How Big Should Sample Size be?

- Example
  We have data \( y=(y_1,\ldots,y_N) \), where \( y \sim N(\mu,\sigma^2) \)

  We want to test
  \[ H_0: \mu = \theta \quad \text{vs} \quad H_1: \mu \neq \theta \]
  - Chosen significance level = \( \alpha = 0.01 \)
  - Test statistics
    \[
    z = \frac{\text{Mean}(Y) - \theta}{\text{Std. Dev.}(Y) / \sqrt{\text{Sample Size}}} = \sqrt{\text{Sample Size}} \frac{\text{Mean}(Y) - \theta}{\text{Std. Dev.}(Y)}
    \]
  - If \( |z| > 1.64 \), reject \( H_0 \)

How Big Should Sample Size be? (cont’d)

- An experiment collected \( N=100 \) observations, \( y_{N=100} \)
  assumed to be independently from \( N(\mu, 1) \)
- He wants to test
  \[ H_0: \mu = 0 \quad \text{vs} \quad H_1: \mu \neq 0 \]
- Current sample mean \( \bar{y}_{N=100} = 0.2 \).
  So, \( z_{N=100} = (0.2-0)/10 = 2 \)
- Pocock (1977) showed cut-off value under \( \alpha = 0.05 \), \( c = 2.18 \)
- Since \( z_{100} < c \), \( H_0 \) is not rejected.

  So, he decided to collect another 100 observations. Then, he computed \( z_{N=200} \).

  Could he reject \( H_0 \) eventually?

Business Concept Testing

- To evaluate feasibility of a business idea
- Two key decisions
  1. How to communicate the concept
  2. The data to collect from respondents
- Respondents
  - Potential target customers
  - Other important players (e.g., possible channel members)
Measures

– Primary
  • Intended purchase measures
  • Overall product diagnostics
  • Special attribute diagnostics
  • Respondents profiling variables

– Secondary
  • Open-ended “reason why”

How to Present A Business Concept?

• Use simple written statement on the business concept (possibly with visual stimuli)
  – A short statement of the core product concept
  – Alternatively, a vivid story board

Your Task

• Develop a research plan for concept testing of LINEPASS,
  • Objective
  • Respondents
  • Sample size
  • Method
  • Stimuli
  • Data
  • Measurement
  • Analysis
Market Entry Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass-Market Penetration</td>
<td>Successful pioneers (Netscape) Large entry scale, broad product line, high product quality</td>
</tr>
<tr>
<td>Niche Penetration</td>
<td>Successful fast followers (Microsoft) Larger entry scale than the pioneer, leapfrogging the pioneer with superior technology, quality and customer service</td>
</tr>
<tr>
<td>Late Entrant</td>
<td>Focus on peripheral target markets or niches</td>
</tr>
</tbody>
</table>
Market Entry Strategy for Pioneer

1. Mass Penetration
   Netscape

2. Niche Penetration

3. Focused Sequential Penetration
   Trakus

Situations Favoring Alternative Marketing Strategies for Pioneers

<table>
<thead>
<tr>
<th></th>
<th>Mass-Market Penetration</th>
<th>Focused Sequential Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market Characteristics</strong></td>
<td>large potential demand</td>
<td>large potential demand</td>
</tr>
<tr>
<td></td>
<td>homogeneous customer needs</td>
<td>fragmented market</td>
</tr>
<tr>
<td></td>
<td>short diffusion process</td>
<td>relatively longer diffusion process</td>
</tr>
<tr>
<td><strong>Product Characteristics</strong></td>
<td>difficult to copy</td>
<td>easily copied or adopted</td>
</tr>
<tr>
<td></td>
<td>limited sources of supply</td>
<td>many sources of supply</td>
</tr>
<tr>
<td></td>
<td>complex production process</td>
<td>relatively simple production process</td>
</tr>
<tr>
<td><strong>Competitor Characteristics</strong></td>
<td>few potential competitors</td>
<td>many potential competitors</td>
</tr>
<tr>
<td></td>
<td>few sources of differential advantage</td>
<td>many possible sources of differential advantage</td>
</tr>
<tr>
<td><strong>Firm Characteristics</strong></td>
<td>strong product engineering skills</td>
<td>limited product engineering skills</td>
</tr>
<tr>
<td></td>
<td>strong marketing skills and resources</td>
<td>and resources</td>
</tr>
<tr>
<td></td>
<td>sufficient financial and organizational resources</td>
<td>insufficient financial and organizational resources</td>
</tr>
</tbody>
</table>

Strategic Objectives

<table>
<thead>
<tr>
<th></th>
<th>Mass-Market Penetration</th>
<th>Focused Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short-term</strong></td>
<td>Maximize number of adopters in total market</td>
<td>Maximize number of adopters in initial target segment</td>
</tr>
<tr>
<td></td>
<td>Invest heavily to build future volume and share</td>
<td>Limited investment to build volume and share in chosen initial niche</td>
</tr>
<tr>
<td><strong>Intermediate-term</strong></td>
<td>Attempt to preempt competition</td>
<td>Maintain leading share position in target segment even if some sacrifice of margins is necessary in short terms as new competitors enter</td>
</tr>
<tr>
<td></td>
<td>Maintain leading market position even if some sacrifice of margins is necessary in short terms as new competitors enter</td>
<td>Accumulate resources and experience from initial niche and utilize them to penetrate other segments</td>
</tr>
<tr>
<td><strong>Long-term</strong></td>
<td>Maximize ROI</td>
<td>Maximize ROI</td>
</tr>
</tbody>
</table>
EPILOGUE

• In January 1995, McCaw invested $5 million in Wildfire and obtained 12.5% of the company’s shares
  – Mutually non-exclusive collaboration for Network Wildfire
  – McCaw placed an order for a 500-user prototype
  – Planned to scale up a 500-user prototype Network Wildfire to a 1,500 user system by the end of 1996.
• In July 2000, Wildfire was acquired for about $142 million by Orange Telecommunications, a subsidiary of France Telecom.
• Currently, Wildfire is focusing on Network and Corporate systems.

• Entrepreneurs do not have sufficient information
  – Lots of missing information
  – Many hypothesis
• However, it is crucial to make on-line correction of initial plan over time.
• Entrepreneurs need to gather critical information in order to make correct on-line correction of plan.
  – Fill missing information
  – Test hypothesis
• Wildfire’s decision on line-of-business highlights the need of obtaining critical information for its on-line correction of plan.
• Wildfire case also highlights the importance of partnership in order to overcome the problem of limited resources.