

Sustainable Technology Entrepreneurship for Scientists and Engineers

MECH/AREC 581a2

The Marketing and Sales Plan
April 13, 2011
Rick Turley

Definition of Marketing

Getting the right message to the right customer segment via the appropriate media and methods.¹

¹Technology Ventures, Byers, Dorf & Nelson

Marketing is the sum total of activities that keep a company focused on its customers.²

²The Portable MBA in Marketing,
Hiam & Schewe

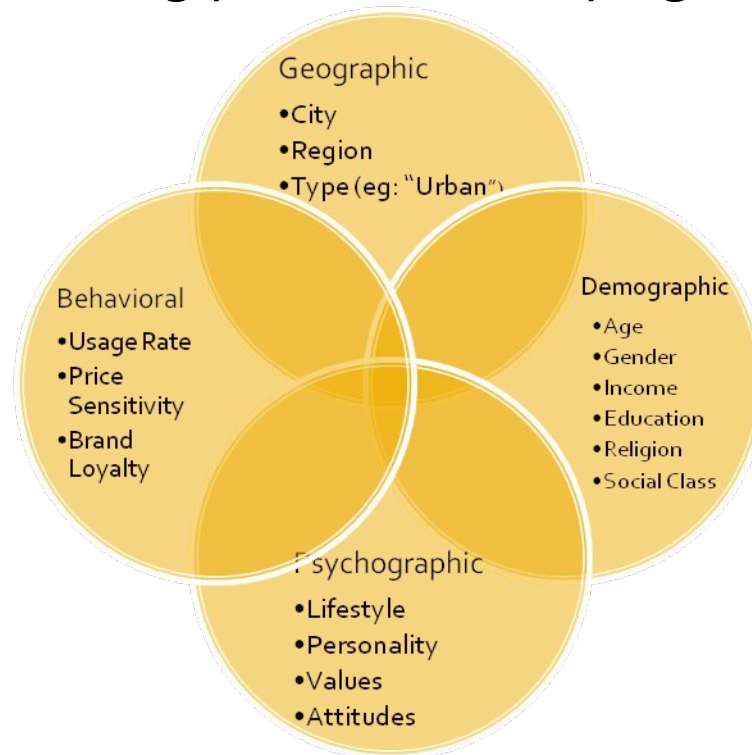
Definition of Market[†]

- A set of actual or potential customers,
- For a given set of products or services,
- Who have a common set of needs or wants, and
- Who reference each other when making a buying decision.

[†]Crossing the Chasm, Geoffrey A. Moore, Harper Collins, 1991, p. 28.

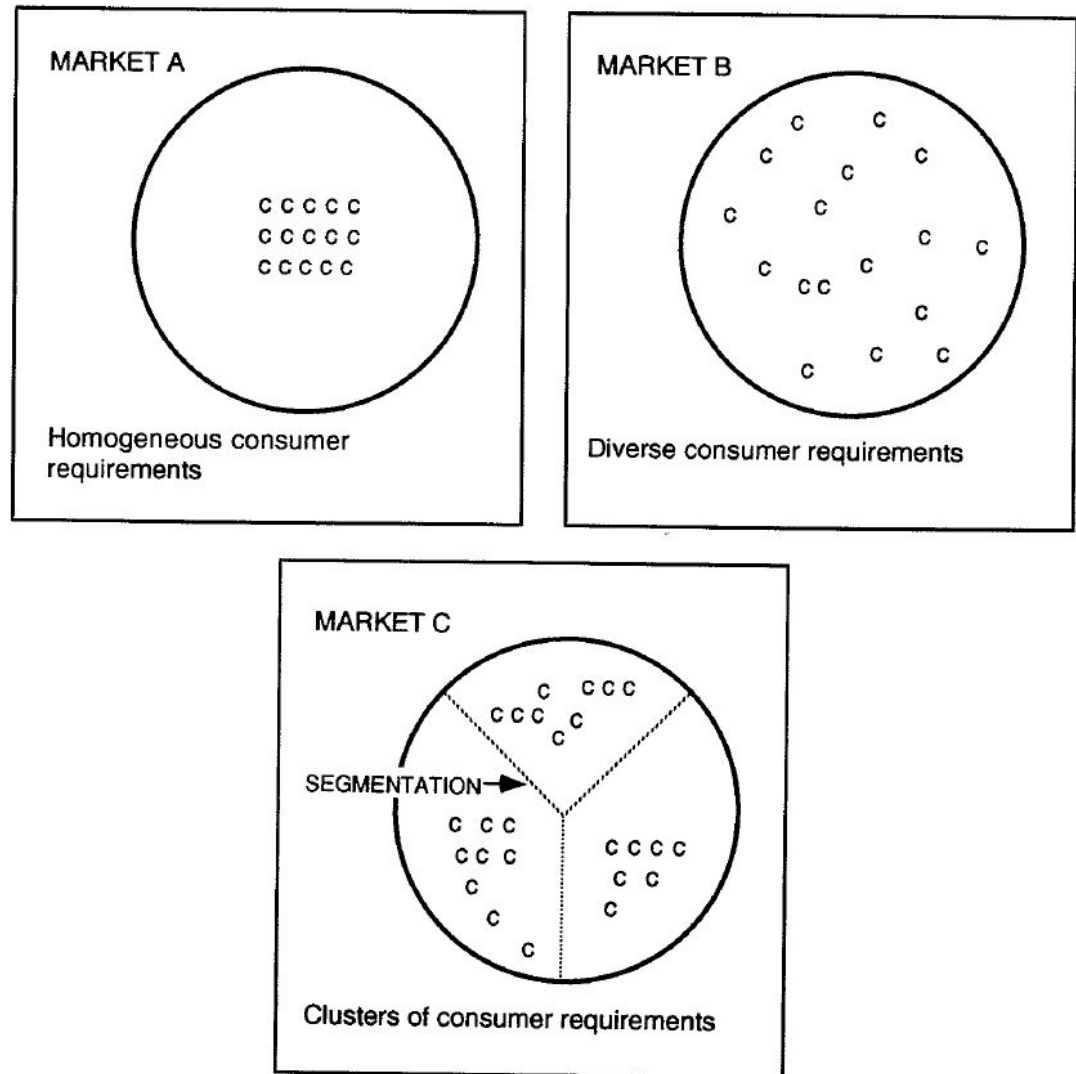
Market Segment[†]

“Consists of a group with similar needs or wants who reference each other and may include geographic location, purchasing power, and buying habits.”



