The National Academies of
SCIENCES • ENGINEERING • MEDICINE

TRB
TRANSPORTATION RESEARCH BOARD

TRB WEBINAR PROGRAM

Planning for Millennials: What Do They Want and How Do Agencies Prepare?

Thursday, May 11, 2017
2:00-4:00 PM ET

The Transportation Research Board has met the standards and requirements of the Registered Continuing Education Providers Program. Credit earned on completion of this program will be reported to RCEP. A certificate of completion will be issued to participants that have registered and attended the entire session. As such, it does not include content that may be deemed or construed to be an approval or endorsement by RCEP.

RCEP

REGISTERED CONTINUING EDUCATION PROGRAM

Purpose

Discuss research projects conducted in different US states that investigate millennials' travel behavior, preferences and needs, and strategies for engaging millennials in transportation projects.

Learning Objectives

At the end of this webinar, you will be able to:

- Describe current research and define future research needs and objectives with regards to millennial travel needs
- Apply research results to incorporate these findings in long-range planning activities in their states

PDH Certificate Information

- This webinar is valued at 2.0 Professional Development Hours (PDH)
- Instructions on retrieving your certificate will be found in your webinar reminder and follow-up emails
- You must register and attend as an individual to receive a PDH certificate
- TRB will report your hours within one week
- Questions? Contact Reggie Gillum at RGillum@nas.edu

MILLENNIALS:

Who are they and how do we reach them?

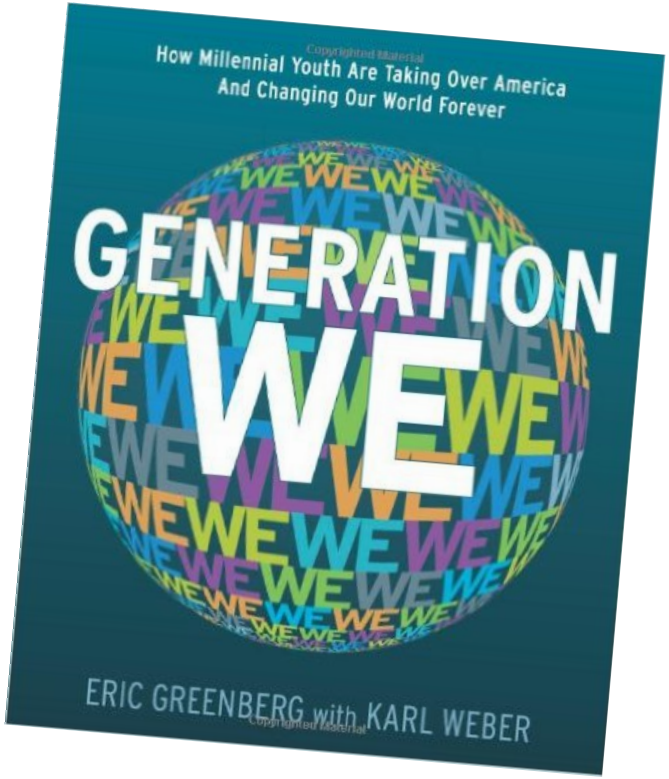
Presented at the

American Planning Association National Conference

Phoenix Arizona

April 3, 2016


MAY 20, 2013
Obama's New Boss / Syria face-off McCain vs. Brzezinski / PLUS: Summer's best movies & more
TIME
THE
ME ME ME
GENERATION
Millennials are lazy, entitled narcissists who still live with their parents
Why they'll save us all
BY JOEL STEIN


How Millennial Youth Are Taking Over America
And Changing Our World Forever
GENERATION
WE
ERIC GREENBERG with KARL WEBER


MILLENNIALS
GENERATION
NATIVE
DIGITAL
TECHNOLOGY
RESEARCH
SOCIAL
EDUCATION
CULTURAL
PEOPLE
AGE
ALL
USE
BORN
TERM
MORE
CAPITAL
IMMIGRANTS
NATIVES
MEDIA
SOCIETY
TECHNOLOGIES

Just the facts

BORN
1980-2000

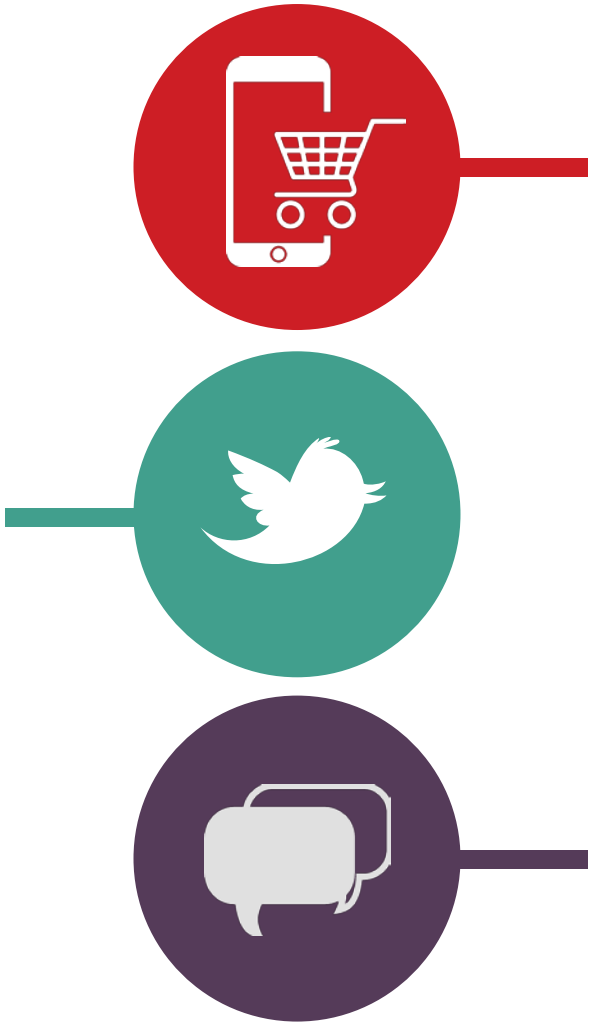
95 million millennials in America

First American generation to be plugged into the **Internet** from an early age

Most educated

Most **ethnically diverse** generation to date

Some Statistics



33%
made a purchase with their smartphone

74%
use social networking sites to find out about news and current events

82%
communicate with friends through online social networks over email

Source: Millennials – A 2015 Ipsos Fact Sheet

Mythbusters

Millennials are entitled and lazy

They view themselves as hardworking, dedicated and loyal

Mythbusters

Millennials need constant praise

They have been evaluated their whole lives and are used to feedback

Mythbusters

Millennials are social media experts

Don’t make this assumption

More Myths

They are not religious

They just don’t go to churches, synagogues or mosques

More Myths

They don’t want to get married

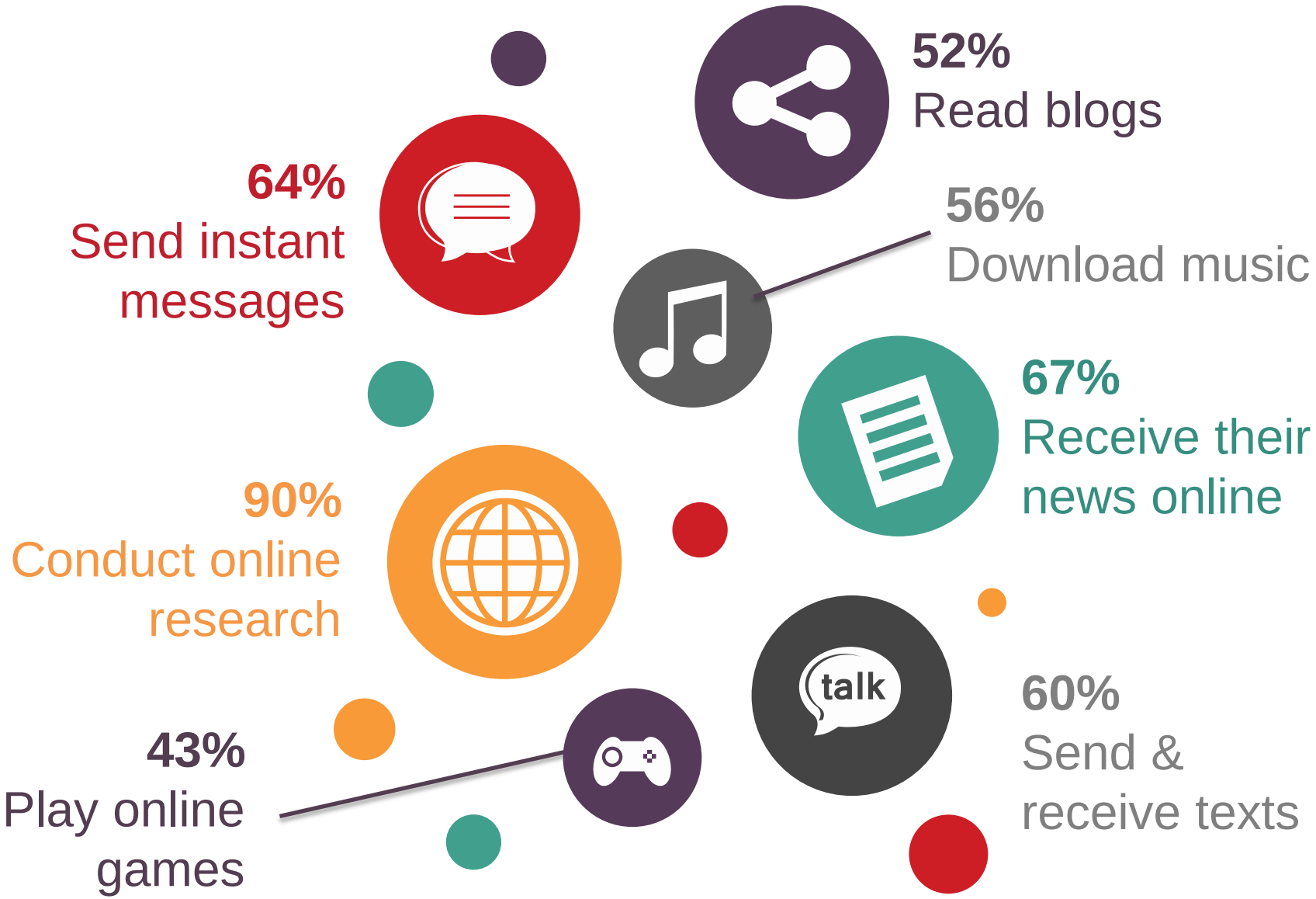
They could just be waiting longer

More Myths

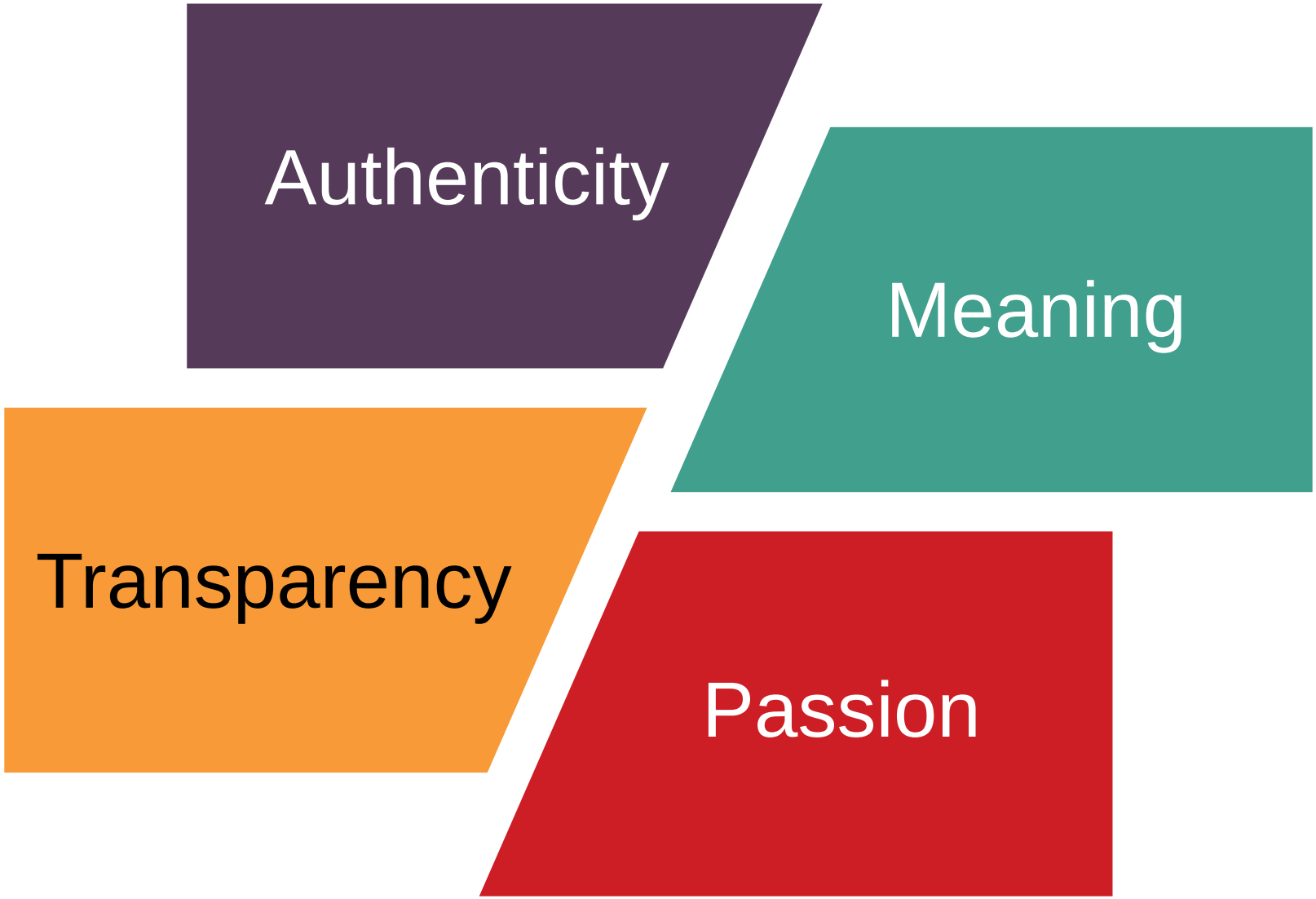
They are content to live with their parents

Maybe that's not a bad thing

Social Connectedness



What do Millennials need to be engaged?



