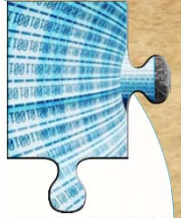# Reshaping Traffic and Revenue Forecasting

Future Risks and Realities
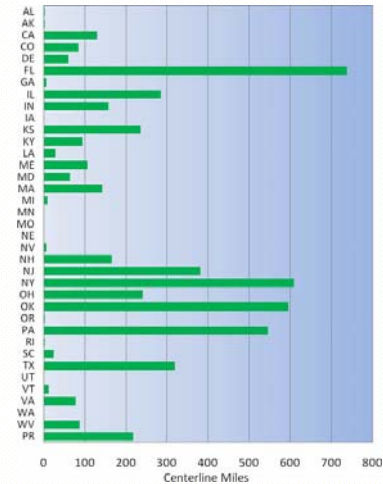
Christopher Mwalwanda
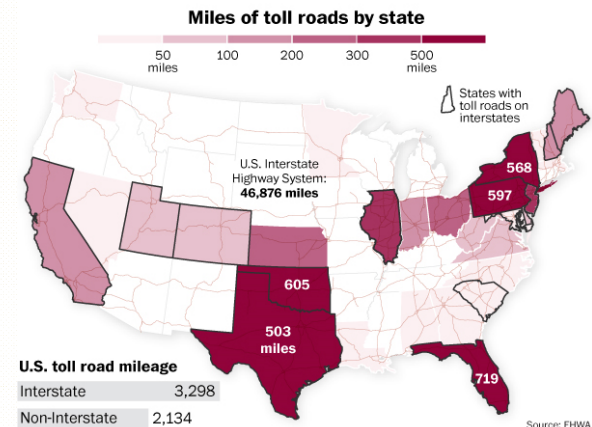
CDM Smith

Historical Briefing

- **In the Beginning…...**
  - There were few….
  - Individual projects/corridors
  - Focused/ singular objectives
  - Unique markets and challenges
- **Today**
  - There are many…
  - Systems/networks
  - Diverse / multimodal objectives
  - Multiple markets / collection types

