

# Customer Analytics

Data collection and RFM & CLV

# Good Analytics

- Systematically collecting and interpreting data that can aid decision makers
  - Getting good data
  - Synergy between data and decisions made by managers

## **Exploratory Research**

(Ambiguous Problem)

“Our sales are declining...why?

## **Descriptive Research**

(Aware of Problem)

“What kind of people are buying our products? Who buys our competitors' products?”

## **Causal Research**

(Problem Clearly Defined)

“Which customers will buy more of our product if we send them coupons?”

# Exploratory Research

- Develop initial hunches or insights
- Usually a first (and an important) step in understanding a broader managerial problem
- Provides broad guidelines of what to test more rigorously

# Focus Groups

- **Rationale:** In-depth probing, unstructured discussion, ability to observe dynamics
- **Format:** 8-10 individuals, 1 moderator, about 1-hour long, incentives for participants
- **Common Uses:** Product concept, survey design

# Market Research Online Communities (MROC)

VISIONCRITICAL™  
WHERE THE WISDOM STARTS HERE

OUR SOFTWARE WHY US CUSTOMER STORIES RESOURCES BLOG ABOUT US

Authentic customer intelligence

c\_space

What we do Our thinking C Space Health Careers Contact

itracks

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## itracks GO

### YOUR COMPLETE QUALITATIVE RESEARCH SUITE

What's New

itracks launches itracks GO – Your complete qualitative research suite!

Welcome to itracks GO!

itracks offers researchers the only comprehensive qualitative research suite, itracks GO.

Create Your Free Account.

Qualitative Activities

Innovative qualitative platforms to save you time and budget.

- itracks Chat:** Online focus groups in real-time with polling and rich media capabilities.
- itracks Board:** Integrated online and mobile discussion groups with video capabilities.
- itracks Video Chat:** Video focus groups and IDI's hosted with the integrated itracks GO platform. [Compare products.](#)

Upcoming Webinars

Never Stop Learning. Always be on the cutting edge of market research.

**THE TOOLBOX**  
4 INNOVATIVE RESEARCH METHODS USING iTRACKS CHAT  
LIVE WEBINAR  
February 22nd, 2017 - 12 PM EST

WEBINAR: Four Innovative Research Methods using itracks Chat  
Wednesday February 22nd, 2017 at 12:00 PM EST

# Internet Communities (MROC)

- Enhances engagement with customers
  - 6 months to 1 year
- Shorter deadlines are possible
- “aha” moments
  - Kraft 100 calories snack pack
- Caveat: ROI can be hard to determine!

# Descriptive Data Collection

## HOW?

- Active Data Collection
  - Surveys
  - Self-reports of several types of consumer behavior
- Passive (Unobtrusive) Data Collection

# Companies

qualtrics

APPLICATIONS ▾ PLATFORM ▾ INDUSTRIES ▾ CUSTOMERS FREE ACCOUNT

WELCOME TO THE QUALTRICS INSIGHT PLATFORM

The most widely used customer experience software on the planet

A central red circle contains the Qualtrics logo. Three grey circles labeled 'CX' (top), 'MR' (bottom left), and 'EI' (bottom right) overlap with the central circle. Red lines connect each of the three labels to their respective circles.

- CUSTOMER EXPERIENCE**  
Build greater brand loyalty by asking about your customers' experiences and acting on their feedback. Include your operational data to bring clarity and context to insights.
- MARKET RESEARCH**  
Thoroughly understand your market and deliver ahead-of-customer expectations.
- EMPLOY**  
Happy employee satisfaction drives customer satisfaction.

SurveyMonkey®

Sign In Help

## Create Surveys, Get Answers

Pro Sign Up

Sign Up Free

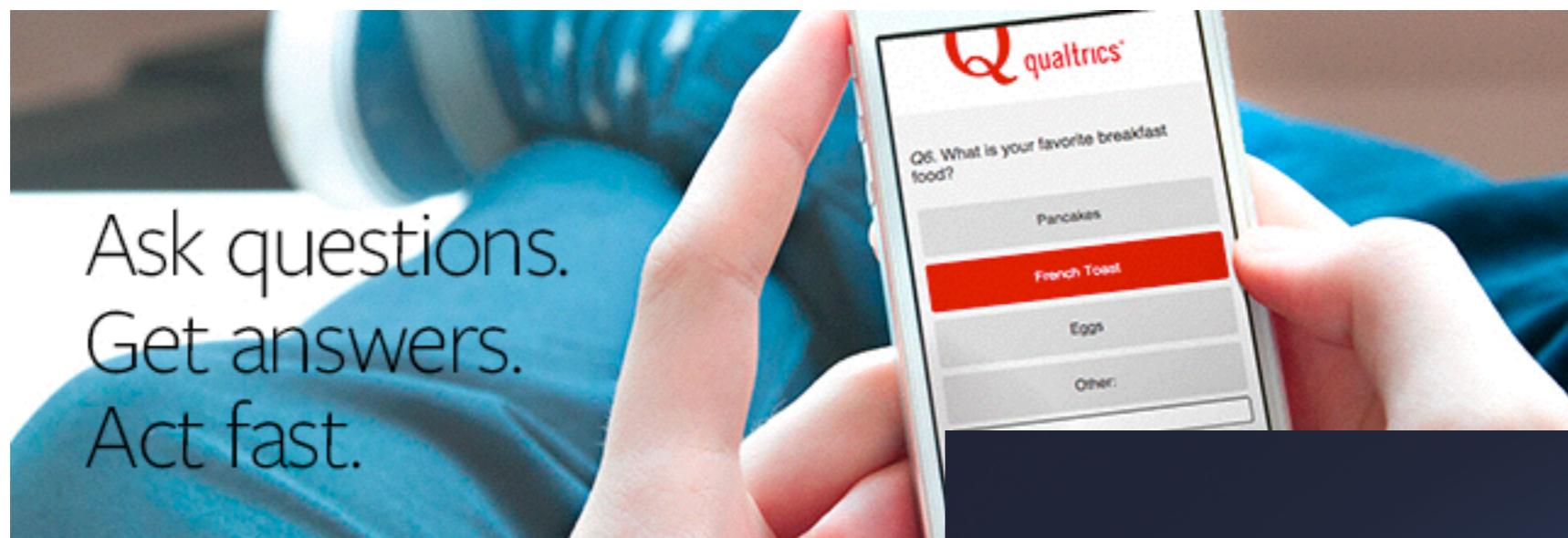
The basics are always free. Upgrade for more powerful features.

Take your business to the next level

Get access to powerful solutions that help you quickly collect feedback from your customers, prospects, and employees.

Learn More

# Mobile Surveys



Ask questions.  
Get answers.  
Act fast.

**Get answers to  
tough questions  
with mobile surveys.**

Surveys makes it easy for you to ask your customers a question and for them to answer it. Now anyone in your company can create, target, and send beautiful mobile surveys to the people who use your app.

[SEE HOW IT WORKS](#)

[TRY IT FOR FREE](#)



# 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

# Outline

Before implementing the survey

- **Issue 1:** Types of questions
- **Issue 2:** Is what you are collecting going to be worth anything?
  - *Validity*
  - *Reliability*

# How Should You Measure Issue 1

- Itemized-Category
- Comparative
- Ranks
- Paired Comparison
- Likert
- Continuous

# Itemized-Category

How satisfied are you with your health insurance plan?

- Very satisfied
- Quite satisfied
- Neither satisfied or dissatisfied
- Quite dissatisfied
- Very dissatisfied

Characteristics:

- Extent of category descriptions are clear
- Balance of favorable and unfavorable categories
  - **Comparison to what?**

# Comparative

- Compared to private clinics in the area, the doctors in private practice provide a quality of medical care which is

Very  
inferior



Neither  
Inferior or Superior



Very  
Superior



- Big loss of information here

# Ranks

Please rank the following characteristics of cellular phone service in terms of importance

(1 is most important and 8 is the least important, no ties allowed)

Total cost of service \_\_\_\_\_ Reliability of service \_\_\_\_\_

Reception clarity \_\_\_\_\_ 24-hour customer service \_\_\_\_\_

Low fixed cost \_\_\_\_\_ Size of local coverage area \_\_\_\_\_

Low Overage Fee \_\_\_\_\_ Number of free minutes \_\_\_\_\_

- Ranking type data
- Many comparisons  
(4-6 categories)

# Paired Comparison

Which of the following two products do you prefer?

**Honda Accord**  
**\$18K**

**Automatic Transmission**  
**Luxury Package**

**Toyota Tercel**  
**\$16K**

**Manual Transmission**  
**Standard Package**

- Respondents might hate both
- Large number of brands cannot be compared  
(2-3 brands & 4-6 features)

# The Likert Scale

For each of the listed statements, please check the one response that best expresses the extent to which you agree or disagree with that statement.

