Retail and Marketing Analytics
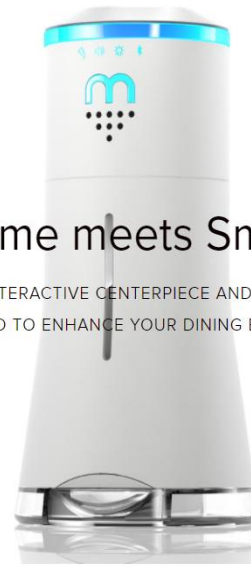
Session 5

Gokhan Yildirim

Outline

- Marketing: Art, Science, or both?
- Customer value creation
- Knowing your customers
- Case study: GAP

SMALT

Smart Home meets Smart Dining

THE WORLD'S FIRST INTERACTIVE CENTERPIECE AND SMART SALT DISPENSER
DESIGNED TO ENHANCE YOUR DINING EXPERIENCE

THE FIRST MULTI-SENSORY DEVICE TO MAKE DINING EXPERIENCE FUN

Pump up the volume

Turn it up a notch and stream your favorite music to get the party started or relax at dinner with your favorite Jazz music

Light up the room

Enhance your dining ambiance with color-changing mood light. Make any moment more memorable.

Bring the flavor

SMALT dispenses salt with a shake/pinch of your smartphone screen or simply turning the dial manually.
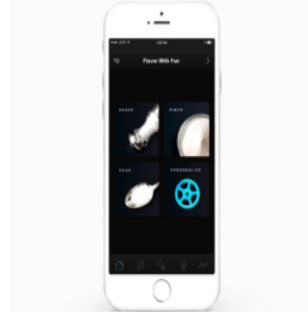
What do you think?

SALTING IS FUN - THREE WAYS TO MEASURE, TRACK AND CONTROL

Press a button

Whether you want to add a pinch or a teaspoon full, simply turn the dial and hit dispense.

Shake your phone

Shake, pinch or pour, all using your smart phone. Salting is so much fun with SMALT app.

SMALT with voice

Connect SMALT with Amazon Echo and simply say "Alexa, dispense half a teaspoon of salt".

Is SMALT a good product?

This smart salt shaker has voice controls but can't grind salt

It's $200

If it doesn't levitate over my plate and drop the salt onto my food, is it really worth $200?

Posted on **Aug 3, 2017 | 4:45 AM**

I thought we are going into the future not caves.

Posted on **Aug 3, 2017 | 5:09 AM**

Those functions can adequately be fulfilled by a human, person, such as a friend or family member. Admittedly, those might cost more than $200.

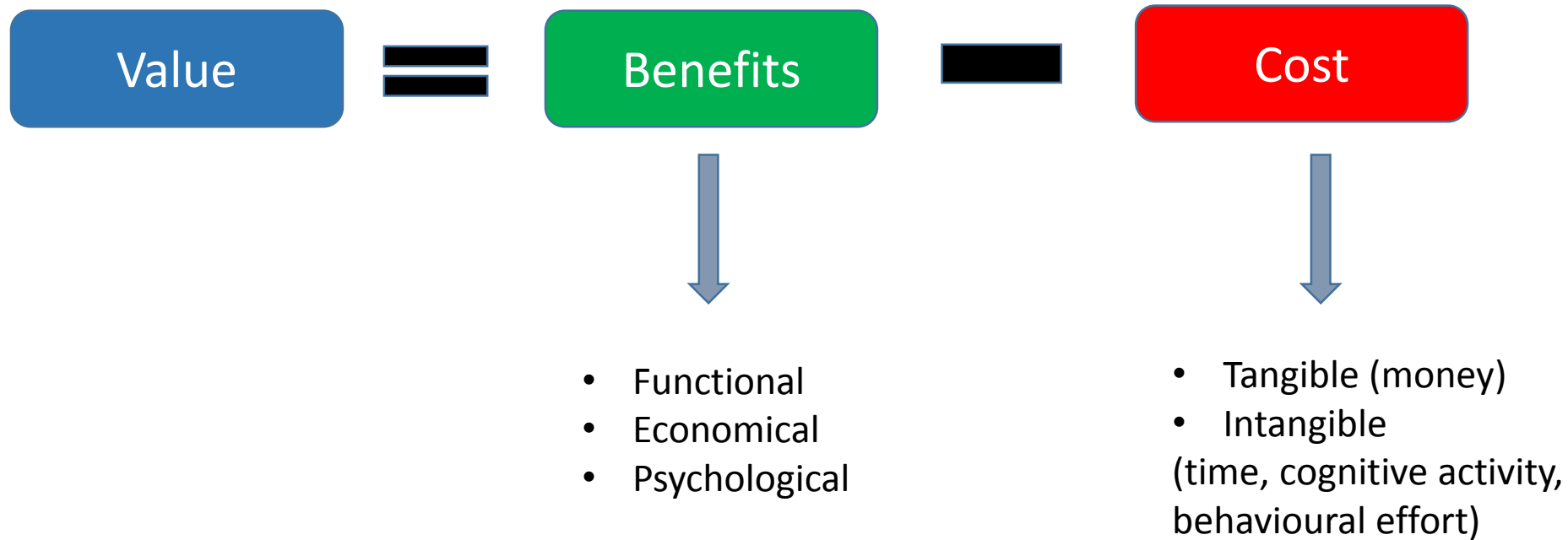I kinda wish Indiegogo had a defunding option where you can contribute to a thing not being built.

Posted on **Aug 3, 2017 | 4:53 AM**
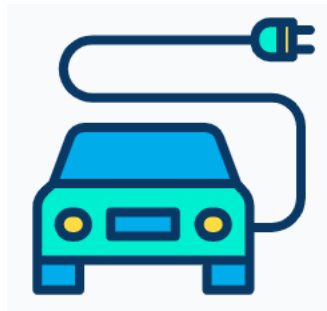
If the 4 hour battery dies, can you just shake it like a normal salt shaker?

Posted on **Aug 3, 2017 | 5:09 AM**

What is marketing about?

Value	=	Benefits	−	Cost

Benefits
- Functional
- Economical
- Psychological

Cost
- Tangible (money)
- Intangible
(time, cognitive activity, behavioural effort)

Examples:

Marketing is all about…

Listening to your customers and creating value for them!

Customer segmentation

- "One size does not fit all"

- A market segment is a subset of the market

- Segment members are homogeneous within and heterogeneous between

Examples

Comfort

Newer cars with extra legroom

Age

Gender

Segmentation techniques

Demographic

Educational level
Marital Status
Age
Gender
Occupation
Income level

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Geographical

Source: Dashboard Simulation Case, Blue Detergent

Unit Demand per Household by State

0 — 3.1

Segmentation techniques

Demographic

Educational level
Marital Status
Age
Gender
Occupation
Income level

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Geographic

World region
Country
City vs. rural

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FORTUNE

Netflix says Geography, Age, and Gender Are 'Garbage' for Predicting Taste
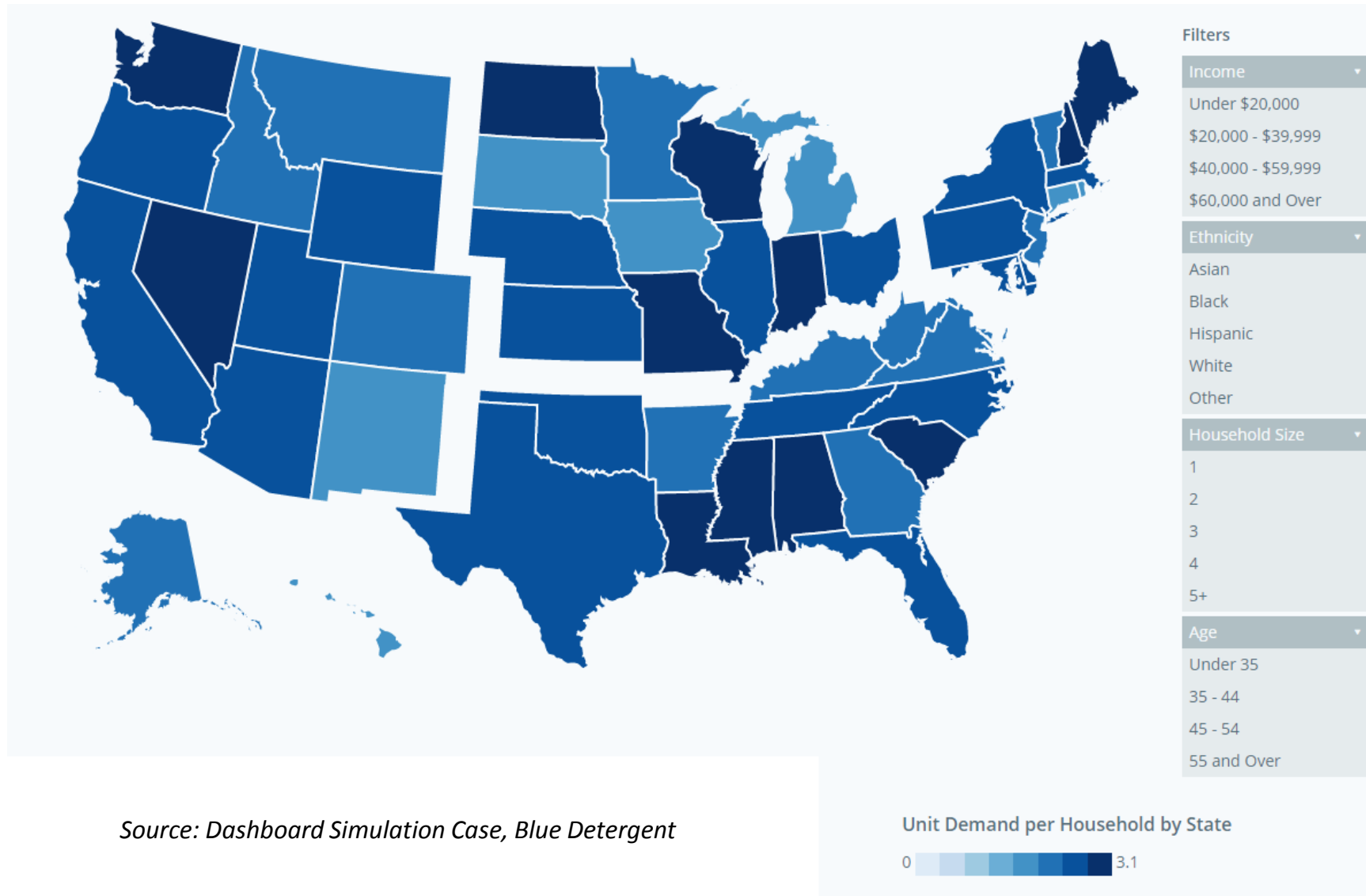
BY **DAVID Z. MORRIS**

March 27, 2016 8:28 PM GMT+1

Segmentation techniques

Demographic

Educational level
Marital Status
Age
Gender
Occupation
Income level

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.

