

# EFR summary

Empirical Marketing, FEB12018X  
2025-2026



Lecture 1-7

Week 1-6

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EUROSYSTEEM

## **Details**

**Subject:** Empirical marketing

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# Empirical marketing – IBEB –

## Lecture 1, week 1 – Introduction

### What is Empirical Marketing & Marketing Research?

**Marketing research** is the function that links the consumer, customer, and public to the marketer through information - information used to identify and define opportunities and problems; generate, refine, and evaluate actions; monitor performance; and improve understanding of it as a process. It specifies the information required to address these issues, designs the method for collecting information, manages and implements the data collection process, analyses the results, and communicates the findings and their implications. (Approved 2017)

### Brief history of marketing strategy

Strategy arose from a military context: *“The forces available must be employed with such skill that even in the absence of absolute superiority, relative superiority is attained at the decisive point”* - Karl von Clausewitz, On War (1832)

- Management scholars added two elements to apply the strategy concept to business: the need to make the differential advantage sustainable and the idea that the objective of any business strategy is to enhance firm performance (60s and 70s)
- Marketers argue that it must be from the perspective of the customer (90s)

Marketing strategy consists of decisions and actions focused on building a sustainable differential advantage, relative to competitors, in the minds of customers, to create value for stakeholders.

### Why is marketing strategy essential for financial performance?

A large amount of research documents its impact on financial performance, but many people don't realise the scope of its influence on sales and profits.

- Expand market size (new products and services, lower prices)
- Increasing Market Share (offering superior products or services and building customer loyalty)
- Enhancing profit margin (improve loyalty, brand image, relationships, products, targeting of high margin customers)
- Reduce costs (WOM, brand, relationships, retain with loyalty)

## First principles approach to marketing strategy

The first-principle approach argues that marketing strategy is the pursuit of solutions to four fundamental marketing problems and organises all frameworks, processes, and analyses to address them. Thus, a key requirement for making good marketing decisions is to identify underlying factors on which the decisions depend.

The underlying ideas or presumptions upon which a theory, system, or approach is built are known as "first principles." Each First Principle, when paired with its associated marketing decisions, yields a Marketing Principle (MP). These First Principles (followed by their Marketing Principles) are:

**1. All customers differ**

MP#1: Managing customer heterogeneity

**2. All customers change.**

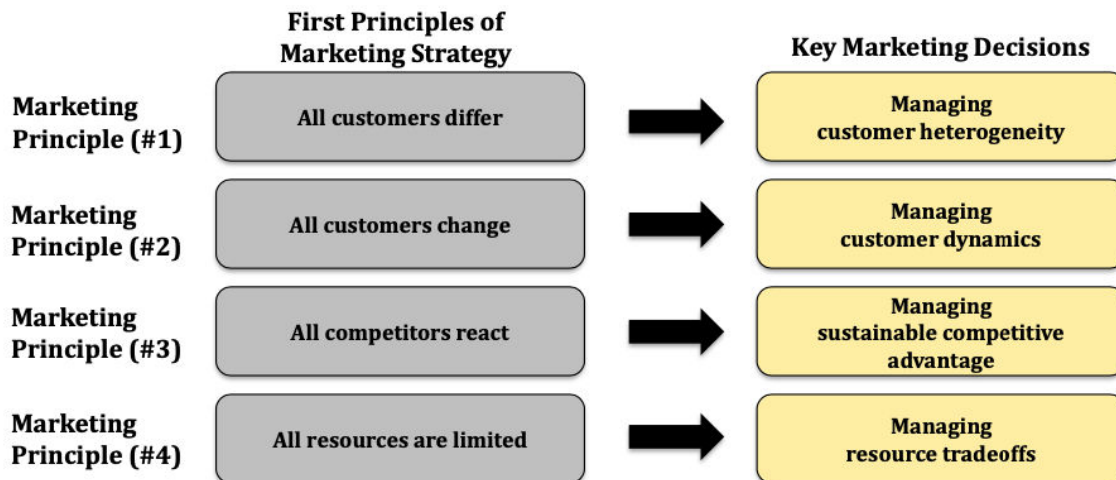
MP#2: Managing consumer dynamics

**3. All competitors react.**

MP#3: Managing sustainable competitive advantage

**4. All resources are limited**

MP#4: Managing resource tradeoffs



Source: Lecture 1, Marketing Principles (Karpienko, 2026)

## First principle #1: All Customers Differ -> Managing Customer Heterogeneity

- **For most products and services, customers vary widely on desires/needs**
  - E.g. Grocery stores can carry 60,000 + SKUs, even for commodities
- **Thus, firms are targeting smaller & smaller segments**
  - Mass marketing => niche marketing => 1-to-1 marketing
  - Competitive race as firms target smaller segments
- **Why?**
  - Matches inherent customer desires (real, perceived)
  - Faster response to customer trends and changes
  - Technology enabled (more economical to target/customise)
  - Only limited by the tradeoff in efficiency (cost) versus the benefit of a better match to the need (solution)

### Example: Godiva (Belgium)

Addressed MP #1 by developing different products for different consumers.

3 reasons people buy chocolate

1. To gift to others
2. To eat by themselves
3. To share

Expanded product line to meet all these needs (individually wrapped candies for candy dishes, fondue baskets for sharing with a group, packaged candy bars for people to eat themselves)

=> **Sales have increased by more than 10% per year for many years**

## MP#1: Managing Customer Heterogeneity

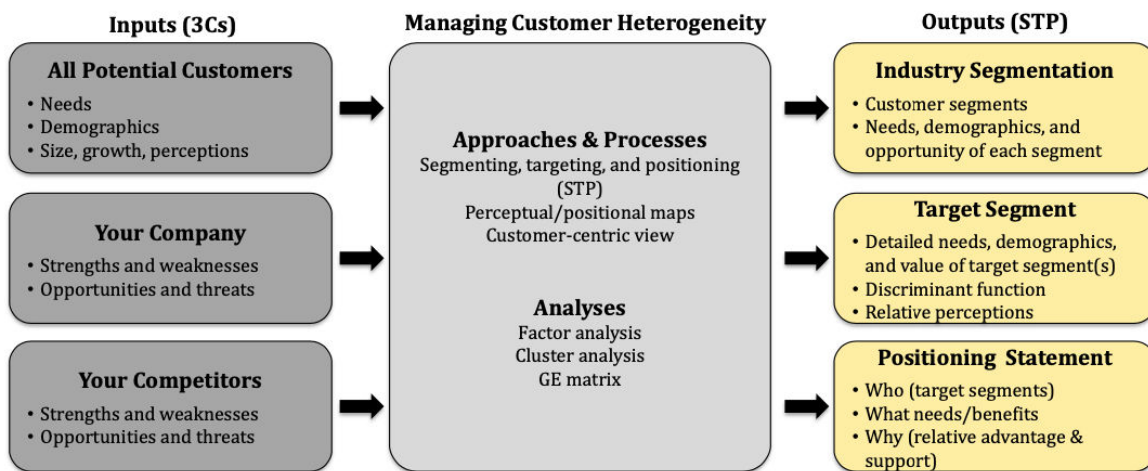
The difference among consumers in terms of their wants, desires, and subsequent behaviours is known as **customer heterogeneity**.

### Managing Customer Heterogeneity

The figure below shows the input-output framework for managing customer heterogeneity. It shows approaches, processes and analyses that help managers to make decisions.

#### The key inputs required are:

1. All Potential Customers: gather their needs, desires and preferences (like segmentation)
2. Your Company
3. Your Competitors



Source: Lecture 1, Managing Customer Heterogeneity (Karpienko, 2026)

Inventories of the company's and its competitors' strengths and weaknesses are needed to evaluate the firm's strength in each segment, which supports the targeting and positioning statement.

### **Ways firms can manage customer heterogeneity**

1. Ignore customer heterogeneity, focus on matching average consumer needs
  - a. Result: temporary profitability. Soon, a competitor will appeal to one of their subsegments, and the firm will lose profits.
2. Offer a range of products to satisfy the needs of different consumers
  - a. Result: Highly effective but costly & difficult
3. Predict that customers will take a good-enough product if the price is sufficiently low.
  - a. Result: Can be viable
4. Select a specific Segment of customers and target them
  - a. Known as Segmentation, Targeting, and Positioning (STP) approach
  - b. A customer-centric approach where firms recognise their long-term value
  - c. Strong brand that consumers know and respect

### **Outputs - Segmentation, Targeting, and Positioning (STP)**

1. Industry segmentation
  - a. Subdivided into homogenous groups?
  - b. What does each group of customers want?
2. Target Segment
  - a. Which segments to pursue?
  - b. How can the firm identify with each target consumer group?
3. Positioning statement
  - a. Whom should the firm target?
  - b. What needs and benefits are being fulfilled?
  - c. What are the relative advantages of this offering versus competitive offerings?

The process of converting customer, company, and competitor (3Cs) inputs into a representation of the firm's environment, using industry segmentation, target segments, and positioning statement (STP) outputs, is a critical first step in developing a marketing strategy.

## **First principle #2: All Customers Change**

Customers' desires/needs for most products and services change over time or due to specific events. This is called **customer dynamics**:

- **Consumer needs** change: cars, clothes, food, financial services, and healthcare as consumers age
- **Trigger events:** marriage, kids, job change, finances, move, graduation, acquisition, new managers, legal changes
- **Industries/markets** change: experience curve, diffusion, competitive responses, overproduction

Customers' needs vary not only because of inherent differences among people (heterogeneity) but also because people and markets change (dynamics). Thus, segmentation and targeting need to account for lifecycle changes/customer dynamics

## Customer dynamics

The processes by which customers' desires and needs change over time are called **customer dynamics**. The drivers of it are the following:

1. Seminal events
  - a. E.g., graduation, accident, promotions
2. Life stages
  - a. E.g. single → married → children
3. Knowledge/expertise
  - a. Learning effect (e.g., first-time guitar buyer focuses on price and colour, musician eventually focuses on fretboard material, tone woods, etc.)
4. Product category maturity
  - a. Another learning effect (i.e., given that practically everyone now is familiar with these technical specifications, thanks to the development of this market, digital photographers are likely to take a camera's pixels and zoom rates into account)
5. Regular exposure to relevant information

## MP#2: managing customer dynamics

While MP#1 concentrates on the market as a whole, MP#2 focuses just on current clients. It proves that a business must make an effort to comprehend how its clients develop over time. This can be done through:

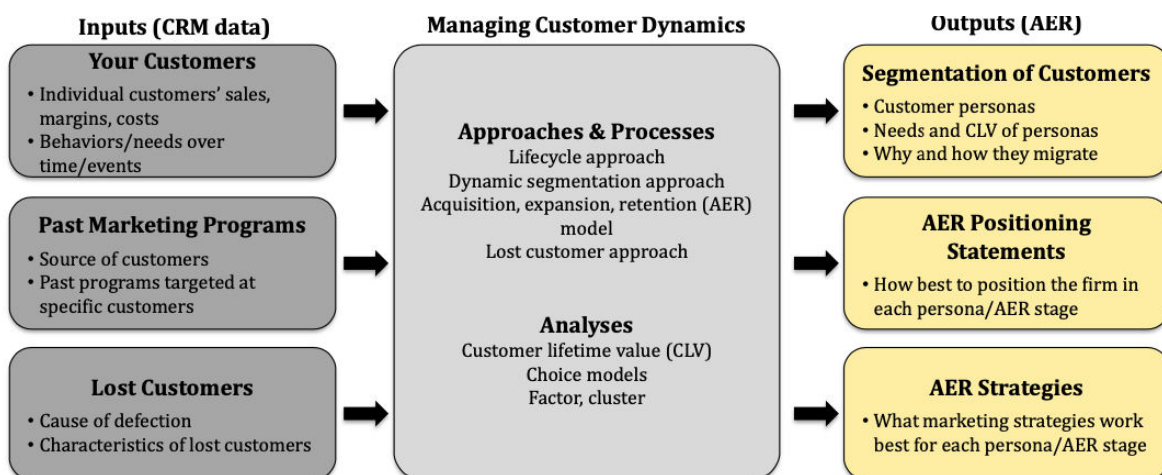
1. **Lifecycle perspectives**
  - a. Consumer lifecycle: average changes that customers undergo as they age, independent of the specific product or industry.

- b. Product/industry life cycle: reflects changes as the product category matures, which leads to different typical user experiences and industry effects.
- 2. Acquisition, expansion, retention (AER) approach**
- a. For existing customers
    - i. Grouping them into 3 stages: recently acquired, longer-term customers, and those lost or at risk of being lost
    - ii. Then create personas for each group
- 3. Customer lifetime value (CLV)**
- a. capture the financial contribution of each customer by determining the discounted value of the sales and costs associated with them, according to their expected migration path over the entire relationship with the firm.
  - b. Accounts for the heterogeneity of consumers.
  - c. Calculated at the individual level

## Managing Customer Dynamics

### The framework has three categories of input:

1. Your Customer: It should provide detailed, customer-level data, such as financial accounting data and product purchases.
2. Past Marketing Programs: It describes how customers have responded to specific marketing programs in the past, such as advertising, new-customer promotions, and their costs.
3. Lost customer: It is to figure out what they chose instead and why. It can help to suggest some potential recovery strategies.



Source: Lecture 1, Managing customer dynamics (Karpienko, 2026)

The second (AER positioning statements) and third (strategies) outputs are closely related, in that they represent strategic decisions that managers must make to manage customer dynamics. The process of identifying where specific personas/segments want to go, then developing strategies to guide them reach these positions, shows the process by which a firm establishes its market positioning.

## First principle #3: All Competitors React

Competitors are always copying successful strategies and innovating new ones

- Only one firm remains from the original Dow 30 firms (GE)
- Given enough money and time, most strategies can be copied

Thus, companies need to build a “barrier” to copying, giving them time to adapt to others' innovations. These barriers are termed **sustainable competitive advantage (SCA)** and are critical to long-term superior financial performance

### SCAs must meet 3 conditions

1. Customers care
2. The company does “it” better than competitors
3. Hard to duplicate

### Sources of SCA

1. Building brands and relationships
  - a. Awareness, image, status, meaning, reciprocity
  - b. Unconscious psychological barriers
2. Innovative offerings
  - a. Products, services, and experience (value)
  - b. Patents, trade secrets, habits, switching costs
  - c. Costs, scale, location, first mover

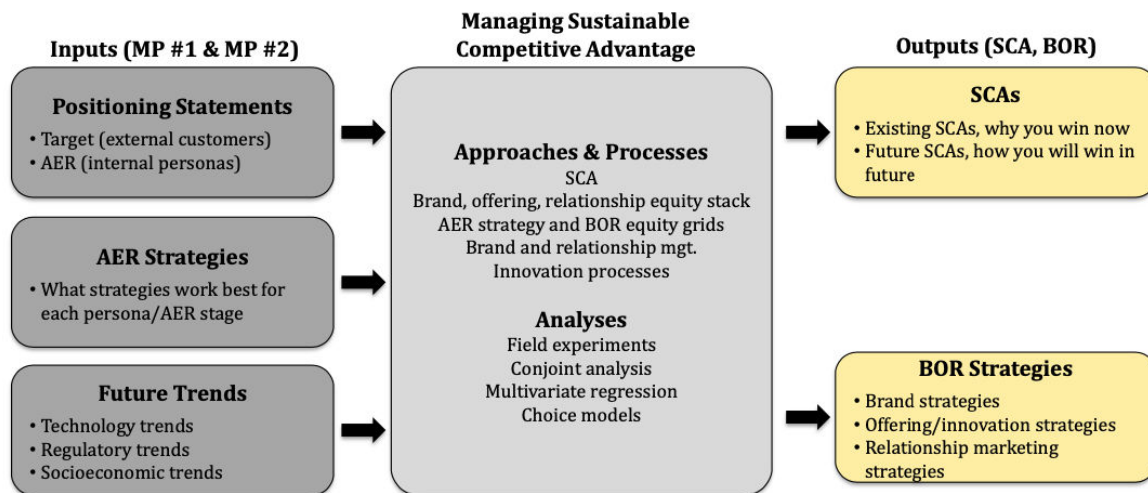
First, the firm should make brand decisions according to its overall positioning objectives. Second, the firm should make choices about its offering because product and service innovation, as well as R&D efforts, must align with both brand strategies and the firm's positioning. Third, relationship strategies get determined last. They involve the delivery and experience of offerings

## MP#3 Managing SCA

This can be done through the **brand, offering, and relationship (BOR) equity stack**

- Representative of firms' overall customer equity
- At an individual level, customer equity is analogous to customer lifetime value (CLV).

### Managing Sustainable Competitive Advantage (SCA)



Source: Lecture 1, Managing SCA (Karpienko, 2026)

MP#1 focuses on identifying what consumers want in the general market and how the company should occupy this space. To determine which AER techniques work best as customers change over time, MP#2 focuses on the company's own customers. The next logical step is MP#3. It explains how to create and keep up strong barriers to fend off competitors' attacks on high-value client segments. These obstacles, or long-term competitive advantages, are the result of marketing initiatives to create brand, offering, and relationship (BOR) equities.

## First principle #4: All Resources are Limited

Most marketing decisions require trade-offs across multiple objectives where resources are constrained and often interdependent

- Advertising vs. salespeople vs. discounts vs. channel co-ops vs. R&D vs. online
- Many "messages" are mutually exclusive (high status and low price) or (high performance and economical)
- Short-term vs. long-term trade-offs

Thus, need to balance marketing resources across:

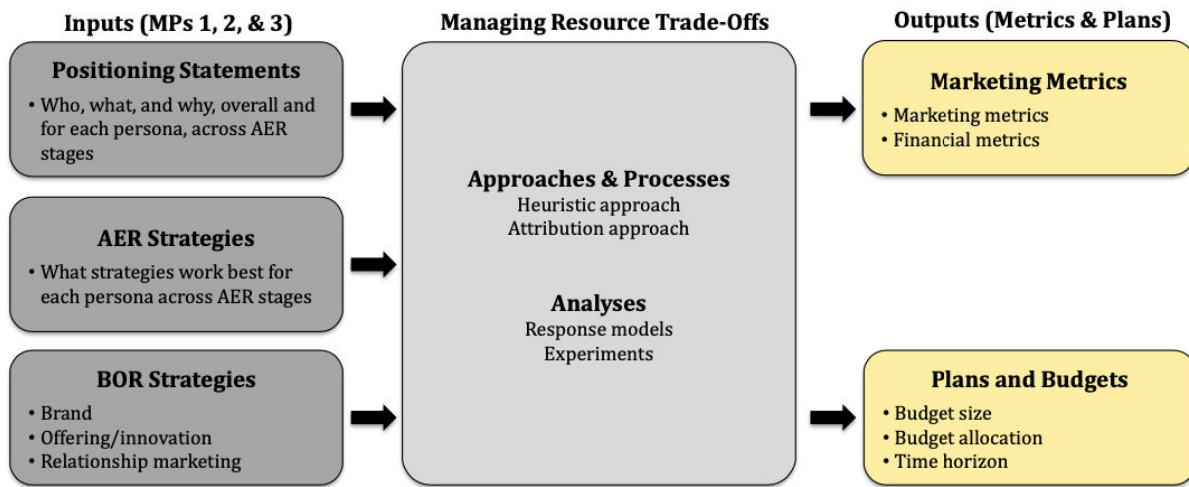
- Customers (STP)
- Acquisition, Expansion, and Retention stages (AER)
- Brand, Offering, Relationships (BOR)
- Marketing mix elements (4 to 7 Ps)

## MP#4: managing resource trade-offs

Two approaches:

- 1. Heuristic-based process:** a decision-making process where an individual uses lay theories or common beliefs to make decisions with uncertain outcomes.
  - a. Used if: lacking data about the attractiveness of each resource option
  - b. Use simple rules of thumb, driven by intuition and judgment, such as allocating some percentage of sales to marketing.
  - c. Con: Mostly incorrect, lacks a scientific basis, assumes that advertising works just as well today as it did in the past, even if customers change.
    - i. Solution: “anchoring & adjusting” heuristic processes.
    - ii. Ex: For instance, managers may use an initial heuristic to decide how to allocate resources (i.e., anchors), then modify their choices each period in response to the results.
- 2. Attribution-based process:** a method for assessing marketing effectiveness that attributes causal economic effect to a marketing investment, in environments where multiple marketing and complicating events may shape an economic event.
  - a. improved computing power and advances in statistics and data management.
  - b. Review historical data

