Data Tools & Techniques and Marketing Analysis
Course Overview using Boeing vs. Airbus

Professor Raghu Iyengar
Airline Industry

• Two large companies
  • Boeing and Airbus

• Both agree on overall market size
  • About 800 new aircraft deliveries a year for the next 20 years
  • Total market valued at around $1.9 trillion dollars
Boeing Dreamliner

• Smaller (300-400 people)
• Fuel efficient
• Bypass hubs (point to point)
• Longer routes

Source: Dave Sizer via Wikimedia Commons
Airbus A 380

- Large (500-800 people)
- Hub to hub
- Changes in hub to include the plane

Source: P. Loos via Wikimedia Commons
Boeing versus Airbus – Where they differ?

• Market forecasts

• Data?
  • Growth in fragmentation versus Hubs and spokes
  • Consumers’ preferences (Focus groups, blogs, conjoint)
  • Expansion plans for airports
  • Strategic decisions from countries

• Analysis Tools?
  • Text analysis of content, Regression analysis of historical data
Course Emphasis

- Course Emphasis
  - Managerial perspective
  - Decision and action orientation
  - Applicability to real-world problems
- Worst analysis is the “hope and pray” research
Course Benefits

- Intelligent Consumers of Data / Analysis
  - Brand Managers
  - Venture capital
- Intelligent Suppliers of Data / Analysis
  - Consultants
  - Marketing Analysts
What is Data / Analysis?

It links the *market* to the *firm* through *information*.

Information needed for *decision making* and links the information to *actionable decisions*

Tools for *collecting, analyzing, and interpreting* data to aid decision makers.

**Actionable Decisions**
Course Benefits

• Intelligent Consumers of Data / Analysis
  • Brand Managers
  • Venture capital

• Intelligent Suppliers of Data / Analysis
  • Consultants
  • Marketing Analysts
Obtaining Quality Information

**Collecting**: Survey, Focus Group, A / B Experiment, Social Media (Big Data)

**Analyzing**: Regression, Conjoint Analysis

**Interpreting**: Cross-tabs, Hadoop
Course Benefits

Marketing Research Process Evolves From Answers to Five Key Questions

* **Why** should we do this research? *(It would be nice to know is not good enough!)*

* **What** research should be done?

* **Is it worth** doing the research? *(Does it pay for itself?)*

* **How** should the research be designed to achieve the research objectives?

* **What** will we do with the research? *(Write the report in advance)*
How to make your marketing research actionable? “Backward” Market Research

- The basic idea is that market research should be done from the end product forward. There are 8 steps:
  - Determine how the research results will be implemented
  - “Diagram out” the final report
  - Specify the analyses necessary to do the final report
  - Determine necessary data
  - See if secondary data is available
  - If not, collect primary data
  - Carry out field work
  - Do analysis, write report
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Market Research- New Coke Example

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Types of Marketing Research

Exploratory Research
(Ambiguous Problem)

“Our sales are declining and we do not know why.”

Descriptive Research
(Aware of Problem)

“What kinds of people are buying our products? Who buys our competitors’ products?”

Causal Research
(Problem Clearly Defined)

“Will buyers purchase more of our product in a new package?”
Exploratory Research

- Develop initial hunches or insights
- Pilot study, pre-study usually confined to:
  - focus groups
  - secondary data
  - survey opinion leaders
  - case study
New Coke

New Coke, 1985

Taste tests showed that consumers preferred the taste of New Coke over old Coke and Pepsi, but.....

Source: Wikipedia Commons
New Coke

- **Explanations**
  - Drinking experience (short sip versus full can)
  - None of the marketing research informed the tasters that New Coke was going to replace the old Coke
    - Coke had a strong brand identity and consumers identified with the old brand
    - Consumers wanted to retain ‘The Real Thing’
  - Effect of social interactions
    - Focus Groups can be a powerful tool
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Other Types of Data Collection & Tools

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Other Types of Data Collection

*Descriptive* research: It is intended to generate data describing the composition and characteristics of relevant groups.