.

Geographic

World region
Country
City vs. rural

.

.

.

Behavioural
Consumption:
   Luxury-seeking
   Price-sensitive
   Quality-conscious

Usage frequency:
   Heavy users
   Regular users
   Light users

Loyalty:
   Loyal customers
   Switchers

Segmentation techniques

Demographic

Educational level
Marital Status
Age
Gender
Occupation
Income level
·
·
·
·

Geographic

World region
Country
City vs. rural
·
·
·
·

Behavioural
Consumption:
   Luxury-seeking
   Price-sensitive
   Quality-conscious

Usage frequency:
   Heavy users
   Regular users
   Light users

Loyalty:
   Loyal customers
   Switchers

Psychographic

Lifestyle:
 Environmentalists
 Traditionalists
 Socially aware

Values:
 Innovative
 Conservative

E.g. VALs model by SRI
4Cs model by Y&R

Which segmentation variable to use?

WHO

Who are the customers?
- Demographics, communication responsiveness, lifestyle, attitudes etc.

WHAT

What have the customers bought?
- Usage, loyalty

WHY?

Why do customers make the decisions they do?
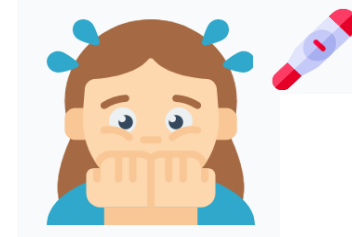- Needs and preferences

Activity

How would you segment the market for at-home early pregnancy testing product?

Activity

Attribute	Hopefuls	Fearfuls
Brand Name	Zoom Baby	Fast response
Price	£4.99	£8.99
Packaging	ZOOM Baby Early Pregnancy Test	RESULTS IN JUST 45 SECONDS RAPID RESULTS Pregnancy Test OVER 99% ACCURATE
Shelf Position	Near fertility products/vitamins	Near condoms

Criteria for actionable segmentation

- Identifiability
- Substantiality
- Accessibility
- Stability
- Differentiability

MARKETING IS ART

POLL

In targeting marketing actions (e.g. email, direct mails) to customers, which of the following would you recommend?

- ❑ Use the most expensive marketing for high value (£) customers
- ❑ Use the most expensive marketing for low value (£) customers
- ❑ Use all marketing for all customers
- ❑ Other

Case study

Direct Mail to Prospects and Email to Current Customers?

Managing Multichannel Marketing for L'Occitane

Gokhan Yildirim

with Albert Valenti, Shuba Srinivasan, Koen Pauwels

Gary L. Lilien ISMS-MSI Practice Prize Winner 2018
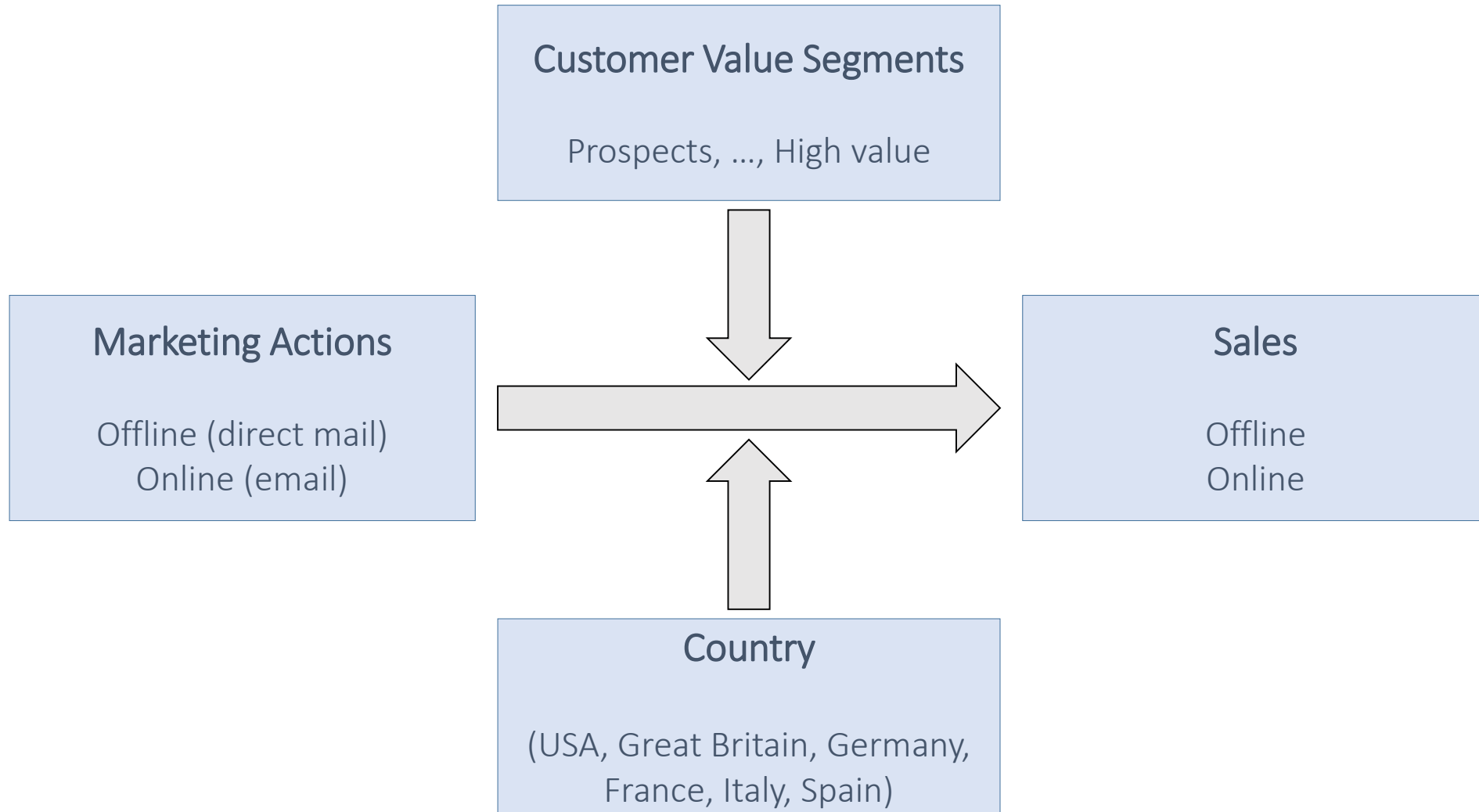
Meet L'Occitane en Provence

- 1.32 billion € revenues, 168 million € profits in 2017

- 8,500 employees in 90 countries with 3,037 stores

- Multichannel: offline and online sales channels

Which customers to target with which marketing actions?
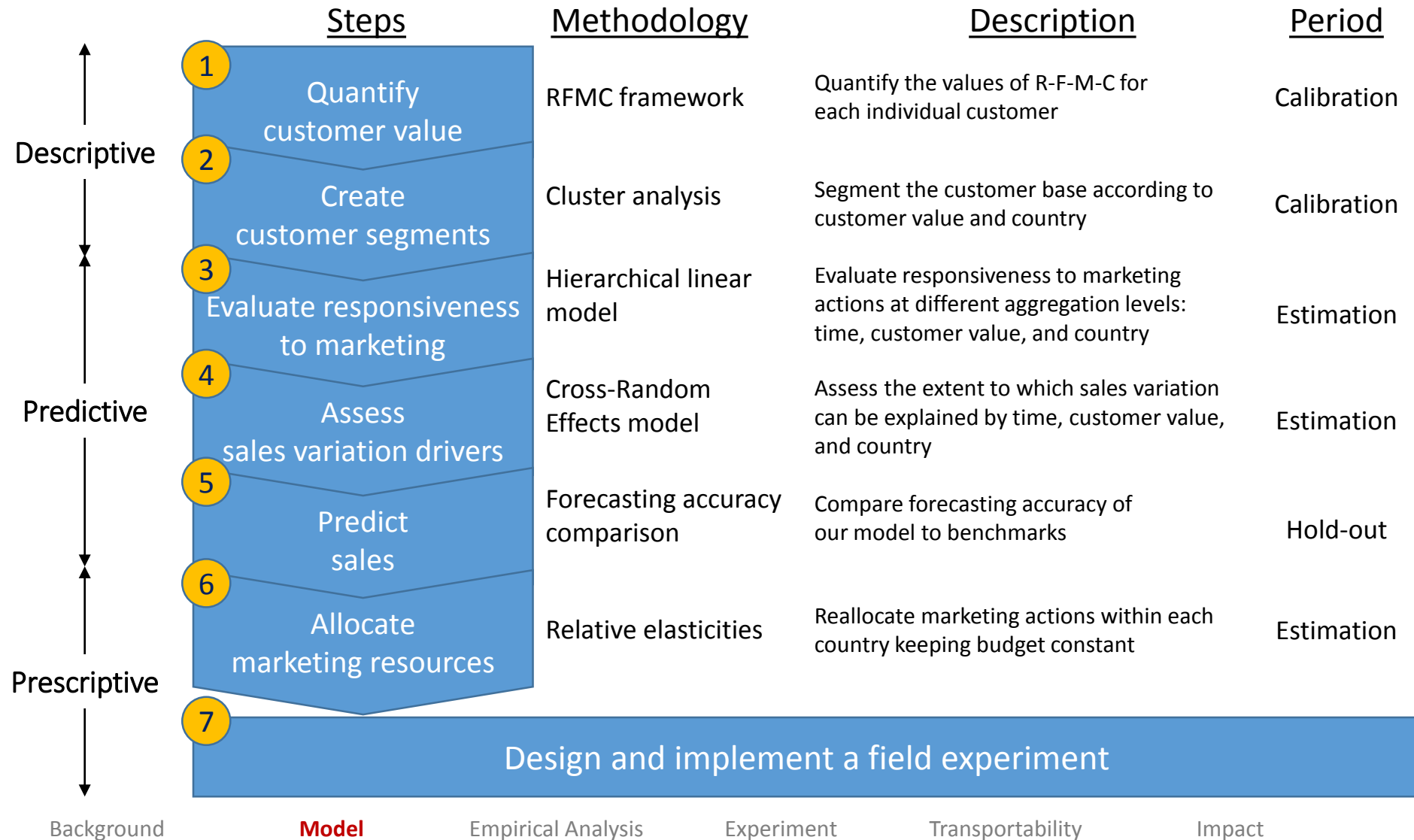
Conceptual Framework

Customer Value Segments

Prospects, ..., High value

Marketing Actions

Offline (direct mail)
Online (email)

