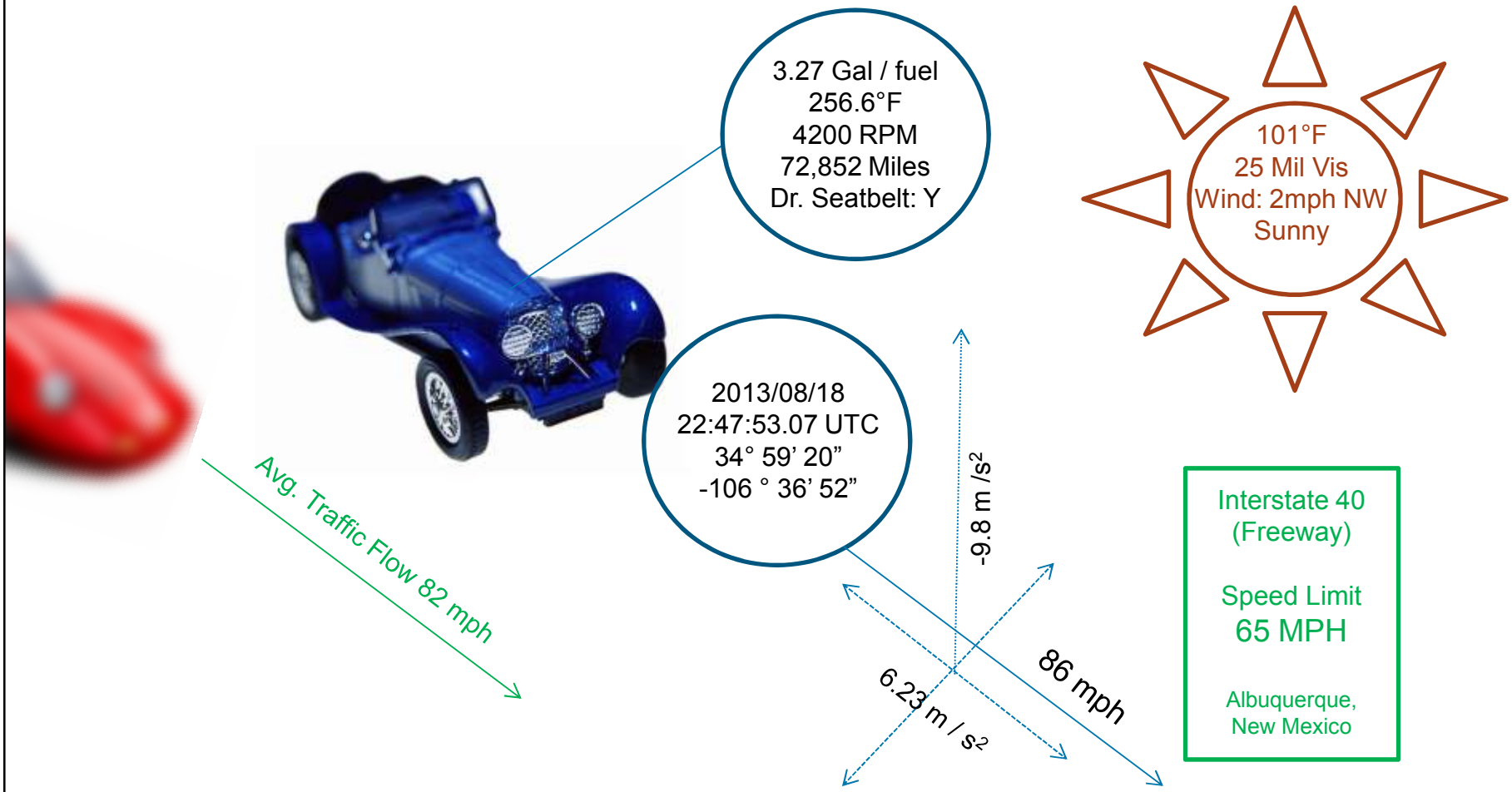
According to [Insurer] [Telematics Product], I am an A driver in my Jeep, and a C driver in my car. Ridiculous. Sent the [darn] things back. #epicfail - wildannie1969

How does this work @[Insurer] I pressed breaks early to avoid running a yellow light BUT your #[Telematics Product] beeped at me. Should I have ran it? -_ylimE