- Surveys for your customers

*Causal* research: It is intended to identify cause-and-effect relationships among variables.

- A new package size is the cause for an increase in sales
Net Promotor Score

How likely are you to recommend to a colleague or friend?

Detractors
Not at all likely
0 1 2 3 4 5 6
Neutral
Passives
Extremely likely
7 8 9 10

NPS = % of PROMOTERS (9s and 10s) - % of DETRACTORS (0 through 6)
A/B Testing

Source: Optimizely, Wikipedia Commons

Source: Google, Wikipedia Commons

Source: Randomized Experiments, Wikipedia Commons
Other Types of Data Collection

*Descriptive* research: It is intended to generate data describing the composition and characteristics of relevant groups.

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*Causal* research: It is intended to identify cause-and-effect relationships among variables.

- A new package size is the cause for an increase in sales
Tools

• Pricing
  • Regression analysis, elasticity calculations
  • Conjoint Analysis for New Products

• Promotions
  • Promotion sensitivity, dynamics

• Advertising
  • Carryover of advertising

• Social media analytics
Tools

• Critical to have synergy with data collection
  • Regression with historical data
  • Conjoint for new products
• Backwards marketing research
  • Important to think carefully about the managerial goal
Why Do We Need to Collect Data?

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Why not just use Managerial Judgment?

- People are poor at learning from experience
- People have poor sense for the dollar value of information
Availability Bias

- People wrongly assume that readily-available examples represent how likely an event is going to happen.
- The easier it is to bring examples to mind, the higher the likelihood of the event.
Availability Bias - Antecedents

- Familiarity
- Vivid salience
- Recent occurrences
Availability Bias - Consequences

• Creates sizeable errors in decision maker's estimates about the probability of events

• Biases estimates of relationships, such as causal relationships, correlation, and trends

• Examples - rates or categories of many kinds of phenomena, such as behavior, events or data structures.
Big Takeaways

• The link between the firm and the market

• Obtain quality information for making better marketing decisions

• Critical to think about the managerial goal to find the right balance between data and tools
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Types of Primary Market Research

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Primary and Secondary Data Collection
Types of Data

Secondary Market Research
= data collected (internally or externally) for a different purpose than the specific question at hand.

Primary Market Research
= collecting original data for the specific question at hand.
Types of Primary Marketing Data

- Demographic/socioeconomic characteristics (WHO)
- Attitudes and opinions (THOUGHTS)
- Awareness/knowledge (CONSIDERATION/LEARNING)
- Intentions (INTENDED ACTIONS)
- Motivation/Protocol (WHY)
- Behavior (ACTIONS), observational and experimental
Gap Analyses

• Intentions v. Behavior
  • “I intended to buy this, but ….”
  • Local marketing effects, stock outs, stated intentions versus actual behavior, impulse buying, variety seeking

• Attitudes v. Intention
  • “I like this product, but I don’t intend to buy it”
  • Link between satisfaction and intentions, understanding the drivers of purchase behavior.
Types of Primary Data Collection

- Questioning
  - Qualitative methods
    - Focus groups
  - Quantitative Methods
    - Surveys

- Observation
  - Direct observation
  - Field Experiments
### Questioning versus Observation

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Questioning</th>
<th>Observation</th>
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</thead>
<tbody>
<tr>
<td>Versatility</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Time</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Cost/respondent</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Accuracy for Same Data</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Respondent Convenience</td>
<td>Less</td>
<td>More</td>
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When to Use Qualitative Research

- **Exploratory Studies**
  - Probe attitudes and behavior looking for new opportunities
  - Establish basis for quantitative research

- **New Product Development**
  - Understand a market and identify gaps
  - Reactions to new product concepts *(After* quantitative research)

- **Diagnostic Studies**
  - Understand the consumer relationship to the brand
Focus Groups