Sales

Offline
Online

Country

(USA, Great Britain, Germany,
France, Italy, Spain)

Modeling Approach

	Steps	Methodology	Description	Period
Descriptive	1 Quantify customer value	RFMC framework	Quantify the values of R-F-M-C for each individual customer	Calibration
	2 Create customer segments	Cluster analysis	Segment the customer base according to customer value and country	Calibration
Predictive	3 Evaluate responsiveness to marketing	Hierarchical linear model	Evaluate responsiveness to marketing actions at different aggregation levels: time, customer value, and country	Estimation
	4 Assess sales variation drivers	Cross-Random Effects model	Assess the extent to which sales variation can be explained by time, customer value, and country	Estimation
	5 Predict sales	Forecasting accuracy comparison	Compare forecasting accuracy of our model to benchmarks	Hold-out
Prescriptive	6 Allocate marketing resources	Relative elasticities	Reallocate marketing actions within each country keeping budget constant	Estimation
	7 Design and implement a field experiment			

Background   **Model**   Empirical Analysis   Experiment   Transportability   Impact

Primary Dataset

- 84,110 customers
  - Germany, Spain, France, Great Britain, Italy, USA
- **Purchase history:** offline and online sales, and discounts
- **Marketing actions:** direct mail and email

Customer Segments Description

	Prospects	Dormants	Non-recent low value	Recent low value	Medium value	High value	Total
Recency (weeks ago)							
Frequency (#)							
Monetary value (€)							
Clumpiness (#)							

Customer Segments Description

	Prospects	Dormants	Non-recent low value	Recent low value	Medium value	High value	Total
Germany	22%	33%	8%	10%	24%	4%	**10,000**
Spain	16%	36%	12%	8%	25%	4%	**10,000**
France	26%	36%	8%	6%	22%	3%	**14,111**
Great Britain	10%	40%	10%	8%	26%	4%	**20,000**
Italy	23%	31%	12%	8%	25%	1%	**10,000**
USA	38%	26%	9%	6%	19%	2%	**19,999**

Sales Responsiveness: Hierarchical Linear Model

③

$$OFF\_SALES_{tij} \quad (ON\_SALES_{tij}) =$$

$$\alpha_{ij} + \sum_{k=1}^{K} \beta_k \, OFF\_SALES_{t-k,ij} + \sum_{k=1}^{K} \xi_k \, ON\_SALES_{t-k,ij} +$$
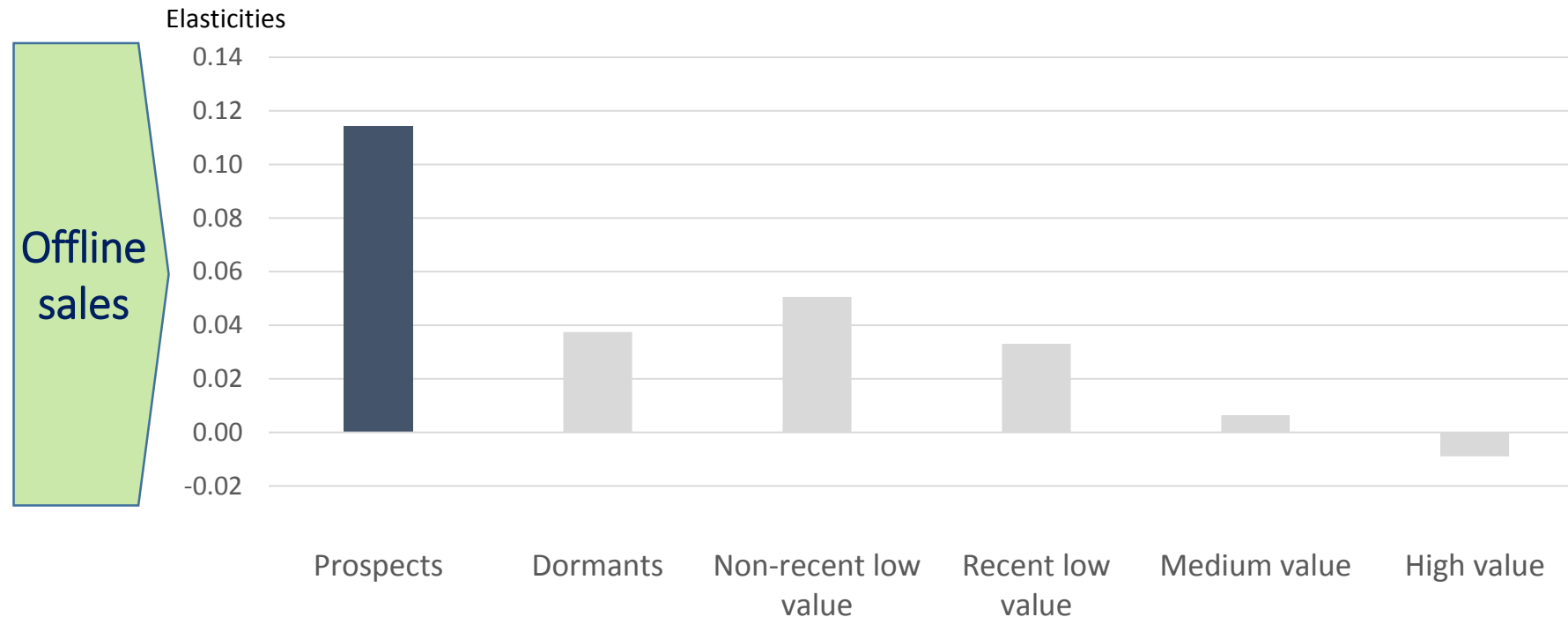
$$\sum_{m=1}^{M} \delta_{m,ij} \, EMAIL_{t-m,ij} + \sum_{n=1}^{N} \zeta_{n,ij} \, DIRECT\_MAIL_{t-n,ij} +$$

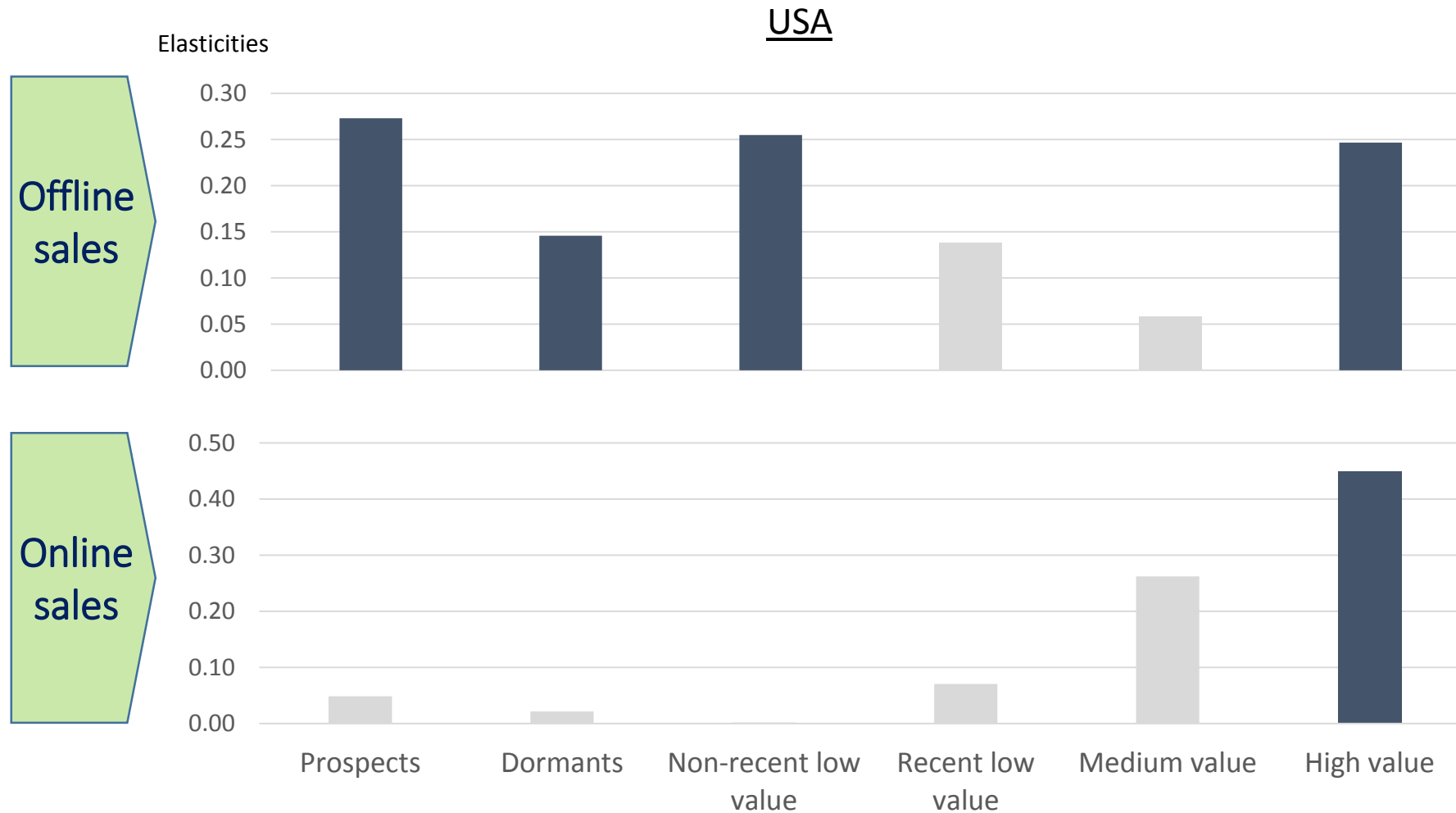$$\sum_{l=1}^{L} \gamma_l \, DISC_{t-l,ij} + \eta \, HOLIDAY_t + \varepsilon_{tij}$$

