



Customer Needs 2: Quantitative

Mini 4 / Spring 2024

THE INTELLIGENT FUTURE

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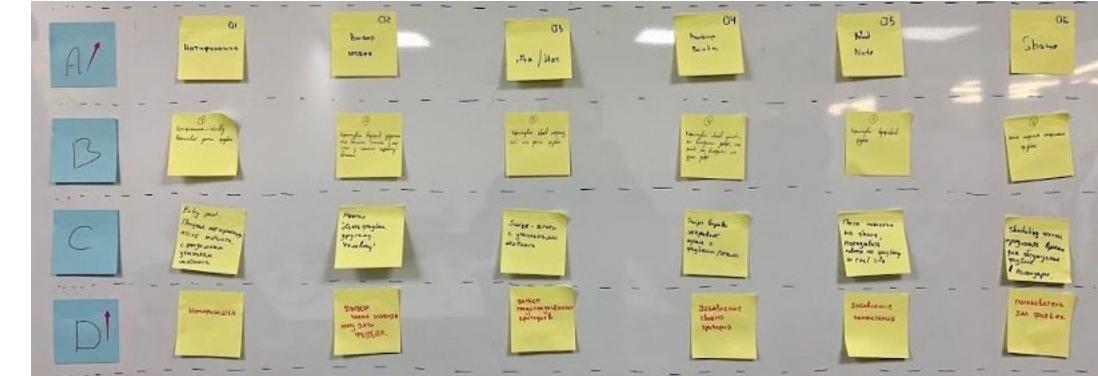
TOOLS FOR COMMUNICATING AND ALIGNING ON CUSTOMER NEEDS



user persona

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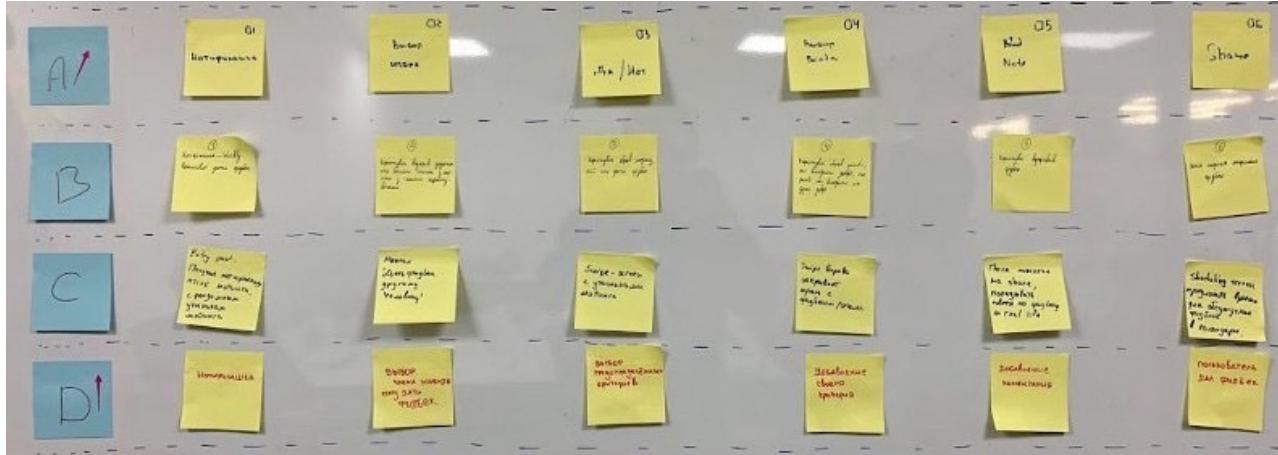
customer journey

TOOL: CUSTOMER JOURNEY / STORYBOARDING



Steps of Customer Journey

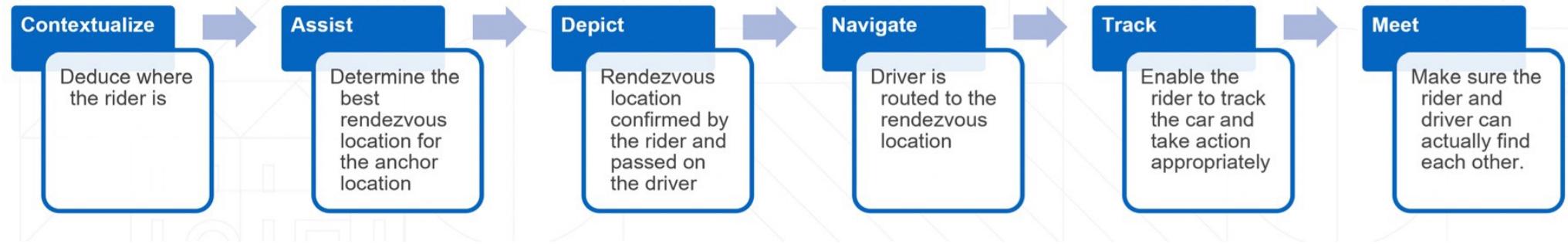
User Personas



Why?: Gives representation of story, customer needs, and “value” proposition.



EXAMPLE: CUSTOMER JOURNEY / STORYBOARDING



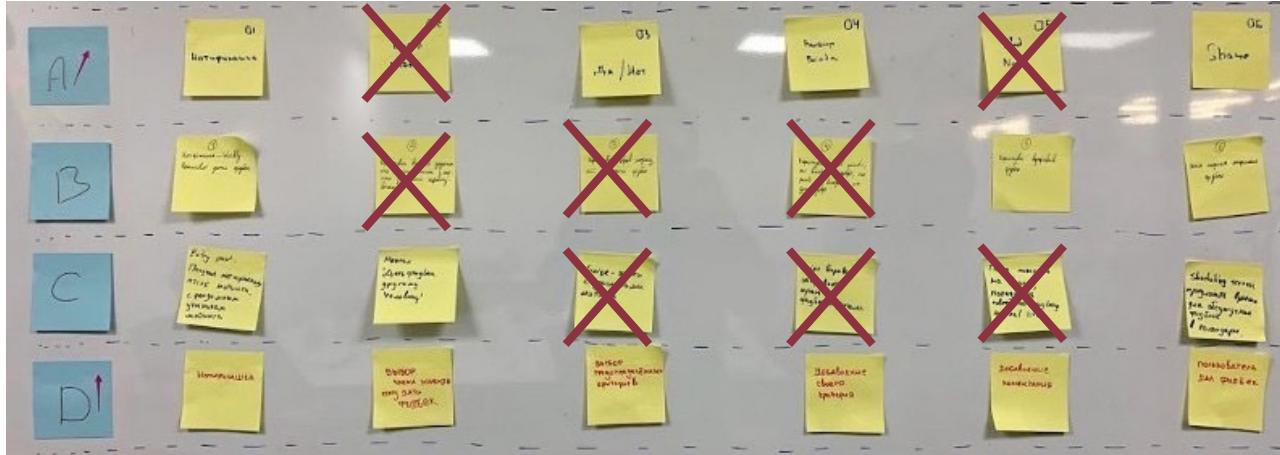
Source: Uber

Why?: Gives representation of story, customer needs, and “value” proposition.

USE CUSTOMER JOURNEY TO DEPICT ENTIRE JOURNEY. THIS CAN LEAD TO PRODUCT FEATURES THAT GET TO CUSTOMER NEED FASTER 

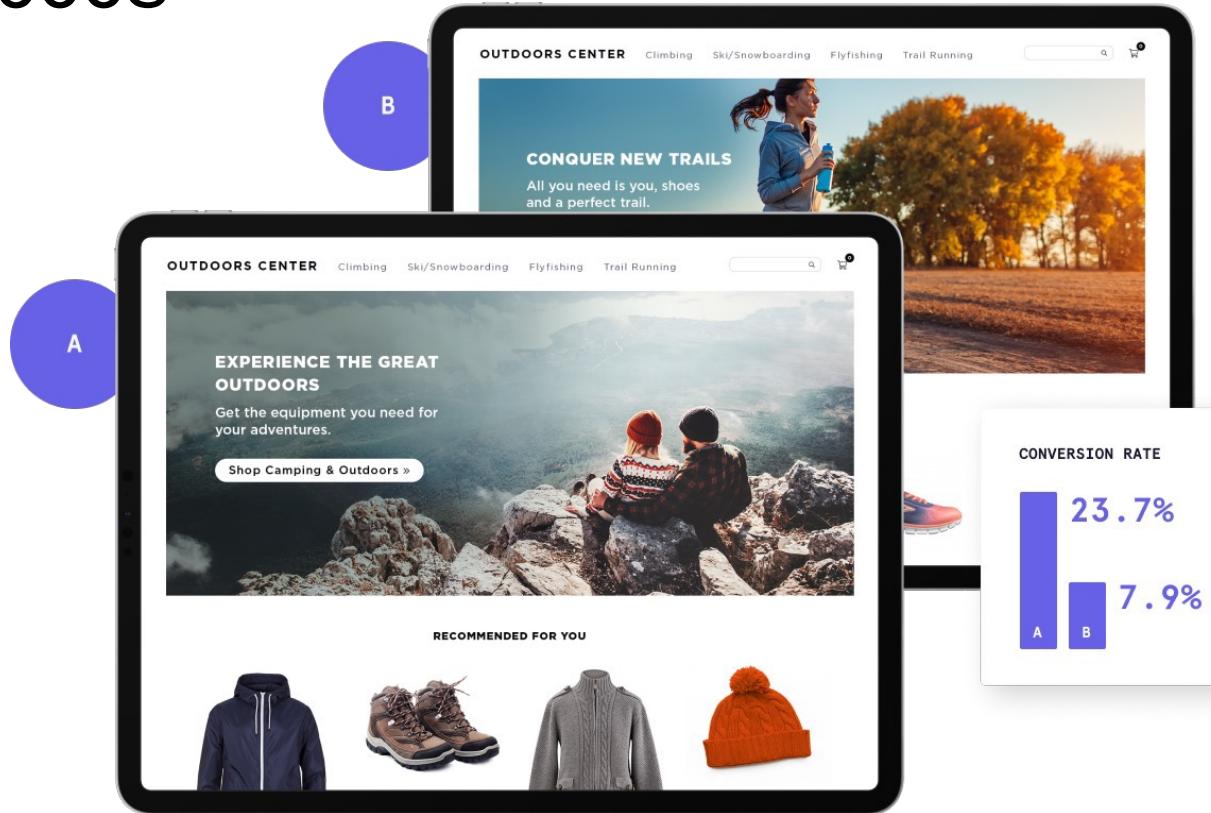
Steps of Customer Journey

User Personas



Why?: Gives representation of story, customer needs, and “value” proposition.

EXAMPLE: CUSTOMER JOURNEY FOR NEW PRODUCTS: A/B TESTING IN THE 2000S



Google Website Optimizer was the main player for A/B testing.