But…

…they are skeptical and distrustful of advertising and “over-branding”

Source: Kothari, et.al. (2015)

Obstacles to Engagement

I’m too busy…

43

TIMES A DAY

I don’t know enough about it

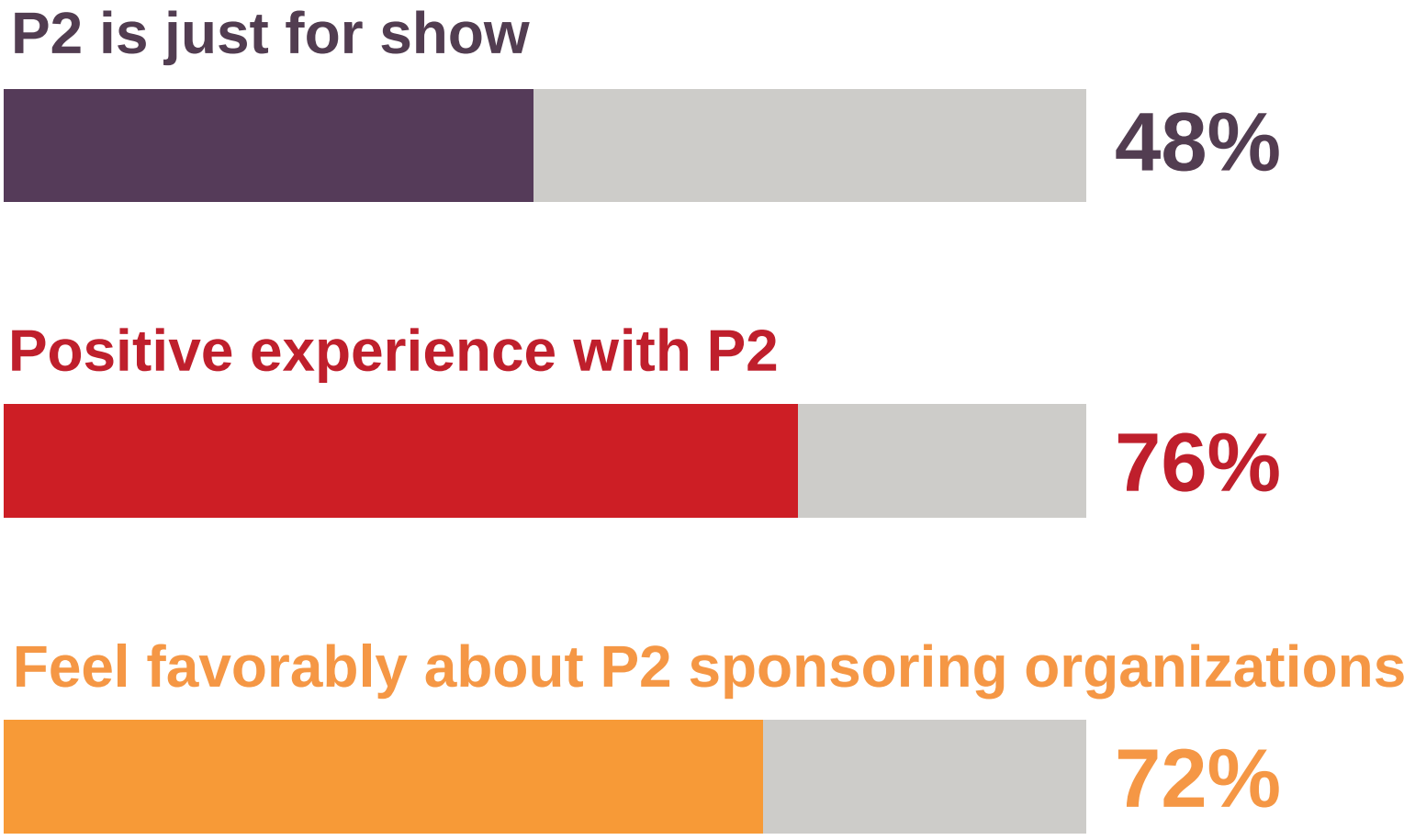
It won’t matter

Reach them where they are

Millennials want opportunities for P2 online

Multi-Task

Good News


P2 is just for show
48%
Positive experience with P2
76%
Feel favorably about P2 sponsoring organizations
72%

Sources

- Kothari, K., Chaumont, C., Lambton, P. "Why Millennials are MIA from P2". Presented at 2015 IAP2 North American Conference, Portland, OR. September 11, 2015.
- Pew Research Center. *Millennials in Adulthood.* March 7, 2014. Accessed at http://www.pewsocialtrends.org/2014/03/07/millennials-in-adulthood/.
- McManus, Melanie Radzicki. *10 Misconceptions about Millennials.* Accessed at http://people.howstuffworks.com/culture-traditions/generation-gaps/10-misconceptions-about-millennials.htm. January 2015.

Questions?

Tina Geiselbrecht
Research Scientist
Texas A&M Transportation Institute
t-geiselbrecht@tti.tamu.edu

Millennials' Travel Behavior, Vehicle Ownership and Adoption of Shared Mobility

Dr. Giovanni Circella

School of Civil and Environmental Engineering, Georgia Institute of Technology
***and* Institute of Transportation Studies, University of California, Davis**

gcircella@ucdavis.edu

TRB Webinar

May 11, 2017

Mobility of Millennials in California

Interest in better understanding:

- The relationships among *millennials' personal attitudes*, *lifestyles* and *actual behaviors*

  …do they behave differently from previous generations?

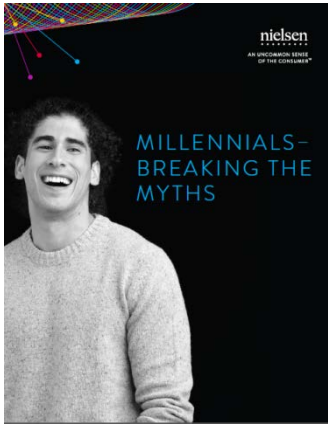
- Impact of *classical* (economic and non-economic) variables vs. *specific factors affecting millennials' choices* (e.g. adoption of technology, shared mobility, etc.)
- Their *aspirations for/opinions about life and future mobility* (e.g. major life changes, purchase and use of cars vs. use of other modes)

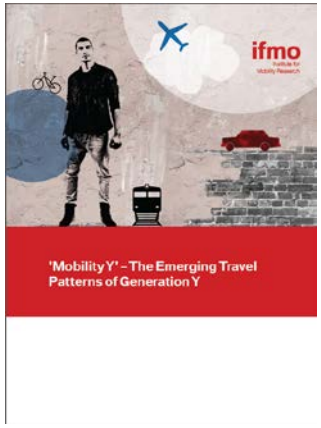
(2)

(1) Seven tips for attracting Millennials, 2012, merchandisingmatters.com
(2) Martinmark, Golden gate bridge, 2014, stockfreeimages.com

“Millennials”

- Millennials comprise a large and active segment of the population
- Often described as heavy adopters of *technology* and *social media*
- Less dependent on cars, and adaptable to the *sharing economy*
- Suffered economic recession, and now climbing the income ladder
- *Often* prefer urban locations and social lifestyles (at least *in some regions*)
- The focus is mainly on *urban population*…





California Millennial Study

- Statewide study of emerging trends in transportation in California
- Design of a detailed online survey to collect information from millennials and older adults
- First survey distributed through an opinion panel to a sample of Millennials (18-34) and Generation X (35-50) during fall 2015
- Quota sampling by geographic region and neighborhood type
- Part of longitudinal study of emerging transportation trends (with rotating panel)

UC DAVIS INSTITUTE OF TRANSPORTATION STUDIES

NATIONAL CENTER FOR SUSTAINABLE TRANSPORTATION

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

UC DAVIS SUSTAINABLE TRANSPORTATION ENERGY PATHWAYS (STEPS) PROGRAM

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- Pat Mokhtarian
- Susan Handy
- Lew Fulton
- Farzad Alemi
- Rosaria Berliner
- Kate Tiedeman
- Yongsung Lee
- Ali Etezady

Survey Content – First Wave (2015)

A. *Individual Attitudes and Preferences (general, environmental, technology, lifestyles, etc.)*
B. *Online Social Media and Adoption of Technology*
C. *Residential Location and Living Arrangements*
D. *Employment and Work/Study Activities*
E. *Transportation Mode Perceptions*
F. *Current Travel Behavior*
G. *Shared Mobility Services (e.g. car-sharing, Uber, Lyft, etc.)*
H. *Driver's License and Vehicle Ownership*
I. *Previous Travel Behavior and Residential Location*
J. *Aspirations for/Opinions about Future Mobility*
K. *Sociodemographic Traits*

Individual Attitudes and Preferences

Section A: Your Opinions on Various Topics

To begin, we'd like to learn more about your opinions on various issues related to transportation, residential location and lifestyles. This will give us a more complete context for understanding your answers to later questions. We want your honest opinion on each statement contained in the next three tables (or your best guess, for topics you are not very familiar with) – **there are no *"right"* or *"wrong"* answers in this survey!**

Please choose the response that most closely fits your reaction to each of the following statements.

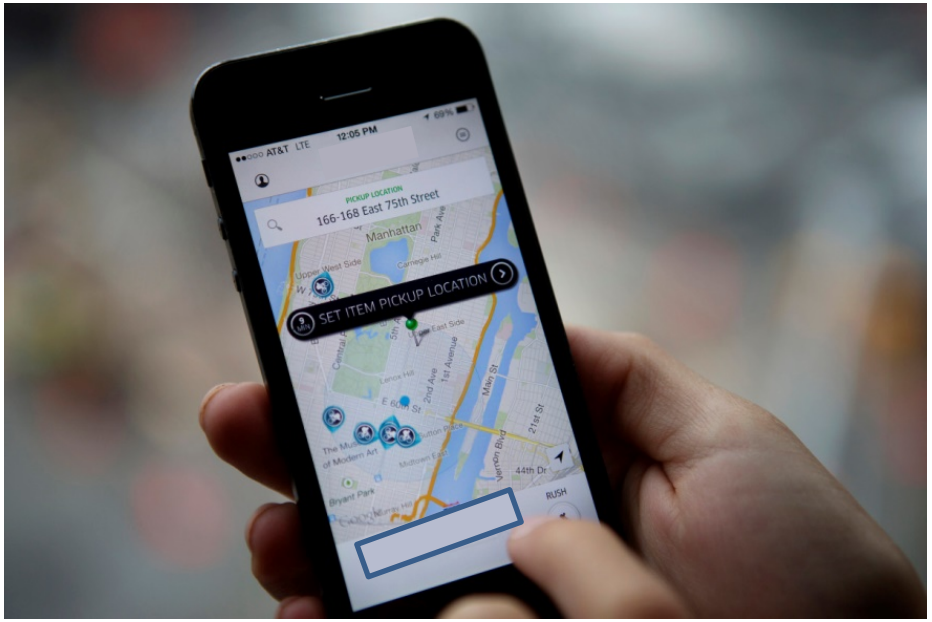
(1 of 3) Your opinions and preferences about personal lifestyles and residential location

	Strongly Disagree	*Disagree*	*Neutral*	*Agree*	*Strongly Agree*
I prefer to live close to transit, even if it means I'll have a smaller home and live in a more crowded area.	○	○	○	○	○
Getting regular exercise is very important to me.	○	○	○	○	○
I like sticking to a routine.	○	○	○	○	○
I prefer to live in a spacious home, even if it is farther from public transportation and most destinations.	○	○	○	○	○
Individuals should generally put the needs of the group ahead of their own.	○	○	○	○	○
Doing two or more activities at the same time is the most efficient way to use my time.	○	○	○	○	○
I like the idea of having different types of businesses (such as stores, offices, post office, bank, library) mixed in with the homes in my neighborhood.	○	○	○	○	○
The importance of exercise is overrated.	○	○	○	○	○

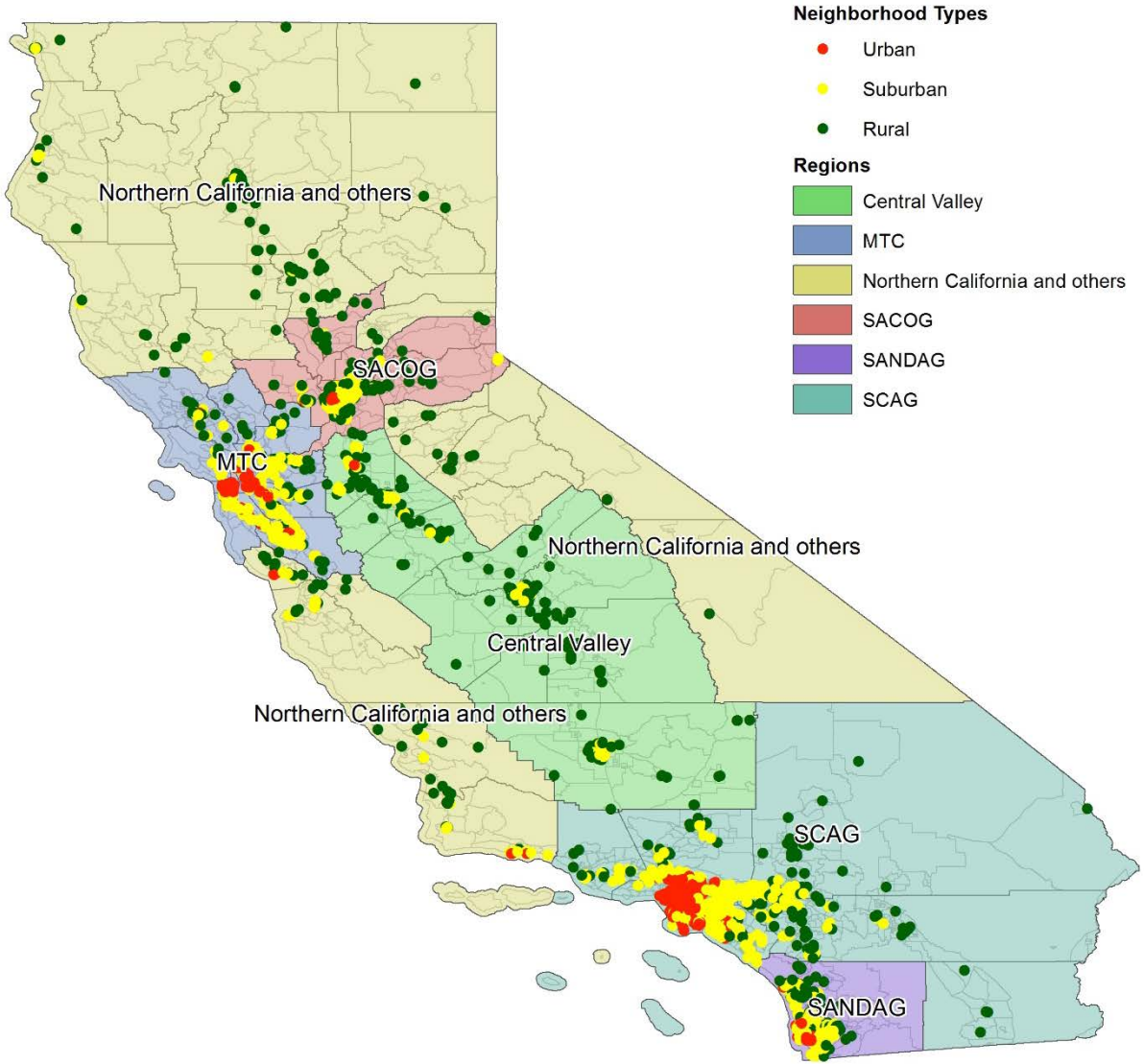
What is the Impact of Emerging Technologies?

- Smartphones (GPS, access to more info)
- Increasing opportunities to multitask
- Integrated ride-sharing / shared mobility
- Lower levels of car-ownership
- Extend range of public transportation

Car Ownership vs. Shared Mobility



California Millennial Dataset



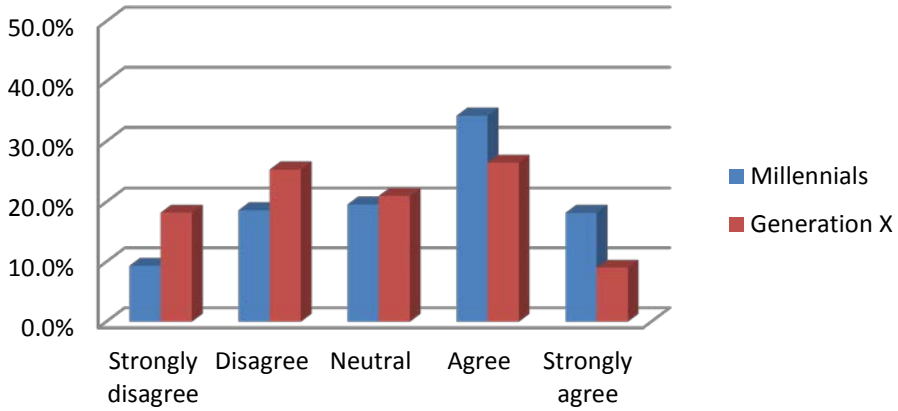
All cases were geocoded based on residential location.

