MY JOURNEY

Education

Duke University

Field of Study

Engineering Management (M.E.)

Career Aspirations

Researcher

Applied Mathematics (B.S.)

 Programmer

Engineer

RIT

Applied Mathematics (B.S.)

Engineer

Researcher
BACKGROUND INFORMATION

KJT Group is an evidence-based research and consulting firm focused on guiding life sciences clients to uncover insights that enhance their strategies and execution.

Core Industries Served:
- Medical Device & Equipment Manufacturers
- Pharmaceutical & Biotech Companies
- Leading Medical Supply & Equipment Distributors
- Healthcare Systems & Payers
- Professional Associations & Health Advocacy Groups

My Role: Research Associate
WHEN YOU THINK OF MARKET RESEARCH, WHAT COMES IN MIND?
WHAT OCCURS IN MARKET RESEARCH?

All professional market research is *primary* except for meta-analysis projects.

<table>
<thead>
<tr>
<th>Qualitative Analysis</th>
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<tbody>
<tr>
<td>• HealthcareEthnography</td>
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<tr>
<td>• Market Dynamics &amp; Competitive Intelligence</td>
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<tr>
<td>• Message &amp; Concept Development</td>
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<tr>
<td>• Usability Testing</td>
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<tr>
<td>• Unmet Needs Exploration</td>
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<tr>
<td>• New Product Development &amp; Assessment</td>
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<tr>
<td>• Brand Positioning</td>
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<tr>
<td>• Attitudes, Usage &amp; Decision-Making</td>
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<tr>
<td>• New Market Exploration</td>
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<table>
<thead>
<tr>
<th>Quantitative Analysis</th>
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<tbody>
<tr>
<td>• Pricing Research</td>
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<tr>
<td>• Market Segmentation</td>
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<tr>
<td>• Brand Positioning</td>
</tr>
<tr>
<td>• Market Assessment &amp; Forecasting Research</td>
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<tr>
<td>• Customer Satisfaction / Loyalty</td>
</tr>
<tr>
<td>• Market Dynamics Management</td>
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<tr>
<td>• Opportunity Potential Analysis</td>
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<tr>
<td>• Product Feature and Attribute Optimization</td>
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</tbody>
</table>
CREATION OF MARKET RESEARCH SURVEY

Research

Operations

Survey

Field Operations
PROJECT LIFE CYCLE

**Preparation**
- Sales Proposal
- Networking

**Observation**
- Project Approval
- Questionnaire or Other Data Collection Tool
  - Approved by client
  - Discussion guide for qualitative application
  - Questionnaire for quantitative application

**Incubation**
- Questionnaire or Other Data Collection Tool
  - Quantitative
    - DP Form
    - Upload to STATA
  - Qualitative
    - Special method as needed

**Illumination**
- Data Collection
- Final PowerPoint Report
  - Analysis of data collection

**Validation**
EXAMPLE PROCESS – QUANTITATIVE SURVEY

- Create questionnaire ("QNR") Word document
- QNR submitted to Operations ("OPs") for conversion into online survey
- Extensive internal survey testing
- Feedback and revisions between Research and Ops
- Client approval and/or feedback
- Translations (if needed)
- Work with Field Ops to define target groups
- Feedback collection with a sample of prospective survey participants (TAPI)
- Release survey to select participants for data collection
QUESTIONNAIRE – SYNTAX

The syntax of a QNR revolves around:

- The **base**, which is located directly above a question, and
- The **programming note (‘PN’)** which is located directly below the same question

Both the base and the PN hold specific instructions for OPs to execute

- Those instructions are hidden from survey participants
- Those instructions resemble a pseudo-programming language – a placeholder for actual programming
Examples of the most common commands within the base/PN syntax are as follow:

**Base Section**

“*If*”
- Although this can be found in the PN section, it is especially frequently used within bases.

“*SE*” or “*NOT*”
- “*SE*” refers to “all except” in the case of a multi-response, multiple-choice question while “*NOT*” refers to a non-response for a specific selection of a multi-response, multiple-choice question.

**Programming Note ("PN") Section**

“*JUMP TO*” or “*SKIP TO*”
- This command typically provides a divergence to subsequently different questions in the form of multiple paths for the participants to take, depending on their responses on previous questions.

“*TERMINATE*”
- This command is typically found in just the PN since it can filter the participant if the question’s output proves to be unsatisfactory. This is often found in the screener, but can be found throughout the survey as well.
HAS BEEN IN PRACTICE FOR 2-30 YEARS (S25/2-30)

S30 Which of the following best describes your primary medical specialty?

[ALPHA ORDER]
1. Primary Care/General/Family Practice
2. Internal Medicine
3. Immunology
4. Interventional Cardiology
5. General Cardiology
96. Other, please specify: ________  [ANCHOR]

[IF PRIMARY MEDICAL SPECIALTY IS INTERVENTIONAL CARDIOLOGY (S30/4), ASK S35. ALL ELSE TERMINATE.]

PRIMARY MEDICAL SPECIALTY IS INTERVENTIONAL CARDIOLOGY (S30/4)

S35 Which of the following best describes your current title, beyond “Interventional Cardiologist”?