EXAMPLE CUSTOMER JOURNEY LEADING TO PRODUCT FEATURES: GOOGLE WEBSITE OPTIMIZER TOOK 11 STEPS INCLUDING CODING TO SETUP A SINGLE A/B TEST



11 Steps for Google Website Optimizer

1. Name your experiment. For example: Sign-up Form AB Test
2. Set your original test page URL: <http://www.mysite.com/sign-up.html>
3. Set your first variation test page URL: <http://www.mysite.com/sign-up-b.html>
4. Set your (optional) second variation test page URL: <http://www.mysite.com/sign-up-c.html>
5. Set your conversion page URL: <http://www.mysite.com/thank-you.html>
6. Add the Control Script at the top of the page
7. Add the Tracking Script at the bottom of the page
8. Add the Tracking Script at the bottom of the page
9. Add the Tracking Script at the bottom of the page
10. Add the Conversion Script
11. Review the data, test the pages using the “preview” function, and then launch your test

The screenshot shows a step-by-step setup process for a Google Website Optimizer experiment:

- 1. Original page: Add your control and tracking scripts**
Original: http://test.com
View a sample source code
Control and Tracking Script: Paste the following script immediately after the opening <head> tag of all pages.

```
<!-- Google Website Optimizer Control Script -->
<script>
function utmx_section(){}function utmx(){}
(function(){var k='1036322448'
```
- 2. Variation pages: Add your tracking script to each page**
Variation 1: http://test.com/test
Tracking Script: Paste the following script immediately after the opening <head> tag of all pages.

```
<!-- Google Website Optimizer Tracking Script -->
<script type="text/javascript">
var _gaq = _gaq || [];
_gaq.push(['_gwo._setAccount',
```
- 3. Conversion page: Add your tracking script**
Conversion page: http://test.com/thank-you
Conversion Script: Paste the following script immediately after the opening <head> tag of the conversion page.

```
<!-- Google Website Optimizer Tracking Script -->
<script type="text/javascript">
var _gaq = _gaq || [];
_gaq.push(['_gwo._setAccount',
```
- 4. Publish and validate your pages**
After you add your tags, publish your updated test, variation, and conversion pages on the web.
We will check your pages to make sure that the scripts are correctly placed.
Validate pages
Pages not accessible? Click "Validate pages" anyway. If we can't access something, we'll ask you to manually upload your pages for validation.

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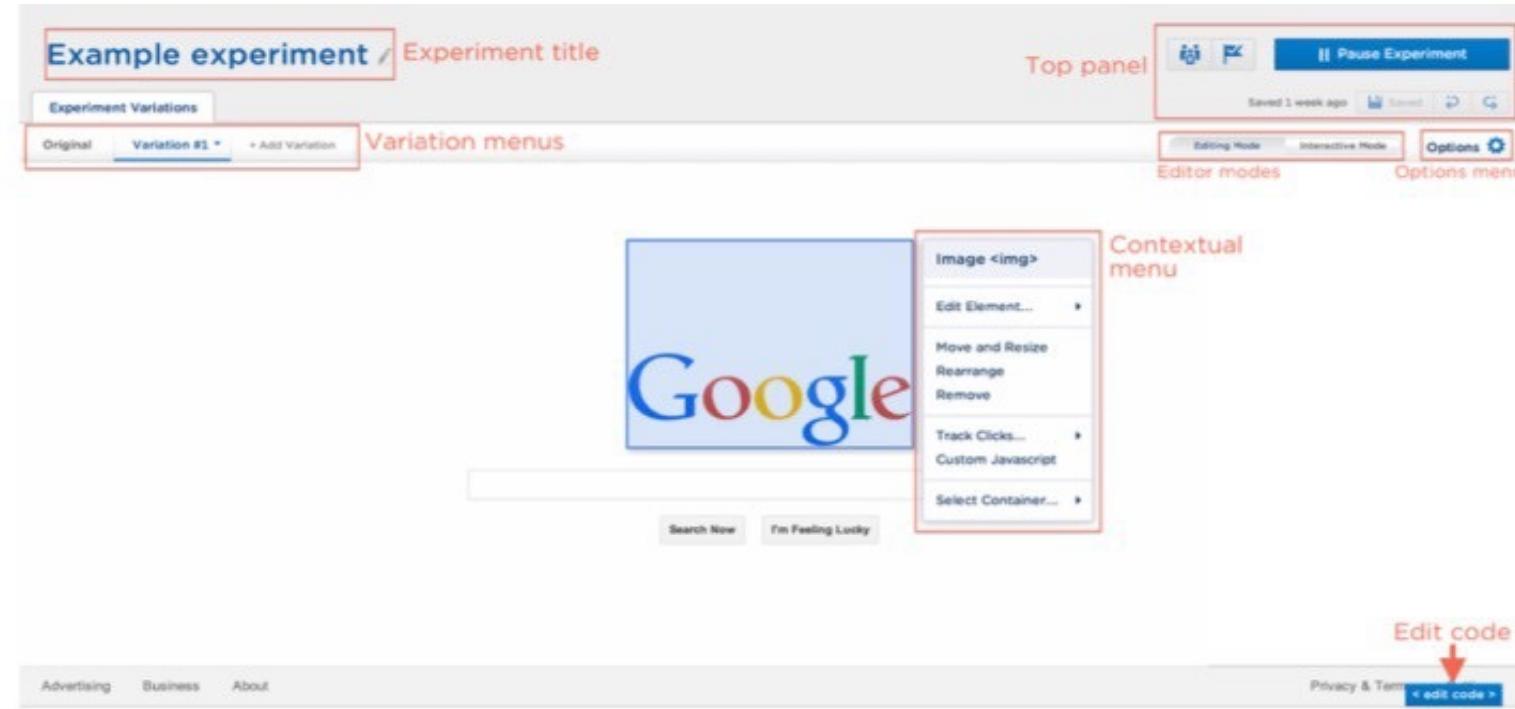
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Credit: Hiten Shah

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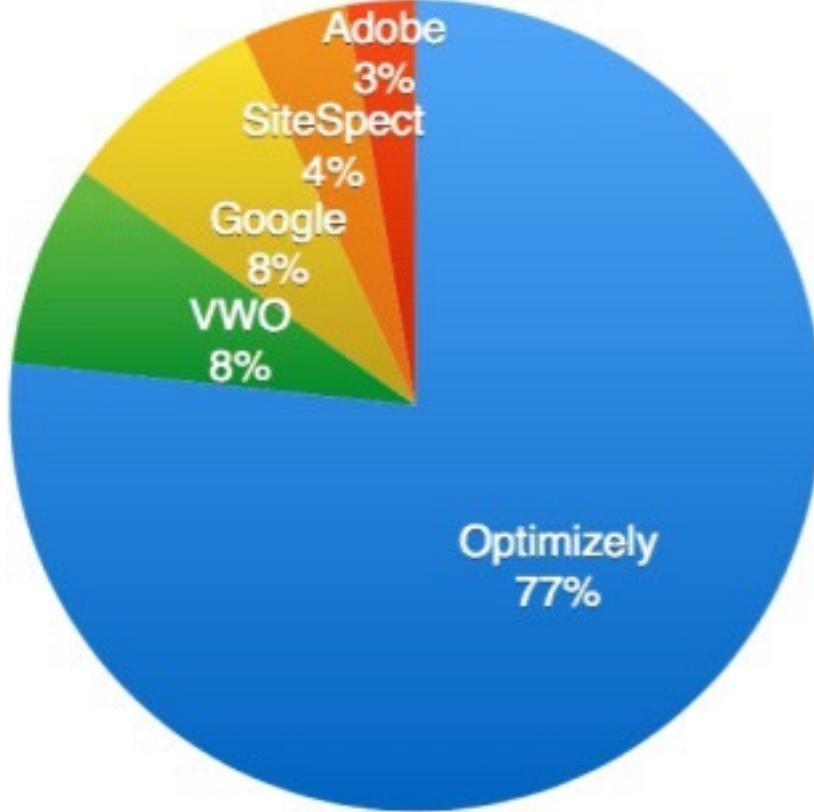


OPTIMIZELY LAUNCHED IN 2010 AND ONLY REQUIRED 3 STEPS IN CUSTOMER JOURNEY



- Customer journey: Google 11 Steps -> Optimizely's 3 Steps
- Product Features
 - Graphical user interface (doesn't require coding!)

OUTCOME: 90% REDUCTION IN GOOGLE'S MARKETSHARE



CAPABILITIES	Optimize 360	Optimizely	VWO
Google Integrations	Code snippet within GTM Native	✗ 3rd Party	✗ ✓
	Integration with GA 360 Third party Integration with heatmap technology (e.g: crazyegg)	✓ ✗	✓ ✓
Experiment Types	Multivariate experiments Redirect experiments (Split URL test) Multi page experiments Dual Capabilities (Conduct Testing and personalization)	✓ ✓ ✓ ✗	✓ ✓ ✓ ✗
Visual editor	User friendly visual editor HTML,JS,CSS editor Mobile App testing	✓ ✓ ✗	✓ ✓ ✓
Targeting	GA Audience Segment for testing Analytic goals for testing Target DataLayer variables from GTM for testing Ability to prioritize customized experiences, where users may qualify for more than one experience	✓ ✓ ✗ ✓	✗ ✗ ✓ ✗
Reporting	Test report Annotation Shareable test reports from testing dashboard Statistical Methodology	✗ ✗ Bayesian Method (Advanced)	✓ ✓ 2-tailed likelihood ratio test Binomial Random Variable



VOICE OF THE CUSTOMER FOR COURSE PROJECT

Course Project

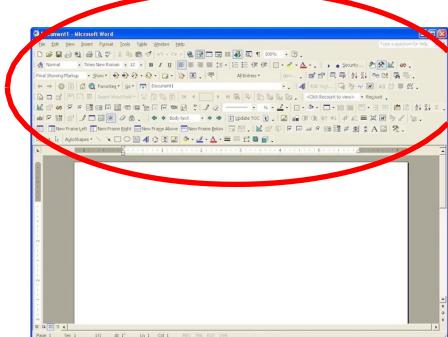
Your Course Project requires:

- Conduct **3 customer interviews** for customers in the market and product category.
- Collect at least **5 pieces of user-generated content (UGC)**.
- Identify at least **10 total customer needs**.
- Downselect to **3 “primary” customer needs** using an affinity map.
- Define **3 market segments** on needs and quantified importances to each segment.
- Define **1 target segment** with unmet needs aligned with our strategic business context.