## Managing Resource Trade-offs



Source: Lecture 1, Managing resource trade-offs (Karpienko, 2026)

# Empirical marketing – IBEB – Lecture 2, week 1 MP#1: All consumers differ

## Introduction

5 sources of customer heterogeneity:

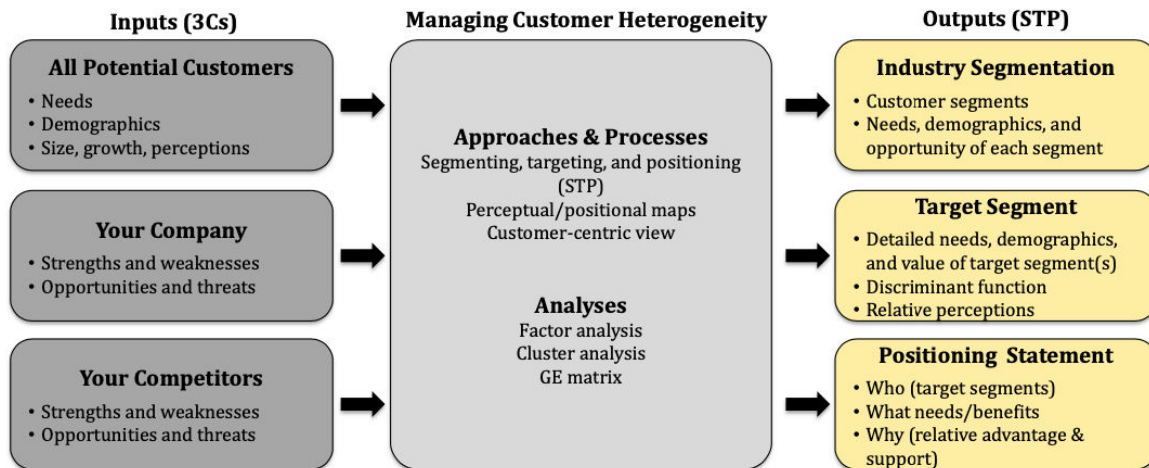
1. Individual differences
2. Life experiences
3. Functional needs
4. Self-identity/image
5. Marketing activities

<b>Source</b>	<b>Description</b>	<b>Examples</b>
Individual difference	A person's stable and consistent way of responding to the environment in a specific domain	Favourite colors, Big 5 Personality traits,
Life experiences	An individual's life experiences capture events and experiences unique to his or her life that have lasting impact on the value and preference he or she places on products and services, which in turn affects preferences independent of individual differences	A child raised closer to the equator, in warmer climates, will typically have a higher preference for a spicy food, as a carryover of past periods when spices were used to preserve and help mask the taste of food more likely to spoil in warmer climates.
Functional needs	An individual's personal decision weightings across functional attributes based on his or her personal circumstances.	What price can they afford to pay (income), how long does the product need to last (quality, warranty), when will they use the product (battery powered, size) and are there any special usage features that they need (waterproof)?
Self-identity/ image	Customers actively seek products that they feel will support or promote their desired self-image.	Motorcycle riders often wear leather (functional and image driven). Goths like the color black because of their desire to identify with the image of a specific user or a social group.
Marketing activities	Firms' attempt to build linkages between their brands and prototypical identities or meanings.	BMW paid \$25 million to have James Bonds drive a BMW in the movie "Skyfall".

Source: Lecture 2, Five Sources of Customer Heterogeneity (Karpienko, 2026)

# Framework for managing customer heterogeneity

MP#1: All customers differ → Managing Customer Heterogeneity



Source: Lecture 2, Managing Customer Heterogeneity (Karpienko, 2026)

## Inputs to Managing Customer Heterogeneity

### Framework

1. All potential customers - needs, desires, and preferences across customers in an industry, geographic region, market segment, or product category
2. Your company - an inventory of the company's strengths, weaknesses, opportunities, and threats (SWOT analysis)
3. Your competitors - an inventory of your competitors' strengths, weaknesses, opportunities, and threats (SWOT analysis)

### SWOT and 3C analysis

A **SWOT analysis** appraises the strengths, weaknesses, opportunities, and threats that affect a company's success. It assesses the internal and external nature of the business across current and future situations.



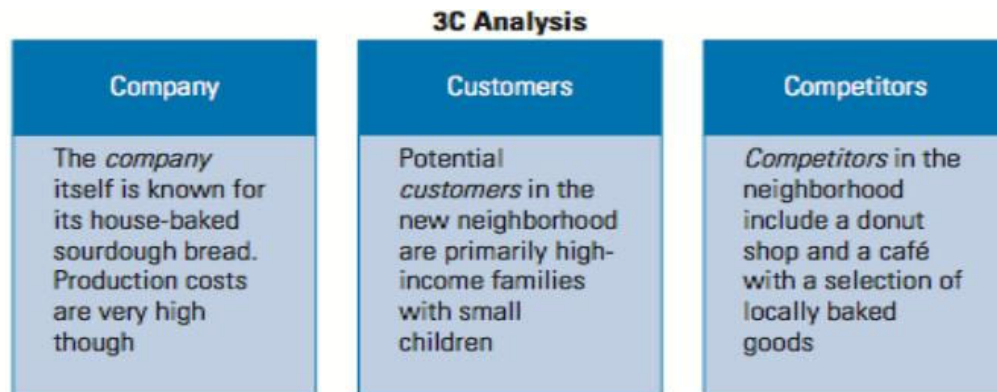
	<b>Explanation</b>	<b>Strategy implications</b>
<b>Internal</b> (company-level) factors: core competencies, market share, competitive advantages		
Strengths	Current strengths, such as a strong financial performance or a reputed brand	The firm can develop new products to leverage these strengths
Weaknesses	Current weaknesses, such as a slow customer response rate	Strategies need to be implemented to eliminate these weaknesses
<b>External</b> (environmental) factors: relevant legal structure, competitors' core competencies and market share, changes in customer demographics		
Opportunities	Future opportunities, such as environmental factors that may work in the company's favor	Strategies need to be devised to take advantage of the potential opportunities
Threats	Future threats, such as increasing competition	Strategies need to be devised to overcome the threats, such as lowering prices or increasing promotions

Source: Lecture 2, SWOT analysis (Karpienko, 2026)

The **3C analysis** evaluates customers, competitors, and the company. It focuses on these three perspectives to gain competitive advantages.

### Inputs 3Cs:

1. All potential Customers (needs, desires and preferences across customers in an industry, geographic region, market segment, or product category)
2. Your Company (an inventory of the company's strengths, weaknesses, opportunities, and threats or SWOT analysis)
3. Your Competitors (an inventory of your competitor's strengths, weakness, opportunities, and threats or SWOT analysis)

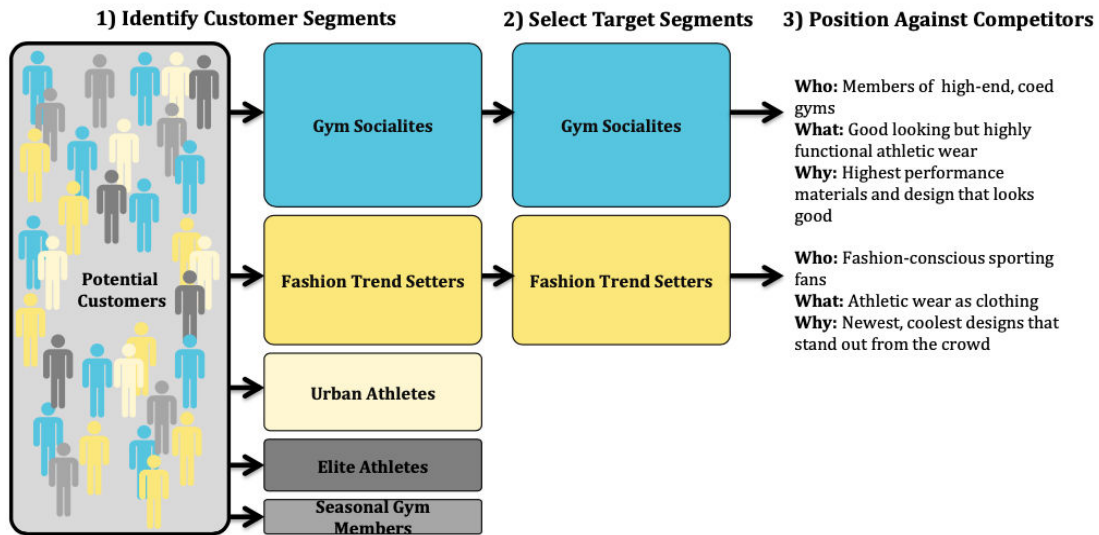


Source: Lecture 2, 3C analysis (Karpienko, 2026)

## Process for Managing Customer Heterogeneity

To convert inputs into outputs, marketers conduct a series of process steps:

1. **Segmenting:** To initiate the segmentation, managers need to identify the key purchase attributes, that is the needs and desires that a potential customer evaluates when making a purchase decision for this category
2. **Targeting:** The targeting process follows naturally from segmentation, to identify which segments the firm wants to sell to, based on the attractiveness of each segment and the firm's competitive strength in each segment
3. **Positioning:** The separation between targeting and positioning is often blurry. Many of the factors used to evaluate competitive strengths to select a target segment also impact the difficulty of executing an effective positioning strategy for that segment
4. **Building Customer Centricity:** Building a customer-centric organisation is different from executing an STP process, in that it requires a top-down, enduring commitment from senior leaders to institute a customer-centric philosophy across the firm's entire organization



Source: Lecture 2, Example of Managing Customer Heterogeneity (Karpienko, 2026)

## Outputs of Managing Customer Heterogeneity

**Industry Segmentation** describes industry segments and includes, for each named segment, salient purchase preferences, demographic variables, and potential demand opportunities.

**Target Segmentation** moves from the overall market landscape to the specific segment(s) of interest, thereby extending the first output with a very detailed description of each target segment.

**Positioning Statements** encapsulate the three questions into one concise statement that firms use to guide their internal and external marketing activities: who should the firm target, what needs and benefits are being fulfilled, and why this offering provides a relative advantage over competitive offerings.

**Building Customer Centricity** is different from executing an STP process, in that it requires a top-down, enduring commitment from senior leaders to institute a customer-centric philosophy across the firm's entire organisation.

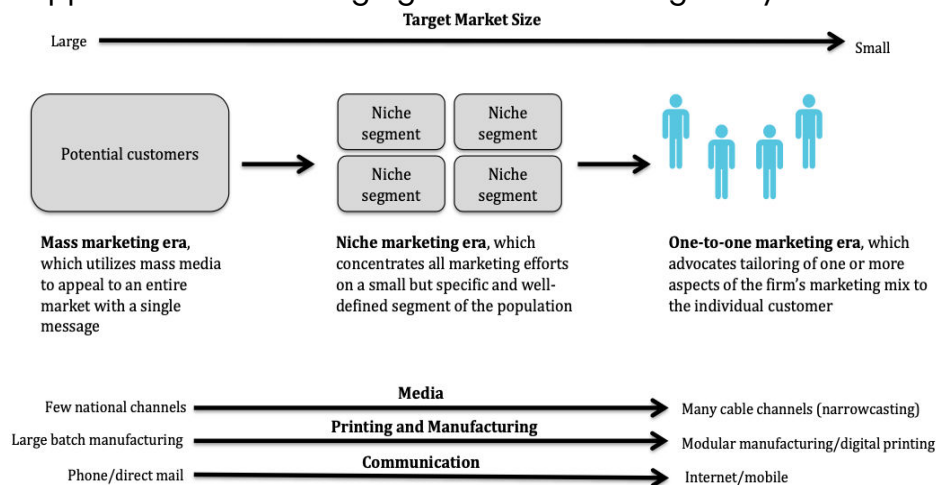
A **customer-centric firm** places the customer at the centre of the organisation's vision/mission/strategy/structure/culture/metrics. As of now, the firms are shifting towards a customer-centric structure.

# Customer Heterogeneity: A Fundamental Assumption of Marketing Strategy

Customer heterogeneity is a fundamental “problem” that all firms must address when developing an effective marketing strategy. Assuming all customers are the same is a recipe for failure, at least in the long term, as competitors will better satisfy subsegments with more aligned offerings. This leads to a downward spiral in which the firm has fewer, less profitable customers that are more costly to serve.

## Approaches for managing customer heterogeneity

Evolution of approaches for managing customer heterogeneity



Source: Lecture 2, Evolution of approaches for managing customer heterogeneity (Karpienko, 2026)

**The mass marketing era**, which used mass media to appeal to an entire market with a single message, is a marketing strategy in which a firm mostly ignores customer heterogeneity, with the assumption that reaching the largest audience possible will lead to the largest sales revenue

**The niche marketing era** focused marketing efforts on well-defined, narrow segments of consumers, and by specialising, this method seeks to give the firm a competitive advantage

**The one-to-one marketing era** is marked by a shift towards one-to-one marketing, such that firms attempt to apply marketing strategies directly to specific consumers

Across all three eras, the underlying method for dealing with customer heterogeneity is the same: focus on smaller and smaller groups of customers, so that the needs of each group become more similar as they are subdivided into smaller units, until the focus reaches an individual customer.

## Segmenting, targeting, and positioning (STP) approach

In order to better match heterogeneous customer needs, firms focus their efforts on small “homogenous” customer groups

- **Segmenting:** Dividing the market into groups of similar customers (slicing the pie into pieces)
- **Targeting:** Selecting the best customer group to sell to (picking the slice to eat)
- **Positioning:** Improve your relative advantage in the minds of your targeted customers (also addresses Marketing Principle 3 by building SCA)

### Segmenting

Consists of dividing the market into groups of customers where:

- Segmentation starts with a random sample of *potential* customers (not just existing ones)
- Customers within the group have very similar needs
- Customers across groups have different needs (maximise the difference between segments)

**Needs:** Needs and benefits desired by customers for your offering

- Segment on needs/benefits, not descriptors
- Uses one of the “Cs” as input: customers

**Descriptors:** Observable customer characteristics that help you find and classify customers (e.g., gender, age, income, size, education, etc.)

**Segmentation steps:**

1. Identify and refine pool of potential customers’ needs and descriptors (qualitative research)

2. Collect data from a random assortment of potential customers on the “importance” of needs/benefits to the purchase decision
3. Use needs to segment the market into 3 to 7 homogeneous customer groups
  - a. Often need to group like questions together using factor analysis before clustering customers
  - b. Choose the number of segments based on the results and the ability to manage them
4. Name segments (communication tool)

### Example 1

A company conducted an annual customer satisfaction survey for an advertised product, collecting perceptions of the product’s price, quality, and distribution (on a 5-point scale). To improve customer satisfaction and design more efficient targeting strategies, the company conducted a partition-based clustering analysis of the data and thereby identified three segments: consumers who are dissatisfied on all three attributes (Segment 1), consumers who are highly satisfied on all three attributes (Segment 2), and consumers who are highly satisfied on quality and distribution but dissatisfied on price (Segment 3). The table gives the mean statistics for each segment.

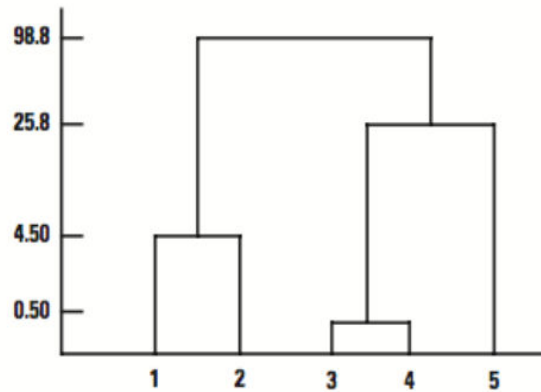
	Price	Quality	Distribution
Segment 1	1.82	1.97	2.95
Segment 2	4.31	4.05	4.57
Segment 3	2.75	4.45	4.32

Source: Lecture 2, Cluster Analysis Example 2 (Karpienko, 2026)

### Example 2

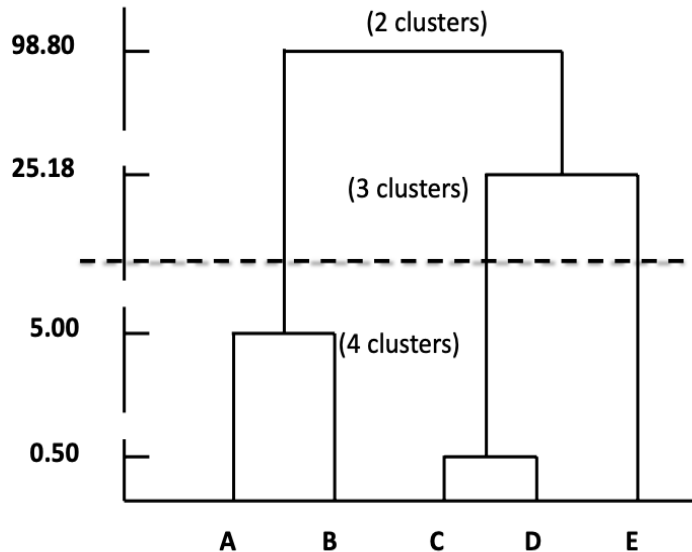
Imagine there are five customers, rated on their intention to purchase (1–15 scale). A hierarchical clustering procedure, based on Ward’s minimum variance criteria to minimize the sum of the square of errors, starts by assuming each customer is its own cluster. However, combining customers 3 and 4 seems intuitive since they have similar purchase intentions and it results in limited loss of information (0.5 on the dendrogram). Similarly, combining customers 1 and 2 results in limited loss of information (4.5). Thus, five customers could be combined into three segments (1,2), (3,4), and (5). If we then try to combine (3,4) and (5) as one customer, the loss of information (25.8) is prohibitive. Thus, we stop at three segments (1,2), (3,4), and (5)

Customers	Purchase Intentions
1	3
2	6
3	10
4	11
5	14



Source: Lecture 2, Cluster Analysis Example 1(Karpienko, 2026)

Hierarchical clustering procedure gives a Dendrogram



- Numbers represent amount of variance explained (don't worry about actual numbers but rather change)
- Pick number of clusters where variance explained is relatively large
- 3 clusters look best since 4 clusters only gives "5" more units versus 99 and 25
- But, look at 4 clusters to see what is different

Source: Lecture 2, Dendrogram (Karpienko, 2026)

## Targeting

A market needs to select segments to target based on certain selection criteria:

- Market attractiveness (size, growth rate, price sensitivity, etc.)
- Competitive strength (captures the relative strength of a firm, versus competitors, at securing and maintaining market share in a given segment)

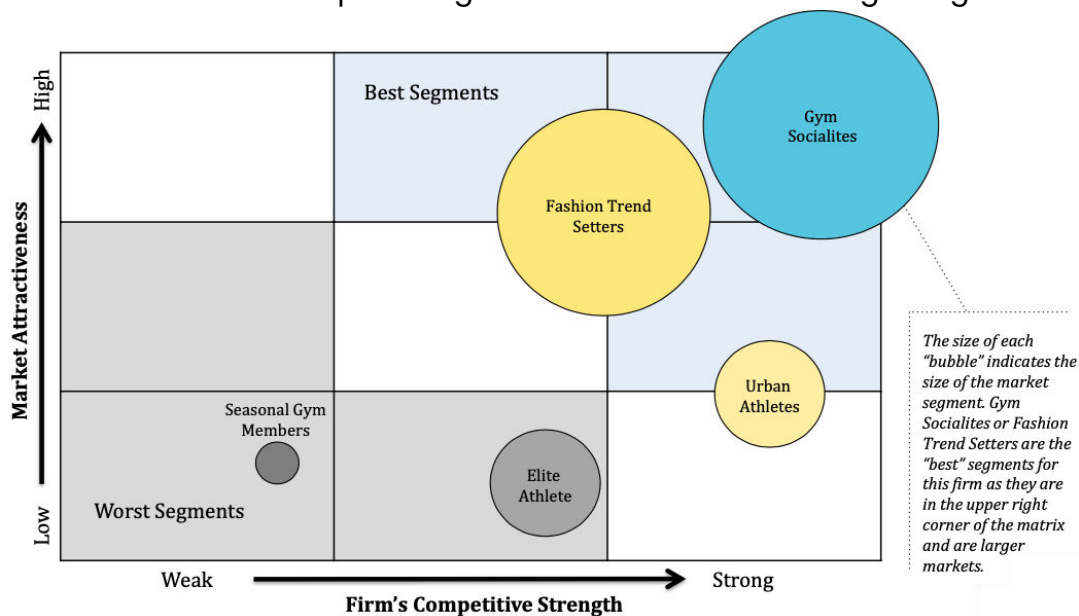
This uses all three "C's" as input: customer, company and competitors

