Ch 1: Introduction, Evolution, and Emerging Issues

I.Role of Marketing Research in a Marketing Plan

• Marketing Research & Business Function

- Every business operates with a **business plan** (explicit or implicit).
- It includes **corporate & competitive strategies**.
- Fⁿal areas:**Marketing,Prodⁿ,Finance,HRM**(IT supports all

• Marketing Research & Strategy

- Strategy inv- **segmenⁿt, target market selecⁿ, posiⁿing.**
- Marketing research helps in choosing the **appropriate strategy** by providing relevant info (**Strategic Level Rscrch)**

• Marketing Research & Tactical Marketing Plan

- Tactical marketing plan includes the **4 P's**:

1. Product – Design, packaging
2. Price – Pricing strategies
3. Promotion – Short & long-term promotional activities
4. Place (Distribⁿ) – Logistics & supply chain mgt

II. Marketing Intelligence vs. Marketing Research

• Marketing Information System

- Provides critical information for marketing decisions.
- Comprises **two distinct processes**:
    1. **Marketing Intelligence** (cont. data collection).
    2. **Marketing Research**(ans sp. marketing questⁿs

1. **Marketing Intelligence**

- **Ongoing process** of collecting industry-related info.
- Covers **competitors,suppliers,substitutes,govt policies**.
- Helps identify **long-term trends**
- Often **managed in-house** (e.g., internal intelligence team subscribing to business reports).

2. **Marketing Research**

- **Short-term, project-based** process initiated when there is an "information gap."
- Designed to **answer specific marketing questions** (e.g., why market share is declining).
- Conducted through a defined **methodology** (internal team or outsourced to agencies like ORG-MARG, IMRB).
- Results directly impact **marketing strategies & decisions**.

Who Conducts Marketing Research?

• Outsourcing Marketing Research- Not always handled in-house;often **outsrced** to specialized research firms.

- **Reasons for outsourcing**:

Marketing rsrch is **intermittent**(done only when needed
 # Professional rsrch firms offer expertise in various areas (consumer, industrial, qualitative research, service audits).
Many firms operate **nationally & globally**, making international research easier.

• Major Research Firms: ORG (Now A.C. Nielsen ORG-MARG) – Retail audits; **IMRB, TNS Sofres MODE, Gallup-MBA** – Other specialized research areas

• When Companies Conduct Research In-House

- **Large consumer goods companies** with multiple brands may have in-house research teams.
- Protects **confidential info.**(e.g., new pdt designs, pricing)
- But, maintaining in-house staff is **costly**, so companies **often use a mix** of int. & outsourced research.

III. Typical Applications of Marketing Research

Marketing research applicⁿs are broadly classified into:

1. Strategic Applications

- **Demand & Sales Forecasting**
- **Market Segmentation & Target Market Identification**
- **Positioning Strategies**

2. Tactical Applications

- **Pdt Testing** (consumer preferences, packaging, design)
- **Pricing Research** (optimal price points, discounts)
- **Advertising & Promⁿal Research** (eff. of ads, campaigns)
- **Distribⁿ & Logistics Research** (supply chain efficiency, retail placement)
- **Consumer Satisfaction Analysis**

Key Observations- **More tactical studies than strategic ones**, as tactical elements can be adjusted frequently.
- **Strategic decisⁿs are fewer** but have a long-term impact.

Examples of Marketing Research in India

- Consumer buying habits for **detergents**(pack size,promⁿs
- Potential demand for **ready-to-eat chapatis in Mumbai**.
- Consumer pref. for **soap ingredients** (tulsi, coconut oil).

1. Concept Research

• Stages in New Product Launch:

- **Concept Dev & Testing**(idea genⁿ & consumer feedback)
- **Prototype Development & Testing**.
- **Test Marketing** in a specific city/region.
- **Market Size Estimation** based on test results.
- **National Rollout or Withdrawal**.

• Concept Testing:- A short product descripⁿ is presented to consumers. Consumers rate **liking, willingness to pay, and usability**.Ex: A **fabric softener** concept is tested for **packaging, pricing, scent, and effectiveness**.

- Adv. method: **Conjoint Analysis** – used to det. the best combⁿ of pdt features.

2. Product Research

• Focuses on:-**Consumer preferences** (packaging, features)

- **Satisfaction/Dissatisfaction drivers**.
- **Competitive differenⁿ** in both pdt & service aspects.

• Exs:- **Manual vs. Automatic Cameras** – Understanding brand preference & consumer expectations.

- **Photocopier Users** – Evaluating **after-sales service, spare part availability, and service contracts**.

• Application Across Product Life Cycle:

- **Introduction** – Identifying market fit.
- **Growth** – Competitive positioning.
- **Maturity** – Differentiation strategies.
- **Decline** – Repositioning or exit strategies.

• Brand Posⁿing Research:-**Multidimⁿal Scaling**: Identifies how consumers perceive brands relative to competitors.

3. Pricing Research

• Importance of Pricing in Marketing Strategy:

- Pricing affects **consumer percepⁿ,sales,&market posⁿing**
- Functional & psychological aspects:

 # High price→Premium quality perception.
 # Low price→Affordability but may indicate lower quality

• Pricing Experiments & Techniques:

- **Price Elasticity Studies**–Det. demand sensitivity to price changes- **Price Framing Research** – Understanding consumer ref. pts. for pricing

• Exs of Price Framing:

- **Car price comparison** – One consumer compares it to a **two-wheeler**, another to **stock investments**.
- **Investment decisions**–Some comp mutual fund returns to **fixed deposits**,while compare it to **gold investments**.

• Challenges in Pricing Research:- Consumers struggle to articulate **price expectations for convenience, after-sales service, and brand value**.Requires **indirect quesⁿing & experience in pricing studies** for accurate insights.

4. Distribution Research

• Traditionally focused on **consumers & buyers**, but now includes **logistics, supply chain, and dealer service**.
• Helps in **brand building** through **standardized retail displays & promotions**.
• Key areas of research:-**Service levels of distribⁿ channels**

- **Frequency of sales visits & routing efficiency**.
- **Testing new distribution channels**.
- **Impact of displays on sales performance**.

5. Advertising Research

Advertising research is divided into:

(1) Copy Research (Ad Content & Effectiveness)

• Studies various aspects of advertising impact:

- **Brand Awareness & Recall** (day-after, week-after recall).
- **Effectiveness of slogans, jingles,celebrity endorsements**.
- **Comparing alternative ad copies & layouts**.
- **Storyboard testing** for TV commercials before prodⁿ.

• Tracking Studies:

- Ongoing surveys during an ad campaign(6months - 1 yr).
- Helps in modifying ad **theme,content,media selⁿ,& freq**.
- **Caution**: Sales impact may be influenced by **multiple factors (competition, market trends)**, not just advertising.