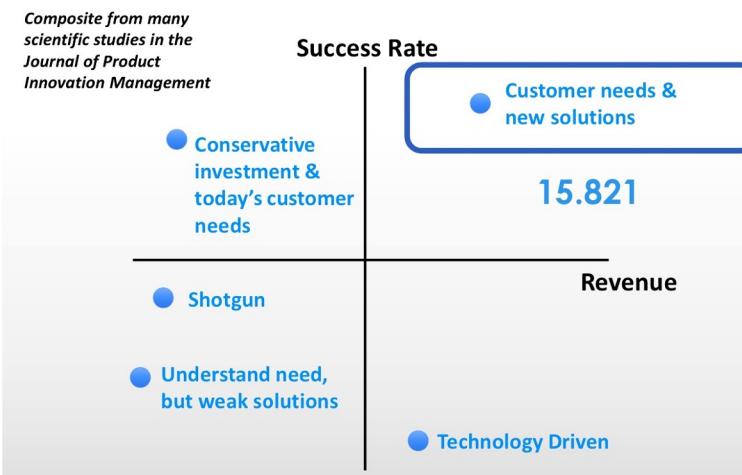
NOT UNDERSTANDING OUR CUSTOMER WILL LEAD TO PRODUCT FAILURE



- New products: 90+% of new digital products fail (this is underestimate)
 - With VC funding, often a premature push for growth without product-market fit: Cuil, Webvan, Joost, Google Wave, Slide
- New Products: Even the major(Siemester, 2016) products fail
 - only 40% still sold after 3 years
 - Hardware products have longer development timescales, so we often can better understand and quantify customer needs than software.
- Existing products: Easy to fall into “feature factory” trap
 - What? We (the PMs) get complacent with not continually understanding our customer and their needs, brainstorm our own feature ideas, and ship them.
- #1 reason for failure – no market need. (CB insights 2020)
 - Majority of successful startups developed by those over age of 30. And 60 year old are 3x more successful than 30 year old.
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Reminder: your course project requires you talk to customers



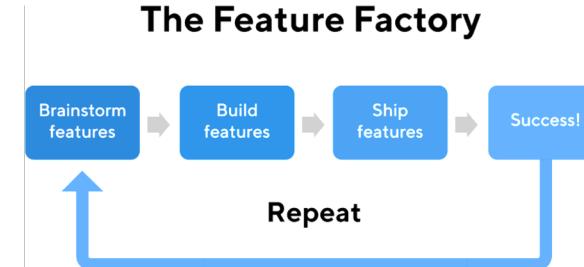
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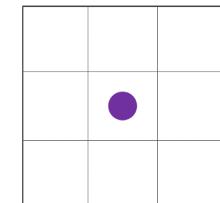
INITIAL COMMENTS: WHY CAN'T WE JUST BRAINSTORM FEATURES, LAUNCH THEM, AND A/B TEST EVERYTHING?

- Q: Can we A/B test everything?
 - Simple example: Different Button Color, Media Type, Button Text
- A (mathematical reason): No we can not...
 - # of possible product feature states grows exponentially
 - Still need VOC to understand consumers and propose features to satisfy needs
- A (practical reasons): No we can not...
 - Each feature takes weeks to months to engineer
 - Development, QA/testing, release, monitoring
 - Each feature takes weeks to months to design
 - Design clinics, usability testing
 - Each feature takes weeks to months to A/B test
 - Who is right control/treatment? How many can I get in timescale? How can I ensure SUTVA and statistical significance?

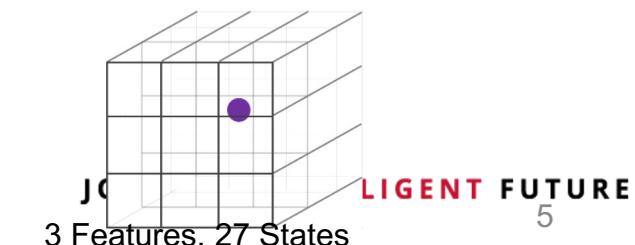
The Feature Factory



1 Feature, 3 States



2 Features, 9 States



3 Features, 27 States

■ Much much more in the A/B Testing classes

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LAST CLASS: IDENTIFYING AND DOWNSELECTING CUSTOMER NEEDS

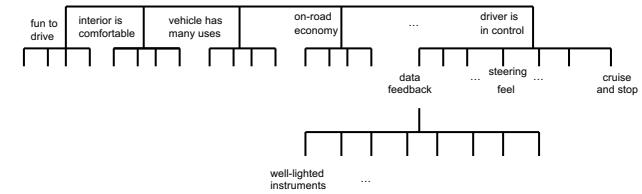
■ Step 1) Identification

- Identify full set of customer needs by listening to customer



■ Step 2) Downselection

- Summarize customer needs in managerially relevant hierarchy



■ Step 3) Measurement and Prioritization

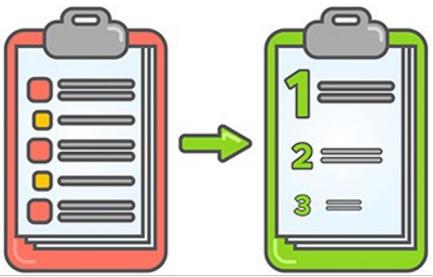
- Measure customers preferences to prioritize customer needs for the firm
- This class: Measure and prioritize (primary) customer needs, and segment customers based on prioritized needs.

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TOPIC PRESENTATION (TEAM 2)



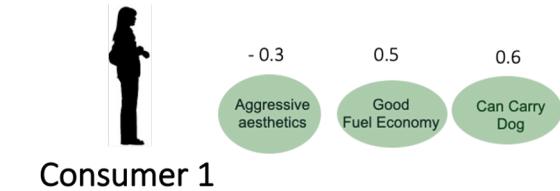
How to Prioritize Customer Needs (Dan Olsen)

TODAY'S LEARNING OBJECTIVES



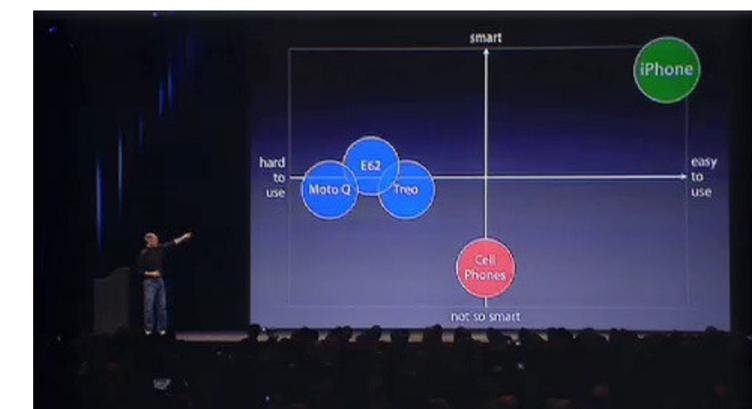
■ Theory: Quantifying Customer Needs

- Mathematically define a customer as a “bundle of importances” over customer needs
- Product is a “bundle of features” and how well features satisfy needs
- Satisfying needs gives “value” to customers.
- Value is Relative to the consumer’s competitive set.



■ Measurement and Prioritization of Customer Needs (VOC Step 3)

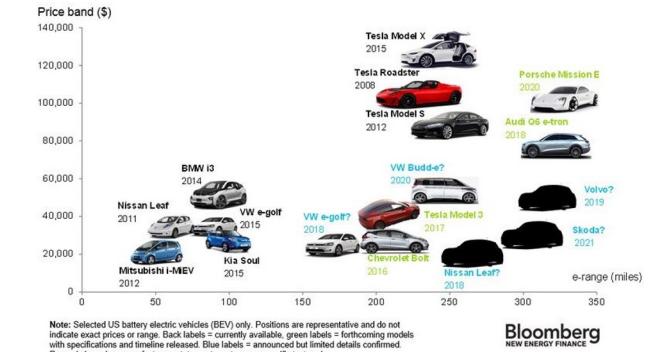
- Direct elicitation
- Conjoint analysis



WHY QUANTIFY NEEDS? WIDELY USED (AND MISUSED). OVER 20,000 APPLICATIONS YEARLY. OVER 90% FORTUNE 500.



- Apple iPhone
 - Microsoft
 - Uber
 - Mozilla
 - LensCrafters
 - Website to match buyer/sellers of pets
 - EZPass system
 - Courtyard by Marriott
 - RIM's Blackberry smartphones
 - SiriusXM service
 - AMEX card service
 - Intel chips
 - Hallmark Cards
 - Procter & Gamble
 - GM (OnStar, Northstar engine, bumper-to-bumper warranty)
 - Audi product-line design
 - Boeing employees credit union
 - Canadian Dept of Fisheries and Oceans
 - ...
- 4.69% FORD F SERIES
2.90% TOYOTA CAMRY
2.85% HONDA ACCORD
2.51% CHEVROLET SILVERADO
2.17% HONDA CIVIC
1.98% TOYOTA COROLLA
1.91% DODGE RAM
1.54% FORD TAURUS
1.44% FORD EXPLORER
1.29% FORD RANGER
1.29% CHEVROLET C/K
1.26% NISSAN ALTIMA
1.24% GMC SIERRA
1.17% DODGE CARAVAN
1.08% JEEP GRAND CHEROKEE
1.07% CHEVROLET IMPALA
0.96% FORD MUSTANG
0.95% CHEVROLET MALIBU
0.93% FORD ECONOLINE
...
200 more vehicle models around ~0.3%-1.0%



4-STEPS FOR DESIGNING PRODUCTS QUANTITATIVELY



■ Step 1) Measurement of Need Importance

- Measure importances of customer needs.
- Needs change over time, so do need importances

■ Step 2) Needs Prioritization and Segmentation

- Discover segments as customers with similar needs importances



Prince Charles

- Male
- Born in 1948
- Raised in the UK
- Married twice
- Lives in a castle
- Wealthy & famous

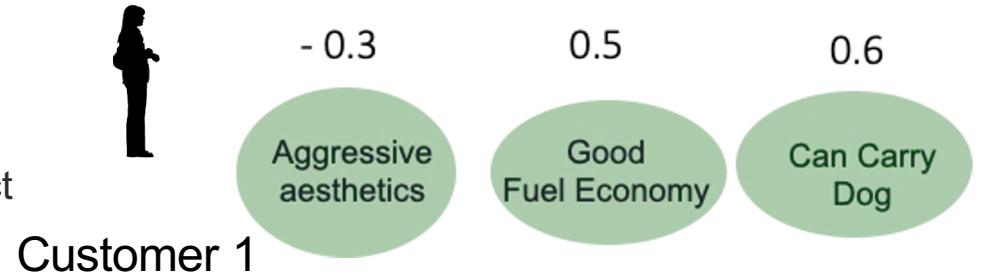


Ozzy Osbourne

- Male
- Born in 1948
- Raised in the UK
- Married twice
- Lives in a castle
- Wealthy & famous

■ Step 3) Opportunity Sizing

- Find unmet needs and size opportunity of satisfying needs
- Prioritize based on satisfying needs while accounting for product strategic goals



■ Step 4) Propose and Develop New Product Features

- Propose and develop product features to satisfy segment needs and strategic goals of firm.

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“VALUE PROPOSITION”: PRODUCT FEATURES GIVE CUSTOMERS “VALUE” BY SATISFYING NEEDS



■ Satisfying Customer Needs using Product Features gives “value” of our product to customers

- You may have heard “Value Proposition”



?



