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ASTRA

MARKETING AND ANALITICS

3°BEMACS

Written By:
Giorgio Micaletto

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Contents

Rules

The maximum grade in class is 31, and it's divided in the following manner:

- Group Project 1: 20% of the grade
- Group Project 2: 20% of the grade
- In-class quizzes: 10% of the grade
- Final exam: 50% of the grade

Session 1: Foundations of Marketing Analytics

Understanding Marketing

Before delving into marketing analytics, it is important to address common misconceptions about marketing:

- **Marketing is not just Advertising.**
- **Marketing is not just Sales.**
- **Marketing is not merely a Cost.**

The American Marketing Association defines marketing as:

> *The activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large.*

In essence, marketing revolves around creating value through customer acquisition and retention.

Introduction to Marketing Analytics

Marketing analytics focuses on leveraging data and technology to enhance marketing decision-making. Formally, it is defined as:

> *The methods for measuring, analyzing, predicting, and managing marketing performance with the purpose of maximizing effectiveness and Return on Investment (ROI).*

Why Study Marketing Analytics?

- **Understanding Customers:** Customers' preferences evolve rapidly, are increasingly sophisticated, and often skeptical of marketing.
- **Understanding Competitors:** Markets are competitive, and firms need to anticipate and respond to competitors' strategies.
- **Leveraging Data:** Advances in computational power and data analysis enable actionable, data-driven insights.

Challenges in Marketing Analytics:

- Data often lacks a clear causal structure, complicating actionable insights.
- Bridging the gap between algorithmic outputs and actionable marketing strategies can be challenging.

Marketing Metrics and Data Types

Marketing metrics operate at three levels:

- **Customer Level:** Metrics like Customer Loyalty and Customer Lifetime Value (CLV).
- **Brand Level:** Metrics such as Brand Equity and Brand Share.
- **Market Level:** Metrics including Sales and Marketing Spending.

Data Types in Marketing Analytics:

- **Primary Data:** Collected through qualitative research, surveys, and experiments.
- **Secondary Data:** Includes syndicated data, web/mobile data, and firm financial data.

Data can also be classified as:

- **Structured Data:** Examples include firm financial data.
- **Unstructured Data:** Examples include visual data or web content.

The Marketing Analytics Process

The marketing analytics process generally follows four key steps:

1. **Problem Definition:** Define the issue and its significance.
2. **Design:** Establish research objectives and select appropriate methods.
3. **Data Collection and Analysis:** Identify relevant data and determine how to interpret it.
4. **Reporting and Implications:** Present findings and recommend actionable steps.

Session 2: Building Models in Marketing Analytics

Introduction to Model Building

A model is formally defined as:

> *A simplified representation of a system or phenomenon, often expressed mathematically, accompanied by hypotheses that explain or describe the system or phenomenon.*

Key Characteristics of Models:

- **Simplicity:** Simpler models are generally preferred, ceteris paribus.
- **Subjectivity:** Model building involves subjective choices, and different models may represent the same phenomenon in various ways.

Challenges in Modeling Marketing Phenomena

Modeling in marketing introduces unique complexities:

- **Heterogeneous Buyers:** Customer preferences and behaviors vary significantly.
- **Multiple Actions:** Businesses rarely undertake a single action, leading to mixed reactions.
- **Competitive Reactions:** Firms compete for the same customers, influencing market dynamics.

- **Temporal and Regional Effects:** The impact of decisions is often time-delayed and region-specific.

Despite these challenges, models are invaluable for:

- Understanding the relationships between actions and outcomes.
- Facilitating quicker and more informed decision-making.

The Model Building Process

Building a model involves four key steps:

1. **Purpose (*Why*):** Define the objective of the model (e.g., measuring effects, forecasting, hypothesis testing, optimization).
2. **Structure (*What*):** Identify what the model seeks to explain, the explanatory factors, underlying hypotheses, and the data required.
3. **Design (*How*):** Develop the model specifications to represent the real-world system or phenomenon.
4. **Validation:** Ensure the model is:
   - Consistent with theoretical explanations or known facts.
   - Useful and sufficiently simple.
   - Accurate in its predictions.
   - Robust against variations in input data.

Dummy Variables and Dummy Variable Regression

In modeling, variables can be classified as:

- **Continuous Variables:** Variables with numeric values that can take any value within a range.
- **Categorical Variables:** Variables representing discrete categories or groups.

To model categorical variables, dummy variables are used. For a set of dummy variables $d_1, \ldots, d_n$, the regression model is specified as:

$$y = \beta_0 + \beta_1 d_1 + \cdots + \beta_{n-1} d_{n-1} + \varepsilon.$$

Here, one dummy variable (d_n) is chosen as the **reference category** (baseline). Any category can serve as the reference.

Applications of Dummy Variables in Marketing:

- Measuring effects of product categories.
- Accounting for time or regional variations.
- Controlling for geographic, temporal, and economic factors.

