



PL-2: Usage-Based Insurance: Are You Ready?

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PL-2: Usage-Based Insurance: Are You Ready?

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What if...

- ...you found a variable that could segment your current book such that 1/5 of your vehicles had a loss ratio 5 times lower than the highest 1/5?
 - ...you introduced a product in which 30% of drivers self identified themselves as having longer retention and a loss ratio 15% better than average by the mere fact they asked for your product?
 - ...you implemented a process that reduced the current loss ratio by more than 20% for the vast majority of your insureds?
 - ...you learned that regulators not only embrace this new product, but actively encourage it and governments offer funding (backed by environmental activists) to help launch it?
-
- **Would you use it?**

Background on Pay-as-you- drive-and-you-save (PAYDAYS) Pricing and UBI

What is PAYDAYS Pricing and its Relationship to UBI?

- Converting hidden and lump-sum costs of auto ownership and usage to transparent, variable costs.
- Such costs may relate to insurance, but also to parking, vehicle taxes and fees, or to the car itself through car sharing.

Why PAYDAYS Pricing?

- Most of the costs of owning and operating a vehicle are fixed.
- The financial incentive not to use personal vehicles heavily is relatively small.
- Many households, especially low-income ones, would prefer variable costs to fixed ones.
- Various studies project substantial driving reductions, public policy benefits, and consumer savings resulting from PAYDAYS pricing.

UBI Is Not a New Concept

- As early as 1929, virtues of charging for car insurance by the mile were recognized.
- Concept promoted by Nobel economist William Vickery in his 1968 work: “Automobile Accidents, Tort Law, Externalities and Insurance.”

Results of UBI

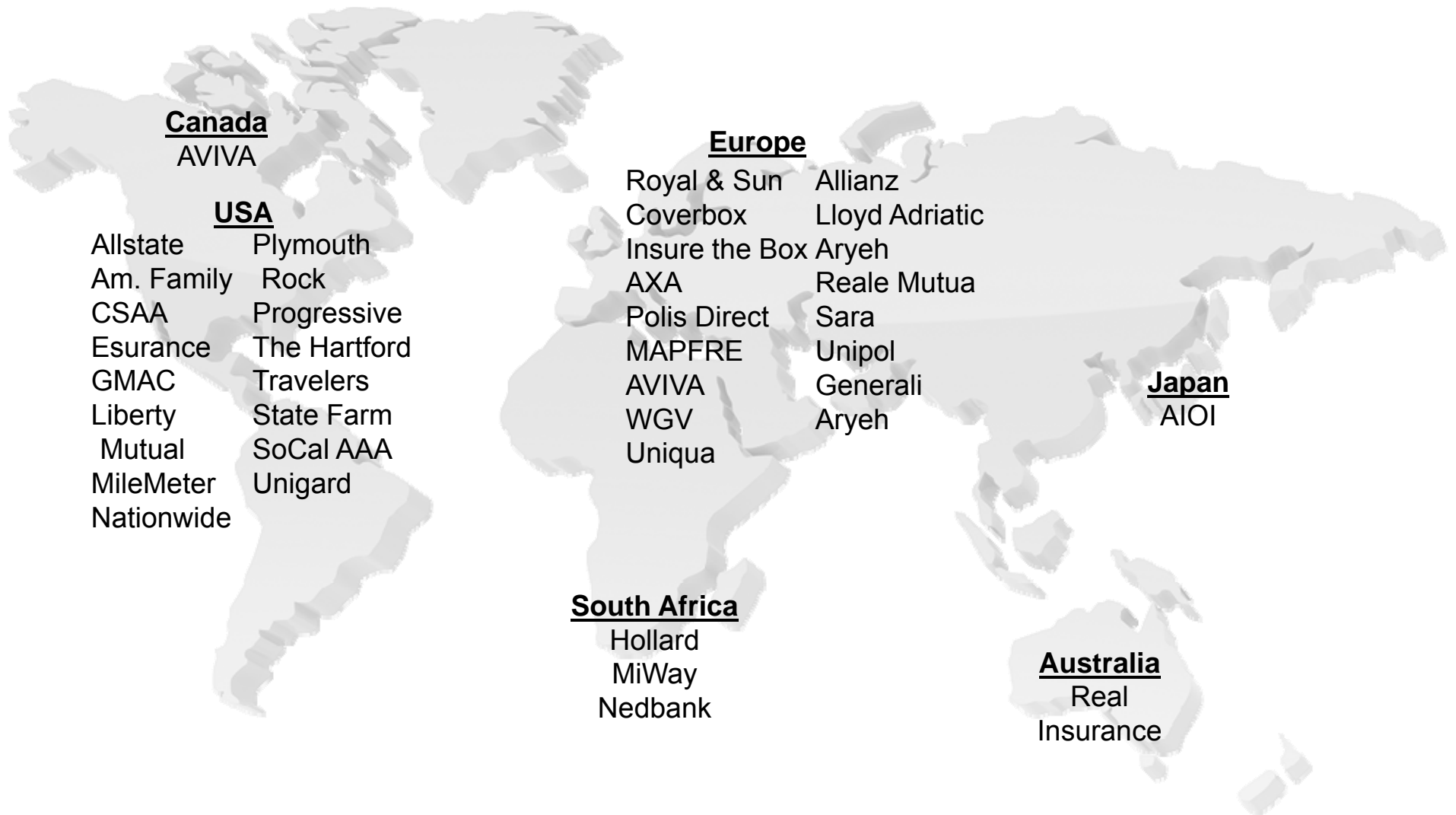
- Cuts vehicle miles traveled
- Curtails crash claims in excess of driving reductions
- Relieves congestion at a rate greatly exceeding driving reductions
- Diminishes air pollution and carbon emissions
- Lowers infrastructure costs
- Strengthens cities and lessens urban sprawl
- Provides substantial consumer savings
- Increases insurance company profits