(2) Media Research (Audience & Reach Analysis)

• TV Viewership Research:

- Specialized agencies (e.g., **A.C. Nielsen, ORG-MARG, IMRB**) provide **syndicated data** on TV audiences. Tools like **TAM & INTAM** track TV show popularity for ad planning.

• Print Media Research:

- **National Readership Survey (NRS) & Indian Readership Survey (IRS)** track newspaper & magazine readership.
- **Audit Bureau of Circulⁿs(ABC)** verifies actual sales figure

• Demographic Analysis:- Links **media consumpⁿ habits** to **consumer profiles & purchasing behavior**.Used extensively for **targeted advertising & media planning**
Advertising rsrch is **critical for brands heavily dep. on ads** & is used at **all stages**, from ad **concepⁿ to effectiveness**.

IV. When to Do Marketing Research?

Conducted when there is an **info. gap** that can be filled through research. If the cost of rscrch is↓**than the cost of a wrong decision**. Should not cause **delays** in decision-making that could impact business strategies.

V. Limitations of Marketing Research

• Not the **only** input for decision-making; intuition & experience also play roles.
• Small businesses often succeed without formal research.
• Best used alongside **judgment,intuition,& strategic exec**

Differences in Methodology

• Different research agencies may show **varying results** due to differences in:- Sampling methods, sample size, representativeness, and data collection quality.
• Users rely on **experience & agency credibility** to choose the best findings.

Complementary Inputs for Decision-Making

• Marketing research should be balanced with **corporate policies, competitor strategies, and regulatory factors**.
• Internal data & **marketing intelligence** also contribute to decision-making.

VI. Secondary vs. Primary Research

• Secondary Research: Uses existing data(reports,sites).

- **Pros**: Cost-effective, easy to access.
- **Cons**:May lack relevance,outdated,unreliable method.

• Primary Research: Collects new data from direct srcs.

- **Pros**: Accurate, current, and specific to the problem.
- **Cons**: Expensive and time-consuming.

VII. Ethical Considerations in Marketing Research

1. Respondent's Rights

- Data collected should be used strictly for rsrch purposes.
- Respondents should not be forced to answer; explanations should be provided for sensitive questions.
- Confidentiality must be maintained; only the research organization and client should access responses.
- Respondents should have the right to refuse personal or embarrassing questions.
- Research reports should be unbiased & not manipulated to serve any party's interests.

VIII. Consumer's Right to Privacy

• Rscrchers must respect respondent's time& convenience
• Respondents have right to refuse particip^{n} without pres.
• Non-cooperative respondents can lead to biased and inaccurate data.

IX. Emerging Issues in Marketing Research

1. Internet-Based Research

• The Internet allows research through emails and websites, but limited access in India creates sample bias.
• Personal interviews remain preferred, while telephone surveys are more common in the U.S.
• offers interactive features & quick data analysis.
• Security concerns (hacking, data leaks) must be addressed for safe online research.

Ethical Considerations in Marketing Research

1. Respondent Rights

• Data collected must not be misused.
• Respondents should not be forced to ans sensitive ques.
• Confidentiality of responses must be ensured.
• Personal questions should allow refusal and trained staff should be used for sensitive topics.
• Reports must acc reflect responses without manipulⁿ.

2. Consumer's Right to Privacy

• Respondents should not be disturbed at inconv. times
• Interviewers must respect respondents' time & willingness to participate.
• Non-cooperative respondents may provide biased or useless data.

Emerging Issues in Marketing Research

1. Internet-based Research: Online surveys (email, websites) offer speed and interactivity. In India,limited Internet penetration can lead to sample bias.Internet surveys enable visual elements and automation but are vulnerable to hacking.

2. Online Research Methods

Email Surveys:Quick,wide reach but lacks complex format
HTML Forms: Allows complex questionnaires but requires high programming effort.
Downloadable Applications: Highly interactive but needs downloads, leading to low response rates.
Online Focus Groups: Chat-based but lacks visual cues; video calls can help.

3. Data Warehousing & Data Mining

Data Warehousing:Storing vast datasets from multiple src
Data Mining:Analyzing patterns for marketing strategies. Used in CRM for personalized promotions (e.g., ICICI Bank)
Reqs adv. analytical techniques like regression & clustering

Ch 2 : The Marketing Research Process - An overview

I. Information Need

• **Trigger for Research:** Marketing research begins when managers need specific information to make decisions.
• **Exs:**- Evaluating an ad campaign's effectiveness.
- Positioning a new deodorant brand.
• **Cost Considerations:**
- Cost of obtaining information vs. cost of not having it.
- Risk of making uninformed decisⁿs **vs**.expense of rsrch
• **Decision Making:** If time and budget allow, research is advisable to avoid blind decision-making.

II. Defining the Research Objective

• **Aligning with Information Need:** Objectives must directly address the identified need.
• **Ex:**Determining customer satisfac with a newly launched
• **Avoiding Scope Creep:**- Too many objectives can make data collecⁿ complex & overwhelming. Ideally, limit to 4-5 clear objectives.
• **Prioritization Test:**- Ask: *Will this objective improve decision-making?*If not, exclude it.
• **Research Outcome:**
- Should provide actionable insights for marketing decision
- A report without practical use is a waste of resources.

III.Research Designs: Exploratory, Descriptive, and Causal

1. Research Design Overview

• Provides a framework for data collection & analysis.
• No single best design; choice depends on rsrch problem.
• Ex: Newspaper content analysis helped improve sales Blr.

2. Types of Research Designs

a. Exploratory Research: Used for clarifying thoughts, identifying key variables, and generating hypotheses.
• Methods: Surveys, focus groups, expert consultⁿs, case studies.
• Ex: Chocolate brand study to identify consumer decision.
• Often first step before causal research.

b. Descriptive Research

• Common in marketing;describes characteristics of populⁿ
• Two types:
i) **Longitudinal Studies**
▪ Study same respondents over time (months/years).
▪ Uses panels (e.g., consumer, retail audit).
▪ Advantage: Tracks changes over time.
▪ Disadvantage:Selection bias, non-representative sample
ii) **Cross-sectional Studies**
▪ One-time snapshot of the population.
▪ Example: Market surveys.
▪ Advantage: Simplicity, flexibility, broad coverage.
▪ Disadvantage: Too general, may lack depth.

3. Causal Research (Experimental Design)

• Aims to establish cause-&-effect relⁿships b/w variables.
• Uses controlled conditions to determine impact of one variable (X) on another (Y).
• Example: Lab experiments to test marketing changes.
• More reliable than descriptive studies for proving causality

IV. Designing the Research Methodology

• Depends on target population accessibility and decision importance.Accuracy level is based on decision criticality.
• **Major Components**
i. Research Method – Primary & Secondary research.
ii. Sampling Plan – Selection of respondents.
iii. Questionnaire Design – If applicable.
iv. Field Work Plan – Execution of data collection.
v. Analysis Plan – Data interpretation strategy.