t: week, *i*: customer value segment, *j*: country; *K, M, N, L*: number of lags

③ Direct mail has own-channel effects for prospects across all countries

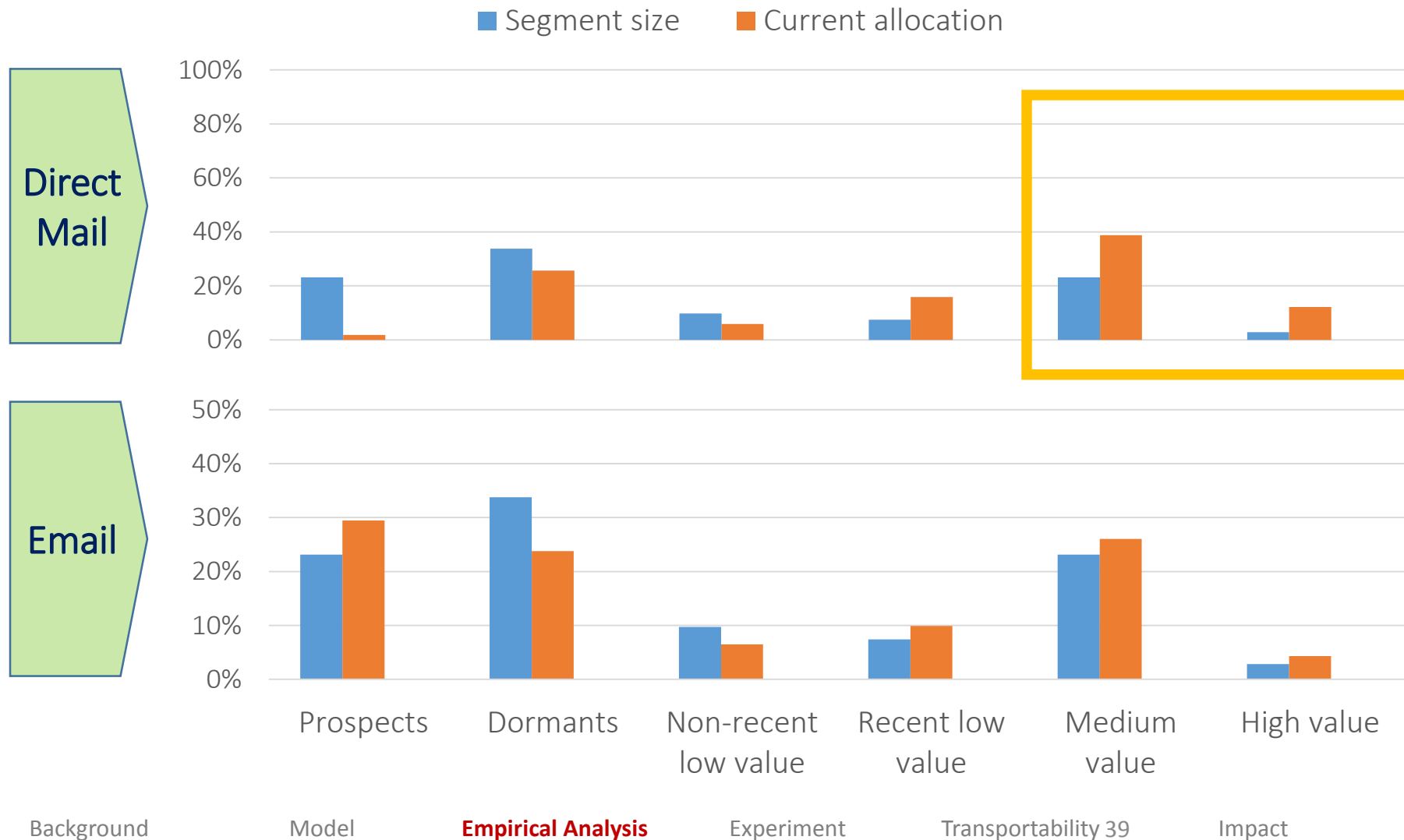All countries: Germany, Spain, France, Great Britain, Italy, USA

Offline sales

Elasticities

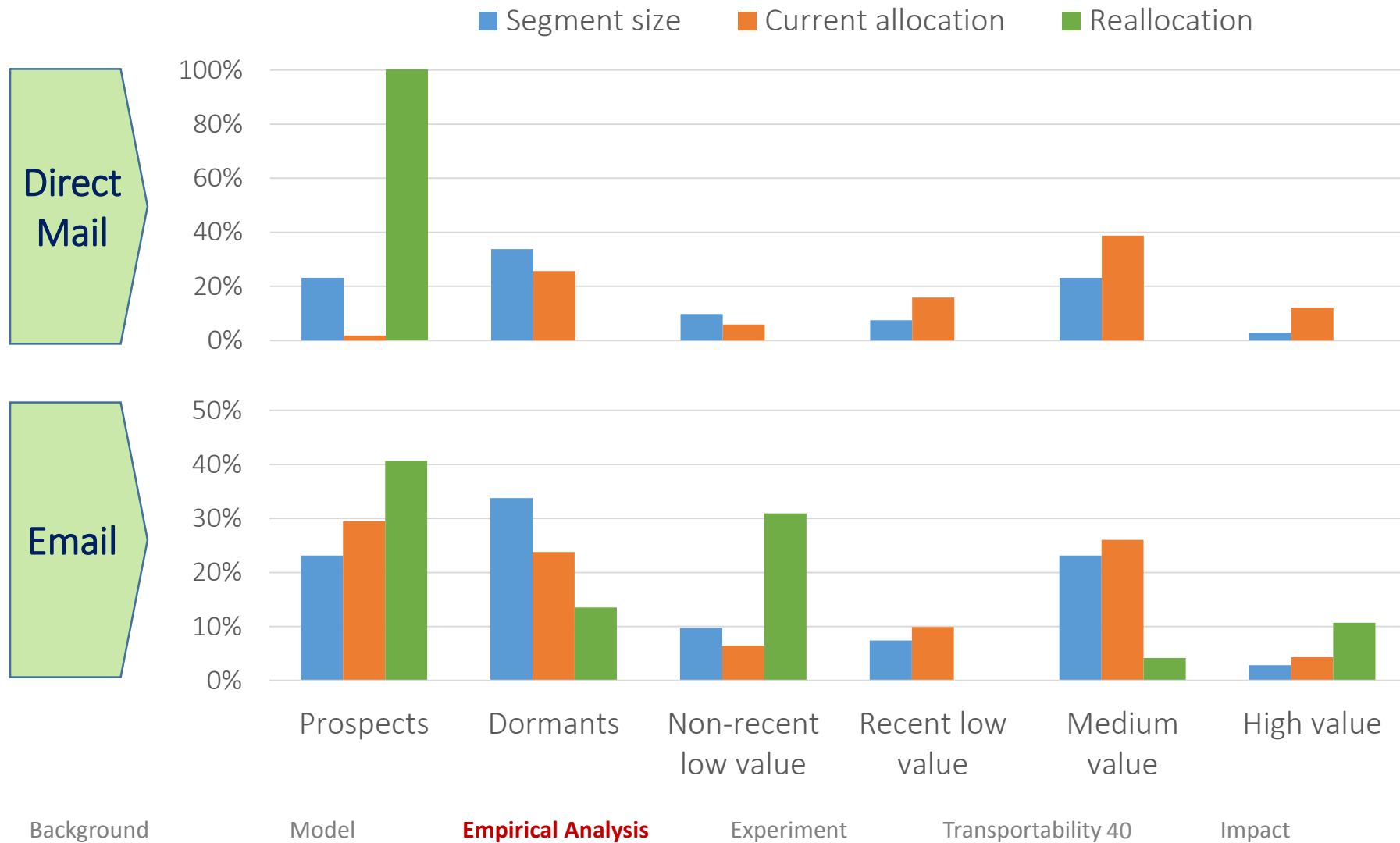Prospects | Dormants | Non-recent low value | Recent low value | Medium value | High value

③ Email Affects Sales across Channels and Segments

Elasticities

USA

Offline sales

Online sales

Prospects | Dormants | Non-recent low value | Recent low value | Medium value | High value

Marketing Resource Reallocation

⑥

Marketing Resource Reallocation
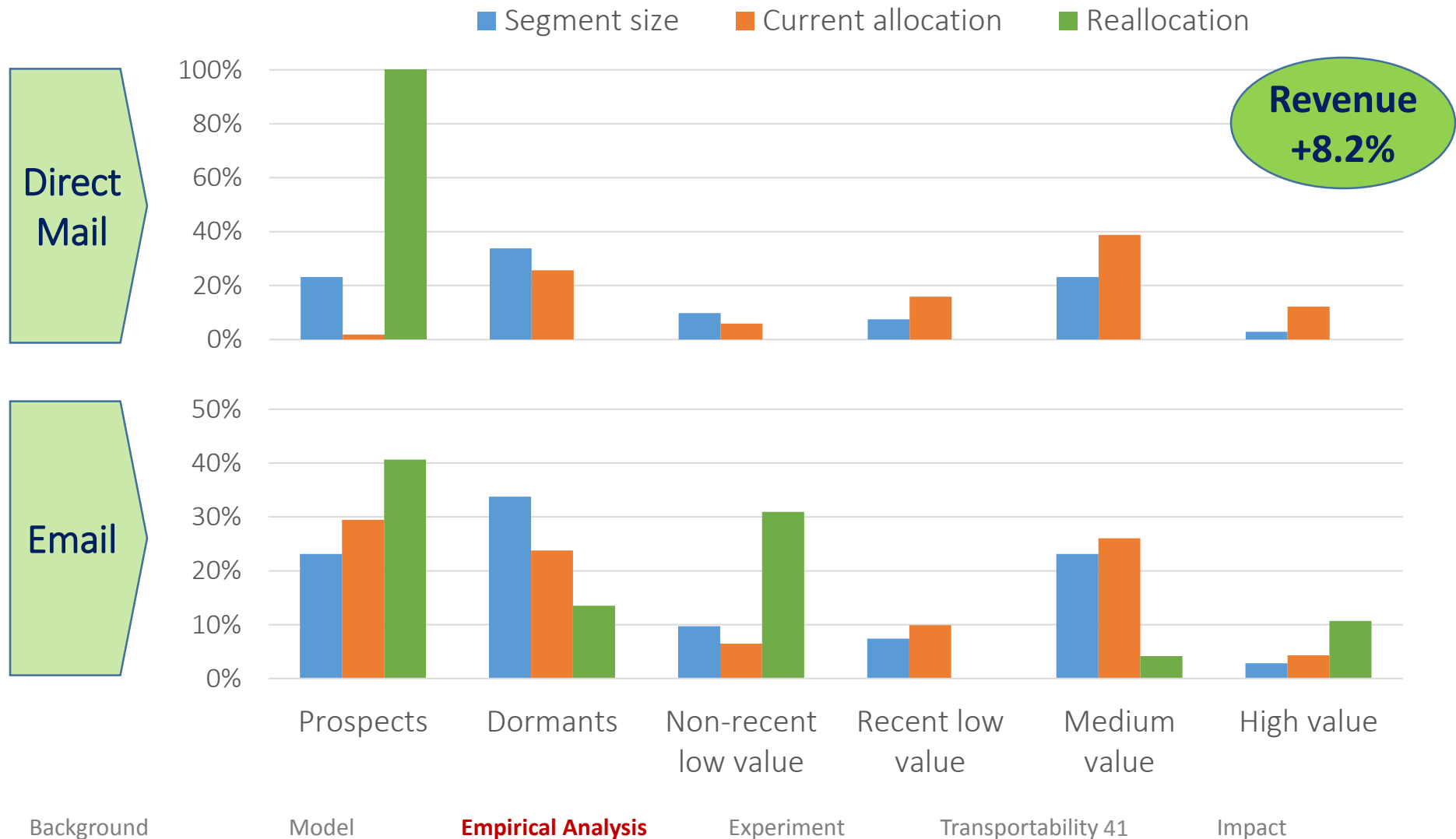
Legend: ■ Segment size ■ Current allocation ■ Reallocation