[†]Technology Ventures, Byers, Dorf, & Nelson, p. 253.

EXHIBIT 8.1. Basic product preference patterns.



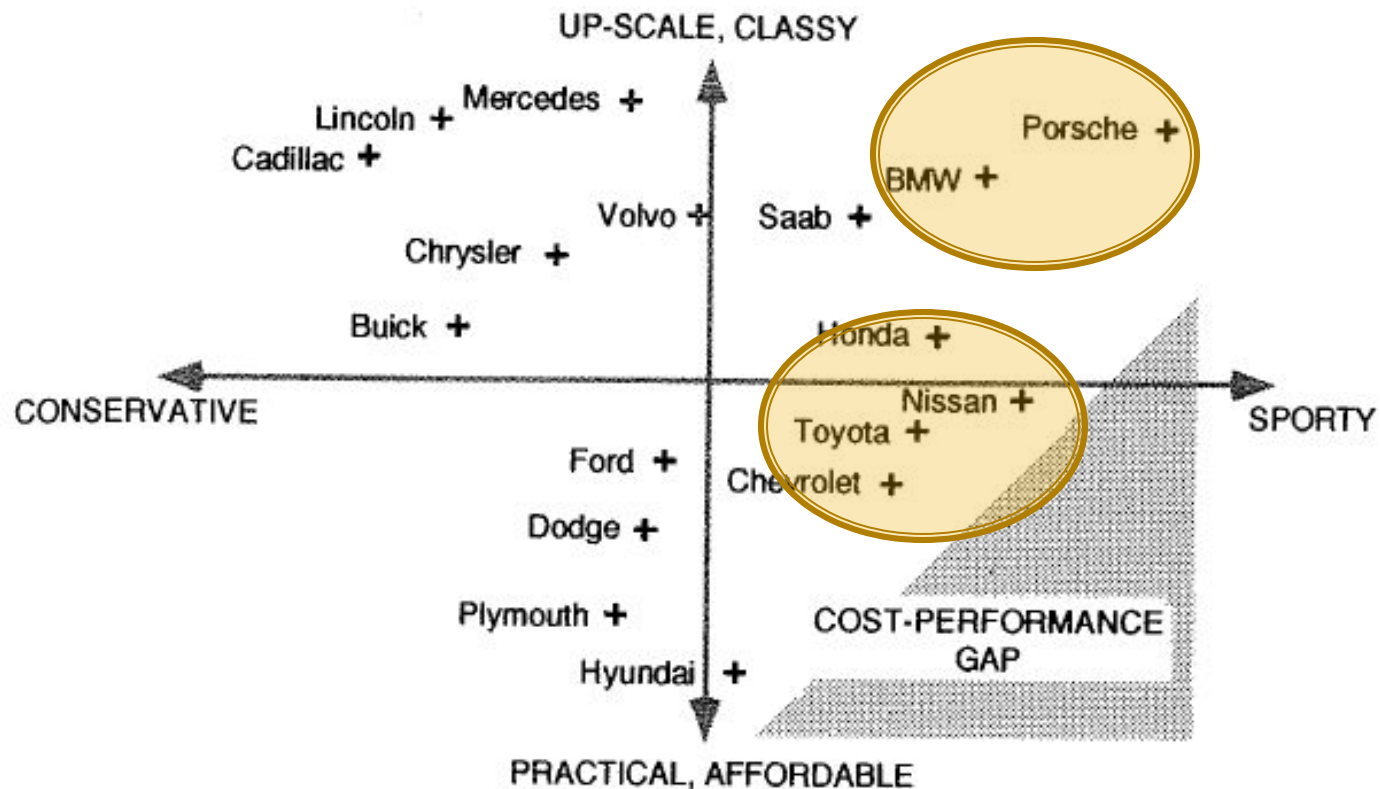
- Market Segmentation Examples

Characteristics of Market Segment

- Measurable
- Accessible
- Different
- Durable
- Substantial
- *Illustrates Addressed and Unaddressed Market Segments*

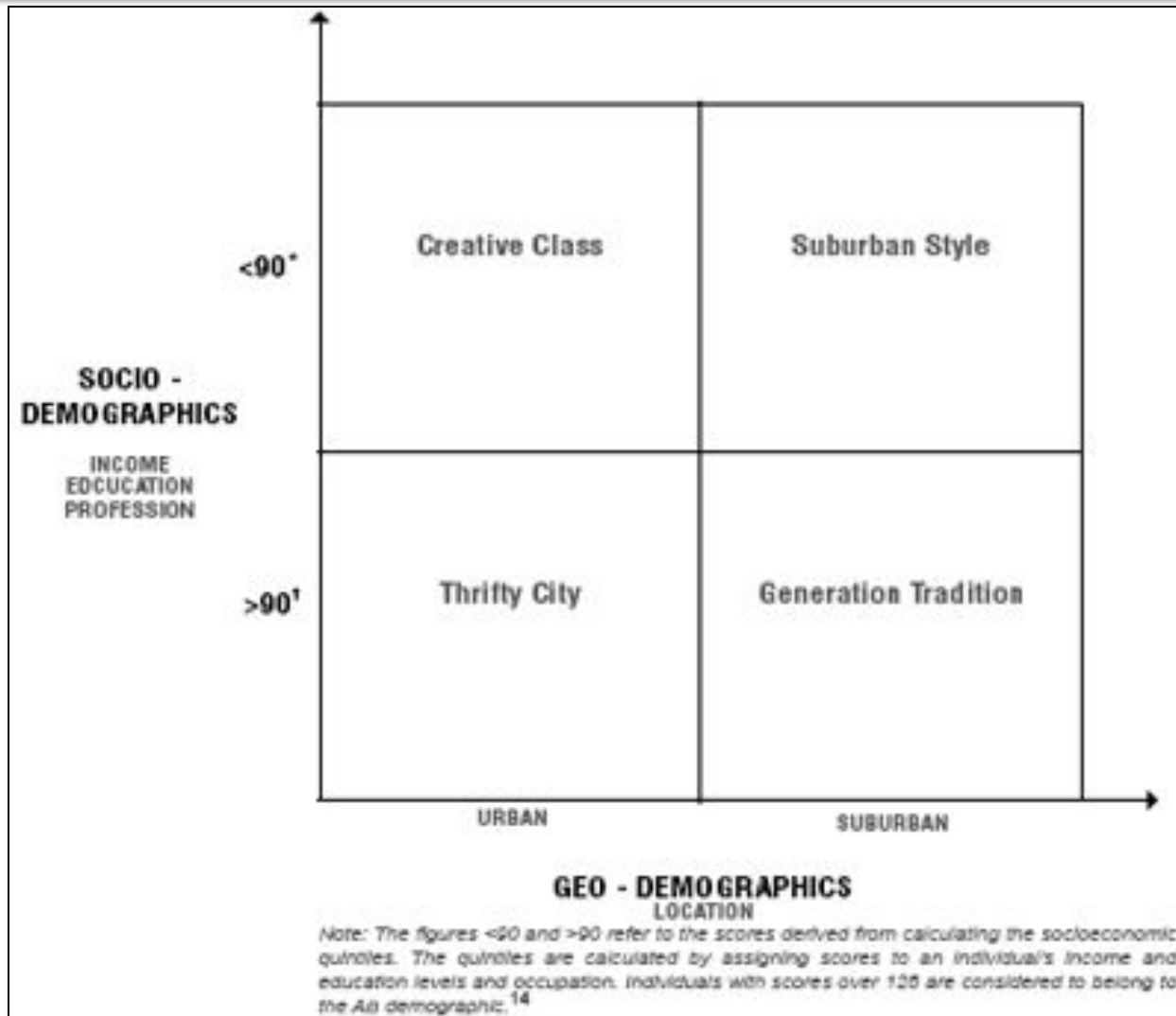
Segment along multiple axes...