3. Research Methods- Primary or secondary research

• **Data Collection Techniques**

1. Survey – Most common method, conducted via:
▪ **Personal Interviews** – High accuracy; allows observation.
▪ **Telephone Surveys** – Cost-effective but lacks visual cues.
▪ **Email/Internet Surveys** – Fast but may have high non-response bias.
▪ **Mail Surveys** – Slower than other methods.
▪ In India, **personal interviews** are preferred.
2. Observation – Records actual consumer behavior (e.g., video surveillance in stores).
▪ **Advantage**: More accurate than stated intentions.
▪ **Limitation**: Lack of control over sample representation.
3. Experimentation – Measures cause & effect relationships.
▪ Example: Testing brand awareness after an ad release.
▪ **Simulated Test Marketing (STM)** – Controlled experimental method.

4. Qualitative Techniques

▪ Used when **quantitative surveys are inadequate** or inappropriate.
▪ Focus on **open-ended, unstructured interviews** to understand consumer mindsets.
▪ **Methods include:**
- Free-wheeling interviews (e.g., *What do you expect from a refrigerator?*).
- Word associations – Linking a brand with a word, celebrity, or animal.
- Projective techniques – Respondents imagine themselves as a brand.
▪ **Requires experts** (psychologists, sociologists) for accurate interpretation.
▪ **Example:** TVS Suzuki used focus groups & projective techniques to develop the **Scooty**.

5. Specialised Research Techniques

a. Consumer Panel

- A fixed sample of consumers records **purchases or TV viewing habits** over time.
- Data is collected weekly & analyzed by marketing agencies.
- Participants may receive compensation.

2. Retail Audit

- Measures **brand sales at retail level** (weekly or periodically).
- Conducted by third-party agencies (e.g., **ORG in India**).
- Helps companies track brand performance & competition.
- Can be **regional or national** and used for **brand tracking** post-launch.

3. TV Audience Measurement

- Tracks **who watches TV programs** to optimize ad placement.
- **Peoplemeters** record viewing habits in real-time (**TAM & INTAM in India**).
- Replaced older diary-based audience tracking methods.

V. Plan for Sampling, Field Work, And Analysis

1. Sampling Plan

Defines **sample composition and size** to ensure accurate representation of the population.
• Findings from a sample (e.g., 50% favor a brand) are extrapolated to the whole market with some margin of error.
• **Key Precautions:**
1. Use **probabilistic sampling** to avoid bias.
2. Divide population into **strata** (e.g., users/non-users, income groups, age) for proper representation.
• **Multiple-city studies:** Ensure adequate sample sizes per city for separate analysis.

2. Field Work Plan

• **Depends on sampling decisions** (locations & sample size).
• **Key Questions:**
- Who will collect data? (Field workers, researchers)
- When will it be collected? (Scheduling for different locations)
• **Field Work Process:**
- Data collected at **homes, offices, shops, dealerships, etc.**
- Personal interviews are common in India.
- Use of **questionnaire or checklist** for structured data collection.

3. Briefing & Debriefing

Briefing:
• Research executive briefs **field supervisors** on study objectives.
• Includes **mock interviews** for training field workers.
• Temporary field workers recruited & paid based on completed surveys.

Debriefing:
• Held at the end of the **first day's** field work.
• Identifies problems like **finding respondents, non-cooperation, or comprehension issues**.
• Solutions are implemented for smoother data collection.
• **Pilot studies** or test rounds help identify issues early.

VI. Analysis Plan and Expected Outcome

1. Analysis Plan

• **Pre-planning analysis is crucial** to avoid limitations in sample size and ensure valid results.
• **Importance of Early Planning:**
- Prevents reduced sample sizes in subgroup analyses.
- Helps design the questionnaire to fit **statistical procedures** like multidimensional scaling.

2. Types of Analysis

1. **Simple Tabulation**
   - Counts responses per category and presents them in a **frequency table**.
   - Used for percentage calculations.
2. **Cross-tabulation**
   - Analyzes relationships between **two or more variables**.
   - Example: Examining how **soap fragrance preference** correlates with **purchase frequency**.
   - Must ensure variables are **logically related** (e.g., purchase frequency may relate more to **family size** than fragrance preference).

3. Expected Outcome

- **Blank output tables** should be prepared before fieldwork to anticipate potential **sampling issues**.
- Helps adjust sample sizes accordingly.

4. Budget & Cost Estimation

- Cost depends on:
  - **Sample size** – Larger samples increase costs.
  - **Sampling difficulty & geographical dispersion** – Hard-to-reach respondents raise expenses.
  - **Fieldwork personnel** –
    - **Hired workers** = Lower cost.
    - **Research executives** = Higher cost (common in industrial marketing).
- **Additional costs** for multi-city studies:
  - Travel, communication, and supervision expenses.

Presentation of Findings

- After **tabulation & analysis**, findings are presented to the study sponsor.
- Includes:
  - **Frequency tables** & **cross-tabulations** (percentage-based).
  - **Summary of key insights** & **recommendations**.
  - Additional cross-tabulations may be requested.

2. Formal Report Structure

1. **Executive Summary** – Key highlights.
2. **Table of Contents** – Organized sections.
3. **Introduction** – Background of study.
4. **Research Objectives** – Purpose of the study.
5. **Research Methodology:**
   - Sample design
   - Field work plan & dates
   - Analysis/expected outcomes
   - Questionnaire (Annexure)
6. **Analysis:**
   - Simple tabulation
   - Cross-tabulation
   - Special analysis (if any)
7. **Findings** – Main insights from data.
8. **Limitations** – Constraints affecting results.
9. **Recommendations** – Suggested marketing actions.
10. **Bibliography/References** – Sources used.

3. Marketing Action

- Based on the report, the client **makes strategic decisions**.
- The ultimate goal of research is to guide **effective marketing actions**.

Ch 3: Research Methods and Design - Additional Inputs

I. Sources of Secondary Data

Secondary data is categorized into:

1. Internal Sources (Company records)

• Product history, company background.
• Market share, competitor analysis.
• Maintained by **marketing, sales, or intelligence depts**.

2. External Sources (Published & syndicated reports)

• **Business newspapers & magazines** (The Hindu, Economic Times, Business India).
• **Industry associations & trade bodies**.
• **CMIE (Centre for Monitoring Indian Economy)** – Monthly economic & industry reports.
• **Syndicated studies**:
- **National Readership Survey (NRS)** – Readership, demographics, consumption patterns.
- **Indian Readership Survey (IRS)** – Newspaper & magazine circulation data.
- **Audit Bureau of Circulations (ABC)** – Certifies newspaper & magazine circulation.
• **Digital & subscription-based data sources** for financial & sales data.
• **Organized Internal Data Collection**
- Companies maintain **archives of business magazines & newspapers** for long-term analysis.
- Helps in **trend tracking, competitive analysis, and onboarding new employees**.