Direct Mail

Email

Categories: Prospects, Dormants, Non-recent low value, Recent low value, Medium value, High value

Marketing Resource Reallocation

(6)

Direct Mail

Email

Revenue +8.2%

Segment size — Current allocation — Reallocation

Prospects | Dormants | Non-recent low value | Recent low value | Medium value | High value

Background   Model   **Empirical Analysis**   Experiment   Transportability 41   Impact

Field Experiment Design

- **4 experimental groups:**

		Email	
		No	Yes
DM	No	1	2
	Yes	3	4

- **Budget restriction: total of 33,000 direct mail (cells 3 and 4)**

- **Random assignment to the 4 experimental groups** with stratification by customer level

- Sample of **122,000 customers in Italy**

Financial Impact
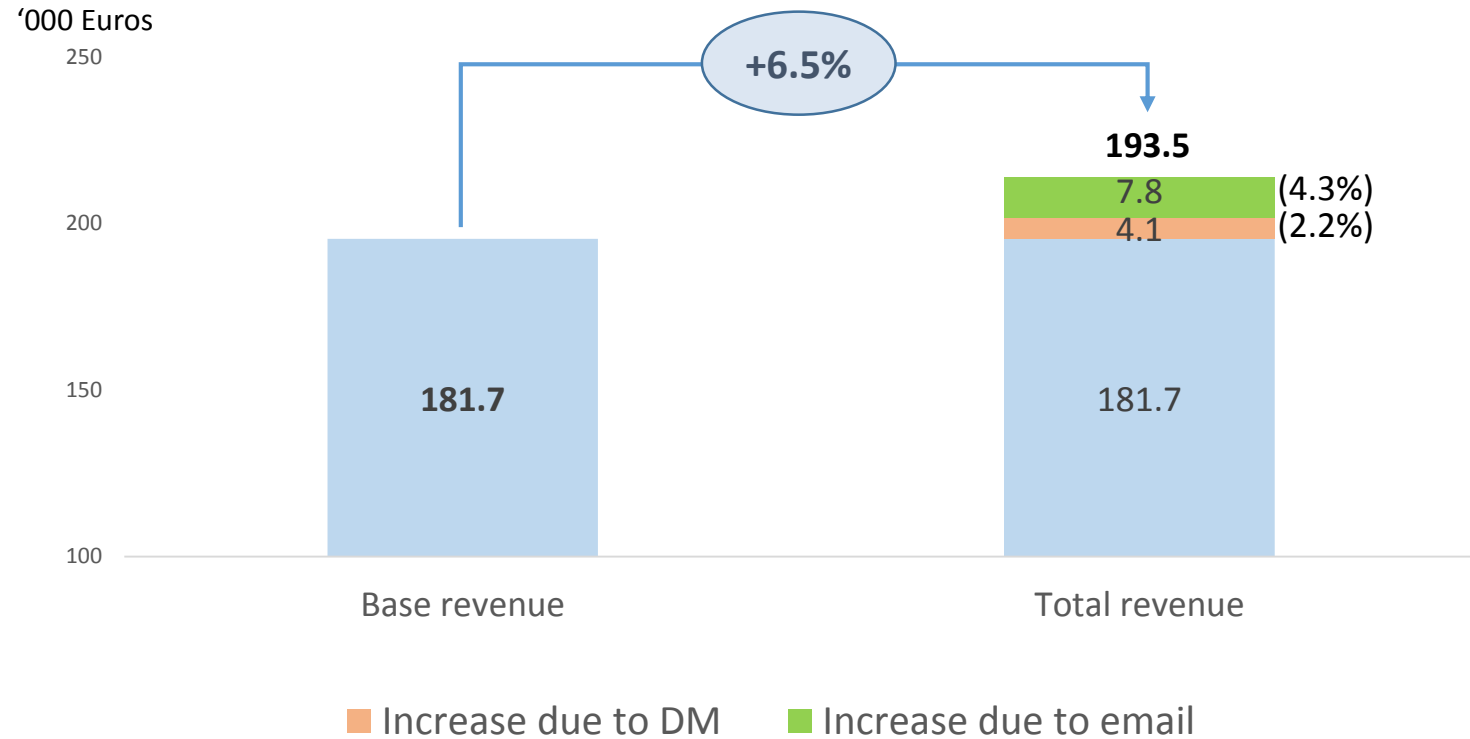
In the Words of L'Occitane

"The different effectiveness of direct mail and email depending on the customer type was surprising to us. Rethinking about this finding, we have a deep and increasing interest in investing in direct mail activities for customer acquisition and inactive customers."

Delphine Fournier
CRM Manager

MARKETING IS A BLEND OF ART AND SCIENCE

Case Study:

Predicting Consumer Tastes with Big Data at Gap

Questions

Q1. Was Peck correct in firing his creative directors and replacing them with a big data-driven creative process? Why or why not?

Q2. How well can one predict consumers' fashion preferences based on past purchasing data?
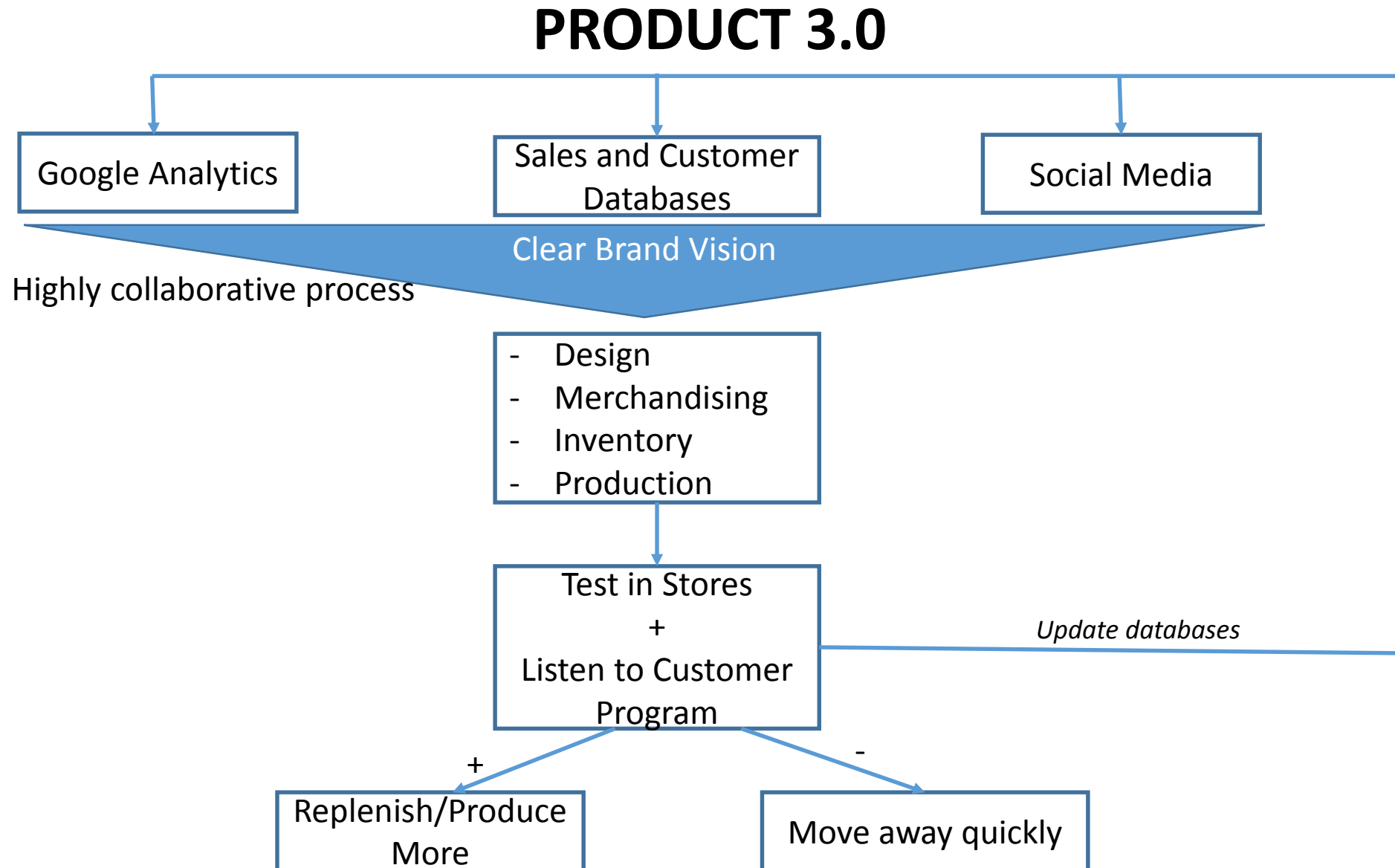
Q3. Does the big data approach work for all three of Gap Inc.'s brands: Old Navy, Gap, and Banana Republic? Why or why not?

Q4. Should Peck allow Gap Inc.'s brands to be sold on Amazon? Why or why not?

Questions

Q1. Was Peck correct in firing his creative directors and replacing them with a big data-driven creative process? Why or why not?

Feedback on Q1

PRODUCT 3.0

Google Analytics

Sales and Customer Databases

Social Media

Clear Brand Vision

Highly collaborative process

- Design
- Merchandising
- Inventory
- Production

Test in Stores
+
Listen to Customer Program

Update databases

+
Replenish/Produce More

-
Move away quickly

Feedback on Q1

|	Creative Director-Led Process	Data-Driven Process
PROS	Establishes one clear **brand "captain"**.	Reflects market preferences; **eliminates guesswork**; forces rigorous decision making based on **facts, not opinions**.
	Produces **clear and consistent brand identity** that attracts consumers to it.	Provides **instant feedback** that can impact design and performance quickly.
	Loss in sales is not due to the creative director, rather due to **headwinds** in the retail market.	It worked well for Gap's competitors: **Zara** manages to be seen as fashion but is data-driven.
	Brands need **creative** talent. Unique and original fashion **cannot be achieved** from **data alone**.	**Tastes** are **stable across time and do not change rapidly**. Yesterday's data does a good job of predicting tastes today.
	Fashion is **unpredictable**; last year's tastes do not predict well this year's tastes.	

