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CENTER for URBAN
TRANSPORTATION
RESEARCH

The Changing World of Demand for and Supply of Data for Travel Analysis



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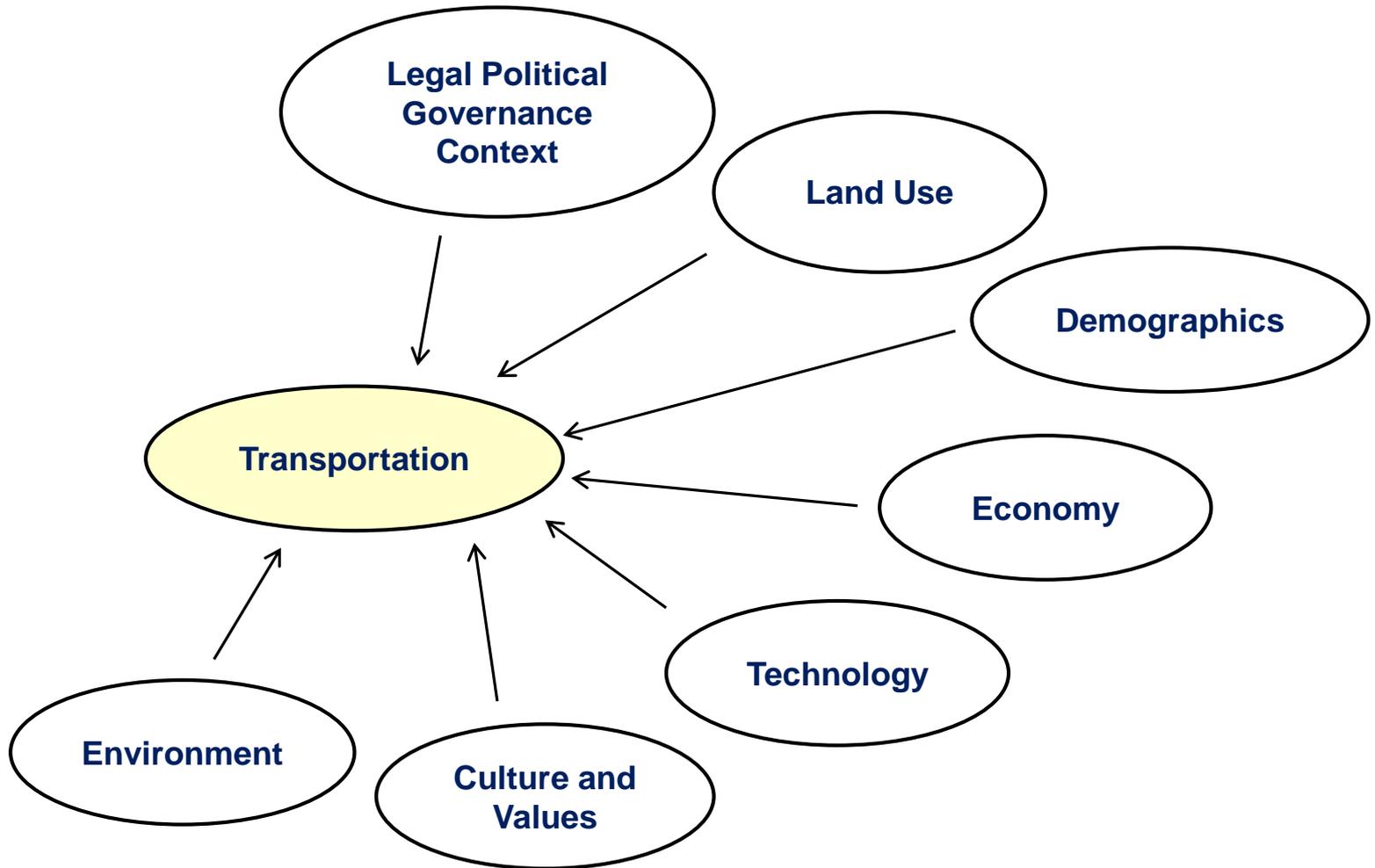
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CENTER FOR URBAN TRANSPORTATION RESEARCH