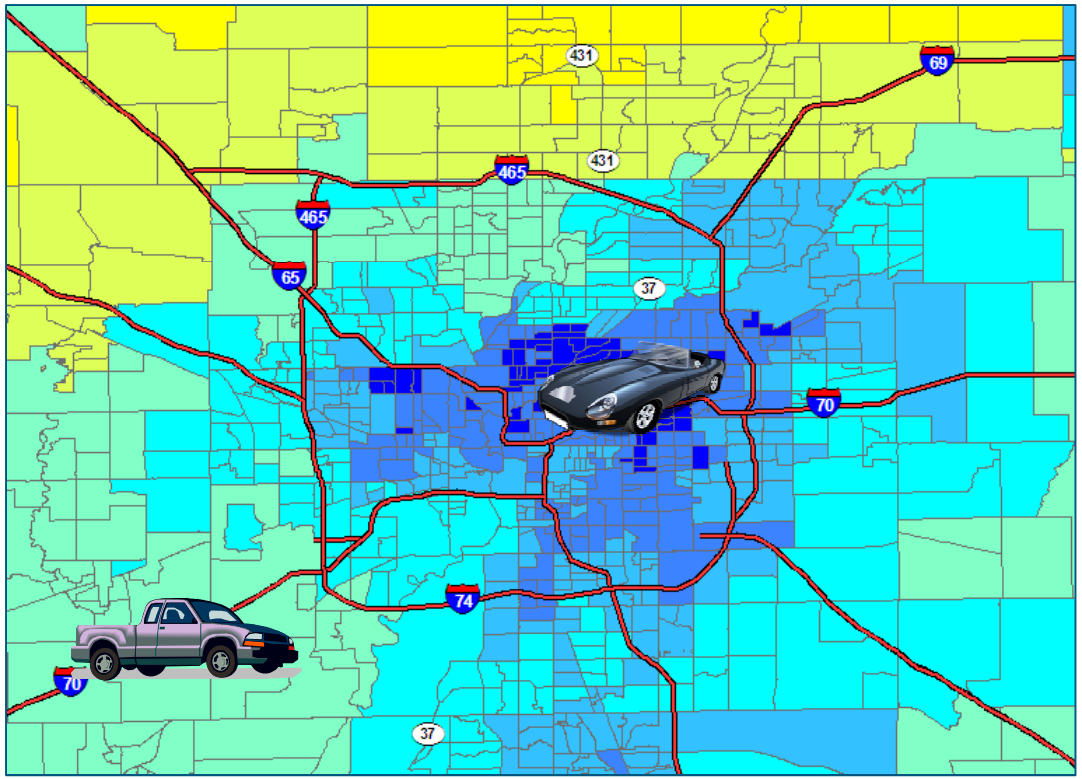
@[Insurer] [Telematics Product] is one of the worst devices ever invented. False hard brakes CONSTANTLY in icy weather while accelerating. Constantly - TimothyJohnWI

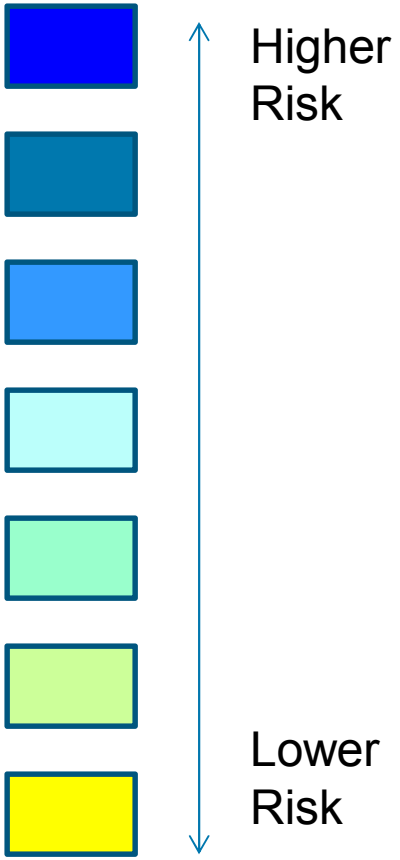
@[Insurer] I've used #[Telematics Product] for 6 mts. Evrytime I applied my brakes, or drv in traffic I was dinged. Its not calibrated for metro. -BuyfromKMJ