■ Utility theory is mathematical theory of “value”

- “Value” or “utility” puts customer needs on the same scale for comparison (e.g., mpg vs price vs aesthetics)

■ Many methods you have seen built on utility theory:

- Churn modeling
- Discrete Choice Models
- A/B Testing
- Recommender Systems
- Conjoint analysis



John von Neumann
(father of utility theory)

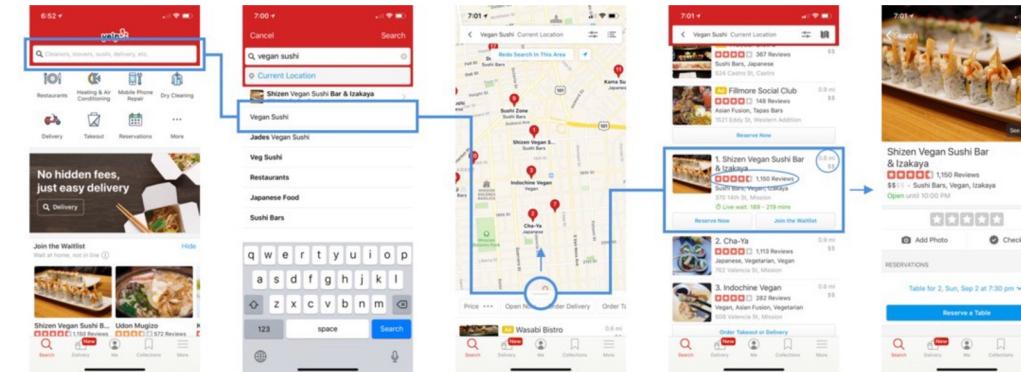
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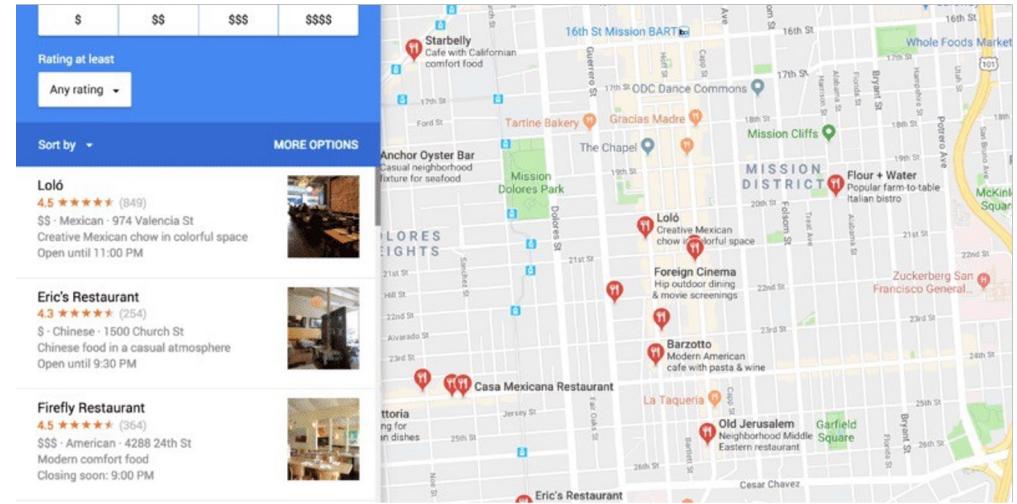
“VALUE” IS A RELATIVE METRIC. THIS IS CRITICAL WHEN CONSIDERING COMPETITOR PRODUCT FEATURES



Yelp



Google



“Value Proposition of
Yelp” 1.20

“Value Proposition of Google
Maps” 0.80

“VALUE” IS A RELATIVE METRIC



■ Competitive Set

- What else is customer comparing your product to?



■ Customer awareness

- Does customer know their own preferences / needs or do they need to discover them?
- Does customer know what product features are feasible or not?



Ford Mustang

TV

■ Next Up: Brief intuition behind mathematical theory of “value” from product features.

Example: Focus Group Quote

“I’d love to buy a nicer TV, but I’ll hold off if getting the GT version [of the Mustang].”

DEFINITION: CUSTOMER NEED “IMPORTANCE”



- “Importance” also called (in some frameworks):

- “impact”
- “preference coefficients”
- “severity”
- “part-worths”

- Example: Customer Needs for Car

- Customer = [-0.3 0.5. 0.6]
- Customer places negative importance on “aggressive aesthetics”
- Good fuel economy is important to her, but not as much as ability to carry dog

Customer Needs

Aggressive aesthetics

Good Fuel Economy

Can Carry Dog



“Importance”
of Each Need

- 0.3

0.5

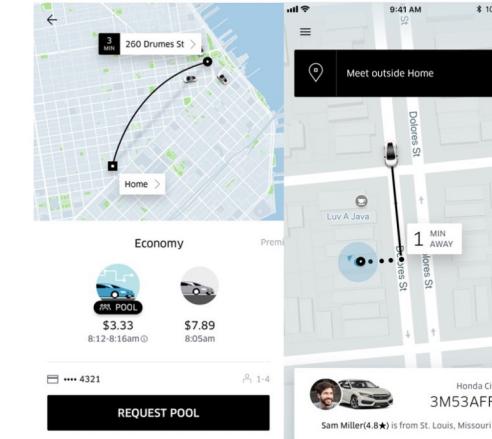
0.6

EXAMPLE: UBER POOL QUANTIFIED CUSTOMER NEED IMPORTANCE FOR DIFFERENT NEEDS SEGMENTS TO LAUNCH EXPRESS POOL



■ Qualitative Need

- A rider from NYC said “I would never take POOL when I need to be somewhere at a specific time”



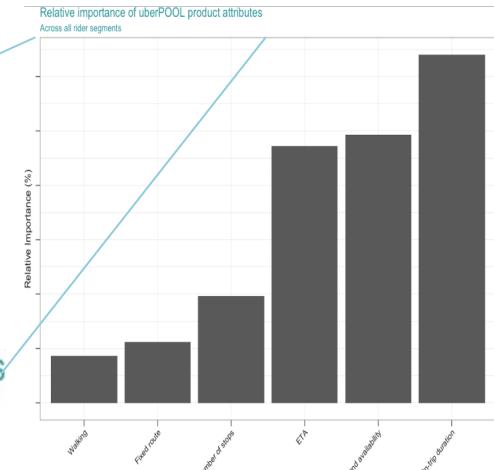
■ Quantifying the Need

- Target customers will walk X feet and wait Y minutes longer if paying Z less dollars

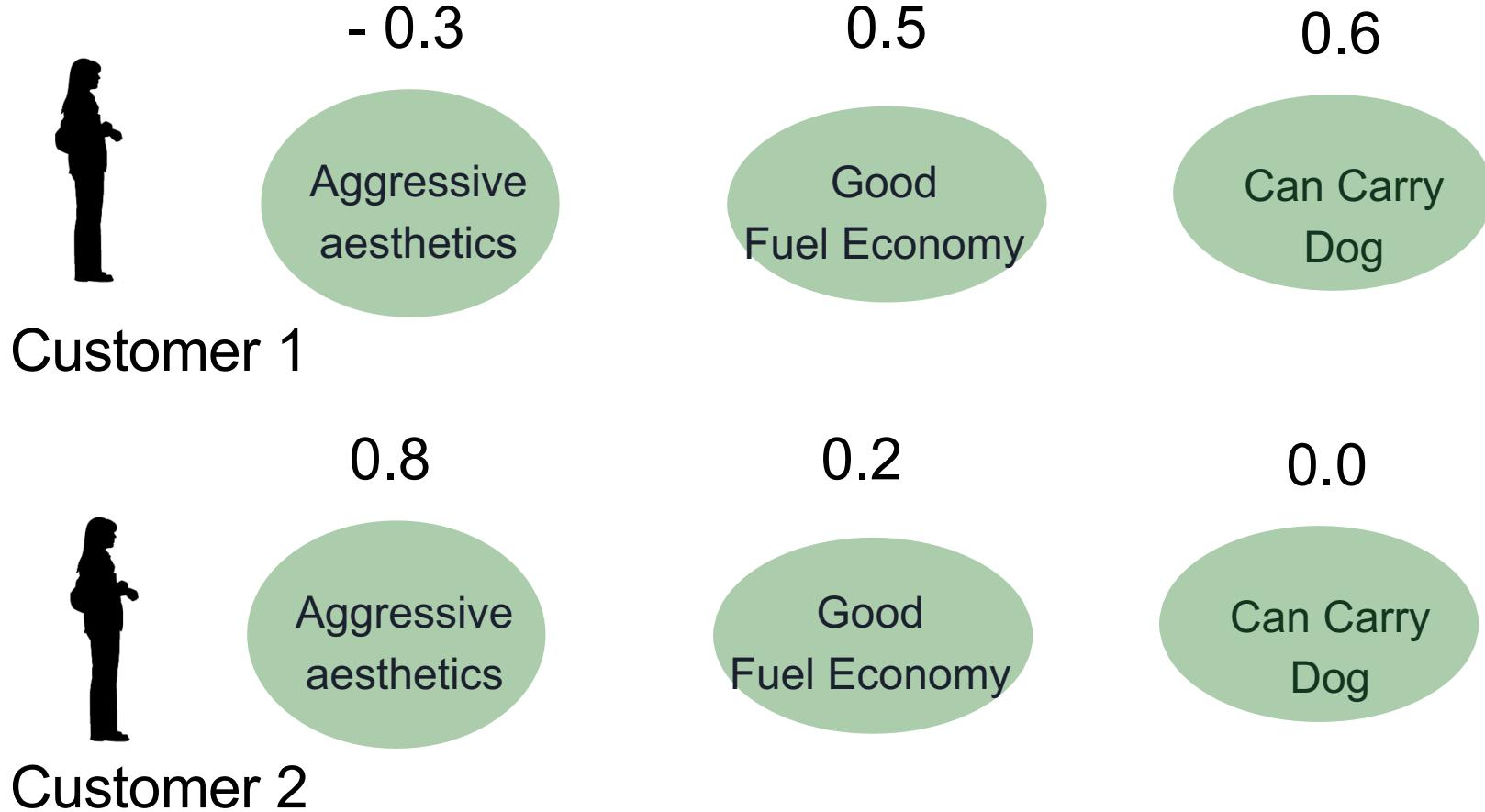
■ Outcome

- UberPool becomes 20%+ of all Uber trips

Relative importance of uberPOOL product attributes
Across all rider segments



DEFINITION: CUSTOMER HETEROGENEITY (DIFFERENT CUSTOMERS HAVE DIFFERENT NEED IMPORTANCES)