Miles of toll roads by state

U.S. toll road mileage
| Interstate | 3,298 |
| Non-Interstate | 2,134 |

Source: FHWA

Traffic and Revenue 101 – Cliff Notes

1   Overall corridor travel demand

2   Future growth characteristics

3   Market capture and demand share

4   Users willingness-to-pay
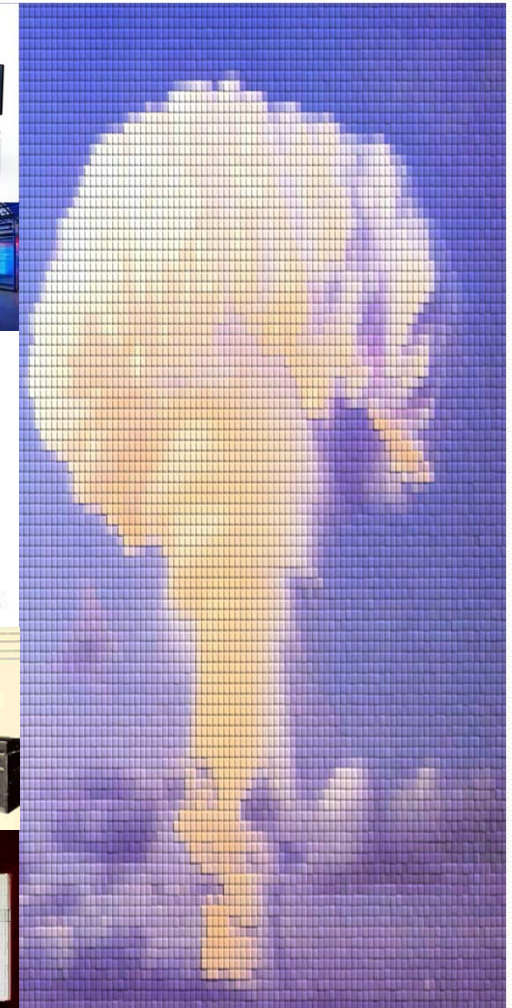
Technology/Data Cloud

5 Complex/ System

4 Composite/ Diverse

3 Refined/Multiple

2 Linear/ Single