Features of UBI To Maximize Driving Reductions

- Direct and transparent per-mile or per-minute-of-driving pricing—avoid rebates
- In-vehicle graphic displays of “insurance pricing meter” with e-mail and Web summaries
- Frequent billing without automatic bill payment
- Transit pass discounts (instead of bundling with a few free miles of insurance)
- Individualized assistance to identify alternatives
- “Regret lotteries” and peer comparisons to encourage continuous mileage reductions

Current Market Landscape

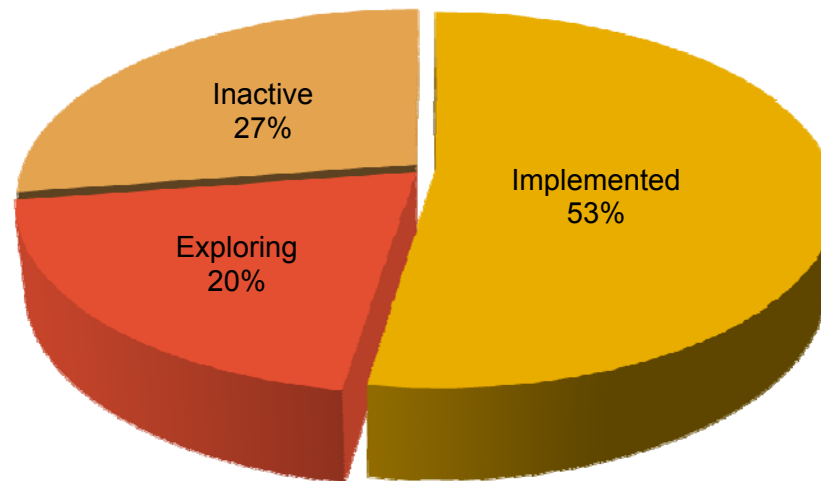
Usage-Based Auto Insurance (UBI)



UBI in Personal Auto

Market Overview

- Breakdown of top 50 Private Passenger Auto companies countrywide
- At least five top 10 personal auto insurers have implemented programs to insureds in at least one state
- Expect insurers representing more than 60% of personal auto market to have introduced UBI products in 2011