We integrated data from other sources, e.g. US Census, US EPA Smart Location Data, Walkscore.com, etc.

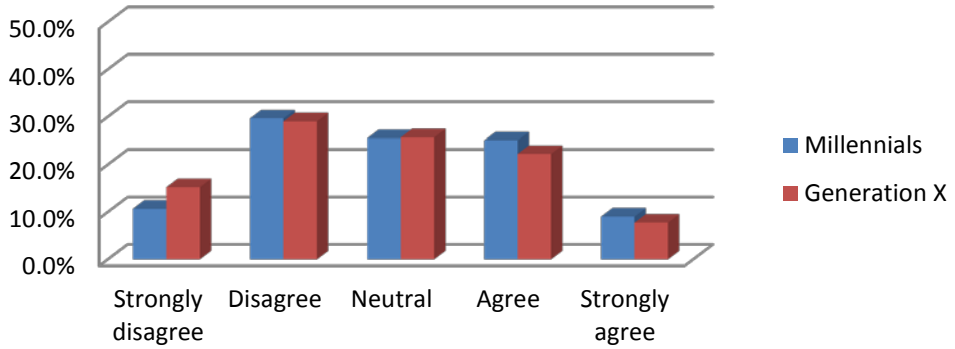
We classified the NH type as ***urban***, ***suburban*** or ***rural***, based on land use features at the census tract.

A Transient, Green Generation

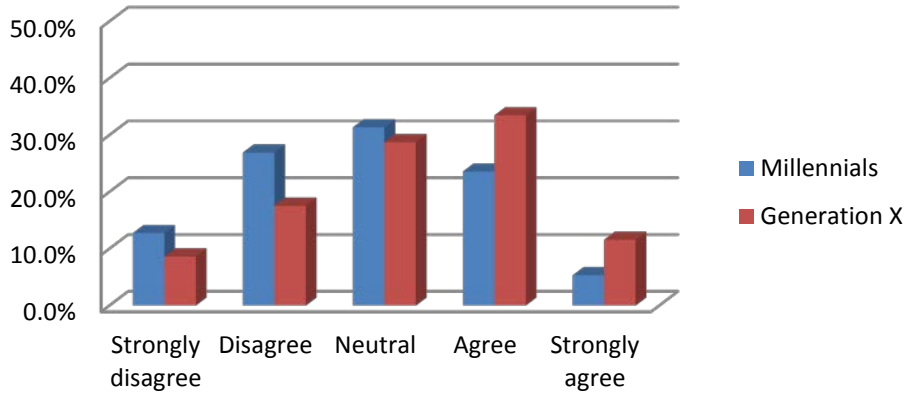
"I'm still trying to figure out my career (e.g. what I want to do, where I'll end up)"



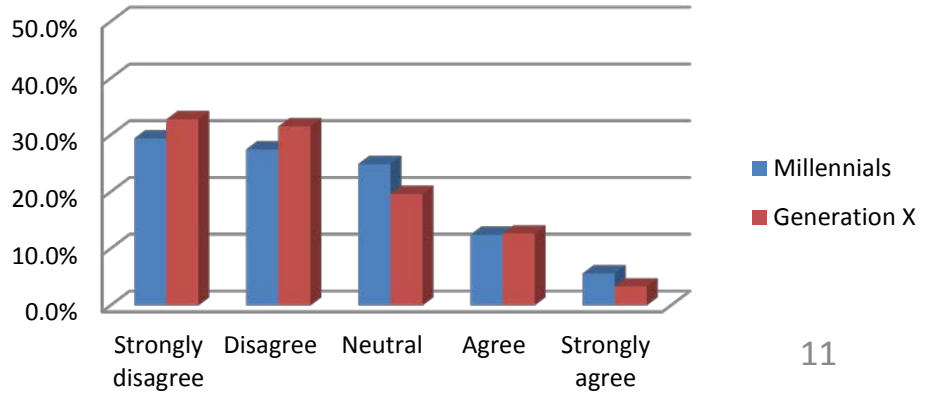
"I prefer to live close to transit even if it means I'll have a smaller home and live in a more crowded area"



"I'm already well-established in my field of work"

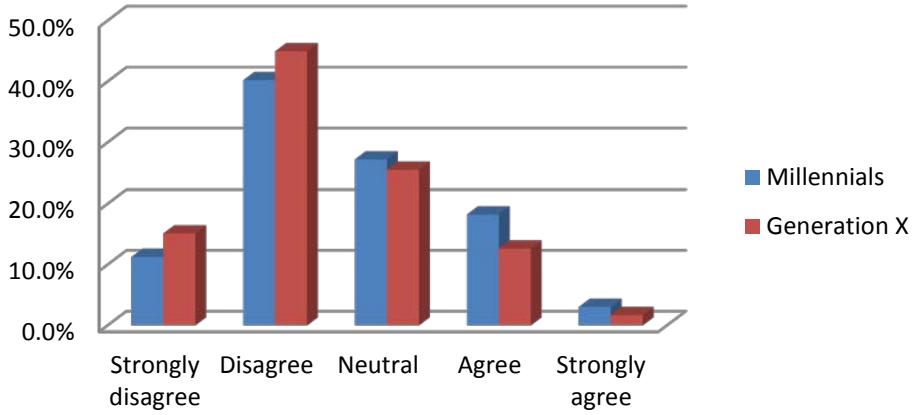


"We should raise the price of gasoline to reduce the negative impacts on the environment"

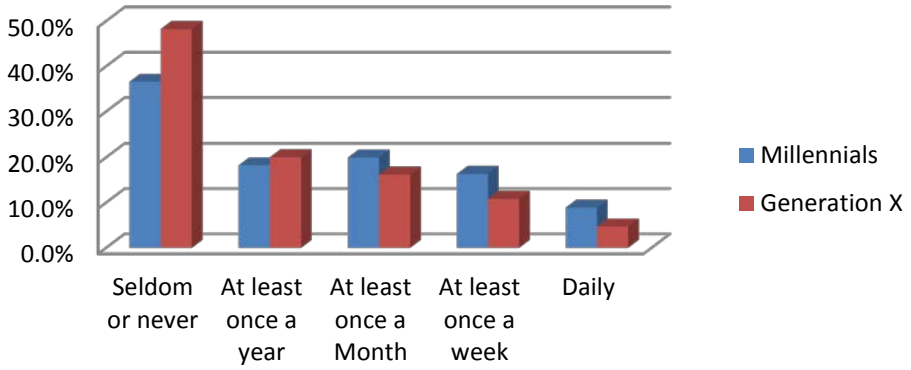


Tech-Savvy, Smartphone-Oriented

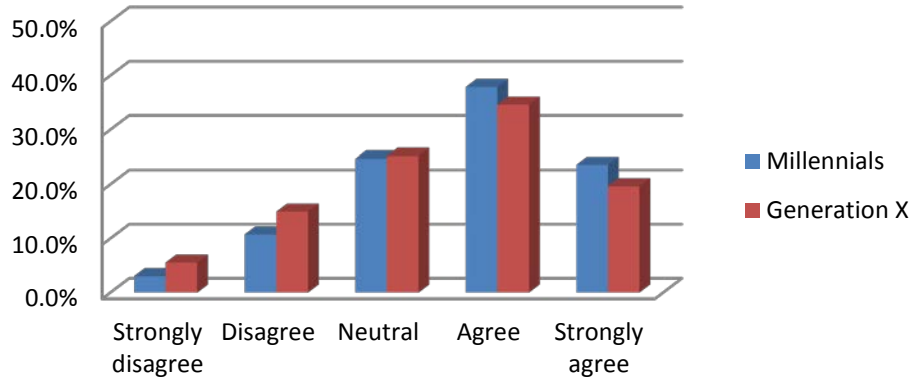
"I avoid doing things that I know my friends would not approve"



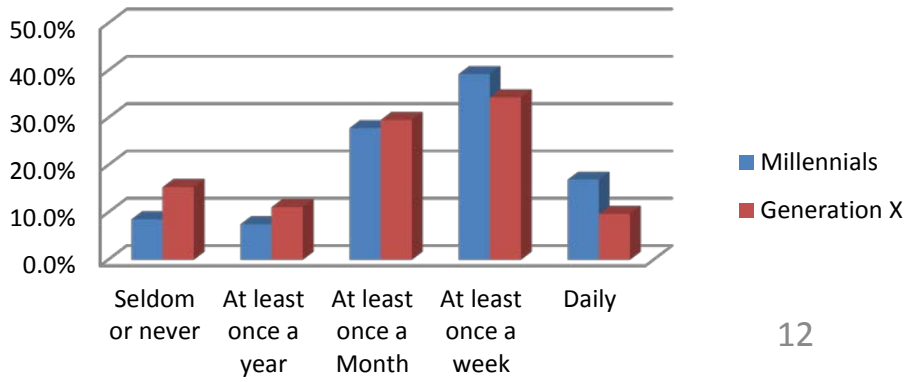
"Use smartphone to decide which means of transportation, or combinations of multiple means, to use for a trip "



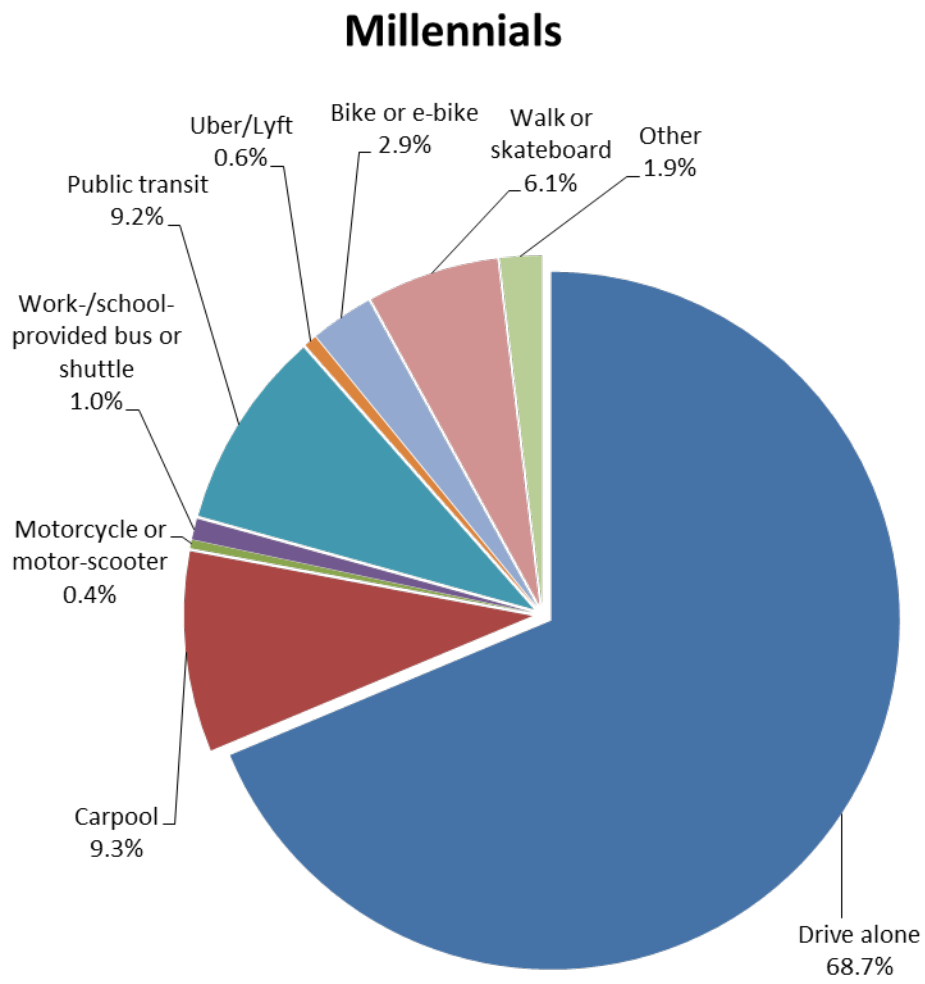
"Having Wi-Fi and/or 3G/4G connectivity everywhere I go is essential to me"

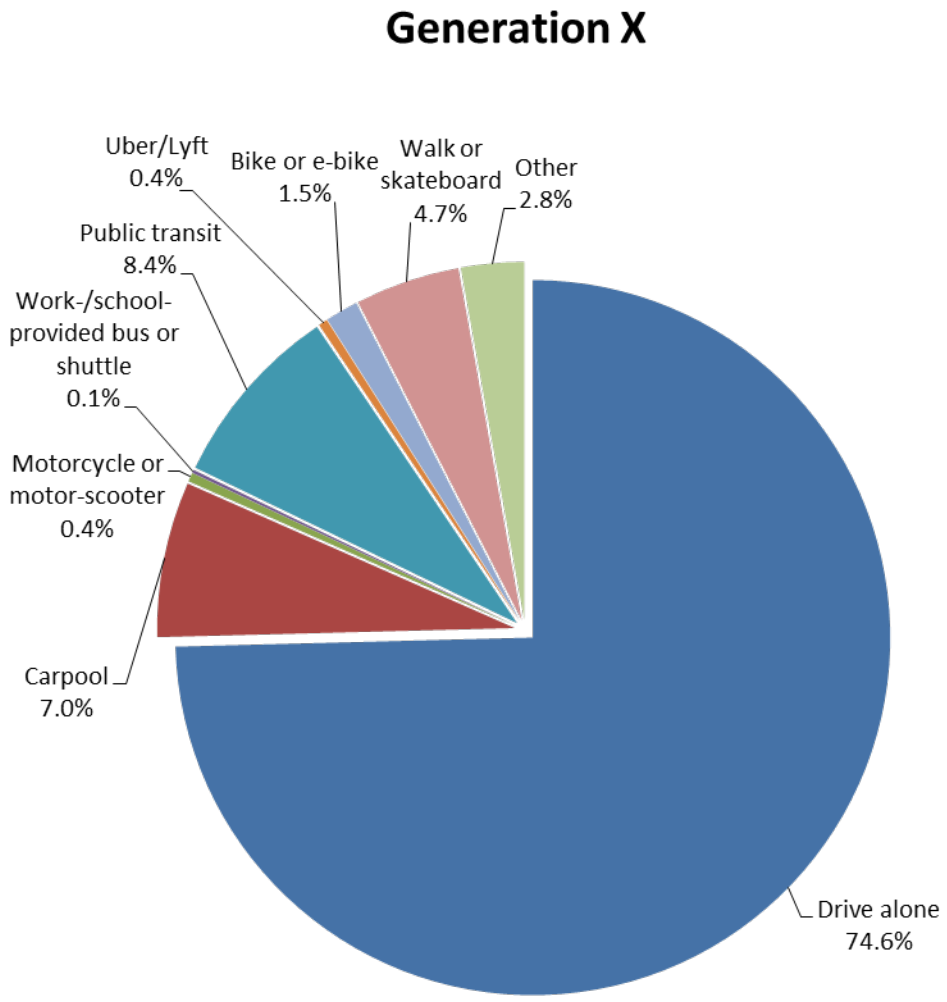


"Use smartphone to identify possible destinations (e.g. restaurant, cafe, etc.) "