EXHIBIT 8.6. Perceptual map of brand images.



†The Portable MBA in Marketing, Hiam & Schewe, p. 227.

Segmentation Examples...



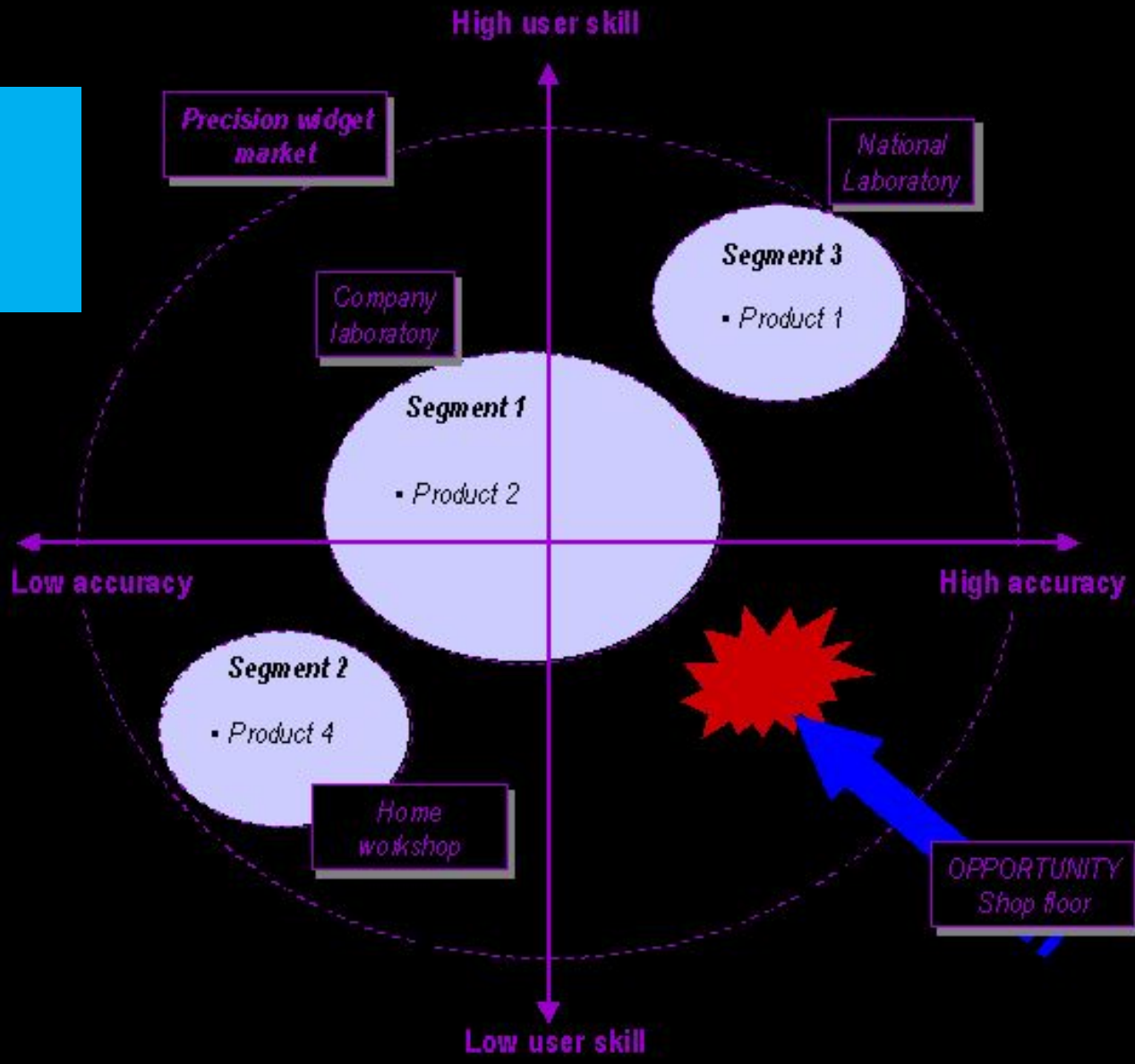
Name your segments

An overview of the groups of information and communication technology users

	% of general population	Median age	Number of IT devices (of 8)	% with broadband at home	What you need to know about them
Omnivores	8%	28	6.0	89%	They have the most information gadgets and services, which they use voraciously to participate in cyberspace and express themselves online and do a range of Web 2.0 activities such as blogging or managing their own Web pages.
Connectors	7%	38	5.0	86	Between featured-packed cell phones and frequent online use, they connect to people and manage digital content using ICTs – all with high levels of satisfaction about how ICTs let them work with community groups and pursue hobbies.
Lackluster Veterans	8%	40	4.1	77	They are frequent users of the internet and less avid about cell phones. They are not thrilled with ICT-enabled connectivity.
Productivity Enhancers	8%	40	4.3	71	They have strongly positive views about how technology lets them keep up with others, do their jobs, and learn new things.
Mobile Centrics	10%	32	3.9	37	They fully embrace the functionality of their cell phones. They use the internet, but not often, and like how ICTs connect them to others.
Connected But Hassled	10%	46	3.4	80	They have invested in a lot of technology, but they find the connectivity intrusive and information something of a burden.
Inexperienced Experimenters	8%	50	2.9	15	They occasionally take advantage of interactivity, but if they had more experience, they might do more with ICTs.
Light But Satisfied	15%	53	2.5	15	They have some technology, but it does not play a central role in their daily lives. They are satisfied with what ICTs do for them.
Indifferents	11%	47	2.0	12	Despite having either cell phones or online access, these users use ICTs only intermittently and find connectivity annoying.
Off the Network	15%	64	0.5	0	Those with neither cell phones nor internet connectivity tend to be older adults who are content with old media.

Source: Pew Internet & American Life Project April 2006 Survey. N=3,355 for internet and cell phone users. Margin of error is ±2%.

Illustrate addressed and unaddressed segments



Avoid
technology-centric
segmentation



VACUUM MARKET SEGMENTATION

<i>Rough Vacuum</i>	<i>Process Vacuum</i>	<i>Industrial Vacuum</i>	<i>Semiconductor Process Vacuum</i>	<i>Thin-Film Deposition (non-Semiconductor)</i>	<i>Instrumentation Manufacturers</i>	<i>R & D</i>
<u>Markets</u>	<u>Markets</u>	<u>Markets</u>	<u>Markets</u>	<u>Markets</u>	<u>Markets</u>	<u>Markets</u>
Packaging (except Food)	Chemical	Vacuum Metallurgy	Silicon Semiconductor	Glass/Web/Optical Coating	Mass Spectrometers	Universities
Central Vacuum	Petrochemical	Vacuum Heat Treatment	Compound Semiconductor	Data storage (CD, DVD, ..)	Electron Microscopes	Government Labs
Printing and Paper handling	Pharmaceutical	Laser Technology	TFT-LCD Displays	Thin Film Heads	Leak Detectors	Scientific Research Laboratories
Pick-up and Conveying	Plastics	Electron Tubes	MEMS	Surface Coating (wear protection, decorative, ..)	Surface Analysis	Space Simulation
Medical	Food	TV Tubes	Process Equipment	Display Coatings (OLED, FED, FDP..)	Gas Analysis	
	Beverage	Lamps and Bulbs	Manufacturers and End Users for PVD, CVD, Etching, Ion Implantation, MBE, Crystal Pulling, etc	Solar (Photovoltaics, Thermal)	Metrology/ Inspection/ Defect Review systems for Semiconductor	
	Textile	Industrial leak detection			Focused Ion Beam systems	
	Paper	Refrigeration and Air Conditioning			Electron Beam systems	
	Ceramics	Automotive (Dehydration Charging and Test)			X-Ray Analysis	
	Freeze drying				MRI and NMR	
	Power					
Typical Operating Pressure (mbar)						
> 1	$> 10^{-2}$	$10^{-2} - 10^{-6}$	$1 - 10^{-8}$	$10^{-3} - 10^{-9}$	$10^{-6} - 10^{-10}$	$10^{-2} - 10^{-11}$

CD:	Compact Disk	MRI:	Magnetic Resonance Imaging
CVD:	Chemical Vapour Deposition	NMR:	Nuclear Magnetic Resonance
DVD:	Digital Video Disk	OLED:	Organic Light Emitting Diode(or OLED: Organic Electro Luminescent Display)
FED:	Field Emission Display	PDP:	Plasma Display Panel
MBE:	Molecular Beam Epitaxy	PVD:	Physical Vapour Deposition
MEMS:	Micro Electro Mechanical Systems	TFT-LCD:	Thin-Film Transistor Liquid Crystal Display

This Vacuum Market Segmentation Chart was developed by the Working Group of the International Statistics on Vacuum Technology Program, and is published with their permission. Organisations that participate in the program are the Association of Vacuum Equipment Manufacturers International (AVEM), the Japan Vacuum Industry Association (JVIA), the European Vacuum Technology Association (EVTA), and the Semiconductor Equipment and Materials International (SEMI).