- Established 1988 by Florida Legislature
- Applied research – Policy focus
- Technology transfer / training
- Education
- Multi-disciplinary (Anthropology to Zoology)
- “Real world” experience
- Housed in USF’s College of Engineering
- 180+ active research projects
- \$14.5 million in 2014
- over \$5 million federal
- 35 full-time research faculty
- 20-100+ student researchers



The More We Learn About Transportation the More We Want Data to Integrate that Knowledge in our Planning Tools



We are in Perhaps the Most Transformational Period in Transportation Since the Development of Personal Vehicles: Technology is Turning the Transportation Planning and Modeling World on its Head

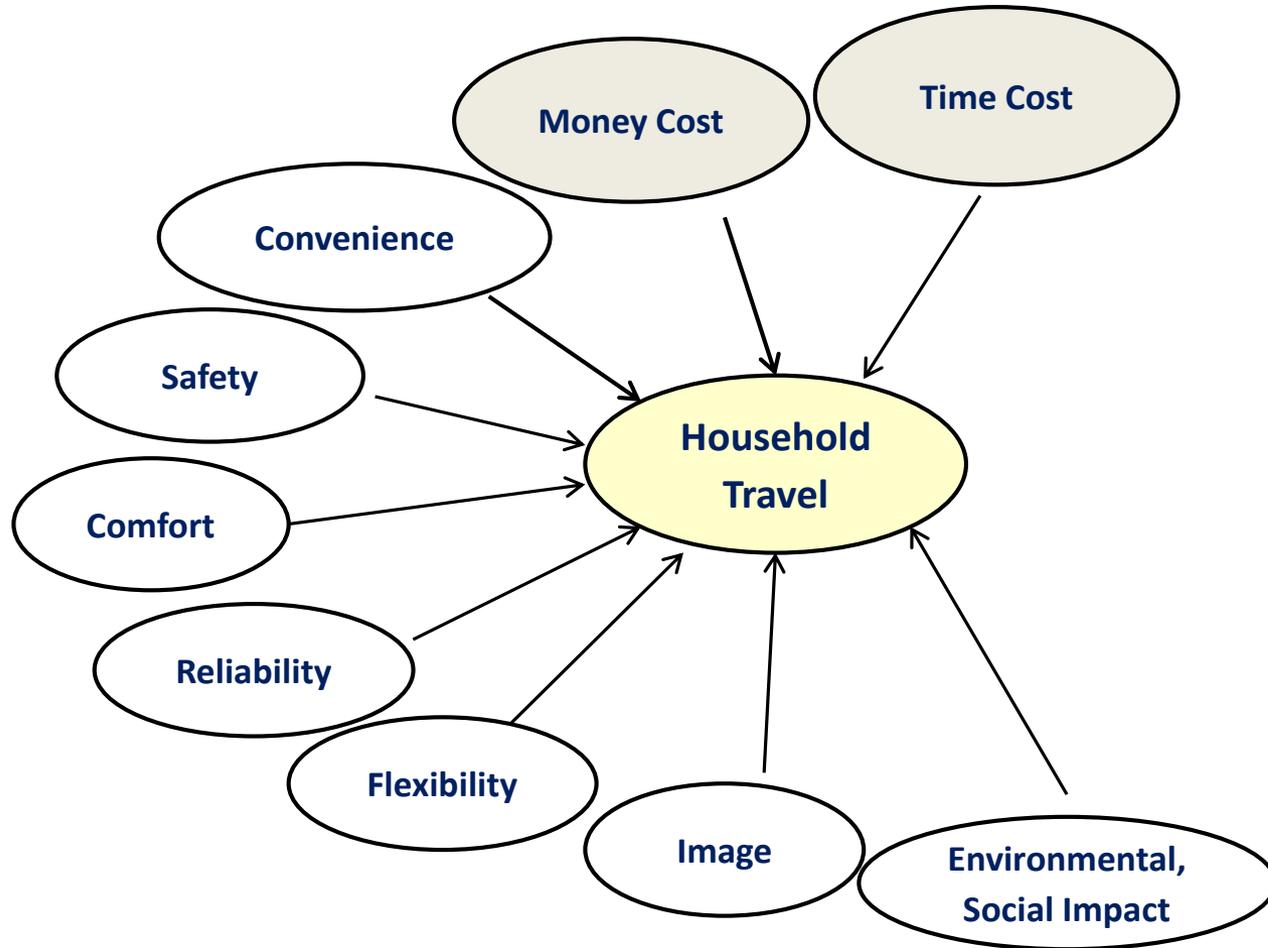
Demographics

Economics

Technology

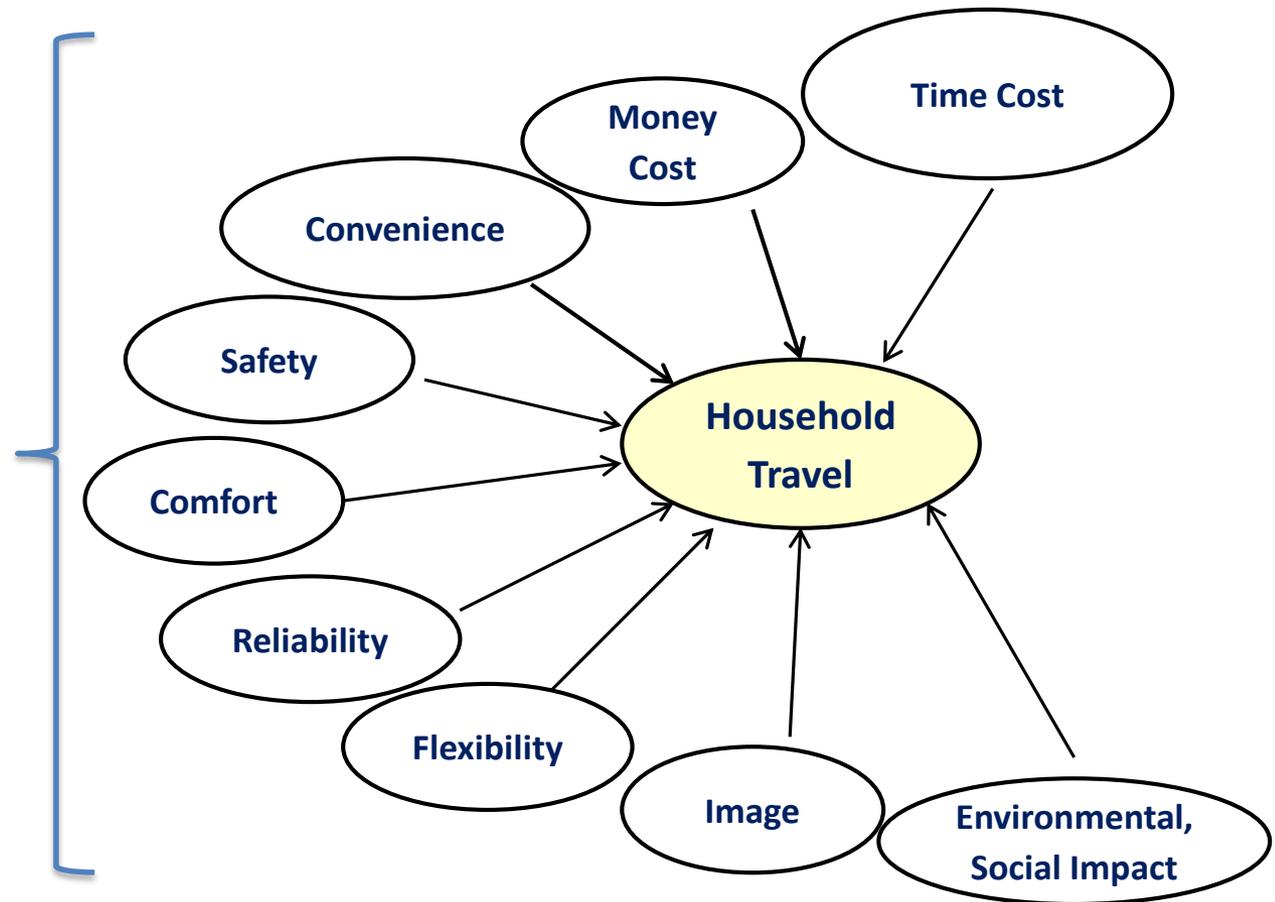


Factors that Influence Travel Behavior

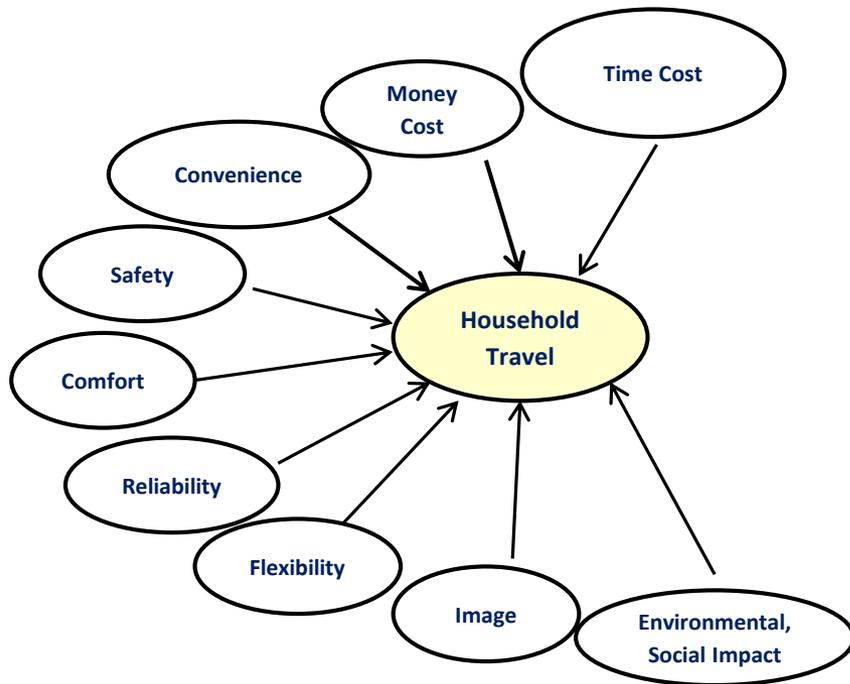


Factors that Influence Travel Behavior

- Real time information
- Electronic payment
- Matching services
- Trip planning
- Trip scheduling
- Navigation/trip tracking
- Electronic hailing
- Trip aggregating /ride matching
- Dynamic pricing
- Electronic satisfaction feedback



Factors that Influence Travel Behavior



1. **Number of trips made (trip generation)**
 - Travel
 - **Communication substitution**
2. **Destination (trip distribution)**