II. Disadvantages of Secondary Data

Outdated – Consumer preferences change over time.
• **Bias & Purpose Mismatch** – Data may be collected for a different intent.
• **Sample Differences** – Previous study may not align with current target audience.
• **Data Aggregation Issues** – Required categories (e.g., **gender, city, income groups**) may not be available.

3. Importance of Secondary Data

• **Trains primary researchers**.
• **Cross-checks** other secondary sources for reliability.
• **Stimulates critical thinking** about methodology & biases.
• **Cost-effective starting point** for research before investing in primary data collection.
• **Modern Approach**: With **Internet access**, companies should always check **available online data** before conducting costly field research.

III. Exploratory vs. Conclusive Research

1. Exploratory Research

• **Purpose**: Helps understand the problem, consumer behavior, or study design.
• **Nature**:Does *not* lead directly to marketing decisions. Used to design follow-up **conclusive research**.
• **Methodology**:
- Less rigorous, **smaller sample sizes**.
- Uses **qualitative techniques** (e.g., interviews, focus groups).
• **When Used**:
- When **not enough information** is available to conduct conclusive research.
- **Must be followed up** by a more detailed study before drawing conclusions.

2. Conclusive Research

• **Purpose**: Leads to **major marketing decisions** based on consumer data.
• **Nature**:
- Uses **statistical tests & analytical techniques**.
- Employs **quantitative methods** (e.g., surveys, expts).
- Requires **larger sample sizes** for reliability.
• **When Used**:
- After **exploratory research** (if needed).
- As a **routine study**, conducted periodically (e.g., quarterly, yearly).
• **Why Quantitative Methods Are Preferred**:
- **Easier for clients** (marketing managers) to interpret numerical data.
- Provides **clear, measurable insights** for decision-making.

IV. Major Qualitative Research Techniques

Qualitative research techniques are used to **understand consumer emotions, motivations, and perceptions**. The three key techniques are:

1. Depth Interview

• **Definition**: Unstructured, long interview conducted by a **skilled interviewer** to explore consumer **opinions, feelings, and behaviors**.
• **Characteristics**:
- Mostly **open-ended questions**.
- No fixed response options, **free-flowing discussion**.
- **Challenges**:
▪ Respondents may feel **uncomfortable** sharing personal details.
▪ Interviewer must be **trained** to guide the conversation effectively.
• **Ex**:A car owner is interviewed about their **emotional attachment, driving habits, brand perception**, and willingness to switch brands.
▪ **Pros & Cons**:
✅ **Reveals deep insights** into thought processes.
❌ **Highly subjective**, difficult to interpret.

2. Focus Group

• **Definition**: A group discussion led by a **moderator** to explore opinions, attitudes, and feelings on a specific topic.
• **Process**:
- 6-10 participants from the **target market**.
- **Recorded** for later analysis (video/audio).
- Usually **1-1.5 hours long**.
• **Uses**:
- **Concept testing** before product launch.
- Cross-checking survey findings.
• **Pros & Cons**:
✅ Encourages **interaction & idea generation**.
❌ Can be **influenced by dominant personalities**, reducing diversity of opinions.

3. Projective Techniques

Used to **uncover subconscious thoughts & emotions** that respondents may not openly express.

(a) Picture Projection

• Respondents **describe people or objects** in a shown image.
• Helps identify **stereotypes & consumer perceptions** about a product.

(b) Word Association

• Respondents quickly **associate a brand with a word, celebrity, or object**.
• Example: "What comes to mind when you hear 'Brand X'?"
• **Requires a psychologist** or expert for interpretation.

(c) Sentence Completion

• Respondents complete a given sentence.
• Example: “People who drink Brand B coffee tend to be ____.”
• Can reveal **hidden biases or brand perceptions**.
• **Pros & Cons** of Projective Techniques:
✅ **Overcomes social desirability bias** (people answering in a "socially acceptable" way).
❌ **Difficult to interpret**, requires **trained analysts**.

V. Other Qualitative Research Methods

While **focus groups** and **depth interviews** are commonly used in marketing research, several other qualitative methods provide valuable insights into consumer behavior.

1. Content Analysis

• **Definition**: A systematic method to analyze **text, social media, and online content**.
• **Usage**:
- Examines **brand mentions, sentiment (positive/negative)**.
- Identifies **recurring themes** in consumer discussions.
- Tracks engagement metrics (**likes, shares, comments** in digital marketing).
• **Example**: A company analyzing **social media posts & news articles** to understand **brand perception**.

2. Observation

• **Definition**: Studying **real-world consumer behavior** without direct interaction.
• **Usage**:
- Identifies **shopping patterns & decision-making behaviors**.
- Tracks **time spent on products, label reading, shelf preferences**.
• **Example**: Paco Underhill’s study (*Why We Buy*) – analyzed **video recordings of shoppers** in U.S. retail stores to optimize store layouts.

3. Ethnography

• **Definition**: Researcher **immerses themselves in consumers' lives** to observe behaviors naturally.
• **Usage**:
- Provides deep **cultural and lifestyle insights**.
- Helps **understand habits, preferences, and decision-making** in real-life settings.
• **Example**: A researcher **living with a middle-class family** to study **spending habits & brand preferences**.

4. Discourse Analysis

• **Definition**: Studies **societal conversations** on topics like **consumer rights, pricing strategies, or brand perception**.
• **Usage**:
- Identifies **dominant narratives** in public discussions.
- Explores **conflicting viewpoints** (e.g., affordability vs. premium pricing).
• **Example**: Studying the **debate on reservations in education**—how "meritocracy" and "social justice" narratives compete.

5. Grounded Theory

• **Definition**: Develops **new theories from observed patterns**, instead of testing pre-existing theories.
• **Usage**:
- Identifies **emerging consumer behaviors** without prior assumptions.
- Useful for **new market trends & innovations**.
• **Example**: Observing how **consumers interact with AI-powered chatbots** and then building a theory on **trust in digital interactions**.

VI. Validity of Research & Experiments

1. Validity of Research

• **Definition**: Validity refers to the **generalizability & robustness** of research findings.
• **Example**: If **pen sales** change after a **price adjustment**, is price really the cause?
- Other factors (e.g., advertising, competition) may also affect sales.
- Research must **control external influences** to ensure valid conclusions.

2. Experiments in Research

• **Purpose**: To test **cause-and-effect** relationships (e.g., price vs. sales).
• **Types of Experiments**:
1. Laboratory Experiments – Controlled environment, minimal outside influence.
2. Field Experiments – Real-world setting, **less control** over external factors.
3. Simulations – Computer models used to predict real-world scenarios.