Driving behavior data

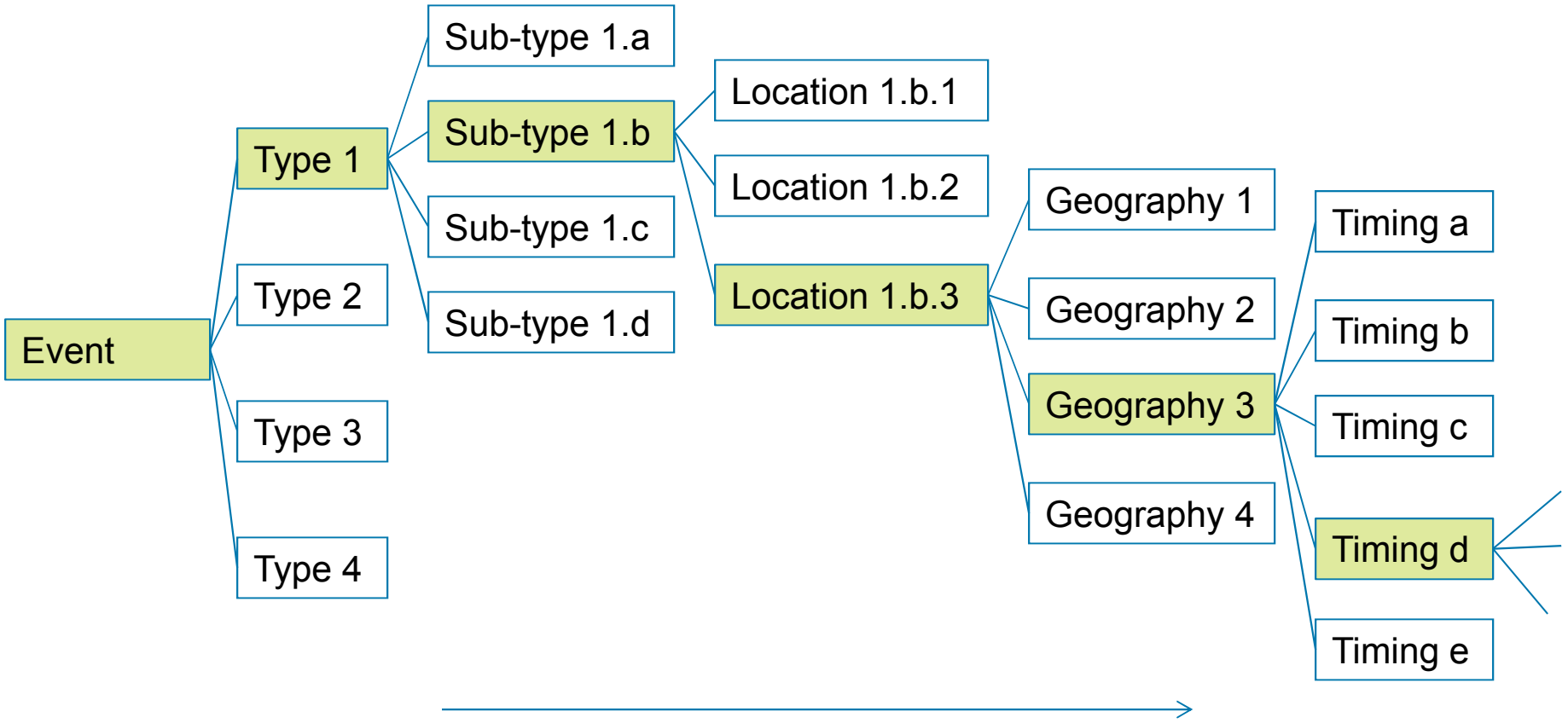


Searching for Direction

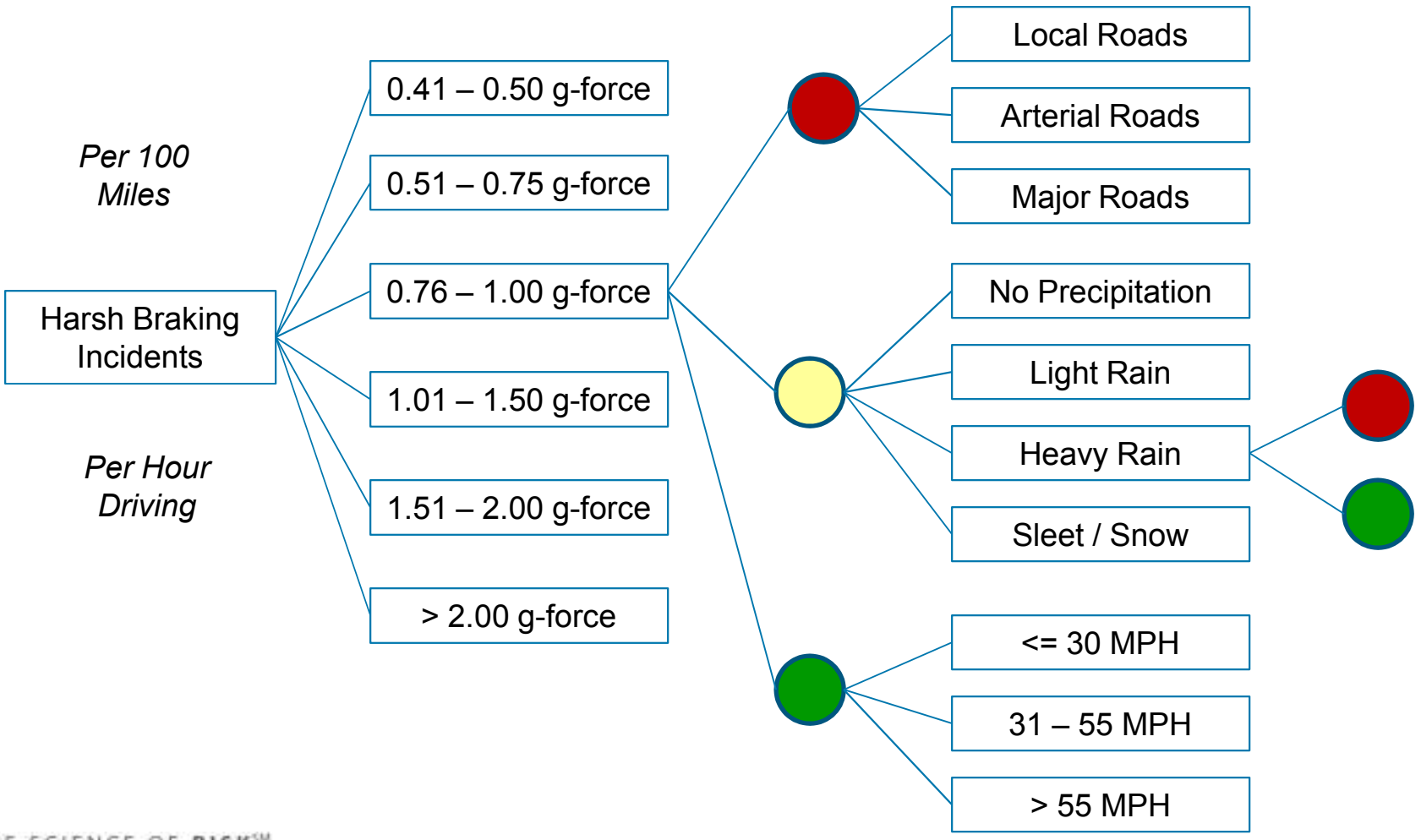




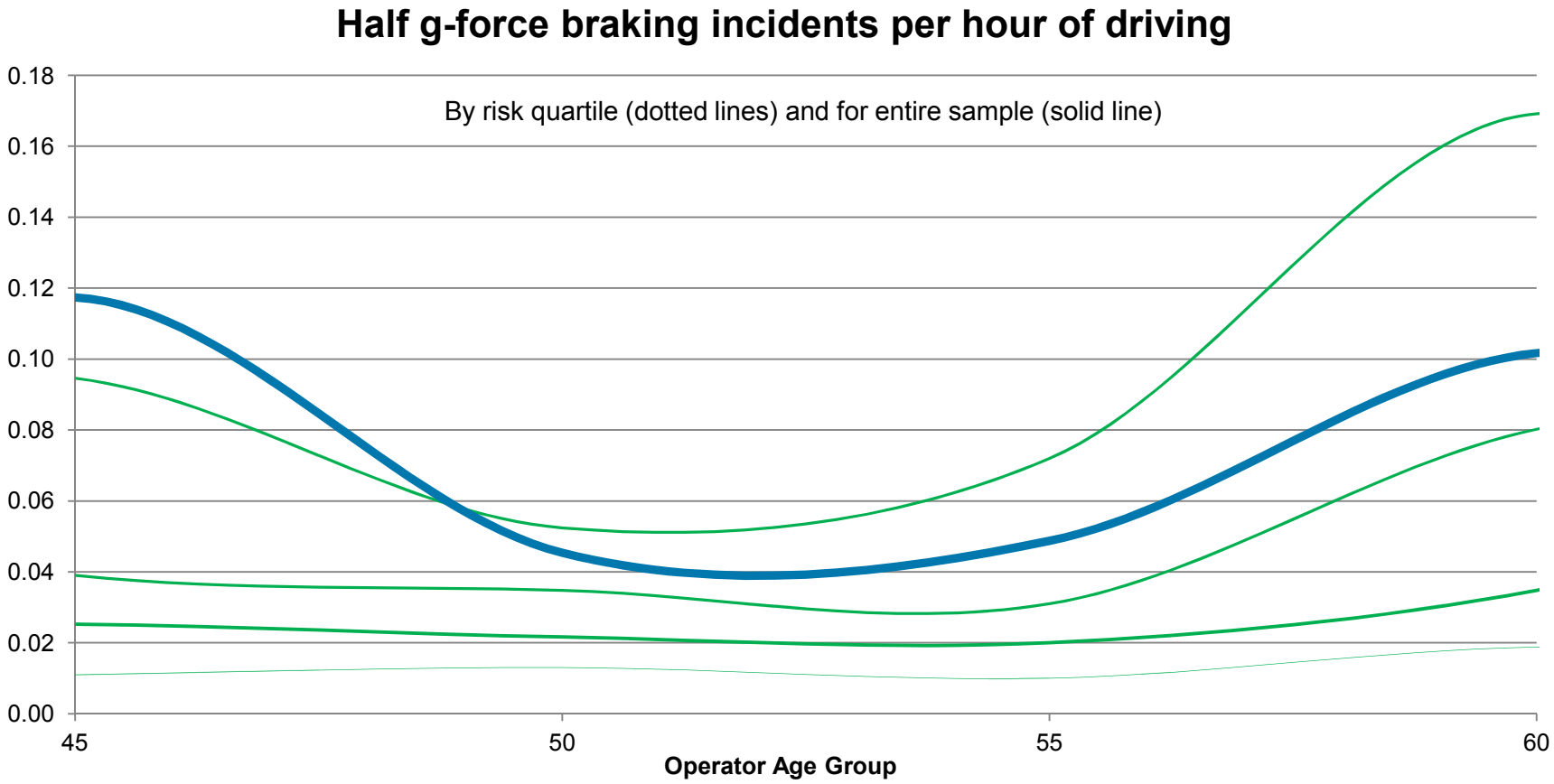
Multi-dimensional Variables



Reducing the Dimensions



