

# U.S. Vehicle marketplace

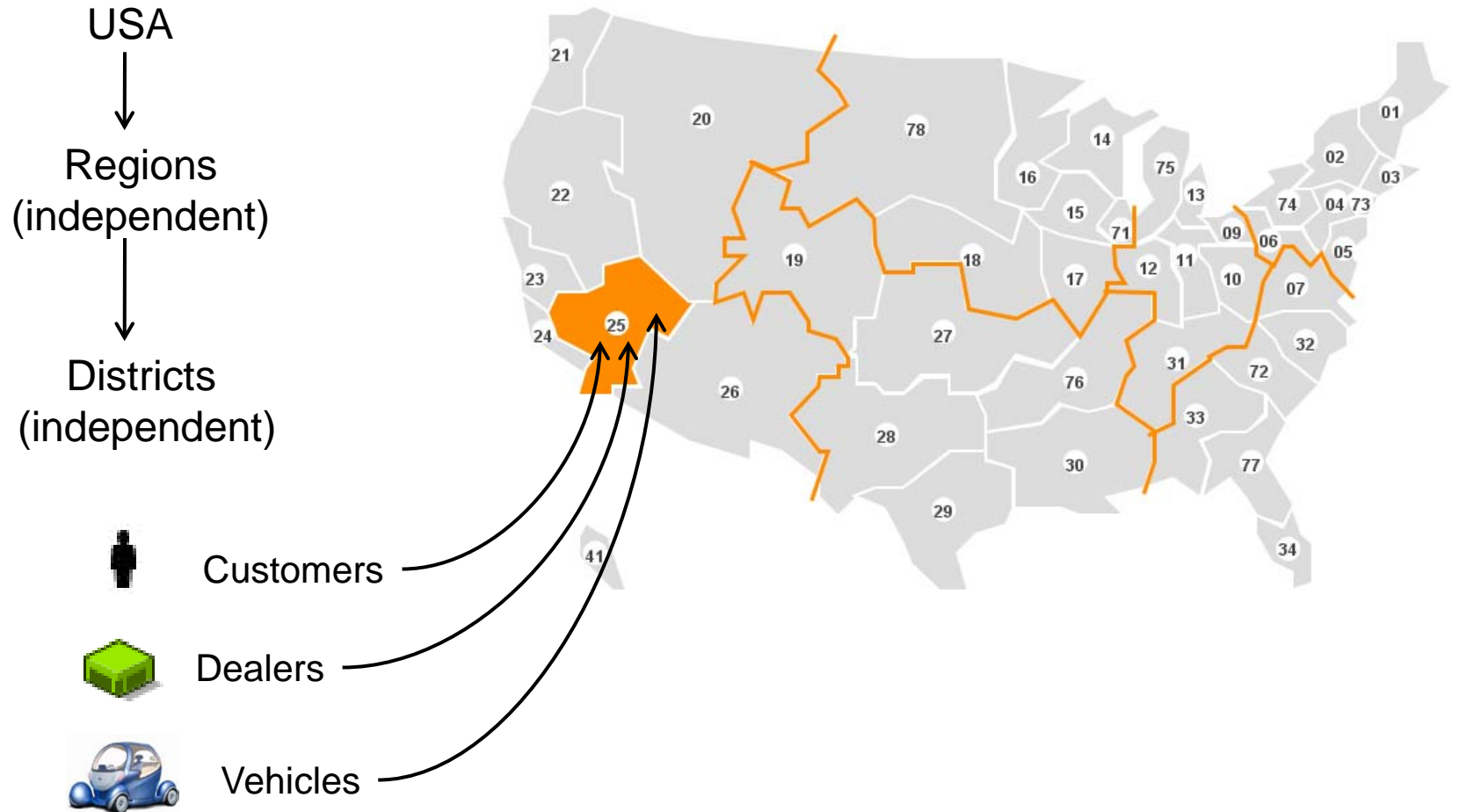
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# U.S. Vehicle marketplace