Statements	Definitely Agree	Generally Agree	Slightly Agree	Slightly Disagree	Generally Disagree	Definitely Disagree
I buy many things with a credit card.	—	—	—	—	—	—
I wish we had a lot more money.	—	—	—	—	—	—
My friends often come to me for advice.	—	—	—	—	—	—
I am never influenced by advertisements.	—	—	—	—	—	—

Source: Hair, Bush & Ortinau, 2003, "Marketing Research"

# Continuous Scale

Move the arrow to the point that indicates your preference



Very effective if multiple items on the screen at the same time as it is then easy to allocate relative preference

Very popular in computer mediated surveys

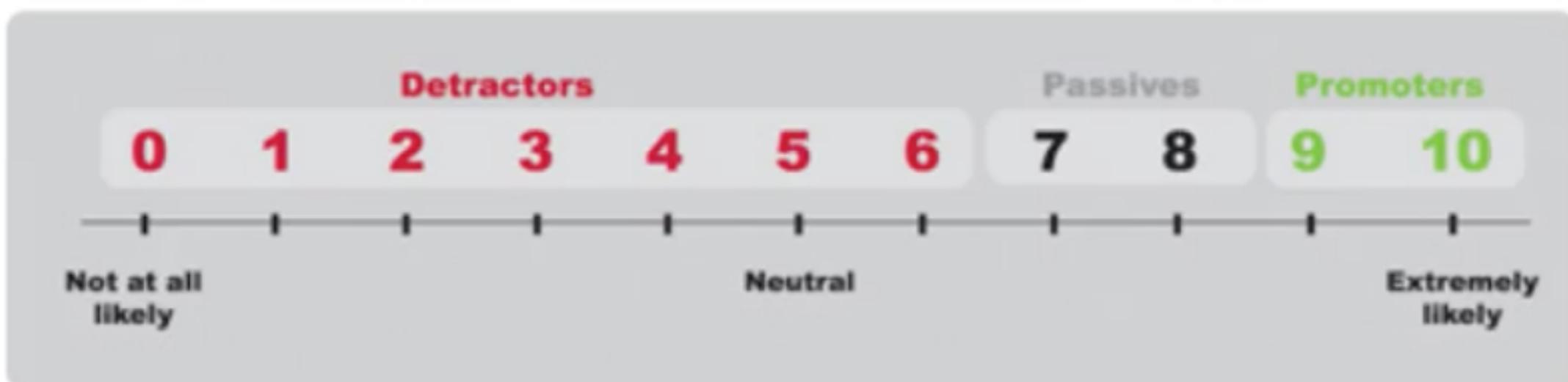
# Net Promoter Score (NPS)

**How likely is it that you would recommend [your company] to a friend or colleague?**

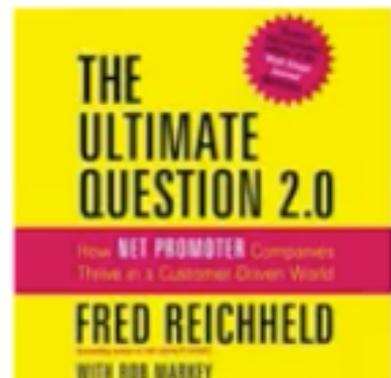
- 0-10 Scale
  - Promoters - Score of 9-10
  - Passives - Score of 7-8
  - Detractors - Score of 0-6
- NPS = % of Promoters - % of Detractors

# Net Promoter Score (NPS)

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



$$\text{NPS} = \% \text{ of PROMOTERS} \text{ (9s and 10s)} - \% \text{ of DETRACTORS} \text{ (0 through 6)}$$

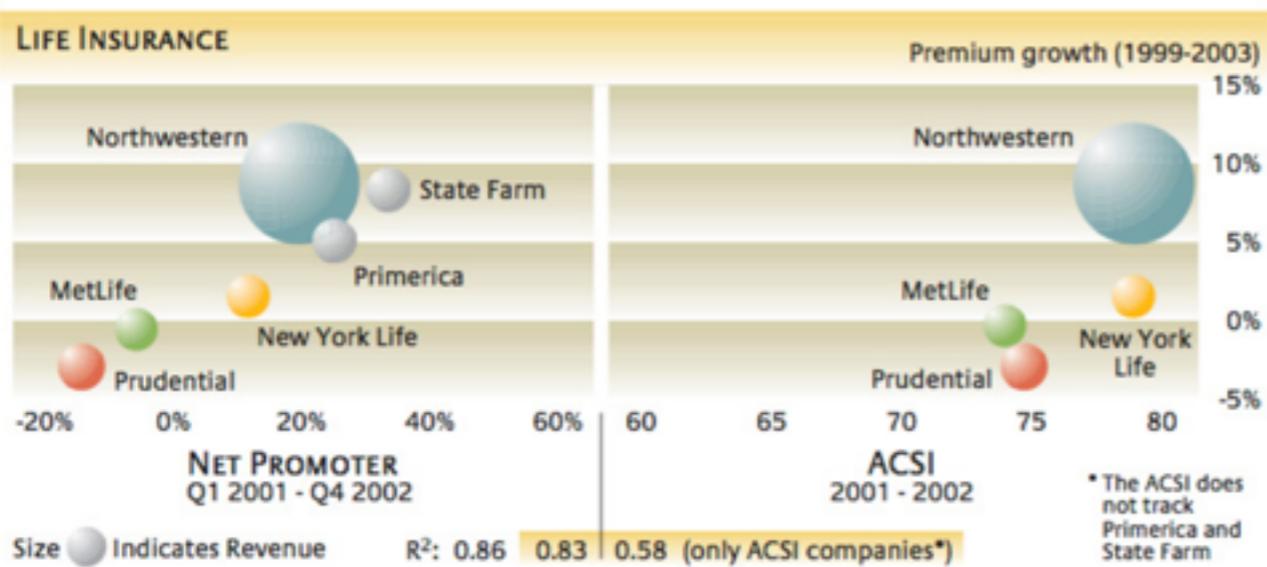
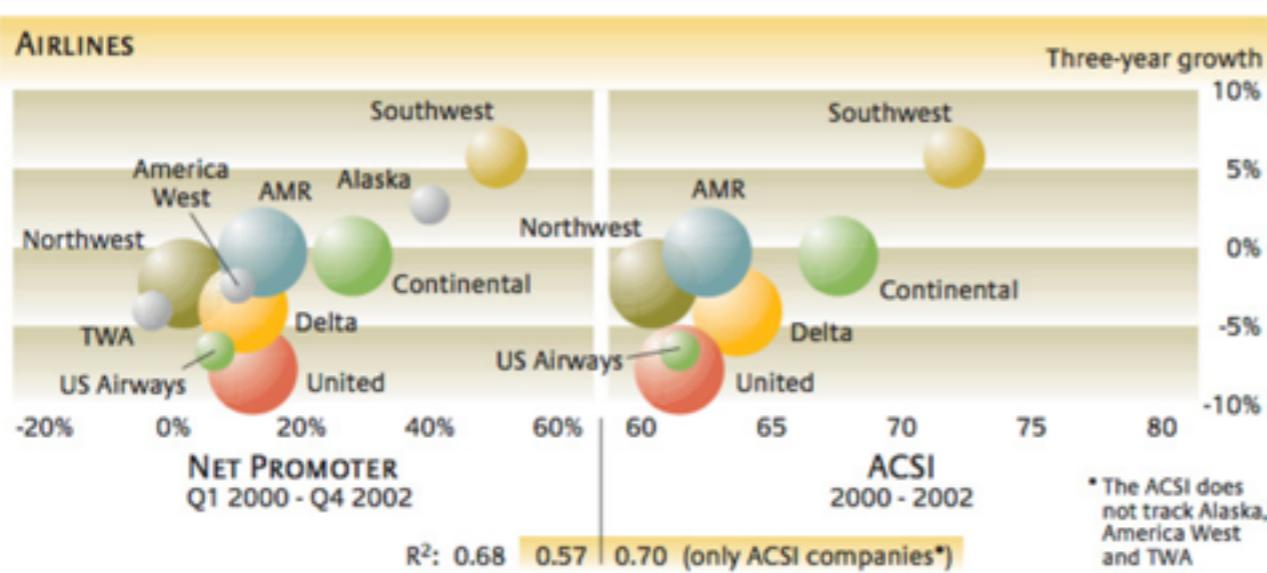
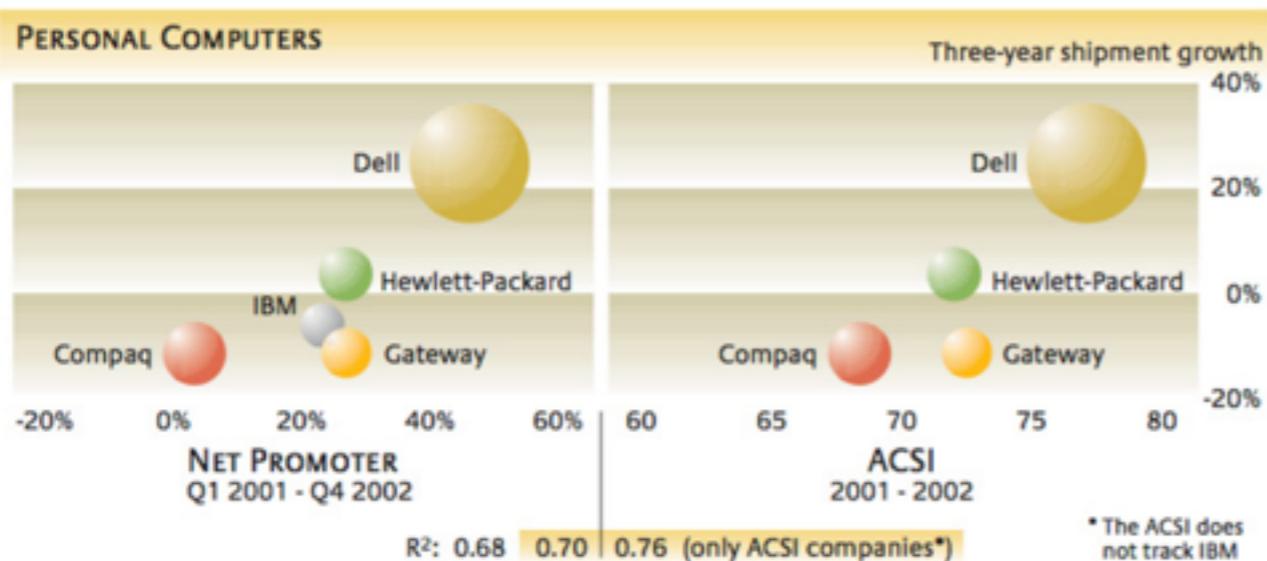