Most Recent Commute - Mode Choice



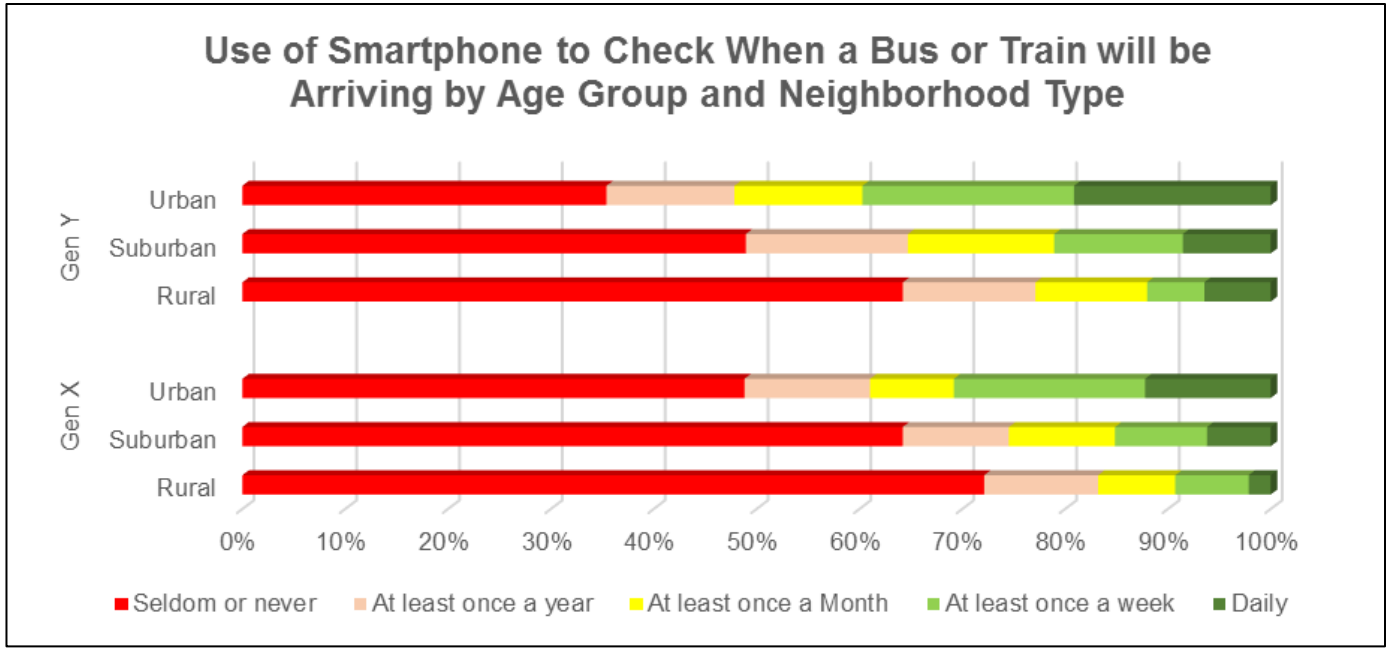


N=1776, weighted sample

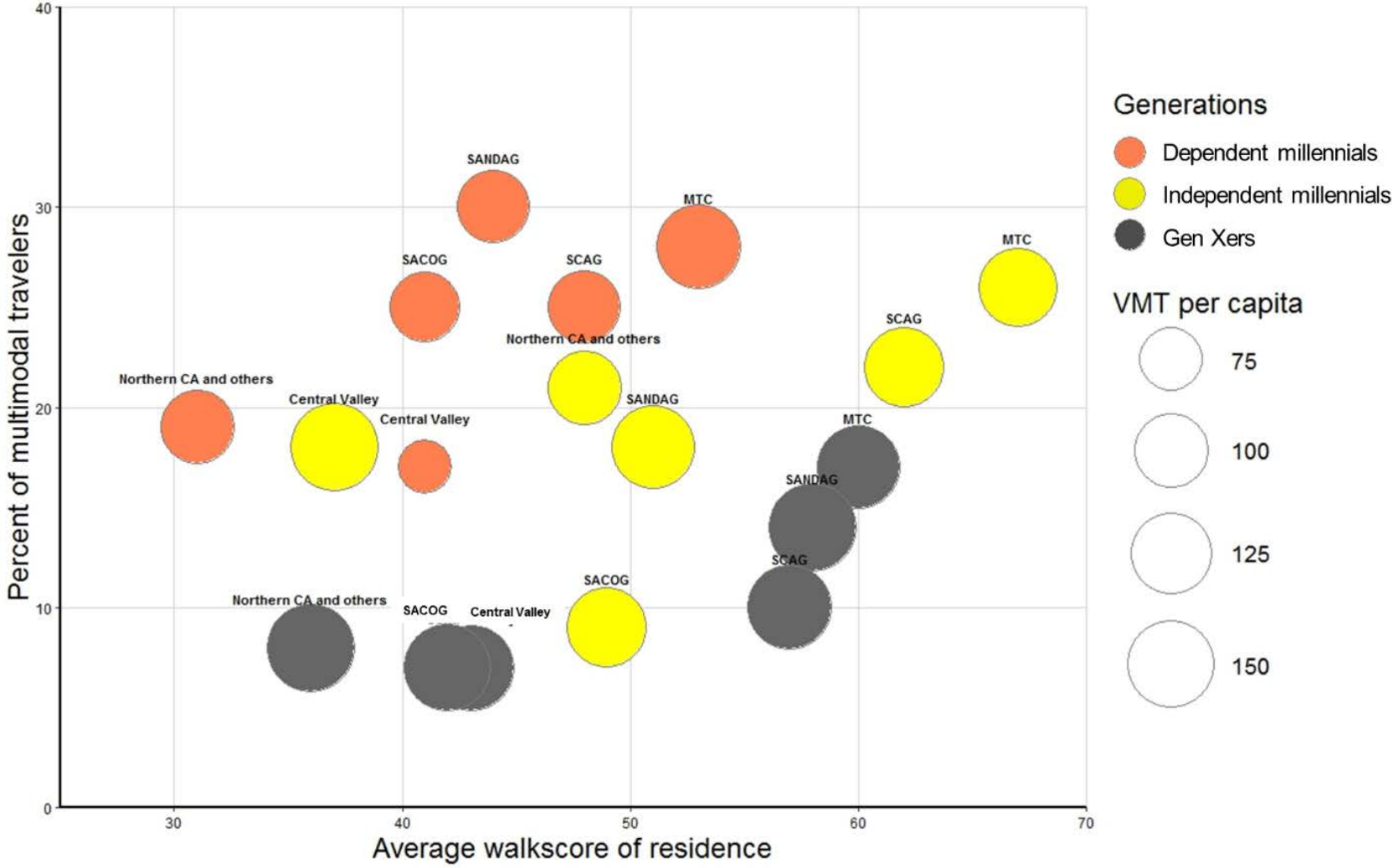
Adoption of Technology

Consistent with expectations, millennials are found to:

- Drive less
- Multitask during their commute
- Use smartphone apps and technology services more often. For example:



Residential Location and Travel Multimodality



Results available in paper presented at the 2017 TRB meeting (#17-06827)

Vehicle Miles Traveled

- Millennials drive fewer VMT, on average, than older peers (in *all NH types*).
- Differences explained by a combination of *individual/HH characteristics*, *land use features, technology adoption* and *personal attitudes*.
- Log-linear models of weekly VMT (pooled, and segmented by age group).
- More ***heterogeneity*** observed among millennials: lower explanatory power of the "millennials" model.
- Lifecycle variables (presence of children and household structure) are important predictors of millennials' VMT.
- Land use features explain smaller portion of millennials' VMT.
- Higher adoption of ***shared mobility services*** among millennials.
- Use of on-demand ride services associated with fewer miles *driven*.
- "Car-oriented" attitudes associated with higher VMT.

Results available in paper presented at the 2017 TRB meeting (#17-06044)

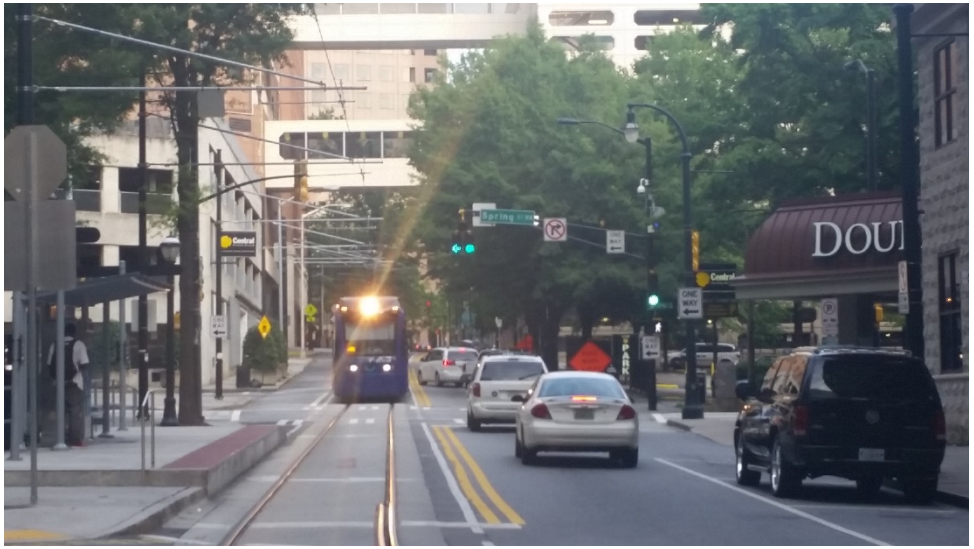
Research Question

How many millennials match the stereotype of the *urbanites* common in the media?

Latent class analysis to analyze different profiles of people (urbanites vs. others, etc.)

Stereotype common in the media:

- Live in urban areas
- Have dynamic lifestyles
- Heavy users of social media
- Own zero (or few) cars
- Use public transportation
- Adopt new technologies

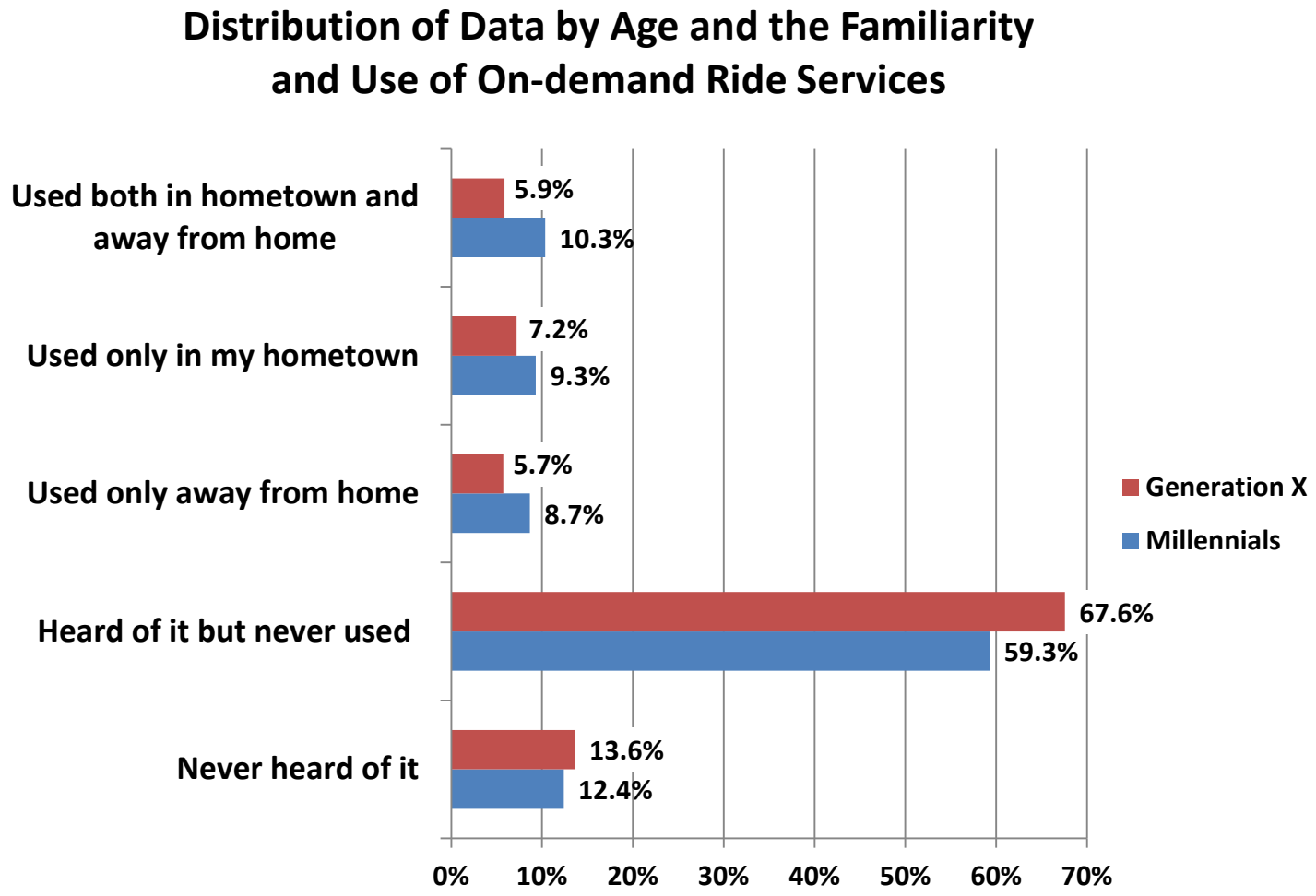


How many *millennials* vs. *Gen Xers* fit this profile?