**An ideal target segment should meet six criteria:**

1. Based on customer needs (customer care)
2. Different than other segments (little crossover competition)
3. Differences match the firm's competences (the firm can execute within resource constraints)
4. Sustainable (can keep customers)
5. Customers are identifiable (can find targeted customers)
6. Financially valuable (valuable in the long term)

## GE matrix

Analysis tool: GE Matrix → help managers visualize and select target segments



Source: Lecture 2, GE Matrix: Analysis tool for targeting (Karpienko, 2026)

## Positioning

Is a process of improving your relative advantage in the minds of your targeted customers by changing both your actual (e.g., innovation) and perceived offering (e.g., branding, relationships)

Uses all three "Cs" as inputs: Customer, Company, Competitors

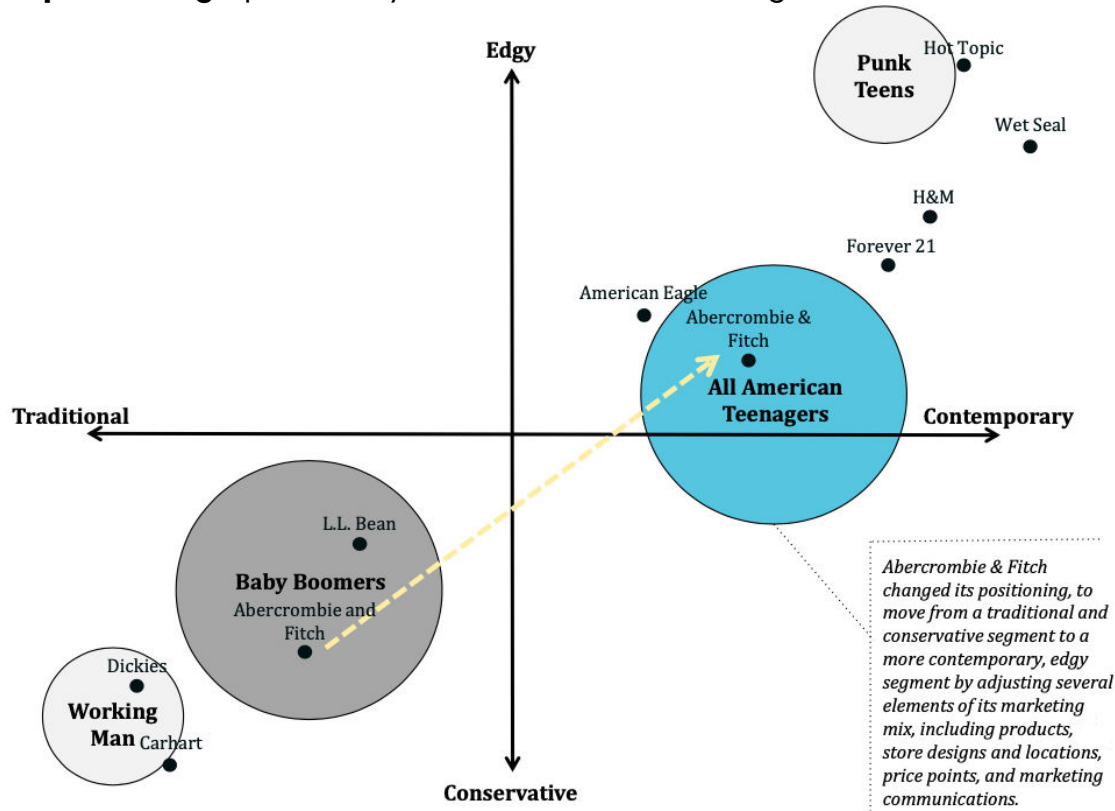
Nearly everything you do impacts your positioning:

- Place (Channel): E.g. Samsung dropping Kmart
- Price: E.g. No discounts at Tiffany

- Promotion: E.g. Tiger Woods at Nike, Starbucks
- Product: E.g. Bose, Apple

**Perceptual Maps** - analysis tool to aid in positioning decisions

**Repositioning** - process by which a firm shifts its target market



Source: Lecture 2, Perceptual Map: Analysis Tool for Positioning (Karpienko, 2026)

Positioning Statement must address three key questions:

1. Who are the customers?
2. What is the set of needs that the product or service fulfills?
3. Why is this product/service the best option to satisfy your needs (relative to competition or substitute; support for why)?

This statement is the roadmap for a plethora of implementation decisions involved in marketing a product (both inside and outside the company)

## Factor Analysis

**Factor analysis** is a data reduction technique that can be used to identify a small number of latent "factors" that explain the major variation in a large number of

observed variables.

### When to use it?

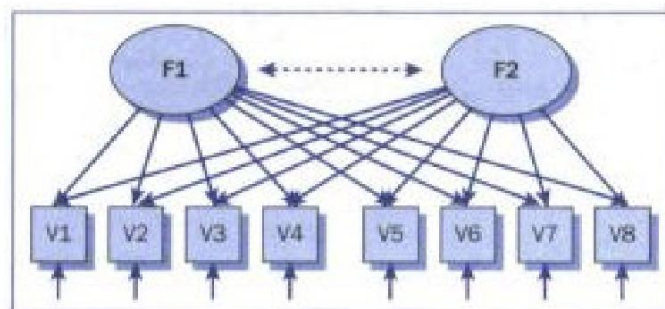
- To condense a large “pool” of potential customer needs, wants, and preferences into a short set of similar characteristics
- To reduce high correlation among predictors

### How does it work?

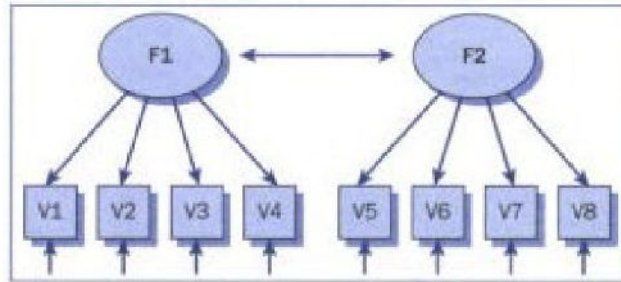
- Start with a large number of measured variables (eg., 30) from customer surveys.
- Synthesise these many variables into smaller sets (eg., 3-4) of latent “factors” that capture the meaning of measures.
- To choose the total number of factors to retain, we observe how many factors have an Eigenvalue greater than 1. The strength of the association between a measure variable and its factor is called the “factor loading.” When a measured variable has a factor loading greater than 0.3, it is generally associated with a factor. We categorise the measured variable by the factor with the highest loading (e.g., if a variable shows factor loadings of 0.01 and 0.8 on Factors 1 and 2, we associate the measured variable with Factor 2). Finally, we interpret each latent factor based on the conceptual commonalities that explain why the measured variables load on it.

## Types of factor analysis

**Exploratory (EFA)** - look for structure in the data (“let the data speak”)



**Confirmatory (CFA)** - confirm theoretically derived structure



Source: Lecture 2, Types factor analysis (Karpienko, 2026)

# Empirical marketing – IBEB –

## Lecture 3, week 2

### MP#2 All customers change

Sources of customer dynamics:

#### Individual level:

1. Discrete life events
  - Immediate
  - Daily purchasing habits are hard to change, and preferences shift after life events, which can alter spending patterns.
  - Using specific product purchases as predictors of preference changes is standard in marketing analytics
2. Typical lifecycle
  - Slow
  - As people get older, they become more focused on risk reduction, comfort and health
3. Learning effect
  - Medium
  - Enhanced product knowledge and experience changes the importance each consumer attaches to different attributes
  - Example: Increasing importance of social media for learning effect: increase brand awareness and reputation through effective communication

### Product Market level:

4. Product lifestyle
  - Medium
  - In the early stages, consumers buy multiple new features, and in later periods, they become more price-sensitive.

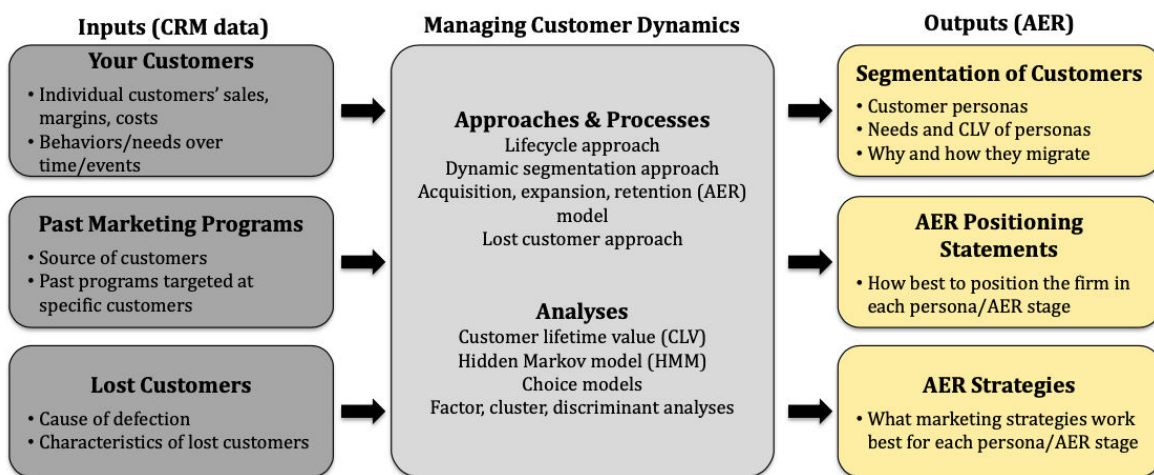
### Environmental level:

5. Constantly changing environmental context
  - Slow to immediate
  - Governments, lobbyists, and marketers are working to change perceptions and regulations in climate, health and technological development.
  - Discrete events, such as COVID, also have an impact on the environment.

Interaction between sources:

- An individual's life cycle also interacts with the environment and life events.
- Younger segments react more strongly to an economic shock when compared to older segments.

## MP #2: Managing Customer Dynamics



Source: Lecture 3, Managing Customer Dynamics (Karpienko, 2026)

### Inputs to the Customer Dynamics Framework

1. **The firm's existing customer portfolio** – ideally a firm's CRM system provides detailed customer-level data for the dynamic segmentation analysis

2. **Data linking past customer responses** with specific marketing programs and the programs' cost
3. **The qualitative and quantitative information** gleaned from the lost customer analysis, which reveals the causes of customer defection, where they go, and potentially effective recovery strategies

## Outputs of the Customer Dynamics Framework

1. A description of the firm's customer personas and expected migrations to understand how they change, including:
  - Critical life event triggers
  - The products and services they buy at different points in their lifecycle migration
  - How they feel at different stages in their lifecycle
  - The CLV of customers in each persona
  - When consumers stop buying and why
2. AER Positioning statements – how to best position the firm in each persona/AER stage
3. AER strategies – what marketing strategies work best for each persona/AER stage

## Process for Managing Customer Dynamics

To convert CRM, marketing program, and lost customer input data into dynamic segmentation and AER positioning statements and strategies, managers should follow a series of steps:

1. Dynamic segmentation
  - a. Depending on how long they have been clients and other pertinent information, existing customers should be split into AER stages. Finally, using surveys and CRM data, the cluster analysis technique can be used to analyze current clients in each of the three stages.
2. Migration Paths and Triggers
3. Customer Lifetime Value of Segments and Migrations
4. AER positioning statements
  - a. These statements are:
    - i. Internally focused on existing customers
    - ii. customer needs over time

- iii. Addresses “when” queries, triggers, and migration mechanisms, which are not included in typical positioning statements.

5. AER strategies

## Evolution of Approaches for Managing Customer Dynamics

**The Lifecycle Approach** uses generic stages of growth and their position in the lifecycle to determine customer preferences and associated strategies

Pros	Cons
Simplicity	Assumes all customers follow one curve
Ease of use	Averages all customers
	Ignores causes of customer dynamics

**Dynamic Customer Segmentation** segments a firm’s existing customers based on their similar, expected migration patterns

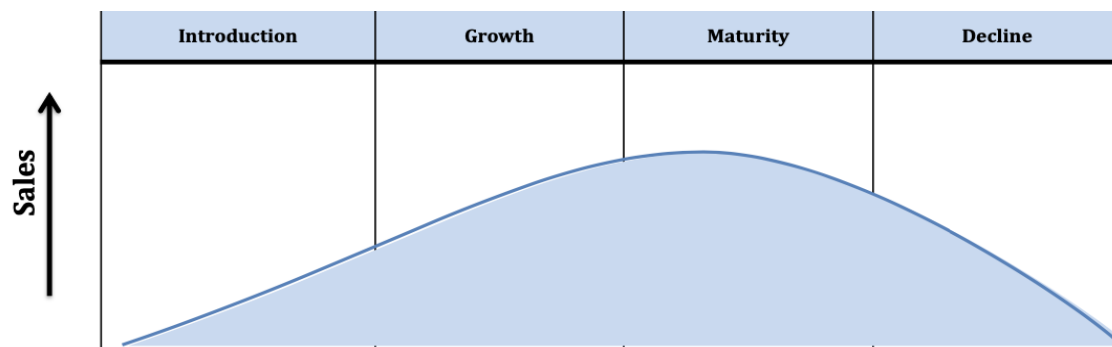
Pros	Cons
Combines lifecycle and segmentation methods.	Segments are not perfectly homogeneous
Matches strategic marketing thinking	Puts continuous change into discrete stages
Identifies temporally homogenous groups	

**Customer Lifetime Value** captures each customer's contribution based on their expected migration path over the customer's entire lifetime with the firm.

Pros	Cons
Provides insights for AER decisions	Requires insight into future migration
Supports a customer-centric culture	Requires detailed financial data
Captures dynamics and heterogeneity.	

## Different Lifecycle Approaches

- **Customer lifecycle** attempts to capture how individuals typically change as they age and reach common age-related milestones
- **Product lifecycle** proposes that various products go through four typical stages in relation to their acceptance by society: introduction, growth, maturity, and decline



Source: Lecture 3, Typical Customer Product Lifecycle (Karpienko, 2026)

## Descriptions of the Stages

### Introduction

- Product just launched on the market, often perceived as risky by customers.
- Most relevant features are still unknown to customers and sellers.
- High prices.

- Seller focuses on finding new customers and promoting product trials.

### **Growth**

- Product gains acceptance in the market, and sales expand quickly.
- Users are more comfortable with the product and know which features they want.
- More focus on retaining customers and generating repeat sales.
- Customers become increasingly price sensitive.

### **Maturity**

- Product is widely accepted, and growth begins to slow, because fewer new users are available.
- Market becomes competitive, and some firms drop out.
- Intense price competition reduces profits.
- Some sellers focus on niche segments to avoid competitive pressures.

### **Decline**

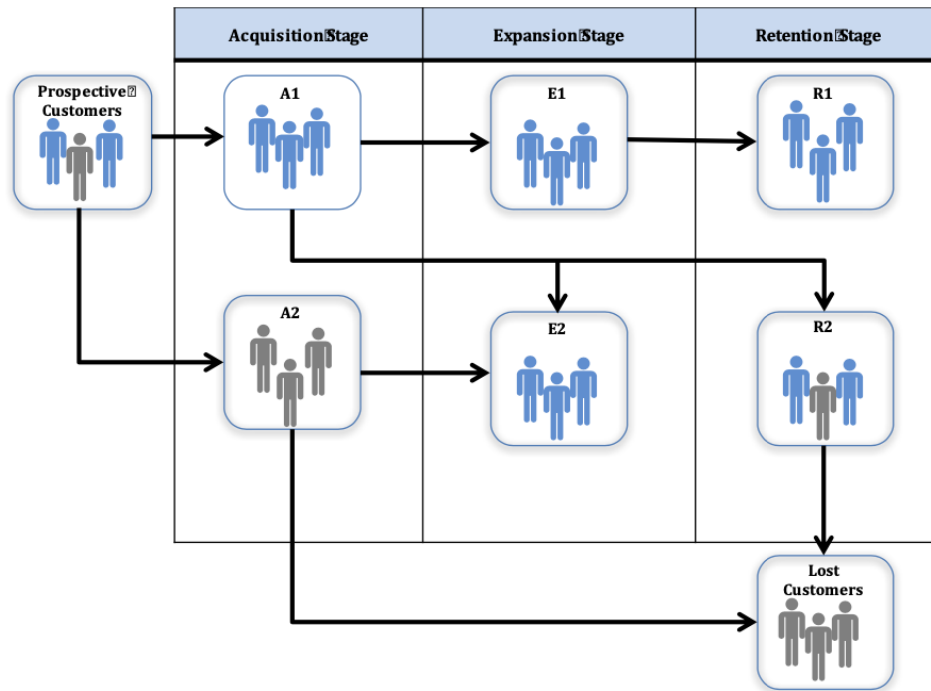
- Destructive competition and changing consumer needs and desires lead to product decline.
- Firms' sales and profits decline.
- Firms with higher costs and those without a unique advantage exit the market.
- The market often consolidates with fewer suppliers.

## **Customer Dynamic Segmentation Approach**

Dynamic-based segmentation is sometimes called the **Acquisition–Expansion–Retention (AER) model**, because it captures customers entering the firm's portfolio and expanding over time, even as other customers slowly leave

- **Acquisition stage** begins with the first contact, typically before the first purchase occurs, when prospects and early customers have similar needs
  - *Customer onboarding* is the planned process of introducing new customers to a firm to improve their long-term satisfaction and loyalty.
- **Expansion stage** has firms that are trying to upsell or cross-sell to expand their sales and engagement with existing customers
- **Retention stage** deals with customers who migrate not because of a mismatch in the core offering or a life event but because they have a basic propensity to switch, in pursuit of "greener pastures"

## Customer Dynamic Segmentation Approach:



Source: Lecture 3, Customer Dynamic Segmentation Approach (AER Model)  
(Karpienko, 2026)

## Lost Customer Analysis Informs AER Strategies

Identify the cause of customer churn and work backwards to ensure other customers don't leave for the same reason.