Imperfect Proxies



Source: ISO fleet data, operators aged 40 - 60

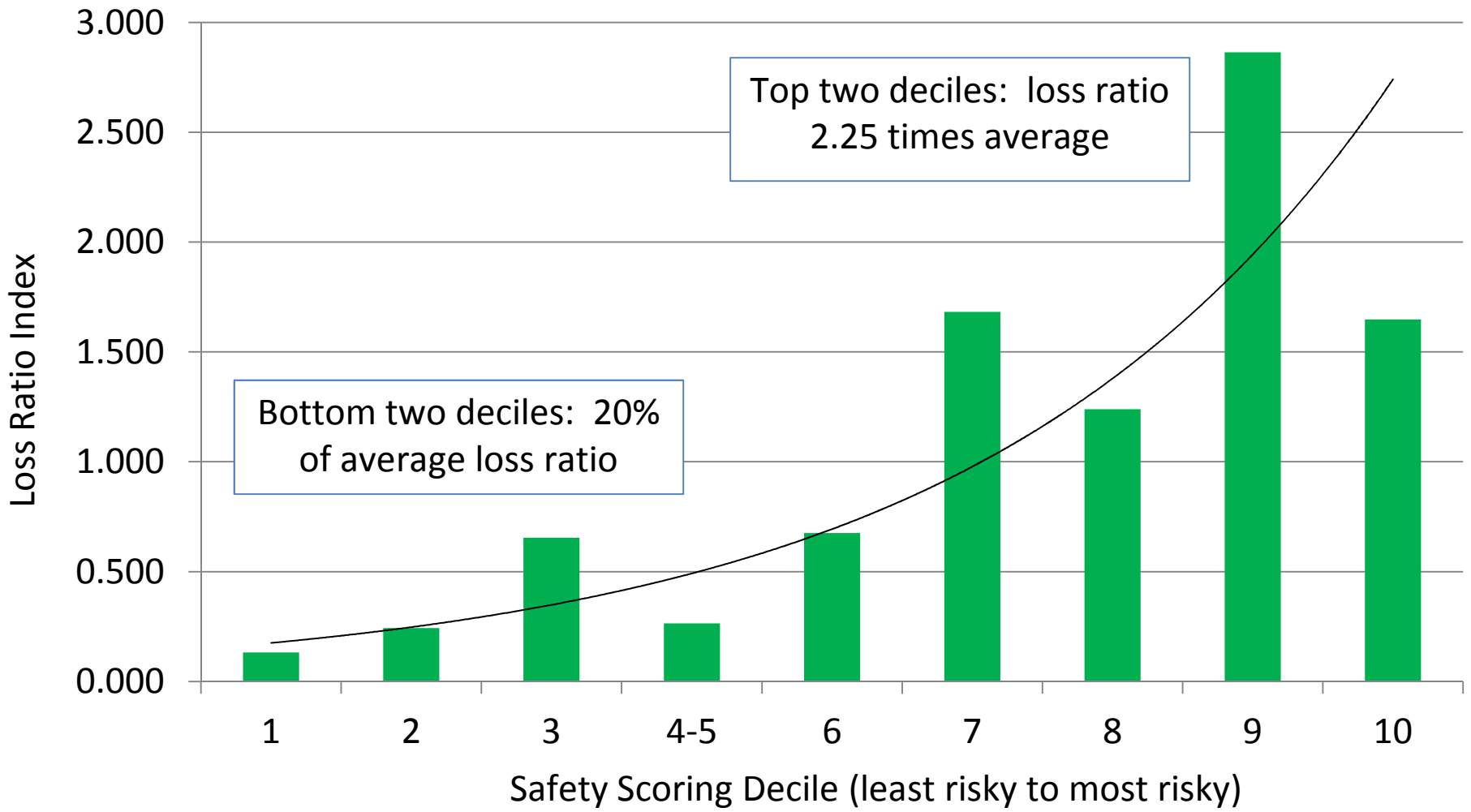
Minimizing Overlaps

```
/* hypothetical SAS to implement telematics-sourced
     rating variables on top of existing rating plan */

Proc GenMod  Data=MyLib.UbiBook;
class  avspd_range;
p=1.8;
y=_resp_; a=_mean_; variance var=a**p;
deviance d= … ; /* <- insert messy formula here */
model  pure_prem  =   braking1     braking2     braking3       /* from PCA */
          avspd_range * pct_gtlim   left_05h    pct_peak   pct_early
          / link=log     scale=d   offset= ln_presPrem      type3;
output   out=MyLib.UbiBook_scored     pred=ubi_prem;
Run;
```