Source: "The One Number You Need to Grow", HBR

# Net Promoter Score (NPS)

## Criticism

- Very similar to American Customer Satisfaction Index (ACSI)
- For many industries, ACSI index has higher R<sup>2</sup> with industry growth is higher than NPS
- There is no clear evidence that NPS is superior to other metrics



**“Linking Customer Growth”**  
MIT Sloan Review

# Is NPS related with Profitability?

- Yes, customer satisfaction is correlated with profitability.
- Overall, literature generally suggests that higher customer satisfaction leads to positive outcomes for the firm

*Journal of Accounting Research*  
Vol. 36 Supplement 1998  
*Printed in U.S.A.*

**Are Nonfinancial Measures  
Leading Indicators of Financial  
Performance? An Analysis of  
Customer Satisfaction**

CHRISTOPHER D. ITTNER AND DAVID F. LARCKER\*

*Journal of Marketing*  
Vol. 68 (October 2004), 172–185

Eugene W. Anderson, Claes Fornell, & Sanal K. Mazvancheryl

**Customer Satisfaction and  
Shareholder Value**

In this article, the authors develop a theoretical framework that specifies how customer satisfaction affects future customer behavior and, in turn, the level, timing, and risk of future cash flows. Empirically, they find a positive association between customer satisfaction and shareholder value. They also find significant variation in the association across industries and firms.

# But the Link is Weaker than What Managers Generally Think

- While correlations are positive, customer satisfaction explains a somewhat limited part of firm performance/value

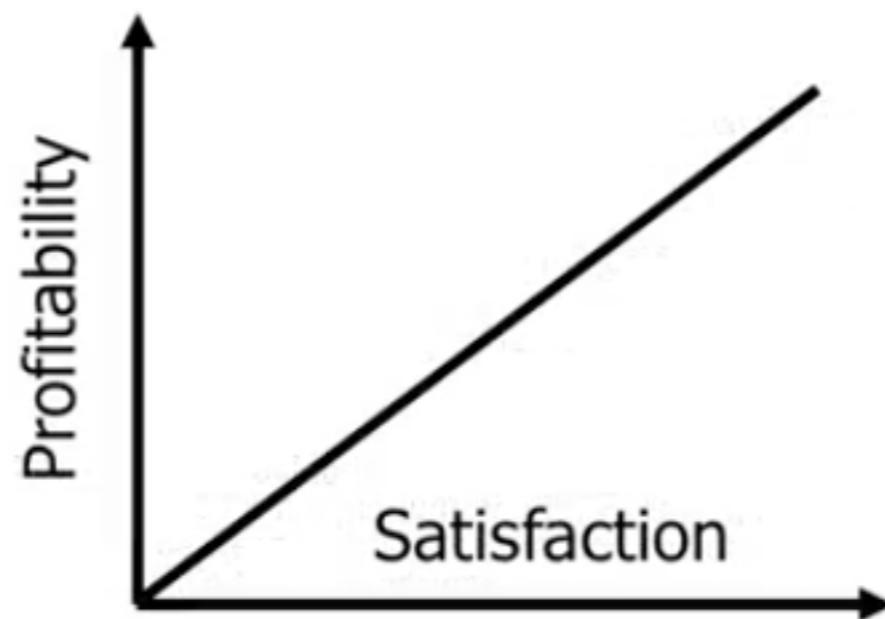
Eugene W. Anderson, Claes Fornell, & Sanal K. Mazvancheryl

## **Customer Satisfaction and Shareholder Value**

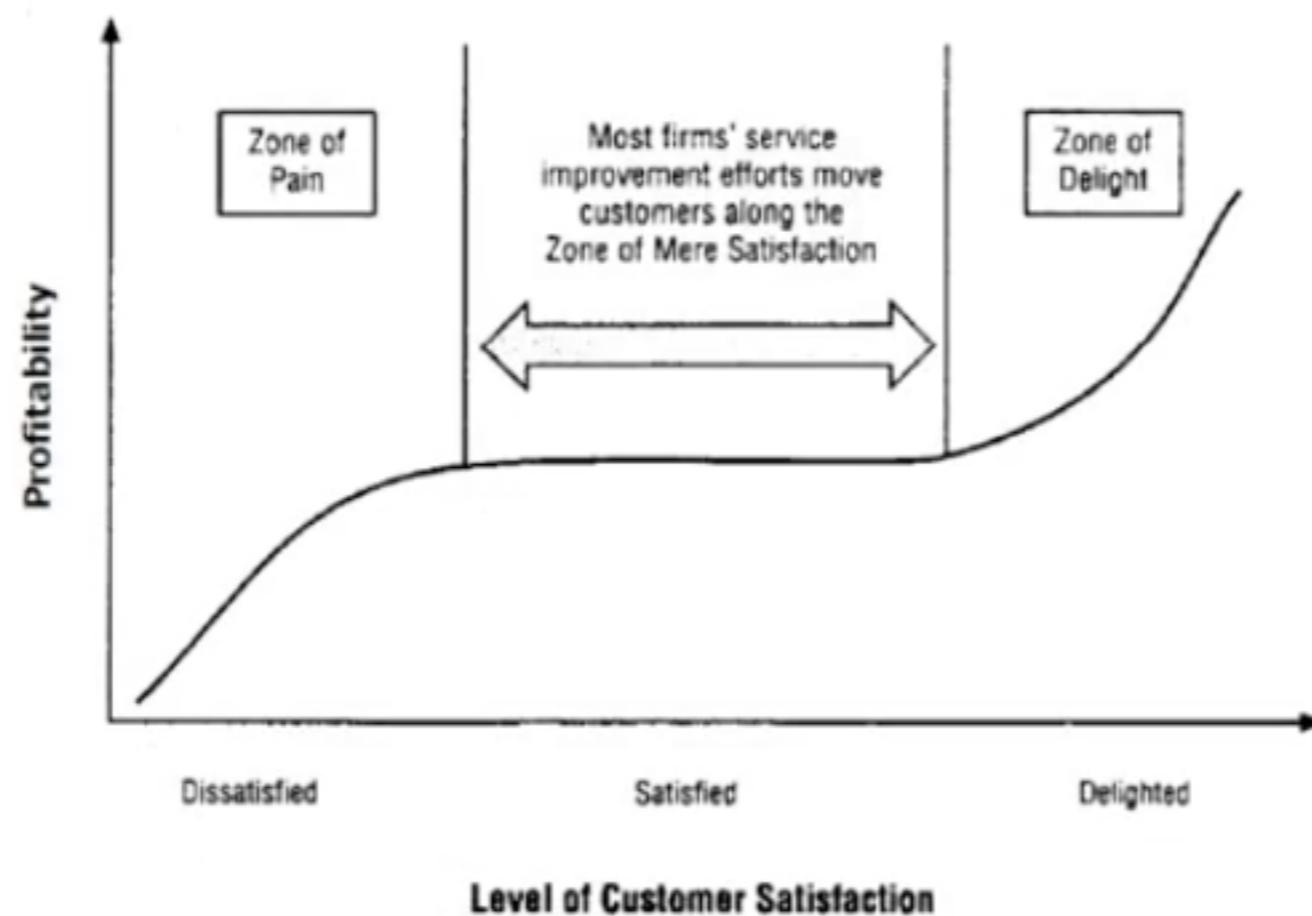
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# What Does the Link Look Like?