### Three-step process:

1. Set regular intervals for contacting lost customers to identify the cause of churn (choice models).
2. If the lost customer is not in the firm's main target segment:
  - Change acquisition criteria
  - Evaluate an expansion to address customers
3. If the lost customer is in the firm's target market, firms should:
  - Fix the problem
  - Implement strategies to build brands and relations

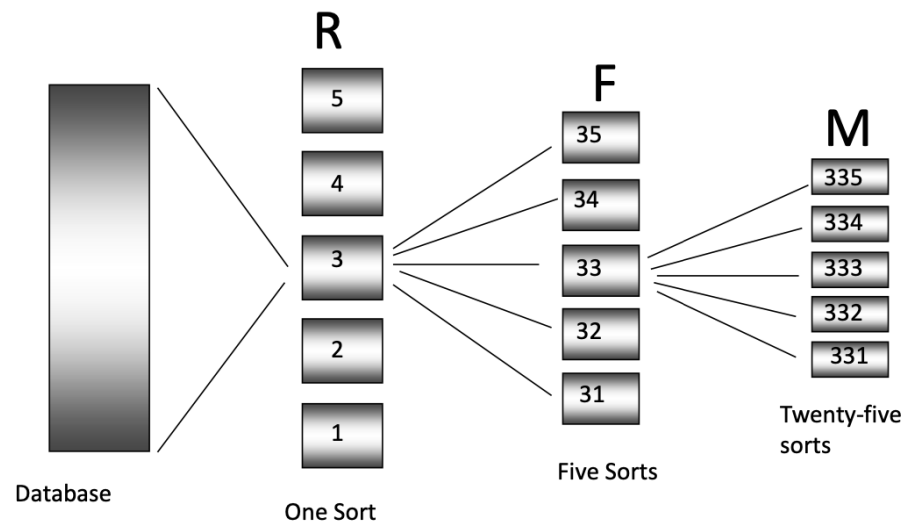
## RFM Analysis for Segmentation

Direct marketers have been using a simplified version of CLV for decades, targeting customers for expensive catalogue mailings. They use three readily available customer behaviours:

- Recency or time elapsed since last purchase
- Frequency of purchases in the last period
- Monetary purchases in the last period

These **RFM variables** put customers in rank-ordered groups, based on their value in the past year (not by modelling but by rank-order sorting)

Using the profits generated from a test mailing to a few customers from each group, direct marketers then mail the catalogue only to the groups with an acceptable return on investment:



Source: Lecture 3, RFM Code Construction Where Higher Numbers are Better (Karpienko, 2026)

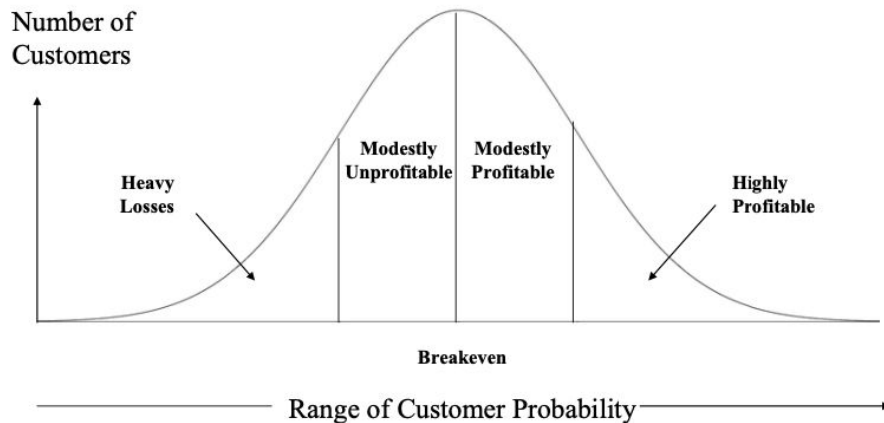
## Customer Lifetime Value (CLV) approach

Customer Lifetime Value (CLV) is a key analysis tool for making AER decisions.

**CLV approach** evaluates a firm's profit as the sum of each customer's lifetime discounted cash flows.

CLV also accounts for varying profits across customers:

- Beyond the 80/20 rule: firms earn 150% of their profits from 30% of their customers
- CLV captures these differences in your existing customers so you can acquire, expand, and retain the “best customers”



The Right Customers: Acquisition, Retention, and Development (HBR Press)

Source: Lecture 3, CLV Accounts for Varying Profits Across Customers (Karpienko, 2026)

On average, annual earnings typically increase over a customer's life due to cross/up-selling; but, some customers are more costly to acquire or retain (lowering prices, high service levels)

## Customer Lifetime Value (CLV) Analysis

- Net cash flow (sales-cost) for individual customers or a group of customers
- Calculate CLV of each customer:

$$CLV_i = \sum_{t=0}^T \frac{CF_{i,t}}{(1+d)^t}$$

Where

$CF_{i,t}$  = net cash flow generated by the customer  $i$  at time  $t$

$T$  = time horizon for estimating the CLV

$d$  = discount rate

**CLV** is the “value” added by an individual customer to the company - a form of **customer-centric accounting** where a firm's value is the sum of all its customers' CLV.

## Simplified Customer Lifetime Value Analysis

Several simplifications make CLV calculations even more straightforward. Assuming that  $T \rightarrow \text{infinity}$  and that the contribution margin and marketing costs do not vary over time, the CLV in dollars for an  $i_{th}$  customer reduces to five inputs:

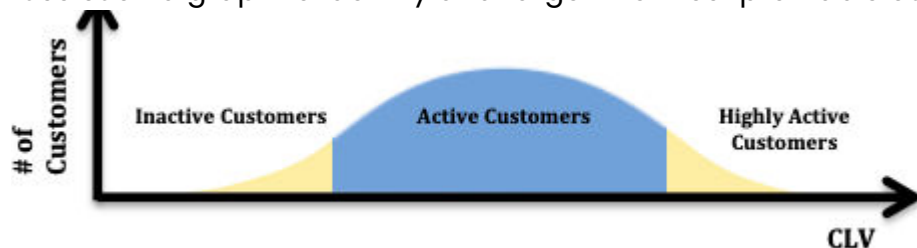
1.  $M_i$  = margin for an  $i^{th}$  customer in \$ (sales \$ and margin as %)
2.  $C_i$  = annual marketing cost for an  $i^{th}$  customer in \$
3.  $r_i$  = retention rate for an  $i^{th}$  customer as a %
4.  $d$  = discount rate as a %
5.  $AC_i$  = acquisition cost for an  $i^{th}$  customer in \$

$$CLV_i = [(M_i - C_i) / (1 - r_i + d)] - AC_i$$

When to use it?

- To identify which customers are worth acquiring and retaining
- To determine where to target marketing programs to maximise the firm's return on marketing investments
- To understand the true value of a customer to the firm

Firms can use such a graph to identify and target the most profitable customers:



Source: Lecture 3, Customer Lifetime Analysis (Karpienko, 2026)

## Customer Referral Value (CRV)

**Customer Referral Value (CRV)** is the lifetime value of a customer bringing the firm another customer.

Highest CLV customers do not always generate the highest CRV! "Advocates" real value is higher than a CLV would predict, so you need to protect these customers.

Identifying advocates: protect, enable, expand

- E.g., Referral programs

# Empirical marketing – IBEB –

## Lecture 4, week 3

### Sustainable Competitive Advantage. All Competitors React

## All Competitors React: A Fundamental Assumption of Marketing Strategy

### **Competitors can displace firms in many different ways:**

1. Technical innovations that provide competitors with a platform to launch a disruptive offering
2. Exploiting changes in customers' desires due to cultural, environmental and other factors
3. Individual entrepreneurship that constantly seeks a better way to solve a problem
4. Copycats that improve the efficiency or effectiveness of an existing execution

Thus, managers need to anticipate competitors' reactions, both now and in the future, by building barriers to entry or sustainable competitive advantages that can withstand competitive assaults.

This is related to Marketing Principle #3: all competitors react, and an effective marketing strategy must manage the firm's sustainable competitive advantage (SCA)

## Sustainable Competitive Advantage (SCA)

A firm has SCA when it is able to generate more customer value than competitive firms in its industry for the same set of products and service categories, and when those other firms are unable to duplicate its effective strategy.

- Being first to market with a new idea is not sufficient to create barriers to competitors
- To make an SCA hard to copy, firms often turn to key marketing-based sources of SCAs

## Good SCA criteria(s)

1. Customers care about what this SCA offers
2. The firm does it better than its competitors, which generates a relative advantage
3. The SA must be hard to duplicate or substitute, even with significant resources

## Marketing-based sources of Sustainable Competitive Advantage

There are 3 market-based sources of sustainable competitive advantage:

### 1. Brand:

- Most effective in large consumer markets
- Most effective for consumer goods
- Advertising, PR, sponsors

### 2. Offerings

- It is effective because new and innovative products have the potential to disrupt virtually any market segment
  - R&D
  - New products and services
  - New tech

### 3. Relationships

- Most effective for B2B, service and complex offering settings
- Salespeople, any boundary spanner, and online relationships

The 3 sources of sustainable competitive advantage (BOR) are additive and often work synergistically to give a firm a strong relative position in the marketplace.

Source	Barriers to Duplication	Where is it most effective?	Examples
Brands	Brand images reside in	Large consumer	BMW,

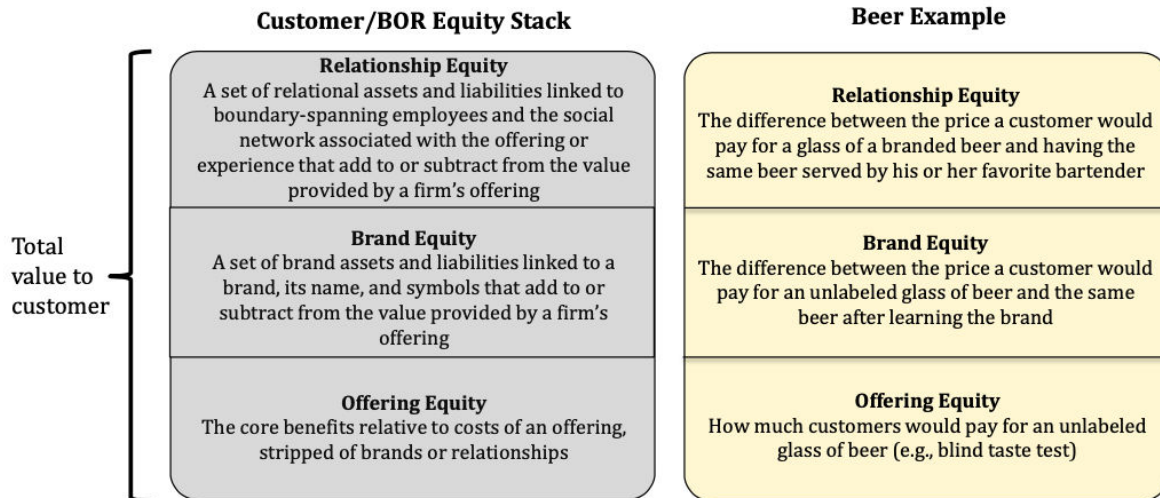
	consumers' minds, which makes them difficult to duplicate, facilitates habitual buying through awareness, and provides identity benefits to customers	markets (soft drinks, beer, fashion, automobiles)	Anhueser-Busch
Offerings	Cost benefits, performance advantages, access to distribution channels	Most markets, technology-based businesses (software, electronics)	Apple Iphone, Bose, Tesla
Relationships	Leads to trust, commitment, and interpersonal reciprocal bonds that are hard to build or duplicate	Business-to-business markets, services, complex products (test equipment, haircut, financial services)	Edward Jones, Grainger

Source: Lecture 4, Market-based Sources of SCAs (Karpienko, 2026)

## BOR Equity Stack

Three equities combine in an additive customer or BOR equity stack:

1. Brand equity
2. Offering equity
3. Relationship equity
  - Individual level: customers' equity = total of the discounted lifetime values of all its customers
  - Customer equity is added together, generating the firm's overall customer equity
  - BOR equities are similar to tangible assets: they generate ROA, which can be built through investments and depreciate over time if not maintained



Source: Lecture 4, Customer Equity Perspective: Brand, Offering, Relationship Equity Stack (Karpienko, 2026)

## Brand Equity

Is a set of brand assets and liabilities linked to a brand, its name, and symbol, that add to or subtract from the value provided by a firm's offering.

- Knowledge of the brand differentially affects behaviour
- Brand equity "lies in the minds of the customer"
- Key for consumer goods, status-based offerings and as consumption is more visible
- Hard to quickly adapt or change brand equity
- Can be hard to target, therefore better for offerings with a large, homogenous user group

## Offering Equity

Represents the core benefits relative to the costs of an offering stripped of any benefits from brands or relationships.

- Price and performance only
- Represents a large portion of the total equity for commodity products
- Less important for:
  - Services and high-involvement products
  - Products that provide meaning or status
  - Maturing markets/industries

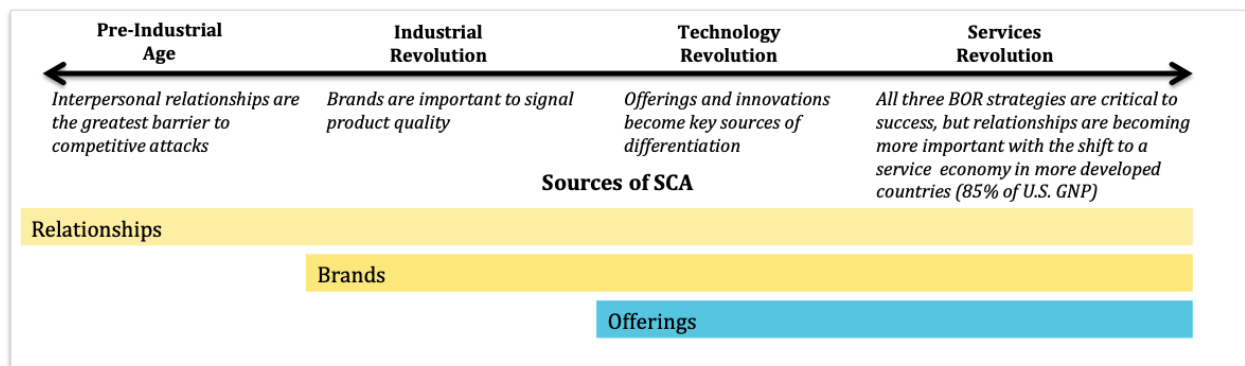
## Relationship Equity

Is a set of relational assets and liabilities linked to boundary-spanning employees and the social network associated with the offering or experience that adds to or subtracts from the value provided by a firm's offering

- Relationships affect behaviour
  - Relational-based decision-making is ingrained in our psyche
  - Many psychological processes are engaged in relational or pseudo-relational context
- Key for B2B, services and complex selling cycles
- Can target and adapt more easily than brands

## Managing sustainable competitive advantage

Evolution of Approaches for Managing Sustainable Competitive Advantage in Marketing:



Source: Lecture 4, Evolution of Approaches for Managing Sustainable Competitive Advantage in Marketing (Karpienko, 2026)

Despite the shifting emphases on the different sources of SCA, all three sources build on one another and often combine synergistically to determine a firm's overall SCA

## Framework for managing competitive advantage

### 3 Key Inputs

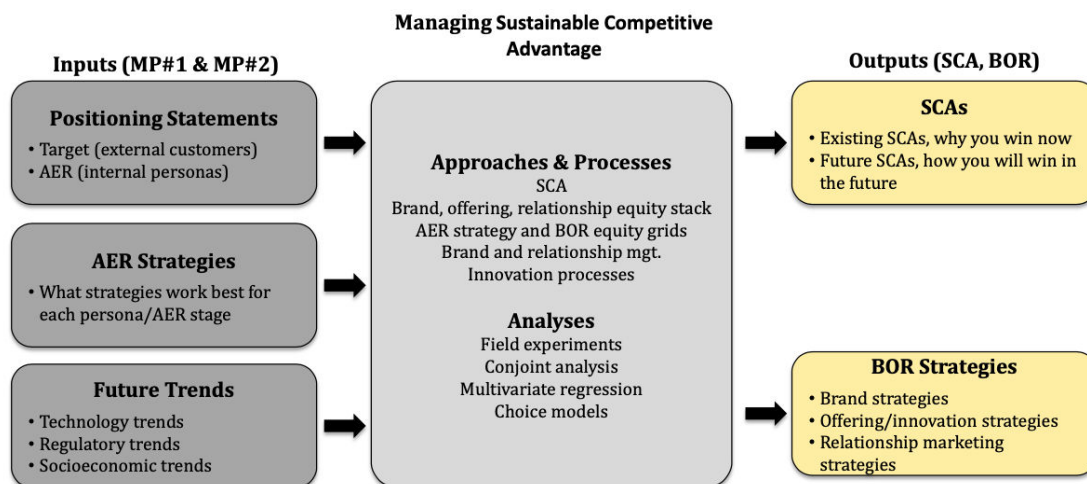
1. Positioning Statements

2. AER Strategies
3. Future trends

## Two Outputs

1. SCAs
2. BOR strategies

# MP#3: All competitors react → Managing Sustainable Competitive Advantage



Source: Lecture 4, Marketing Principle #3 (Karpienko, 2026)

## Inputs to the Sustainable Competitive Advantage Framework

- Positioning statements:
  - Who are the customers
  - What set of needs the product or service fulfils
  - Why this product/service is the best option to satisfy customer needs (relative to competition)
- AER Strategies: provide key guidance into how a firm should invest to acquire and keep customers
- Future Trends: long-term technology, regulatory, socioeconomic trends, which clearly can disrupt any organization's SCAs

## Outputs of the Sustainable Competitive Advantage Framework

- Descriptions of the firm's SCA now and in the future, which need to clearly address the three conditions for SCA:
  1. Customers care about it
  2. The firm does it better than its competitors
  3. It is hard to duplicate or substitute
- Detailed BOR strategies: aggregate and reorganise each targeted customer segment and persona according to its needs; the most effective strategies across time (accounting for customer dynamics) are in the brand, offering, and the relationship categories
- Both these outputs (SCA and BOR strategies) represent aggregations of insights gained from more fine-grained analyses, combined and reorganised to support effective macro-level decision making

## Relationship Marketing

**Relationship marketing (RM)** process - namely, identifying, developing, maintaining, and terminating relational exchanges to improve performance - can produce relationship equity

- Relational exchanges happen in B2B and B2C
- This form of equity, in combination with brands and offerings, can in turn lead to a sustainable competitive advantage (SCA)

**Customer relationship management** is the managerially relevant, organisation-wide, customer-focused application of RM that uses IT to achieve performance objectives.

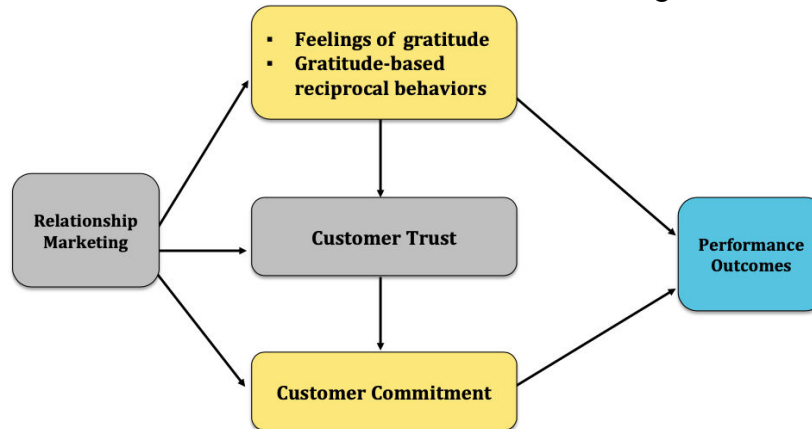
## Relationship Marketing Builds Customer Relational Equity

Marketing Principle #3 focuses on building and maintaining barriers, or sustainable competitive advantages (SCA), to competitive attacks, based on the premise that competitors react continually to a firm's success

Trends are increasing the need for and effectiveness of Relationship Marketing Strategies

- Shift to service economies
- Increase in the use of different marketing channels
- Increased global competition
- "Me too" offerings, and faster "product" commoditization

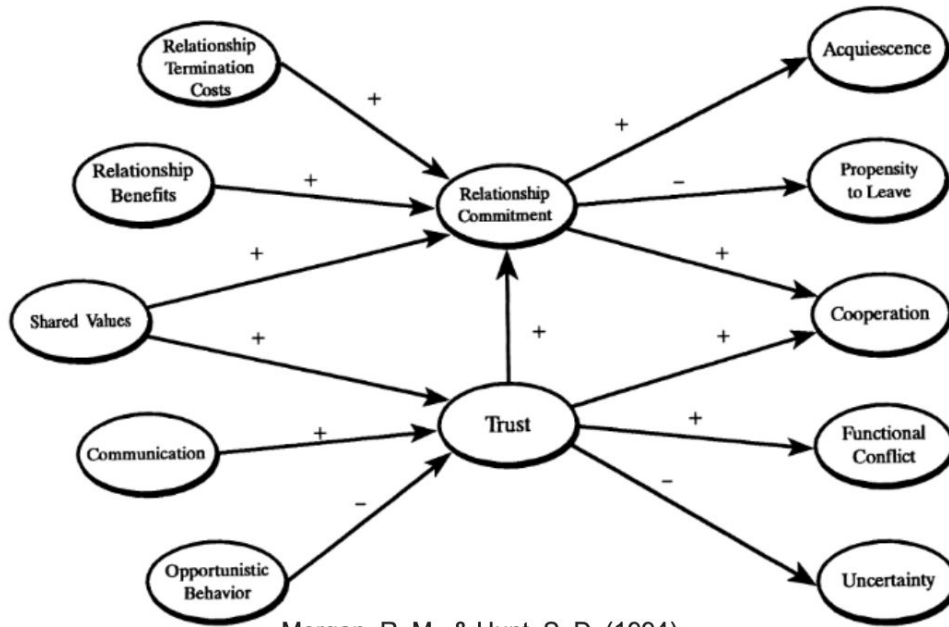
The effects of RM on Gratitude: Enhancing Returns



Source: Lecture 4, The effects of RM on Gratitude: Enhancing Returns (Karpienko, 2026)

## Relationship Marketing Theory: Social Exchange Theory

Construct	Sample items <sup>a</sup>	Geyskens, I., Steenkamp, J. B. E., Scheer, L. K., & Kumar, N. (1996)
<i>Commitment</i>		
Affective commitment	We want to remain a member of the supplier's network because we genuinely enjoy our relationship with them.	
Calculative commitment	It would be too expensive for us to terminate our relationship with the supplier.	
<i>Trust</i>		
Honesty	Our organization can count on the supplier to be sincere.	
Benevolence	When making important decisions, the supplier is concerned about our welfare.	