Shared Mobility Services

Type of Services	Ownership and Operational Models
Carsharing	• Fleet-based or peer-to-peer • Round-trip or one-way
Bikesharing	• Fleet-based or peer-to-peer • Dock-based or GPS-based
Dynamic Ridesharing	• Private-public partnership • Carpooling, vanpooling, and dynamic ridesharing
On-demand Ride Services	• Private (may be subsidized by public in future) • Uber X and Lyft; UberPOOL and Lyft Line

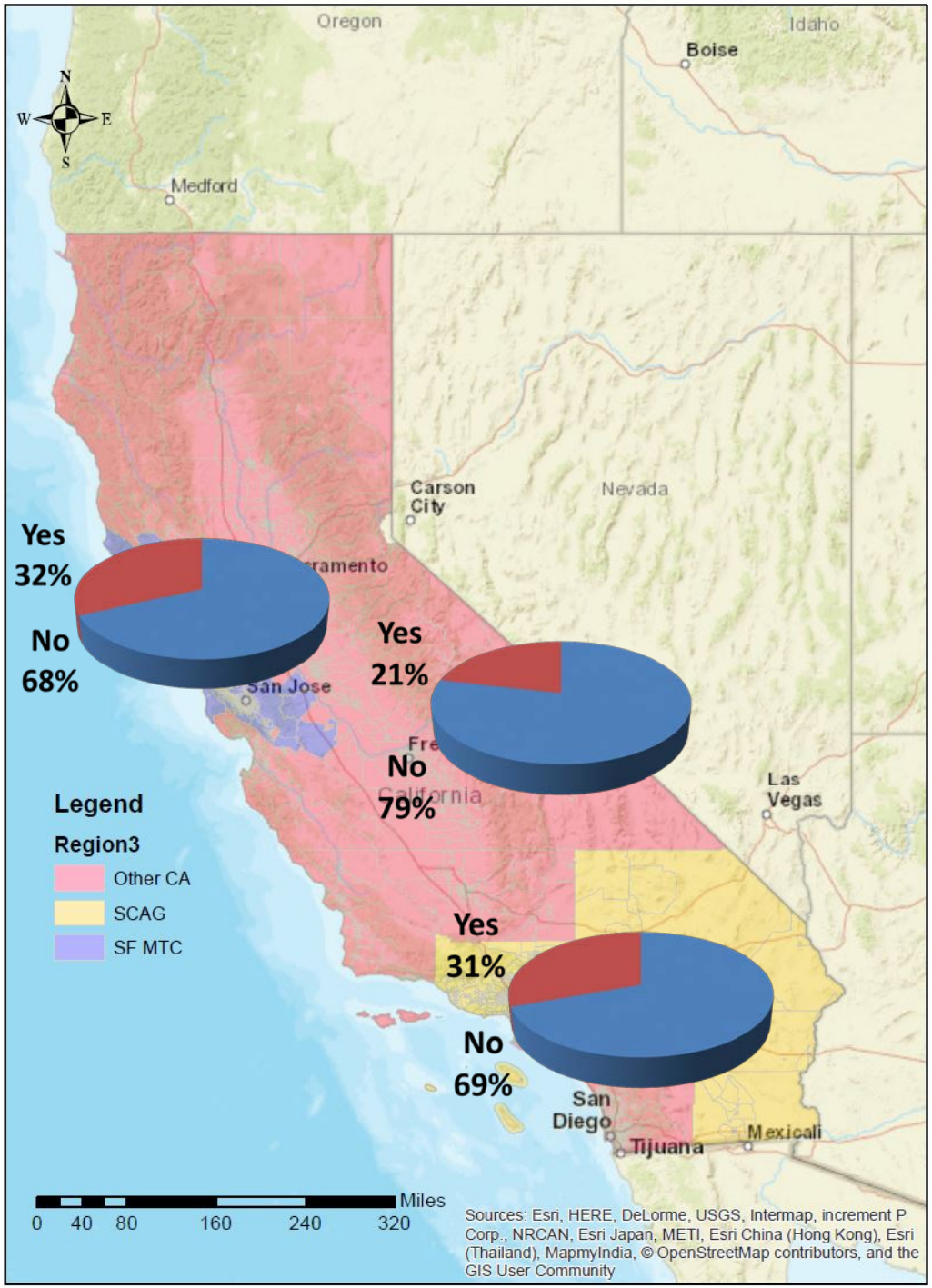
A TNC-Friendly Generation?



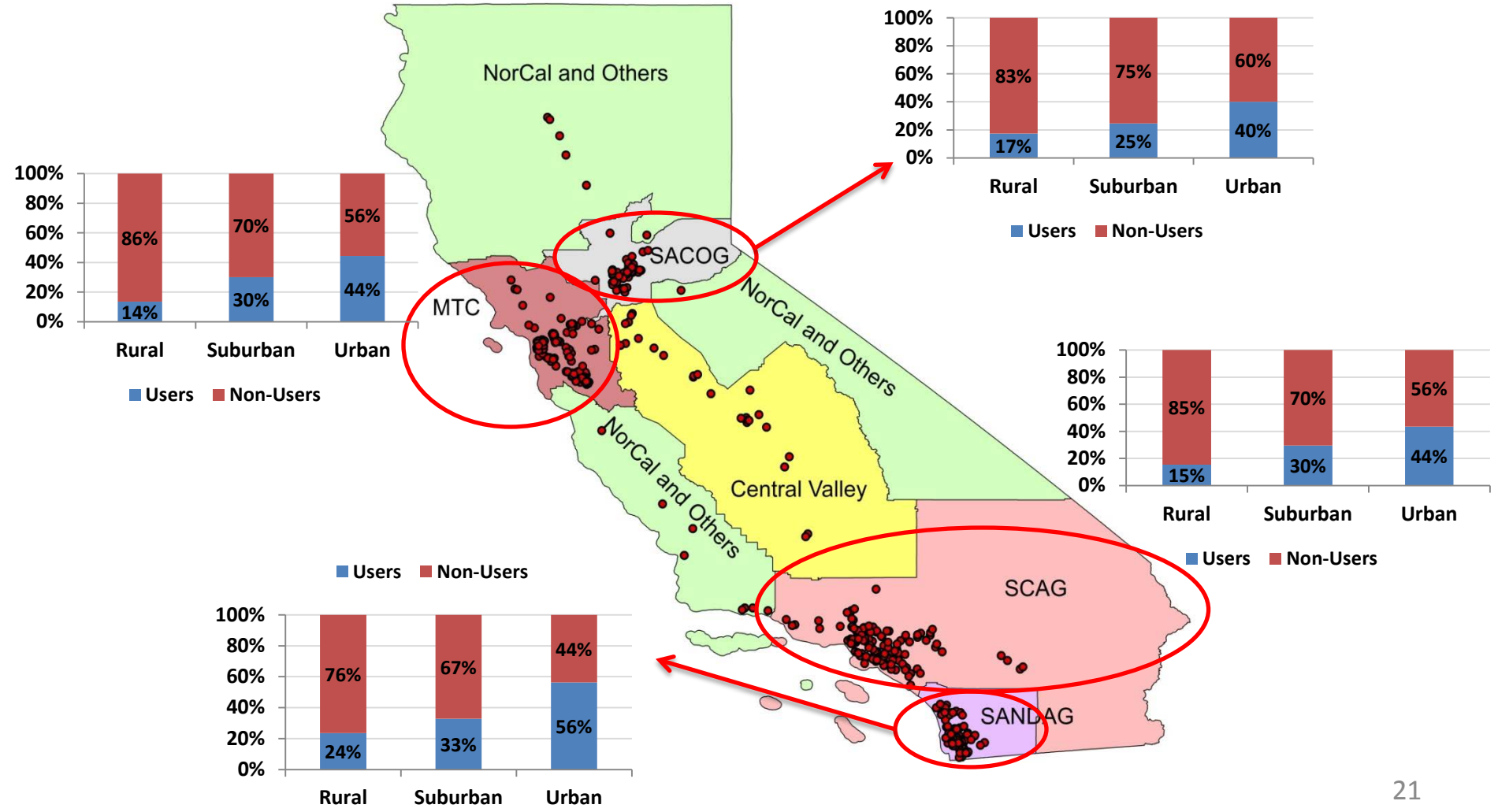
Note: TNC = Transportation Network Company

N=1,961

Use of On-demand Ride Services



Use of On-demand Ride Services

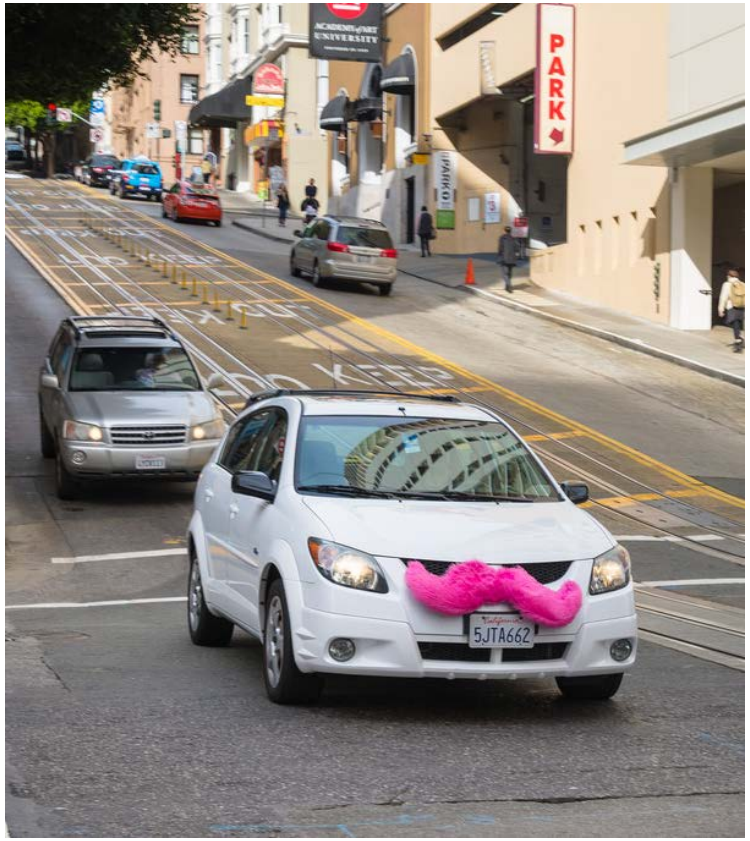


Use of On-demand Ride Services

- Estimation of simple adoption model[(1)] and latent-class choice model.[(2)]
- *Younger*, better-educated individuals who live in predominantly urban areas are more likely to use these services.
- Highest rate of adoption among individuals with *no children*, who live alone or with housemate(s), often in *zero-vehicle households*.
- Increased *land use mix* and *regional auto accessibility* increase the likelihood of using these services.
- Tech-savvy individuals and those with stronger *pro-environmental* and *variety-seeking* attitudes more inclined to adopt on-demand ride services.
- Among *low-adoption individuals* who live with families in suburban areas, higher use in presence of business trips and among frequent air travelers.

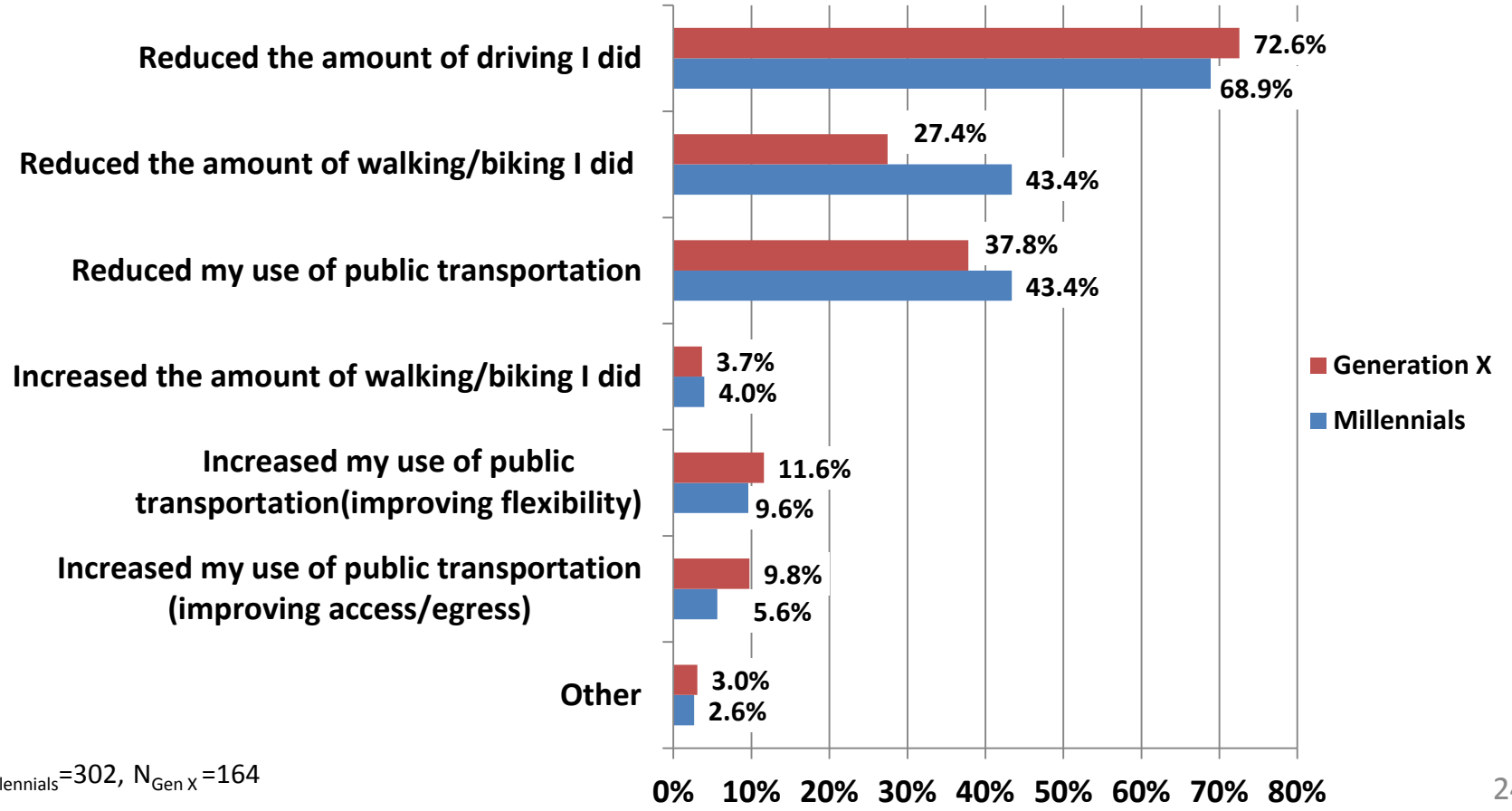
Results available in papers presented at (1) the 2017 TRB meeting (#17-05630) and (2) the 2017 International Choice Modeling Conference

What Replaces What?



Impact of On-demand Ride Services

The impact of last Uber/Lyft trip on the use of other means of transportation by age group (multiple answers allowed, self-reported)

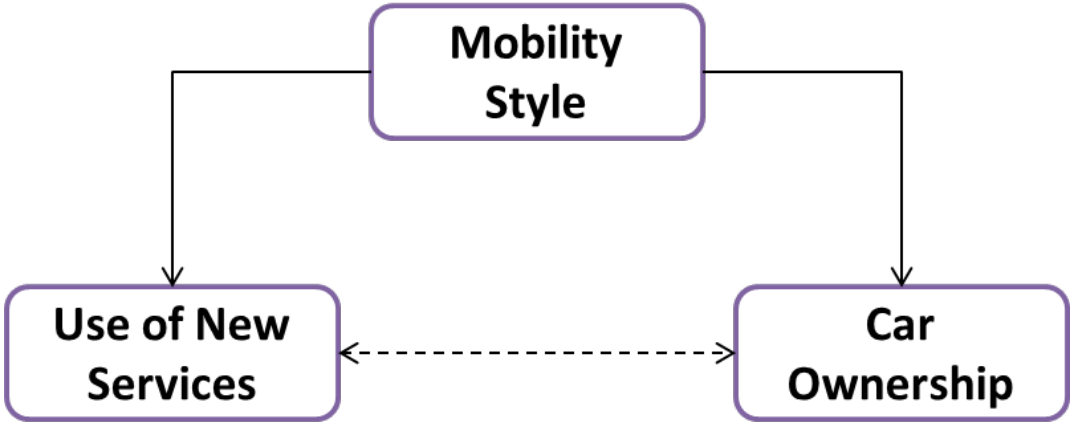


$N_{Millennials}$=302, $N_{Gen\ X}$=164

Shared Mobility and Travel Behavior

How does the adoption of *shared mobility* affect other components of *travel behavior* and *vehicle ownership*?