Session 3: Identifying and Analyzing Markets

Understanding Market Segmentation

A fundamental assumption in marketing is that companies cannot appeal to all consumers in a market. To create value, firms must understand the different types of consumers and cater to specific segments.

There are two primary marketing frameworks:

- **STP: Segmentation, Targeting, Positioning**
- **4P: Product, Price, Place, Promotion**

STP: Segmentation, Targeting, Positioning

The STP framework enables firms to achieve differentiation by addressing the heterogeneity of the customer base. It involves the following steps:

1. **Segmentation:** Identify methods for segmentation, create distinct consumer segments, and describe their characteristics. Good segmentation ensures that while the overall customer base is heterogeneous, the groups within it are homogenous.
2. **Targeting:** Select one or more segments and develop tailored strategies for them.
3. **Positioning:** Define how the firm's offerings will create value for the targeted segments and determine the desired position in the market relative to competitors.

Effective segmentation is crucial; poor segmentation undermines the entire premise of the STP approach.

Market-Level Analysis

After segmenting and targeting, it is essential to conduct a comprehensive market-level analysis to understand the current market environment. This includes:

- Reviewing competitors.
- Conducting a product review.
- Describing the overall market and identifying major threats and opportunities.

Several metrics are essential for analyzing markets:

- **Market Size:** Total number of sales within the market.
- **Market Growth:** Rate of growth in sales, calculated as:

$$\text{Market Growth} = \frac{\text{Sales}_t - \text{Sales}_{t-1}}{\text{Sales}_{t-1}}$$

- **Market Turbulence:** Variability in sales over a time window (k), measured as:

$$\text{Market Turbulence} = \frac{\text{sd}(\text{Sales}_k)}{\mathbb{E}(\text{Sales}_k)}$$

- **Competition:** Often measured using the Herfindahl-Hirschman Index (HHI), which quantifies market concentration:

$$HHI = s_1^2 + s_2^2 + \cdots + s_n^2$$

where

$$s_i = \frac{\text{Sales}_i}{\sum_{j=1}^{n} \text{Sales}_j} \cdot 100$$

- **Product Market Fluidity:** Uses text-based algorithms or other methods to evaluate product similarity and dynamics.

Value Positioning

Value positioning refers to the unique value a company creates for its targeted segments and the position it seeks to occupy in consumers' minds. A product's position is determined by consumers' perceptions, impressions, and feelings. It is defined relative to competing products on key attributes.

Positioning Questions:

- What value does the company create for the targeted segment?
- How does the product position itself within that segment compared to competitors?

Sessions 4 and 5: Understanding Consumers

The Importance of Understanding Consumers

Understanding consumers is a cornerstone of marketing analytics. Among the methods available, survey research is one of the most popular. Surveys—whether personal, telephone-based, or self-administered—are used to measure attitudes such as awareness, knowledge, and perception. They offer the advantage of collecting a large amount of data from individual respondents and are highly versatile.

A key metric derived from consumer surveys is **customer satisfaction**, which is influenced by:

- **Perceived Quality:** Driven by customization to meet diverse customer needs and the reliability of the product.
- **Perceived Value:** Based on assessments of quality relative to price and price relative to quality.
- **Customer Expectations:** A forecast of the firm's ability to deliver quality in the future.

The outcomes of customer satisfaction are typically either complaints or loyalty. Satisfied customers are more likely to repeat purchases, exhibit brand loyalty, and generate favorable word-of-mouth, whereas dissatisfied customers create negative word-of-mouth, often without directly reporting their complaints to the firm.

Findings from the American Customer Satisfaction Index (ACSI)

Insights from the ACSI highlight the following:

- **Manufactured Goods vs. Services:** Manufactured goods tend to achieve higher satisfaction scores than services, as increased service requirements often lower ratings.
- **Quality vs. Price:** Quality plays a more critical role in satisfaction than price. While price promotions can boost satisfaction in the short term, long-term price reductions are unsustainable.
- **Mergers and Acquisitions:** These negatively affect customer satisfaction, especially in the service sector, as firms focus on cost-cutting, often at the expense of customer care.

Customer satisfaction is vital because loyal customers are less costly to serve, more willing to pay premium prices, and more likely to accept product extensions. This loyalty creates barriers to entry and helps defend against competitors.

Modeling Consumer Choice

Consumer choice in marketing is influenced by various factors, such as sales promotions, preference heterogeneity, and strategic decision-making. For example:

- Sales promotions may lead to brand switching, timing acceleration, quantity acceleration, or stockpiling.
- Consumers may delay purchases strategically, anticipating future promotions.
- Bayesian models are often employed to capture individual preference heterogeneity.

Logistic Regression for Consumer Choice

Many marketing decisions involve binary outcomes ($y \in \{0, 1\}$), such as purchase decisions or ad clicks. To model this, a logistic regression model is used:

$$y_i = f(X_i) + \varepsilon_i$$

However, simple regression is unsuitable as it can produce uninterpretable values outside $[0, 1]$. The logistic regression model addresses this:

$$z_i = \beta X_i + \varepsilon_i, \quad \text{where } z_i = \log\left(\frac{\mathbb{P}[y_i = 1]}{1 - \mathbb{P}[y_i = 1]}\right).$$

The probability of choice is then:

$$\mathbb{P}[y_i = 1] = \frac{e^{z_i}}{1 + e^{z_i}}.$$

Note: The dependent variable in logistic regression represents log-odds, so changes in X affect log-odds, not the probability directly.