DEFINITION: NEED SATISFACTION

PRODUCTS ARE “BUNDLES OF FEATURES” AND HOW WELL FEATURES SATISFY CUSTOMER NEEDS



Product 1

- 0.5

Aggressive aesthetics

0.7

Good Fuel Economy

0.5

Can Carry Dog



Product 2

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0.7

Aggressive aesthetics

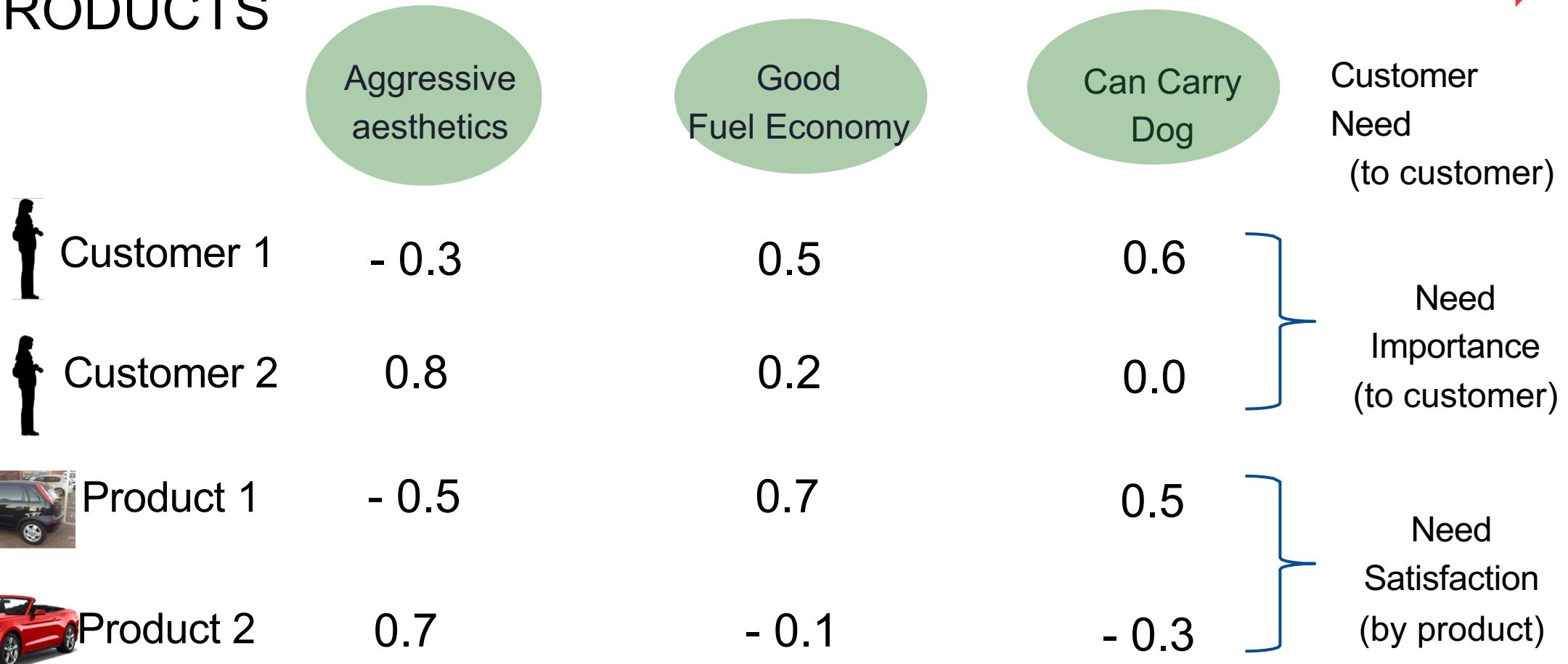
-0.1

Good Fuel Economy

- 0.3

Can Carry Dog

MATHEMATICALLY REPRESENTING CUSTOMERS AND PRODUCTS



PRODUCTS GIVE CUSTOMERS “VALUE” BY SATISFYING THEIR NEEDS



Customer 1



Product 1

*



=

$$= -0.3 * -0.5 + 0.5 * 0.7 + 0.6 * 0.5 \\ = 0.80$$



Customer 1

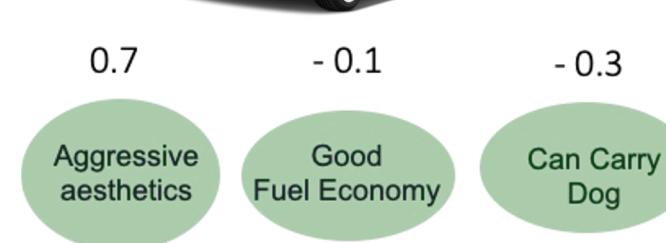


*



Product 2

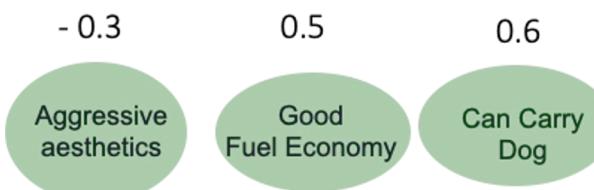
=



=

$$= -0.3 * 0.7 + 0.5 * -0.1 + 0.6 * -0.3 \\ = -0.44$$

QUESTION: CALCULATE HOW MUCH “VALUE” CUSTOMER 2 GETS FROM PRODUCT 1 AND PRODUCT 2



Product 1



Product 2

MATHEMATICALLY

Customer

$$\beta_i = [\beta_{i,1}, \beta_{i,2}, \dots, \beta_{i,K}]$$

Product

$$x_j = [x_{j,1}, x_{j,2}, \dots, x_{j,K}]$$

“Value” or Utility

$$U_{i,j} \equiv U_{i,j}(\beta_i, x_j)$$

β	Customer (Vector of needs importances)
x	Product (Vector of product features)
i, j	i -th Customer, j -th Product
K	# of Customer Needs
$U_{i,j}$	“Value” or Utility



CUSTOMER CHOICE: CUSTOMERS MAXIMIZE UTILITY TO PURCHASE OR CHOOSE PRODUCT THAT GIVES HIGHEST “VALUE”

- Customers “maximize value” by choosing the product with most value (a.k.a., maximize “utility”)
- “Does our product give better value proposition than our competitors?”
- Why important? Customers that choose our product is required for product-market fit (PMF).
 - Example: Subscription product like Spotify
 - Customers that continually choose Spotify over Tidal and Apply Music are “retained”

Customer i will choose product j
if $U_{i,j}(\beta_i, x_j) > U_{i,q}(\beta_i, x_q)$
for all other products in market



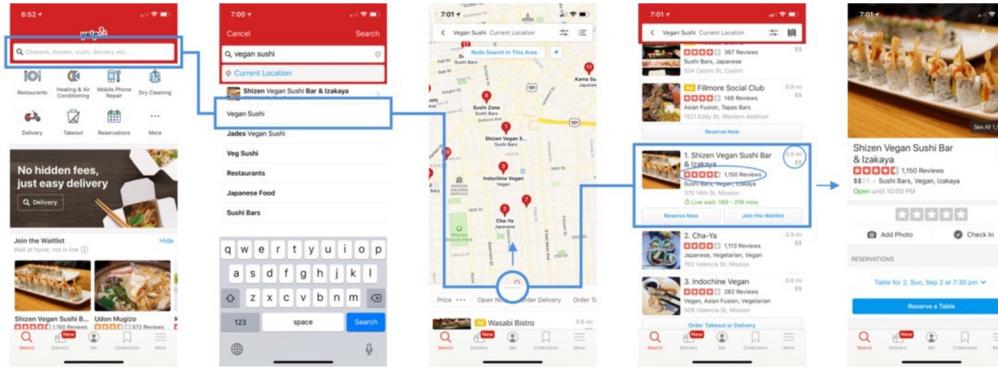
Customer β



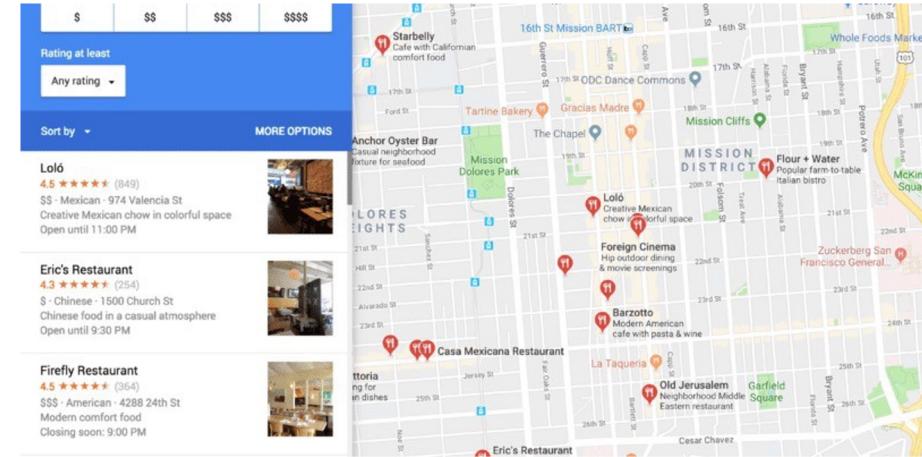
Product x



RECAP: “VALUE” IS A RELATIVE METRIC, AND MORE VALUE LEADS TO CUSTOMER CHOICE. THIS IS CRITICAL WHEN CONSIDERING COMPETITOR PRODUCT FEATURES.



“Value Proposition of Yelp for Restaurant Discovery” 1.20



“Value Proposition of Google Maps for Restaurant Discovery”
0.80

MEASUREMENT AND NEEDS PRIORITIZATION (VOC STEP 3) : HOW DO WE GET IMPORTANCES FOR CUSTOMER NEEDS?



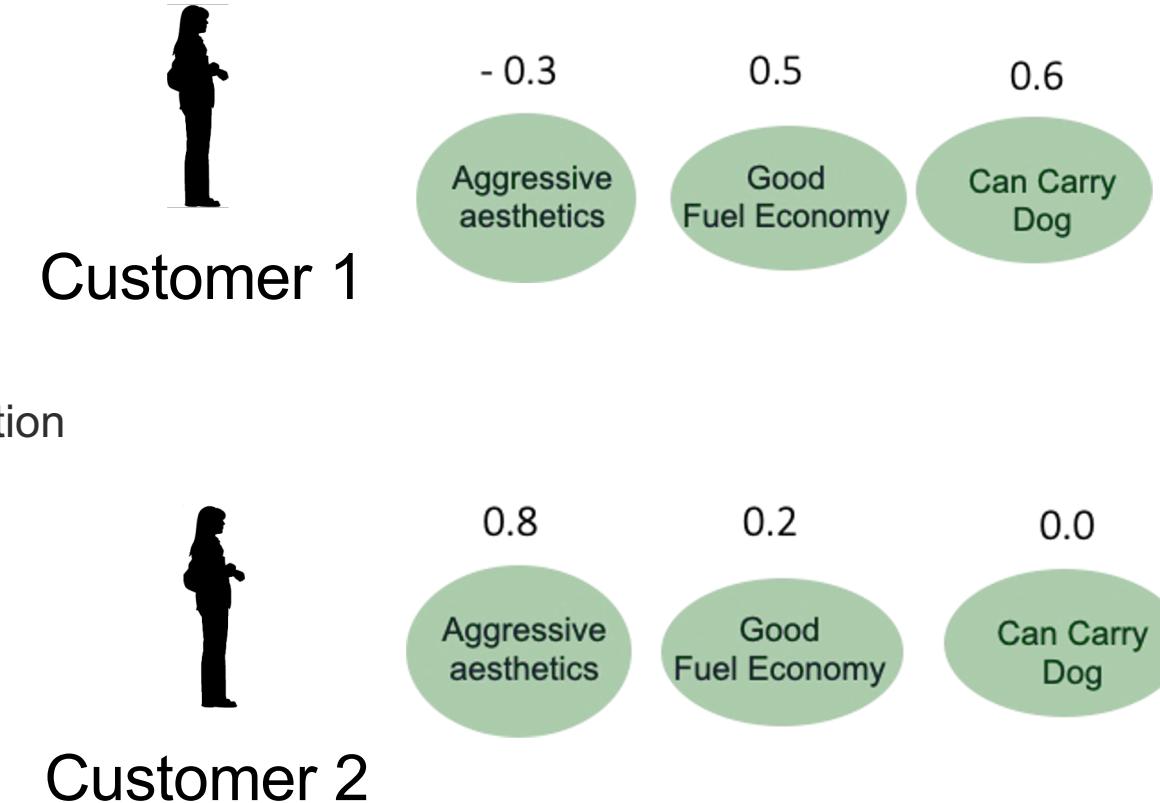
- Two methods in this class: “How do we get importances for customer needs?”