- **Rationale:** in-depth probing, unstructured discussion, ability to observe dynamics

- **Format:** 8-10 individuals, 1-2 moderators, about 1-hr long, incentives for participants

- **Common Uses:** Products, product concepts, ad copy, script for further studies, questionnaire design
Pros and Cons of Focus Groups

• **Pros**
  - Good for getting in-depth information
  - Enables complex issues to be discussed
  - One person’s experiences or feelings often stimulate others
  - Process highlights differences between consumers
  - Allows for spontaneity

• **Cons**
  - Results not directly quantifiable
  - Not representative
  - Difficulty getting attendees
  - Group process may inhibit frank exchange
  - Minority viewpoints may not be heard
  - Need for skilled and experienced moderator
Surveys

• **Rationale:** To enable *quantification* of opinions, preferences, etc.

• **Format:** Open-ended questions, scaled questions, scenarios, ongoing versus one-shot

• **Tools:** email (tablet, mobile)

• We will talk more about surveys in another session
Qualitative versus Quantitative Research

- **Qualitative**
  - Small number of cases
  - Unstructured data
  - Non-statistical
  - Giver a richer understanding (e.g., how do people perceive a brand)

- **Quantitative**
  - Larger number of cases
  - Structured data
  - Statistical
  - Recommends a final course of action (e.g., go versus no go decision)
Observational Methods

• **Rationale:** Respondents may be unlikely to give “truthful” answers, useful supplements to other techniques

• **Links to Data Collection in Anthropology**

• **Format:** Content analysis (Path Tracker Supermarket Data, Eye Tracking)

• **Tools:** Electronic devices
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Types of Secondary Market Research, Active

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Types of Data

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Types of Descriptive Analytics

**Exploratory**

(Ambiguous Problem)

“Our sales are declining ...why.”

**Descriptive**

(Aware of Problem)

“What kinds of people are buying our products? Who buys our competitors’ products?”

**Causal**

(Problem Clearly Defined)

“Will buyers purchase more of our product with a change of our website?”
Internet Communities (MROC)
Internet Communities (MROC)

- Enhances engagement with customers
  - 6 months to 1 year long

- Shorter deadlines are possible

- “aha” moments
  - Kraft 100 calories snack pack

- Caveat: ROI can be hard to determine!
Types of Descriptive Analytics

Exploratory
(Ambiguous Problem)
“Our sales are declining ...why.”

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Marketing Analytics
Descriptive

• Generates data describing the composition and characteristics of relevant groups

• Typical managerial questions
  • What are the characteristics of our customers
  • What is our share of wallet

• This can be done via
  • Active data collection
  • Passively observing behavior (unobtrusive)
Active Data Collection

- Surveys
- Self-reports of several types of consumer behavior
Surveys

- Used by every Fortune 500 company
- Regularly used for gathering customer attitudes, satisfaction scores, purchase habits
- Data can be used to help segment customers
Full Service

<table>
<thead>
<tr>
<th>Plan</th>
<th>Price</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BASIC</strong></td>
<td>Free</td>
<td>10 questions, 100 responses, Standard email support</td>
</tr>
<tr>
<td><strong>SELECT</strong></td>
<td>$26 per month</td>
<td>Unlimited questions, Unlimited responses, Priority 24/7 email support, Custom logos, colors &amp; more, Skip logic, Cross-tabs &amp; filters, Export data &amp; reports, Statistical significance, Text analysis, Question &amp; answer piping, Randomization, Add multiple users, White label surveys, Phone support, HIPAA-compliant features</td>
</tr>
<tr>
<td><strong>GOLD</strong></td>
<td>$300 per year</td>
<td></td>
</tr>
<tr>
<td><strong>PLATINUM</strong></td>
<td>$780 per year</td>
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</tbody>
</table>
Mobile Surveys – The Next Frontier
Mobile Surveys

• Allow you to capture customers’ reactions in-situ rather than being retrospective
• The questionnaire can be tailored based on location and context.
• Caveat: Marketers should be careful not to hasten customer fatigue
Self - Reports

- Store purchases

InfoScout operates America’s largest and richest source of household purchase data across all retailers, both brick-and-mortar and online. We do this by monitoring consumers along every step of their path to purchase via our proprietary mobile apps. Learn More »

Start with the shopper
Over 1 million Americans use InfoScout’s proprietary mobile apps as part of their everyday shopping activities—no matter where they shop or what they buy.