The Consumer Decision-Making Process

Consumers follow a structured decision-making process:

1. **Need Recognition:** Internal or external stimuli trigger awareness of a need.

2. **Information Search:** Consumers gather information and form consideration sets of potential options.
3. **Evaluation of Alternatives:** Options in the consideration set are assessed based on factors like perceived benefits or minimal evaluation.
4. **Purchase Decision:** The consumer makes a purchase.
5. **Post-Purchase Behavior:** Depending on perceived performance, the consumer may be satisfied or dissatisfied, influencing repeat purchases and word-of-mouth.

Negative post-purchase behavior often stems from:

- Lack of perceived value in complaining.
- Perceived indifference from the company.
- Lack of knowledge on how to report complaints.

Consumer Involvement in Decision-Making

Consumer involvement reflects the degree of information processing and importance a consumer attaches to a purchase.

- **High Involvement:** Associated with expensive, risky, infrequent, or self-expressive purchases. Involves thorough decision-making.
- **Low Involvement:** Characterized by frequent, inexpensive purchases with minimal decision-making.

Cognitive vs. Emotional Decision-Making:

- **Cognitive:** Systematic, slow, and exhaustive.
- **Emotional:** Spontaneous and quicker.

Implications for Marketing Strategy

Marketing strategies should align with the decision-making process:

- For cognitive decisions, emphasize detailed information and logical appeal.
- For emotional decisions, focus on immediate, compelling messages and emotional resonance.

Understanding the decision process enables marketers to create targeted campaigns, such as triggering repurchase needs for low-involvement consumers or emphasizing quality and reliability for high-involvement purchases.

Session 6 and 7: Developing and Evaluating Marketing Strategy

A marketer's most distinctive skill is building and managing brands. Before delving deeper, it is essential to define what constitutes a brand. The American Marketing Association defines a brand as:

> *A name, term, sign, symbol, design, or a combination of these that identifies the maker or seller of a product or service.*

However, marketing managers perceive a brand as more than just an identifier. They view it as an entity that creates awareness, reputation, and prominence. It is necessary to identify the seller's goods and services, differentiating them from competitors.

Brand Equity

Building a strong brand is crucial, and achieving this requires substantial brand equity. Brand equity originates from two primary sources: brand awareness and brand image.

Brand Awareness

Brand awareness encompasses brand recognition and brand recall. Brand recognition is the consumer's ability to confirm prior exposure to the brand and recognize it, while brand recall refers to the consumer's ability to retrieve the brand from memory when presented with the product category. To enhance brand awareness, marketers can increase familiarity through repeated exposure and establish a strong association between the brand and the product category.

Brand Image

Brand image is derived from brand associations, which include brand attributes (descriptive features of the product) and benefits (personal value and meaning attached to the product). A strong, unique, and favorable association significantly enhances the brand image in the eyes of consumers.

Brand Positioning

Marketers must position brands clearly in the target customers' minds. This can be achieved by emphasizing a product attribute or a desirable benefit, as well as by leveraging strong beliefs and values. Engaging customers on a deep and emotional level connects the brand's value to the customers' lives. Brands that foster strong emotional connections are often referred to as "lovemarks," indicating that customers love them unconditionally.

Branding Strategies

Branding strategies can be implemented either individually for each product, as exemplified by Procter & Gamble, or at the firm level, which is common among most brands. Strategies may also involve national brands or store brands, particularly in scenarios where differentiation is minimal and consumers are primarily influenced by price.

Line Extension

Line extension is the most common method of brand development, where existing brand names are extended to new variations within an existing product category. This approach is low in cost and risk; however, overextending brand names may lead to consumer confusion and dilute the specific meaning of the brand.

Brand Extension

Brand extension involves applying an existing brand name to products in entirely new categories. This strategy creates immediate familiarity and acceptance for new products but may also confuse the image of the main brand. For example, Ferrari is known for both automobiles and perfumes, which can blur consumer perceptions.

Multibrands

Multibranding entails adopting new brand names within the existing product category. This strategy allows for the establishment of different features that appeal to various customer segments, thereby capturing larger market shares.

New Brands

Creating entirely new brands is another option, although it raises concerns regarding the diminishing power of existing brands. Introducing numerous new brands also incurs significant costs.

ccc

Brand\Product	blue!30**Existing**	red!30**New**
blue!30**Existing**	Line Extension	Brand Extension
red!30**New**	Multibrands	New Brands

Table 1: Brand Development Matrix

Measuring Brand Equity

Although brand equity is vital, it is notoriously difficult to measure due to the variety of available methods and the lack of universal consensus. Brands are commonly assessed using customer mindset measures; however, these metrics do not directly translate to monetary value.