- Method 1) Direct Elicitation

- Stated Preferences via a survey
- Example of 3 ways of asking same survey question

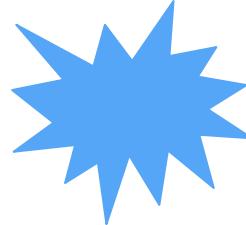
- Method 2) Conjoint Analysis

- Stated Preferences
- Revealed Preferences



QUANTIFYING NEEDS TO IDENTIFY HIDDEN OPPORTUNITIES: CUSTOMER NEED IMPORTANCE AND EXISTING PRODUCT SATISFACTION

Importance
(of customer need)



Customer's Satisfaction
(of existing product or features)





HIDDEN OPPORTUNITIES

- KAO (Japanese company)

identified a hidden opportunity. Small homes, small stores, walk or bike.

- customer needs = easier to store at home, less shelf space, easy to transport
- contrast to US



**existing product or features
(Tide Laundry Detergent)**

- “Attack” revolutionized market(s)



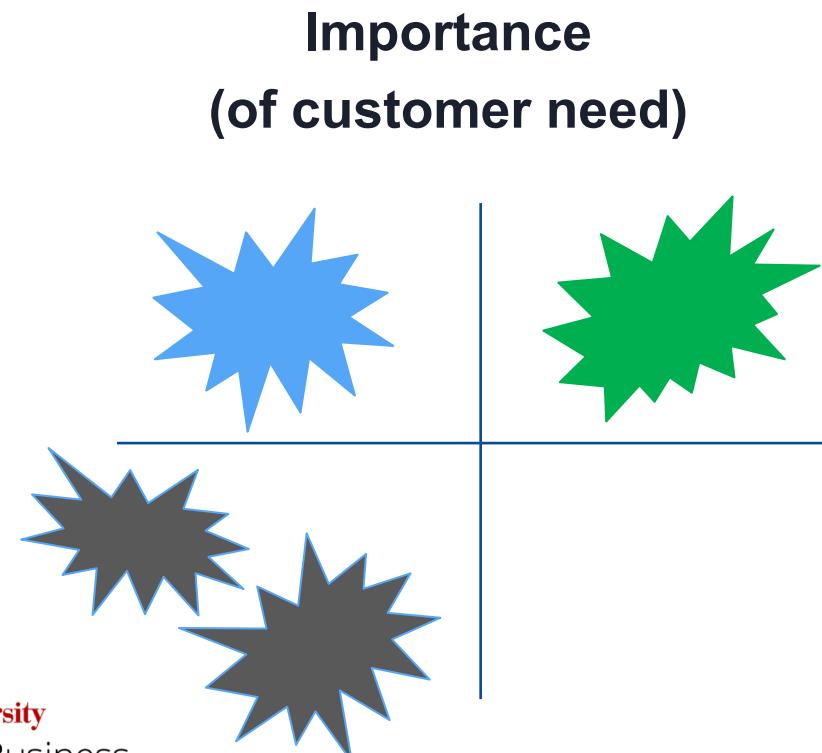
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COMMON PITFALL: LOW RATINGS MAY NOT MEAN LOW IMPORTANCE

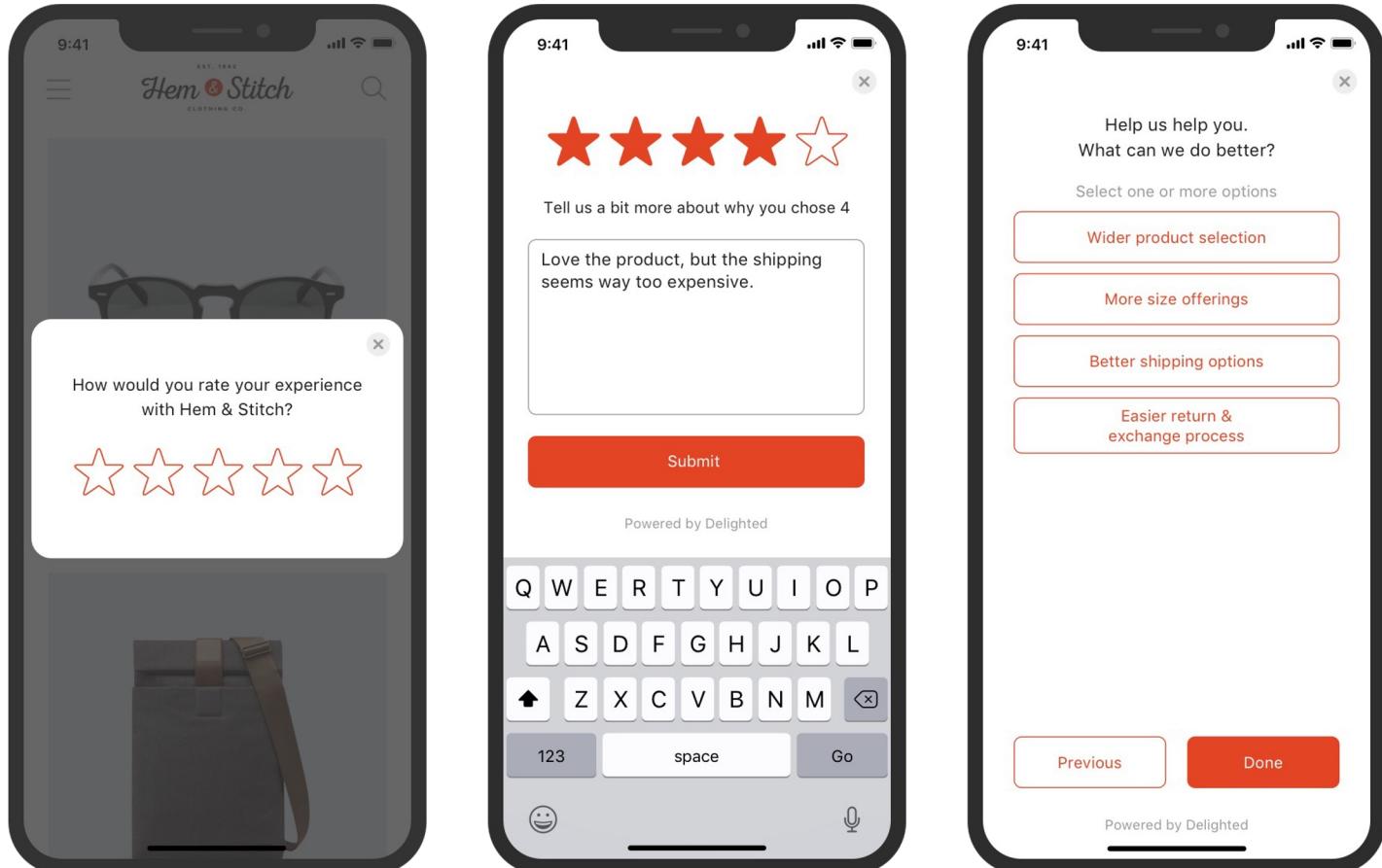
- Rated poorly
 - high importance but needs met by competition
 - low importance because not valued
 - low importance because believe not feasible



Customer's Satisfaction
(of existing product or features)

DIRECT ELICITATION

(METHOD 1 IN THIS CLASS FOR QUANTIFYING CUSTOMER NEED IMPORTANCES)



DIRECT ELICITATION: RANKING



When thinking about choosing a laundry detergent, please rank the following according to how important is it that the laundry detergent:

Cleans your clothes well [1]

Is safe and gentle for synthetic fibers [5]

Is good for the environment [6]

Clothes are ready to wear after drying [3]

It is easy to do the laundry [4]

My clothes smell fresh and clean [2]

Good value for the money [7]

Question: Rank these according to your importances. Talk us through your thought process for ranking

Please use the numbers 1-7 to rank the above with 1 being
your most important need and 7 being least important.

What are the pros/cons of this type of direct elicitation?

DIRECT ELICITATION: T-SHIRT SIZING / LIKERT SCALE



When thinking about choosing a laundry detergent, please indicate how important is it that the laundry detergent:

Cleans your clothes well []

Is safe and gentle for synthetic fibers []

Is good for the environment []

Clothes are ready to wear after drying []

It is easy to do the laundry []

My clothes smell fresh and clean []

Good value for the money []

Please fill in the above with “Must Have,” “Should Have,” “Nice to Have,” “Not Important” to indicate your needs and their importances.

DIRECT ELICITATION: T-SHIRT SIZING / LIKERT SCALE



When thinking about choosing a laundry detergent, please indicate how important is it that the laundry detergent:

Cleans your clothes well	[Must Have]	→	3
Is safe and gentle for synthetic fibers	[Nice to Have]	→	1
Is good for the environment	[Nice to Have]	→	1
Clothes are ready to wear after drying	[Must Have]	→	3
It is easy to do the laundry	[Should Have]	→	2
My clothes smell fresh and clean	[Must Have]	→	3
Good value for the money	[Not Important]	→	0

Please fill in the above with "Must Have," "Should Have," "Nice to Have," "Not Important" to indicate your needs and their importances.

