



Final Working Discovery Report

Value-Oriented Approach

02.26.2020

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Agenda



Research logic

- Secondary research
- Data observation
- Data design
- Analysis design



Key insights (proof)

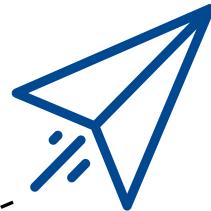
- Overview of segmentation by recency and frequency
- Higher average income ≠ better performance
- Poor highway and bridge quality leads to high frequency and recency



Spring B Research Plan

- Next step
- Final goal

Research logic



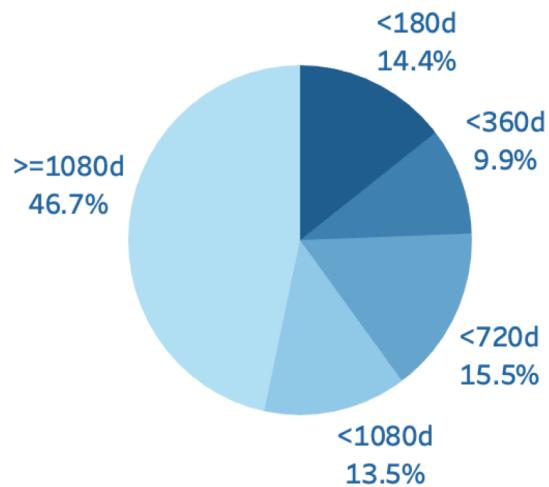
Analysis design

ID	Gender	State	Number of Cars	One Time Buyer	Monetary	Recency	Recent Purchase	Purchase Times	Simple Frequency	
1	2000000162021	U	MA	1	TRUE	96.05	1/1/2013	2577	1	2577
2	2000000212433	F	FL	3	FALSE	1458.16	2/24/2017	1062	11	234.27
3	2000000451509	M	MA	5	FALSE	1000.22	8/26/2019	149	20	128.85
4	2000000685348	F	FL	1	TRUE	123.16	1/1/2013	2577	1	2577
5	2000000877294	U	FL	1	TRUE	220.88	1/1/2013	2577	1	2577

Tire Promotion Trigger	Tire	Brake	Flush	OC	State Inspection	Regular Maintenance	First Purchase	Region	Recency Level	Frequency Level	store_number	
2	1	0	0	0	0	0	0	1/1/2013	Northeast	5	58	
8	0	1	8	42	0	0	0	1/1/2013	South	4	2	111
7	0	0	0	47	0	0	0	1/1/2013	Northeast	1	1	58
0	0	0	0	0	0	0	0	1/1/2013	South	5	5	111
4	1	0	0	0	0	0	0	1/1/2013	Northeast	5	5	111

Customer segmentation by recency and frequency

Recency:
Days since last purchase



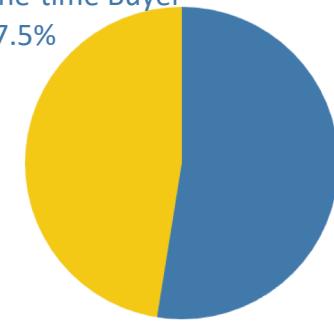
24.3%

customers come to store
in the past year

Frequency:
Average cycle time

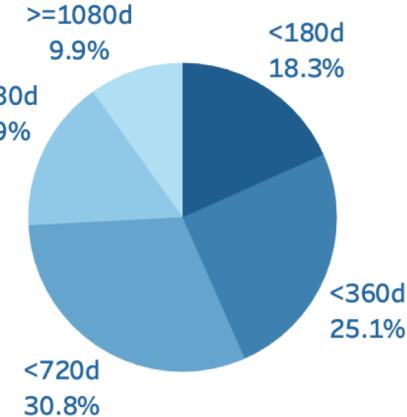
All buyers

One-time Buyer
47.5%



Only for multiple-time buyers

>=1080d
15.9%



18.3%

multiple-time buyers come to store
once every 180 days

Customer segmentation by recency and frequency - Cont.