# Vehicles

- Characteristics
  - Brand
  - Market classification
  - Power
  - Model year
  - New/used
  - Price
- Initial geographic distribution and price data for new/used vehicles

# Dealers

- Single branded
- Sales of new vehicles only
- Operates within the region
- Countrywide pricing policy
- All requested vehicles are available for purchase

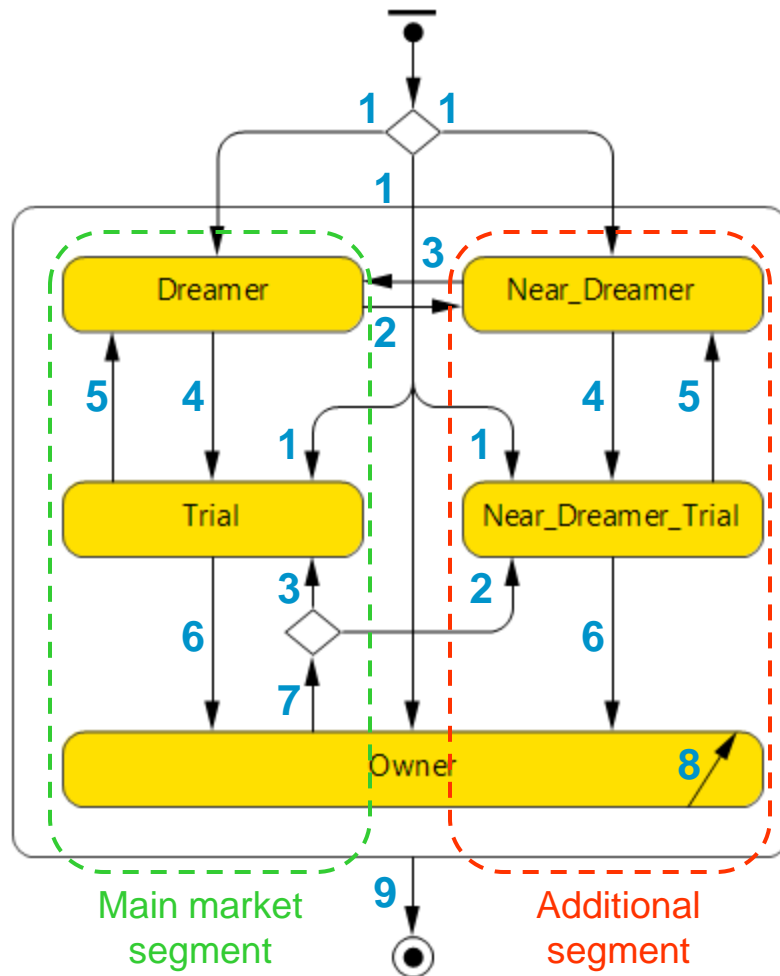
# Customers

- Potentially interested in buying a vehicle / owner
- Characteristics
  - Age
  - Gender
  - Race
  - Segment (combination of age, gender and race)
  - Employment
  - Income
  - Current status
    - (*Dreamer, Near Dreamer, Trial, Near Dreamer Trial, Owner*)
- Initial distribution by region

# Approach to simulation

- We consider only potential/existing customers as agents
  - Dynamic population with births and deaths
- Dynamic characteristics of agents
  - Age, employment, income
- Due to capacity of the market (~20 000 000 people) we use scaling technique: 1 agent represents 100 people with the same characteristics

# Agent behavior



- Main concept of the model is based on 'touches' with subject
  - Dealer visits, advertisement, contacts with owners
- Touches are accumulated and may be discarded

# Challenges

- Unlike other areas of application data is the most important source for model structure, not only parameters of the model
- Quality and completeness of data is really important
- State of the art techniques of translating data to agent behavior
  - Decision points
  - Influence factors
  - Inertness of decisions
  - Sensitivity to different factors
  - Positive/negative perception
- Validation