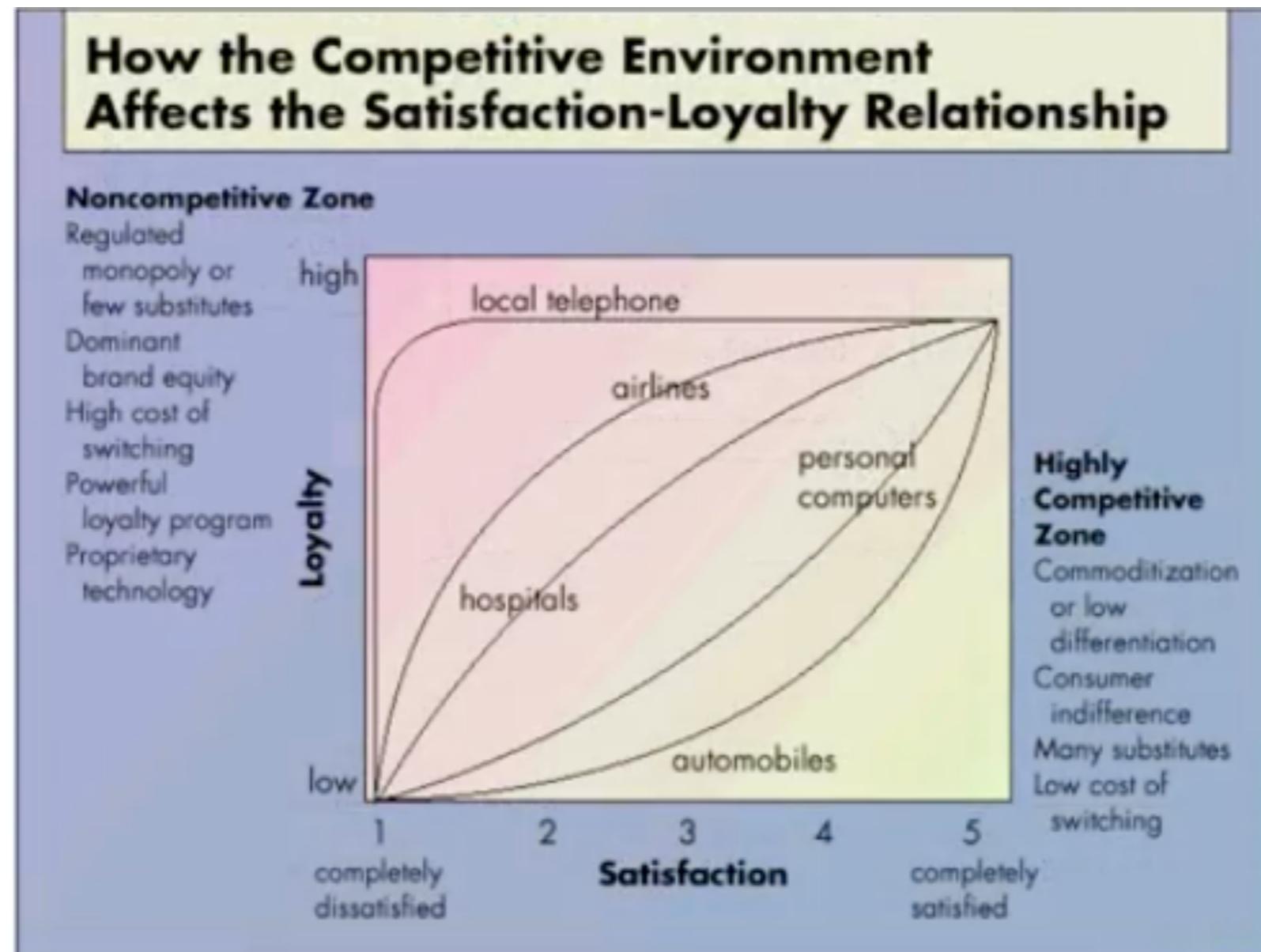
- The classic way in which managers perceive the satisfaction-profitability connection



# Moving Along the Satisfaction Axis



# Satisfaction-Profitability Relationship



Jones and Sasser (1995)  
“Why Satisfied Customer Defect”, Harvard Business Review

# 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 every day 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.

[See All »](#)

# Self-Reports

- Word-of-mouth dynamics

The image displays two side-by-side screenshots of the Keller Fay Group website. Both pages feature a top navigation bar with links for 'Who We Are', 'Solutions', 'News & Insights', 'Keller Fay UK', and 'Contact Us'. A search bar is also present.

**Left Page: WOM Dynamics Collected**

**Header:** WOM Dynamics Collected

**Section: Brand Level**

- Polarity: Positive, negative, mixed, neutral opinions
- Recommending: Yes, consider, avoid
- Content: What was said
- Credibility & Intended actions
- Influences: Customer Experience, Media/marketing
- Sender vs. Receiver

**Section: Conversation Level**

- Mode: Face-to-face, phone, online
- Venue: Home, work, school, in-store, in-transit, etc.
- Participants: Who & how many

**Section: Respondent Level**

- Demographics
- Influencer characteristics
- Media Usage Behavior

**Buttons:** RECEIVE OUR FREE NEWSLETTER, FIND OUT MORE, NEWS & INSIGHTS

**Text at bottom:** Engagement Labs Customer Strategy, Engagement Labs US and UK Markets

**Right Page: Talk Track® Methodology**

**Header:** Talk Track® Methodology

**Section: Diary-assisted survey about a day's conversations**

- Respondents first recollect to take notes on conversations in 15 categories over 24 hours
- Brand/company names collected on open ended basis
- Covers all forms of WOM: face to face, phone, online

**Section: Representative sample of consumers 13 to 69**

- Participants re-contacted a day later to answer questions about brands talked about during past 24 hours
- Sample drawn from largest online consumer panels
- Demographically balanced to US Census
- 700 interviews weekly, 1,200 per monthly, 16,000 annually

**Section: Size of Database**

- Over 30,000 conversational brand mentions per month
- Nearly 400,000 brand mentions per year
- Started June 2004; About 7 years in active database

**Section: Deliverables**

- Clients may elect to receive a flexible schedule of deliverables: semi-annual reports on word of mouth in their category; monthly update reports; "deep-dive" reports on topics of interest in their category; etc. In addition, clients may elect to

**Buttons:** RECEIVE OUR FREE NEWSLETTER, FIND OUT MORE, NEWS & INSIGHTS

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# Outline

Before implementing the survey

- **Issue 1:** Types of questions
- **Issue 2:** Is what you are collecting going to be worth anything?
  - *Validity*
  - *Reliability*

# Issue 2

- Validity
  - Predictive validity
- Reliability
  - test-retest reliability (If you were to re-measure)

# Takeaways

- What is the metric capturing?
- How does it compare with other metrics?
- How does the metric link with managerial outcomes?

# Descriptive Data Collection

## HOW?

- Active Data Collection
  - Surveys
  - Self-reports of several types of consumer behavior
- Passive Data Collection

# Passive (Unobtrusive) Collection

- Scanner Data
- Media Planning
  - Radio
  - TV
  - Social Media
- Web Data
- Mobile Data

# Scanner Data

- Grocery business plus health and beauty aids
- The Data Chain
  - 80-100 Consumer Packaging 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
  - GxPxTxV > 10,000 even for one category
- Aggregation (regions, SKU groups, temporal)

Revolutionized the field of Marketing in the early 1980s

# Scanner Data



INSIGHTS SOLUTIONS NEWS CENTER ABOUT

Search All Nielsen



The W.  
PLAY  
WH

Demand Port  
Identify key growth pockets with a structured de  
portfolio strat

Blue Jeans Meeting

IRI  
Growth delivered.

SOLUTIONS RESULTS INSIGHTS COMPANY COUNTRY

SPINS<sup>®</sup>

BRANDS RETAILERS PARTNERS TREND WATCH ABOUT SPINS CONTACT

Our Strategic Partners

We work closely with leading researchers, trade associations, distributors and brokers, and certification organizations dedicated to the Natural and Organic products industry. These partners utilize SPINS' services and products to drive incremental growth, enable category management, manage pricing & promotions, and identify emerging trends.

# Why do companies pay so much?

- **Completeness**

- Linking aggregate sales movements to marketing instruments

- Ditto (and more) at the individual level

- Obtaining a richer set of performance measures beyond market share

- **Timeliness**

- Getting the data within a window that allows for meaningful managerial action

- **Accuracy**

# Managerial questions

- **Impact of promotions:**

Who buys our products on promotions?

Are customers borrowing from their future purchases?

Will cherry pickers become loyal?

- **Impact of displays:**

Which type of display (e.g., end of aisle) works better?

- **Within and across category:**

Which categories are substitutes/complements?

# Problems of Scanner Data

- Cannot make causal statements
- Don't know the exact set of choices faced by the consumer at the time of decision

# Media Planning

## Radio

TV

**TV AUDIENCE MEASUREMENT**  
Home > Solutions > Audience Measurement > TV Audience Measurement

### TV & VIDEO AUDIENCE MEASUREMENT



With the development of video streaming and the multiplication of device consumption is evolving rapidly. Consumers can access content anywhere, anytime and their data contribute to their PCs at home and mobiles more complicated.

With advertisers and media owners need reliable audience metrics that dynamically in their marketplace—finding a robust way to measure multi-screen media activity and execute it for efficiency in order to reach programming, advertising inventory and campaign reach for highest ROI.

Not the majority of viewing still occurs at home on TV screens. Through transparent systems we monitor the TV viewing behavior of our partners' cable, IPTV and satellite sources. By measuring both live and time-shifted the long tail of consumption—giving a more robust view of media buying, single currency to the market.

We also look at consumers to understand their preferences, patterns of engage with content and what affect their results. By taking this data to deeper level of market analysis and segment maps you can have to make better calls on our Media & Entertainment Research and Audience Profile.

**RENTRAR** Media Measurement

### TV Audience Measurement



Providing television measurement from more than 25 million screens and approximately 16 million households across the country, Rentrar is the trusted source for networks, agencies and advertisers, delivering the most precise and reliable TV ratings all day, every day across the largest media landscape.

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### SOLUTIONS

#### TELEVISION

Television and the way we watch it have come a long way since Nielsen began measuring TV audiences in 1933. Today, for people to switch our favorite shows at any time and on multiple devices, creates the need for transparent, ad-supported and flexible audience measurement capabilities.

And there's a big reason why Nielsen is synonymous with television audience measurement: We invented it. Since day one, we've offered the media industry the expertise it needs to make the best financing decisions possible. Today, our expansive and representative television measurement services capture more viewing across different screens, television and computers.

#### TOTAL IT UP

TELEVISION, DIGITAL AND THE REAL WORLD

**LEARN MORE**

#### RELATED SOLUTIONS

Advertising Effectiveness

**KANTAR MEDIA** Powering informed decisions

### Project Search



**ABOUT NIELSEN AUDIO**

We're turning up the volume on radio measurement.

Nielsen has completed its acquisition of Nielsim, enhancing the scope of the data and analytics we gather across the physical and digital radio dial.