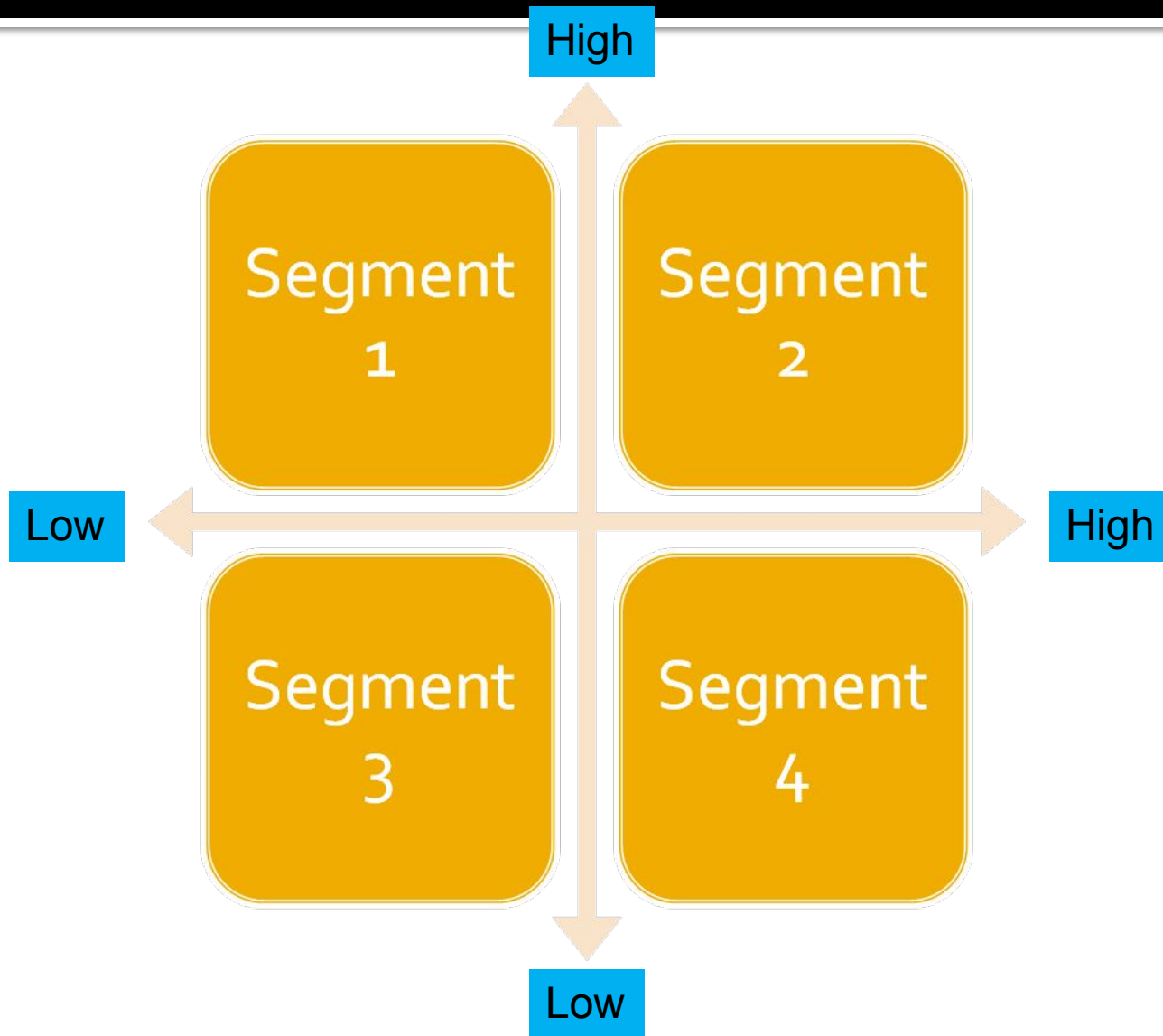
Please note: The EVTA Secretariat is held by VDMA.