Brand Asset Valuator

A widely adopted measure is the Brand Asset Valuator developed by Young and Rubicam, which evaluates brand equity based on four pillars: differentiation, relevance, esteem, and knowledge.

- **Differentiation**: The ability to stand apart from competitors, measured by whether consumers perceive the brand as unique and distinctive.
- **Relevance**: The personal appropriateness of the brand to consumers, measured by the extent to which the brand is relevant to them.
- **Esteem**: The level of respect, deference, and regard that a consumer holds for the brand, measured by components such as high quality, market leadership, reliability, and personal regard.
- **Knowledge**: Reflects brand awareness and the extent to which consumers recall and recognize the brand, measured by consumer familiarity.

Interbrand Evaluation

Interbrand evaluates brand value based on three aspects: the financial performance of the branded products or services, the role the brand plays in influencing consumer choice, and the strength of the brand in commanding a premium price.

- **Financial Performance**: Analyzes the economic profits used to generate brand revenue and margins.

- **Role of the Brand**: Assesses the portion of the purchase decision attributed to the brand as opposed to other factors, utilizing the Role of Brand Index.
- **Brand Strength**: Evaluates the brand's ability to create loyalty and generate sustainable demand and profit in the future.

Advertising Strategies

In advertising, there are two primary strategies: push and pull.

Push Strategy

A push strategy involves "pushing" the product through marketing channels to the final consumer. Companies direct marketing activities toward channel members to induce them to carry and promote the product to the end consumers.

Pull Strategy

A pull strategy entails consumer demand "pulling" the product through marketing channels. Companies direct marketing activities toward final consumers to induce them to purchase the product.

Role of Advertising

Advertising is one of the most critical elements of the marketing mix and constitutes a significant portion of marketing expenditure. There are two theoretical perspectives on the role of advertising: advertising as information and advertising as persuasion.

Advertising as Information

This view focuses on informing the customer about the product and increasing awareness. The premise is that a customer cannot purchase a product they are unaware of.

Advertising as Persuasion

This perspective not only informs customers but also aims to create brand loyalty by persuading consumers that the product is superior. Advertising as information is believed to increase only current sales, whereas advertising as persuasion is thought to affect both present and future sales.

Advertising Effectiveness

The effectiveness of advertising can be measured using numerous metrics; however, selecting the appropriate model (e.g., linear or non-linear, accounting for lag effects or competitive effects) poses a challenge.

Measures of Advertising

Common measures of advertising effectiveness include:

- **Advertising-to-Sales Ratio**: Calculated as advertising spending divided by sales. It is the most popular measure and serves as a good rule of thumb for making simple advertising decisions.
- **Share of Voice**: Calculated as advertising spending divided by the total sum of advertising spending in the sector. It measures a company's advertising relative to its competitors and aligns with consumer theory, which posits that more frequent ad exposure enhances long-term brand memory.
- **Log of Advertising Spending**: In a log-log model, this measure indicates the percentage change in sales given a change in advertising spending and serves as a measure of advertising elasticity.

However, increased advertising spending does not always lead to better outcomes. There is a saturation point beyond which consumers do not engage further with advertising, and the advertisement becomes less persuasive due to an overload of messages and claims.

Media Advertising Metrics

Various methods exist to measure media advertising effectiveness, including impressions, Gross Rating Points (GRP), Frequency Response Functions, wear-in, and wear-out.

Impressions are calculated as:

$$\text{Impression} = \text{Reach} \times \text{Average Frequency}$$

where reach represents the unique individuals exposed to a particular advertisement, and average frequency denotes the average number of times each individual is exposed.

Gross Rating Points (GRP)

Gross Rating Points are the sum of all rating points delivered by the media vehicles carrying an advertisement or campaign. It is defined as:

$$\text{GRP} = \sum(\text{Rating Points} \times \text{Frequency})$$

where rating points represent the percentage of unique individuals in a specific demographic exposed to an advertisement, and frequency is the average number of times such individuals are exposed.

Frequency Response Functions

Frequency response functions describe the expected relationship between advertising outcomes and advertising frequency. These functions can be linear, follow a learning curve, or exhibit threshold effects.

Wear-In and Wear-Out

Wear-in refers to the frequency required before an advertisement achieves a minimum level of effectiveness. Conversely, wear-out is the frequency at which an advertisement or campaign begins to lose effectiveness or even generates a negative effect.

Media Vehicle Choices

The overarching goal of advertising is to reach a large and high-quality audience with the appropriate message. Sridhar et al. (2016) suggest classifying media vehicle choices into smaller, manageable subsets based on the criteria of quantity of reach, quality of reach, and product message.

- **Quantity of Reach**: Refers to the size of the audience exposed to an advertisement.
- **Quality of Reach**: Denotes the degree to which the media channel's reach is tailored to fit the advertiser's specific target market.
- **Product Message**: Involves how the advertiser aims to build product differentiation by demonstrating favorable comparisons of key product attributes over competitors.

