

Analytics to Improve Safety

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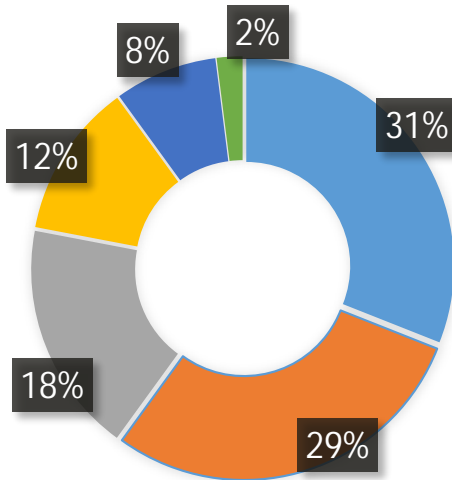
An estimated 2.8ZB of data in 2012 is expected to grow to 40ZB by 2020. 85% of this data growth is expected to come from new types; with **machine-generated data** being projected to increase 15x by 2020. (Source IDC)

What data can cars, devices, systems and humans provide?

- § Vehicle location
- § Driver's details
- § Driver's auto insurance details
- § Vehicle details
- § Weather conditions
- § Road conditions
- § Traffic trends
- § Driver's driving pattern



Challenges in Analyzing Data



- Capturing Reliable Data
- Implementing the right solutions to analyze and interpret the data
- Balancing human judgement with data-driven decision making
- Identifying the right risk indicators / parameters
- Reacting in a timely fashion as insights are identified
- Keeping data secure

Source: Digital Technology's effect on Insurance Survey, KPMG International, May 2014



Monetize Data



Customer Intimacy

Digital Economy



Operational Efficiency

Real Time Insights



New revenue Models

Marketplaces

Analytics - driven Enterprise



Boundaryless Information

Deliver a data platform that enables seamless & integrated data paradigm



Progressive Organization

Build progressive organization structure, culture and process to embrace new paradigms



Pervasive Analytics

Deliver sustainable business outcomes through data-science driven predictive and prescriptive analytics



Boundaryless Data Platform

Data Lakes

Master Data Mgt.

Data Grid

Real Time Processing

Platforms & DNA on Cloud



Progressive Organization

Strategy & Target Operating Model

Change Management

Simplification & Modernization

Architecture & Engineering

Data Governance & Management

Pervasive Analytics

Self Service

Analytical Workbench

Machine Learning & Discovery

Prescriptive & Optimization

Responsive Enterprise



Evolving Regulations



Citizen Demands



Fraud and Abuse



Multiple Systems

Information Needs & Challenges of DMV/DoT Jurisdictions



Variety of Data



HOW to store TB/PB of data efficiently?



HOW to process these large heterogeneous Data sets efficiently?

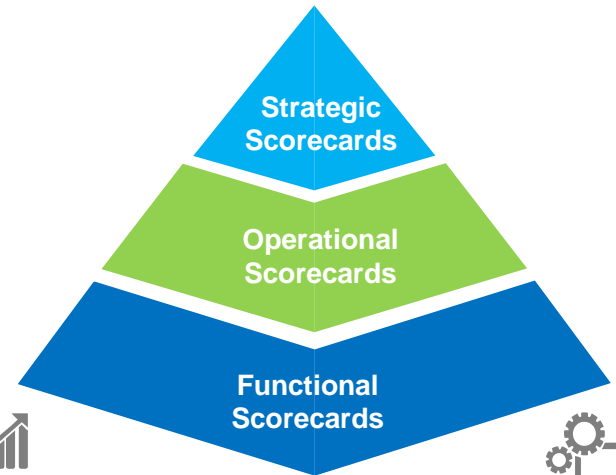


HOW to visualize & consume the insights derived before competitors?

Data Explosion in the Digital World

1. Traditional Systems, Technologies and Solutions can't handle the big data problem!!

Desired Outcome



OUTCOME

COMPLIANCE

QUALITY

OPERATIONS

70% of enterprise big data processing is still structured in nature (transaction data , log files etc.)