Jointly model the adoption of shared mobility and *use of other modes* or *vehicle ownership*:



Data from longitudinal component of the study will help disentangle the relationship with *vehicle ownership*…

Shared Mobility and Travel Behavior

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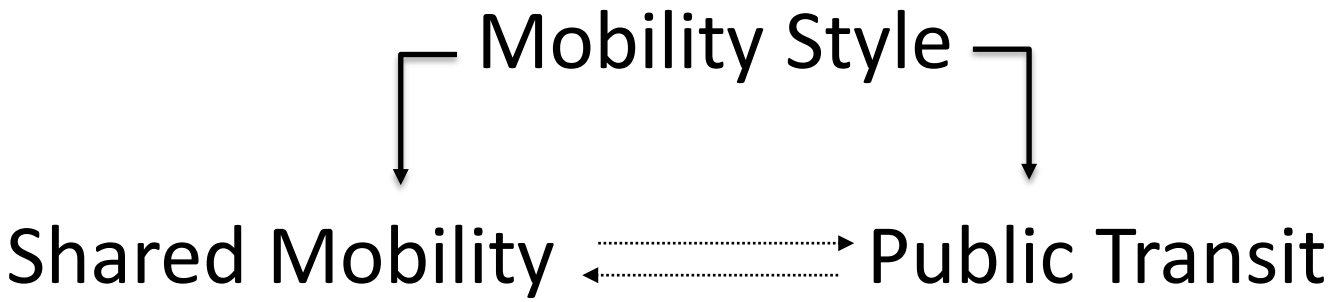
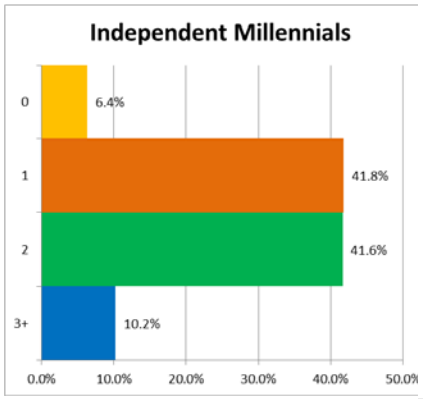
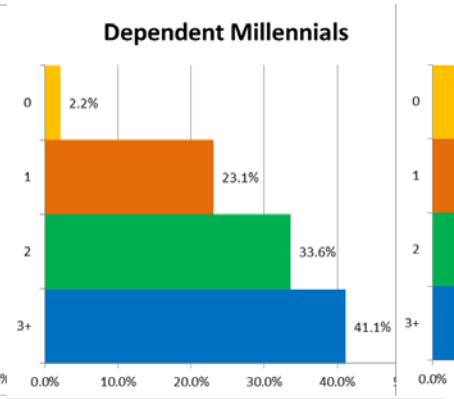
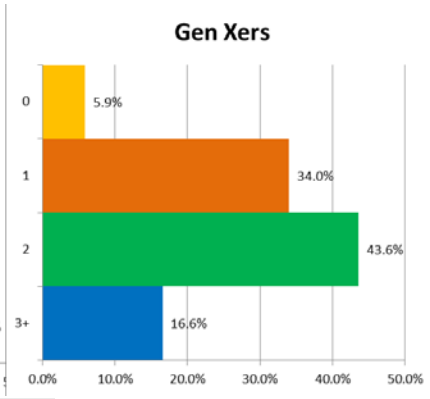


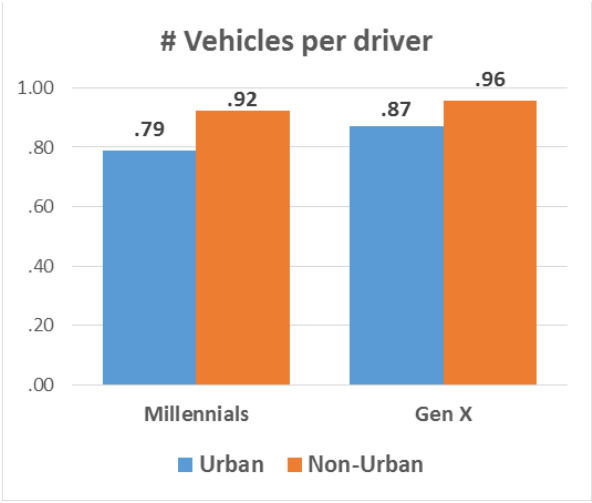
Potential modeling approaches: *bivariate ordered Probit*, *recursive Probit*, or *latent-class structural equation models*…

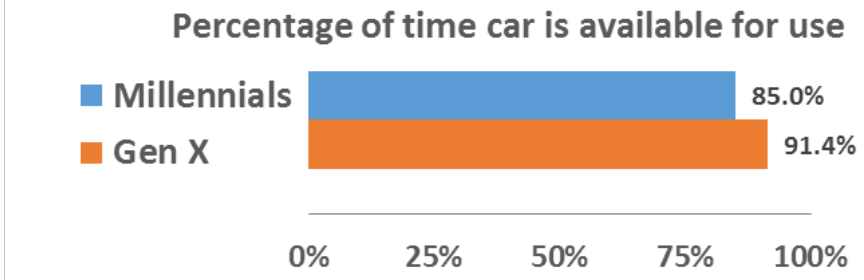
What about Vehicle Ownership?











Modeling the Propensity to Modify Vehicle Ownership

- Millennials often report that they want to increase their vehicle ownership (VO).
- This more often happens among millennials who live in *zero-vehicle households*.
- Multinomial Logit Model (three alternatives: *Reduce VO*, *Maintain VO*, *Increase VO*).
- *Next*: Nested Logit or Cross-Nested Logit to model *joint/ conditional choices* of current VO and propensity to modify VO in the future.
- Propensity to change VO: combination of propensity *to buy* and/or *to sell/get rid of a vehicle.*
- Exclude *dependent millennials* (VO mediated with their family).

Summary Results and Next Steps…

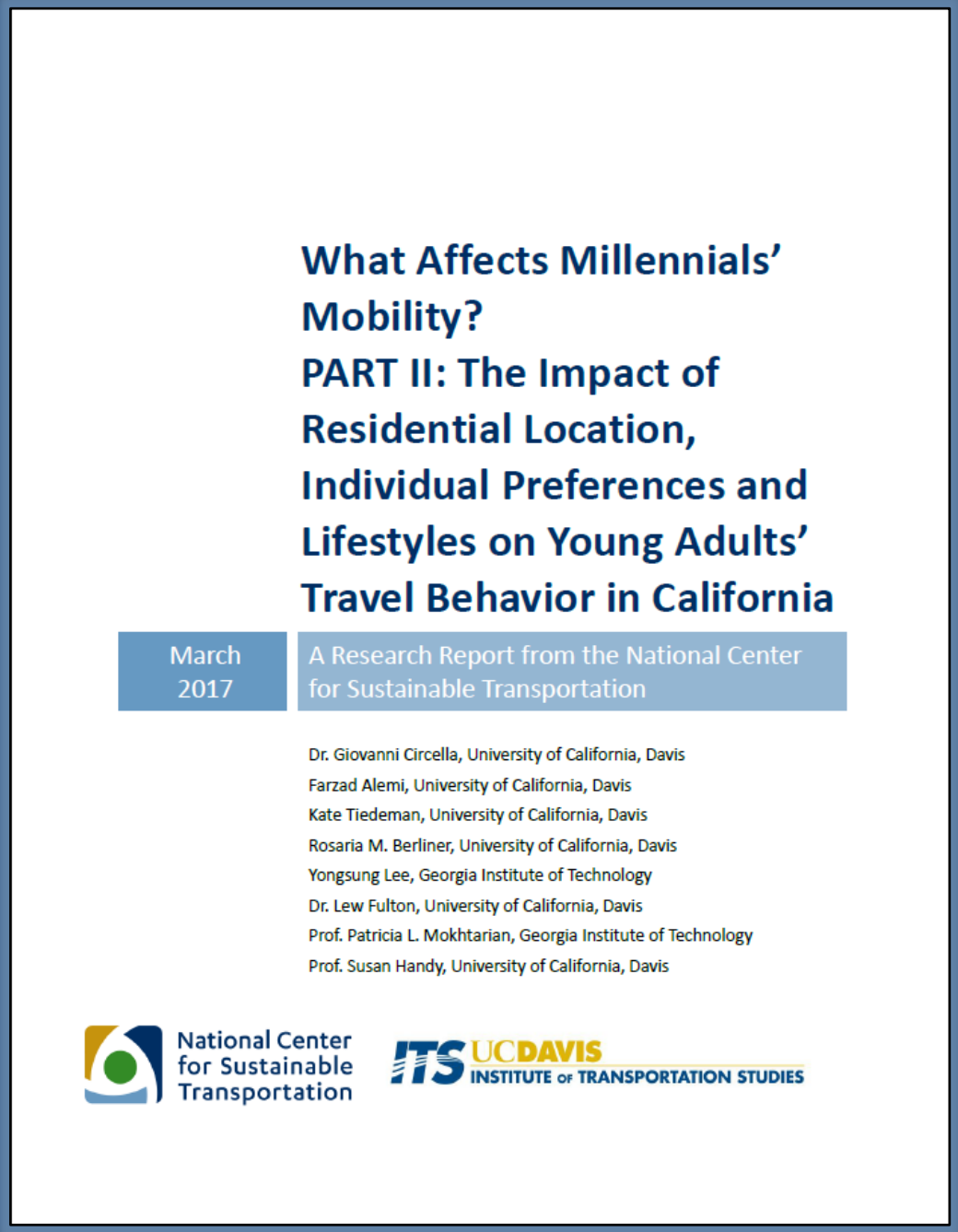
- Young adults drive less, own fewer cars, and use ICT and alternative travel modes more often.
- Millennials more often adopt multimodal behavior *by choice*.
- Higher adoption of shared mobility among millennials.
- Younger, better-educated individuals who live in urban areas more likely to use *on-demand ride services*.
- Increased land use mix and regional auto accessibility increase the likelihood of using these services.
- Tech-savvy individuals with stronger pro-environmental and variety seeking attitudes more likely to use shared mobility.

Summary Results and Next Steps… (2)

- Lower vehicle ownership among *independent* millennials, *but*…
- *The zero-vehicle or low-vehicle ownership status might be short-lived!*
- Millennials show higher propensity to purchase vehicles as they ***age*** and transition in their ***stage of life***.
- Most individuals in zero- or low-vehicle owning households plan to increase VO in the near future, in particular if:
  - Are ***not satisfied*** with current amount of travel
  - Are ***older millennials*** that highly value "*owning a car*"
  - *Exception:* ***young millennials*** in zero-vehicle households

Part I Report Available at:

ncst.ucdavis.edu



Part II Report Available at:
ncst.ucdavis.edu

Additional References

Four papers presented at 2017 TRB Annual Meeting in Washington DC:

- Circella, G. F. Alemi, R. Berliner, K. Tiedeman, Y. Lee, L. Fulton, S. Handy and P. Mokhtarian "Multimodal Behavior of Millennials: Exploring Differences in Travel Choices Between Young Adults and Gen-Xers in California", *TRB Paper #17-06827*.
- Tiedeman, K., G. Circella, F. Alemi and R. Berliner "What Drives Millennials: Comparison of Vehicle Miles Traveled Between Millennials and Generation X in California", *TRB Paper #17-06044*.
- Berliner, R. and G. Circella "Californian Millennials Drive Smaller Cars: Estimating Vehicle Type Choice of Millennials", *TRB Paper #17-06744*.
- Alemi, F., G. Circella, S. Handy and P. Mokhtarian "What Influences Travelers to Use Uber? Exploring the Factors Affecting the Adoption of On-Demand Ride Services", *TRB Paper #17-05630*.

Thank you for your attention!



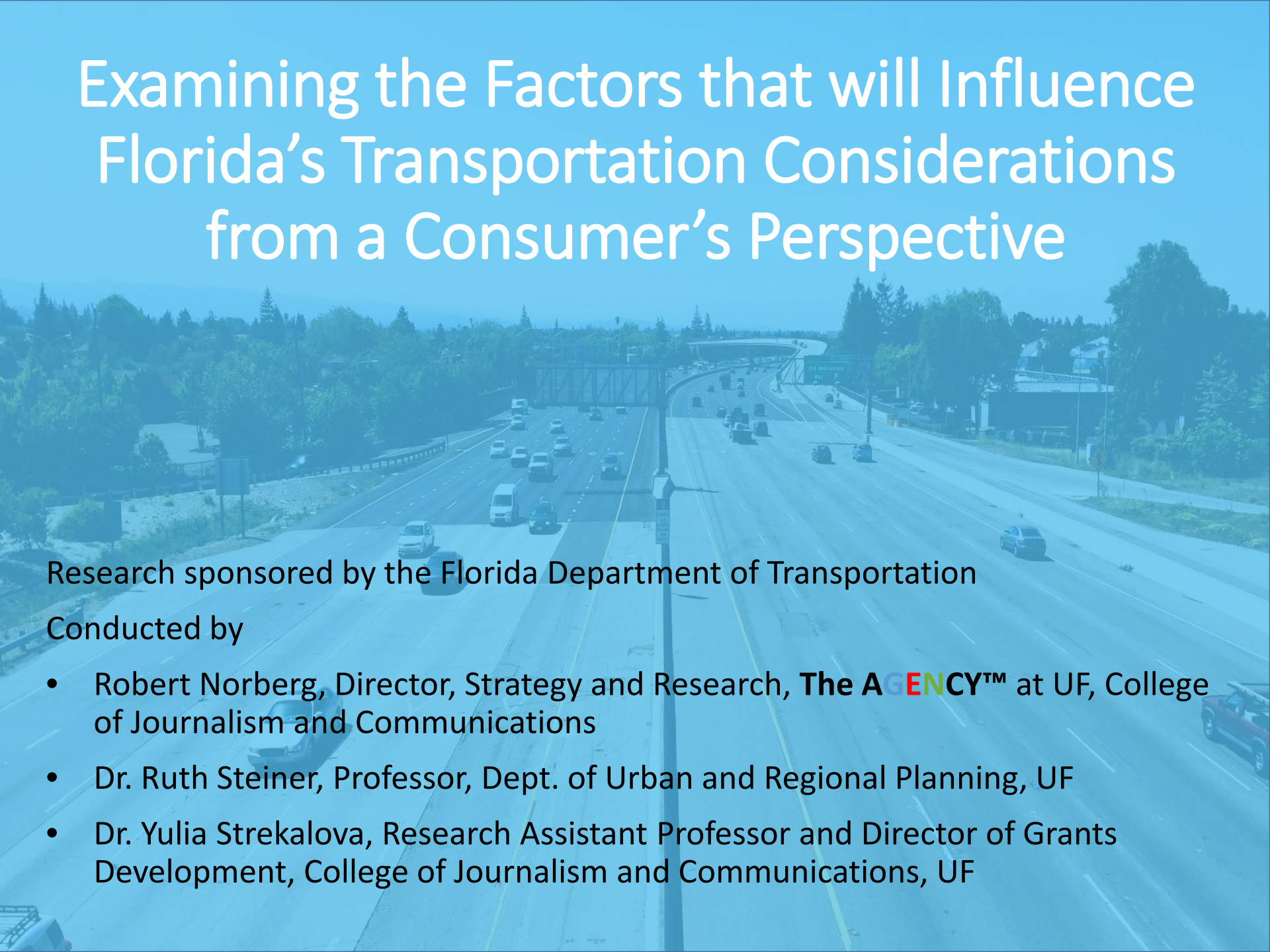
For more information, please contact:

Dr. Giovanni CIRCELLA

Institute of Transportation Studies, University of California, Davis

gcircella@ucdavis.edu

Examining the Factors that will Influence Florida's Transportation Considerations from a Consumer's Perspective



Research sponsored by the Florida Department of Transportation

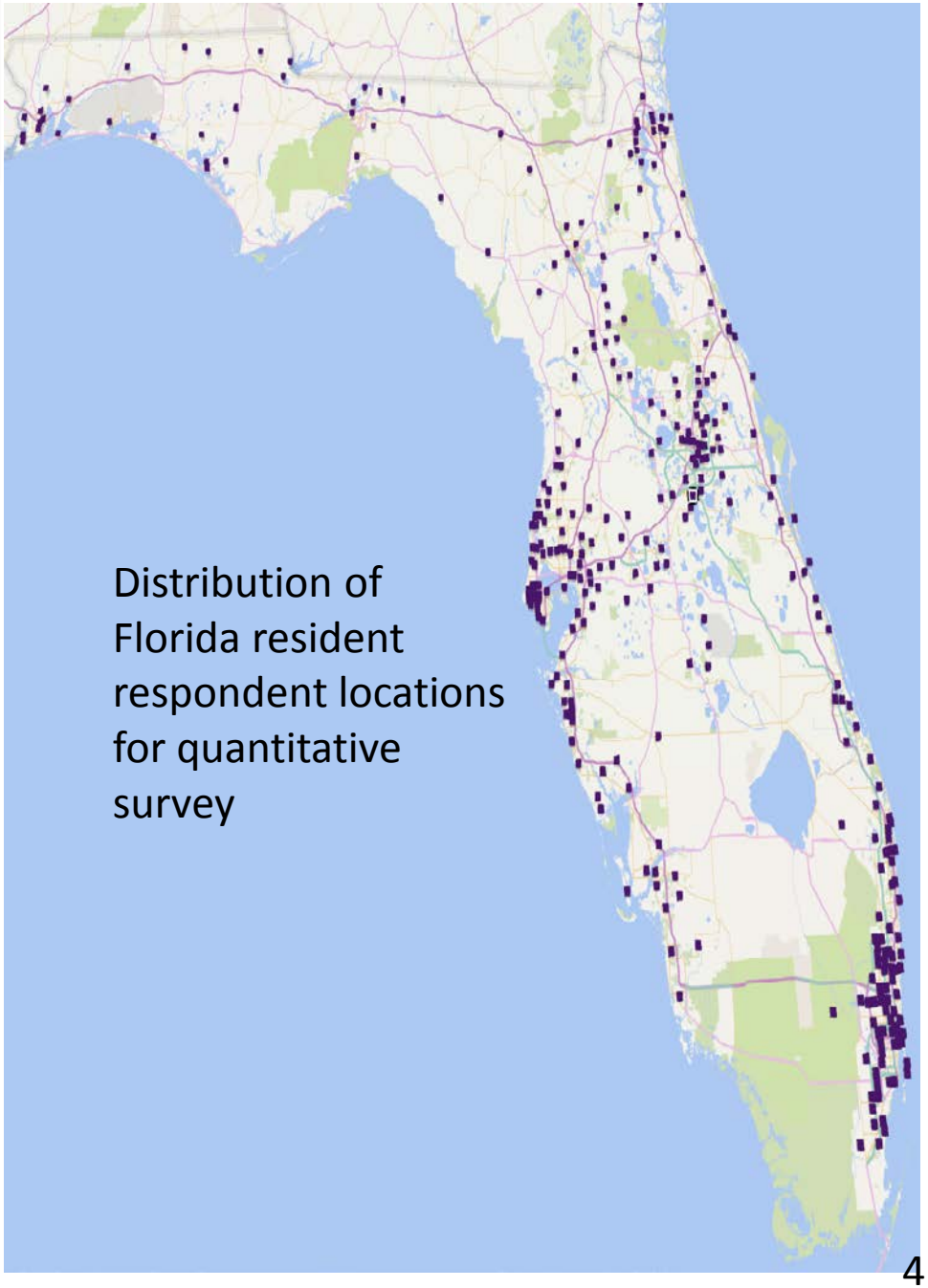
Conducted by

- Robert Norberg, Director, Strategy and Research, **The AGENCY™** at UF, College of Journalism and Communications
- Dr. Ruth Steiner, Professor, Dept. of Urban and Regional Planning, UF
- Dr. Yulia Strekalova, Research Assistant Professor and Director of Grants Development, College of Journalism and Communications, UF

Methodology

Three Phase Research Project

1. Literature Review
   - Review of 22 academic reports and NGO white papers
2. Qualitative Exploration
   - Three day, 50 participant on-line Discussion Forum
3. Quantitative Discovery
   - Online quantitative survey of over 600 qualified respondents



Distribution of Florida resident respondent locations for quantitative survey

Overall Research Objectives

- Understand factors that will effect future transportation needs in Florida from a consumers', mostly Millennial, perspective
- Enhance the utility and strengthen the Florida Department of Transportation's (FDOT) Florida Transportation Plan (FTP)
- Provide insights and suggestions for transportation infrastructure providers

Today's Agenda

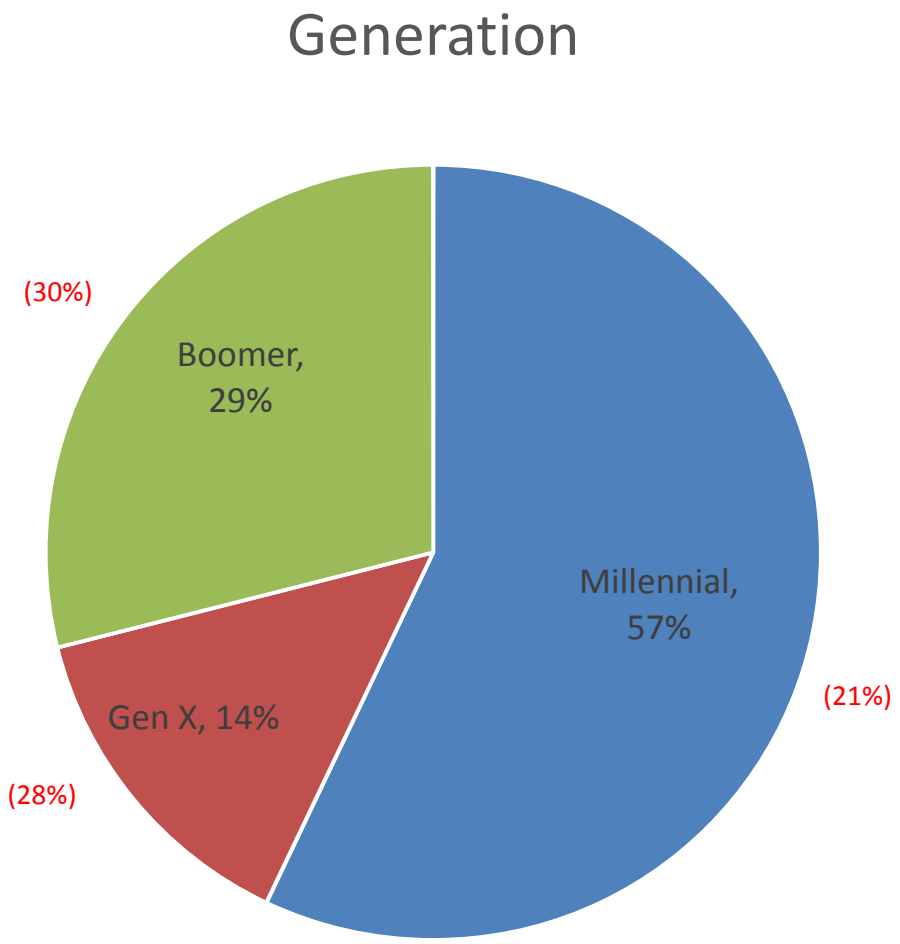
Understand how factors, such as, personal choice, technology advancements and lifestyle desires impact attainment of the goals of the Florida Transportation Plan.

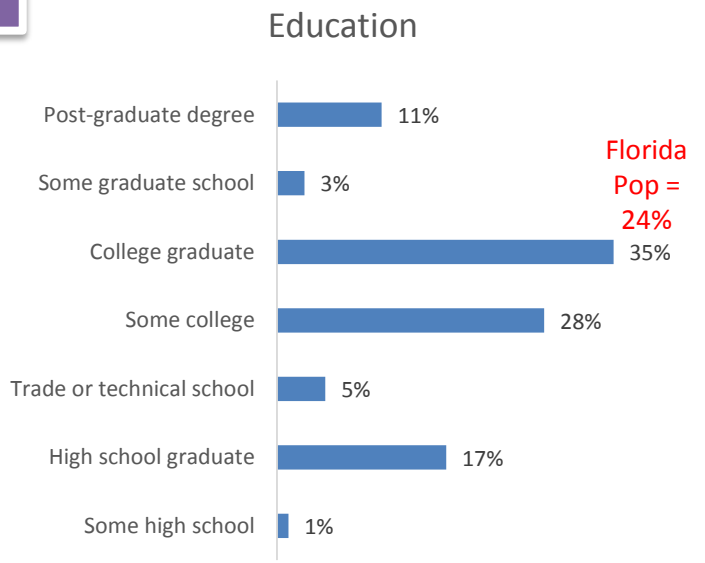
Florida Transportation Goals

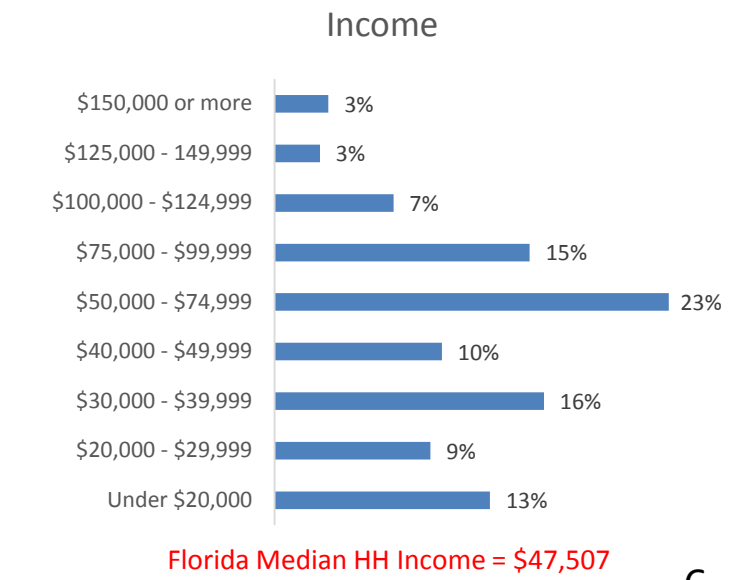
- Safety and Security for Residents, Visitors, and Businesses
- Agile, Resilient, and Quality Infrastructure
- Efficient and Reliable Mobility for People and Freight
- More Transportation Choices for People and Freight
- Transportation Solutions that Support Florida's Global Economic Competitiveness
- Transportation Solutions that Support Quality Places to Live, Learn, Work, and Play
- Transportation Solutions that Support Florida's Environment and Conserve Energy

Quantitative Survey Demographics

Quant Sample Demos







Florida Median HH Income = $47,507

(Red text indicated Florida statistics for comparison)

Overarching Findings that Impact all of the Goals

Modes of Transportation
Entire Sample

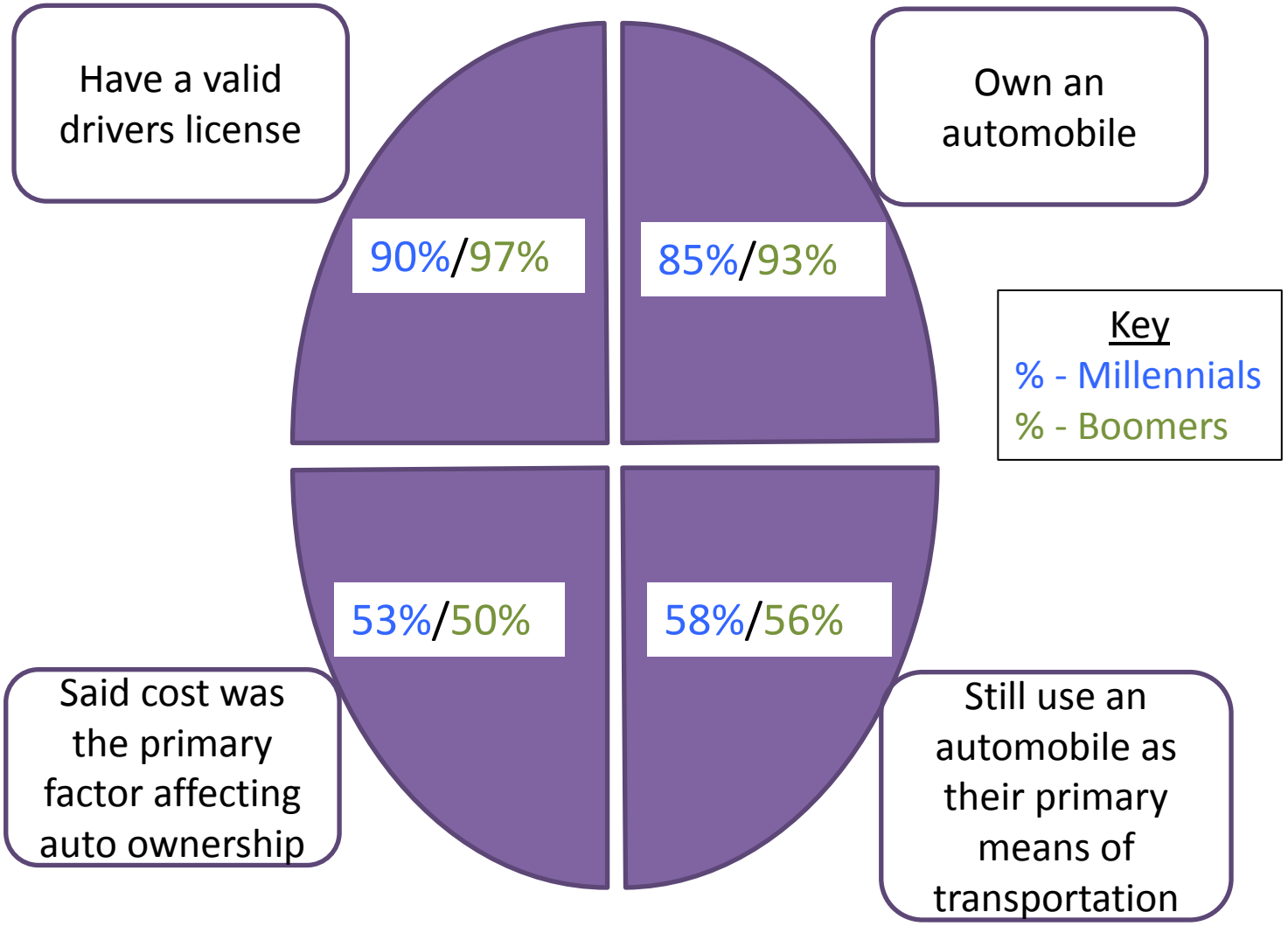
Mode Category	Currently for Work	Currently for Errands	Future Expectations
Automobile	80.3%	84.6%	75.2%
Non-motorized (biking, walking, skating, using a scooter)	6.8%	7.2%	9.7%
Public Transportation (bus, train, metro, subway)	6.7%	5.7%	10.6%
Something else (please specify)	4.5%	1.1%	1.7%
Motorized scooter or Motorcycle	1.8%	1.4%	2.9%