UBI in Personal Auto

Current Programs - GMAC Mileage Discount

- Only available to OnStar subscribers in 35 states
- Uses OEM equipment
- Odometer readings sent from OnStar to GMAC with subscriber's permission
- Average **initial** discount of 26%
- Maximum discount of 54%
- High mileage receive 5% discount for subscribing



Self selection is real

UBI in Personal Auto

Current Programs - Progressive's SnapshotSM



- Optional program with customer selecting which vehicles to enroll
- Wireless device plugged into OBD II port records time, speed and harsh braking
- Discount calculated based on first 30 days, then applied for remainder of term
- Device removed after first term and discount is fixed until significant endorsement
- Maximum discount of 30% and no surcharge in most states
- Approved in 32 states
- **National rollout is proceeding**
- "...the mere fact that we're saying we're ready to approach national rollout and advertising, you can infer from that that we're at a level of comfort that is greater than we have ever been before." Glenn Renwick

UBI in Personal Auto

Current Programs – Allstate

- **Drive Wise** launched in Illinois in January 2011
- 10% initial discount
 - Up to 30% at renewal
 - No surcharges
- \$10 technology fee semi-annually
- Driver score based on driving behaviors
 - Mileage
 - Hard brakes
 - Speeding (80+ mph)



Where is telematics going?

Technology advancement

- Technology for UBI is growing fast
- In-vehicle communication services crossing vehicle makes
 - GM's OnStar
 - Ford's Sync
 - Continental's AutoLinQ
 - Mercedes-Benz's mbrace
- Smartphone apps that communicate with the vehicle are in development

UBI Improves Risk-Based Pricing

The background is a solid blue color with a gradient that transitions from a lighter blue at the top left to a darker blue at the bottom right. A thin, light blue curved line starts near the top left and arcs towards the center. A larger, semi-transparent blue triangular shape is positioned on the right side, pointing towards the center.

Growing Body of Research Supports UBI Pricing

- New research from Massachusetts that combines vehicle mileage and loss cost data shows a compelling relationship.
- Host of mostly small instrumented vehicle studies consistently shows a strong linkage between certain driving habits and crashes.
- Actions of insurance companies also suggest actuarial underpinnings for UBI.

Instrumented Vehicle Studies Support UBI Pricing

- “100-Car Naturalistic Study” in No. VA found that the 12.5% most dangerous drivers had over 100X the crash risk of the 12.5% safest drivers.
- An Israeli 103-vehicle monitoring study found that aggressive drivers were responsible for 16.6X the crash costs of the safest drivers.
- A 95-driver test of incentives to reduce speeding in Sweden led to a decline in speeding frequency from 15% to 8% of driving time.