Feedback on Q1

	Creative Director-Led Process	Data-Driven Process
CONS	**Collaborative** effort benefits can be greater than those of one decision maker.	Data can only reveal what worked; not what will work.
	Gap's creative directors to date did **not** manage to **save the brand**.	Similar model to Zara who has been outperforming Gap. Offers no competitive differentiation.
	Even the best designers lose their "**magic touch**".	The fact that it works for Zara doesn't mean it will work for Gap. Zara competes on price, while Gap has traditionally competed on fashion.
	This is how the Gap does things for years. Change will be disruptive and difficult.	Consumers don't have the ability to identify successful products. Relying on them may not be helpful.

Feedback on Q1

Under what circumstances designer-led vs. data-driven model work?
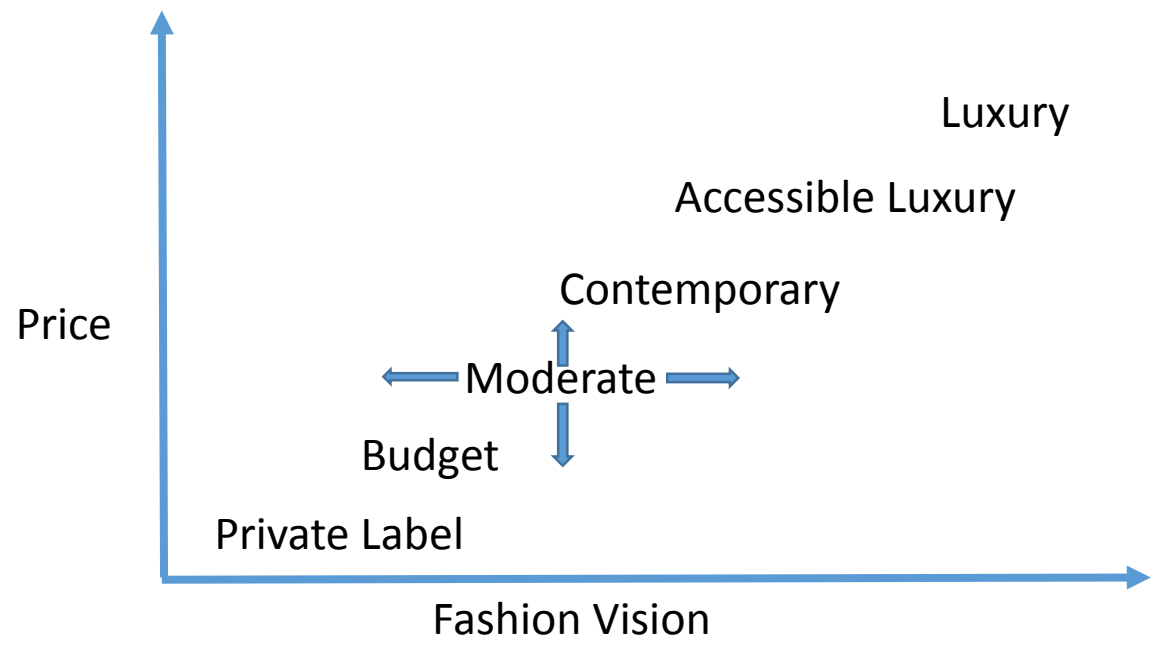
Luxury
High fashion
Fashion forward
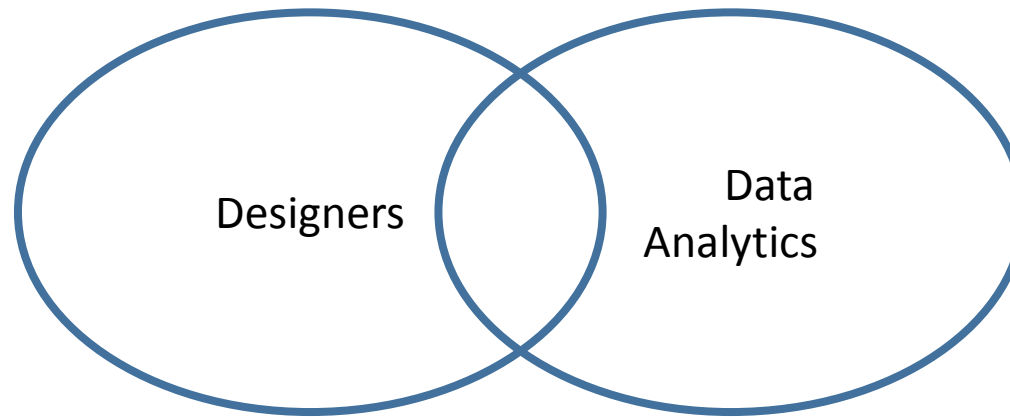
Commodity
Fast-fashion
Mass-production

Designers

Data
Analytics

Gap
?

Consumers	:	Fashionistas	Price-sensitive
Brands	:	Chanel, Burberry	H&M
Product lines	:	New fashion	Basics
Price point	:	High	Low

Feedback on Q1

Questions

Q2. How well can one predict consumers' fashion preferences based on past purchasing data?

Feedback on Q2

The use of big data and predicting consumer demand requires some fundamental <u>assumptions</u>:

1. Consumer preferences are **stable** across time

2. Consumer **preferences** are **generated by consumers** themselves and are resistant to marketers' persuasive efforts

3. Consumer **preferences guide their purchase behaviour**, regardless of changes in context.

Feedback on Q2

Research in consumer psychology shows that people often exhibit inconsistency in their preferences:

- Variety Seeking Behaviour
- Impulsive Purchasing Behaviour
- Information Framing Effects
- Social Context Effects
- Choice Context Effects
- Goal Aspirations
- Emotional States and Moods
- Cognitive Availability

Feedback on Q2

Research in anthropology and sociology also demonstrate that **consumers' preferences** are culturally and socially **influenced**:

- Trickle-down effect

- Ratchet effect

- Fashion cycles

Feedback on Q2
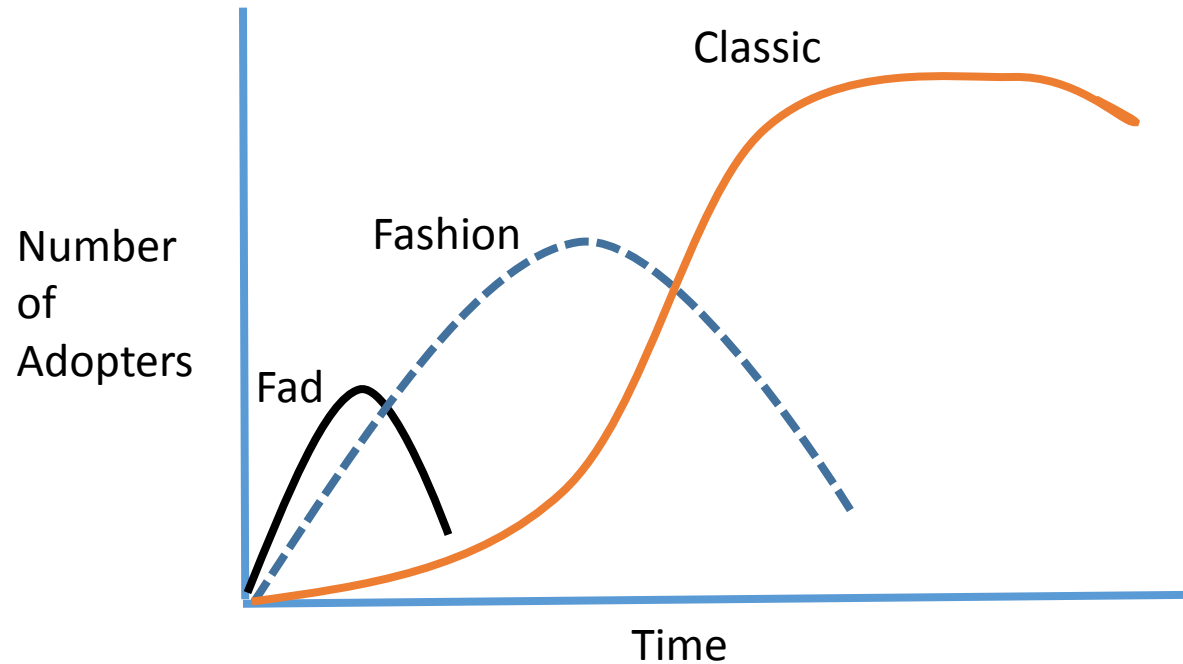
Fashions **emerge** and then **vanish**.

The **speed of change** determines whether we label the item a **classic** (an item that has longevity), a **fashion** (an item with moderate longevity), or a **fad** (an item that is extremely short-lived).

Previous predictors may be a **good** predictor **for classics**, but an extremely **poor predictor of fads**.

- THE ONLY CONSTANT IN FASHION IS CHANGE.
- PAST FASHION PREFERENCES ARE IMPERFECT PREDICTORS OF FUTURE FASHION PREFERENCES.

Questions

Q3. Does the big data approach work for all three of Gap Inc.'s brands: Old Navy, Gap, and Banana Republic? Why or why not?

Feedback on Q3

Using more than one brand allows a company to directly and distinctly address multiple target markets, creating opportunities for differentiation.

Multi-brand portfolios, however, bear different kinds of risks:

- *Brand cannibalization risk:* Intra-company brand substitution is likely when a firm offers consumers multiple brands from **which to choose**.

- *Brand stretch risk:* As each brand tells a **narrower** and **more specific story**, the company **loses its flexibility to extend its brands to diverse** product categories or **consumer targets**, limiting efficient growth opportunities in the future.

Feedback on Q3

GAP Inc. House of Brands Portfolio:

Feedback on Q3

Gap must take care to keep each of its brands differentiated using this collaborative, big data driven design process.

Old Navy: Its low prices allow it to offer fashion that is somewhat lagging the cutting edge fashion of the day. **Relying on big data from past purchase behaviour is less risky for Old Navy**.

Banana Republic: It likely needs to **be a fashion trendsetter** or tastemaker in order to continue to **command its higher price points**. Relying on big data from past purchase behaviour is quite risky for BR.