As the definitive source for comprehensive radio metrics and insights, Nielsen Audio has the beat on this dynamic and innovative industry. Radio today is about more than what's playing and being heard. It's about industry trend reports like audience reach, effective radio hours, multi-platform utilization and audience value—stats that are speaks loudly.

But we also care big about consumers' needs. That's because we know the way that we consume content—whether that be by listening or watching—can shift as consumers choose different devices. Our Portable People Readers, for example, show light on consumption trends across radio, broadcast TV and cable. We also offer mobile on-device metrics to help everyone from software providers to mobile content owners understand the consumer to complete mobile experience.

And with Nielsen Media, you're never left to figure things out on your own. In addition to measuring Nielsen radio and digital performance, Nielsen Media has the tools, services and software to help radio stations and programmers, make the most of their air time. After all, we know that having great stations is only part of the puzzle, so we help radio groups maximize their sales processes and provide insight that helps stations take their programming effectively.

It's time to turn it up: to elevate audio measurement and insight. It's time for Nielsen Audio.

# Managerial Questions

- Who is watching what show?
- How is the viewership pattern changing over time?
- TV viewership ==> Ad spend

# Social Media Analytics

**Hootsuite**

Products Solutions Plans Services Resources About Us Sign Up

**PRODUCTS**

- Engagement
- Publishing
- Analytics**
- uberVU via Hootsuite
- Core Analytics
- Campaigns
- Platform
- Extensions
- Mobile Apps

**Measure your impact with social media analytics**

Gauge the effectiveness of your social media campaigns, and unlock the full value of social media listening.

**uberVU via Hootsuite**



uberVU via Hootsuite

Unlock the full value of social media data with uberVU via Hootsuite, our real-time social media listening solution. It delivers usable, real-time insights about your brand and the topics that matter most to you—benefiting every corner of your organization.

[Learn more](#)

**Core Analytics**



Core Analytics

Measure and analyze the effectiveness of your social media outreach and engagement, and share results with easy-to-digest reports. Track engagement and sentiment across platforms with insights from Twitter, Facebook, LinkedIn, Google+, and Google.

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**START YOUR FREE TRIAL**

OVERVIEW SMART FEEDBACK MONITORING CRM PUBLISHING ANALYTICS COLLABORATION ACCOUNT STRUCTURE

A Better Way to Manage Your Social Messages

# Managerial Questions

- Audience engagement for a campaign
- Brand mentions as compared to competitors
- Sentiment Analysis

# Web Data

# Measuring digital performance for 15 years.

Through the Compete PRO self-service platform, our best-in-class data helps professionals like you discover business opportunities, monitor competition, and benchmark performance.

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COMPETE PRO ENTERPRISE FEATURES

Knowing the size of your site's audience just isn't provides a complete view into the consumption as well as your competitive set, along with demographic information.

**comSCORE**

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Audience Analytics Media Metrix Select a Product...

Media Metrix®

The Industry-Leading Online Audience Measurement and Media Planning Solution

CONTACT ME NOW

ipsos

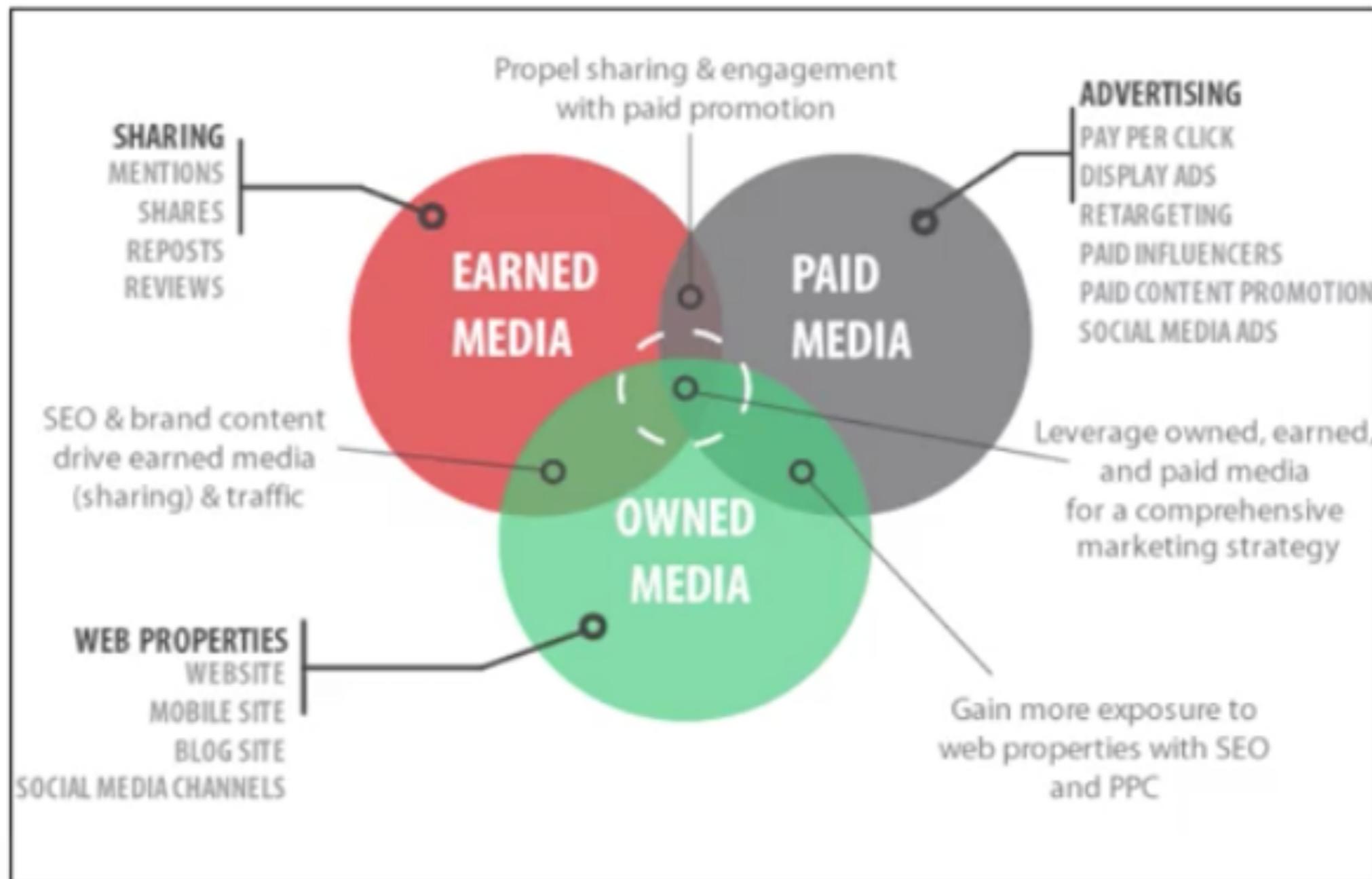
GAME CHANGERS Home About ipsos Research Specializations News & Polls Knowledge & Ideas Products & Tools

At Ipsos, we've developed a platform to monitor the online and mobile activities of consumers in real-time using passive technology.

[Watch Video](#)

Request a Quote »

# Managerial Questions



# Mobile Data

The image displays three mobile application interfaces side-by-side, each representing a different aspect of mobile data and connectivity:

- Facebook Login Screen:** Shows the classic blue header with the word "facebook". Below it, there's a "Sign Up" button and a "Log In" button. A large graphic on the left depicts a network of people connected by lines.
- Foursquare Sign-Up Screen:** Features a prominent pink "F" logo. The text reads: "Introducing the all-new Foursquare, which learns what you like and leads you to places you'll love." It includes "Sign up with Facebook" and "Sign up via Email" buttons.
- Flurry Analytics Dashboard:** A dark purple dashboard titled "Flurry Analytics". It says: "Measure, track and analyze app performance, user acquisition and activity with Flurry Analytics." It includes "Sign Up" and "Documentation" buttons, and a small chart at the bottom.

Below the Flurry Analytics section, there's a call-to-action: "Optimize the mobile experience" followed by a brief description: "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?
- What information to show customers based on their location?
- Location-based coupons

# Additional Readings

Are Your Customers ‘Clumpy’? What Binge-buying Means for Marketers

Predicting and Monetizing - The Lifespan of a Tweet

# Beyond Period 2

- Direct Marketing - 1960s
- Data Granularity
- Key Performance Indicators (KPIs)

# Recency, Frequency Monetary Value

- **Recency**
  - Last time someone made a purchase or did some other kind of economically valuable activity
- **Frequency**
  - How many purchases or economically beneficial activities made over a set period of time
- **Monetary Value**
  - Average monetary value

# How much will donors give in the future?

How does it depend on their past patterns?

ID	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
100001	1	0	0	0	0	0	0	?	?	?	?	?
100002	1	0	0	0	0	0	0	?	?	?	?	?
100003	1	0	0	0	0	0	0	?	?	?	?	?
100004	1	0	1	0	1	1	1	?	?	?	?	?
100005	1	0	1	1	1	0	1	?	?	?	?	?
100006	1	1	1	1	0	1	0	?	?	?	?	?
100007	1	1	0	1	0	1	0	?	?	?	?	?
100008	1	1	1	1	1	1	1	?	?	?	?	?
100009	1	1	1	1	1	1	0	?	?	?	?	?
100010	1	0	0	0	0	0	0	?	?	?	?	?
...												
111102	1	1	1	1	1	1	1	?	?	?	?	?
111103	1	0	1	1	0	1	1	?	?	?	?	?
111104	1	0	0	0	0	0	0	?	?	?	?	?