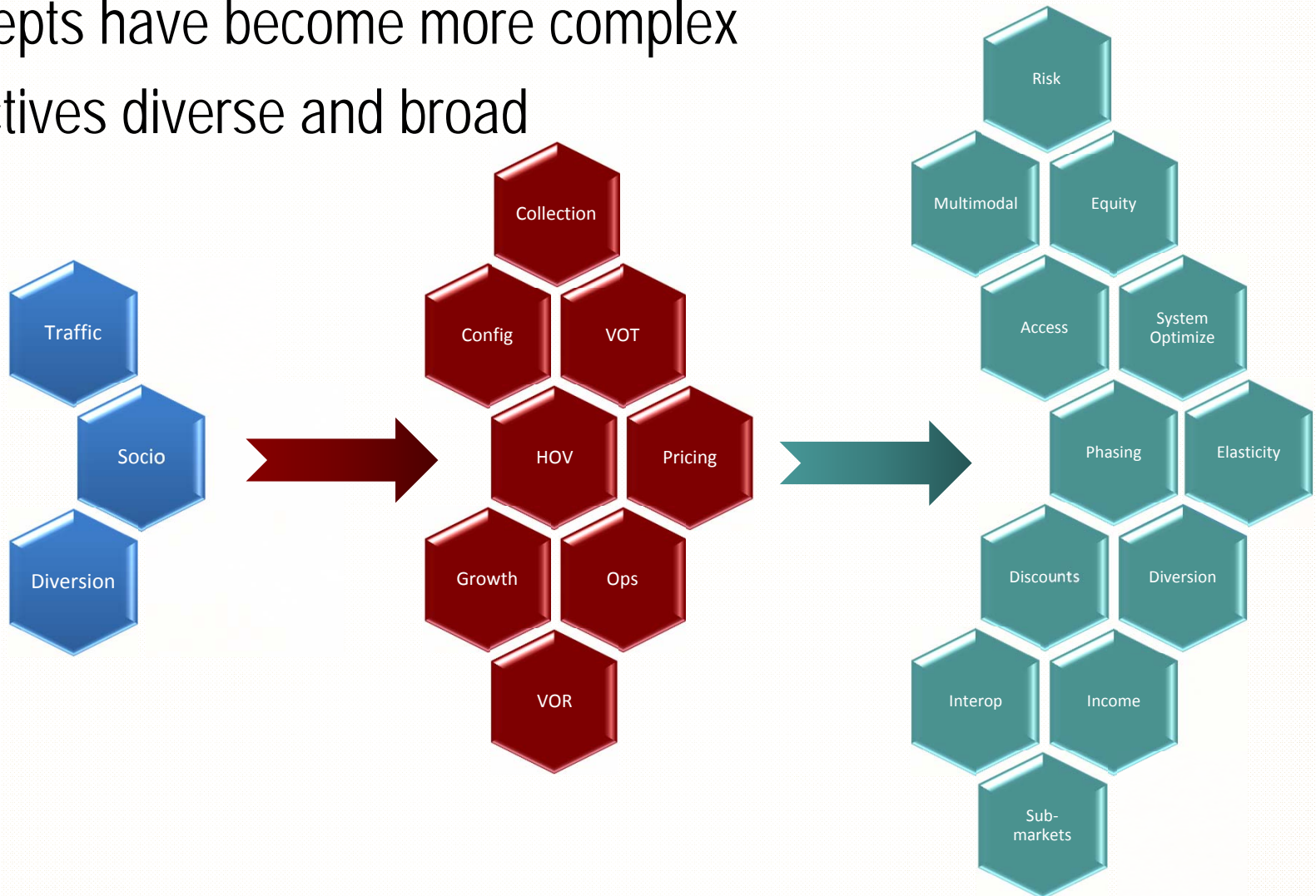**1** Basic/ Simple

The Modeling Abyss

- Modeling Procedures
  - More advanced software options
  - Unique pros and cons
  - Addresses specific needs
- Advances in features
  - Simulation
  - Activity-based
  - Multi-modal Interactions
  - Tolling/managed Lanes
  - Various platform linkage and feedbacks loops
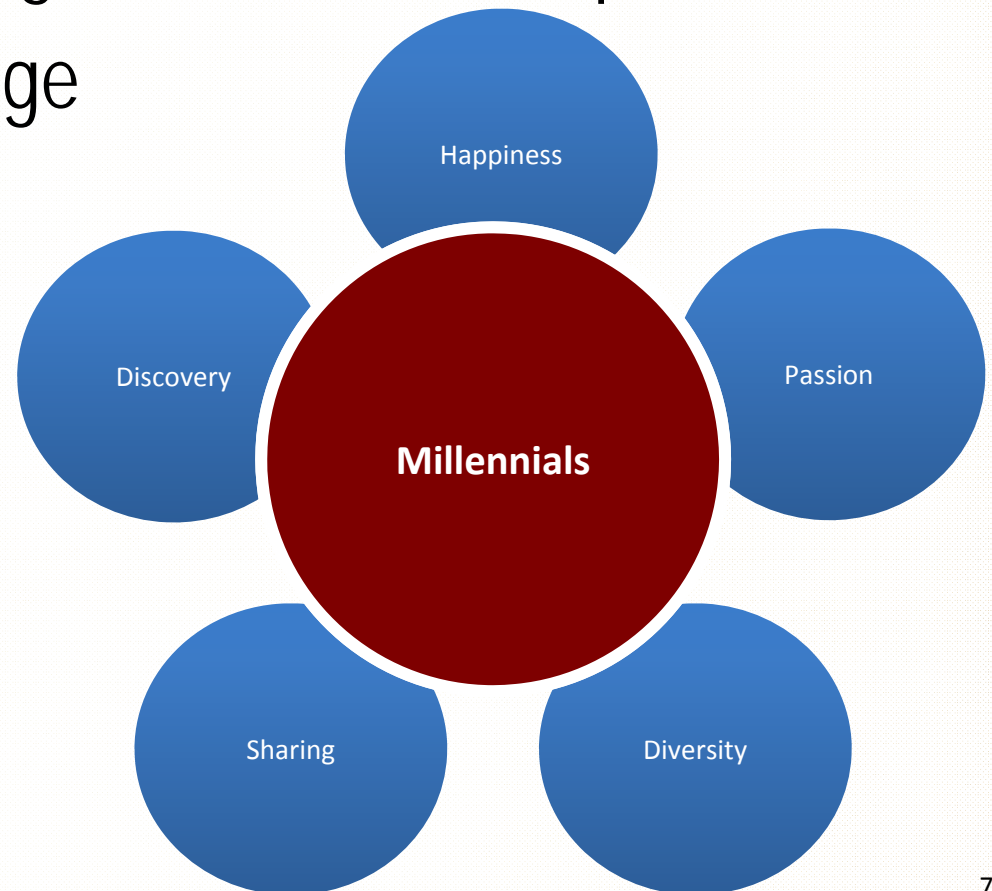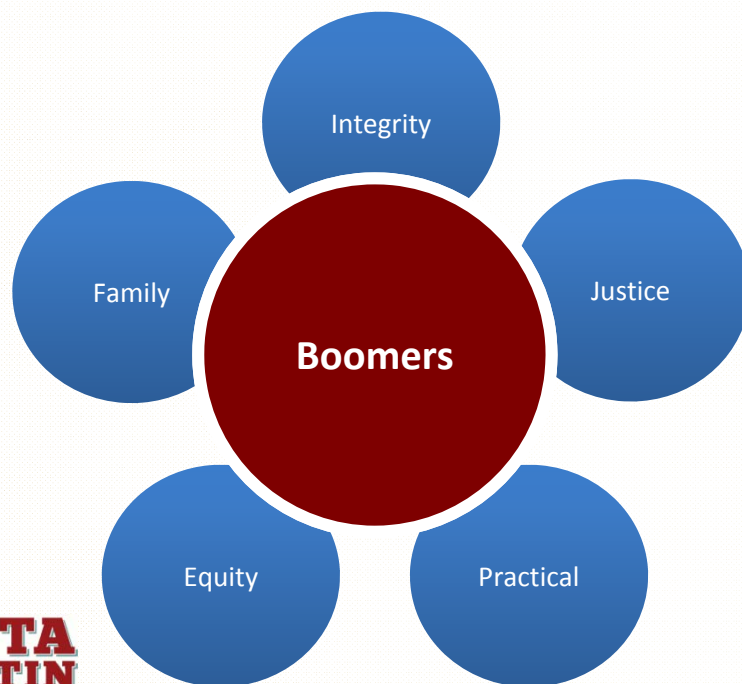
New Trends