Modeling Advertising Effects

Non-Linear Effects

To model non-linear effects, a lagged term can be introduced into the model. For example:

$$y_{i,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 X_{i,t-1} + \varepsilon_{i,t}.$$

Interaction Effects

Interaction effects account for scenarios where, for instance, increased spending on national advertising and a specific type of media results in an output greater than the sum of individual changes. This can be modeled by introducing an interaction term:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 \cdot X_2 + \varepsilon$$

Note: The model must include both X_1 and X_2 separately; it cannot include only X_1 and $X_1 \cdot X_2$ as regressors.

Session 8: Analyzing Customer Profitability

Customers are vital assets for companies, serving as the primary source of revenue and a source of competitive advantage. Companies strive to satisfy customers by providing superior customer value, thereby increasing customer satisfaction. However, maximizing customer satisfaction incurs costs.

A classic example is Hoover, which promoted free airline tickets within Europe as a reward for spending £100 or more on products. While the promotion successfully acquired new customers, profits declined, resulting in the firing of executives in the UK division. This incident highlights that, although customers are valuable assets, companies must maintain profitability, as not all customers contribute positively to the bottom line.

Customer Segmentation

Not all customers are equally valuable to a company. Effective customer segmentation allows companies to identify and focus on the most profitable customer groups while managing or phasing out less valuable ones. The primary customer segments include:

Star Customers

Star customers are those who are both loyal and satisfied, delivering long-term profits to the company. These customers are highly valuable and are the ones companies aim to retain and reward.

Lost Causes

Lost causes are customers who cost more to serve than they generate in revenue. These customers negatively impact profitability, and companies may consider discontinuing relationships with them.

Free Riders

Free riders are customers who are worth keeping but require upcharging. They tend to take more than they pay for, necessitating strategies to increase their contribution margins.

Vulnerable Customers

Vulnerable customers are valuable but at risk of switching to competitors. They typically remain loyal due to a lack of alternatives or high switching costs. However, if competitors recognize a large segment of these customers, they may successfully attract them, leading to potential losses for the company.

Metrics for Customer Profitability

To identify and evaluate the value of customers, companies utilize three main metrics: Customer Lifetime Value (CLV), Customer Referral Value (CRV), and RFM analysis (Recency, Frequency, Monetary Value).

Customer Lifetime Value (CLV)

CLV represents the net present value of all future cash flows that a customer generates throughout the duration of their relationship with the company. It focuses on profits rather than revenue, serving as a measure of long-term profitability and aiding in the identification of valuable customers.

The simplified mathematical definition of CLV is:

$$CLV = M \times \frac{r}{1 + i - r} - AC,$$

where:

- M = Profit or contribution margin per customer.
- r = Retention rate.
- i = Discount rate.
- AC = Acquisition cost.

In this formula, $\frac{r}{1+i-r}$ is the margin multiple.

Assumptions of CLV:

- The profit margin (M) is constant over time.
- The retention rate (r) is constant over time.
- The discount rate (i) is constant over time.
- The formula assumes an infinite time horizon ($t \to \infty$).

Benefits of CLV:

- Establishes a limit for acquisition costs.
- Provides a framework for customer segmentation.
- Enhances understanding of the drivers of customer profitability.
- Guides investment decisions by linking customer satisfaction to retention rates.
- Offers an estimate of customer equity.

Customer Referral Value (CRV)

CRV quantifies the value generated by customers who refer other customers to the company. It is calculated as the sum of the CLVs of the referred customers. Unlike CLV, CRV accounts for referrals where acquisition costs are minimal or nonexistent. Typically, there is little correlation between CLV and CRV, as the most loyal customers may not necessarily be the most effective at generating referrals.

RFM Analysis

RFM analysis provides a comprehensive view of customer behavior by evaluating:

- **Recency**: How recently the customer has made a purchase.
- **Frequency**: How frequently the customer makes purchases.
- **Monetary Value**: How much the customer spends.

To compute the RFM score, each component is individually scored, and relative weights are assigned either directly by managers or through simple regression techniques. RFM analysis incorporates aspects of customer buying behavior, offers a retrospective view, lacks key profit information, and relies on relative weighting.

Combining CLV and CRV

By integrating CLV and CRV, customers can be categorized into four distinct segments:

- **Champions**: High CLV and high CRV.
- **Affluents**: High CLV and low CRV.
- **Advocates**: Low CLV and high CRV.
- **Misers**: Low CLV and low CRV.

Strategic Focus:

- **Champions**: Continue to nurture and reward these top-tier customers.
- **Affluents**: Incentivize these customers to increase their referral activities.
- **Advocates**: Encourage these customers to increase their spending.
- **Misers**: Focus on improving both CLV and CRV through targeted strategies.

CRV enables companies to incorporate social influence into their customer valuation models, recognizing the broader impact of customer referrals.

Implications for Management

While many companies acknowledge that not all customers are equally valuable, terminating relationships with unprofitable customers must be handled carefully to avoid alienating consumers.

