SOLVING THE HARDEST PROBLEMS

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Integrating Transformational Technologies in Infrastructure Planning

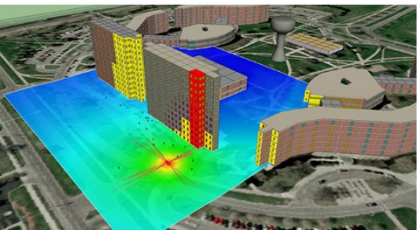*How to make sure we're not missing the forest for the trees*
A Presentation to the Transportation Engineers Association of Missouri (TEAM)
March 14, 2019

Presented by: Jason J. Bittner, PMP
Co-Author: Jay Bledsoe, P.E.

Let's start with some thoughts

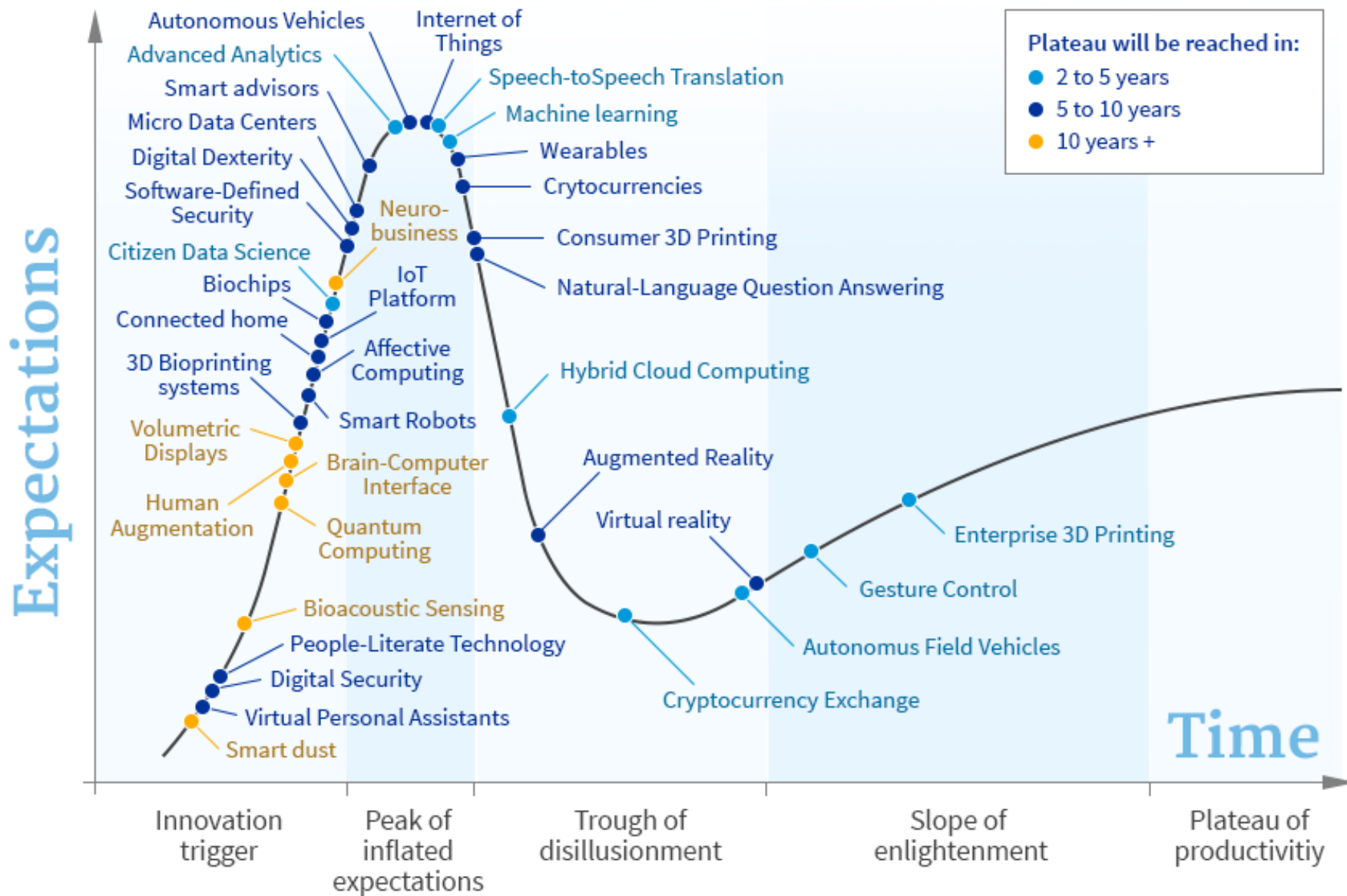## Planning is an inexact science

- I think we're on the cusp of several transformational technologies in transportation

- Beyond only AV/CV, drones, flying quadcopters, nanotechnologies, space exploration, new fuels, Internet of Things
  - o But, will people adopt these? And if so, what happens to old tech?