3. Test Marketing

• **Definition**: A **controlled experiment** in a limited geographic area before a full-scale product launch.
• **Purpose**: To **predict sales & market share** based on changes in marketing variables (price, promotion, etc.).
• **Challenges**:
- **One-time high sales** due to **consumer curiosity**, leading to **false predictions**.
- **Competitor interference**:
▪ They may **launch similar products first** (e.g., Surf Ultra before Ariel in India).
▪ They may **artificially increase your sales** to mislead you into a bad launch.
▪ They may run **special promotions** to **reduce your test sales**.
- **Selection bias**: Wrong **test market location** may give **incorrect national projections**.

4. Simulated Test Marketing (STM)

• **Definition**: A lab-based test where **consumers interact with a simulated shopping environment**.
• **Process**:
- Consumers see **product info & ads**.
- They receive **money/coupons** to make purchases in a **simulated store**.
- **Non-buyers** may receive **free samples**.
- After a set period, **repeat purchase intent** is measured.
- A **computer model predicts real-world market share**.
• **Example**: **Mahindra & Mahindra** used STM for their **ARMADA vehicle**, measuring **purchase intent over time** instead of providing free vehicles.
• **Advantages over Test Marketing**:
- Faster, **cheaper, and more confidential**.
- Less **competitor interference**.

Ch 4: Questionnaire Design: A customer-centric approach

I. Designing Questionnaires for Market Research

1. Language Considerations

• Use a **language the respondent understands**.

• A questionnaire in **English** can be administered in the local language **by a trained interviewer**.

• If translating, ensure **consistency** with the original to maintain validity.

2. Difficulty Level of Questions

• Avoid **technical jargon** or **complicated words** unless the respondent is a postgraduate or an experienced executive.

• Keep language **simple and direct** to ensure clarity.

3. Fatigue & Response Time

• Respondents often get **tired of long surveys**.

• Keep the questionnaire **short & focused**.

• Ideal **interview time: ~20 minutes**.

4. Encouraging Cooperation

• Personal interviews: Interviewers should **introduce themselves & the research purpose** before beginning.

• Self-filled forms:Incl. **a short intro** asking for cooperⁿ.

• Mailed questionnaires: **A covering letter** explaining the study's purpose can **increase response rates**.

5. Social Desirability Bias

Respondents may give **socially acceptable answers instead of truthful ones**.

Techniques to minimize this bias:

1. Repeat similar quesⁿs in diff parts of the questionnaire.

2. Ask indirect questions instead of direct ones.

3. Use follow-up quesⁿs to verify responses(eg,"What was key headline in today's newspaper?"if they claim to read)

4. Introduce fake options (e.g., a non-existent magazine) to check honesty.

6. Ease of Recording : The questionnaire should be **easy to carry and fill out in different environments**.

• Ensure **sufficient space between answer choices** to avoid confusion when marking responses.

7. Coding : Most questionnaires are **pre-coded** to streamline data collecⁿ

• **Field staff must be trained** on where to mark responses—on the code or the actual answer choice.

• Cndct **mock interviews/pilot surveys** to clarify instrucⁿs

8. Purpose of a Questionnaire

• Designed to **collect accurate data** from respondents effly

• Must be **clear, easy to understand, & simple to fill out**.

• Should include **printed instrucⁿs** for interviewers (e.g., *"Go to Q.5 if the respondent is a non-user of Brand X"*).

9. Quesⁿ Sequencing: Start with **non-threatening, ice-breaking questions** before moving to the main survey.

• **Demographic questions** (age, income, education) should appear **at the end** to avoid initial resistance.

• Quesⁿs should **follow logical seq** & properly phrased

10. Biased & Leading Questions

• **Do not** frame questions to **suggest an answer** (e.g., *"Don't you think liberalization is good?"*).

• Instead, present **neutral optⁿs**(eg,*"Some think liberalizⁿ is good, & some think it is bad. What is your view?"*).

11. Monotony: If respondents start **giving the same answer repeatedly**, they may be disengaged.

• Solⁿs:-**Re-sequence** quesⁿs to keep respondents engaged

- **Vary response scales**/quesⁿ format to req thoughtful ans

12. Pilot Testing the Questionnaire

• Before launching a survey, test the questionnaire **on a small sample**. Helps identify **confusing or ineff. quesⁿs**.

13. Analysis Required

• The **type of analysis required** influences quesⁿ design.

• Choose **appropriate measurement scales** (e.g., **Nominal, Ordinal, Interval, Ratio**)based on the type of data needed.

II. Scales of Measurement in Marketing Research

Marketing research relies on **four major types of scales**:

1. Nominal Scale (Categorization)

• Used for **labeling vars** without assigning numerical value.

• **Ex:- Gender:** (1 = Male, 2 = Female)

• **Key Points:- No numerical meaning**—only categories.

- Can be used for **frequency counts and percentages**.

- **Allowed analyses: Cross-tabulation, Chi-square test**.

- **Not valid for:** Mean, Standard Deviation, Correlation.

2. Ordinal Scale (Ranking)

• **Orders data but without fixed intervals** b/w values.

• **Example:Brand preference ranking; Customer satisfacⁿ levels:**(Very Satisfied, Satisfied,Neutral, Dissatisfied,Worst)

• **Key Points:**- Tells **relative posⁿing**, but **not how much better one is** than the other.

- **Allowed analyses:** Median, Percentiles, Rank Correlation

- **Not valid for:** Mean, Standard Deviation.

3. Interval Scale (Rating Scale)

• **Has equal intervals** between numbers but **no true zero**.

• **Example:- Customer satisfaction rating:** (Scale of 1–10)

Temp. in Celsius/Fahrenheit: (Difference b/w 10°C & 20°C is same as 30°C & 40°C, but 0°C does not mean 'no temp'.)

• **Key Points:**- Allows meaningful calculation of **Mean, Standard Deviation, Correlation**.

- **freq used in marketing surveys**(Likert Scale,Rating Scales

- **Cannot calc. ratios**(eg, 40°C is not 'twice as hot' as 20°C)

4. Ratio Scale (Absolute Measurement)

• **Has equal intervals&true zero pt.**, allowing **ratios** be calc

• **Ex:Income in rupees:** ₹10,000 vs. ₹20,000 (₹20,000 is twice ₹10,000); **Age, weight, height, sales volume.**

• **Key Points:**- Allows **all mathematical operⁿs** (Mean, Std Deviation, Ratio Comparisons). **Most powerful scale**, but **rare in marketing** (except for financial metrics).

III. Structured vs. Unstructured Questionnaires

• **Structured Questionnaire:**

- Predefined **standardized** questions.