Key Drivers of Profitability:

- **Retention Rate**: Increasing the retention rate extends the duration over which a company can generate profits from a customer. Since customer retention is the primary driver of CLV, enhancing retention rates is crucial. It is generally five times more cost-effective to retain an existing customer than to acquire a new one.

- **Customer Relationship Development**: After acquiring a customer, companies must focus on developing the relationship further by increasing the customer's margin through strategies such as cross-selling or upselling.

Limitations of CLV and CRV:

- **CLV**: Does not account for referrals, as referred customers often have lower acquisition costs.

- **CRV**: While it captures the value of customer referrals, it does not directly correlate with individual customer profitability.

- **RFM Analysis**: Provides a holistic and historical view of customer behavior but lacks forward-looking profitability insights.

In conclusion, combining CLV and CRV with RFM analysis offers a comprehensive framework for assessing customer profitability, guiding strategic decisions on customer retention, acquisition, and relationship development to maximize overall profitability.

Session 9: Measuring Marketing Performance

Marketing plays a pivotal role in acquiring and retaining customers, introducing new products and services, and building intangible assets such as brand equity. It serves as the core value creation process within business operations, driving both revenue generation and competitive advantage.

Challenges in Marketing Investment

Despite marketing's critical role and its long-term impact on firm performance, myopic management often under-invests in marketing. This tendency is exacerbated during economic downturns or when managers are pressured to meet short-term targets. The primary reasons for this under-investment include:

- **Managerial Discretion**: Managers may prioritize immediate financial metrics over long-term strategic investments.
- **Stock Market Pressure**: The need to satisfy shareholder expectations for short-term performance can lead to cuts in discretionary spending.
- **Difficulty in Quantifying Marketing's Contribution**: The intangible nature of marketing outcomes makes it challenging to measure and communicate its direct impact on the bottom line.

Empirical evidence supports this behavior. For instance, Graham, Harvey, and Rajgopal (2005) found that 80% of CFOs would decrease discretionary expenditures, including advertising and research and development (R&D). Additionally, Aaker (1991) observed that managers often focus on sales promotions rather than long-term brand building.

Short-term cost-cutting measures, such as reducing marketing expenditures, may lead to inflated profits and increased firm value in the immediate term due to reduced expenses. However, in the long run, under-investing in marketing adversely affects firm value as it diminishes brand equity and weakens the company's competitive position.

Measuring Marketing Performance

Assessing marketing performance presents significant challenges due to the difficulty in selecting appropriate metrics and estimation models. Common metrics employed by marketing managers include:

Traditional Metrics

- **Customer Loyalty and Satisfaction**: Indicators of customer retention and contentment with the company's offerings.
- **Sales Volume and Market Share**: Measures of the company's sales performance relative to competitors.

Limitations of Traditional Metrics:

- Lack of cost and profit implications.
- Failure to reflect the long-term effects of marketing activities.
- Difficulty in communicating these metrics with other executives.

Profit-Based Metrics

- **Profit Measures**: These are backward-looking and provide limited insight into future firm value.
- **Marketing Budget Impact**: Marketing expenses are deducted when calculating profits, potentially obscuring the long-term benefits of marketing investments.
- **Short-Term Bias**: Profit measures may emphasize immediate gains over sustainable growth.

Alternative Metrics

To capture the long-term effects of marketing without directly incorporating costs, alternative metrics such as stock returns and Tobin's Q are considered:

Tobin's Q Tobin's Q is the ratio of a firm's market value to the current replacement cost of its assets. It measures the premium the market is willing to pay above the replacement costs of a firm's assets.

Issues with Tobin's Q:

- Difficulty in accurately measuring the replacement cost of firm assets.
- Multiple versions of the formula exist, leading to inconsistencies.

Stock Returns Stock returns are calculated as:

$$\text{Return} = \frac{P_1 - P_0 + D}{P_0}$$

where P_0 is the initial stock price, P_1 is the final stock price, and D represents dividends received. Typically, risk-adjusted stock returns are utilized to account for varying levels of risk.

Risk Considerations:

- **Systematic Risk**: Tied to the entire market, affecting all firms.
- **Idiosyncratic Risk**: Specific to individual firms, impacting their unique cash flows and survival.

High systematic risk indicates vulnerability to external shocks, while high idiosyncratic risk suggests uncertainty about a firm's expected cash flows, potentially jeopardizing its survival.

Impact of Marketing on Firm Value

Research indicates that firms with Chief Marketing Officers (CMOs) generally exhibit higher firm value compared to those without. Advertising, as a component of marketing, has a noticeable spillover effect on firm value by enhancing brand equity. This influence extends to investment behavior, signaling financial well-being and competitive viability.

McAlister et al. (2016) provide a nuanced perspective, suggesting that advertising's effectiveness varies based on firm strategy. Specifically, advertising increases sales for both cost leaders and differentiators but contributes to firm value primarily for differentiators.