Use Segmentation
to map other
characteristics

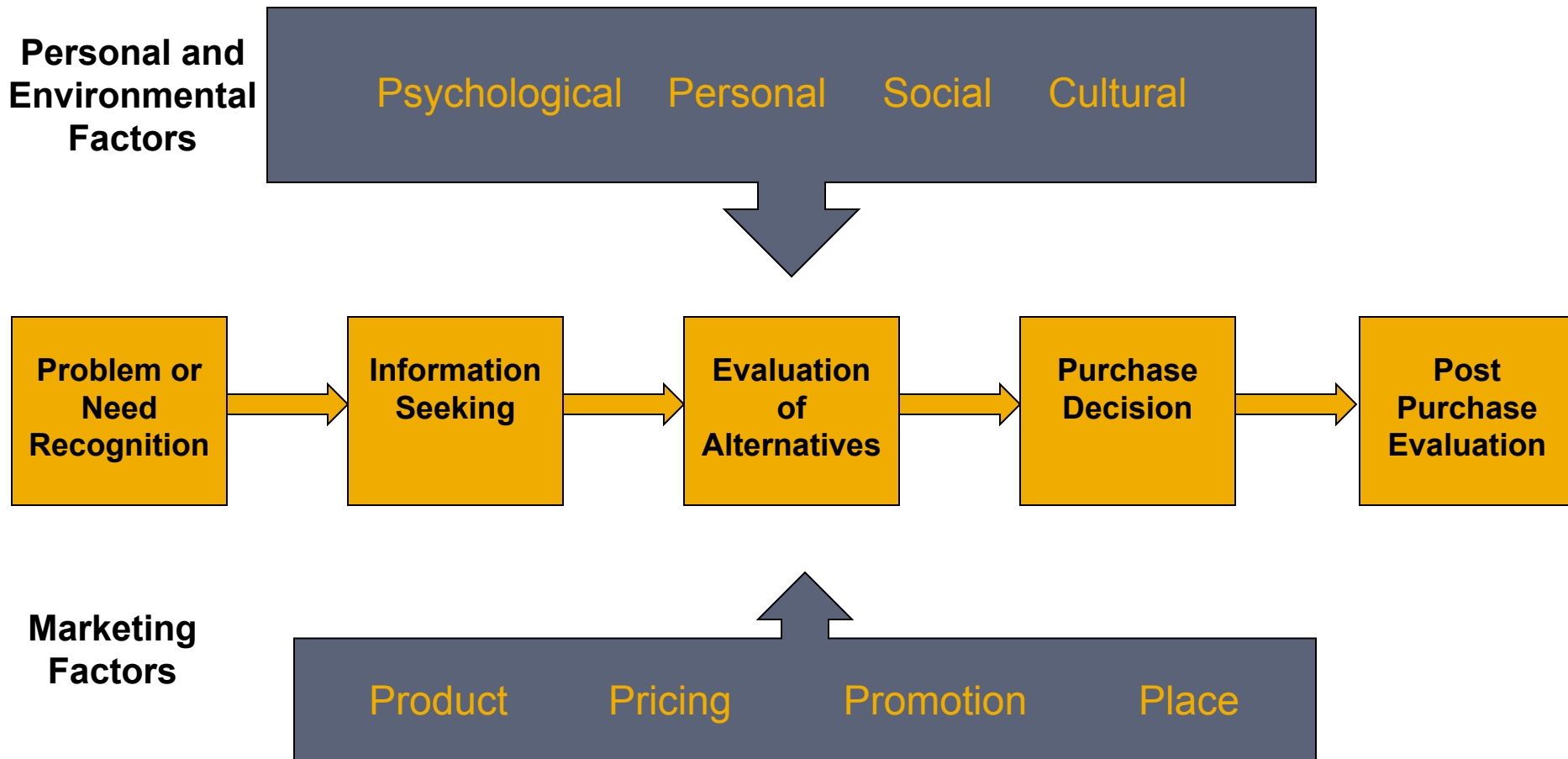
Market Segmentation and Strategy

Municipalities	Regional Pioneers	Dominant Defenders	Innovative Challengers	Rabbits
Cities/Partners Implementing WiFi/WiMAX Broadband Networks	Green Field Implementation of Broadband Services in Emerging Markets	Defensive Incumbent Telcos with Wireless	Converged Incumbent Telcos, Cablecos, DBS and ISPs offering Fixed/Nomadic wireless broadband & VoIP	Unpredictable new market entrants
Taipei, Taiwan Corpus Christi, TX Rhode Island Singapore	Wateen – Wireless fixed and nomadic broadband access in Pakistan	Telefonica FT/Orange DT/T-Mobile	BT Other incumbent telcos with no wireless play	Clearwire – US & Europe Covad - US Fixed/Nomadic wireless broadband, VoIP
Philadelphia Earthlink	Enforta - Russia	AT&T/BellSouth Verizon	Earthlink Wi-Fi Mesh Consumer Broadband Internet	Iberbanda – Telefonica Nomadic Wireless Broadband in Spain
San Francisco - Earthlink/Google Mt. View – Google Silicon Valley – IBM Chicago, Houston Nassau/Suffolk Co	Ghana Telecom Microcom	SK Telecom WiBro Network	Korea Telecom – WiBro KDDI Softbank	WiMAX Telecom Maxtel/Free and TDF - newly licensed French wireless broadband operators