Frequency
Avg. Cycle Time

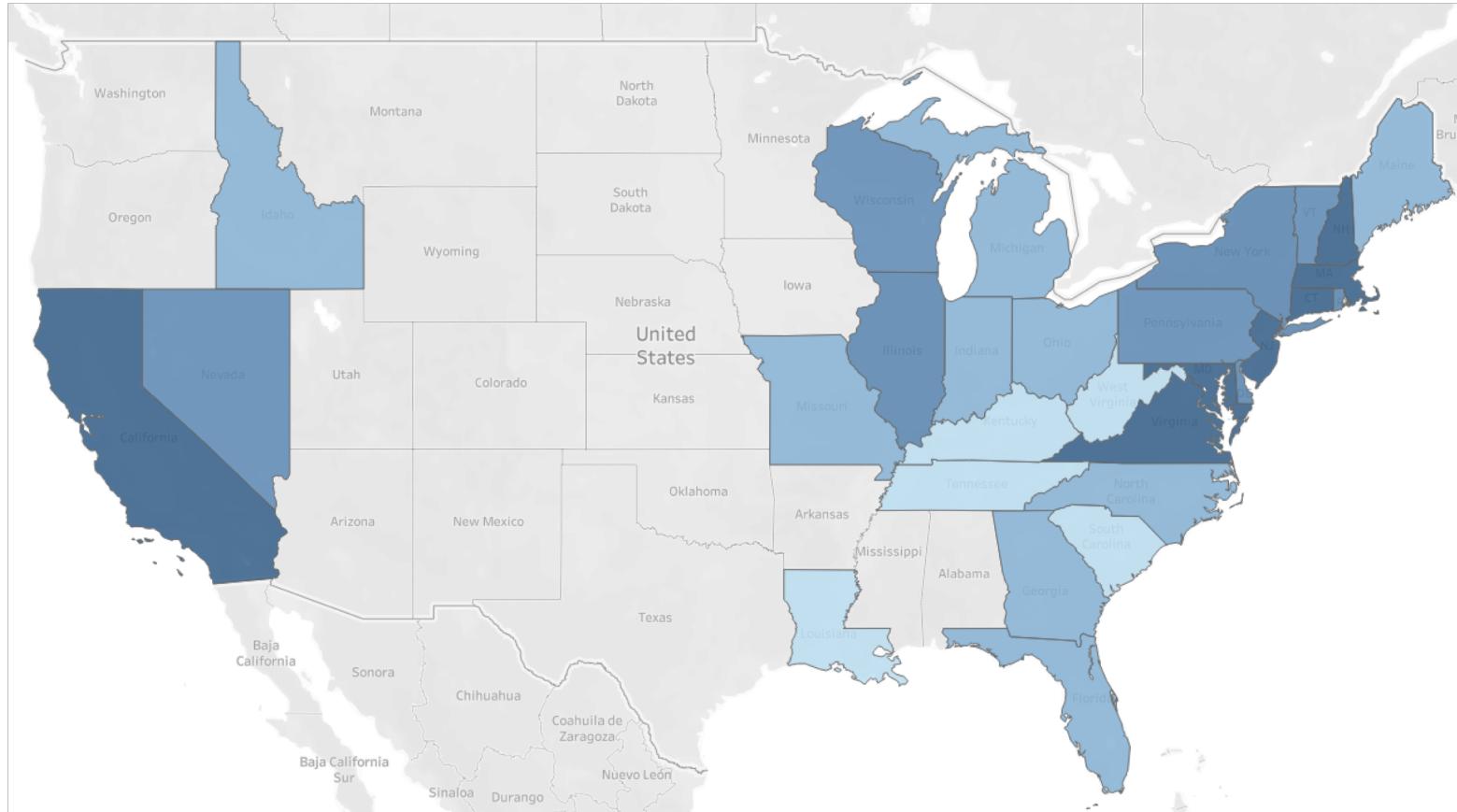
Only for multiple-time buyers

Recency
Days since last purchase



*size of squares indicates population size of segments