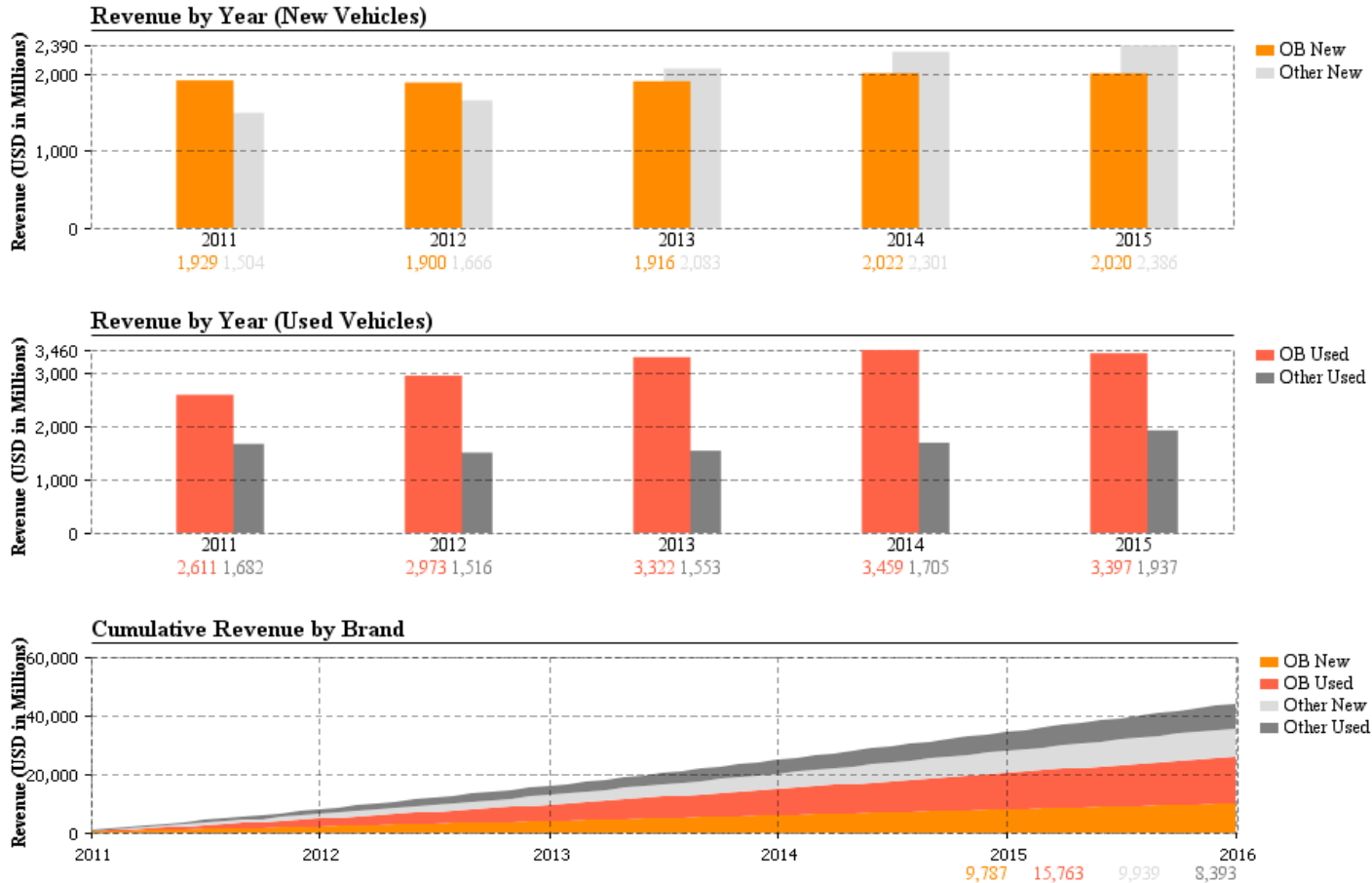
# Simulation goal

Demand and market share forecast for 5 years



# Simulation goal

## Revenue forecast for 5 years



# Questions