- **Fixed** wording; same for all respondents.

- Ensures **reliability & consistency** across diff interviewers

- Can have **structured answers(closed-ended)** or **structured questions only**.

- **Ex:Q:** "Do you live in Delhi?" (1) Yes (2) No

• **Unstructured Questionnaire:**

- **Flexible format**,allowing respondents to ans in their own

- More common in **qualitative research** (e.g., depth interviews, focus groups).

- Harder to analyze due to **subjectivity**.

- **Ex: Q:** "How do you feel about our brand?"

1. Open-ended vs. Closed-ended Questions

• **Open-ended Questions:**

- Respondents give **free-form answers**.

- Useful for **exploratory rsrch** & gaining deeper insights.

- Harder to quantify and analyze.

• **Closed-ended Questions:**

- Fixed set of **predefined answer choices**.

- Easier to tabulate and analyze.

2. Disguised vs. Undisguised Questions

• **Undisguised Questions:**

- Directly ask for the required information.

- **Example:** "Are you afraid of flying?"

• **Disguised Questions:**

- Indirect questions used to **reduce bias**.

- Useful for **sensitive topics**(e.g., parenting,personal fears)

- **Example:** "Do you know anyone who is afraid of flying?"

Why Use Disguised Questions?

• **Reduces social desirability bias**(people tend to give "acceptable" answers).

• **Hides true sponsor** of study to avoid biased responses.

• Used in **projective techniques** and **qualitative research**

3. Probing Quesⁿs(Combination of Open & Closed-ended)

• A **follow-up open-ended quesⁿ** after **closed-ended** resp

Ex:-Q1: "Which brand of mosquito mats do you use?"

Q2: "Why do you use this brand?" (Open-ended response)

IV. Types of Questions

1. Open-ended Questions

• Respondents answer in their own words.

• Ex: *What do you think of Brand X Cola's taste?*

2. Dichotomous Questions

• Two-choice questions (Yes/No).

• Example: *Are you a user of Brand X soap? (Yes/No)*

3. Multiple-choice Questions

• More than two optⁿs; can allow single or multiple selecⁿs

• Ex:*Which factors influenced your car purchase?*(Price)

4. Ratings or Rankings

• **Ratings:** Rate on a scale (e.g., 1–7) based on pdt quality.

• **Rankings:** Assign ranks (e.g., 1 = best, 2 = second-best).

• Ex: *Rate detergent brands on cleaning ability (1–7 scale).*

5. Paired Comparisons

• Respondents choose between two options at a time.

• Example: *Which TV brand is better: A or B?*

• Used in **Multidimensional Scaling** analysis.

5. Semantic Differential

• Scale between two opposite adjectives.

• Example: *Easy to Use —|—|—|—|— Difficult to Use*

• Commonly a **5-point or 7-point scale** (e.g., Completely Agree – Completely Disagree).

2. Choosing the Right Question Type & Scale

• Based on: **1. Information Need** (What data is required?)

2. Output Format (How should results be structured?)

3. Ease of Tabulation & Interpretation

4. Statistical Analysis Requirements

5. Minimizing Errors in Response & Data Collection

V. Transforming Information Needs into a Questionnaire

1. Defining Information Needs

• Understanding **users vs. non-users** of soft drink conc.

• **For users:** Preferences, occasions of use, brand ratings.

• **non-users:** Reasons for not using, substitute pdt choices.

2. Sample Questionnaire Structure

• **Introductory**:Purpose of survey & request for particip^{n}.

• **User Quesⁿs:**- Usage type (liquid/powder),preferences (sugar/no sugar); Occasions of use, serving to guests.

- Brand pref. & rating on availability,taste,convenience,cost

- Open-ended question for additional comments.

• **Non-user Questions:**- Regular beverage consumpⁿ (fruit juice, squash, tea, coffee, etc.); Reasons for avoiding soft drink concentrate (taste, cost, additives, availability).

• **Demographic Questions:** Age, income, and address.

3. Merits & Demerits of the Questionnaire

• **Strengths:** 1. Covers both users and non-users.

2. Uses mix of multiple-choice,rating,&open-ended quesⁿs

3. 7-point scale allows nuanced feedback.

Double-Barrelled Questions: Asking two things in one quesⁿ leads to **ambiguous responses**.

• **Ex (Bad Question):** *Are you happy with the price and quality of Brand Y? (Yes/No)*

• **Solution:-** Ask **separate** questions for price and quality.

• Use **distinct answer categories** for each attribute.

Characteristics of a Good Questionnaire

• **Validity:** Measures what it is intended to measure.

• **Efficiency:** Well-structured, logical sequencing of quesⁿs.

• **Pre-testing:-** trials on a **small sample** before finalizing.

• Modify wording, scales, or sequence based on feedback.

• **Collabⁿ:**Researcher&sponsor company->align expectⁿs

Common Issues in Questionnaire Design

• **Poor analysis planning:**

- Think about **data interpretation before fieldwork**.

- Design **output formats** in advance.

• **Late modificⁿs:**-Making changes after data collecⁿ-costly

- It's **cheaper to refine the questionnaire before the study**

VI. Reliability vs. Validity

• **Reliability**: Consistency of results when the same questionnaire is used multiple times.

- Ensured by stdizing queⁿs,wording,&interviewer training

• **Validity**: Measures what it is intended to measure.

- Verified by comp. with prev. studies & expert judgment.

1. Construct in Research: A **construct** rep. a concept that needs measurable indicators (eg, Service Quality). Needs a **set of quesⁿs** to accurately measure different aspects.

2. Types of Validity

a. Content Validity: Ensures the measⁿ is representative of concept being studied.

• Established through **expert judgment and past research**.

b. Criterion (Predictive) Validity: Measures correlⁿ b/w test scores & ext real-world outcomes

• Ex: Admission test scores predicting final GPA.

c. Construct Validity: Det. if a measurement truly reflects intended construct. Incls:

i. Discriminant Validity: Ensures it is distinct from others.

ii. Convergent Validity: Ensures different measures of the same construct align. Methods to test construct validity:

i. Multi-Trait Multi-Method Matrix (MTMM)

- Proves construct validity by testing convergent & discriminant validity.

▪ Measures two constructs

▪ Uses two different methods to measure them.

▪ High correlation within the same construct = Convergent Validity (measuring the same concept).

▪ Low correlation between different constructs = Discriminant Validity (proving distinctiveness).

Challenge: Hard to apply as finding two differ. measⁿ methods is difficult.

ii. Item-to-Total Correlation- Tests if individual questionnaire items contribute to the overall scale.

▪ Calculate correlation b/w each item & the total score.

▪ High correlation = Valid item.

▪ Low correlation = Consider removing the item.

Reliability of a Scale (Cronbach's Alpha Test)

Reliability: Ensures consistency in repeated measurements

• **Cronbach's Alpha: ≥ 0.7** → Good reliability.