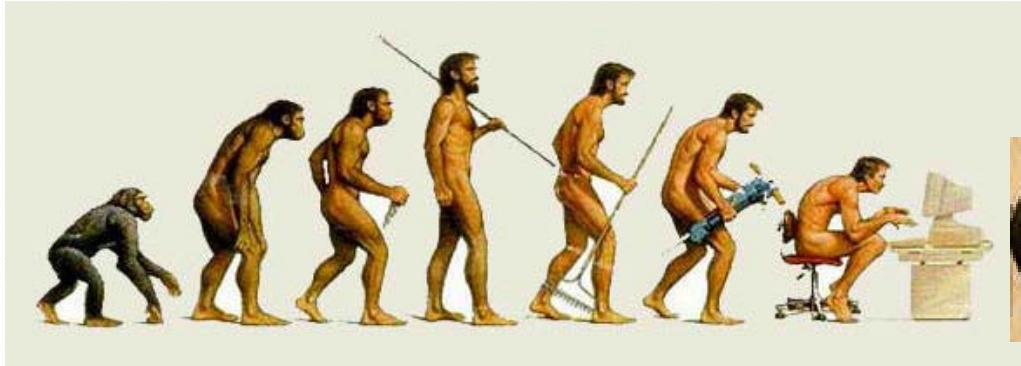- Concepts have become more complex
- Objectives diverse and broad

Traffic
Socio
Diversion

Collection
Config
VOT
HOV
Pricing
Growth
Ops
VOR

Risk
Multimodal
Equity
Access
System Optimize
Phasing
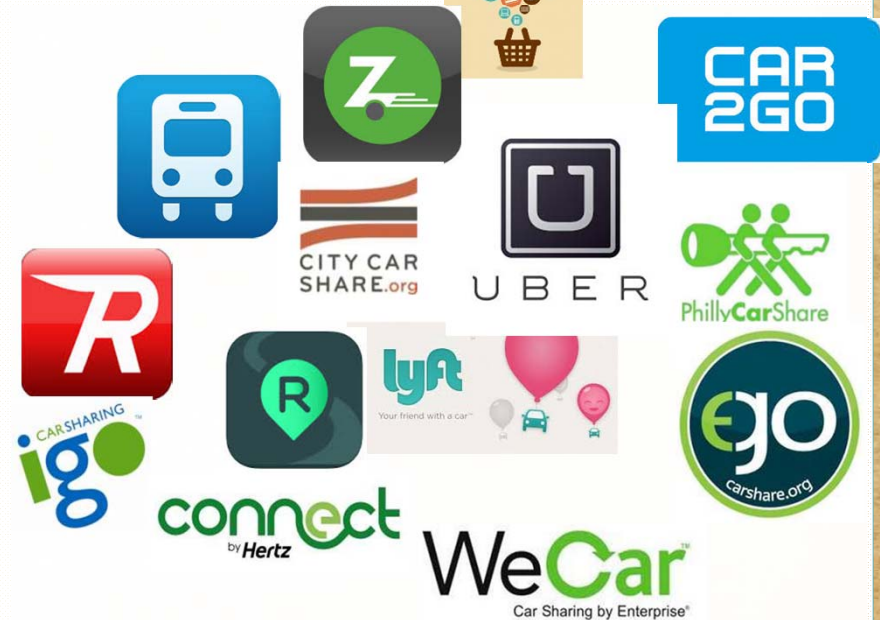Elasticity
Discounts
Diversion
Interop
Income
Sub-markets

The Generation Shifts

- Aging Generation/ behavioral shifts?
- Reduction in trip making/vehicle ownership
- Changes in modal usage

Boomers
- Integrity
- Justice
- Practical
- Equity
- Family

Millennials
- Happiness
- Passion
- Diversity
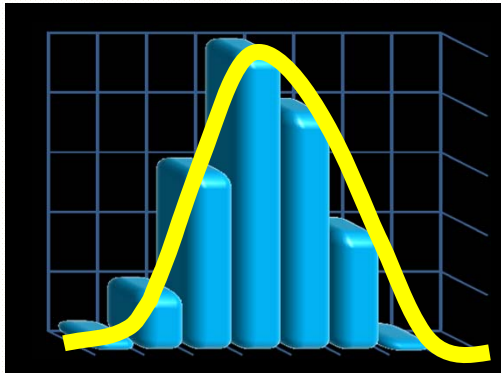- Sharing
- Discovery

Changing Travel Behaviors

- Real-time choices
- Multiple modal options
- Modal synchronization

Risky Business?