Shopper plans their trip
InfoScout built one of the world’s most used shopping list apps: Out of Milk.

Shopper snaps a receipt pic
InfoScout captures receipt pictures with engaging mobile apps on the one device that’s always with us. This allows us to capture 15x as many shopping trips per day as legacy consumer panels.
Self - Reports

• Word-of-mouth dynamics
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Types of Secondary Market Research, Passive (unobtrusive)

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Passive (Unobtrusive) Collection

- Point of Sales (POS) Data
Passive (Unobtrusive) Collection

- Point of Sales (POS) Data
- Media Planning
  - Radio
  - TV
  - Social media
Passive (Unobtrusive) Collection

- Point of Sales (POS) Data
- Media Planning
  - Radio
  - TV
  - Social media
- Web Data
Passive (Unobtrusive) Collection

- Point of Sales (POS) Data
- Media Planning
  - Radio
  - TV
  - Social media
- Web Data
- Mobile Data
POS Data Example: Groceries / Health

- The Data Chain
  - 80-100 CPG manufacturers
  - 60-100 Major warehouse and distribution centers
  - 30,000 supermarkets
  - 80,000,000 households
POS Data Example: Groceries / Health

- **The Data Chain**
  - 80-100 CPG manufacturers
  - 60-100 Major warehouse and distribution centers
  - 30,000 supermarkets
  - 80,000,000 households

- **The Data Cube**
  - Geography x Product x Time x Variable
  - $G \times P \times T \times V > 10,000$ even for one category
POS Data Example: Groceries / Health

- The Data Chain
  - 80-100 CPG manufacturers
  - 60-100 Major warehouse and distribution centers
  - 30,000 supermarkets
  - 80,000,000 households

- The Data Cube
  - Geography x Product x Time x Variable
    - G x P x T x V > 10,000 even for one category
  - Aggregation (regions, SKU groups, temporal)
POS Data

Measure what's happening.

Access information from the channel innovating products and defining the industry.

The Natural Channel represents an $11.5 billion market opportunity and is at the epicenter of our industry.

Identify, understand and anticipate the needs of your natural consumers.
New In-Store Data

- Beacons (Mobile App)
New In-Store Data

- Beacons (Mobile App)
- In-Store Smart Shelves
with the development of video streaming and the multiplicity of consumption is evolving rapidly. Consumers can access content on their smart phones at any time, smart phones to their TVs at home at any time.

Both advertisers and media owners seek reliable audience data in their marketplace—finding a robust way to measure media activity and evaluate it for efficiency of programming, advertising inventory and campaign reach.

Yet the majority of viewing still occurs at home on TV screen and the long tail of consumption—gaining a more robust view of single currency to the market.

With data on their markets and what affects their loyalty, by linking deeper level of market analysis and pinpoint steps you can:

TV & VIDEO AUDIENCE MEASUREMENT

Providing television measurement from more than 35 million screens and approximately 16 million households across the country, Rentrak is the trusted source for networks, advertisers, delivering the most reliable TV ratings all day, every day across all major media landscapes.

With Rentrak’s TV Broadcaster helps television buyers and sellers make smarter decisions by giving them a deeper understanding of who their current television viewing audience. Providing unparalleled TV measurement, this unique service goes beyond standard research and measurement to provide viewership information for a level of granular that is difficult to find.