Instrumented Vehicle Studies

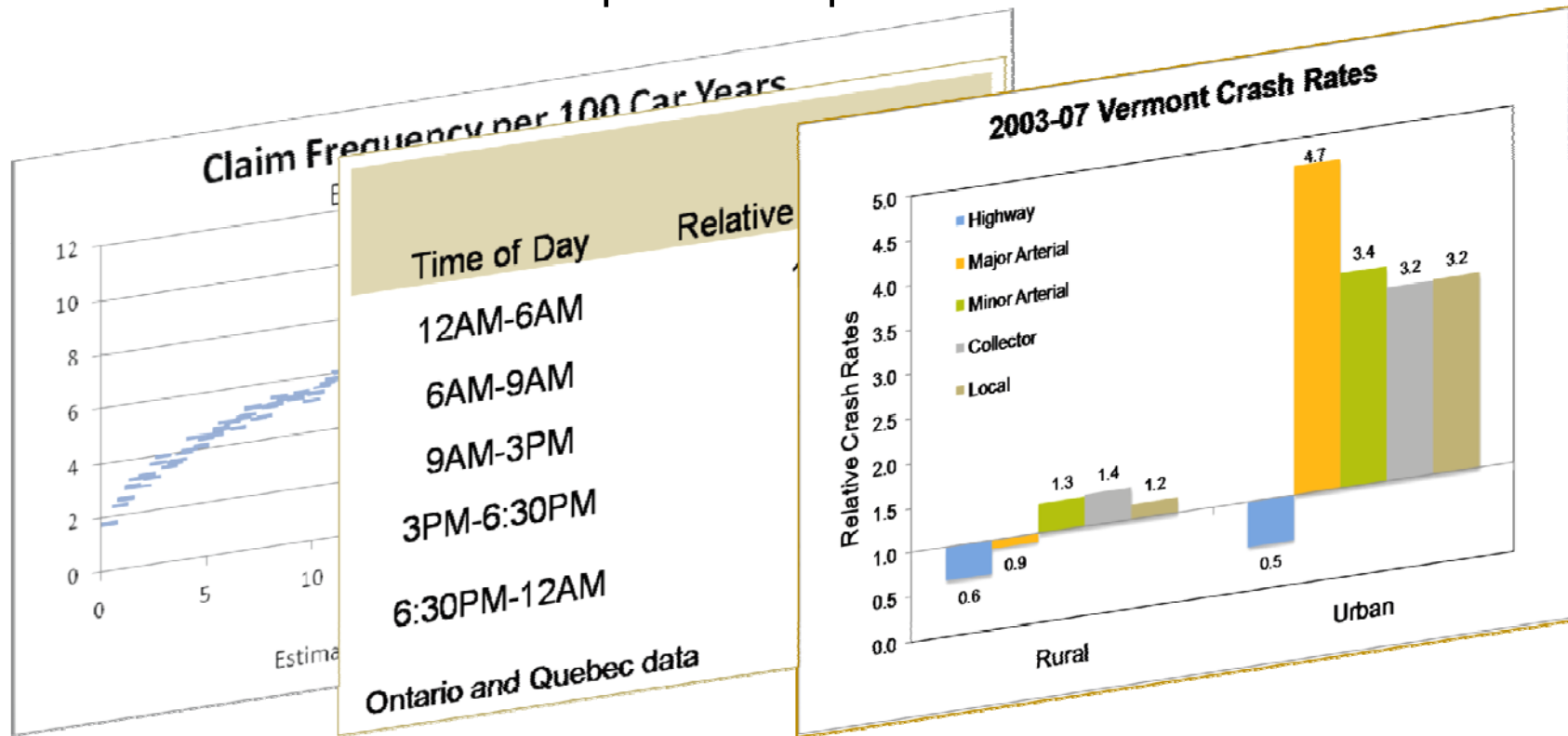
Study Title	Participation	Results
How Risky Is It? An Assessment of the Relative Risk of Engaging in Potentially Unsafe Driver Behaviors	This "100-car naturalistic study" included 109 primary drivers and 132 secondary drivers of vehicles in Northern Virginia	Enormous amounts of driving data, including from video, were recorded, along with 82 crashes, 761 near crashes, and 8,295 incidences. Inappropriate passing was over-represented in crashes and near crashes by 72X its frequency, versus 3X for drowsiness and inappropriate speed. The 12.5% most dangerous drivers experienced over 100X the per-mile crashes, near crashes, and incidences as the 12.5% safest drivers.
Safety Correlation and Implications of an In-vehicle Data Recorder on Driver Behavior	This Israeli vehicle monitoring study included 103-employer owned vehicles	Based on data gathered, drivers were classified as good, intermediate or aggressive. Aggressive drivers were responsible for 16.6X the crash costs of good drivers and 8.6X the crash costs of intermediate drivers despite driving similar mileages. Merely sharing data with employees led to a 38% reduction in at-fault crashes.
Relationships Between Crash Involvement and Temporal-Spatial Driving Behavior Activity Patterns: Use of Data for Vehicles with Global Positioning Systems	This Atlanta study included 460 instrumented vehicles	Crash-involved drivers drove 36% more freeway miles, especially during the morning commute period (54% more), drove at higher speeds on all facility types and at all times, and had significantly more hard-deceleration events.
Pay-as-you-speed: Two Field Experiments on Controlling Adverse Selection and Moral Hazard in Traffic Insurance	This instrumented vehicle study included 95 drivers in Borlange, Sweden	Using financial incentives to reward safe driving speeds, speeding declined from 15% of the time to between 7 and 9% depending upon incentives.
Effects of ISA (Intelligent Speed Adaptation) on the Driving Speed of Young Volunteers: A Controlled Study of the Impact of Information and Incentives on Speed	Thirty-one drivers between the ages of 18 and 28 in North Jutland, Denmark had their vehicles instrumented	Drivers reduced their speeding as a result of being provided a 30% insurance discount for participating and losing some of that discount every time they sped (as well as being alerted by an in-vehicle unit).