3. **Mode choice**
 - **Drive personal car**
 - **Ride with family/friend**
 - **Taxi**
 - **Ridesourcing, e-hailing**
 - **Uber, Lyft, Sidecar**
 - **Ridesharing**
 - **Carma, eRideShare**
 - **Carsharing**
 - **Personal bike**
 - **Bikesharing**
 - **Transit**
 - **Transit Alternatives/Feeders "microtransit"**
 - **Bridj, Leap transit, MetroBee, TransLoc**
 - **Walk**
4. **Path (assignment)**

The Demand for Data is Voracious

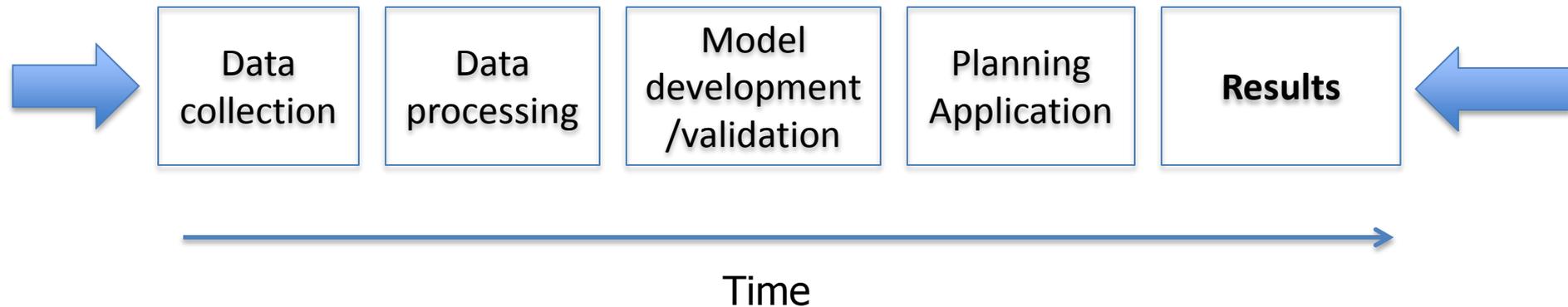


Enhanced Geographic Precision

- Sensitivity to bike, walk, transit modes
- Better equity analysis opportunity
- Enhanced sensitivity to site or project level land use plans