DIRECT ELICITATION: ANCHORED SCALE



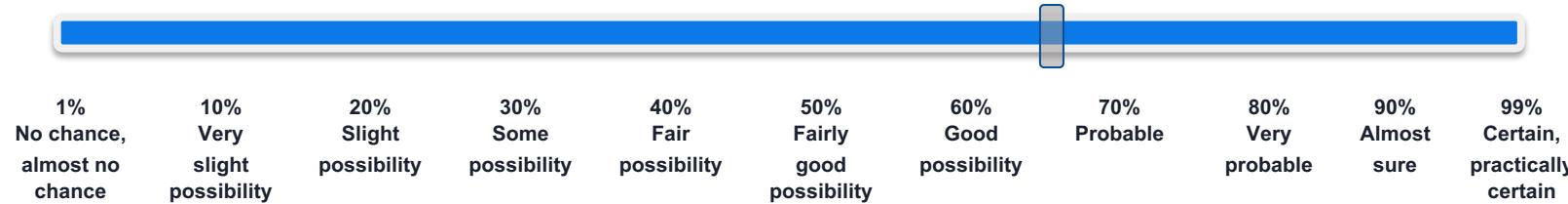
When thinking about choosing a laundry detergent, how important is it that the laundry detergent:

Cleans your clothes well	[100]
Is safe and gentle for synthetic fibers	[30]
Is good for the environment	[25]
Clothes are ready to wear after drying	[90]
It is easy to do the laundry	[70]
My clothes smell fresh and clean	[95]
Good value for the money	[20]

Please assign 100 points to your most important need and any number of points between 0 and 100 to all other needs.

DIRECT ELICITATION: “WILLINGNESS-TO-PAY”

Taking everything into account, how likely would you be to purchase a 15 oz. S'Well water bottle at \$29.99 from Target?

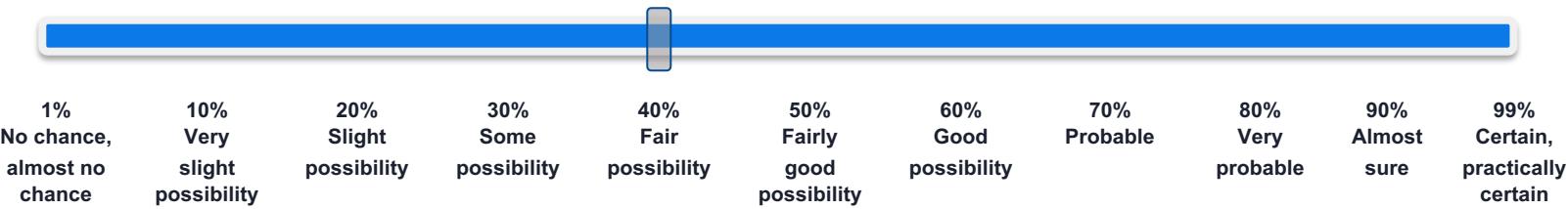


“Juster” Scale

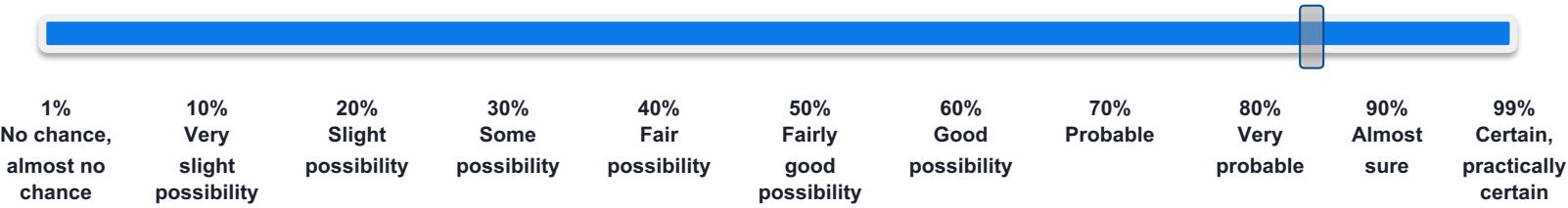
- the most commonly used scale in demand forecasting
- strong scientific basis (Morrison, Kalwani & Silk)
- excellent predictor of actual probability of choice
- right circumstances. Recent use by Uber, Firefox, Comcast.

DIRECT ELICITATION: “WILLINGNESS-TO-PAY”

Taking everything into account, how likely would you be to purchase a 15 oz. S'Well water bottle at \$29.99 from Target?



Taking everything into account, how likely would you be to purchase a 15 oz. S'Well water bottle at \$19.99 from Target?



QUESTION: DIRECT ELICITATION WORKS BEST WHEN...



1. Existing products vs. new-to-the-world
2. Durable products vs. frequently-purchased
3. Shorter time horizons vs. longer
4. Specific product vs. category

DIRECT ELICITATION WORKS BEST WHEN...



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BEST PRACTICES: SURVEY DESIGN IS A “CRAFT”



- “Craft” of designing survey makes a huge difference in the survey data

If these are the available smartwatches which one do you like best?

Please assume that all watches are from your preferred brand Apple and are compatible with your smartphone so that they can show incoming messages or calls. Assume that all of these watches have a battery that lasts a day or more, a heart rate monitor, Bluetooth, high definition color LED touchscreen, 1.2 GHz processor, 4 GB storage, and 512 MB RAM.

To change the perspective view, click detail, top, or app:



	Watch 1	Watch 2	Watch 3
Watch face:	Rectangular	Round	Rectangular
Case color:	Gold-colored	Gold-colored	Silver-colored
Band:	Brown leather band	Matching metal band	Black leather band
Price:	\$ 349,-	\$ 399,-	\$ 299,-
Best option:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Would you consider buying your preferred option if it was available?

- Yes
 No

BEST PRACTICES: SURVEY DESIGN IS A “CRAFT”



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BEST PRACTICES: SURVEY DESIGN IS A “CRAFT”



■ “Craft” of designing survey makes a difference in the survey data

■ Example Survey Biases

- priming biases
- ordering biases
- social desirability

■ How to correct for biases

- Fix wording problems
- Question randomization
- Pretest, pretest, pretest

■ Recommended Resources:

- Payne, S. L. B. (1954). *The art of asking questions*. Princeton University Press.
- Fitzpatrick, R. (2013). *The Mom Test: How to talk to customers & learn if your business is a good idea when everyone is lying to you*. Robfitz Ltd.

Wording Problems in Surveys (Dillman, 1978)

1. Will the words be uniformly understood?
2. Does the question contain abbreviations or unconventional phrases?
3. Is the question too vague?
4. Is the question too precise?
5. Is the question biased?
6. Is the question objectionable?
7. Is the question too demanding?
8. Is it a double question?
9. Does the question have a double negative?
10. Are the answers mutually exclusive?
11. Does the question assume too much about what the respondents know?
12. Is the question technically accurate?
13. Is an appropriate time referent provided?
14. Can the question be understood when taken out of order or context?
15. Can responses be compared to existing information?

WHAT IS CONJOINT ANALYSIS?



Who uses conjoint analysis? Widely used (and misused) Over 20,000 applications yearly. Over 90% fortune 500.



- Consumer goods: bar soaps, shampoos, carpet cleaners, synthetic-fiber garments, gasoline pricing, panty hose, lawn chemicals, cameras, batteries
- B2B products: copiers, printing equipment, data transmission, enterprise software, portable computers
- Financial services: branch bank services, auto insurance policies, health insurance, credit cards, auto-retailing facilities
- Transportation: domestic airlines, transcontinental airlines, train service, electric cars, car rentals
- Other: automotive styling ©, automotive tires, ethical drugs, telephone services, employment agencies, medical laboratories
- Non-marketing: forest health, HR benefits, energy savings programs, food safety, recreation
- Amazon
- Apple iPhone
- Microsoft
- Uber
- Mozilla
- LensCrafters
- Website to match buyer/sellers of pets
- EZPass system
- Courtyard by Marriott
- RIM's Blackberry smartphones
- SiriusXM service
- AMEX card service
- Intel chips
- Hallmark Cards
- Procter & Gamble (pricing)
- GM (OnStar, Northstar engine, bumper-to-bumper warranty)
- ... • Audi product-line design
- Boeing employees credit union
- Canadian Dept of Fisheries and Oceans
- Woman's health in rural Tanzania

WHO USES CONJOINT ANALYSIS? (SENIOR) PRODUCT MANAGER JOBS



DATABRICKS IS HIRING A

Sr. Product Manager, Pricing and Strategy

San Francisco, United States

You will partner with the Pricing Product Manager at Databricks to define key product pricing and go-to-market strategies for Databricks products. You'll be operating in a high paced environment with passionate people intent on delivering valuable products. There will be resource conflicts, prioritization

- Perform ongoing pricing and costing analysis; segment by relevant geographic, customer and deal factors to evaluate performance, approval patterns and support new deal review.

What we look for:

- Minimum 5 years of experience in the enterprise technology industry
- Experience establishing and delivering pricing that fits into company strategy.
- Experience with business models, financial metrics, and analyzing opportunity cost.
- Ability to perform advanced statistical analysis, mixed-method data collection and analysis, and apply group-based research methods such as cluster analysis and conjoint studies.

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Senior Product Manager, San Jose, CA

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Amazon is offering teams more flexibility

Sr. Product Manager

- You are adept at analyzing data, performing conjoint analyses, understanding architecture and workflow diagrams to frame up issues and generate recommendations

You are known for providing unambiguous, detailed, neatly structured requirements with API specifications and non-functional requirements. You will lead cross-functional teams to build requirements for new products and services, build decisions around how many hardware devices to manufacture prior to receiving any customer signal, and pricing decisions around how to price and promote products and services. You will leverage Science and Tools produced by the Device Economics team such as **conjoint demand models** to produce these

Carnegie Mellon University

Tepper School of Business

JOIN THE INTELLIGENT FUTURE

WHY CONJOINT ANALYSIS? QUANTIFY NEED IMPORTANCES BY ASKING PEOPLE ABOUT HOW THEY “TRADEOFF” NEEDS

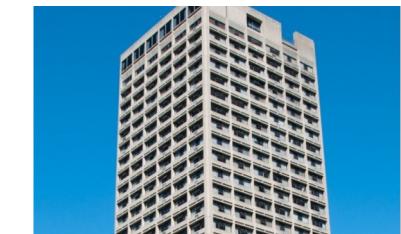


Motivating Question: “Where do you live?”

- You might want housing that is: (1) cheap, (2) spacious, (3) modern appliances, (4) close to fun places, (5) close to school/work, (6) etc.
but, you can't have it all!



vs



Goal for the PM:

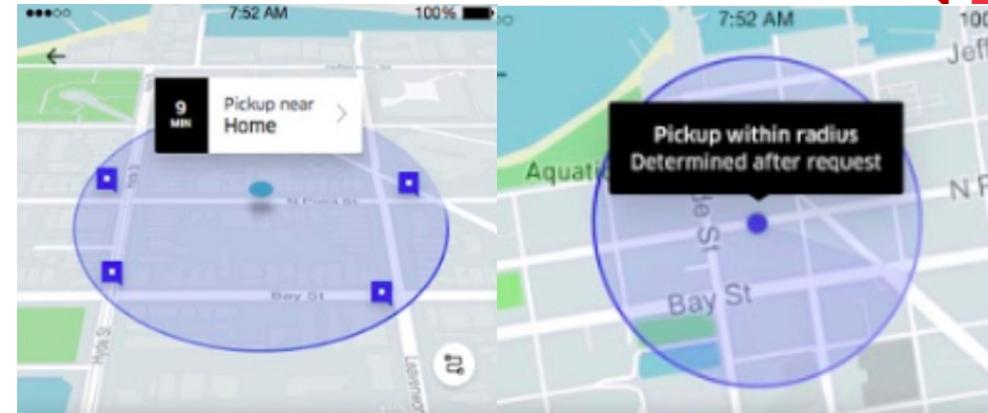
How do customers tradeoff these “product features”?