< 0.7 → Consider removing low-correlation items.

• **SPSS Process:** Analyze → Scale → Reliability Analysis → Alpha Model → Check inter-item correlation.

If removing an item increases Alpha, consider dropping it.

iii. Factor Analysis for Validity: Ensures subscales/dimensⁿ of a construct are distinct.Uses statistical clustering to verify the underlying str.

Ch 5: Sampling Methods- Theory and Practice

I. Basic Terminology in Sampling

1. Sampling Element: The **unit of analysis** in a study (e.g., consumer, dealer, household, company).

2. Population: The **target group** relevant to the study, not necessarily the entire geographic population.

• Example: *All mothers buying branded baby food in a city.*

3. Sampling Frame: A **practical list** of population elements used for selecting the sample. Ex: *Using a Mumbai telephone directory to represent adult residents.*

• May **exclude** some relevant elements due to constraints.

4. Sampling Unit: Stages in selection:

• **Single-stage:** Individual respondents = sampling unit.

• **Multi-stage: 1. First-stage**: Selecting city areas.

2. Second-stage: Selecting streets.

3. Third-stage: Selecting houses/apartments.

4. Final stage: Selecting the **individual respondent**.

II. Sample Size Calculation

1. Sample Size Determination

• **Not just formula-based**; also depends on experience, budget, time, and analysis needs.

• **Factors influencing sample size**:

- Number of population segments.
- Number of study locations.
- Output requirements.

2. Formula for Sample Size (Estimating Means)

$n=(Zs/e)^2$ Where:

• **Z** = Z-score for desired **confidence level** (e.g., 1.96 for 95% confidence).

• **s** = **Population standard deviation** (unknown, so estimated using past data, pilot study, or range/6 rule).

• **e** = **Tolerable error** (determined by researcher; lower error → larger sample size).

3. Key Considerations:- • 95% confidence level (Z = 1.96) is common in marketing research.

• **Standard deviation estimation methods**:

1. Use past research data.
2. Conduct a small pilot study.
3. Estimate using **Range ÷ 6** (since ~99.7% of data falls within ±3σ).

• **Trade-off**: Lower tolerable error **increases** sample size, while higher error **reduces** it.

Example: Customer Satisfaction Study

• **Variable:**Customer satisfac (measured on a **1-10 scale**).

• **Formula Used:** $n=(Zs/e)^2$

• **Given Values:- Z = 1.96** (for **95% confidence level**).

- **s = 1.5** (estimated using **Range ÷ 6** → (10-1)/6 = 1.5).

- **e = 0.5** (tolerable error, i.e., estimate should be within ±0.5 of actual value).

2. Sample Size Calculation

Thus, **n = 35** respondents are needed for the study.

3. Impact of Changing Tolerable Error (e)

• If **e = 0.25** (more precise estimate required)

• → Sample size increases to **138**.

4. Key Takeaways

• **Sample size increases if:**

1. **Standard deviation (s) is higher.**
2. **Confidence level (Z) is higher.**
3. **Tolerable error (e) is lower.**

• **Z & e are set by the researcher**, meaning assumptions impact sample size.

1. Formula for Sample Size Estimation (Proportions)

$n=pq(z/e)^2$

Where: • **p** = Estimated proportion of occurrence (e.g., 25% of users → **p = 0.25**).

• **q** = Proportion of non-occurrence (**q = 1 - p**).

• **Z** = Confidence level-related value (e.g., **1.96 for 95% confidence**).

• **e** = Tolerable error (e.g., **3% error → e = 0.03**).

2. Example: Estimating Toothpaste Brand Users

• **Given values:**

- **p = 0.25**, **q = 0.75** (from past studies).
- **Z = 1.96** (for 95% confidence).
- **e = 0.03** (3% tolerable error).

• **Sample size calculation:**

$n=((0.25\times0.75)\times(1.96/0.03)^2=800$

Thus, **800 respondents** are needed for a reliable estimate.

3. Key Takeaways

• **Higher confidence level (Z) → Larger sample size.**

• **Lower error tolerance (e) → Larger sample size.**

• **Sample size is highest when p = 0.5**, since **p × q is maximized at 0.25**.

• **If p is unknown, assume p = 0.5** to ensure a **safe overestimate** of the required sample.

III. Other Issues that Affect Sample Size Decisions

1. Limitations of Formula-Based Sample Size Calculation

• **Formulae are useful but have practical constraints.**

• Several factors influence real-world sample size decisions

2. Key Factors Affecting Sample Size

a. Number of Centres

- Studies often cover **multiple locations**.
- The overall sample must be **divided among different cities/regions**. A **minimum sample size per location** is necessary for meaningful analysis.

b. Multiple Questions in Questionnaire

- Surveys contain **different variable types** (continuous, categorical, proportions). Each variable type may require a **different formula** for sample size. To simplify, researchers **use the highest required sample size** among variables.

c. Cell Size in Analysis

- Analysis often requires segmenting data (e.g., **income + age categories**). Small sample sizes in sub-groups (cells) **reduce reliability**.
- A minimum of **10 respondents per cell** is recommended.
- **Solution:** Define **analysis plan & output tables** in advance.

d. Time & Budget Constraints

- Studies may need **quick results** (e.g., competitive strategy decisions).
- Budget limitations can impact sample size decisions.
- **Sampling plans should balance accuracy with time&cost**

e. Experience-Based Sample Size Determination

- **Past research exper.** helps refine sample size decisions.
- Experience can **moderate formula-based estimates** to fit real-world constraints.

Sampling Techniques

1. Overview of Sampling Techniques

• **Classification:**

***Probability Sampling:** Each unit has a known (though not necessarily equal) chance of selec^n;methods are unbiased.

***Non-Probability Sampling:** (Not discussed here, but contrasted with probability methods.)

2. Probability Sampling Techniques

• **Key Types:**

1. Simple Random Sampling

• **Concept:** Every unit (e.g., individual or household) is listed & randomly selected (e.g., drawing nos. from a hat).

• **Advantages:** Conceptually simple and unbiased.

• **Practical Challenges:** Difficult to implement with large popul^{n}s (e.g., obtaining a list of all consumers for a pdt).

2. Stratified Random Sampling

• **Concept of Stratified Sampling:** The **popul^n is divided into strata (segments)** based on key characteristics (e.g., age, income). A **sample is taken from each stratum** to ensure proper representation. Helps improve accuracy and efficiency compared to simple random sampling.

• **Steps in Stratified Sampling**

1. Determine Total Sample Size – Using statistical formulas or experience.

2. Divide Population into Strata – Based on relevant criteria (e.g., age groups: *Below 25, 25–40, Above 40*).

3. Allocate Sample Proportionally – Based on the size of each stratum in the total population.

• **Proportionate vs. Disproportionate Stratification**

+Proportionate Stratification – Sample size in each stratum is proportional to its population share.