Data Availability

Data

Background - Tremendous predictive power

Various studies demonstrate predictive potential

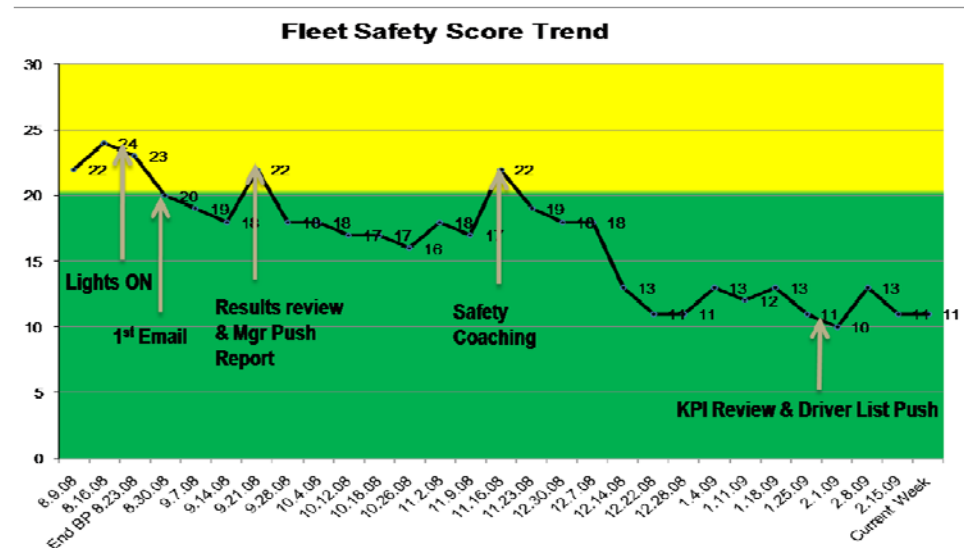


Companies gain competitive advantage through better segmentation

Elimination of cross-subsidization is more “fair”

Monitoring/feedback/incentives improve driving

- Norwich Union: 30% frequency reduction
- GreenRoad: 54% improvement in fleet crash rate
- Iceland postal service reduced crash rate by 56%
- Pepsi (Iceland) reduced fleet crash rates by over 80%



Safer drivers decrease fuel consumption roughly 10%

Telematics devices

Alternative Models

- Dedicated Device
 - Insurer handles cost of device and installation
 - Need self installation for mass marketing
 - Reasonable cost
 - Ease of use
- Shared Services Device
 - Device supports added value services outside insurance, for example:
 - Satellite navigation
 - Rerouting to avoid traffic congestion
 - Theft tracking
 - Emergency call
 - OEM or hard install may be required for these

Technology will change, but data is critical now to get a foothold

Device selection

- What data is collected?
- How does the device receive power?
- How much memory is required?
- How often is data collected?
- How is data transmitted?
- Is data aggregated or encrypted to protect privacy?
- Is data calibrated for accuracy?
- Is raw data collected or condensed on device?
- Can device be remotely upgraded?



Data considerations

- Data types
- Record size
- Frequency of transmission
- Build in validation
- Scrubbing errors from data
- Data compression

Data

Background - How?