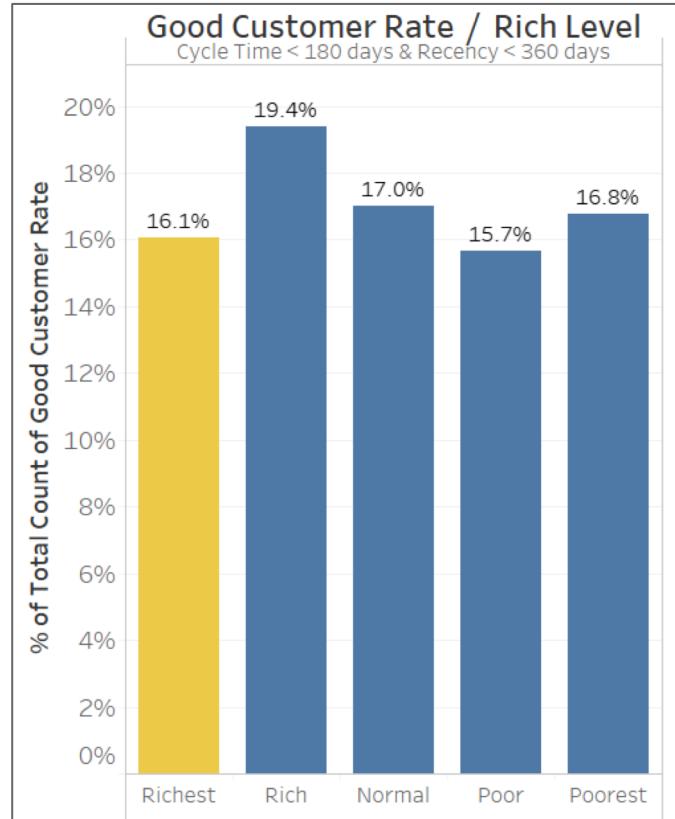
Average household income map



Higher average income ≠ better performance

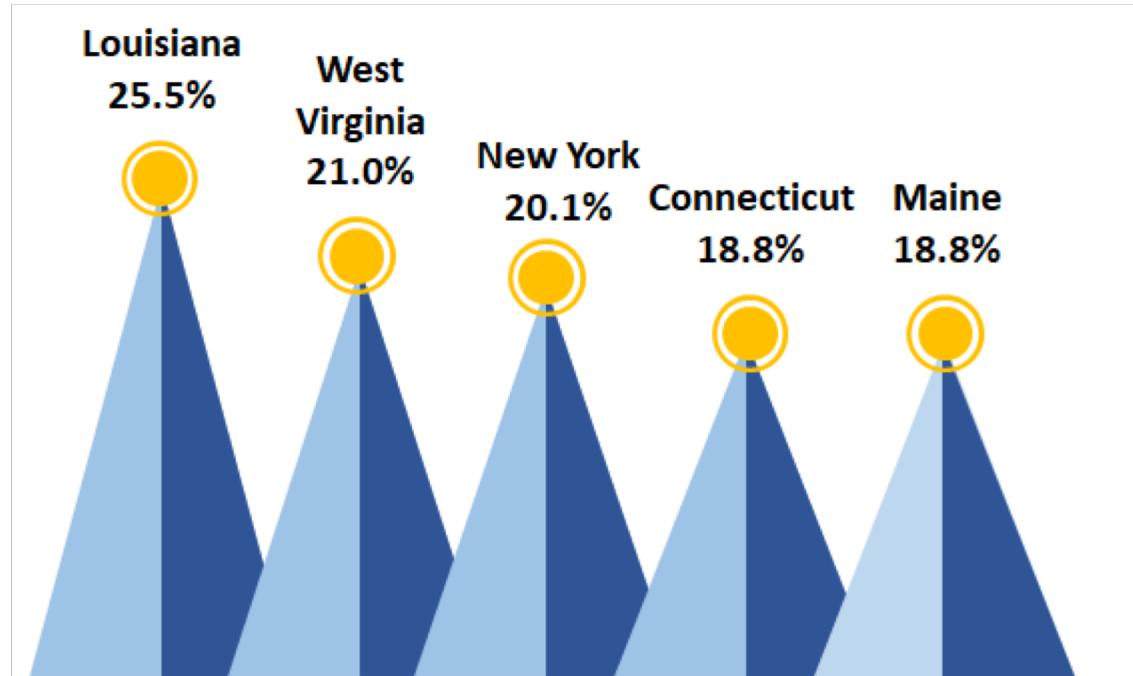
Possible Reasons:

- Lack of experience in treating luxury cars
- Hard to build reputation
- Less market competition in poorer area



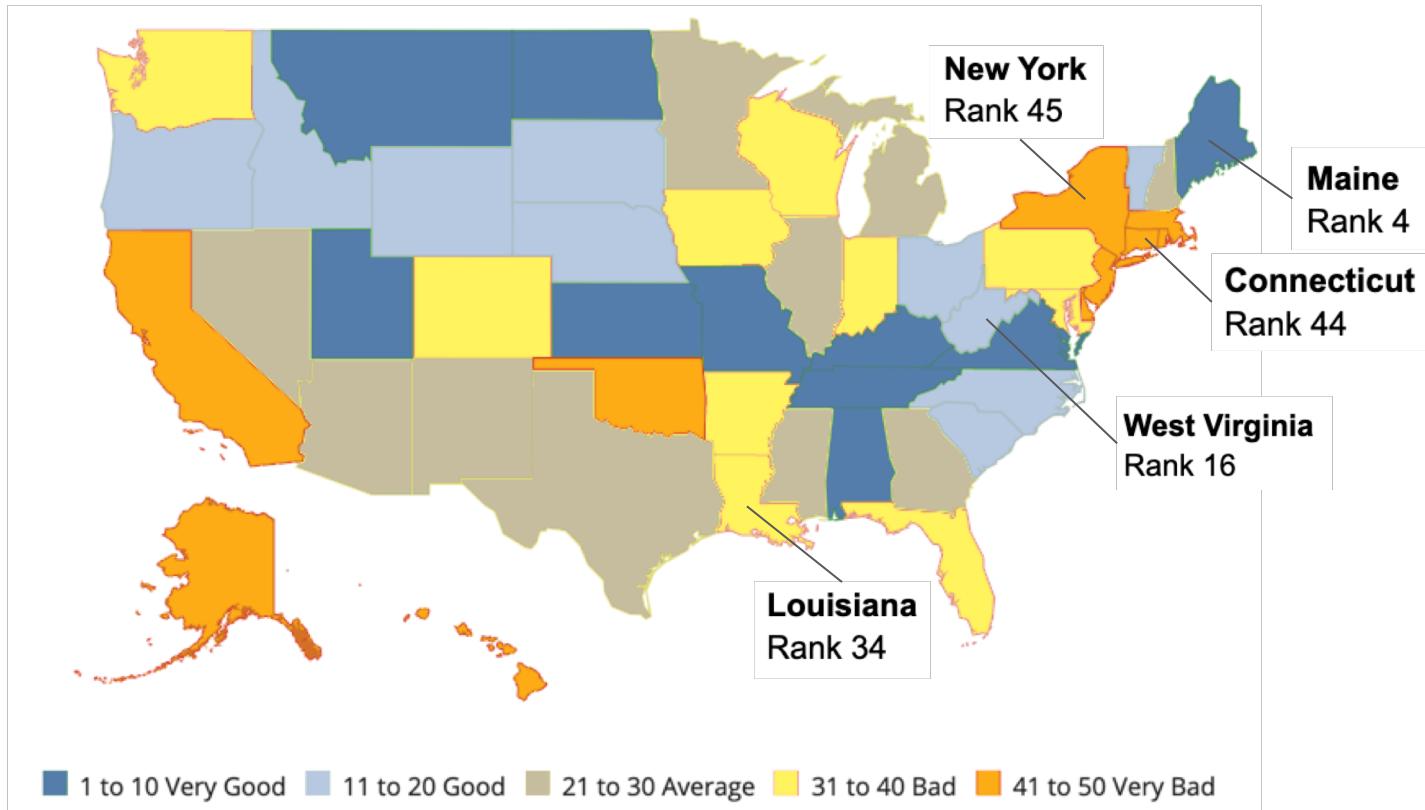
LA, WV, NY, CT, ME rank top in good customer