60% of enterprises have challenge identifying availability of data within

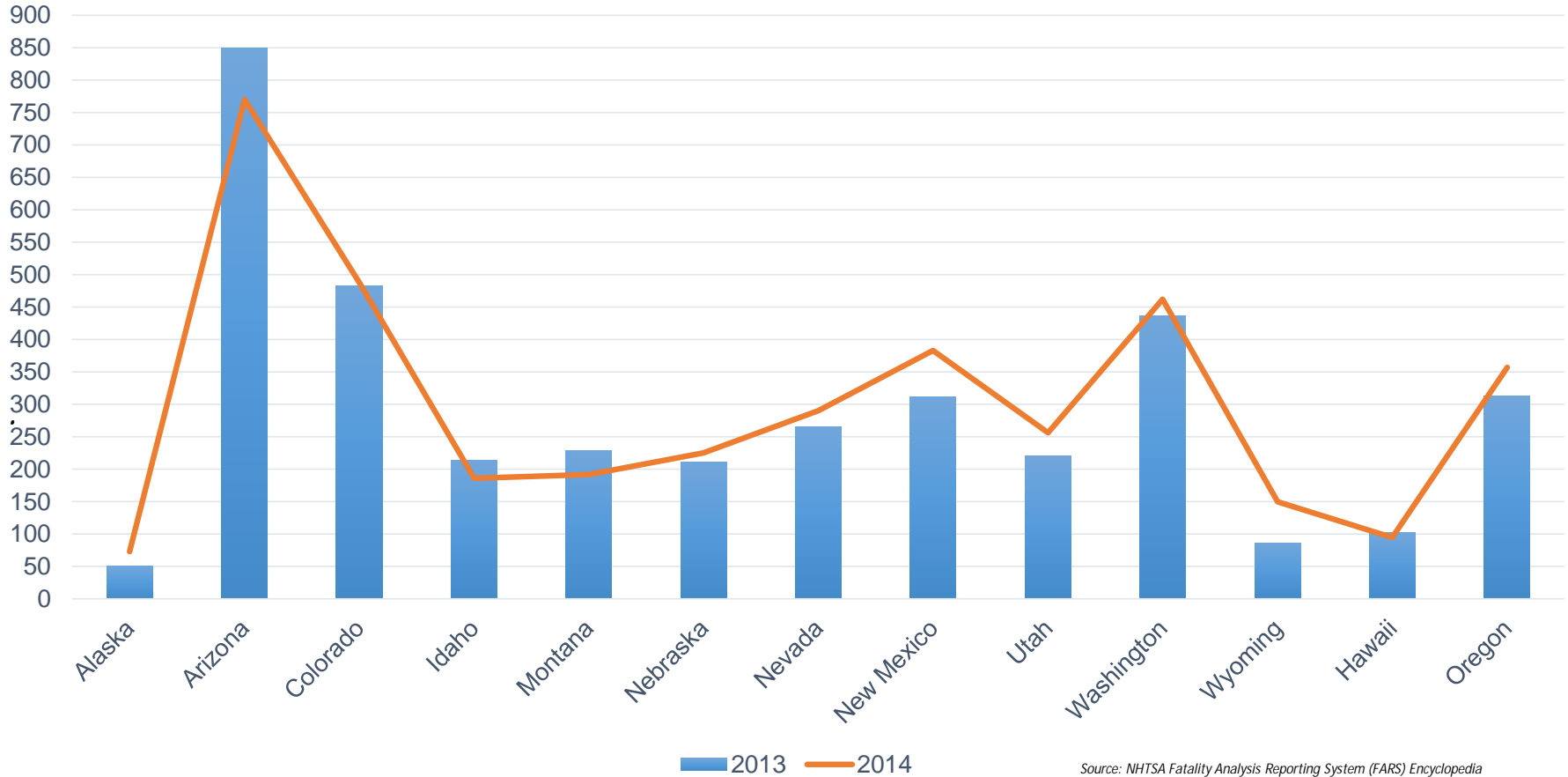
only 12% of data is used for analysis, rest left out due to "data-in-silos", inability to find which of the data is valuable

2. Big data adoption grows at furious pace but deriving business value, remains a challenge!!

Impact of New Analytics – Improved Safety Measures, Aligned Strategies, Easy Adoption of Future Trends with Measurable Outcome

Scenarios	Implementation Details
Monitoring reckless driving	<ol style="list-style-type: none"> 1. Smart Motor Vehicles - GPS should be made mandatory and as a standard feature like the backup cameras 2. A combination of motor vehicle keys and valid driver's license should start the car 3. Reckless driving spikes and average driving speed exceeding a cutoff limit should auto-generate speeding e-tickets to the respective driver 4. Traffic violation and ticketing info to be made available to defaulters on DMV websites
Monitoring DUI and distractive driving, temporary licensees	<ol style="list-style-type: none"> 1. Driver's driving pattern (behavioral data) to be analyzed and reported 2. When DL is flashed to start the car, if software recognizes a temporary licensee or a teenage driver, then additional validation of valid passenger license is required to start the engine
Improved designs for safe vehicles; Improved transport system designs and maintenance for safe roads and roadsides	<ol style="list-style-type: none"> 1. Intuitive driving approach similar to self-driving smart cars like auto-braking, self-parking, etc. 2. Improved safety features like electronic stability control, protective body for shocks absorption, air cushions, Lane departure warnings, blind spot detection, etc. 3. Real time analysis of road conditions to display dynamic speed limits accordingly
Road condition and weather alerts	<ol style="list-style-type: none"> 1. Electronic hoardings on roads flashing the road condition like pot-holes, work zones, etc. and weather information 2. Electronic speed limit display boards for dynamic speed limit setting to reflect real time road/weather conditions 3. Electronic hoardings on freeways to also display alternate routes along with traffic congestion alerts
Monitoring of driver's insurance and vehicle registration	<ol style="list-style-type: none"> 1. Insurance details to be looked up in the DMV Database based on DL number fed by vehicles 2. Car make, model, title owner, registration details should be fed into DMV data base 3. Insurance expiry/renewal and title registration validity details should be loaded into DMV Databases. Uninsured Drivers or vehicle owners of expired registration to receive auto-generated e-tickets

Traffic Fatalities By State



Source: NHTSA Fatality Analysis Reporting System (FARS) Encyclopedia

Through the evaluation of trends and outcomes, analytics can take average of data and technology to develop strategies that can help minimize the cause and affect in traffic accidents **~20%** in 2 years.



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