Much higher rates of usage for cars

But non-motorized and public transportation are expected to increase incrementally

Q: In the past year, what percent of the time do you use the following forms of transportation when going to or from work or school / errands / in the next 25 years ? (Percent of time)

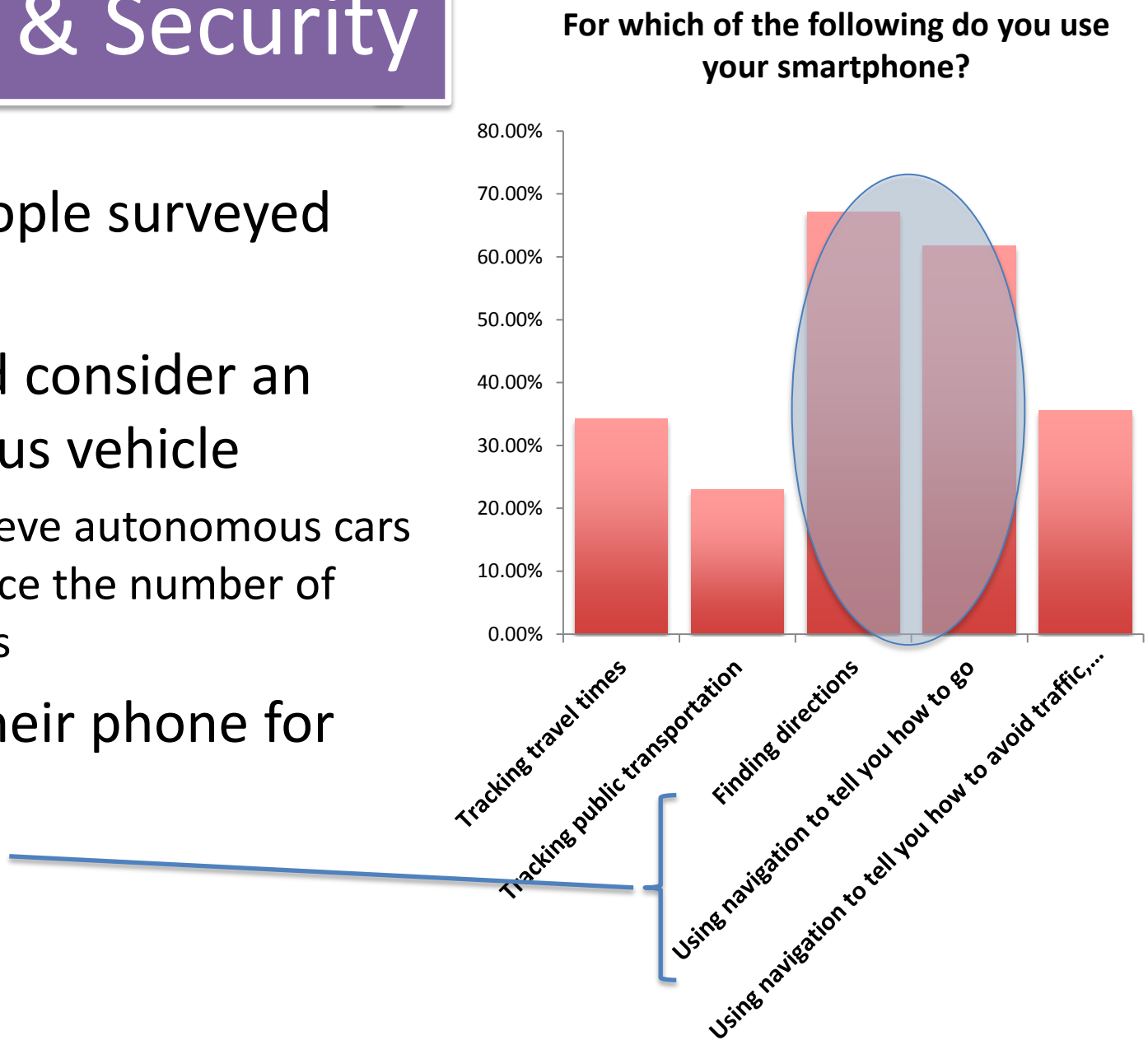
Auto Relevance



Goal Relevant Findings

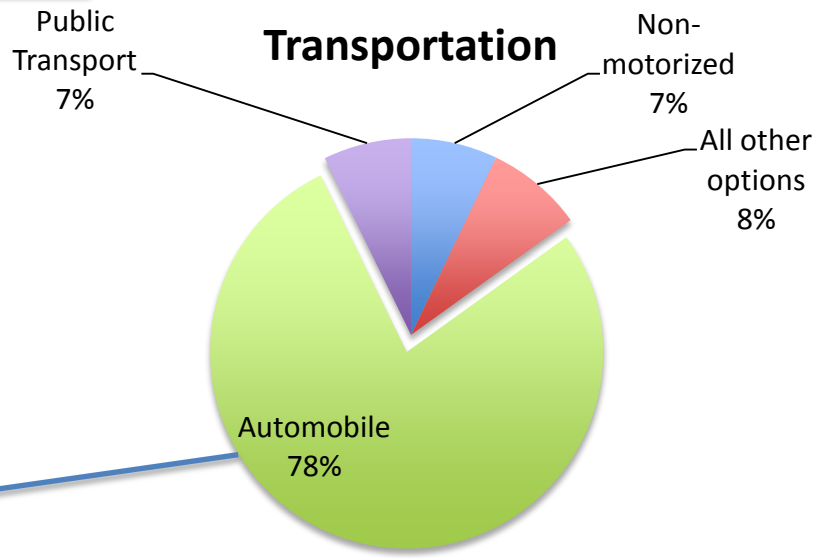
Safety & Security

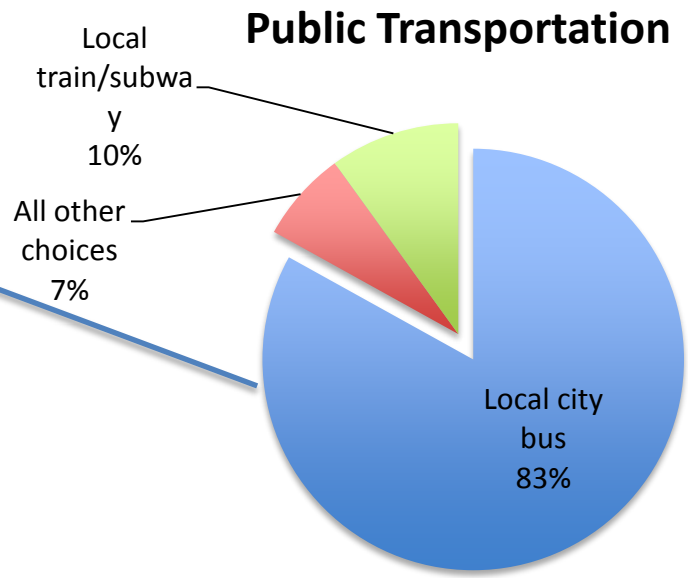
- 87% of people surveyed own a car
- 53% would consider an autonomous vehicle
  - 62% believe autonomous cars will reduce the number of accidents
- 61% use their phone for navigation



Agile Infrastructure

- "Low Traffic" ranked 4th out of 11 attributes that make an area livable.
- On average, respondents used automobiles for 78% of all their transportation needs.
- Of public transit users, 83% used local busses.



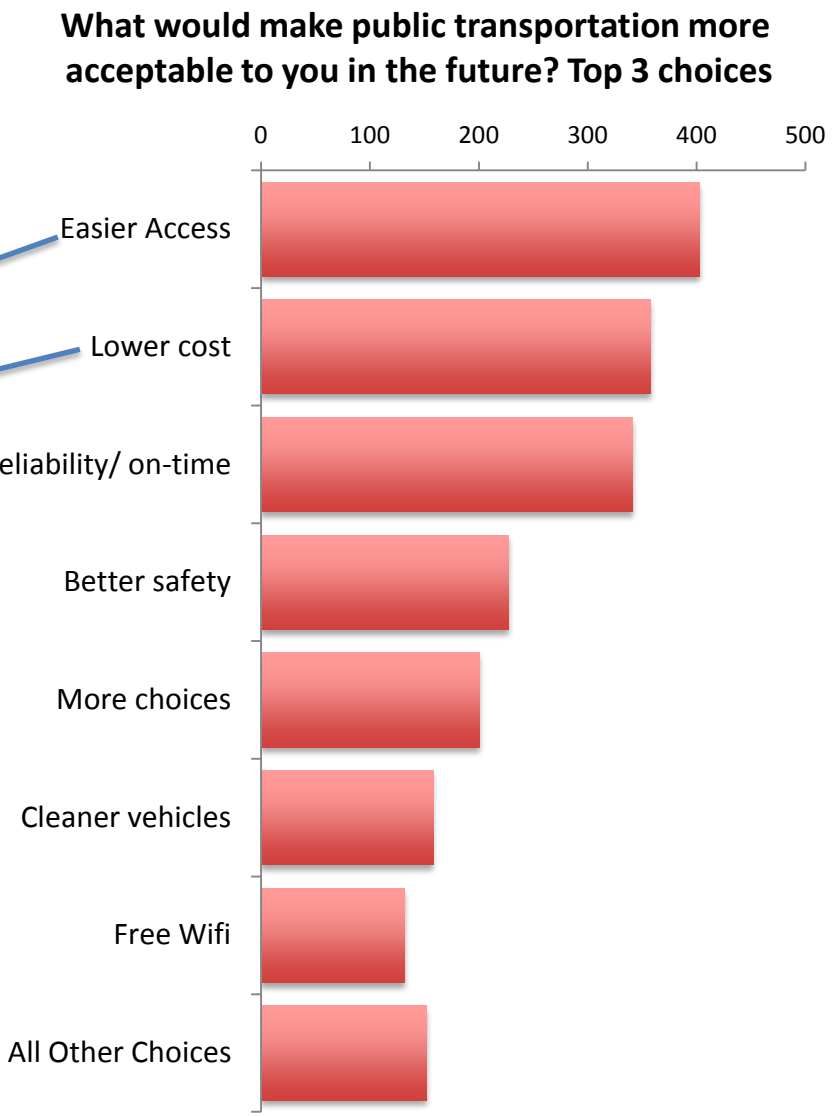


Efficient & Reliable

- 42% said public transportation would be more attractive if efficiency and timeliness were improved
- 35% of respondents use their smartphone to avoid traffic
- 34% use their smartphone to track travel times
- 65% believe autonomous vehicles will have an effect on transportation within 25 years

More Choices

- The Top 3 choices to improve public transit:
  Easier Access (50%)
  Lower Cost (44%)
  Reliability (42%)
- However, >50% of respondents agreed "The car will always be king"



Support Economy

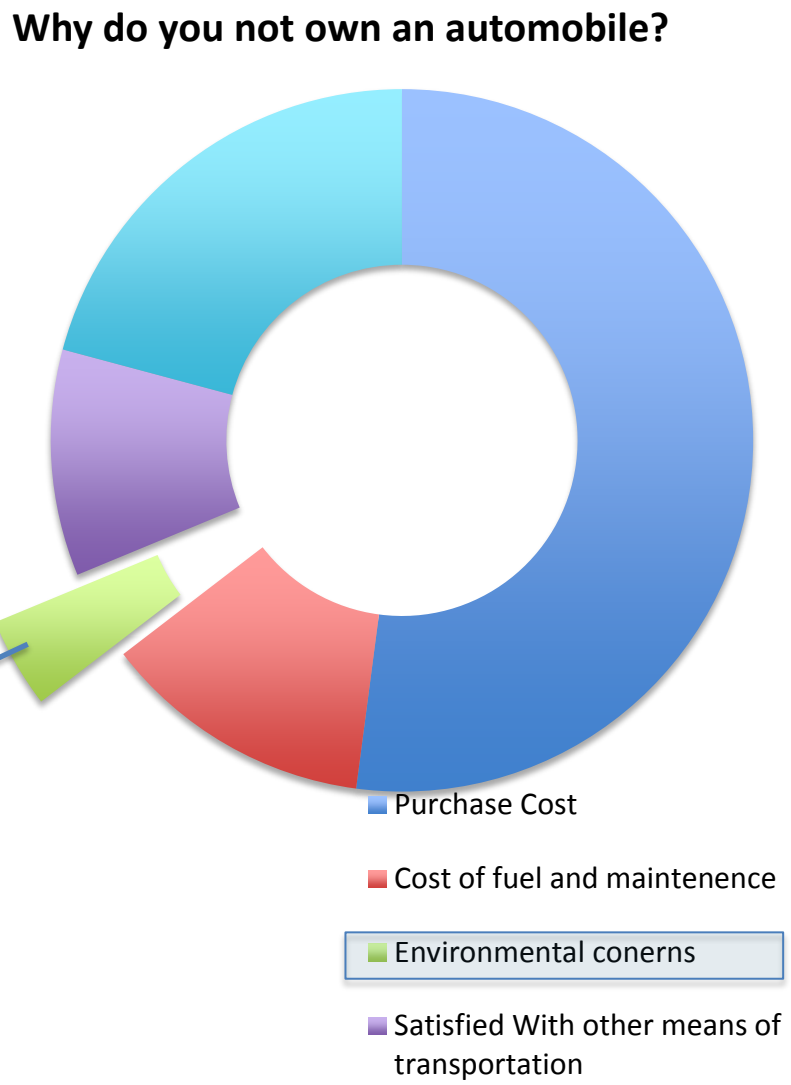
- 65% of non-Florida residents showed an interest in visiting the state within 12 months
- >80% of all respondents believe that it is important to minimize travel costs when planning a trip
- 77% said they used a car last time they travelled for at least 2 hours versus 12% for an airplane.
- 67% use their smartphone to find directions.

Support Quality of Life

- 75% of respondents agree that they would like to live in a neighborhood that has everything within walking distance.
- 53% chose “quality of life” when asked why they live in a particular area, followed by “Job” at 34%
- 66% say the number one attribute that made a neighborhood livable was “security”

Support Environment

- 85% of people liked the idea of doing something to help the environment
- 60% were open to changing their form of transportation if it helped the environment
- 46% said a ‘clean environment’ makes a neighborhood livable
- 4% cited the environment as the primary reason for why they did not own a car.



Summary

Learning Summary

- Personal Choices
  - Contrary to popular stereotyping, Millennials love their cars and expect to continue to rely on them in the future
  - This personal choice will impact all of the goals in the FTP
- Technology Advancements
  - Autonomous Vehicles are expected to be a future option and are expected to make roads safer
  - Mobile communications technology can greatly enhance attainment of goals for safe and efficient infrastructure
- Lifestyle Desires
  - Contained communities with security and amenities will drive transportation infrastructure needs in the future

Thank You

Today's Participants

- Rusty Ennemoser, *Florida Department of Transportation,* rusty.ennemoser@dot.state.fl.us
- Giovanni Circella, *University of California, Davis* gcircella@ucdavis.edu
- Robert Norberg, *University of Florida,* rnorberg@ufl.edu
- Tina Geiselbrecht, *Texas A&M Transportation Institute,* T-Geiselbrecht@tti.tamu.edu

Georgia Institute of Technology

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  http://bit.ly/TRBcommittees
  - Networking opportunities
  - May provide a path to become a Standing Committee member
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  - Create your account
  - Update your profile