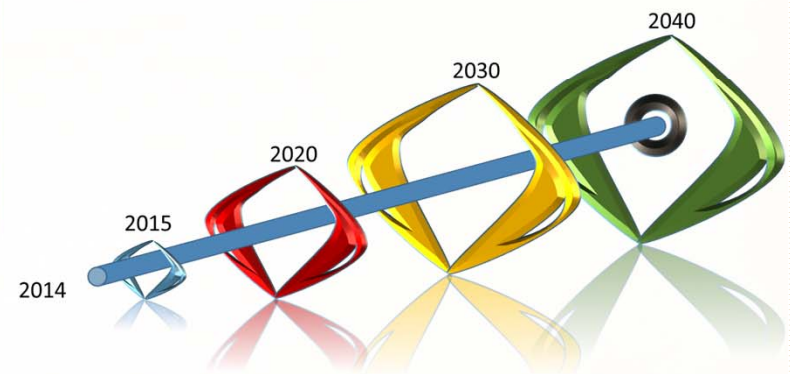- At an aggregate/discrete level historically

- More data, more problems?

- Disaggregate data will take time to fully vet and incorporate

- Does disaggregate necessarily mean better?

- Risk assessment techniques

- Added Illumination for the toolbox

Managed Lane Considerations
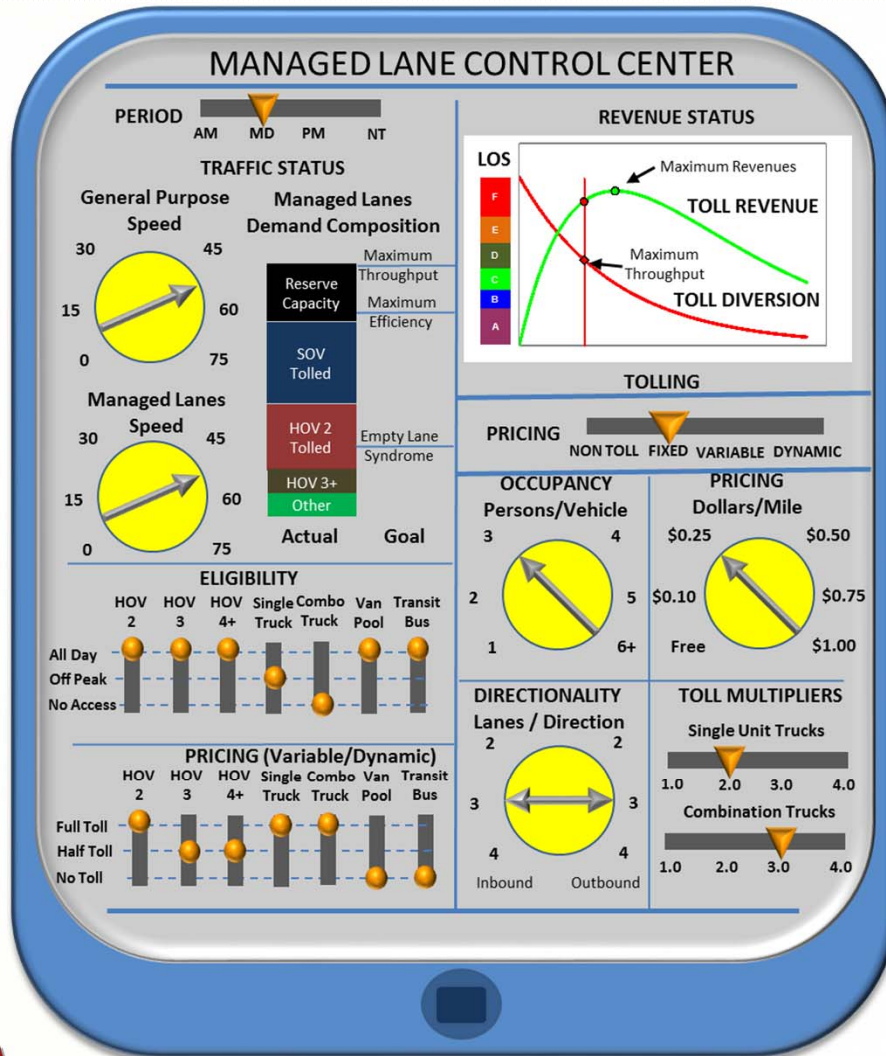
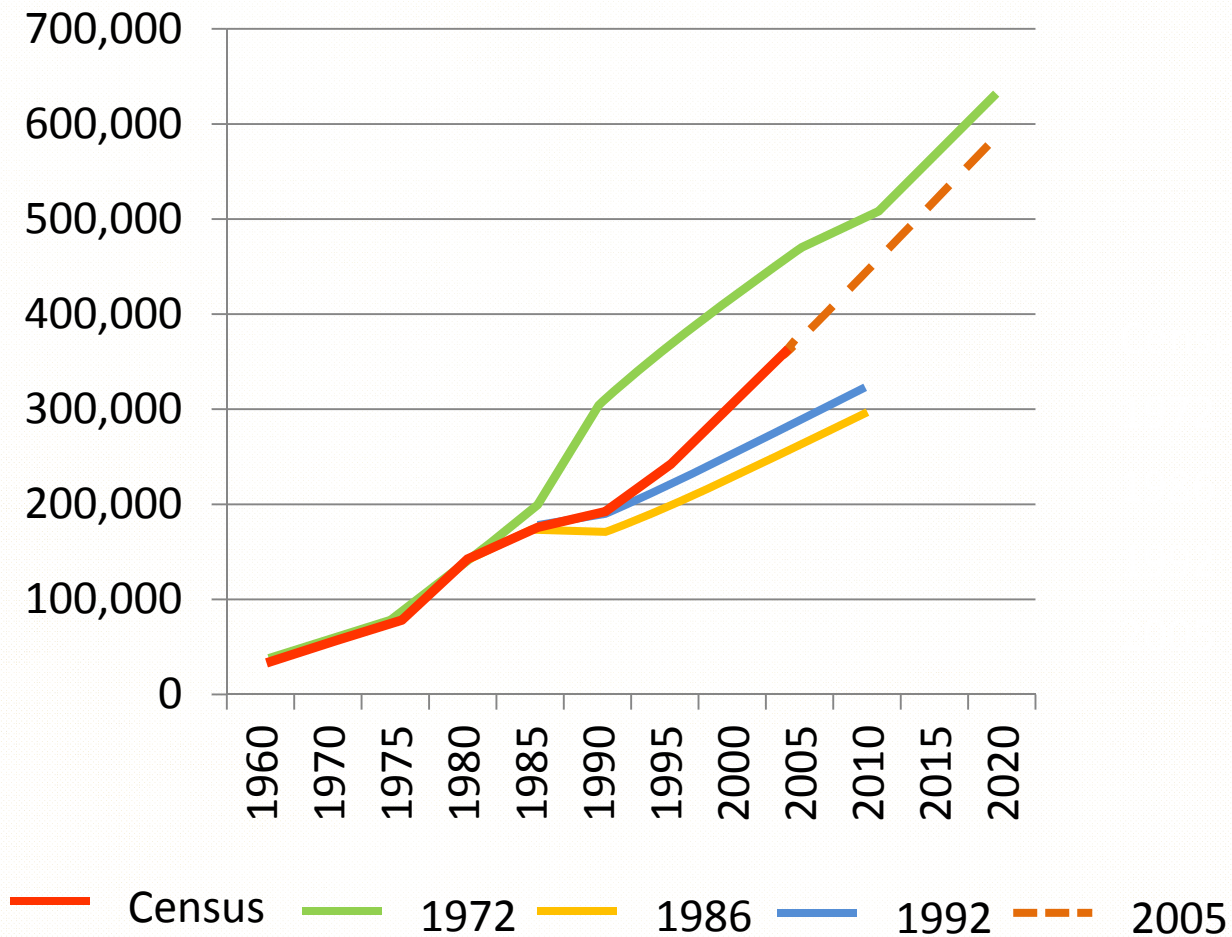- Every variable counts
- More combinations
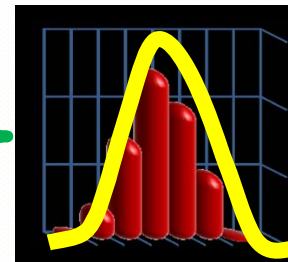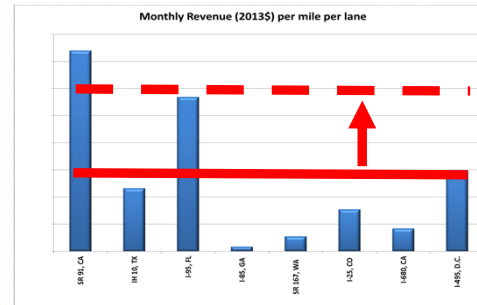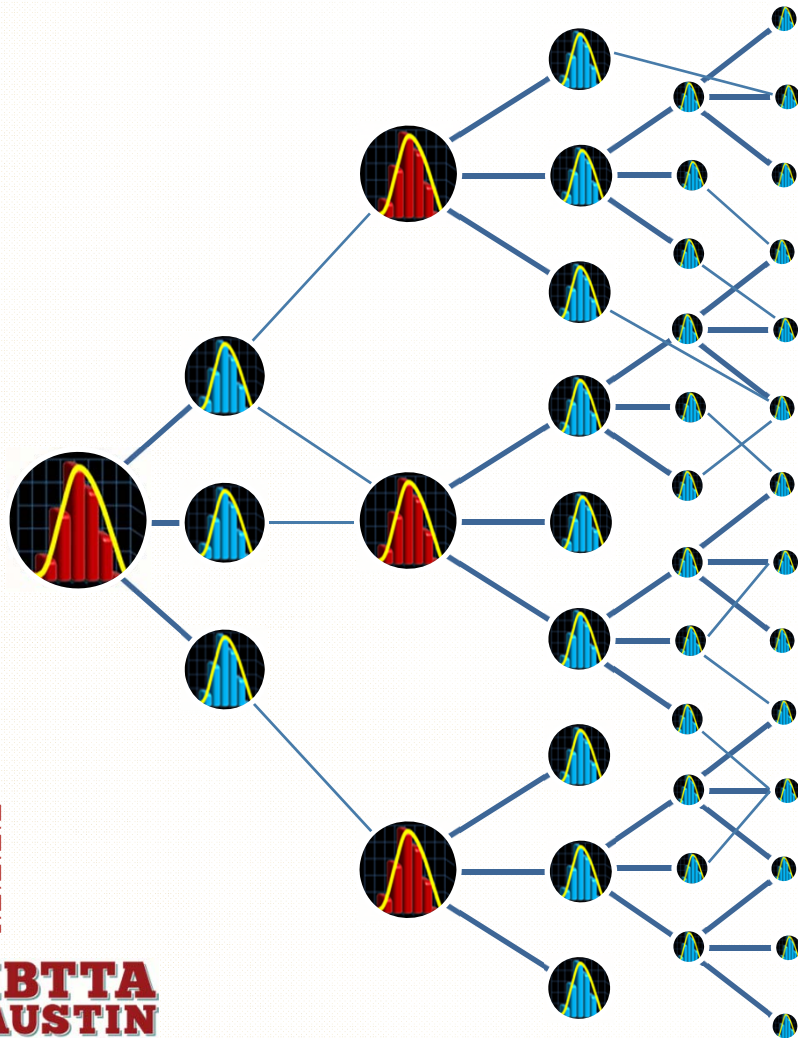- Incompatible transferability