Enhanced Freshness/Frequency

- The world is changing faster than it used to
- Credibility is enhanced by fresh data



More Comprehensive Data

- Network detail (path precision, access modes, etc.)
- Land use detail
- Amenities/features
- More comprehensive HH data (socio-demographics, resources [cars, bike, internet, smartphone, etc.], etc.)



Data on Emerging and Modes

- Transit variants (private bus, Flex routes, BRT, Etc.)
- New modes (TNC's (Uber, Lyft, Bridj, etc.)
- Parking supply and price
- Fares and fare incidence
- Variable tolls and parking



Data to Support a Greater Understanding of Emerging Behaviors

- Age cohort differences (millennials, etc.)
- Household functioning RE interdependence of travel
- Substitution of communications for travel
- Acceptance of emerging modes
- Vehicle ownership as a function of options (carshare, bikeshare, TNC's, transit LOS, etc.)
- Responsiveness to real time and enhanced information on choices
- Willingness to share travel (carpool, Uberpool, etc.)
- Etc.

The Supply of Data is Strained



The Good News

- Annual ACS data, LED, NTD, CEX
- Faster data availability due to internet collection and dissemination
- Healthy CTPP and NHTS scheduled for 2016
- Improved walk, bike, amenity information (crowd sourcing)
- Mining big data (phone pings [Airsage], Navigation [Inrex], credit card activity, etc.)
- Much better/cheaper computer, storage and display/visualization capabilities

The Bad News

- Lousy response rates and bias concerns
- Data security sensitivity
- Big brother - big government sensitivities
- Veeeery tight data resource\$
- Data i\$ expen\$ive
- No “Best Practices” in rapidly emerging world of data collection (GIS tracking, internet surveys, smartphone data collection and communication, using fused/integrated data sources, etc.)

The Bad News

- Understanding the implications of perturbed data to protect identities



"Perturbing" the data.

The Bad News

- Understanding the implications of imputed data to fill in gaps



"Imputing" the data.

Once upon a time...

- The once tranquil world of data is transforming like the rest of transportation at an accelerating pace - data is growing up.
- **FAST, ACCURATE, and INEXPENSIVE** remains a challenge.
- Increasingly complex travel choices and diverse behaviors and market segments will continue to provide data challenges for modelers.

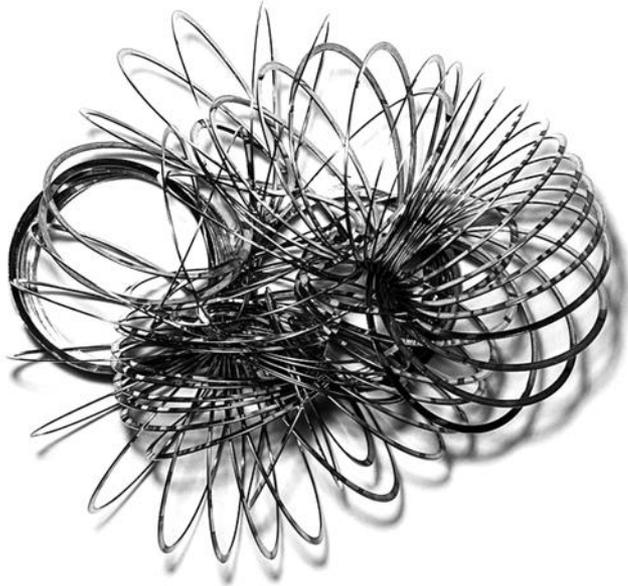


**But very
smart people
are working
on this**



*Auguste Rodin's **The Thinker** contemplates the impact of amazing computing power as represented by the IBM Watson icon.*

Contact Information



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