Morgan, R. M., & Hunt, S. D. (1994)

Source: Lecture 4, Social Exchange Theory (Karpienko, 2026)

## Brands from Relationship Equity

RM activities do not directly affect financial performance. Instead, they help build relationship equity, which influences customer behaviours, which improves the seller's financial outcomes

This chain of effects operates through four mechanisms:

### 1. Relational loyalty:

- Relational loyalty is the likelihood that the customer provides the seller with benefits in the exchange process due to their relational attitudes and ties
- Relationships positively influence this loyalty, because customers perceive less risk dealing with trusted partners, act on relationally generated belonging, and minimise costs by buying from valued sellers
- Loyalty = determinant of firm success in competitive marketplaces

### 2. Referrals or word of mouth (WOM)

- Reflecting the likelihood that a customer comments positively about a seller to others

- Relational bonds, feelings of gratitude, and positive attitudes drive the motivation and willingness to provide requested or unrequested referrals
- Only customers with strong, trusting relationships are likely to risk their reputations by advocating for a seller to another potential customer
- Referrals and WOM differ from loyalty-favoured behaviours, because they represent different performance-enhancing pathways

### **3. Empathetic behaviours**

- Empathetic behaviours are defined as having a greater likelihood of being influenced by perceptions of the seller's position
- Customers in a strong relationship may attribute service failures to external causes that the seller cannot control, which would reduce the impact of those failures on their purchase behaviours
- Their sensitivity to and empathy for the seller's difficulties also may prevent them from imposing the price-reduction pressures that are common responses to service failures

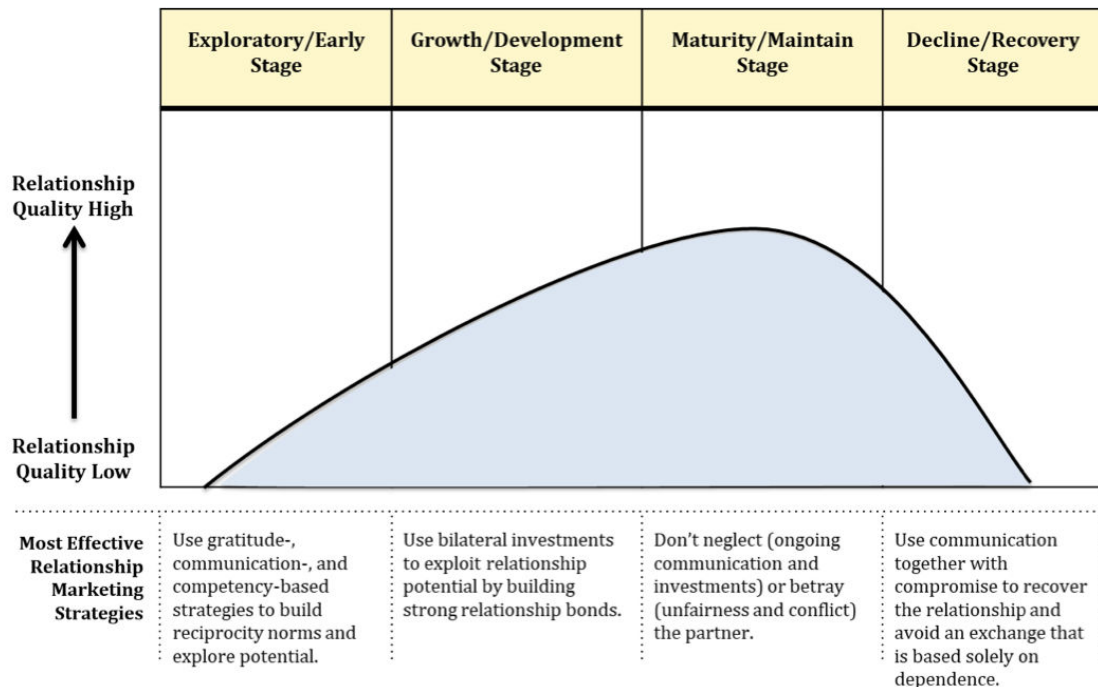
### **4. Cooperative behaviours**

- Cooperative behaviours are coordinated, complementary actions between partners to achieve a mutual goal
- This creates value beyond what each individual firm could do on its own, cooperation increases customers' flexibility and adaptiveness to sellers' requests for changes, information, or reciprocation
- If the customer obtains its portion of that created value before the seller (or vice versa), then the seller must wait for the reciprocal benefits
- Commitment encourages the parties to remain in their valued relationships and bonds, even if the reciprocity is delayed or non-equivalent

## Building relationship equity

- Most relationships begin with an exploratory or early stage, featuring limited confidence in the partner's ability and trustworthiness, but also a willingness to explore the relationship
- If the initial experiences are positive and produce the desired outcomes, as well as evidence of trustworthiness, relationships move into the growth or developing stage

- If the relationship continues, the partners continue to obtain benefits and greater interdependence, such that they reach the maturity or maintain stage
- Even successful relationships can enter a decline or recovery stage in response to specific events (conflict, unfairness, betrayal) or passive neglect (failure to communicate, ending investments)



Source: Lecture 4, Customer Relationship Lifecycle (Karpienko, 2026)

## Steps in building relationship equity

1. Develop a strong foundation that supports relationship building and maintenance
  - Counterproductive to increase RM budgets without having a process that deals with customer problems, service failures or trust violations
  - Personnel with whom customers interact usually are the most critical means to create and maintain strong customer relationships
  - Dedicate their RM Investments to selecting, training, and motivating boundary-spanning employees
  - Increasing the amount, frequency and quality of communication with customers
  - Unfairness and unresolved conflict can undo years and fortunes spent on relationship building

2. Implement relationship marketing and loyalty programs targeted at specific customer groups, designed to generate specific relational outcomes across the firm's customer portfolio
  - **Social RM programs:** use social engagements to convey the customer's special status, e.g. free tickets to concerts or sporting events
  - **Structural RM programs:** provide investments that customers might not make themselves, e.g., customised packaging
  - **Financial RM programs:** provide economic benefits, in the form of special discounts, giveaways, free shipping or extended payment terms that ultimately tend to offer little relative advantage, because competitors can easily match them

## Highest Impact Relationship Marketing Activities

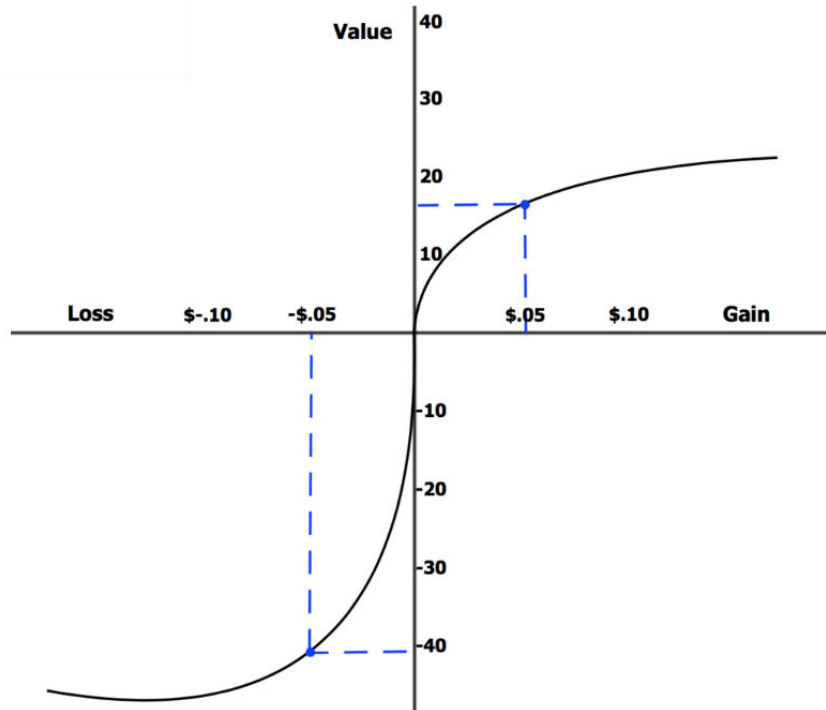
Relationship Activity	Definitions	Correlation Coefficient Between Activity and Relationship Quality
Conflict	Overall level of disagreement between exchange partners	-0.67
Seller expertise	Knowledge, experience, and overall competency of seller	0.62
Communication	Amount, frequency, and quality of information shared between exchange partners	0.54
Relationship investments	Seller's investment of time, effort, spending, and resources focused on building a stronger relationship	0.46
Similarity	Commonality in appearance, lifestyle, and status between individual boundary spanners or similar cultures, values, and goals between buying and selling organizations	0.44
Relationship benefits	Benefits received, including time saving, convenience, companionship, and improved decision making	0.42
Dependence on seller	Customer's evaluation of the value of seller-provided resources, for which few alternatives are available from other sellers	0.26
Interaction frequency	Number of interactions or number of interactions per unit time between exchange partners	0.16
Relationship duration	Length of time that the relationship between the exchange partners has existed	0.13

Note: The results in this table are from a meta-analysis performed by Palmatier, Dant, Grewal, and Evans (2006), which only evaluated relationship activities studied in previous research.

Source: Lecture 4, Highest Impact Relationship Marketing Activities (Karpienko, 2026)

## Losses loom larger than gains

When you exceed customer expectations, it leads to a lower increase in value compared to a bigger loss when customer expectations are not fulfilled.



Source: Lecture 4, Losses loom larger than gains (Karpienko, 2026)

As shown in the graph above, exceeding customer expectations by 0.05 results in a customer value of around 16. However, when you lose customer expectation by 0.05, it leads to a loss of value of up to 40.

### Example: United Airlines

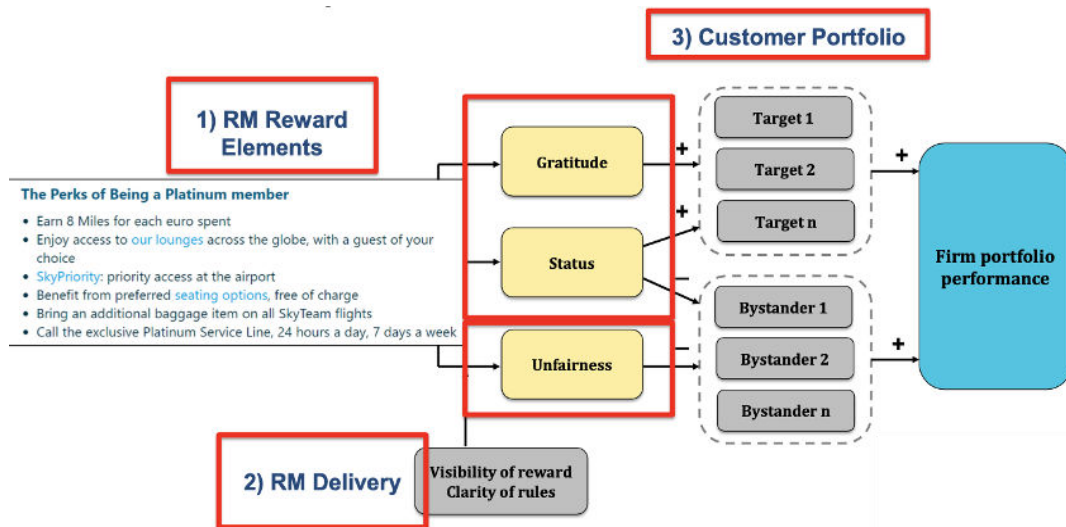
United Airlines cited its contractual policies when it refused to spend \$1200 to repair a passenger's guitar that its baggage handlers had carelessly broken. The passenger received notice that he was ineligible for compensation because he failed to file the claim within United's 24-hour timeframe. The passenger vented his frustration by creating a song entitled "United Breaks Guitars" and uploading it to YouTube. As of 2019, it garnered almost 20 million views. The song has been estimated to have cost United Airlines \$180 million. In this case, losses loom larger than gains, as the cost of just repairing the guitar for \$1200 translates into a loss of up to \$180 million.

### Maintaining Relationships

- A negative event can overwhelm an accumulation of positive activities
- Long-term RM success often depends more on preventing the bad than on promoting the good

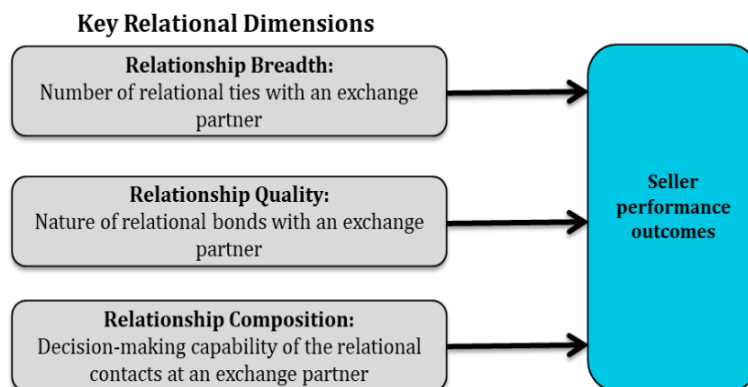
- Negative activities generally have approximately twice as strong an effect as positive activities, but not all negative events are the same
- Companies sometimes engage in actions that generate and even encourage perceptions of unfairness (loyalty, reward or relationship programs)
- When managers recognise unfairness, they should adjust their revenue management and loyalty programs so that special benefits are less visible to other customers
  - Preemptive approaches might be the best antidote

Relationship Marketing can simultaneously help and hurt a firm's overall performance through 3 key elements:



Source: Lecture 4, Relationship Marketing and Firm's Overall Performance (Karpienko, 2026)

### Relationship Marketing builds Customer Relational Equity



Source: Lecture 4, RM Building Customer Relational Equity (Karpienko, 2026)

- Breadth: number of relational ties/contacts with the partner
  - More ties = more information and less risk when a contact is lost
- Quality: trust, commitment and gratitude between the contacts
  - Higher quality = higher value
- Composition: diversity of ties/contacts with the partner
  - Higher diversity = higher chance of broad and meaningful impact

## Important Relationship Dimensions and Example Measures

Constructs	Measures (Respondent)	Item Loadings
<b>Relationship Quality (Reported by Customer)</b>		
<i>Commitment</i> (Cronbach's $\alpha = .82$ )		
	•We are willing "to go the extra mile" to work with this rep.	.82
	•We view the relationship with this rep as a long-term partnership.	.85
<i>Trust</i> (Cronbach's $\alpha = .82$ )		
	•We have trust in this rep.	.86
	•This rep is trustworthy.	.82
<i>Reciprocity norms</i> (Cronbach's $\alpha = .71$ )		
	•There is a norm of reciprocity guiding our relationship with this rep.	.76
	•We would help each other without expecting an immediate favor in return.	.74
<i>Exchange efficiency</i> (Cronbach's $\alpha = .68$ )		
	•Our interactions with this rep are often inefficient. (reverse scored)	.63
	•Our dealings with this rep are very efficient.	.84
<b>Contact Density (Reported by Customer)</b>		
	•How many different relationship ties are there among employees at this rep and your firm? (number)	—
<b>Contact Authority (Reported by Customer)</b>		
	•This rep knows the key decision makers at our firm.	.74
	•This rep deals with the important decision makers in our company.	.74
	•This rep has relationships with the important gatekeepers at our firm.	.73

Source: Lecture 4, Important Relationship Dimensions and Example Measurers  
(Karpienko, 2026)

## Multiple regression

### Multivariate Regression Analysis

Captures the statistical association between a focal marketing outcome of interest (e.g., sales, loyalty, CLV, profitability) and several marketing interventions that may simultaneously affect the focal outcome (e.g., relationship marketing efforts, the marketing mix).

1. Discern whether a particular marketing intervention truly influences a marketing outcome (significant or not)

- Learn the sign of the relationship between a marketing invention and a marketing outcome.
- A multivariate regression helps researchers compare the relative strength of multiple marketing interventions.
- With a multivariate regression, we can control for confounds

$$\text{Relational equity}_i = \beta_1 \text{SocialRM}_i + \beta_2 \text{StructuralRM}_i + \beta_3 \text{FinancialRM}_i + \beta_4 \text{Location}_i + \beta_5 \text{Number of Employees}_i + \beta_6 \text{Industry}_i + \varepsilon_i$$

Variable	Coefficient Capturing Weight of Intervention	p-Value for Statistical Significance
Social RM Efforts	1.26	0.03
Structural RM Efforts	0.20	0.89
Financial RM Efforts	2.50	0.01
Buyer Firm Location (East Coast)	0.80	0.02
Buyer Firm Number of Employees	1.10	0.03
Buyer Firm Industry (Corporate)	0.08	0.41

- Only social and financial RM are significant
- RMs have a positive impact
- Financial RM is more effective than Social RM
- Important to control for location and number of employees

Source: Lecture 4, Effect of RM Programs on Relational Equity (Karpienko, 2026)

## Discrete Choice Models

$$\text{ContinueRelationship}_1 = \beta_1 \text{SocialRM}_1 + \beta_2 \text{StructuralRM}_1 + \beta_3 \text{FinancialRM}_1 + \varepsilon_1$$

Where ContinueRelationship = 0 if the relationship ends and = 1 if it continues.

We assume that there is a latent variable  $z$  that is continuous AND that there is a limit value  $\delta$ :

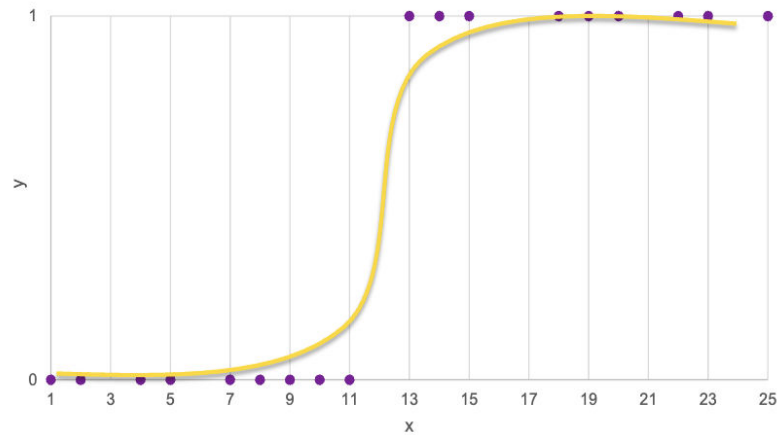
$$\text{ContinueRelationship}_1 = 1 \text{ if } z > \delta$$

$$\text{ContinueRelationship}_1 = 0 \text{ if } z \leq \delta$$

$$z_1 = \beta_0 + \beta_1 X_1 + \varepsilon$$

ContinueRelationship<sub>1</sub> are linked by the logistic function:

$$P(\text{ContinueRelationship} = 1) = e^z / (1 + e^z)$$



Source: Lecture 4, Discrete choice model (Karpienko, 2026)

$\text{ContinueRelationship}_i = \beta_1 \text{SocialRM}_i + \beta_2 \text{StructualRM}_i + \beta_3 \text{FinancialRM}_i + \epsilon_i$   $\beta_1$  shows the effect SocialRM on

$$z = \log\left( \frac{P(\text{ContinueRelationship}=1)}{1 - P(\text{ContinueRelationship}=1)} \right)$$

Probability can rise (pos.  $\beta_1$ ) or fall (neg.  $\beta_1$ ), but the effect size is not immediately clear.