Forecasting

- Definition: to scheme, contrive, plan, predict, forethought, prudence, conjecture, estimate future course (s)

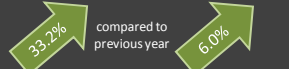 – A good forecaster is not smarter than everyone else, they merely have their ~~ignorance~~ data better organized
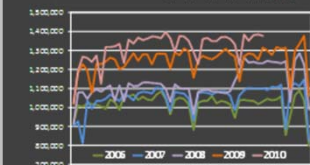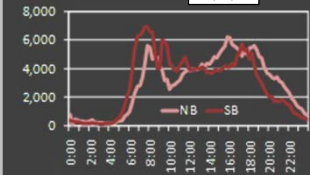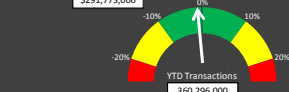
    Anonymous

Official Demographic Example

The Future Frontier
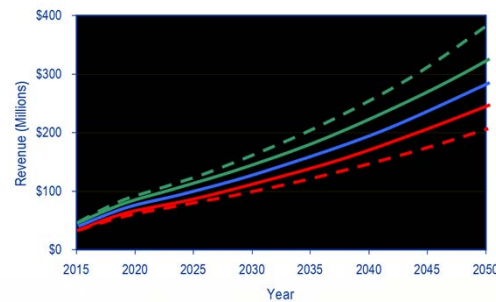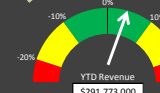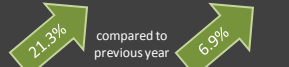
Traffic and Revenue 101 – Enhanced