ID	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
100001	1	0	0	0	0	0	0	?	?	?	?	?
100002	1	0	0	0	0	0	0	?	?	?	?	?
100003	1	0	0	0	0	0	0	?	?	?	?	?
100004	1	0	1	0	1	1	1	?	?	?	?	?
100005	1	0	1	1	1	0	1	?	?	?	?	?
100006	1	1	1	1	0	1	0	?	?	?	?	?
100007	1	1	0	1	0	1	0	?	?	?	?	?
100008	1	1	1	1	1	1	1	?	?	?	?	?
100009	1	1	1	1	1	1	0	?	?	?	?	?
100010	1	0	0	0	0	0	0	?	?	?	?	?
...												
111102	1	1	1	1	1	1	1	?	?	?	?	?
111103	1	0	1	1	0	1	1	?	?	?	?	?
111104	1	0	0	0	0	0	0	?	?	?	?	?

# How much will donors give in the future?

How does it depend on their past patterns?

ID	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
100001	1	0	0	0	0	0	0	?	?	?	?	?
100002	1	0	0	0	0	0	0	?	?	?	?	?
100003	1	0	0	0	0	0	0	?	?	?	?	?
100004	1	0	1	0	1	1	1	?	?	?	?	?
100005	1	0	1	1	1	0	1	?	?	?	?	?
100006	1	1	1	1	0	1	0	?	?	?	?	?
100007	1	1	0	1	0	1	0	?	?	?	?	?
100008	1	1	1	1	1	1	1	?	?	?	?	?
100009	1	1	1	1	1	1	0	?	?	?	?	?
100010	1	0	0	0	0	0	0	?	?	?	?	?
...												
111102	1	1	1	1	1	1	1	?	?	?	?	?
111103	1	0	1	1	0	1	1	?	?	?	?	?
111104	1	0	0	0	0	0	0	?	?	?	?	?

# Let's first look at "Bob"

What can we predict about his giving in 2002-2006

# What can we tell about “Sarah”?

ID	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
SARAH	1	0	0	0	0	0	0	?	?	?	?	?
100002	1	0	0	0	0	0	0	?	?	?	?	?
100003	1	0	0	0	0	0	0	?	?	?	?	?
100004	1	0	1	0	1	1	1	?	?	?	?	?
100005	1	0	1	1	1	0	1	?	?	?	?	?
100006	1	1	1	1	0	1	0	?	?	?	?	?
100007	1	1	0	1	0	1	0	?	?	?	?	?
BOB	1	1	1	1	1	1	1	?	?	?	?	?
...												
111102	1	1	1	1	1	1	1	?	?	?	?	?
111103	1	0	1	1	0	1	1	?	?	?	?	?
111104	1	0	0	0	0	0	0	?	?	?	?	?

# How do “Mary” and “Sharmila” compare?

ID	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
SARAH	1	0	0	0	0	0	0	?	?	?	?	?
100002	1	0	0	0	0	0	0	?	?	?	?	?
100003	1	0	0	0	0	0	0	?	?	?	?	?
MARY	1	0	1	0	1	1	1	?	?	?	?	?
100005	1	0	1	1	1	0	1	?	?	?	?	?
100006	1	1	1	1	0	1	0	?	?	?	?	?
100007	1	1	0	1	0	1	0	?	?	?	?	?
BOB	1	1	1	1	1	1	1	?	?	?	?	?
SHARMILA	1	1	1	1	1	1	0	?	?	?	?	?
100010	1	0	0	0	0	0	0	?	?	?	?	?
...												

Which one will be more valuable and by how much?

- If you think that **Mary** is the one who will be more valuable in the future
- If you think that **Sharmila** will be the more valuable one
- Any of you thinks that will be a tie? Any of you thinks that **Mary** and **Sharmila** will be worth pretty much the same?



# How do “Mary” and “Sharmila” compare?



ID	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
SARAH	1	0	0	0	0	0	0	?	?	?	?	?
100002	1	0	0	0	0	0	0	?	?	?	?	?
100003	1	0	0	0	0	0	0	?	?	?	?	?
MARY	1	0	1	0	1	1	1	?	?	?	?	?
100005	1	0	1	1	1	0	1	?	?	?	?	?
100006	1	1	1	1	0	1	0	?	?	?	?	?
100007	1	1	0	1	0	1	0	?	?	?	?	?
BOB	1	1	1	1	1	1	1	?	?	?	?	?
SHARMILA	1	1	1	1	1	1	0	?	?	?	?	?
100010	1	0	0	0	0	0	0	?	?	?	?	?
...												

Which one will be more valuable and my how much?

# Recency & Frequency

- **What does it mean when there's one or more “no donation” at the end of a sequence?**
  - The donor **lapsed** (i.e., left the donor pool)
  - The donor is **dormant** (i.e., decided not to give that year, didn't think of giving, etc.)
  - We don't know, but can build a model to come up with a “best guess”

**Answer:** We never know for sure whether the donor is lapsed or not; based on **recency** and **frequency** of their donation, we can make an educated guess about the probability of lapsing, so we can decide where to devote resources

# How do “Mary” and “Chris” compare?

ID	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
SARAH	1	0	0	0	0	0	0	?	?	?	?	?
100002	1	0	0	0	0	0	0	?	?	?	?	?
100003	1	0	0	0	0	0	0	?	?	?	?	?
MARY	1	0	1	0	1	1	1	?	?	?	?	?
100005	1	0	1	1	1	0	1	?	?	?	?	?
100006	1	1	1	1	0	1	0	?	?	?	?	?
100007	1	1	0	1	0	1	0	?	?	?	?	?
BOB	1	1	1	1	1	1	1	?	?	?	?	?
...												
111102	1	1	1	1	1	1	1	?	?	?	?	?
CHRIS	1	0	1	1	0	1	1	?	?	?	?	?
111104	1	0	0	0	0	0	0	?	?	?	?	?

# Managerial Questions

- Who are my customers?
- Which customer should I target and spend most of the marketing budget on?
- What's the future value of my customers?

# Managerial Questions

- Who are my customers?
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**Segmentation**

**Scoring**

**Customer  
Lifetime Value**

# Segmentation

What managerial goal  
do I want to achieve?

- **RFM Segmentation**
  - Recency
  - Frequency
  - Monetary Value

# Limitations of Statistical Segmentation

- Customers change continuously and modify their behavior
- Involved
- Stability over time

# Developing a Managerial Segmentation

- **Simple:**

Do not create too many segments. If you do, your segmentation will become too complex and hard to use.

- **Relevant:**

The segments you define need to be relevant to your managers using segmentation.

# Goal

**Identify, segments or groups of customers, that should receive more or less attention.**

**Catalogs**

**Coupons**

**Emails**

**Phone calls**

**Direct mail solicitations**

How should we split or segment our database?

# Who are my customers?

- How much do they spend?
- How likely they'll buy from us in the future?

# Managerial Segmentation



**INACTIVE**

Recency  
37+ mo

**COLD**

Recency  
25-36 mo

**WARM**

high value  
 $\$ \geq 100$

**WARM**

low value  
 $\$ < 100$

**NEW**

warm

Recency  
13-24 mo

**ACTIVE**

high value  
 $\$ \geq 100$

**ACTIVE**

low value  
 $\$ < 100$

**NEW**

active

Recency  
< 12 months

# Describe segments

- **Segment centroid**
- **Segment profile**
- **“Persona”**

A stereotypical individual who represents the entire segment

# Segments & Revenue Generation

- How much does each segment contributes to today's revenues?
- *Forward looking* analysis of revenue generation:  
**Which segment today would likely contribute to tomorrow's revenues?**
  - Will your active, high-value customers remain loyal and profitable next year?
  - How much revenue will your newly acquired customers generate a year from now?
  - Should you expect a lot of revenues from your currently inactive customers or should they be considered lost?

# Scoring Model

- Probability that a customer is going to buy something.
- How much money will they spend if they do buy something?

# Customer Lifetime Value

Why does it matter?

Net present value of all future streams of profits that a customer generates over the life of their business with the company.