(or, what are customers’ “importances” over needs?)

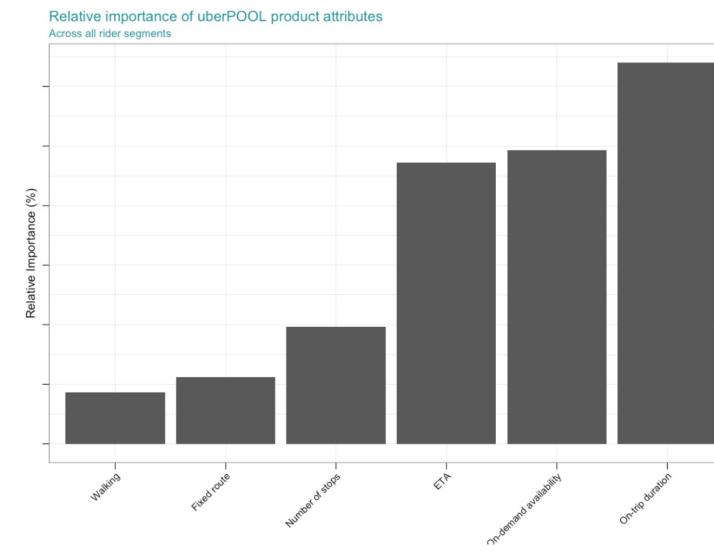


WHAT IS CONJOINT ANALYSIS?

- force customers to CONsider JOINTly their customer needs
- Estimates relative importance of product features, including willing to pay (price)
- More accurate for quantifying need importance than “direct elicitation”
- Why? Humans naturally make choices
- Easier to trade off entire choices than assign numeric values to needs



Product Feature: “Walking Distance”



**Quantified
Importance:
“Walking
Distance” versus
other needs**

WHEN TO USE CONJOINT ANALYSIS?

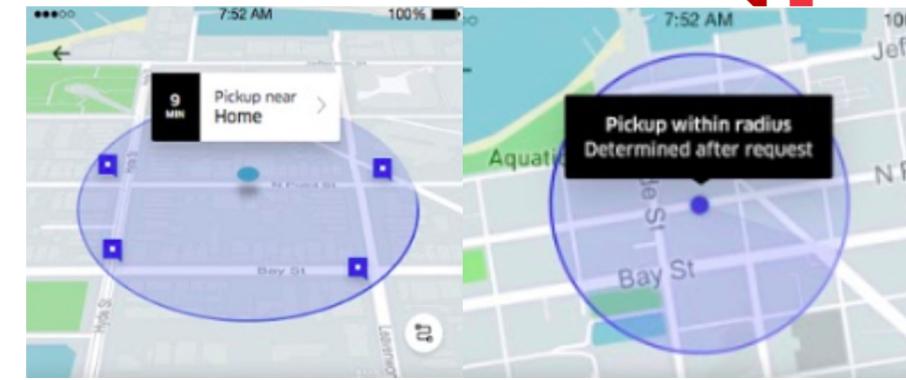
Product feature prioritization

- What product features are more valued by customers?
- What about customers across segments / cohorts?

Product Pricing

Question: Why can't we just A/B test. What are some PM situations when we can not just A/B Test (outside of "curse of dimensionality" reasons)?

Can we really develop A/B/C/D/etc. versions of product bundles?



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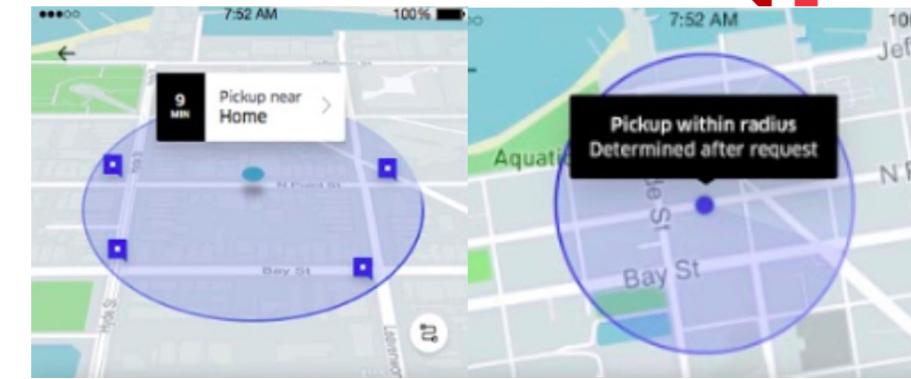
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Can we really develop A/B/C/D/etc. versions of product bundles?

Expensive product feature development (e.g., cars!)

- Major or high risk product features (e.g., Uber Express POOL)
- Launching in new markets
- B2B Products ...many others



Product Feature: "Walking Distance"

WILLINGNESS-TO-PAY CONCEPT AGAIN



Brand	Apple	Apple
Watch Face	Rectangular	Rectangular
Color	Gold-colored	Gold-colored
Band	Matching metal band	Brown leather band
Price	\$349	\$399

Which product do you prefer?



WILLINGNESS-TO-PAY CONCEPT AGAIN



Willingness to pay is at least \$50.

Matching metal → Brown leather



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Which product do you prefer?

Carnegie Mellon University

Tepper School of Business



JOIN THE INTELLIGENT FUTURE

WILLINGNESS-TO-PAY CONCEPT AGAIN



Willingness to pay is at most \$50.

Matching metal → Brown leather



Brand	Apple	Apple
Watch Face	Rectangular	Rectangular
Color	Gold-colored	Gold-colored
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Which product do you prefer?

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JOIN THE INTELLIGENT FUTURE

CONJOINT EXAMPLE: APPLE WATCH



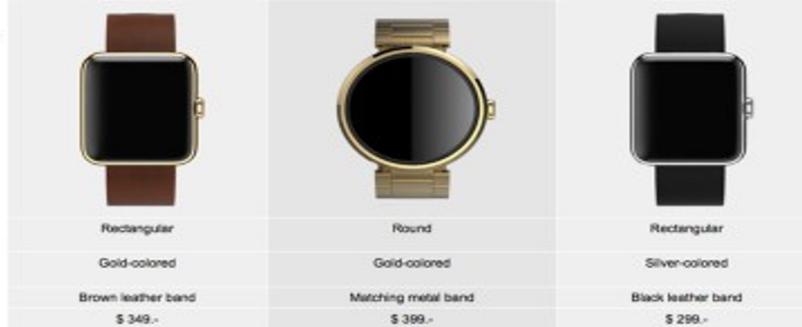
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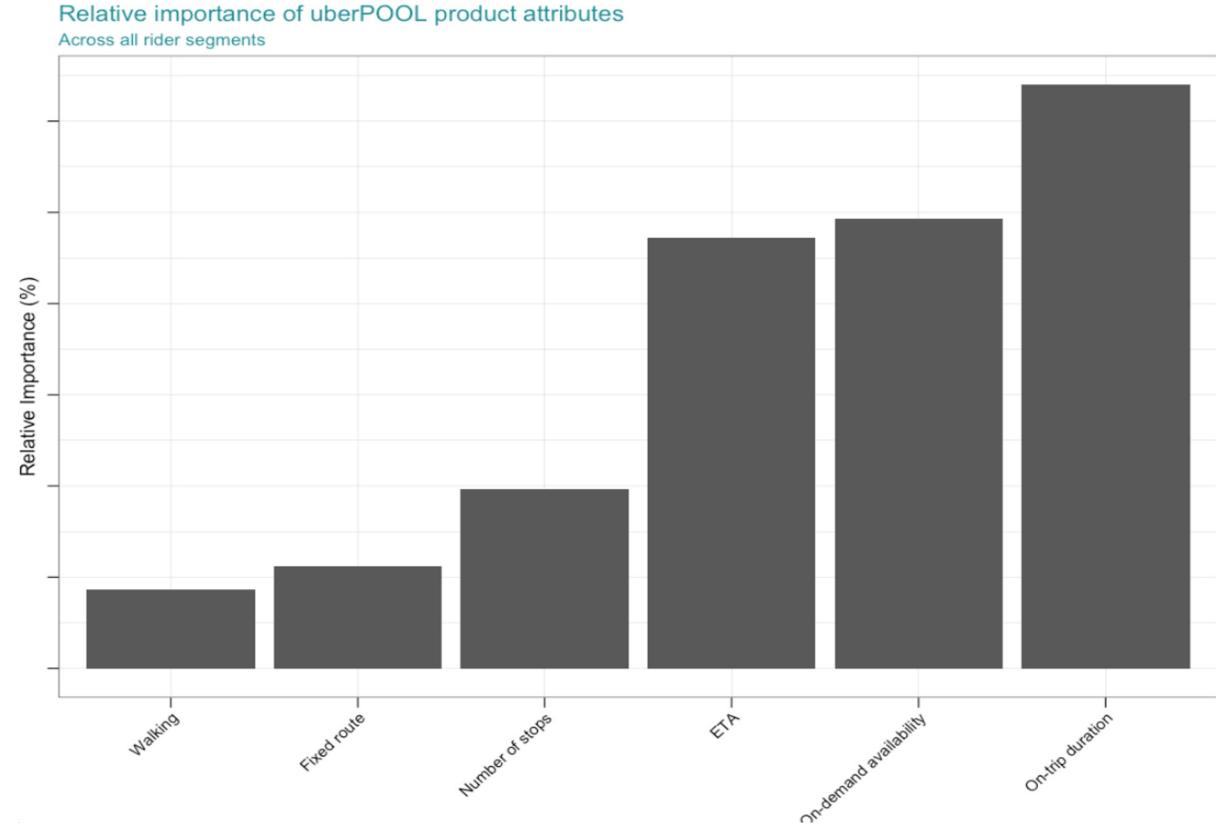
Would you consider buying your preferred option if it was available?

- Yes
 No

IN-CLASS DISCUSSION: UBER POOL



- How would you have designed the conjoint analysis for Uber Pool?
- i.e., what would have been choices for Uber Pool conjoint analysis to get this histogram as an output?



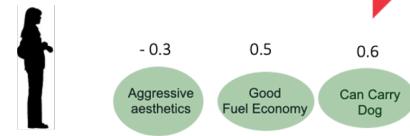
Quantified Importance: “Walking Distance” versus other needs

TAKEAWAYS



What is Conjoint Analysis?

- What? Regression method to quantify customer need importances^{Consumer 1}
- Widely-Used in PM: 20,000+ applications per year; 90% Fortune 500.



Why Conjoint? Quantitatively design new product (features)

- Customer need importances quantify “tradeoffs” for product features
- Search for the “best” product features by finding highest “value” features, or equivalents, highest willingness-to-pay (WTP) relative to cost
- Forecast product demand and market outcomes with Market Simulation