# Empirical Marketing – IBEB – Lecture 5, week 4

## Managing Offering-Based SCA

### What Is Innovation?

**Innovation** is the creation of substantial new value for customers and the firm by creatively changing one or more dimensions of the business.

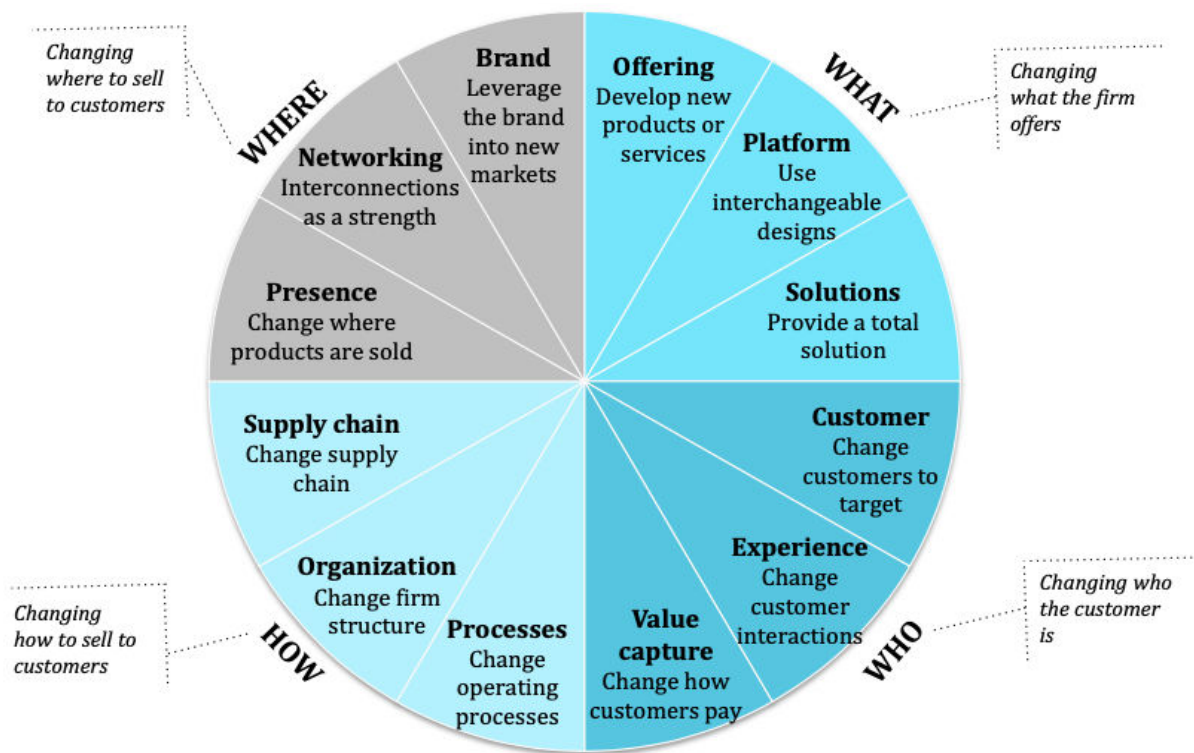
## Key Aspects of Innovation

- Broader than product or technology innovation
- Must generate new value for the customer and the seller
- Involves change leading to differentiation and SCA

## How can a firm innovate?

- Change WHAT the firm offers
- Changing WHO the customer is
- Changing HOW you sell to customers
- Changing WHERE to sell to customers

**Innovation Radar** captures different ways a firm can innovate and helps define the innovation space



Adapted from Sawhney, M., Wolcott, R.C., & Arroniz, I. (2006), "The 12 Different Ways for Companies to Innovate," *MIT Sloan Management Review*, Vol. 47 (3), p. 75.

Example of different innovation radars:

Walmart 



Source: Lecture 5, Examples of Innovation Radar (Karpienko, 2026)

### Example of failed launch: Kellogg's (US)

Kellogg's launched Breakfast Mates (a single serving of breakfast cereal, a spoon, and a serving of pasteurised milk) and positioned the innovation as a solution for harried parents who wanted to give their children breakfast in the morning. Positioning was ineffective because Kellogg's failed to realise that parents hated the idea of giving their children a product that would enable them to spill milk all over the back seat of the car.

"75% of products launched end up failing to meet objectives"

#### Reasons:

- Failure to provide large enough perceived benefits
- No differential advantage
- Price vs performance
- Poor product launch
- Poor positioning of the new product
- Competitive response

## The Role of Marketing in Innovation Strategies

Marketing contributes to innovation strategies in two main ways:

1. **Launch** new offerings to customers => generate sales with acceptable profit levels
  - Many good products fail to achieve their financial goal due to poor launches
2. **Develop** innovative offerings by collecting customer input and forecasting trends

- Extensive efforts go into test marketing and understanding the factors that will influence customers to adopt the new offering

## Launching and Diffusing Innovation Strategies

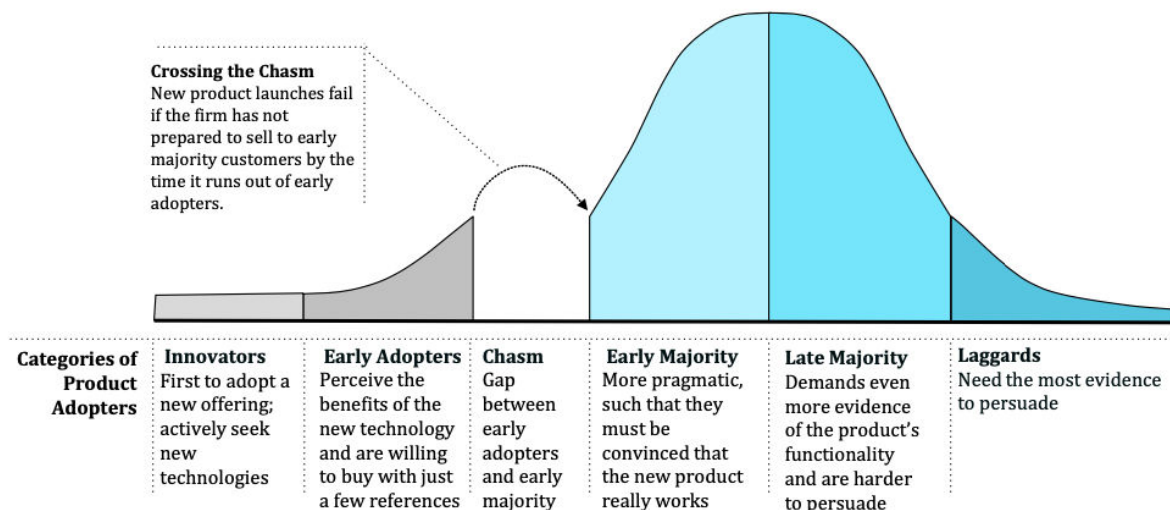
### Drivers of Adoption:

1. People: users with different propensities to adopt a new product
2. Psychology: what are the sources of persuasion?
3. Products: specific product characteristics may help or hinder adoption

### People

The adoption lifecycle of an innovative offering suggests five groups of potential users:

1. **Innovators:** first to adopt, often even before the new offering is officially launched
2. **Early adopters:** see the benefits of the new technology and are willing to adopt it after just a few references
3. **Early majority:** pragmatic consumers, who need to be convinced that the new product really works
4. **Late majority & laggards:** want more evidence, and are especially hard to persuade



Adapted from Moore, G.A. (2006), *Crossing the Chasm: Marketing and Selling Disruptive Products to Mainstream Customers*, 1<sup>st</sup> rev. ed., (New York: Collins Business Essentials)

Source: Lecture 5, Crossing the Chasm: Adoption Lifecycle (Karpienko, 2026)

## Psychology

1. **Social Proof:** looking at others is a way we determine what to do
  - More people => larger belief that it is correct
  - More similar people => large impact on behaviour
2. **Authority:** we have a deep-seated sense of respect for authority and status
3. **Scarcity:** things seem more valuable when their availability is limited
4. **Prospect Theory:** perceived value for an objective gain or loss (higher value for loss - scared of losing more than gaining)

## Product

1. **Relative advantage:** the degree to which an offering is perceived as being better than the ideas it supersedes
  - Economic: costs, price
  - Status, prestige, etc.
2. **Compatibility:** the degree to which an offering is perceived as consistent with existing values and experiences
  - Often must break habits, perceptions or beliefs
3. **Complexity:** the degree to which an offering is perceived as relatively difficult to understand
  - Education is key
  - Speed and easy use of Google
4. **Trialability:** the degree to which an offering may be experimented with on a limited basis
  - free samples, demo, test drive
  - especially salient for high cost, time, and risky products
5. **Observability:** the degree to which the results of an offering are visible to others
  - Especially salient for status products
  - Can be negative

## Sustaining vs. Disruptive Innovation

**Classic STP** focuses on **red ocean** strategies:

- Known market space, competitive rules, and industry boundaries (lifecycle mindset)
- Products mature and become commodities
- Can be managed, tested, and analysed

**Disruptive positioning** focuses on the **blue ocean**:

- Market space does NOT exist (unknown boundaries)
- Demand is created rather than fought over (often NO direct competition)
- Hard to test, more of an art, often requires intuition, high risk

<b>Red Ocean Strategies</b>	<b>Blue Ocean Strategies</b>
New offerings are brand and line extensions, representing incremental innovations (uses STP processes)	Less numerous but more radical and repositioned offerings, focused on creating new markets
Account for the majority of sales but earn lower relative profit levels	Success generates higher profit levels
High competitive rivalry in existing markets	Creates a new market with less competitive rivalry
Must beat existing competition	Often transforms the image of competitor's brand features such that they become a negative attribute in the new market
Attempts to capture a portion of existing market demand	Attempts to create new market demand

Source: Lecture 5, Comparison of Red and Blue Ocean Strategies (Karpienko, 2026)

## Sustaining vs Disruptive Innovation

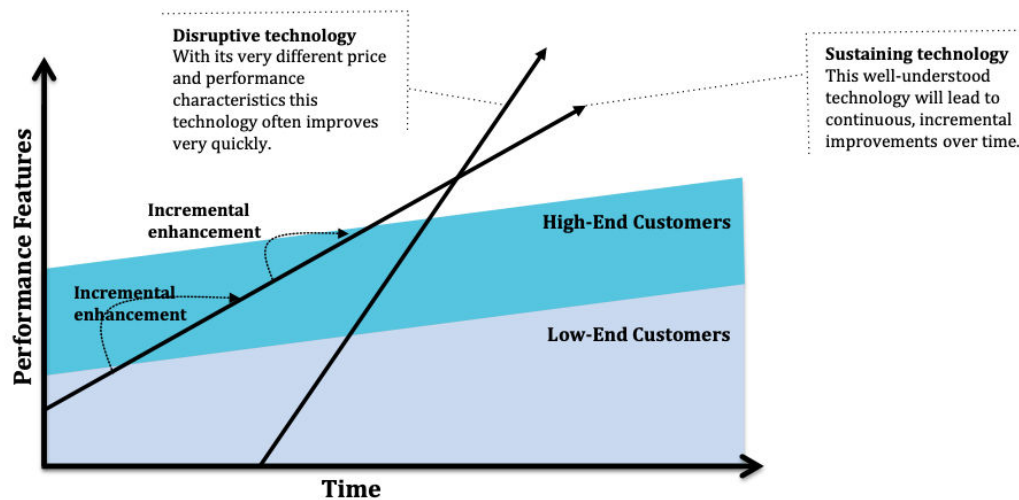
A technological innovation can undermine a firm's leadership position in a market, even if that firm is doing everything else well.

**Two main categories of technologies:**

1. **Sustaining technologies:** well-understood and typically exploited by market leaders, which produce continuous, incremental improvements over time

- Improve performance of established products along dimensions valued by mainstream customers in major markets
    - Products often overshoot customer needs
    - Processes support incremental product improvements (lower risk)
2. **Disruptive technologies:** accordingly present highly different price and performance characteristics or value propositions, and usually result in 'worse' performance in the short term
- Brings to market a different value proposition than was available previously
  - Underperforms established products in mainstream markets
  - Typically cheaper, simpler, smaller, or more convenient to use
  - Eventually, they are good enough (servers vs mainframes)

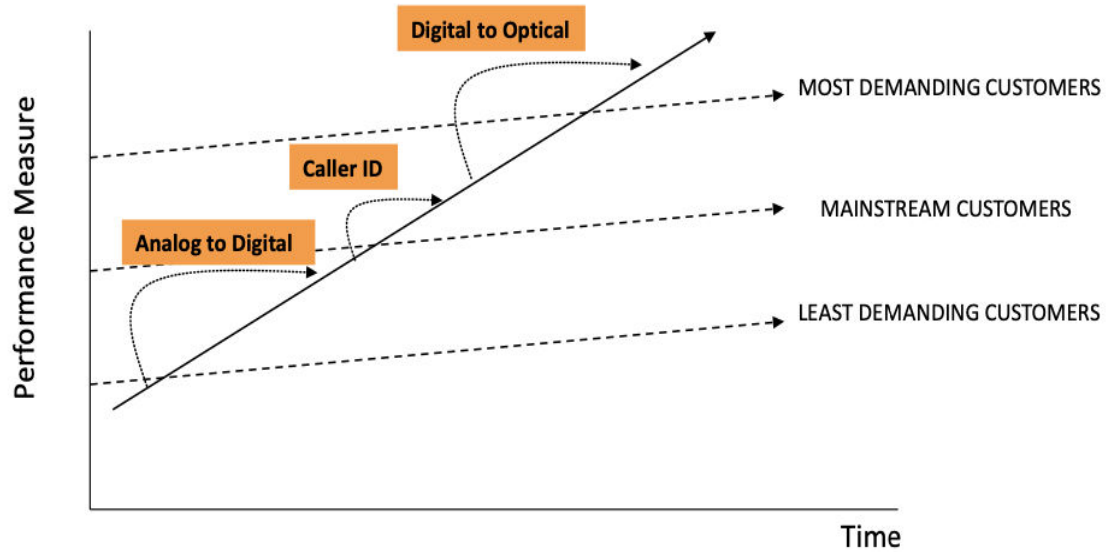
Examples of sustaining => disruptive: camera => phone, maps => google maps, cinemas => netflix



Adapted from Christensen, C.M. (1997), *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. (Boston, Mass.: Harvard Business School Press)

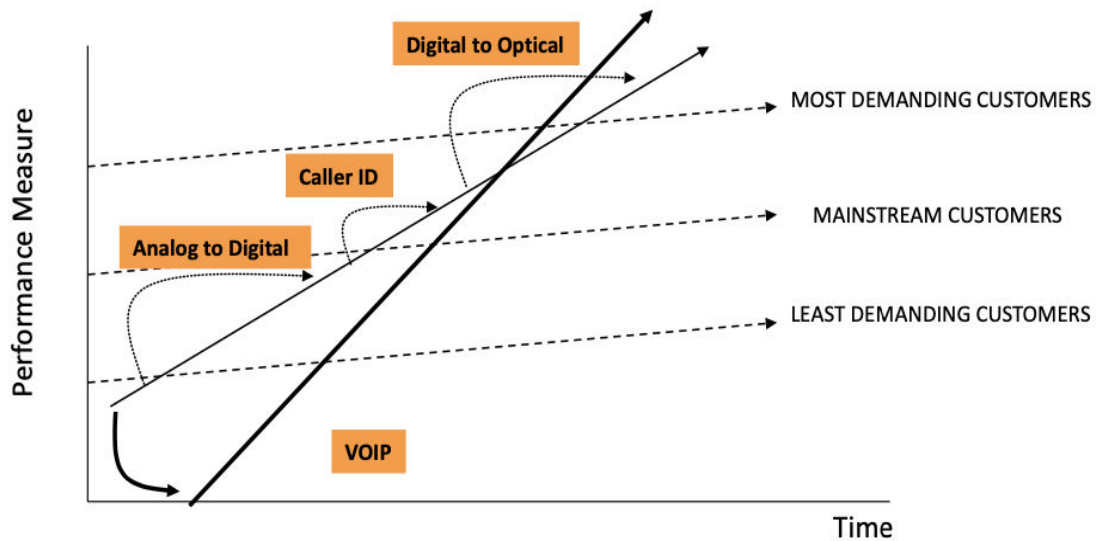
Source: Lecture 5, Sustaining versus Disrupting Technical Innovations (Karpfenko, 2026)

Market leaders (incumbents) usually win the battles of sustaining innovation



Source: Lecture 5, Market Leaders (Karpienko, 2026)

New Entrants usually win the battles of Disruptive Innovations



Source: Lecture 5, New Entrants (Karpienko, 2026)

### Why do Market Leaders fall into this trap?

- Companies find it difficult to invest in disruptive innovations => lower-margin opportunities that their customers do NOT want
- Growth targets bias firms toward larger markets
- Markets for disruptive innovations cannot be quantified

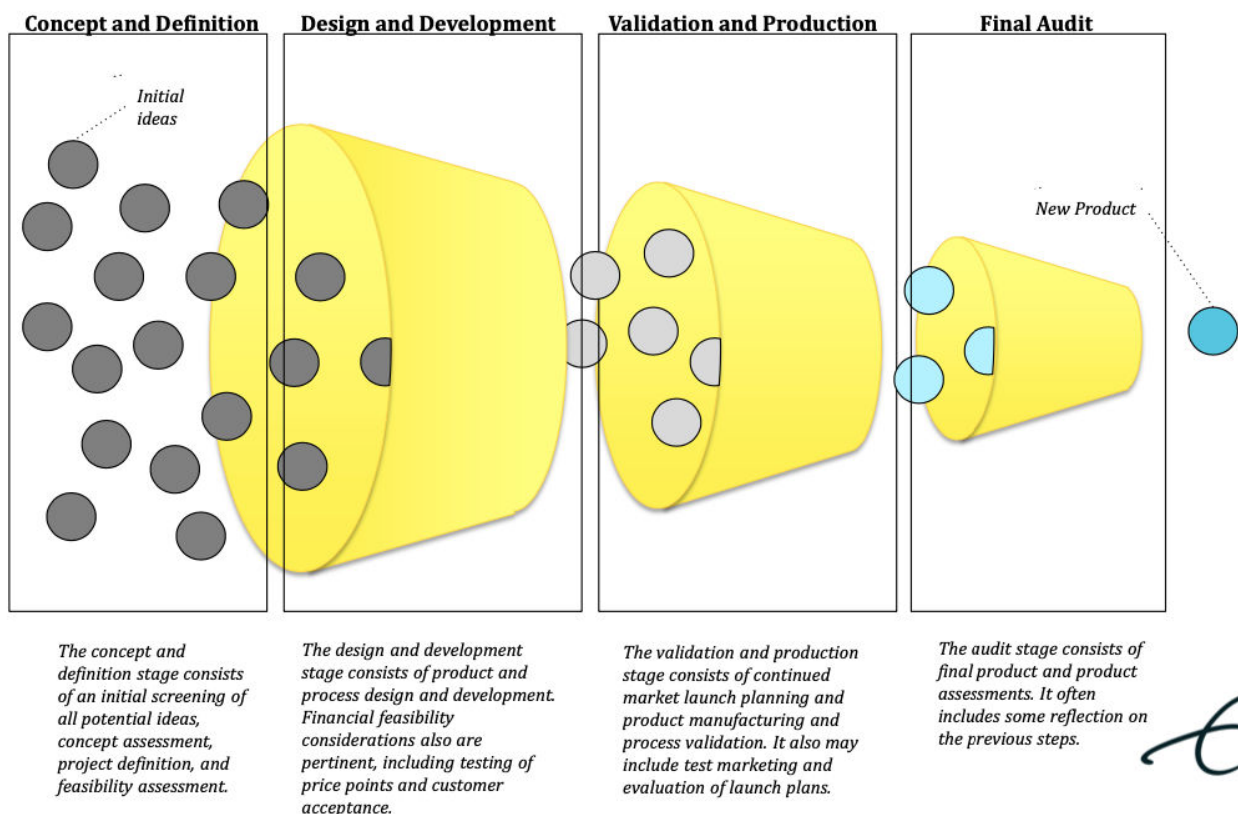
- Competition leads to oversupplying performance relative to what customers want

**Solution:** set up an autonomous organisation tasked with building an independent business around disruptive innovations in parallel

## Developing innovative offerings

### Stage-Gate Design Review Process for Effective Product Development

- Divides the development process into a series of steps or stages
- Each project gets evaluated on multiple dimensions by independent evaluators in each stage
- This method helps ensure effective development approaches



Source: Lecture 5, Stage-Gate Design Review Process for Effective Product Development (Karpienko, 2026)

## Conjoint Analysis

**Conjoint Analysis** is a process for determining the 'unit-less' trade-off among attributes and a set of attributes that maximises appeal (sales, share).