**ACTIVE, HIGH VALUE**



**ACTIVE, LOW VALUE**



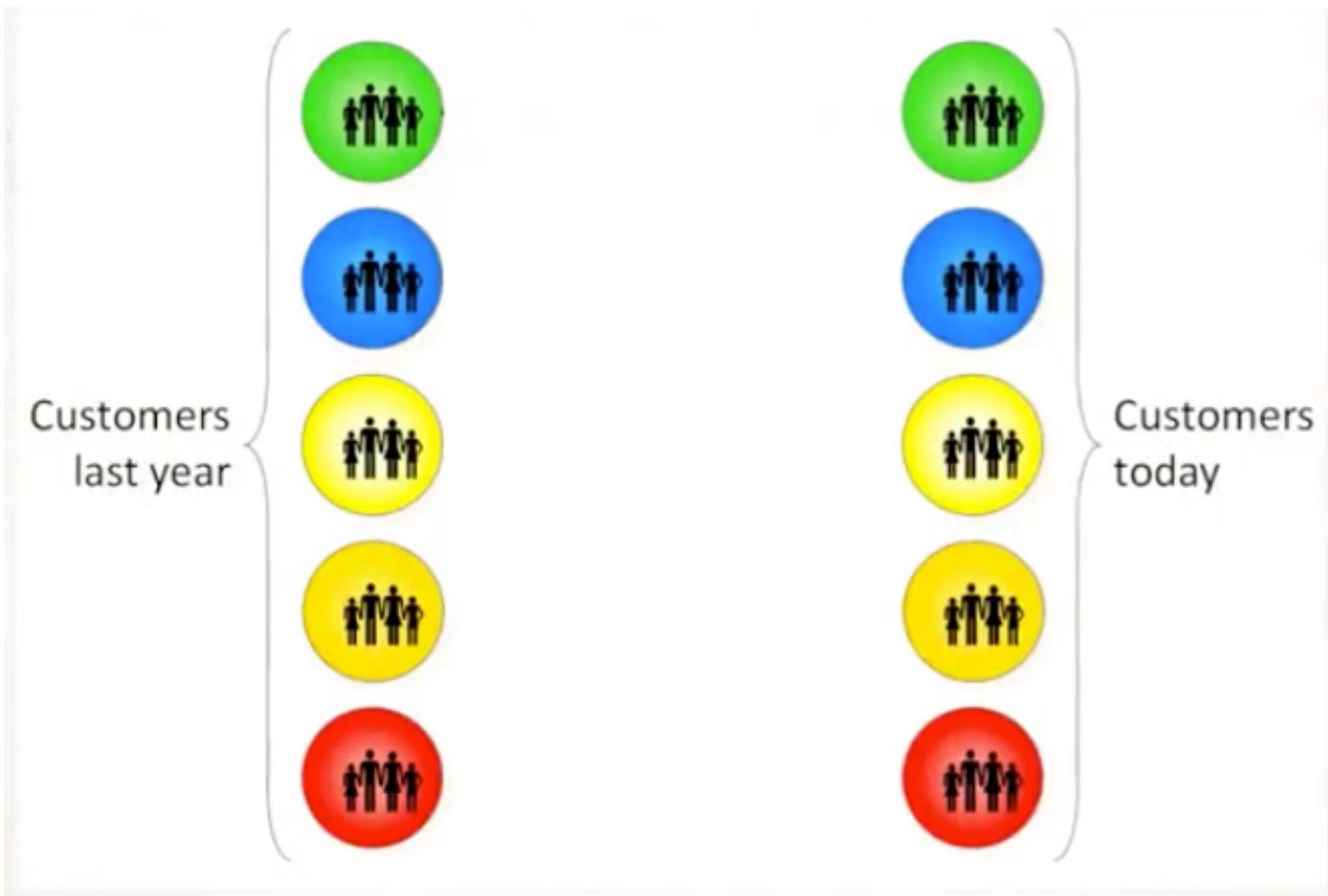
**WARM**

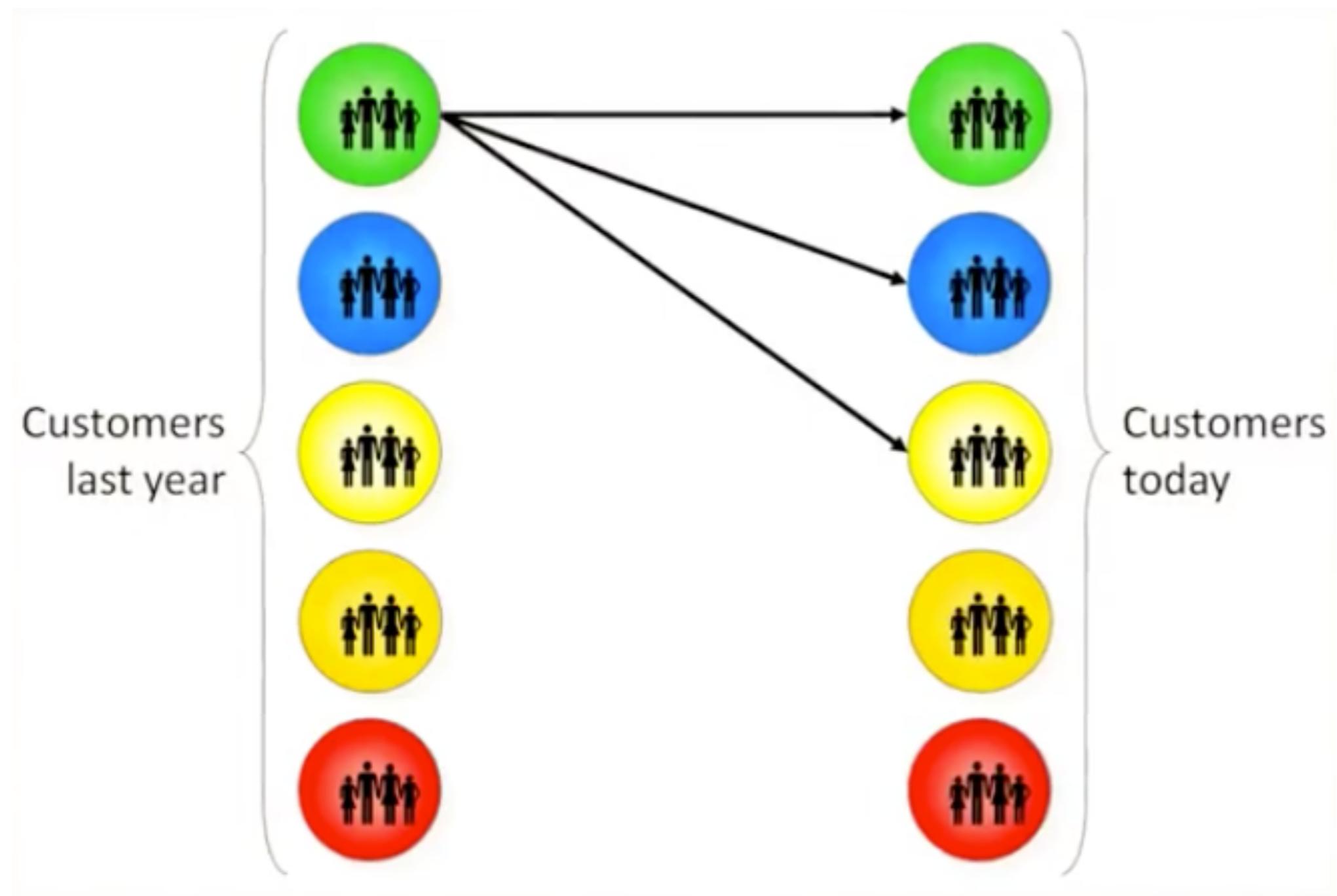


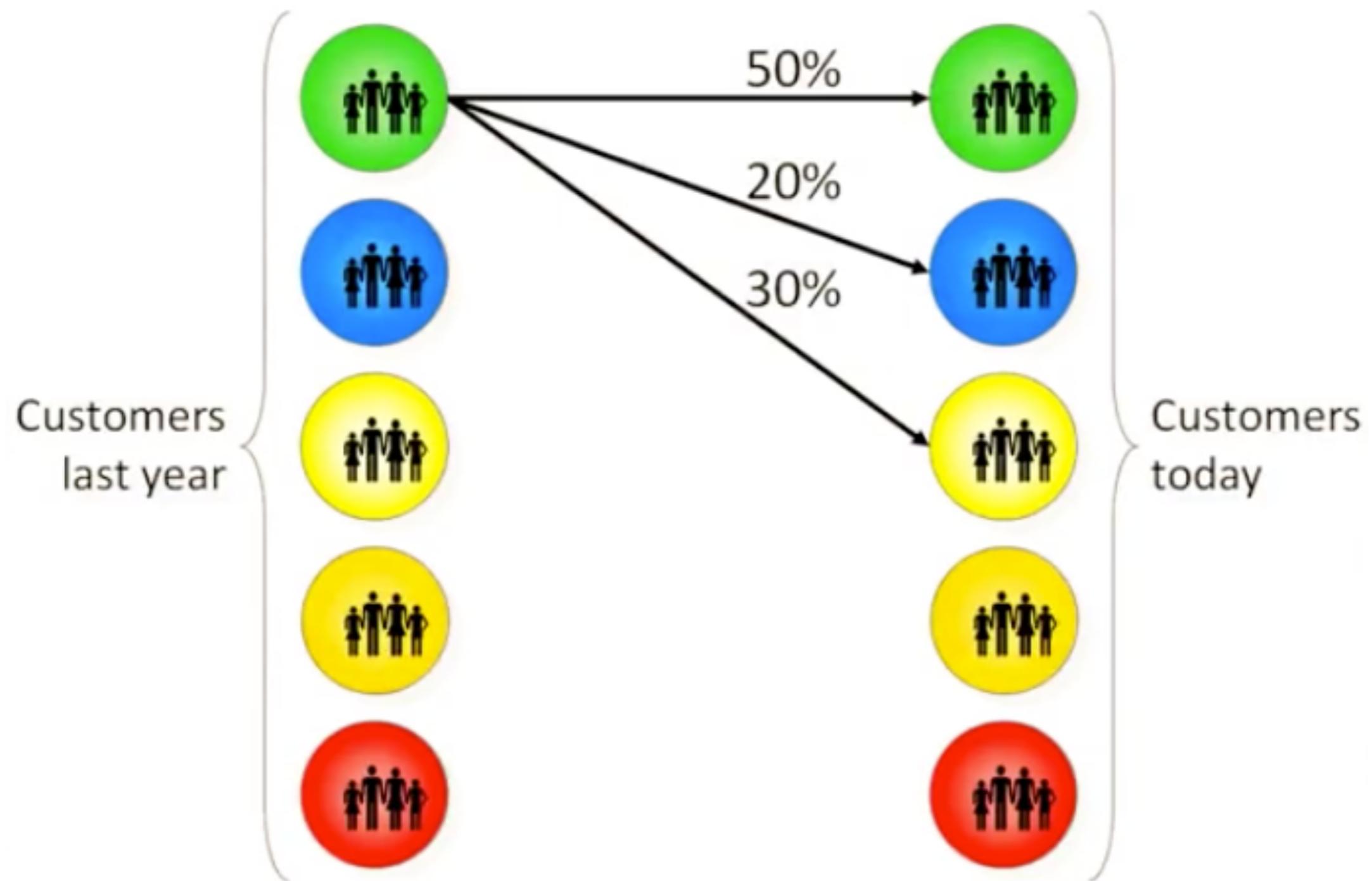
**COLD**

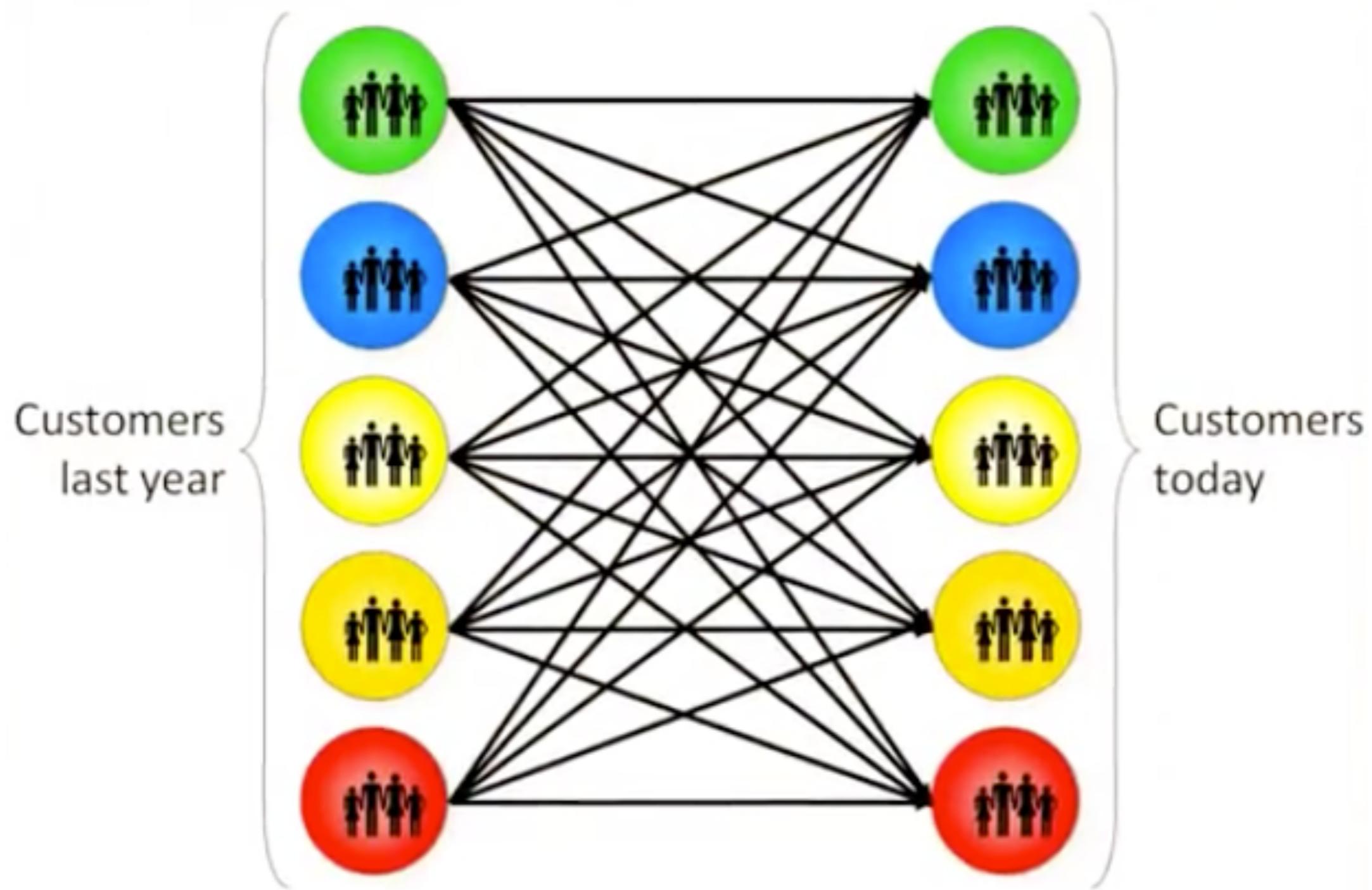


**INACTIVE**



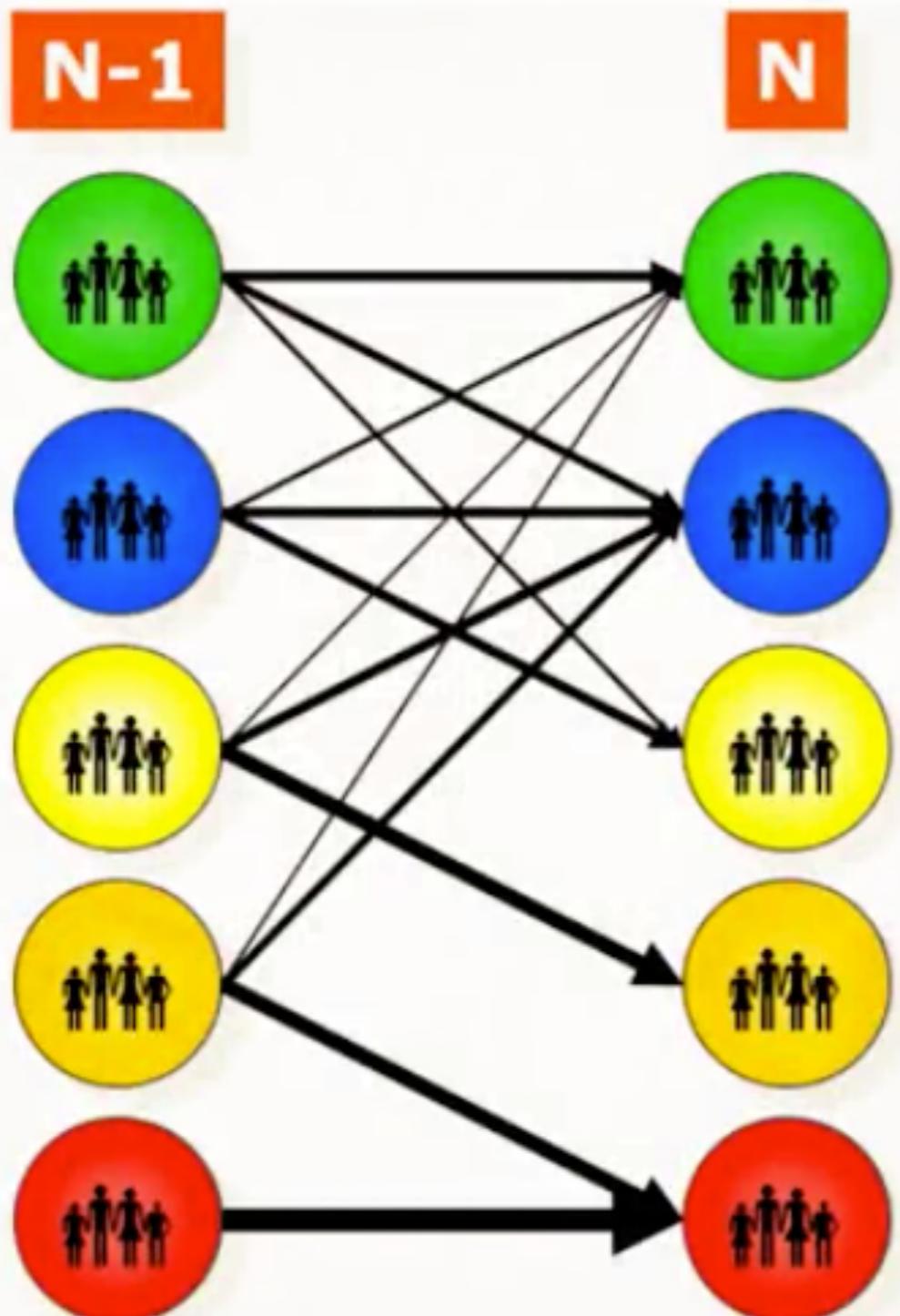






# Transition Matrix

	Active Top	Active Bottom	Warm	Cold	Inactive
Active Top	50%	20%	30%		
Active Bottom	10%	50%	40%		
Warm	5%	25%		70%	
Cold	1%	9%			90%
Inactive					100%



**Transition matrix**  
**How many customers you have in each segment to date**

# Assigning & Discounting revenue

- Revenue generated by a customer can be fully explained and predicted by the segment to which they belong.
- Discount revenues
  - What discount rate?

# Customer Lifetime Value

- Average revenue/year per segment (average\_revenue)
- Prediction of membership per segment (segment)

## Average x Segment

- Compute the sum for each column to obtain yearly revenues
- Don't forget to discount yearly revenues

**Revenue x  $1/(1+{\text{discount rate}})^t$**

# Data Case

- You can find the data [here](#).
  - Labels: customer\_id, purchase\_amount, date\_of\_purchase
  - Discount rate 10%
- Project revenues for the next 10 years.
- What would the database be worth by 2025 (cumulated revenues, discounted)?