Verisk Telematics

Measuring Model Performance



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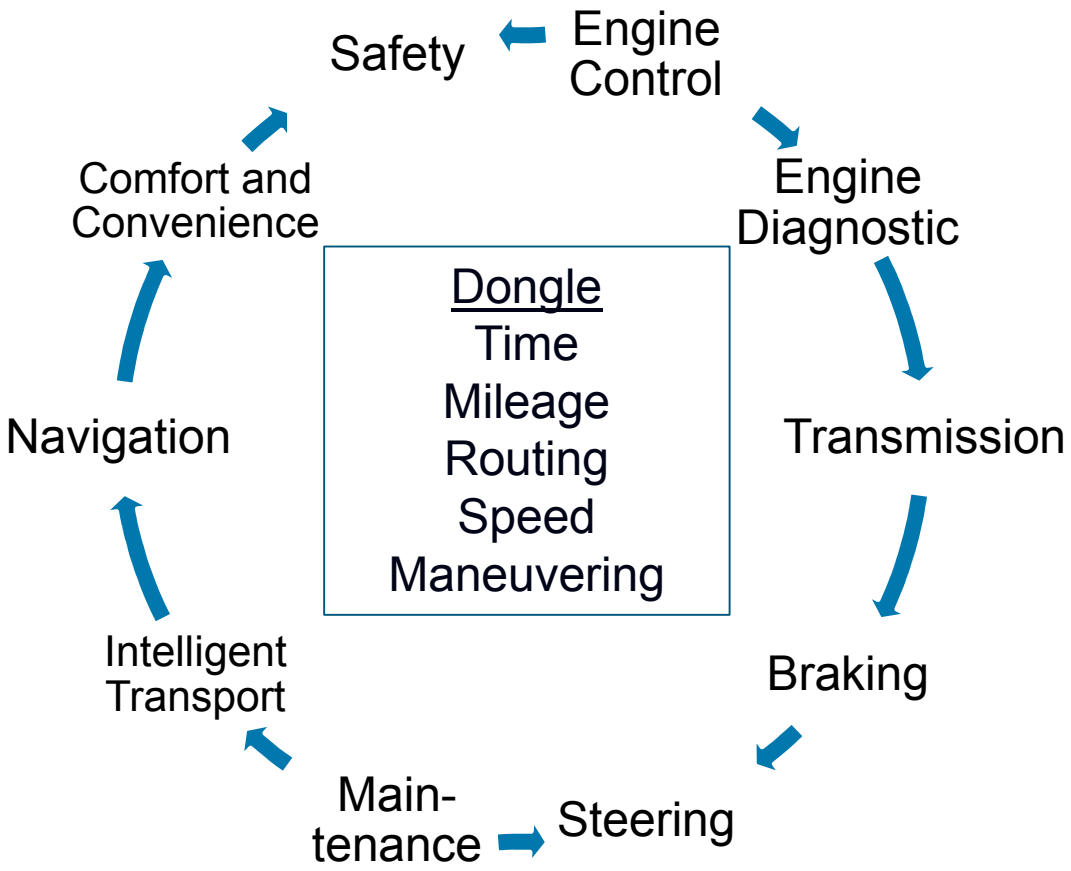
Source: >800 personal lines vehicles

UBI Inside the Box



OEM potential insurer perspectives

- Potentially lower cost of vehicle ownership
- Sustained relationship with vehicle owner
- More seamless experience
- Improved safety focus and communications
- Monetize untapped potential of vehicle data warehouse
- Non-traditional competitors
- Potentially limits eligibility for UBI
- Additional partnership elements may be necessary
- Additional layers of regulation possible
- Owner consent and resale complications

UBI Outside the Box

- Rewards program
- Prepay and bonus miles
- App-based assessment
- Trial insurance period

New breed of credit bureaus?

- Union Tank Car Company
- Great Universal Stores
- Retail Credit Company
- Ford Motor Company

Hypothetical range of privacy options

Policy	What data is accessible	Who can access data	Can data be ID'd?	How is data used?	Discount opportunity
1	Aggregated	Insurer	Yes	Ratemaking	< 5%
2	Aggregated	Insurer	Yes	Ratemaking	5%
	Detailed	Insurer/third parties	No	Research	
3	Detailed	Insurer	Yes	Ratemak. / services	10%
4.	Detailed	Insurer/third parties	Yes	Above + marketing	15%

Source of "Giant Insurance" example: *Framework for Security and Privacy in Automotive Telematics*
http://www.cc.gatech.edu/projects/disl/courses/8803/backup/readinglist_files/p25-duri.pdf

Telematics 4.0 for insurers

- Meet logical and emotional needs
- Manage mobile data network
- Develop affinity partnerships
- Re-engineer pricing structures

Source: “The quest for Telematics 4.0”
http://www.ey.com/Publication/vwLUAssets/The_quest_for_Telematics_4.0/$File/The_quest_for_Telematics_4_0.pdf

Questions and comments

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