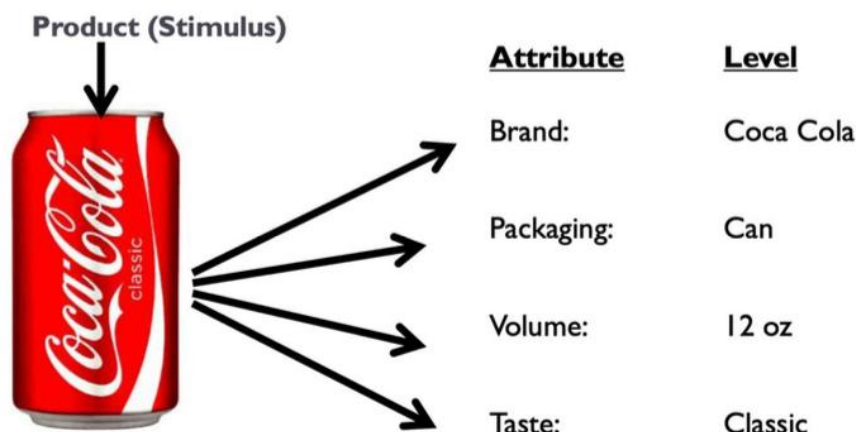
Conjoint analysis assumes that a product is made up of multiple attributes that collectively create value for the customer. For instance, when choosing a smartphone, a customer may consider factors like call quality, operating system, screen size, and camera quality. However, simply asking customers which features they prefer isn't effective, as most will desire the best of everything. Instead, firms can simulate trade-offs, such as asking whether a customer would prioritize better camera quality over another feature.

- Helps understand customer value
- Product superiority drives financial success
- Product design requires making trade-off decisions (price, performance, size, location, features, etc.)

### Two Main Stages:

#### 1. **Conjoint Design:** attributes and levels, type of conjoint, selecting profiles

- Products are represented as bundles of attributes
- The levels of each attribute define the product:



Source: Lecture 5, Conjoint Analysis Helps Understand Customer Value (Karpienko, 2026)

## Example

A smartphone manufacturer wants to design a new phone for its target demographic. The key product attributes for the manufacturer are camera resolution quality, screen size, and price. The manufacturer also wants to understand customers' willingness to pay for the new smartphone. Thus, it designs a conjoint study with 250 customers to elicit product rating scores (0 = least preferred, 100 = most preferred) for eight smartphone alternatives, based on price, camera resolution, and screen size.

Attribute	Partworth - utility
Screen 6.5 inch	20
Camera 8 MP	10
Price 500	25

Source: Lecture 5, Conjoint Analysis & Conjoint Analysis Example (Karpienko, 2026)

### Willingness to Pay:

- The manufacturer uses conjoint analysis to estimate customer preferences for smartphone attributes. Customers prefer a \$500 phone (part-worth = 25) over a \$600 one (part-worth = 0), an 8 MP camera (part-worth = 10) over a 6 MP one (part-worth = 0), and a 6.5-inch screen (part-worth = 20) over a 5.5-inch one (part-worth = 0).
- Screen size is twice as important as camera quality, based on part-worth differences. The part-worth difference between the \$500 and \$600 smartphones was 25 ( $25 - 0 = 25$ ). Since each part-worth unit is valued at \$4 ( $\$100 = 25$  units, or 1 unit = \$4), customers are willing to pay \$80 more for a 6-inch screen. The optimal product configuration would be a \$580 smartphone with a 6-inch screen and a 6 MP camera.

### Attribute Importance:

- We can compute the relative importance in % of each product attribute by dividing the part-worth utility
- *Importance of Attribute = Attribute's PW - utility Range / sum (all Attributes' range of PW - utility)*
  - Importance Screen =  $20$  [i.e.  $20 - 0$ ] / ( $20$  [i.e.  $20 - 0$ ] +  $10$  [i.e.  $10 - 0$ ] +  $25$  [i.e.  $25 - 0$ ]) = 36,36%

- 2. Conjoint Analysis:** recovering part-worth utilities, identifying segments
- Respondents rate several profiles on 1-10 or 1-100 scale
  - Use linear regression to recover part-worth utilities

$$Rating_i = \beta_0 + \beta_1 * Brand_i + \beta_2 * Packaging_i + \varepsilon_i$$

**Other Empirical Applications:**

- Conjoint studies are widely used across disciplines to study consumer preference and the resulting market shares of offerings.

# Empirical Marketing – IBEB – Lecture 6, week 5 – Brand-Based Competitive Advantage. All competitors react

**Brand** – name, term, design, symbol or any other feature that identifies one seller's goods or services as distinct from those of other sellers.

**Brand elements** characterise a brand and are used to identify that brand. They include the name, symbol, package design, and any other features that serve to differentiate that brand's offering from competitors'.

## Brand Equity

**Brand equity** is the set of assets and liabilities linked to a brand, its name, and its symbol, which add to or subtract from the value provided by the firm's offering and relationships. It **lies in the mind of the customer**, meaning it is difficult for competitors to copy it, adding to the sustainability of brand-based barriers => hard for firms to change their brand identity

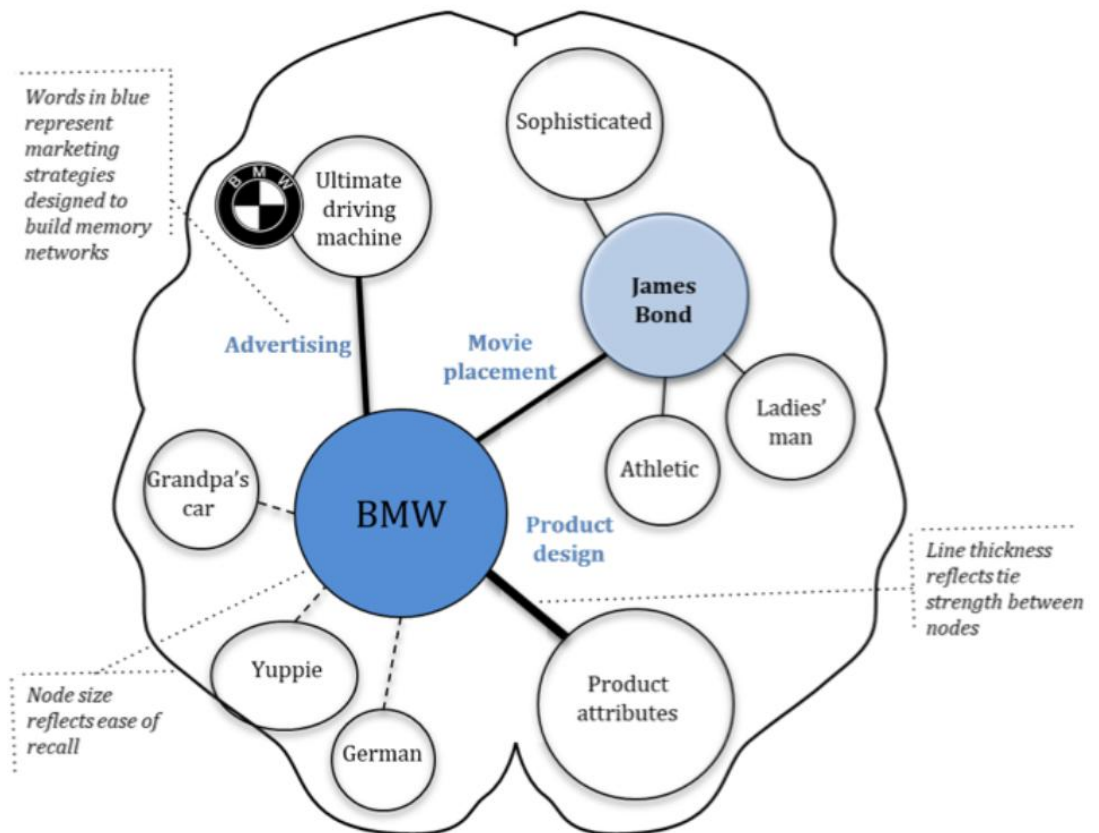
## Associative Network Memory Model of Brand Equity

The key characteristics of a brand, which influence its brand equity:

1. **Brand Awareness or Familiarity:** the customer's ability to identify a brand
2. **Brand Image:** customers' perceptions and associations with the brand

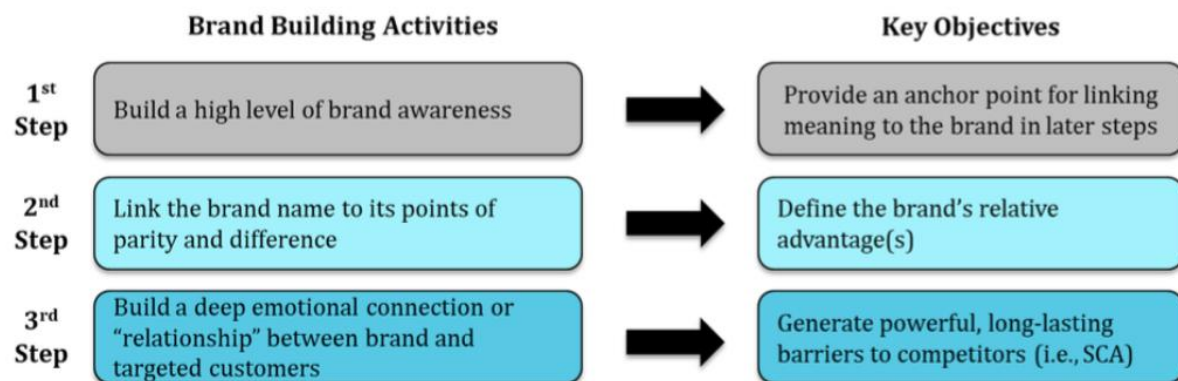
**The Associative Network Memory Model** argues that the human mind is a network of nodes (representing brand awareness) and connecting links (representing brand image).

**Brand Positioning** - how and where the firm hopes to appear in the mind. Design elements to develop a brand position include brand awareness, image, objectives, relative advantage, and sustainability



Lecture 6, Associative Network Memory Model of Brand Equity (Karpienko, 2026)

## Step to Build Brand Equity



Source: Lecture 6, Three Steps to Building Brand Equity (Karpienko, 2026)

## Benefits from Brand Equity

- **Sales growth** → sales benefit from strong brands, because brands make it easier to acquire new customers, who perceive less risk, higher quality, and better performance of a strong brand equity
- **Profit enhancement** → the benefits that drive sales growth can also enhance a firm's profitability by reducing costs or allowing the firm to charge higher prices for its products
- **Loyalty effects** → a strong brand makes customers more loyal, which often provides the largest barrier to competitive entry

## The Loyalty Matrix

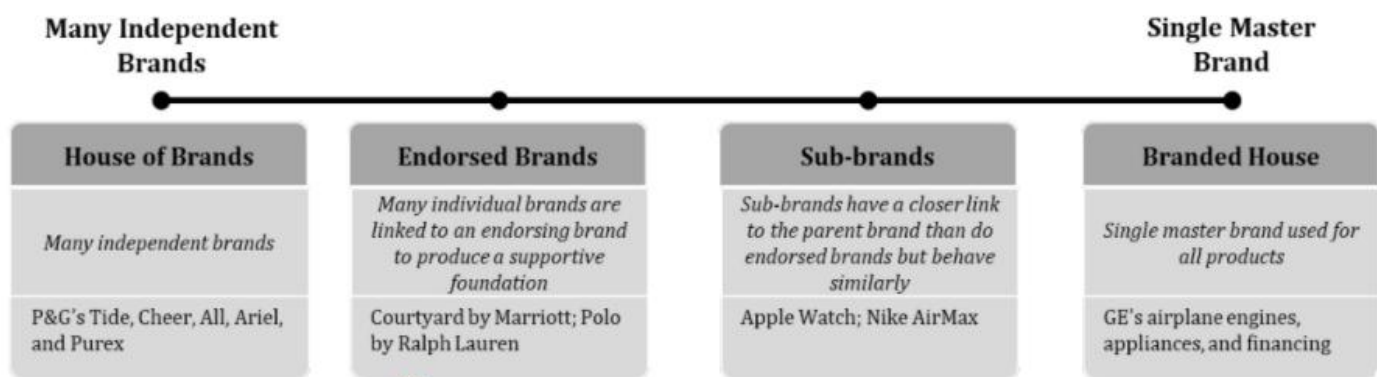


Source: Lecture 6, True Loyalty Matrix (Karpienko, 2026)

- **True loyalty:** positive feelings and actions
- **Spurious loyalty:** at the first convenient opportunity, they will switch
- **Latent loyalty:** usually due to a lack of local purchase access or prices beyond their means

## Brand Architecture

**Brand Architecture** defines both the rationale and the structure among the firm, its products, and its brand/product extension.



Source: Lecture 6, Brand Architecture (Karpienko, 2026)

### **1. House of Brands**

- Can create distinctly positioned brands that convey the personality of a firm's products by means of physical or perceptual benefits
- Each brand has its own brand equity
- A firm commands more shelf space
- The firm incurs higher costs of advertising and new product introductions

### **2. Endorsed Brands**

- Endorsed brands help differentiate and boost the corporate brand
- Faster market penetration
- Quality assurance
- Can be subject to the negative spillover effect of brand image in case of a scandal
- Brand dilution

### **3. Sub-brands**

- High visibility parent brand
- Vulnerability
- The stronger the link between the master brand and sub-brand, the greater the positive and negative spillover.
- High operating expenses of managing multiple brands

### **4. Branded House**

- Economies of scale in marketing and efficiency in creating brand equity
- Lower per-item promotion cost
- Consumers are likely to transfer loyalty from one brand to another
- Efficient means to communicate with the public, government and stakeholders
- Helps brand extensions
- Limited ability to expand into unknown product categories due to loss of brand identity

## **Brand Extensions**

- Launch of new offerings by leveraging an existing brand
  - Through line or category extensions

**Brand Line Extensions** – the new offering is in the same product category, but targets a different segment of customers, usually with a slightly different set of attributes.



**Brand Category Extensions** – the new offering instead moves to a completely different product category.



- NOT all brand extensions succeed, as there must be a perceived fit between the parent brand's image and the extension on a dimension relevant to the customer.

## Managing Brand-Based SCA

### Integrated Marketing Communication

To reach the steps in **building brand equity**, firms use multiple marketing communication formats:

- Advertising
- Sales promotion
- Public Relations (PR)
- Events and Experiential Marketing
- Direct & interactive marketing
- Word-of-mouth (WOM)
- Personal Selling

# Approaches for Understanding and Measuring Brand Equity

A firm must measure brand equity to:

1. Track effectiveness
2. Returns on marketing expenditures that seek to build brand equity over time
3. Understand the state of the brand following strategy changes/ competitive disruptions

Different approaches, methods, and metrics for measuring a brand's health:

- **Qualitative Analyses** - used in the early stages of a brand audit, e.g., to discover the level of brand awareness or brand associations via in-depth interviews or focus groups.
- **Quantitative analyses** - used to identify the causes or drivers of desired outcomes, e.g., the effect of marketing communications on brand equity.

## Measuring Brand Equity

### 1. Social Media

- **User Generated Content** creates a narrative about how people perceive a product or a brand.
- Rich associative information in social tags can serve as a proxy for customer-based brand equity.
- By mapping these associations in networks (e.g., linking brands to commonly mentioned terms), firms can assess key dimensions of customer-based brand equity, including brand familiarity, the favorability of associations, and the strength of a brand's connections to others in the competitive landscape.

### 2. Surveys



### 3. Experiments

- Strong test of causality
  - Random assignment of customers
  - Control of conditions or treatments
  - Comparison to control groups over time
- Used to test findings from other methods
- For our experiment, we need:
  - **Internal validity** (can we estimate the effect for our sample?)
    - Fails when there are differences between treated and control groups (other than the treatment itself) that affect the outcome and cannot be controlled for.
    - Most common threats to internal validity: failure of randomisation (e.g., Facebook ads), non-compliance with the experimental protocol, attrition
  - **External validity** (can we use our estimates for other populations?)
    - Fails when the treatment effect is different outside the evaluation environment.
    - Most common threat to external validity: non-representative sample (this becomes an issue when coupled with segmentation if the trial sample is not representative of the underlying population segment), non-representative program, Hawthorne effects

Simple process to ensure validity:

1. Randomly divide customers into groups (2 to 3)
2. Do nothing to one group (control group)
3. Do your test (conditions/treatments) on other group(s), but nothing else (ideally, customers and employees involved do NOT know the difference; **“double blind”**)
4. After a period of time, test the difference in outcomes across groups and see if it varied significantly

## Marketing Experiments

**Marketing experiments** test how customers might respond to marketing decisions, while ruling out confounds that otherwise would be present when comparing a treatment to a control group.

### When to use it

- Identify if a BOR (brand/offering/relational) investment directly impacts customer or firm outcomes.
- Select the best BOR investment strategy based on financial impact (e.g., sales lift).

### Key Design Elements for Causal Experiments

- **Treatment group** – receives the intervention (e.g., increased commission for salespeople).
- **Control group** – does not receive the intervention (e.g., commission remains the same).
- **Random assignment** – ensures treatment and control groups are similar (e.g., demographics, experience).

### Other Empirical Approaches

**Example:** Study brand equity in a field experiment with customer purchase histories (Bronnenberg et al. 2020)

**Idea:** Study the effect of a blind test (treatment) of branded vs. private label products on future purchases of branded products.

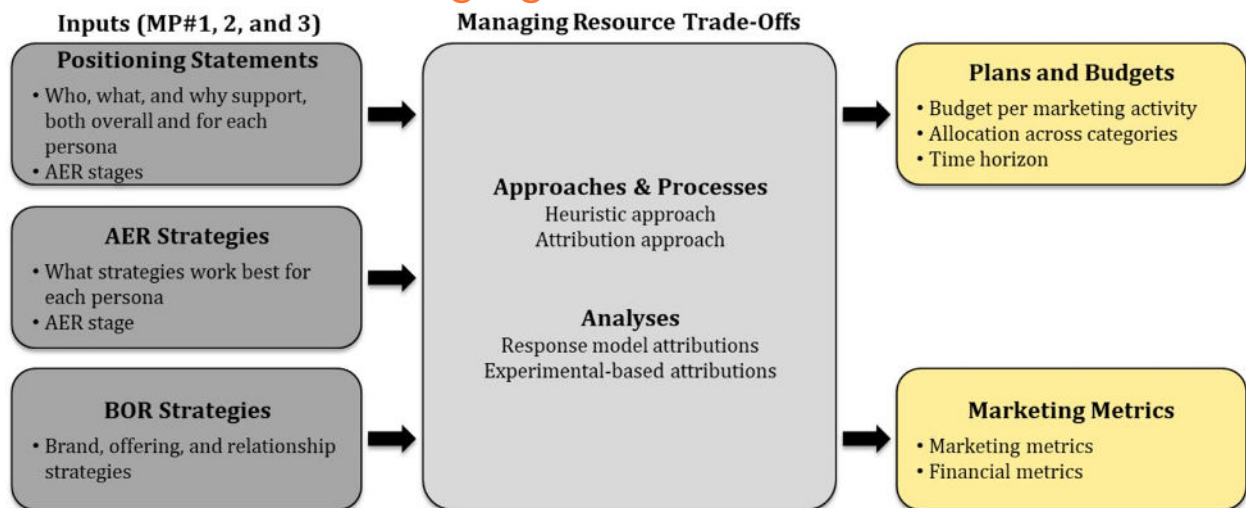
**Findings:** Habitual brand purchasing appears prevalent. It is difficult to overrule a positive brand image.