1 Corridor travel demand

2 Future growth characteristics

3 Market capture and demand share

4 User willingness-to-pay

5 Generational consideration

6 System compatibility and toll rate policy

7 Technological diversification

8 Detailed Risk Assessment

9 Globalization consideration
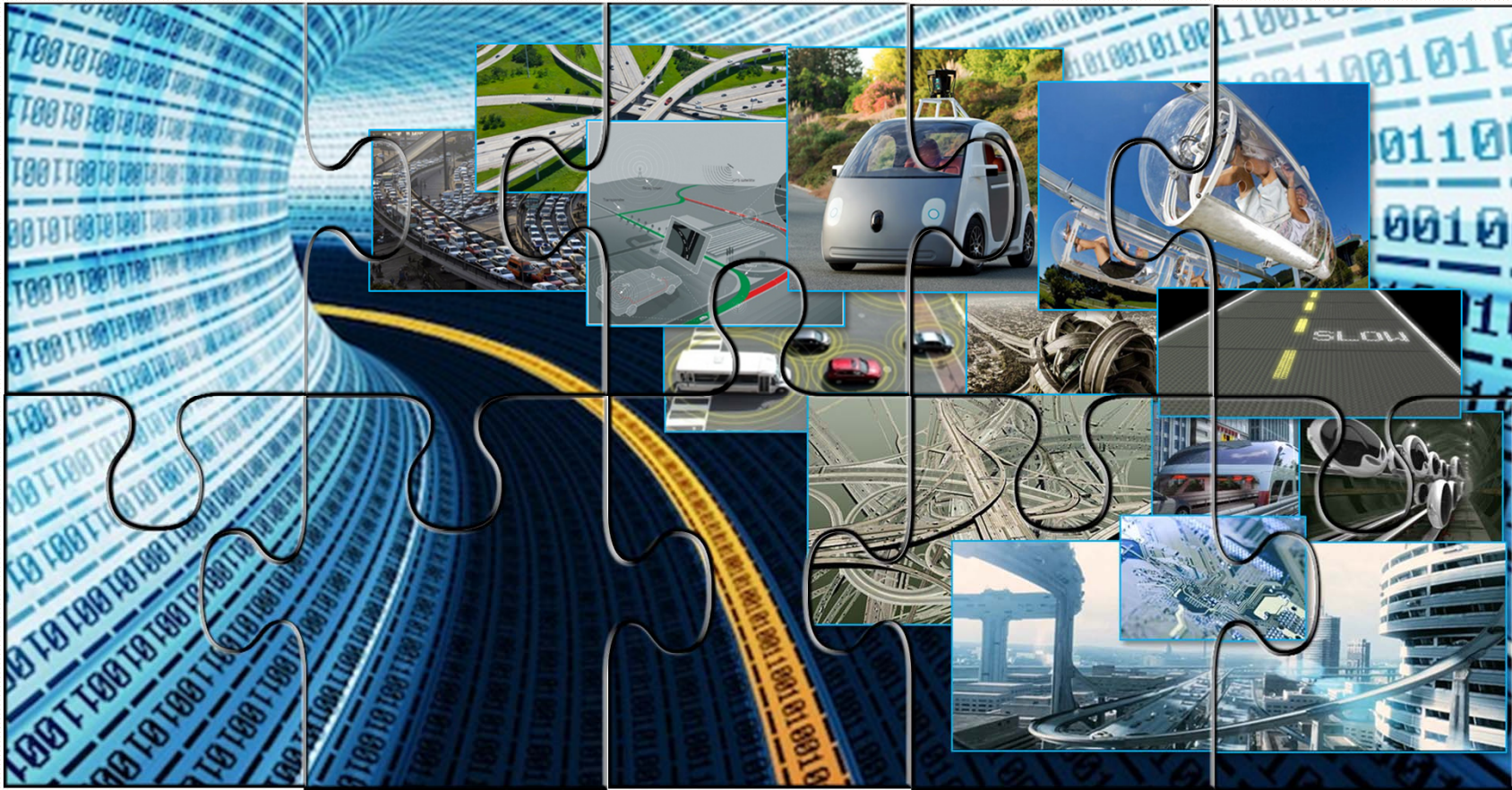
Thank You

mwalwandace@cdmsmith.com