Causality in Measuring Marketing Performance

In evaluating marketing performance, establishing causality is crucial—determining whether changes in one variable (e.g., marketing expenditure) lead to changes in another (e.g., firm value). However, achieving perfect causality is challenging. Common approaches and their limitations include:

Regression Analysis

Regression analysis is widely used to analyze the relationship between dependent and independent variables. However, it carries the risk of attributing causality incorrectly due to potential confounding factors (Z) that influence both variables of interest (X and Y).

Challenges in Regression Analysis:

- **Omitted Variable Bias**: Excluding relevant variables can bias estimates.
- **Unobservable Factors**: Hidden factors may correlate with both X and Y, leading to biased results.

Addressing Causality Issues

To better capture causality, researchers impose a time order where changes in X precede changes in Y. Additionally, they ensure an association between X and Y while eliminating alternative explanations.

Modeling Techniques :

- **Rich Data Models**: Incorporate control variables to account for potential confounders.
- **Unobserved Effect Models**:
  - **Random Effects (RE)**: Assumes that unobserved firm-specific effects are random and uncorrelated with the independent variables.
  - **Fixed Effects (FE)**: Allows for correlation between unobserved firm-specific effects and the independent variables by including firm-specific intercepts.
- **Time Fixed Effects**: Control for time-specific fluctuations that may impact all firms similarly.

Instrumental Variables (IV) **Instrumental Variables** are used to address endogeneity issues in regression models. An IV is a variable that is correlated with the endogenous explanatory variable (X) but uncorrelated with the error term (ε) in the regression equation. This allows for consistent estimation of causal effects by isolating the variation in X that is exogenous.

Key Requirements for Valid IVs:

- **Relevance**: The instrument must be strongly correlated with the endogenous variable.
- **Exogeneity**: The instrument must not be correlated with the error term in the outcome equation.

Application of IVs:

- Identify variables that influence marketing performance indirectly through X.
- Use two-stage least squares (2SLS) regression to first predict X using the IV and then estimate the effect of the predicted X on Y.

Properly identifying and validating instrumental variables is critical to ensuring the reliability of causal inferences in marketing performance studies.

Implications for Management

Effective measurement of marketing performance is essential for informed decision-making and strategic planning. By employing robust metrics and sophisticated modeling techniques to establish causality, managers can better understand the true impact of marketing activities on firm performance.

Strategic Recommendations:

- **Invest in Long-Term Marketing**: Recognize the importance of brand equity and sustained marketing efforts for long-term profitability.
- **Adopt Comprehensive Metrics**: Utilize a combination of traditional and alternative metrics to capture both short-term and long-term marketing impacts.
- **Enhance Data Analytics Capabilities**: Implement advanced statistical techniques, including fixed effects models and instrumental variables, to accurately assess marketing performance.
- **Communicate Marketing Value**: Develop clear frameworks to articulate the contribution of marketing to firm value, mitigating the tendency to under-invest during economic pressures.

Session 10: Connected Consumers and Social Media

With the advent of social media, consumer behavior has undergone significant changes. Consumers have become smarter and more informed, leveraging digital platforms to access information and share their experiences. A new and influential consumer group has emerged: the influencers. In the internet age, post-purchasing behavior has become increasingly important due to the heightened visibility facilitated by digital technologies. Consumers now have greater access to information, and marketers can track consumer behavior more effectively than ever before. The content shared by consumers generates Word of Mouth (WOM) about products or services, which marketers cannot directly control.

Types of Consumers

Liu, Lee, and Srinivasan (2019) identified five distinct types of consumers based on their purchasing and information-seeking behaviors:

1. **Type 1**: Purchase directly without searching or reading reviews.
2. **Type 2**: Only search for a product.

3. **Type 3**: Search and purchase a product.
4. **Type 4**: Search and read reviews.
5. **Type 5**: Engage in all steps, from searching and reading reviews to making a purchase.

They also found out that review content significantly influences sales, particularly when:

- The rating variance is low, and the average rating is high.
- The market is more competitive or immature.
- Brand information is not easily accessible.

Social Tagging and Brand Associative Networks

Nam and Kannan (2014) suggest that the rich associative information derived from social tagging offers marketers new opportunities to infer their brand associative networks. Two key metrics associated with social media branding are:

$$\text{Brand Familiarity} = \frac{\text{Number of Non-Negative Socially Popular Tags Linked to a Brand}}{\text{Number of All Tags Linked to the Brand}}$$

$$\text{Brand Favorability} = \frac{\text{Number of Positive Tags Associated with a Brand}}{\text{Number of All Tags Associated with a Brand}}$$

For strong brands, social tagging is essential to manage category dominance effectively. Conversely, weak brands should focus on establishing connections with the main brand within their category to enhance their market position.

Crowdsourcing and Real-Time Information Sharing

In the digital age, products can be crowdsourced, meaning companies invite broad communities to contribute to the innovation process (e.g., Wikipedia). Additionally, real-time information sharing allows trends to change rapidly, enabling companies like Zara to capitalize on fast fashion by responding swiftly to market demands.