# Empirical marketing – IBEB –

## Lecture 7, week 6

### All resources are limited

#### Framework for Managing Resource Trade-Offs



Source: Lecture 7, Framework for Managing Resource Trade-Offs (Karpienko, 2026)

#### **ALL Resources are Limited:**

- Often interdependent
- Requires resource tradeoffs
- Mismanaging the tradeoff may have cascading effects
- Tough decisions that happen in real-time

#### Outputs of Managing Resource Trade-Offs

- Fundamental Problem: identifying the best or most appropriate metrics
  - “A firm is only likely to achieve what it measures.”
- Both financial and marketing metrics are necessary to capture the different aspects of marketing investment

#### **Components of Resource Allocation:**

1. Budget per marketing activity
2. Allocation across categories
3. Time horizon of the budget

# Reasons Why Resource Trade-Off Decisions Constantly Evolve

## 1. Changes in Resource Limits

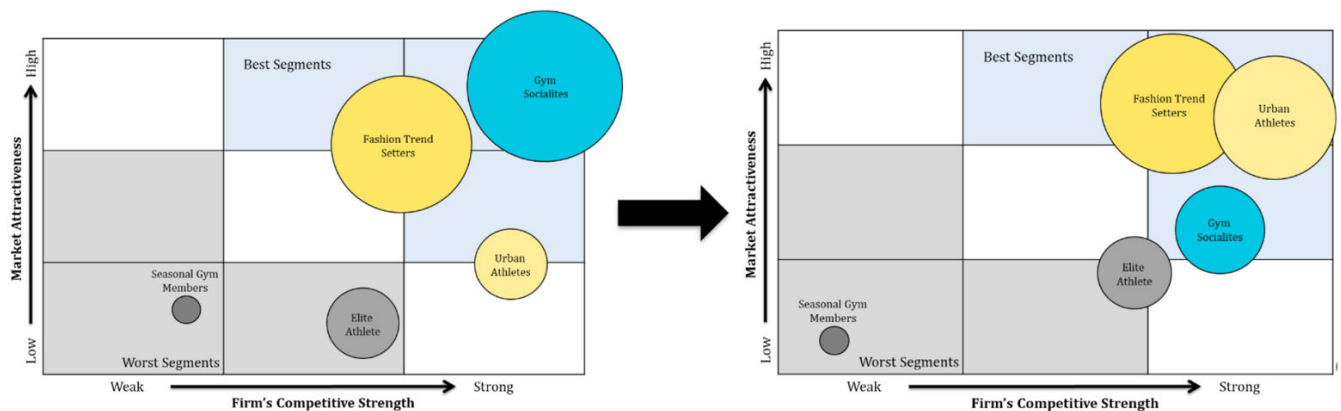
All firms' resources are limited, and therefore the resources to spend are finite:

- **Resource Slack** - potentially utilisable resources a firm possesses that it could divert or redeploy to achieve organisational goals
  - May fluctuate and evolve over time, e.g., depending on the state of the economy
- In periods of downturn, marketing investments are often cut or scaled down

## 2. Changes in Customers' Needs

- **MPI:** customers differ, and it is crucial to identify target segments.

The size, needs, and financial payoff across these segments are not fixed, but change often. Therefore, allocation decisions across these segments need to change, too.

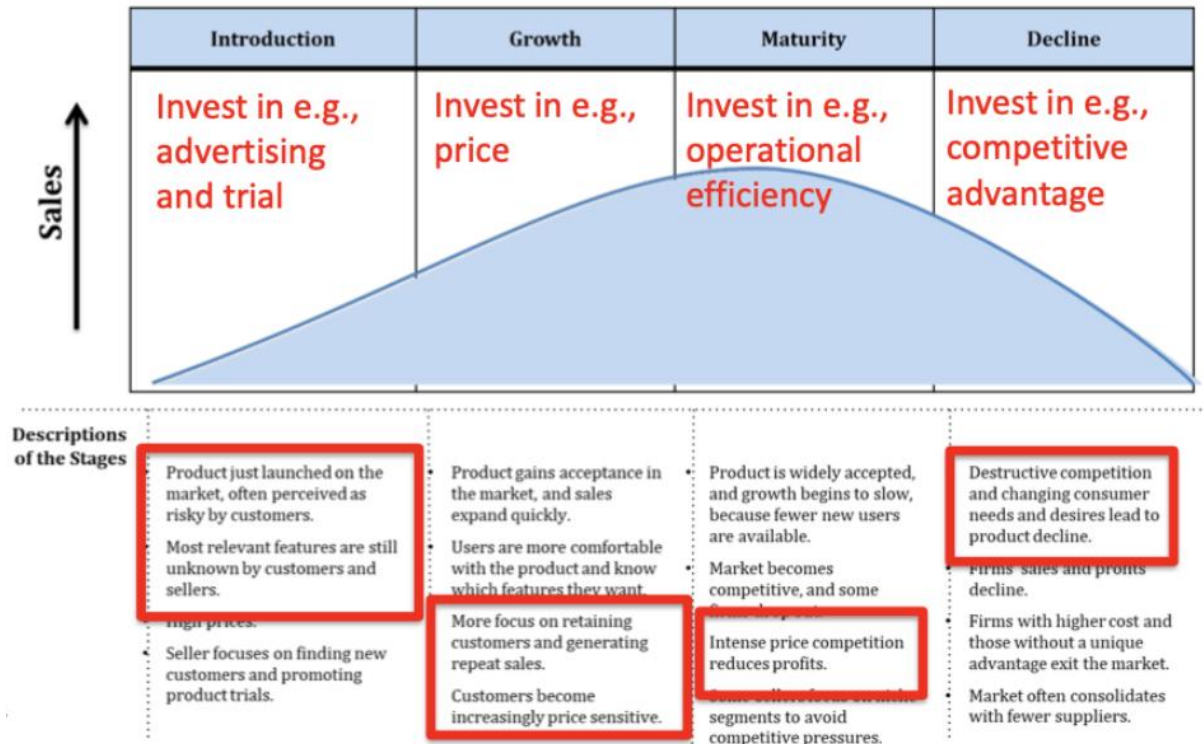


Source: Lecture 7, Sgments (Karpienko, 2026)

## 3. Changes in the Lifecycle Stage of a Firm's Products/Services

- **MP2:** products go through different lifecycle stages

Each stage requires different investments. Therefore, firms should shift resources over time.



Source: Lecture 7, Changes in the Lifecycle stage of a firm's product (Karpienko, 2026)

#### 4. Changes in the Market Landscape

- **MP3:** SCAs form a buffer against competitive attacks

Attractive markets will draw new competitors, and increased competition will lead to exits by competitors. The market landscape constantly changes due to these competitive entries and exits; thus, resource allocations must also change.

#### 5. Changes in the Effectiveness of Marketing Activities

- Changing segments, different lifecycle stages, a changing economy or a competitive landscape may change marketing effectiveness
  - E.g. price is more effective in periods of economic downturn, while advertising is more effective in periods of economic expansion
- Even in stable times, marketing activities can lose or gain effectiveness over time
  - E.g. image seeing the same commercial month after month for years

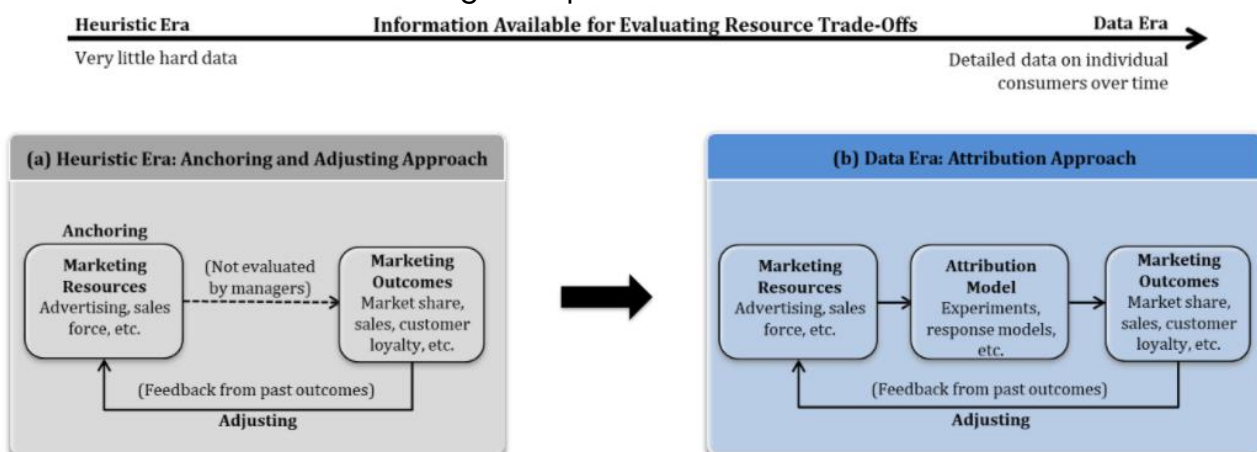
**Note:** there is NO “perfect system” for allocating resources. The “best” approach is an **iterative approach** which makes optimal allocations across nested levels of decisions.

- Methods should be simple enough to be transparent to managers and sophisticated enough to account for the interdependencies across multiple inputs with different effects.

## Evolution of Approaches for Managing Resource Trade-Offs

### Heuristics Era:

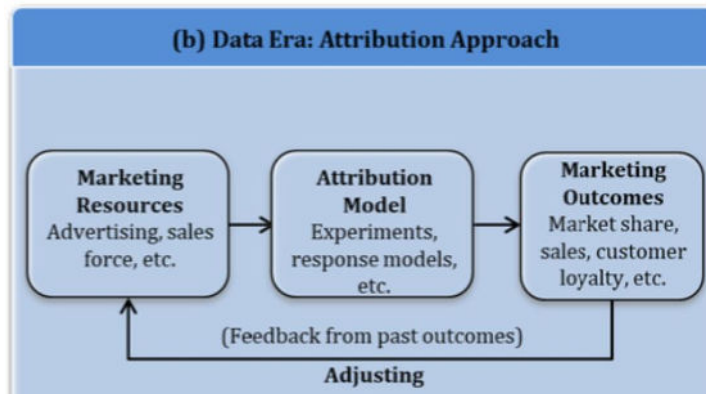
- No hard data about resource allocation options
- Managers use simple rules of thumb for allocating resources
- Anchoring and adjustment heuristics are widely used:
  - **Percentage of Sales Method** - marketing resources reflect the sales revenue earned from the focal product
  - **Percentage of Profits Method** - the resources dedicated to marketing instead vary with the profits earned by the product in previous periods
  - **Historical Method** - simply set their present resource allocations to a level very close to the previous year’s spending
  - **Competitive Parity Method** - implies that managers set resource allocation levels to match those of their competitors
- Remains used because of its simplicity and organisational inertia
- **Fails** to consider Marketing Principles



Source: Lecture 7, Evolution of Approaches for Managing Resource Trade-Offs (Karpienko, 2026)

### Data Era:

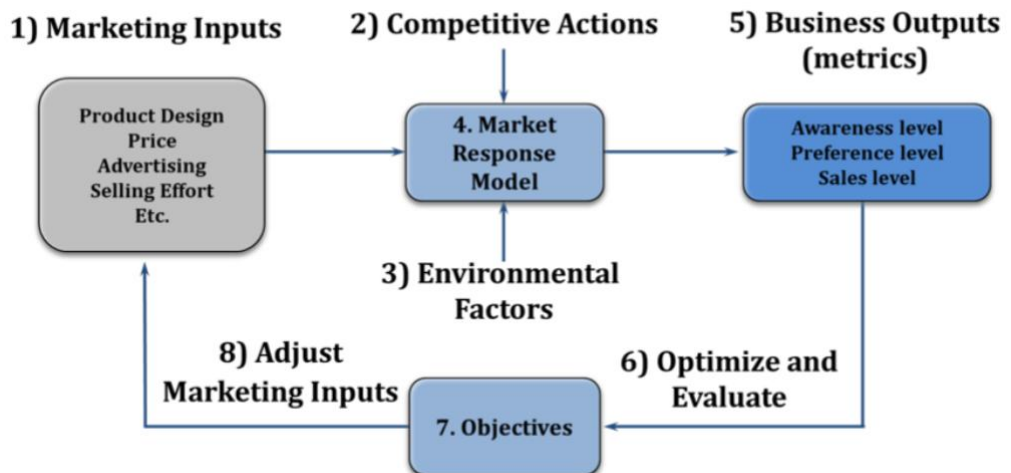
- Use historical data to link past resource trade-off decisions and outcomes
- Information Technology infrastructure has become well-developed
- Avoids waste or reliance on arbitrary heuristics
- Proactive rather than reactive
- **Empirical Models** - reveal whether a firm should continue its level of resource commitments or adjust them.
- **Attribution Models** - give the exact impact of a small resource increase
  - Experimental-based attribution
  - Response model-based attribution



Source: Lecture 7, Data Era (Karpienko, 2026)

## Response Model

**A response model** is a statistical model that captures the relationship between past marketing resources and past outcomes. Its system has eight key "parts":



Source: Lecture 7, Response Model System (Karpienko, 2026)

## Marketing Inputs (1, 2, 3)

- Marketing actions (advertising, price, promotion, sales coverage)
- Competitive Actions (advertising, price, new products, discounts)
- Environmental factors (economic metrics, government, trade barriers)

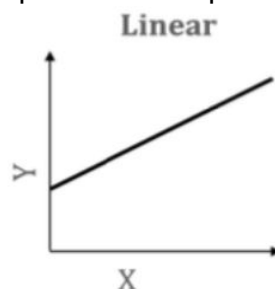
## Marketing Outputs (5, 6, 7)

- Managers need intermediate metrics to capture the effects of their decisions to adjust actions
- The metric should align with objectives
- Common marketing metrics:
  - Sales
  - Customer satisfaction
  - Service quality
  - Brand awareness
  - Brand strength and quality
  - Customer retention
  - Loyalty

## The Response Model Form (4)

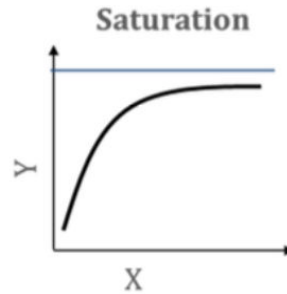
You have to select a response model's functional form that captures reality

- **Linear:** constant relationship between input and output (infrequent)



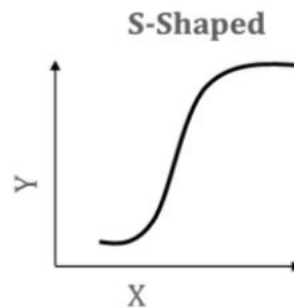
Source: Lecture 7, Linear Relationship (Karpienko, 2026)

- **Concave/Saturation:** curve flattens at some higher level (diminishing returns, common)



Source: Lecture 7, Saturation (Karpienko, 2026)

- **S shape:** slow to start and reach saturation (common)



Source: Lecture 7, S-Shaped (Karpienko, 2026)

## Log-Log Model vs Linear Model

**Linear Model:** Beta ( $\beta$ ) captures the **effect of a 1 unit change** in the independent variable on the unit change in the dependent variable.

$$\text{Sales}_i = \beta_0 + \beta_1 * \text{Advertising}_i + \text{Error Term} \rightarrow \beta_1 = \frac{\text{change in Y}}{\text{change in X}}$$

**Log-log model:** Beta ( $\beta$ ) captures **elasticity** (the effect of a 1% change in the independent variable on the % change in the dependent variable).

$$\ln(\text{Sales})_i = \beta_0 + \beta_1 * \ln(\text{Advertising}_i) + \text{Error Term} \rightarrow \beta_1 = \frac{\% \text{ change in Y}}{\% \text{ change in X}}$$

### Example

If the marketing outcome **Y** is Sales of a newspaper, and we have two marketing efforts **X** (newsroom investments and sales force investments), as well as that of its competitor **Z** ( $Z_1$ ), the formula for a response model is given by

$$\ln(Y) = \beta_1 * \ln(x_1) + \beta_2 * \ln(x_2) + \beta_3 * \ln(Z_1) + \beta_4 * \ln(Z_2) + \varepsilon$$

Variable	Coefficient Capturing Elasticity	p-Value for Statistical Significance
Ln(Newsroom investments)	0.36	0.03
Ln(Sales force investments)	0.24	0.02
Ln(Competitive newsroom investments)	-0.12	0.01
Ln(Competitive sales force investments)	-0.08	0.02

A 1% increase in newsroom investments leads to a 0.36% increase in Sales

A 1% increase in sales force investments by the competition leads to 0.08% decrease in Sales

## Transformations

Transformation	Model	Interpretation
No transformations	$Y = \beta_0 + \beta_1 * X$	A 1 unit increase in X is associated with an average change of $\beta_1$ units in Y.
Log-transformed predictor	$Y = \beta_0 + \beta_1 * \log(X)$	A 1% increase in X is associated with an average change of $\beta_1/100$ units in Y.
Log-transformed outcome	$\log(Y) = \beta_0 + \beta_1 * X$	A 1 unit increase in X is associated with an average change of $100 \times \beta_1$ % in Y.
Log-log model	$\log(Y) = \beta_0 + \beta_1 * \log(X)$	A 1% increase in X is associated with an average change of $\beta_1$ % in Y.

# References

- Karpienko, R. (2026). Lecture 1 . [PowerPoint slides]. Retrieved from: [https://canvas.eur.nl/courses/51033/files/101608240?module\\_item\\_id=1555549](https://canvas.eur.nl/courses/51033/files/101608240?module_item_id=1555549)
- Karpienko, R. (2026). Lecture 2. [PowerPoint slides]. Retrieved from: [https://canvas.eur.nl/courses/51033/files/101601461?module\\_item\\_id=1553897](https://canvas.eur.nl/courses/51033/files/101601461?module_item_id=1553897)
- Karpienko, R. (2026). Lecture 3. [PowerPoint slides]. Retrieved from: [https://canvas.eur.nl/courses/51033/files/101617595?module\\_item\\_id=1556652](https://canvas.eur.nl/courses/51033/files/101617595?module_item_id=1556652)
- Karpienko, R. (2026). Lecture 4. [PowerPoint slides]. Retrieved from: [https://canvas.eur.nl/courses/51033/files/101637830?module\\_item\\_id=1558759](https://canvas.eur.nl/courses/51033/files/101637830?module_item_id=1558759)
- Karpienko, R. (2026). Lecture 5. [PowerPoint slides]. Retrieved from: [https://canvas.eur.nl/courses/51033/files/101655661?module\\_item\\_id=1561226](https://canvas.eur.nl/courses/51033/files/101655661?module_item_id=1561226)
- Karpienko, R. (2026). Lecture 6. [PowerPoint slides]. Retrieved from: [https://canvas.eur.nl/courses/51033/files/101673883?module\\_item\\_id=1563935](https://canvas.eur.nl/courses/51033/files/101673883?module_item_id=1563935)
- Karpienko, R. (2026). Lecture 7. [PowerPoint slides]. Retrieved from: [https://canvas.eur.nl/courses/51033/files/101692157?module\\_item\\_id=1566458](https://canvas.eur.nl/courses/51033/files/101692157?module_item_id=1566458)
- Palmatier, R. W., & Sridhar, S. (2021). *Marketing strategy. Based on first principles and data analytics*. Red Globe Press.