Power Utilities Toronto Hydro National Grid	Reliance India	NTT and Docomo	Sprint Nextel CableCos Personal Broadband Mobility	Unwired Australia - fixed and nomadic broadband access in Australia
Portland, OR - Metrofi Springfield, IL - AT&T	ATCO Clearwire Jordan	KPN	DirectTV Echostar Personal Broadband for Triple Play	Power Utilities

Let's try it – Segment your Business



The Consumer Buying Process⁺



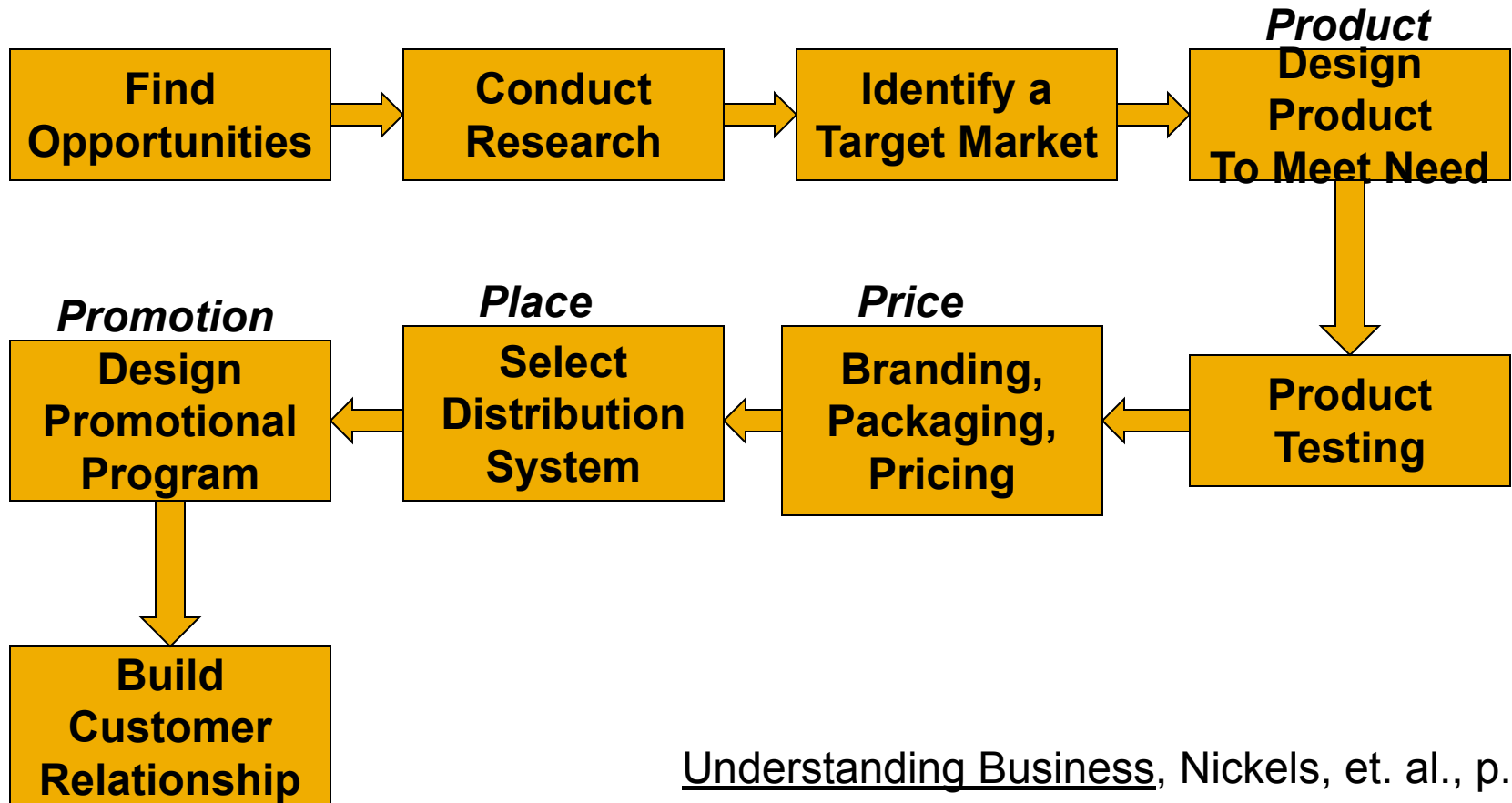
Process Managed using Customer Relationship Management (CRM)

The Marketing Mix

“The 4 P’s”

- Product
 - *A good, service, or idea designed to fill a consumer need or want*
 - *Product Differentiation: Creation of a feature or image that makes products differ enough from existing products to attract consumers*
 - *Unit, package, warranty, service, ...*
- Price
 - *Selecting the best price at which to sell a product*
 - *List price, discounts, credit terms, ...*
- Place
 - *Placing a product in the proper outlet for the consumer*
 - *Distribution & Channels*
- Promotion
 - *Communicating information about products*
 - *Advertising, Personal Selling, Sales Promotions, Public Relations*