Media Types in the Digital Environment

The digital landscape has diversified the types of media available, including:

- **Owned Media**: Websites and social media accounts controlled by the company.
- **Paid Media**: Traditional advertising channels such as TV, newspapers, and radio, as well as online paid advertisements.
- **Earned Media**: Content generated by consumers, including reviews, shares, and mentions on social media.

Companies must manage and balance these media types effectively, unlike in the past when primarily paid media (TV, newspaper, radio, etc.) were available.

Emergence of Different Consumer Groups

The digital age has given rise to various consumer groups, each with distinct characteristics:

- **Innovators**: Highly active in purchasing and information gathering, playing a crucial role in the product adoption process.
- **Early Adopters**: Quick to embrace new products and technologies.
- **Early Majority**: Adopt new products just before the average participant.
- **Late Majority**: Adopt new products after the average participant.
- **Laggards**: Last to adopt new products, often resistant to change.

There are also two more types of consumers that should be defined, and those are opinion leaders and market
ns.

Opinion Leaders Opinion leaders are consumers who have the ability to influence public opinion. They may not hold formal authority but can significantly impact the behavior of others due to their expertise, credibility, or social standing.

Market Mavens Market mavens are actively involved in gathering market information. They are more informed than the average consumer and are sensitive to marketing promotions. Although not necessarily experts, they possess rich information and actively disseminate this information, sharing their experiences with others.

Measuring Advertising Effectiveness in the Digital Environment

A key question in the digital age is how to measure the effectiveness and performance of advertisements. For instance, a company may choose to pay for a higher index for a given search query. However, determining which type of keywords to invest in and how to measure their performance remains challenging.

There are two primary types of keywords used in search advertising:

- **Generic Keywords**: These increase awareness even if consumers do not click immediately. They tend to cost more than brand-specific keywords and can have a spillover effect on subsequent brand keyword searches.
- **Brand-Specific Keywords**: These are directly related to the brand and are essential for capturing consumers already aware of the brand.

Balancing investment in both generic and brand-specific keywords is crucial for maximizing advertising effectiveness.

To evaluate advertising performance, the following metrics can be utilized:

- **Impressions**: The number of times an ad is shown to a consumer.
- **Click-Through Rate (CTR)**: The ratio of clicks to impressions.
- **Conversion Rate**: Defined in various ways, such as:
  - Percentage of consumers who sign up.
  - Percentage of applications.
  - Percentage of purchases.
- **Cost-Per-Click (CPC)**:

$$CPC = \frac{\text{Search Advertisement Spending}}{\text{Number of Clicks}}$$

- **Search Ad Profit**:

$$\text{Search Ad Profit} = (\text{Impressions} \times \text{CTR} \times \text{Conversion Rate} \times \text{Margin}) - \text{Search Ad Cost}$$

Display Advertising

Another option in advertising is display ads. They differ from search ads in that they appear on the sides of media being consumed online. They can also affect offline stores by generating awareness of the company and its products, potentially driving consumers towards making a purchase.

Influencers and Their Impact

Influencers play a significant role in shaping consumer habits. There are different types of influencers, each with unique characteristics:

- **Micro-Influencers**: Have fewer than 50,000 followers, maintain nearly a one-to-one engagement with their audience, are perceived as authentic, and are more affordable for brands.
- **Macro-Influencers**: Have between 51,000 and 500,000 followers, possess lower engagement per post but have a higher reach compared to micro-influencers.
- **Mega-Influencers**: Have over 500,000 followers, exhibit very low engagement levels, but offer the highest reach and impression.

Influencers are known for posting content related to products and services, wielding influence over their audience with varying degrees of authority. Generally, micro-influencers are more efficient in terms of cost per revenue, while macro-influencers are better suited for revenue generation due to their broader reach.

Managing Media and Influencer Strategies

In the dynamic digital environment, companies must effectively manage and balance different media types and influencer collaborations to optimize their marketing strategies. This involves strategic allocation of resources across owned, paid, and earned media, as well as selecting the appropriate type of influencer based on campaign objectives and target audience.

Strategic Recommendations

To navigate the complexities of connected consumers and social media, companies should consider the following strategies:

- **Leverage Influencer Partnerships**: Choose the right type of influencer (micro, macro, or mega) based on campaign goals and target demographics.
- **Optimize Keyword Investments**: Balance investment in generic and brand-specific keywords to maximize both awareness and direct conversions.
- **Utilize Comprehensive Metrics**: Employ a combination of impressions, CTR, conversion rates, CPC, and search ad profit to assess advertising effectiveness comprehensively.

- **Integrate Social Tagging Insights**: Use metrics like Brand Familiarity and Brand Favorability derived from social tagging to inform brand associative network strategies.
- **Adapt to Real-Time Trends**: Embrace crowdsourcing and real-time information sharing to stay agile and responsive to changing consumer preferences and market trends.

Session 11: Wrap Up

Session was spent discussing how to structure a thesis and a research project. Mostly irrelevant, won't be reported.

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