Gap: Given its higher price points, it needs to have some semblance of fashionableness so that it can stay ahead of budget and fast fashion brands. As Gap begins to look backward rather than forward to set its assortment, **it risks resembling too closely the fast fashion brands' assortments and its own Old Navy assortment**.
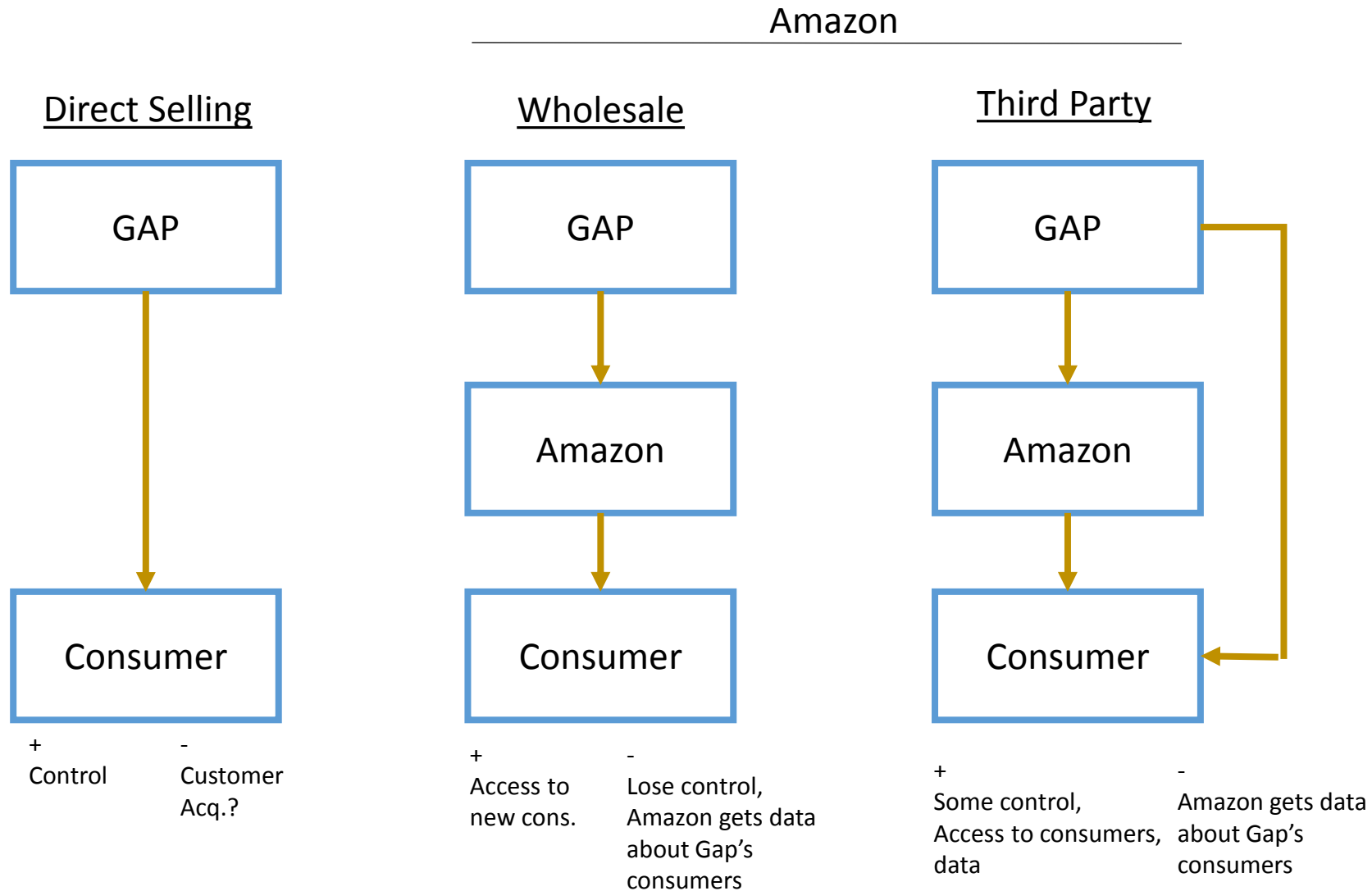
Feedback on Q3

Differences between Fashion and Basics/Classics

Fashion	Basics/Classics
Hedonic, expressive	Utilitarian
Leading, taste-making	Taste-following
Constantly changing	Stable over time
Diffuses quickly through adoption curve	Mass market
Developed and seeded by extreme consumers	Need based
Constantly repurchased	Last forever

Questions

Q4. Should Peck allow Gap Inc.'s brands to be sold on Amazon? Why or why not?

Feedback on Q4

Amazon

Direct Selling

GAP

Consumer

+
Control

-
Customer
Acq.?

Wholesale

GAP

Amazon

Consumer

+
Access to
new cons.

-
Lose control,
Amazon gets data
about Gap's
consumers

Third Party

GAP

Amazon

Consumer

+
Some control,
Access to consumers,
data

-
Amazon gets data
about Gap's
consumers

Feedback on Q4

YES

- Increase exposure
- New avenue for customer acquisition
- Amazon's advertising and marketing prowess
- Can benefit from Amazon recommendation system
- GAP is dying anyway, at least this option allows them to milk it.

NO

- Gap loses control over the brand.
- Comparison with alternative products may be disadvantageous
- Gap is not strong enough to survive the direct comparison.
- GAP loses the direct connection to consumers. Amazon learns about consumers' preferences
- GAP already has some digital capabilities and does not benefit fully from Amazon.
- The margin is shared with Amazon.
- GAP is an established brand and does not benefit from the Amazon brand.
- Seems to contradict Peck's vision. The brand will be lost on Amazon and not turned around.

KEY TAKEAWAYS

1. **Consumer preferences are constructed rather than revealed**, subject to marketers' and other tastemakers' manipulation.

2. Consumer **preferences are unstable over time and therefore somewhat unpredictable**.

3. Brands that play in the fashion space must determine whether they will be **fashion-followers or fashion-leaders**.

4. While big data and predictive analytics are transforming the practice of marketing, marketing continues to require **a blend of "science" and "art".**

Game Wrap-up

Consumer Products Industry

- Consumer products are a **data-intensive industry**, and almost every company in the industry is becoming increasingly analytical.

- Much of the industry's customer data comes ultimately from bar code scanners within supermarkets.

- Use of data and analysis can help executives in that industry learn whether they are **targeting the right customers, pursuing the right strategies, operating their business in the right way**, and **undertaking the right marketing campaigns and promotions**.

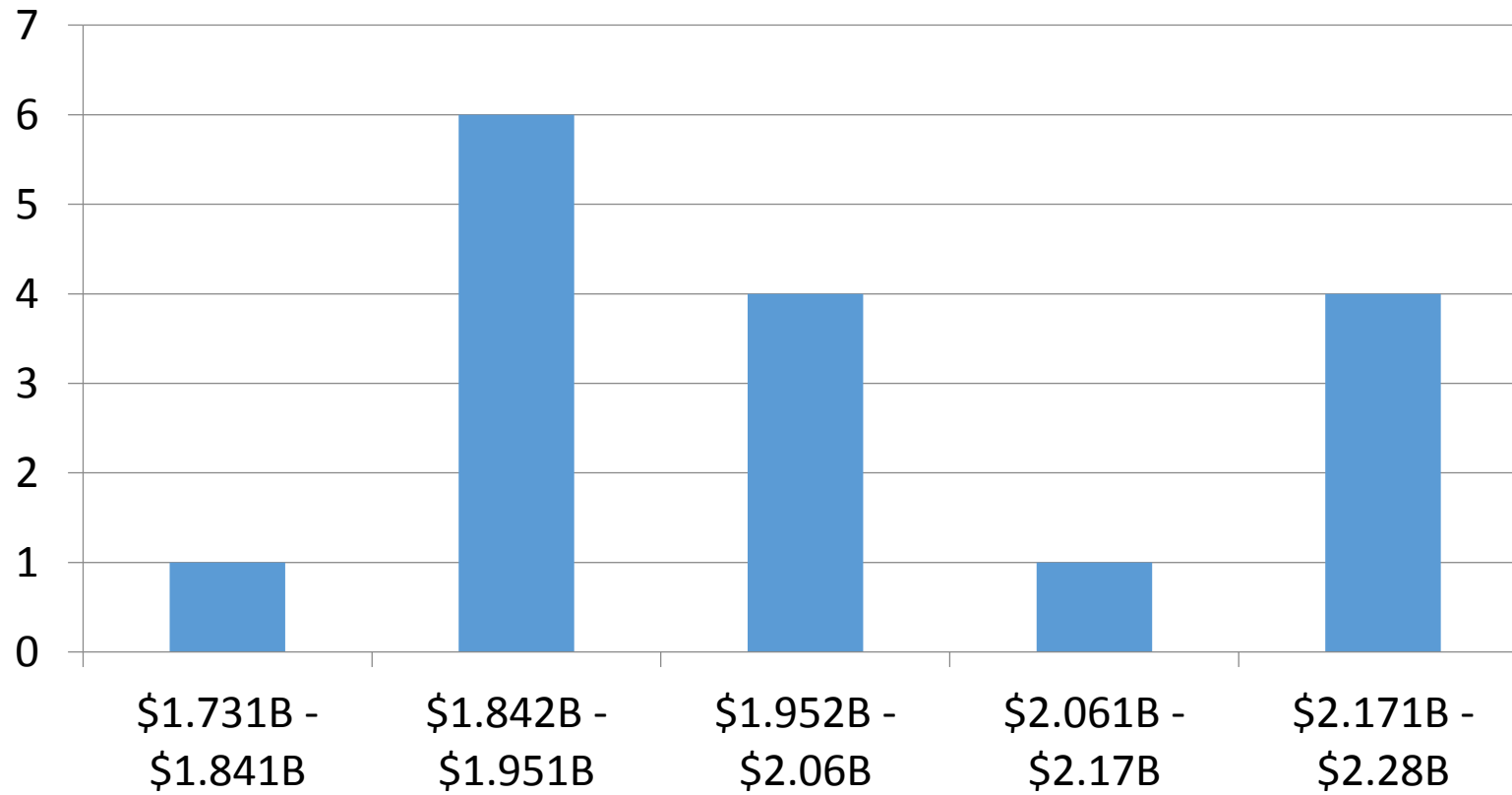# RESULTS: CUMULATIVE PROFIT
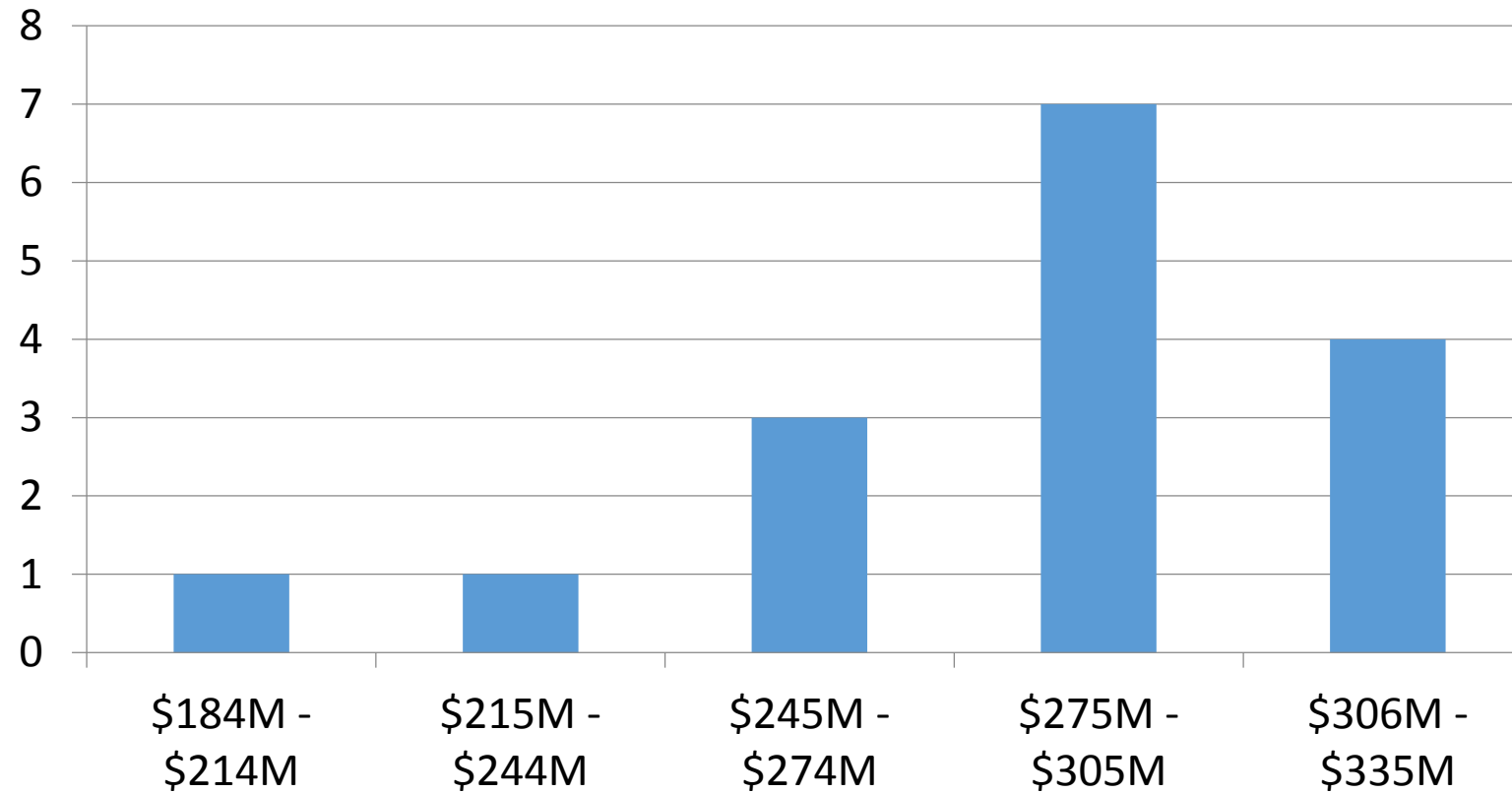
RESULTS: CUMULATIVE PROFIT