- Speed – OBD II, GPS
- Braking – OBD II, GPS, Accelerometer
- Acceleration - OBD II, GPS, Accelerometer
- Cornering – GPS, Accelerometer
- Time of day
- Day of week

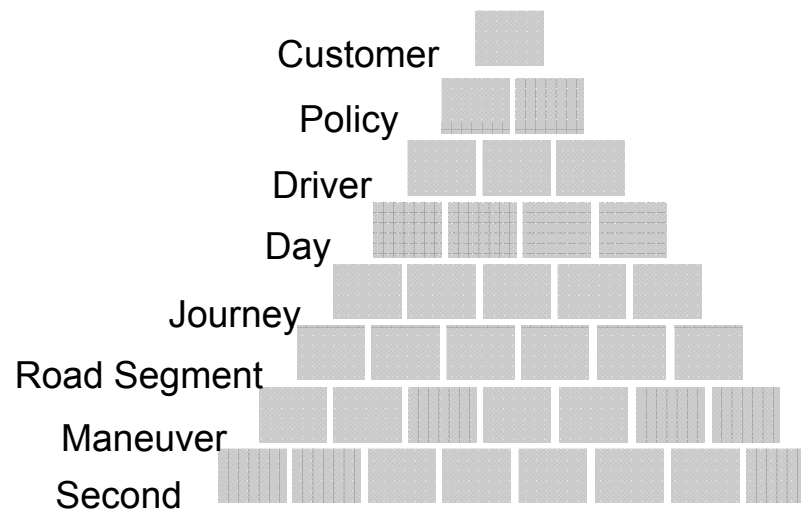
Data

Background - Where?

- Location data with GPS
- Mapping latitude/longitude
- Speed relative to speed limits
- Traffic congestion
- Road type
- Population density
- Weather

Data for analysis

Background - Levels of Aggregation



- For a given Factor
 - Understand where the factor operates in the hierarchy of aggregation
 - More granular provides better discriminators and less proxies