+Disproportionate Stratification – Some strata may have larger/smaller samples due to specific research needs.

• **Example: Customer Satisfaction Study for a TV Channel**

- **Target Variable:** Customer satisf^n(measured on a 7-point scale).
- **Strata:**

Below 25 years (30% of population)
25–40 years (30% of population)
Above 40 years (40% of population)

- **Std Deviations:** Below 25: **1.2**, 25–40: **0.9**, Above 40: **0.7**
- **Formula Used:** $n=(Z/e)^2\sum WiSi^2$

#Where **Z = 1.96** (95% confidence level), **e = 0.05** (tolerable error).

#Total Sample Size = 1338 (compared to **1536** in simple random sampling).

- **Proportionate Sample Allocation**

#Below 25 years: 1338×0.3=401
#25–40 years: 1338×0.3=401
#Above 40 years: 1338×0.4=536

#Key Takeaway: Stratified sampling **improves efficiency** by **reducing sample size** while maintaining accuracy, making it preferable over simple random sampling in many cases.

b. Concept of Disproportionate Stratified Sampling

• **Used when variability differs across strata** (segments).

• Unlike **proportionate stratified sampling**, where sample size is proportional to segment size, this method **allocates more samples to high-variability strata**.

• More **efficient** as it reduces total sample size while maintaining accuracy.

Formula for Total Sample Size

$n=(Z/e)^2(\sum WiSi)^2$

• **Z** = Confidence level (e.g., 1.96 for 95%)

• **e** = Tolerable error

• **W_i** = Weight of stratum

• **S_i** = Standard deviation of stratum

Example: Customer Satisfaction Study for a TV Channel

• **Age-based strata:**

- **Below 25 (30% of population, S = 1.2)**
- **25–40 (30% of population, S = 0.9)**
- **Above 40 (40% of population, S = 0.7)**

• **Total Sample Size Calculation:**

- Using the formula, **n = 1272** (compared to **1338 in proportionate stratification**).
- Disproportionate sampling led to a **smaller, more efficient** sample size.

Sub-Sample Allocation by Variability

$ni=\{(NiSi)/(\sum NiSi)\}n$

- **Below 25:** 503
- **25–40:** 377
- **Above 40:** 391

Key Takeaways

• **More accurate than proportionate stratification** when variability differs across strata.

• **Allocates more samples to highly variable groups** for better representation.

• **Stratified sampling is the most efficient probability sampling method**, reducing errors compared to simple random or cluster sampling.

3. Cluster Sampling (Area Sampling)

• **Definition:** A **group of units (clusters)** is selected instead of individual elements.

• **Common Clusters:**

- **Geographical areas** (e.g., city blocks, neighborhoods).
- **Group membership** (e.g., clubs, organizations).

• **Process:**

- List all available clusters.
- Number them.
- Randomly select clusters.
- Choose **all units within selected clusters** or **sub-sample from clusters**.

• **Pros: Cost-effective & convenient** for large-scale studies.

• **Cons:** Higher **sampling error** due to **similarity within clusters**.**Less representative** compared to stratified or random sampling.

4. Systematic Sampling

• **Definition:** Selects every **N/n-th** unit after a random starting point.

• **Process:**

- List all population units.
- Compute sampling interval **(N ÷ n)**.
- Randomly select the first unit.
- Select every **N/n-th** unit afterward.

• **Example:-** Population = **300**, Sample = **15**

- Interval = **300 ÷ 15 = 20**
- If first selection is **7**, the sample includes **7, 27, 47, ..., 297**.

• **Pros: More representative than simple random sampling** if data is **ordered properly**.

• **Cons:** If the **sampling interval coincides with patterns** in the data (e.g., every 20th unit is similar), it can introduce bias.

5. Multi-Stage (Combination) Sampling

• **Definition:** Combines **multiple sampling methods** in different stages.

• **Example:- First stage:** Divide India into **metro cities, Class A towns, and Class B towns**.

- **Second stage:** Choose a **stratified sample** based on **income & age**.
- **Third stage:** Select **households within selected towns** using systematic sampling.

• **Pros:** Ideal for **large-scale, national studies**; Ensures **diverse & representative sampling**.

• **Cons: Complex & resource-intensive**.

Non-Probability Sampling Techniques

1. Overview of Non-Probability Sampling

• Used when **probability sampling is difficult or infeasible**.

• **Key Limitation:** Selection bias is **unknown**, making it hard to assess accuracy.

• If **done carefully**, it can approximate probability sampling.

2. Types of Non-Probability Sampling

a. Quota Sampling *(Similar to Stratified Sampling, but without Random Selection)*

- Population is **divided into segments (strata)** like in stratified sampling.
- Sample is allocated to each stratum, but **respondents are selected non-randomly**.
- **Pros:** Faster & flexible; allows substitutes for unavailable respondents
- **Cons:** May introduce **bias** if field workers are not trained properly.

b. Judgement Sampling *(Researcher's Subjective Selection)*

- Researcher **chooses respondents based on personal judgment**.
- **Pros:** Quick selection in specialized cases.
- **Cons: Highly biased** and not replicable; different researchers may choose different samples.

c. Convenience Sampling *(Easiest & Fastest Method)*

- Respondents are **selected based on availability & ease**.
- **Examples:**

#Using students for a survey in a college town.
#Street interviews by TV reporters.
#Sampling employees from a single office building.

- **Pros:** Useful for **pre-testing questionnaires** or quick exploratory research.
- **Cons: Unrepresentative** of the target population.

d. Snowball Sampling *(Network-Based Sampling for Niche Groups)*

- Used when **target population is small or hard to locate**.
- **Process:** One respondent refers others, creating a **chain (snowball effect)**.
- **Examples:**

#Finding **Mercedes-Benz owners** by asking current owners.
#Identifying **golf players** through known contacts.

- **Pros:** Effective for **niche markets** or hard-to-reach populations.
- **Cons:** Not useful for **estimating sampling error**; may introduce bias.

Total Error in Sampling

1. Definition of Total Error

• **Total Error = Sampling Error + Non-Sampling Error**.

• **Sampling Error:** Can be estimated in **probability sampling**, but not in **non-probability sampling**.

• **Non-Sampling Error:** Caused by mistakes in data collection, entry, or processing.

2. Controlling Non-Sampling Errors

• Hire **trained field workers**.

• Use **qualified data entry personnel**.

• Implement **strict quality control procedures**.

3. Optimizing Total Error

• **Larger sample size reduces sampling error** but **increases cost & non-sampling errors**.

• Instead of blindly increasing sample size, aim for an **optimal balance** between **accuracy & cost**.