Product Lifecycle



Understanding Business, Nickels, et. al., p. 403

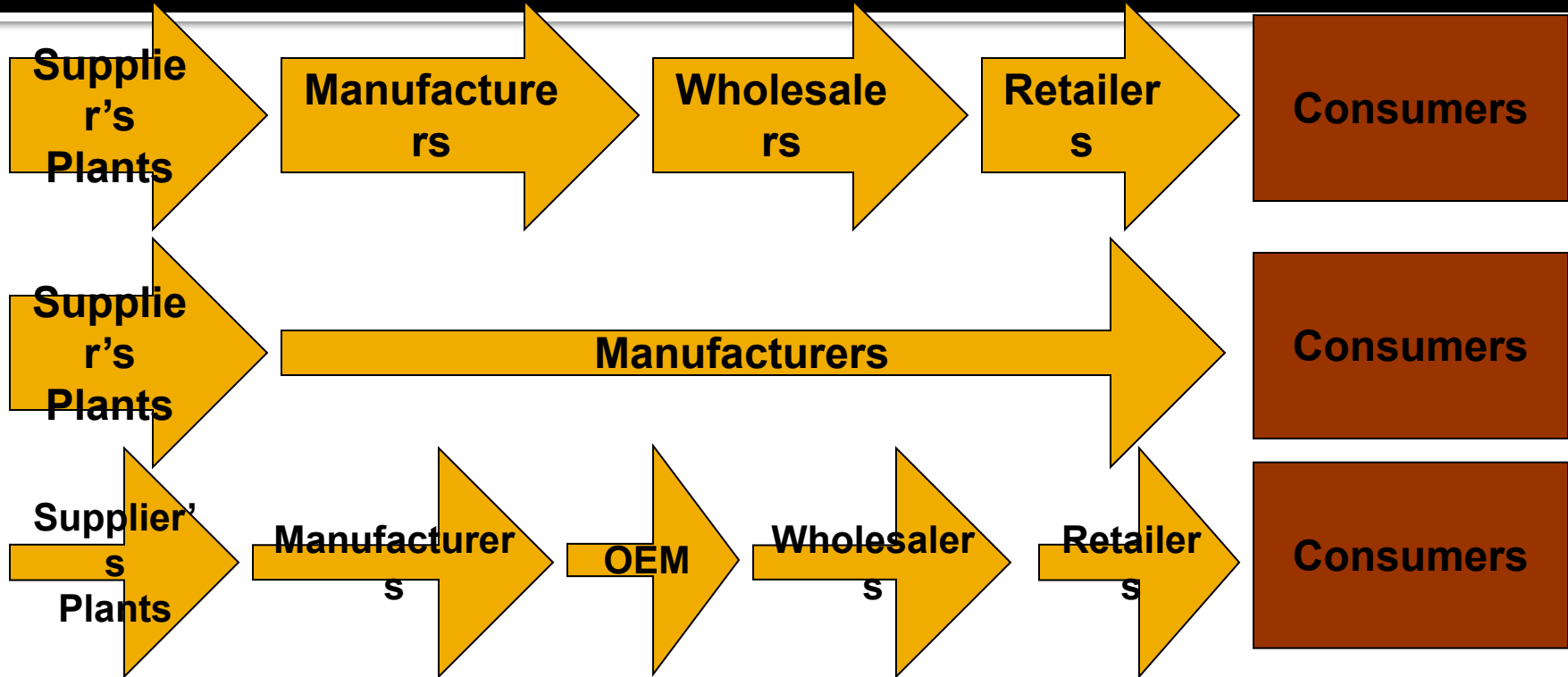
Pricing

- Pricing Methods
 - Cost-oriented (markup)
 - Breakeven
 - Market-driven
- Pricing Strategies
 - Above Market
 - At Market
 - Below Market
- Value
- Elasticity

Place

- Distribution Mix
 - Direct
 - Retail
 - Wholesale/Distribution
 - Brokers/Agents
 - OEM
- Intermediaries
- Wholesaler
- Retailer
- Supply Chain (Value Chain) Management

Distribution Models



- Multiple Channels
- Dealing with Channel Conflict
- Selling Models
 - Direct
 - ...

Promotion

- Positioning
- Target Audience
- Advertising
 - Media
 - Direct-mail
 - Internet
- Personal Selling
- Public Relations

Positioning – The Battle for Your Mind¹

“Positioning is not what you do to a product. Positioning is what you do to the mind of the prospect”

- Drivers Wanted
- Be all that you can be
- Knowledge to go places
- Make a Difference
- Just Do It
- Invent
- Have It Your Way

¹Positioning: The Battle for your Mind, Al Reis & Jack Trout

Market Research

“The process of gathering the information that serves as the basis for a sound marketing plan.”

	Primary	Secondary
Qualitative	Observations Key Customers Interview Focus Groups	Library Research
Quantitative	Surveys Experiment/Test Marketing	Marketing Research Companies

Sources of Information[†]

- Books & Periodicals
- Consultants & Research Firms
- Customers
- Friends inside your company
- Friends outside your company
- Grapevine
- Marketing Information System
- Marketing Research
- Other Managers
- Public Documents from Competitors
- Staff
- Subordinates
- Superiors
- Suppliers
- Often missed sources
 - Patent filings
 - Annual Reports
 - Employment Ads
 - Professional Association Meetings
 - Government Agencies
- Market Research must be...
 - Systematic
 - Objective
 - Useful
 - Specific
 - Decision Oriented