Top 5 states with good customer rate
(Recency <= 360 days & cycle time <= 180 days)



Poor highway quality leads to high frequency and recency

US highway quality ranking of 50 states

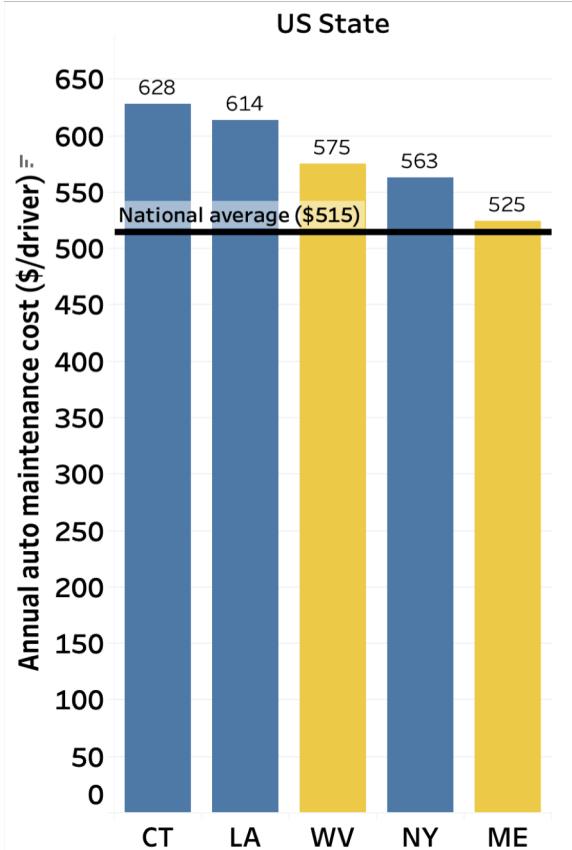


Poor highway quality leads to high frequency and recency

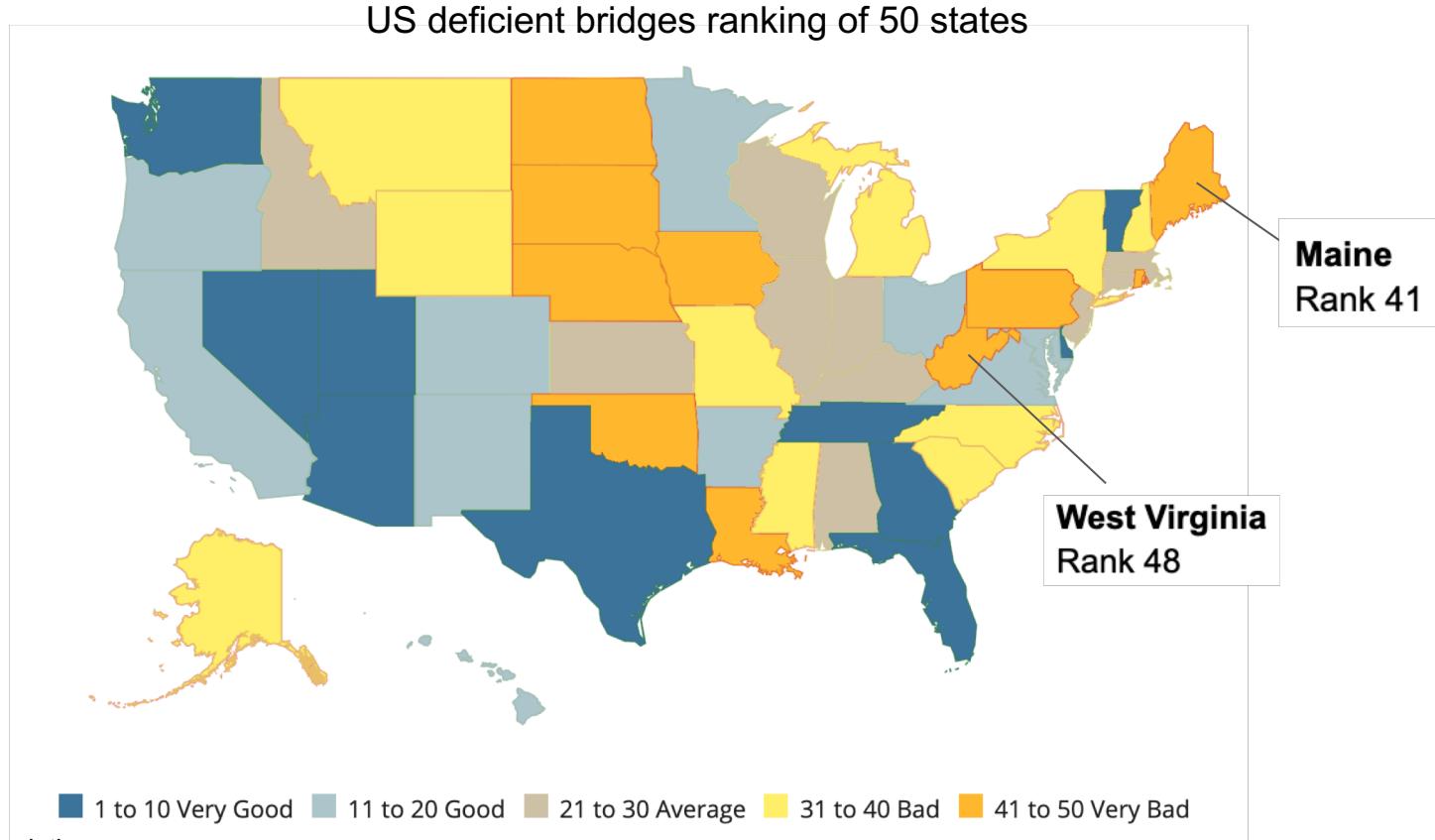
Annual auto maintenance cost per driver in five states > national average cost (\$515)

West Virginia(WV) and Maine(ME):

- good highway quality
- high maintenance cost



Poor bridge quality leads to high frequency and recency

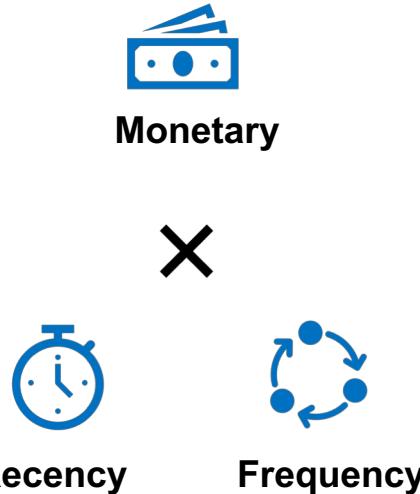


Next step-Finish Construction of RFM model

Add Monetary Analysis

Calculate Individual RFM scores

Create Dashboard to visualize



ID: 7797781

RFM scores:
12

RFM Level:
431
(Each digit represents one group of R/F/M-4/3/1)

Final Goal-Utilize value based RFM to understand real business

Define most valuable segment – Our best customer

- RFM Tiers(most recent/most frequent/most spend)
- Individual RFM Scores (meaningful cutoff)
- K-means clusters (interpretable)



Describe customer segments

- Demographic view
 - ✓ Household income/location
 - ✓ Gender
 - ✓ Own Cars
- Product view
- Store/Brand view

Marketing recommendation for valuable segments

- Store Location
- Promotion Strategy (coupon of tire and oil change)

01

02

03



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