The Future of Transportation

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A COMMON LINK

WHAT DO

MILLENNIALS

AND

AND

1983

HAVE IN COMMON?
Millennials

- First millennials graduated high school in 2000
- Age range approximately: 17 – 34
- By 2030 will make up about 50% of US workforce
- 56% believe technology makes life easier
- 80% sleep with their phone next to their bed
- Civic-minded: Strong sense of community
- Very confident: Taught there is nothing they cannot accomplish
IFTA

• Founded 1983:

• ISTEA 1991: Mandated membership by Sept 1996

• Current Membership: 1996 48-Contiguous US States and 10 Canadian Provinces
Mobile phones originated from permanent vehicle mounted radio systems, as battery technology had not yet been refined to a portable enough size. A prototype of Motorola's DynaTAC was used to make the first phone call while walking the streets of New York in 1973, although it took another ten years for luxury devices to become mainstream commodities - becoming the most rapidly adopted technology in human history. Now we are tethered to the rest of the world through this small device in our pockets and another person is only a few button presses away. For better or worse - the evolution of the mobile phone.

EVOLUTION OVER TIME

1989
MOTOROLA DYNATAC 8000X

1993
MOTOROLA MICROTAC 9800X

1998
NOKIA 5110

2000
NOKIA 3310

2004
MOTOROLA RAZR V3

2007
APPLE IPHONE
Similarities

• “Debuted” in or near 1983

• Gained momentum (blossomed) around millennium

• All are driven by technology advances
Differences

- Millennials: Adapt and embrace technology changes
  - Willing to pay for latest technology releases
  - Challenged and motivated by advances in technology

- IFTA: Dependent upon membership to embrace changes
  - Ballots required to adopt change
  - Programming costs hinder acceptance of changes

- Mobile technology: Partners with communication networks
  - Fiber Optics/Cell Towers/Satellite Communications
  - High Tech competition
Autonomous Vehicles
Stages of Automation

Level 0 – Human driver in complete control

Level 1 – Individual controls are automated-Human control

Level 2 – At least 2 functions automated in unison

Level 3 – Car is in control – Human on standby

Level 4 – Car drives itself in most environments

Level 5 – All robot, all the time – Human along for the ride
Autonomous Vehicles – How might they affect us?

- Changes to HOS?
- Need for fewer drivers?
- Shift from “fossil fuels” to alternative sources, such as electric/solar?
- Greater vehicle efficiency = lower MPG’s?
- NEED FOR INFRASTRUCTURE CHANGES?
Age of Autonomy

By now, we all know about vehicles. But there’s more….“Objects you’ve never even considered will become smart devices - dog collars, coffee makers, windows. It will become a practical necessity for devices to operate autonomously.” Craig Macy, CEO of Onstream.

Top 8 companies as of December 2015
VIV; Wit.ai; Cohda Wireless; Saffron Technology; IBM Watson Developer Cloud; Edge3 Technologies; B+B SmartWorx; and Filament.

Source: https://venturebeat.com/2015/12/12/autonomous-tech-will-surge-in-2016-keep-an-eye-on-these-8-players/
Platooning – What is it?

- Platooning is a convoy of trucks equipped with state-of-the-art driving support systems.
- Uses Vehicle to vehicle (V2V) communication technology to simultaneously brake and accelerate.
Platooning – What are the benefits?

- Increases the capacity of roads by decreasing the distance between vehicles
- Increases road safety
- Reduces fuel consumption and CO2 emissions
- Makes good use of autonomous technology
Vehicle miles of travel or vehicle miles traveled (VMT) is defined by the U.S. government as a measurement of miles traveled by vehicles within a specified region for a specified time period.
Why are States Interested in VMT

The American Society of Civil Engineers says our system of roads, bridges, sewers, dams and ports combined, stated that the stimulus package of $700 billion that was passed in 2009 was not enough and will not help the future of maintaining Transportation methods in the US.

The Highway Trust Fund in the U.S. is essentially in receivership, until 2017 there was little to no willingness to talk about increasing the fuel tax. The last federal fuel tax increase was in 1993.

- Last increase was over 24 years ago
- In 2012 Average miles per gallon was 23.6, in 2016 went up to 24.8
- Appears to be a minimal difference, but just over 1 gallon better gas mileage reduces the highway fund between 5%-10%

Information courtesy of Mike Albin - SICPA
According to the FHWA 3.2 trillion miles were traveled on US roadways in 2016—5th straight year of increased mileage, but this puts more demand on our roadways. In 2016 California alone accounted for 13% of all the miles traveled in the US, which means on average approximately each state would represent 1.78% each of total miles remaining. Many states just do not have enough funding to maintain their infrastructure.
VMT’s - Just more questions

Are we are treating VMT as just some big science project and looking the other way when it comes to what is really needed to support a VMT?

Do we need to look more closely at alternatives through Vehicle Registration fees or listen to millennials?

Do we need to look at other program initiatives for increasing transportation funding for infrastructure renewal programs?

Information courtesy of Mike Albin - SICPA
Millennials will change the Future of Transportation

The Millennial Generation
The largest and most diverse generation in American history
40% of Millennials are African American, Latino, Asian or racially-mixed compared to only 25% of the next two older generations.

Millennials are multimodal
They choose the best transportation mode (driving, transit, bike, or walk) based on the trip they are planning to take.
Public transportation options is the mode of Transportation millennials are choosing
Mass Transit allows Millennials to get to work as well as play
Rather not be bothered by driving and finding a parking space

Reasons and motivations for transportation choices
46% Need to save money for the future - Unlike baby boomers who normally started saving in the mid 30’s
46% convenience - Can stay connected with friends
44% want to go places - like the gym, dinner and vacations and a car could prevent this
35% want to live in a community where it just makes sense to use transit.

Information courtesy of Mike Albin - SICPA
Millennials are our future – WE MUST LISTEN

61% want more reliable mass transportation systems
   Compared to 35% of baby boomers
55% want real-time updates
   Compared to 18% of baby boomers
75% want better/faster Wi-Fi connections
   Compared to 65% of baby boomers
44% want a less stressful work place
   Compared to 68% of Baby boomers
48% want more vacation time to travel and see the world
   Compared to 31% of baby boomers
40% want to own a home
   Compared to 92% of baby boomers
38% want eat healthy and exercise
   Compared to 22% of baby boomers
30% want to own at least one television
   Compared to 91% of baby boomers
30% want to own a car
   Compared to 89% of baby boomers
34% feel social media is the way to network
   Compared to 16% of baby boomers

Information courtesy of Mike Albin - SICPA
Top 5 modes of transportation for Millennials

- Driving a car: 2.24
- Walking: 2.73
- Subway, light rail, street car, or trolley: 4.09
- Bus: 4.34
- Bicycle: 4.34

Information courtesy of Mike Albin - SICPA
Final Thoughts

“And the thought that kept occurring to me is how little everybody knew about what was about to happen to the smartphone industry before the iPhone came along. Nobody knew what they didn’t know.” by Deiter Bohn, The Verge

THE FUTURE IS HERE NOW;
IT’S JUST NOT EVENLY DISTRIBUTED.
-- Wm. Gibson
Questions?

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