TELEVISION

Television and the way we watch it have come a long way since Nielsen began measuring TV audiences in 1940. Today, the ability to track our favorite shows at any time and on multiple devices, and the need for exceptionally apt and broader audience measurement capabilities.

And there’s a big reason why Nielsen is synonymous with television audience measurement. We invented it. We still do it. We’ve offered the media industry the expertise it needs to make the best marketing decisions possible. Today, our comprehensive and representative television measurement services capture video viewing across all screens. Television and computers.

WHAT WE MEASURE

Consumers are changing the lives, and the same goes for us. As technology continues to evolve and media companies by new ways to attract viewers, understanding what consumers are watching—and what they’re watching on—is more important than ever. Today, viewing video is a personal and unique experience.
Managerial Questions

- Who is watching what show?
Managerial Questions

- Who is watching what show?
- How is the viewership pattern changing over time?
Managerial Questions

- Who is watching what show?
- How is the viewership pattern changing over time?
- TV viewership → Ad Spend
Social Media Analytics

Measure your impact with social media analytics
Gauge the effectiveness of your social media campaigns, and unlock the full value of social media listening.

Buffer has acquired Respondly!
A powerful new customer service and brand monitoring tool, coming soon

A better way to share on social media
Social media management for marketers and agencies

Sign Up For Free
Managerial Questions

- Audience engagement for a campaign
Managerial Questions

- Audience engagement for a campaign
- Brand mentions as compared to competitors
Managerial Questions

- Audience engagement for a campaign
- Brand mentions as compared to competitors
- Sentiment analysis
At Ipsos, we've developed a platform to monitor the online and mobile activities of consumers in real-time using passive technology.

Watch Video
Search Data

Get more with Compete PRO
Search on demographics, growth trend and more with Compete PRO.

Jun 2015 Unique Visitors
450,560

Unique Visitors

06/14 07/14 08/14 09/14 10/14 11/14 12/14 01/15 02/15 03/15 04/15 05/15 06/15
Search Data – Individual companies

Shop directly from people around the world.

Trending Items
Explore shoppers' top finds from around the marketplace.
Mobile Data

Facebook helps you connect and share with the people in your life.

Sign Up
It's free and always will be.

Flurry Analytics
Measure, track and analyze app performance, user acquisition and activity with Flurry Analytics.

Optimize the mobile experience
Get the most widely used app analytics that's quick to integrate, easy to use and free. Get a deep understanding of app performance metrics and everything your users are doing. Track your user acquisition campaigns and tie them back to analytics to maximize ROI.
Managerial Questions

- Is customer search on the mobile platform different from the desktop?
Managerial Questions

• Is customer search on the mobile platform different from the desktop?
• What information to show customers based on their location?
Managerial Questions

• Is customer search on the mobile platform different from the desktop?
• What information to show customers based on their location?
• Location-based coupons
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Several companies help with A/B Testing

- Optimizely
- Google
- Monetate
Mobile A/B Testing

Mobile A/B Testing with Analytics

Leanplum's Mobile A/B Testing helps you understand the user experience. A/B Testing is data-driven, allowing you to quickly and easily test different versions of your app or website.

EXPERIMENT & SURPRISE YOURSELF WITH MOBILE A/B TESTING

A/B testing gives you the power to test your idea like a science experiment. Change the color of a button, edit the marketing copy. If you're really ambitious, change the velocity in your game. Mobile A/B testing lets you instantly understand the impact. Now you can bring data to the table — but be prepared to be surprised by the results.
Managerial Questions

• Website optimization
Managerial Questions

• Website optimization
• Mobile App design
Managerial Questions

• Website optimization
• Mobile App design
• Customized design
  • One to one marketing
Data Tools & Techniques and Marketing Analysis
Trends and Summary

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Next Steps!

- Cross Platform!

- Data collection that allows more personalization $\leftrightarrow$ Privacy!
Summary

- Each type of data has benefits but costs as well.
- It is important to understand what the data can offer and is it the best suited for your particular problem.