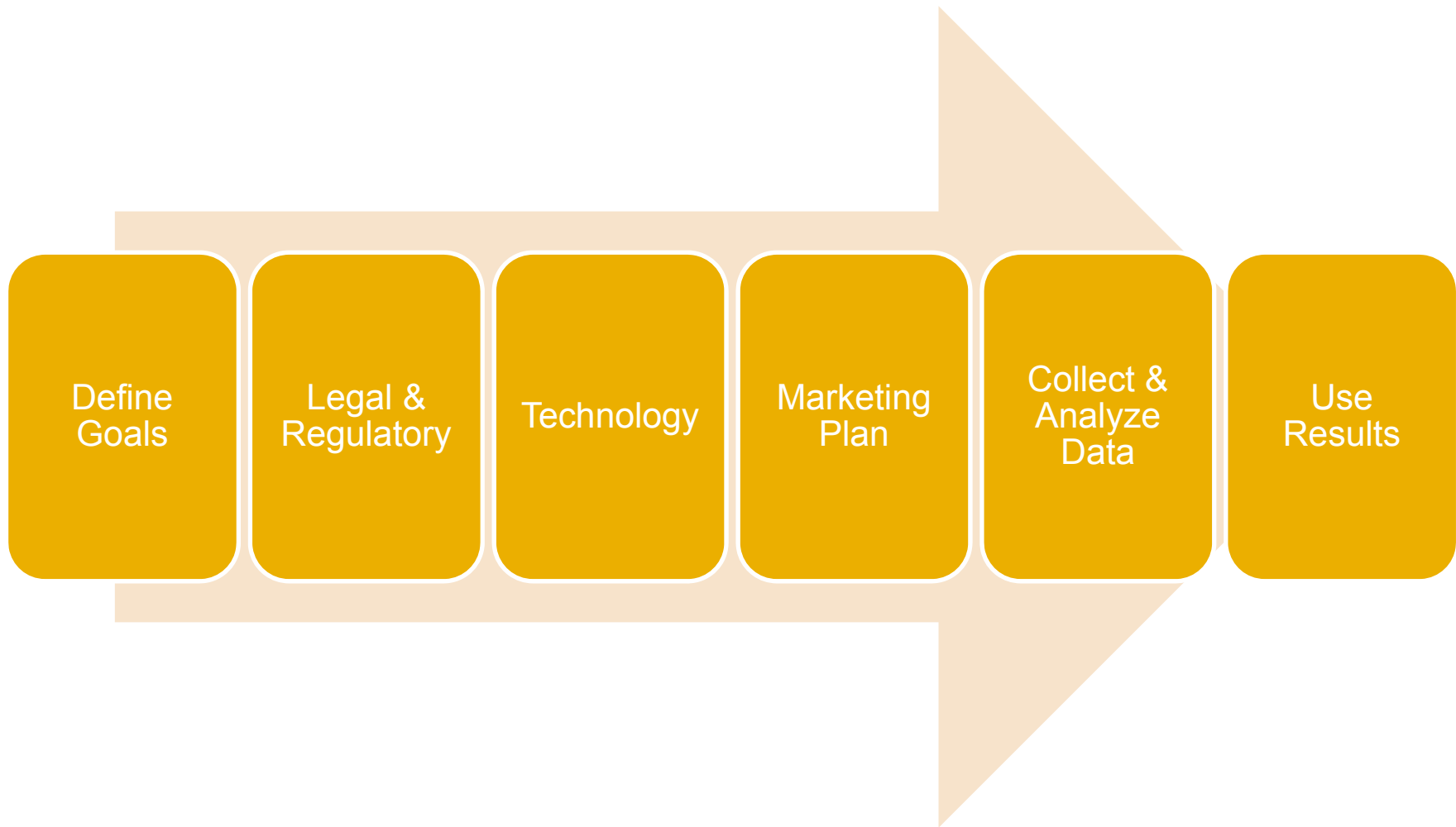
Factors can exist at any level

Data explosion

	Without Telematics	With Telematics
Update frequency	Semi-annual	Real time, trip, daily
Data quality	Renewal U/W	Daily scrubbing
Variables	Dozens	Hundreds
Parameters	Thousands (Zip+4 or VIN)	Depends
Records per policy	Dozens	Millions
File size	Gigabytes	Terabytes [Petabytes?]

How to Accelerate

Steps to complete solution



Regulators are interested in UBI

- Regulators have great expectations
 - Believe it is fair
 - Improves driving behavior
 - Reduces greenhouse gas emissions
 - Gives control to consumer
 - Addresses affordability issues
- Most are open to the concept
 - Several states have applicable legislation (e.g., CA, TX, OR)
 - 14 states' climate plans recommend a pay-as-you-drive program (AZ, CA, CO, ME, MD, MA, MN, NH, NM, NC, PA, RI, VA, and VT)
 - Regulators may have “hot spots” such as privacy concerns and filing requirements



UBI has societal benefits appreciated by regulators

- Reduces accidents and can ultimately save lives
- Price is finally “fair”
- Contributes to green initiative
 - Reduces miles driven
 - Safer driving reduces emissions
- Helps affordability by giving control to consumer