My premise: I'm preparing like you would for a volcano

- It might happen – and won't we look stupid if we ignore the mountain?

- Sort of unpredictable – will it just spew ash and get in the way? Or will it blow up and destroy the island?

Hype Cycle

Presentation Overview

Processes for Integrating Planning Topics
- State and Local LRTPs

Highlights of What's Happening Here
- MoDOT
- Local governments

Highlights of What's Happening Elsewhere
- State level efforts (including Indiana DOT peer exchange)
- Local demonstrations
- FHWA guidance

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Integrating transformational technology

Or how I intend to make a living in the shadow of this volcano

Key Issues for Planning

AVs aren't just transportation; they're an everything issue

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Where to start?

Conversations with Agency Staff AND Stakeholders

- Plans have a lot stages for public input

Develop data standards

- Understand what data is important for public sector planning purposes

Develop plausible scenarios and likely adoption curves

- It'll be inexact, but you have to start with something

Don't get in the way

- Picking winners and losers will like result in inhibiting innovation

Start small; be technology agnostic

- Making long range commitments is unlikely to be successful

Be prepared to be wrong

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Planning Questions

What do we currently know (or think we know)?

What do we *need* to know?

How should we address the knowledge gap?

What will be the impact of our actions/inactions?

What is the schedule and time horizon?

Primary infrastructure components

- Road Markings/Striping
- Signals
- Lane Width/Lane Geometry
- Access issues, including parking and lane flows
- Limited access lanes
- V2I communications

What's Happening Here?

Missouri DOT LRTP update in 2018

- Detailed state of the practice review and assessment.
- Identified internal staff influencers and planning professionals.
- Identified key state private sector partners and affected industry personnel.
- Conducted conversations and interviews with critical personnel and partners.
- Organized comprehensive statewide workshop
- Established a joint steering group to guide ongoing activities.

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Local government initiatives are underway

- Mid-America Regional Council / Kinetic (Kansas City)
  - Bi-State AV/CV Coordination Activities
  - Avis fleet connectivity
- East West Gateway Council of Governments (St. Louis)
  - Emerging Transportation Technology Strategic Plan
- Springfield/Branson

"The worst thing Missouri can do is have smart cars on dumb, underfunded roads."

What's Happening Elsewhere?

Or our exercise in can we predict an eruption?

Indiana DOT Peer Exchange

- States of Indiana, Florida, and Utah
- Also included FHWA and TRB

THEME: *Identify Best Practices for Adopting Transformational Technologies into Implementation in Indiana*

Emphasis areas: Awareness building, partnerships, accountability, messaging, and workforce

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Pennsylvania

- Penn START test track
- Connected and Automated Vehicle Vision and Strategic Plan
  - Including Deployment Activities and investments
- Smart Belt Coalition

Michigan

- Five focus areas
  - Infrastructure
  - V2I
  - Data Management
  - Partnerships
  - Talent Development
- M-City and Mobility Studio

Others

- California
- Illinois
- Minnesota
- Wisconsin
- Georgia
- Etc … Etc …

Local Efforts

- Las Vegas
- Columbus (Smart City grant awardee)
- Los Angeles
- Many others
- Internationally

FHWA

- Connected Vehicle Pilot Program
- AV/CV impacts on planning Desk Reference and Primer
- AV/CV National Dialogues
- Transformational Technology Forums
- AV 3.0 (*Preparing for the Future of Transportation: Automated Vehicles 3.0*)
  - ADS Demonstration Grants (due March 21)
- Data for AV Integration
- Workforce challenges
- Defining infrastructure impacts

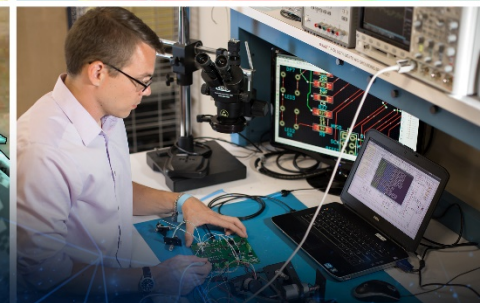# Market Acceptance will drive(?) all of this

"If I had asked people what they wanted, they would have said faster horses." – Henry Ford

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