[RANDOMIZE]
1. Director/Chief of Cardiology
2. Director of Cath Lab
3. Consultant Interventional Cardiologist
4. Chief Medical Officer/Chief of Medicine (CMO)
96. Other, please specify:_________  [ANCHOR]
97. None of the above  [ANCHOR, EXCLUSIVE]
ALL QUALIFIED RESPONDENTS (S100/1-3)

Q210 What are the 3 greatest challenges you are facing in your PCI practice today?

Please enter one response in each of the text boxes shown below.

[MANDATORY INSERT TEXT BOX]
[NON-MANDATORY INSERT TEXT BOX]
[NON-MANDATORY INSERT TEXT BOX]

[IF USES IVUS (S40/1 OR 2), ASK Q220. ELSE, JUMP TO SECTION 300A.]

USES IVUS (S40/1-2)

Q220 You mentioned you personally perform [INSERT S45 RESPONSE] Coronary Catheterization procedures in a typical month. For how many of those procedures do you use IVUS?

[RANGE: 1-S45; IF S40/1 AND/OR S40/2 ARE SELECTED RESPONSE MUST BE GREATER THAN 0.]

1. Coronary Catheterization procedures for which I use IVUS in a typical month: |__|__|__|
QUESTIONNAIRE – VISUALIZATION

(S5) ——— (S10) ——— (S15) ——— (Q300)

(Q200) ——— (Q205) ——— (S210) ——— (Q215)

(Q220) ——— (Q221) ——— (Q225) ——— (Q230) ——— (Q235)
VERBATIM OUTPUT FROM QNR

2 types of verbatim output from QNR:

- Open-ended (“OE”)
- Other-specify (“OS”)

Combining verbatim data with quantitative (multiple-choice) survey data is one of the most challenging aspects of survey designing.
DATA CHECKING

- DP form
- Verbatim (Coding)
- Excel Tables
- QNR
- PPT Report
- STATA
DATA CHECKING METHODOLOGY

1st Phase

- DP form
- Excel table checking
- STATA
- QNR

2nd Phase

- Verbatim file
- Excel table checking (including coding)
- Code frame
- Excel tables
- STATA

3rd Phase

- Excel tables
- Final report checking
- STATA
So where does math play a factor in market research?

- Pseudo-programming questionnaires
- Analytical software (i.e. STATA)
- Basic statistics
  - Testing level of significance
  - Hypothesis testing
  - P-value
  - Confidence interval
- Excel computations
  - Loyalty quotient
  - Net promoter score (NPS)
**LOYALTY QUOTIENT**

The *Loyalty Quotient* represents the proportion of physicians who report they will prescribe to their next patient the same brand they prescribed to their most recent patient.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Loyalty Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruton (n=30)</td>
<td>70%</td>
</tr>
<tr>
<td>Valium (n=36)</td>
<td>75%</td>
</tr>
</tbody>
</table>
NET PROMOTER SCORE (NPS)

11-point scale
MMS Total Net-Promoter Score
NPS = Promoters – Detractors
32% = 47% – 15%

Using a scale where “0” indicates “not a barrier at all” and “10” indicates “a substantial barrier,” please rate the following based on the degree to which you are likely to adopt the brand.

Not likely
0
1
2
3
4
5
6
7
8
9
10

Very likely

Detractors
Passives
Promoters
STATISTICS IN MARKET RESEARCH

• When incorporating data in the final report, trends that appear to tell a story are not necessarily included. It must first pass the level of significance test.

• Data sets are identified in alphabetic order (i.e., A, B, C). If A demonstrates a significant difference with C, A is tagged with C and vice-versa.

• To ensure accuracy of the level of significance, data comparisons must have a p-value of 0.05 (5%) or less. P-value is the lowest possible level of significance (i.e. error) in which the null hypothesis would be rejected.

• To perform testing for levels of significance, Excel tools are typically used.
# STATISTICS IN MARKET RESEARCH

## Statistical Significance Test

<table>
<thead>
<tr>
<th>Test Type (Enter 1 for %; 2 for Mean):</th>
<th>1</th>
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<tbody>
<tr>
<td>Confidence Level (Enter 90 or 95%):</td>
<td>95 %</td>
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### Input Range:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>Sample Size</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>150.00</td>
<td>150.00</td>
<td>150.00</td>
<td>200</td>
<td>300</td>
<td>350</td>
<td>400</td>
<td>450</td>
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<tr>
<td>34.00</td>
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<td>4</td>
<td>7</td>
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<tr>
<th>bfg</th>
<th>fgh</th>
<th>bfg</th>
<th>hgh</th>
<th>abc</th>
<th>fgh</th>
<th>bfg</th>
<th>hgh</th>
<th>Results</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>fgh</td>
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WHAT SKILLS ARE NEEDED IN MARKET RESEARCH?

- Attention to details
- Qualitative capability for questionnaire design
- Quantitative capability for numerical analysis
- Efficient time management
JOBS IN MARKET RESEARCH

- Research Assistant/Associate/Manager
- Field Associate
- Consultant
- Programmer/Operations
Any Questions?