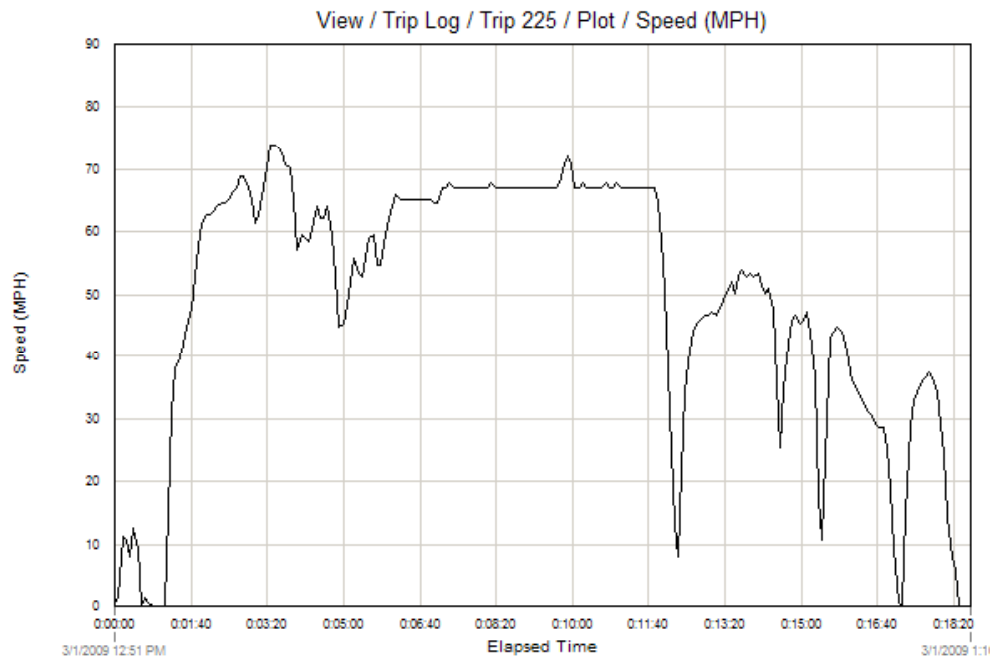


Build an appealing proposition

- Overcome privacy objection
- Customer in control
- Lower price
- Cost to consumer
- Ease of use (“Plug & Play”)
- Understandable model
- Reduce risk
- Acceptable restrictions
- Two way price changes
- Additional services

Appeals to participating consumers

- Improves driving behavior
- Controllable and enables potentially large premium savings
- Makes sense and reduces reliance on proxies
 - Insurance credit scores
 - Driver assignment
 - Charges for relatively rare accidents, convictions
- Ancillary services



Translating data into risk exposure

- Collect sufficient data types to find pricing advantage
- Potential for interaction between vehicle operation data and customer demographics
- Pricing should be intuitive and motivational
- How much data is needed to determine relationships?

What are the advantages?

- Telematics data is predictive
- Monitoring/feedback improves driving
- Data helpful for claims handling
- UBI has societal benefits
- Appeals to participating consumers
- Increase profitability for companies

How government action will help

Value Pricing Pilot Program Federal Register Solicitations

- August 5, 2009 Federal Register Notice requested UBI applications from eligible governmental entities. One application in Texas involving MileMeter Insurance was funded.
- A similar Oct. 19, 2010 notice, also soliciting UBI applications, yielded some responses, which are under review.
- Maximize innovation, incentives, and participation, but also actuarial understanding.

Future Opportunities

- With unstable gas prices and the poor economy, consumers are driving less and are looking to save money (comScore 2010 survey).
- Strategic Highway Research Program study of 2,500 instrumented vehicles is just beginning now, and will provide important data.
- Other forthcoming “before” and “after” data enabling emissions trading dollars (e.g., from Federally-funded King County/Unigard pilot and Texas MileMeter pilot).
- Concerted regional efforts using a mixture of funding sources and other incentives.
- 14 State climate action plans, as noted earlier, include UBI.
- New potential opportunities in the reauthorized Federal transportation program, especially around fuel tax alternatives.

But There Are Obstacles to Launching UBI Products

- Potentially high start up and implementation costs
- Reduced margins on high-profit, low-mileage customers
- Getting the prices right
- Patent barriers
- Concerns about consumer privacy
- Regulatory barriers in some states
- Developing successful marketing campaigns
- Providing adequate customer product support

And There Are Also Long-Term Needs and Challenges

- Failure to collect “before” data and to share data more generally.
- Driving a lot is not generally seen as a safety risk or as a reason insurance is expensive.
- There is more to learn about the effects of pricing on consumer behavior.
- “Rebundling” the “unbundled”.

But Companies Not Offering UBI Face Risks

- Companies that do offer UBI will obtain unique knowledge about claims' risks for individual drivers.
- Low-mileage, low-risk drivers who are highly profitable for insurers will shift to carriers that offer UBI.
- High-mileage, high-risk drivers will shift to carriers that do not track their driving and that unwittingly under-price them.

Question & Answer

Thank you!

- Allen Greenberg

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