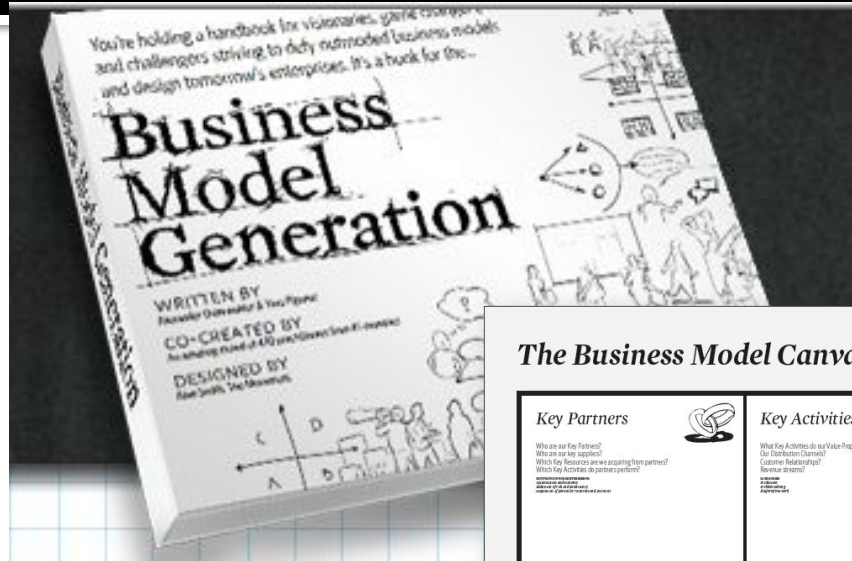
[†]The Portable MBA in Marketing, Hiam & Schewe, pp. 105-106.

Focus Groups



- Small Group from Target Market
- Discussion oriented
- “Qualitative” Research
- “Unanticipated” Input
- Use a “Prototype”

Tie it all Together with a Model













- Alex describing the tool on youtube: http://www.youtube.com/watch?v=dtfNsUP2AQQ&feature=player_embedded (8:12)

The Business Model Canvas

Designed for: _____ Designed by: _____

On: _____ Iteration: _____

<p>Key Partners</p>  <p>Who are our Key Partners? Who are our key suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform?</p> <p><small>Key Partnerships - Strategic alliances, joint ventures, co-opetition, etc.</small></p>	<p>Key Activities</p>  <p>What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p><small>Key Activities - Production, problem-solving, platform/network effects, etc.</small></p>	<p>Value Propositions</p>  <p>What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</p> <p><small>Value Propositions - New products, performance, convenience, customization, etc.</small></p>	<p>Customer Relationships</p>  <p>What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they?</p> <p><small>Customer Relationships - Personalized, self-service, automated, etc.</small></p>	<p>Customer Segments</p>  <p>For whom are we creating value? Who are our most important customers?</p> <p><small>Customer Segments - Mass, niche, etc.</small></p>
<p>Key Resources</p>  <p>What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p><small>Key Resources - Human, financial, intellectual, etc.</small></p>		<p>Channels</p>  <p>Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</p> <p><small>Channels - Direct, indirect, etc.</small></p>		<p>Revenue Streams</p>  <p>For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How much are they willing to pay? How much does each Revenue Stream contribute to overall revenues?</p> <p><small>Revenue Streams - Recurring, one-time, etc.</small></p>
<p>Cost Structure</p>  <p>What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive?</p> <p><small>Cost Structure - Fixed, variable, etc.</small></p>			<p>Revenue Streams</p>  <p>For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How much are they willing to pay? How much does each Revenue Stream contribute to overall revenues?</p> <p><small>Revenue Streams - Recurring, one-time, etc.</small></p>	

www.businessmodelgeneration.com

Forecasting

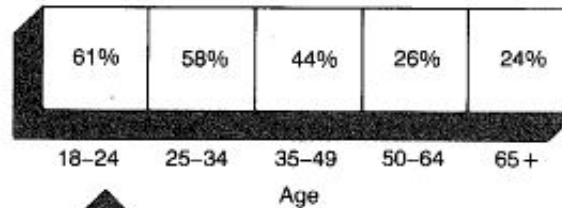
Prediction is very hard, especially about the future.

Yogi Berra

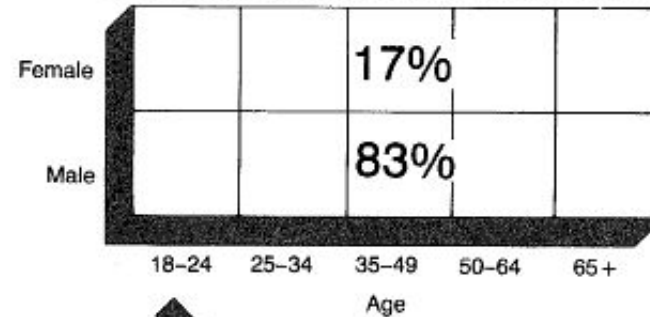
- Given your Target Market...
 - How many are there?
 - How many will buy?
 - What will be your share?
 - When will you get it?

EXHIBIT 8.5.

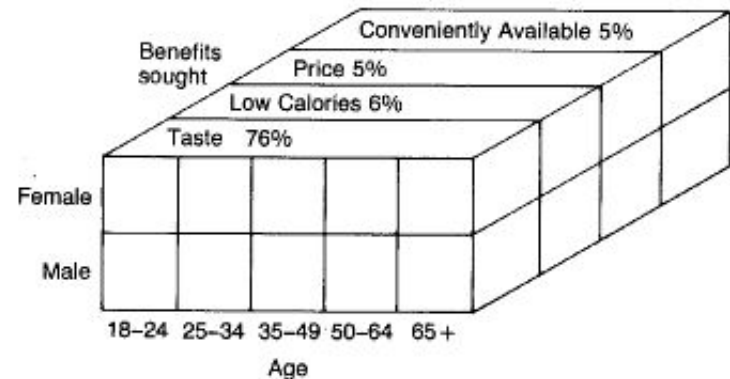
a. Percentage of age segments who drank beer in the past month



b. Percentage of men and women who drank beer in 1984



c. Percentage of men and women seeking various benefits



- Market Size Estimation
- Be wary of “% of a % of a %...” Estimates

Commonly used Forecasting Techniques[†]

- Simple Trend Analysis
- Market Share Analysis
- Test Marketing
- Market Buildup Factor
- Market Breakdown Approach
- Consumer Surveys and Panel Discussions
- Statistical Techniques
- Scenario Analysis
- Delphi Technique
- Jury of Executive Opinion
- Salespeople's Estimates
- Barometric Techniques
- Composite Methods

[†]The Portable MBA in Marketing, Hiam & Schewe, pp. 156-162.

How big is your market?

- Now
- 5 years from now
- By market segment