Top 10 Results

|	
1. Anqian Li	$335M
2. Ivan Jasjko	$315M
3. Thaleia Kandyli	$315M
4. David Czarny	$313M
5. Diogo Simuaels	$302M
6. Yue Wu	$289M
7. Zhixuan Sheng	$284M
8. Sherry Aggarwal	$281M
9. Emma Cai	$280M
10. Ruiwei Hong	$278M

RESULTS: REVENUE

RESULTS: CUMULATIVE REVENUE

Top 10 Results

Rank/Name	Performance
1. Diogo Simuaels	$2.280B
2. David Czarny	$2.277B
3. Ivan Jasjko	$2.245B
4. Thaleia Kandyli	$2.186B
5. Anqian Li	$2.118B
6. Miranda Zachopoulou	$2.034B
7. Yue Wu	$1.976B
8. Emma Cai	$1.959B
9. Antonis Kourris	$1.953B
10. Ruiwei Hong	$1.945B

RESULTS: MARKET SHARE
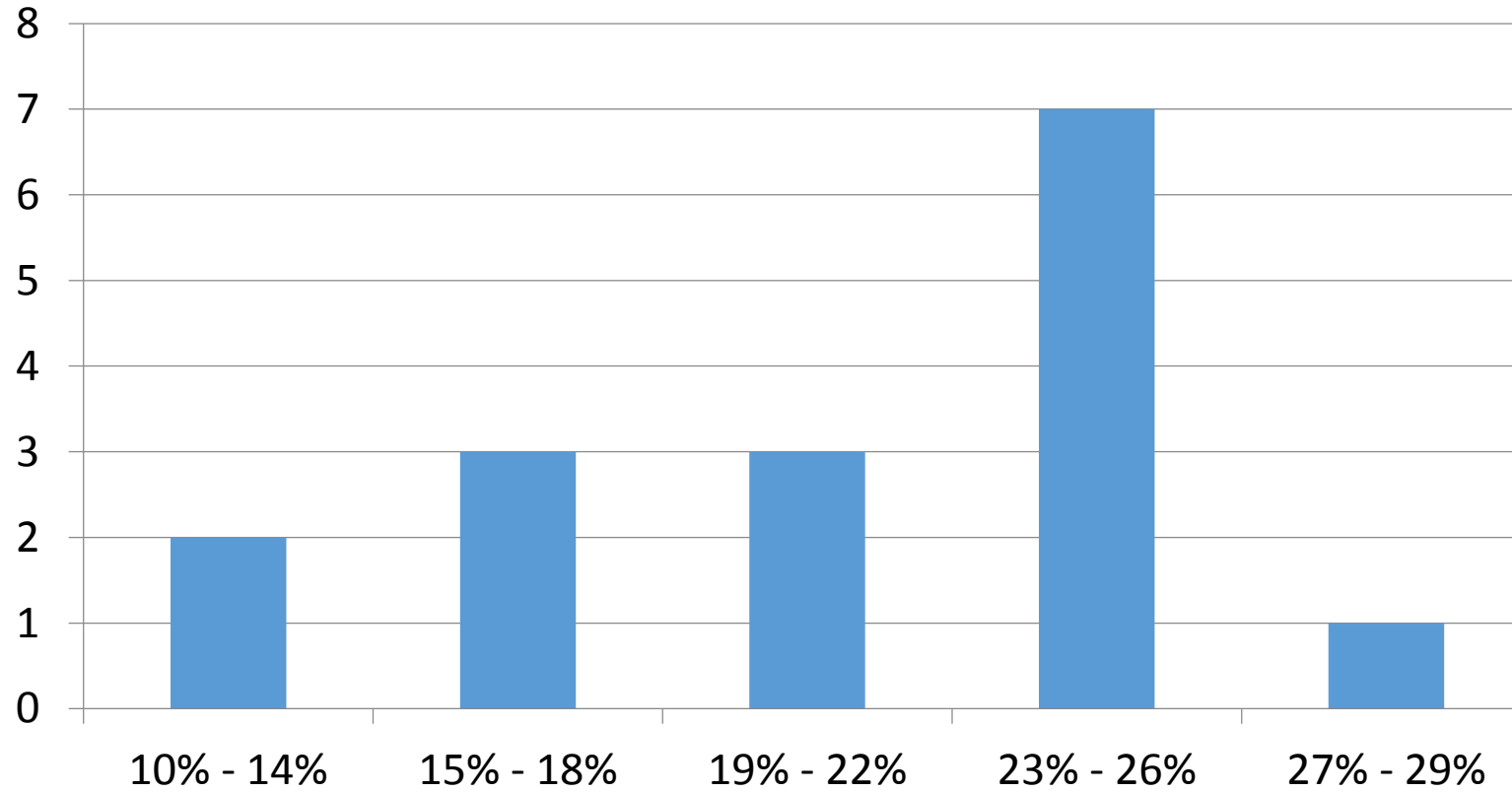
RESULTS: MARKET SHARE

Top 10 Results

1. Thaleia Kandyli	30.0%
2. Diogo Simuaels	25.1%
3. David Czarny	25.1%
Miranda Zachopoulou	25.1%
Ivan Jasjko	24.7%
Jorge Harriague Vilar	23.4%
Yue Wu	23.3%
Anqian Li	23.1%
Alexis Forest	22.5%
Zhixuan Sheng	21.3%

Let's discuss

- What was your **overall strategy** to turn around Blue's performance in the marketplace? What **factors did you manipulate** in your decisions as a result? What was the outcome?

- **How big of a role** did each of the following play in decisions? Why? What were the implications of your decisions?
    - **Product formulation**
    - Product **features and positioning**
    - **Media** channel **spending**
    - **Trade** channel **spending**

- How did you **forecast** demand? Why is the forecast outcome a range? Would a specific number be better? What's the downside of producing too much? Too little?

- Did you look at **social sentiment?** What did that tell you and how did it influence your decisions?

Let's discuss

- Did anyone **lower price dramatically** to gain market share? How did it work?

- Did anyone try to appeal to **a particular geographical region?** Which one? How successful were you with this strategy?

- Did anyone try to go upmarket with Blue and try to **compete with Turbo?** How did that turn out?

- Did you feel that you were able to get beyond the **"what" in your analysis to the "why" and the "how?"**

Successful strategies

1. A discounted pricing, high volume strategy

2. An average pricing strategy

3. A premium pricing strategy

Session Takeaways

Takeaways

- Marketing is a blend of art and science.

- Important to know under which conditions "science" should rule and under which conditions "art" should rule.

Marketing analytics more difficult when we do not know...

- The **context** at the time of data collection

- What the **competitors** (will) do.

- What our **consumers buy when** they do **not** buy our products.

- **Why** consumers are **not buying** our brand.

What is the SCIENCE side?

Some of the successful applications are:

- **Segmentation** by observing and clustering the data
- **Targeting** the right consumers with the right message at the right time
- Accessing and assessing **social media and ratings** information
- Which **sales leads** are worth pursuing
- **Sales forecasts** when preferences are stable
- Setting **prices dynamically**
- **Sales-force** compensation
- Optimization of **ad spending**
- **Customer retention** management

What is the ART side of SCIENCE?

Part of the art is:

- choosing the problems to look at,

- how to approach the problem,

- select which data to collect,

- how to use and analyse that data,

- which variables to track and use for prediction,

- how to interpret the results, and how to utilize the results.

Science allows for more informed "arts" decisions.

In this course we learned…

- Various analytical approaches to transform data into insights and actions.

- The WHAT of retail analytics through demand forecasting

- The HOW and WHY of retail and marketing analytics:
  - Store-level promotion analysis using SCAN*PRO models
  - Modeling advertising dynamics with Adstock model
  - Omnichannel marketing dynamics and resource allocation with VAR models
  - Analyzing customers' attitudes and purchase funnel metrics

Thank you!