ENGR 113 ProductManagement
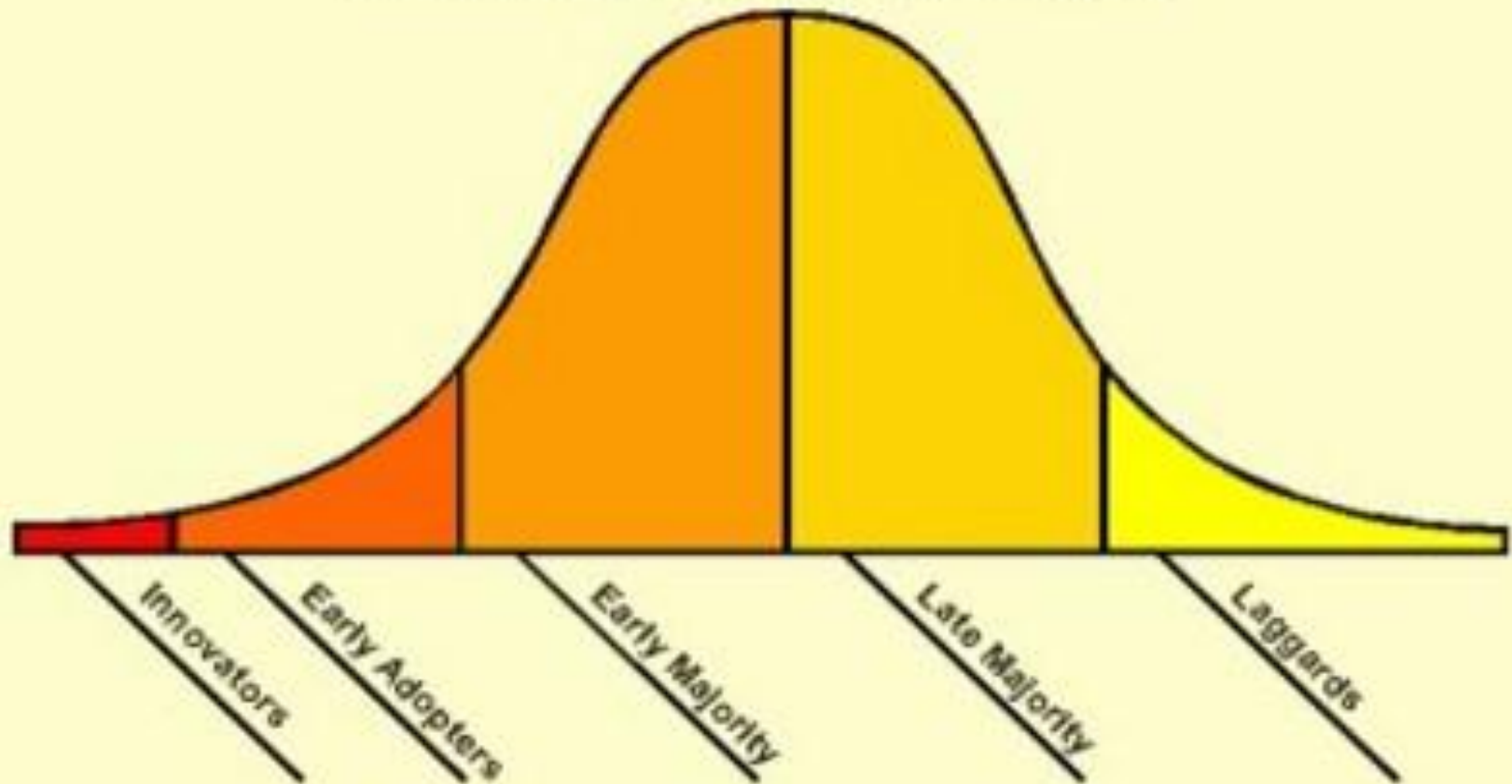
Establishing High Tech Businesses

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Crossing the Chasm

Topics:

- Technology Adoption Curve & the "Chasm"

- Market Segmentation

- Boling Pin Strategy

- Whole Product

- Competitive positioning

Technology Adoption Life Cycle

Innovators · Early Adopters · Early Majority · Late Majority · Laggards

Adopters cumulative through the phases of the adoption curve

Iowa Corn Research

1927 to 1941

Published 1943

"Diffusion of Innovations"
4th Edition, Rogers, pg 258

Figure 7–1. The Number of New Adopters Each Year, and the Cumulative Number of Adopters, of Hybrid Seed Corn in Two Iowa Communities
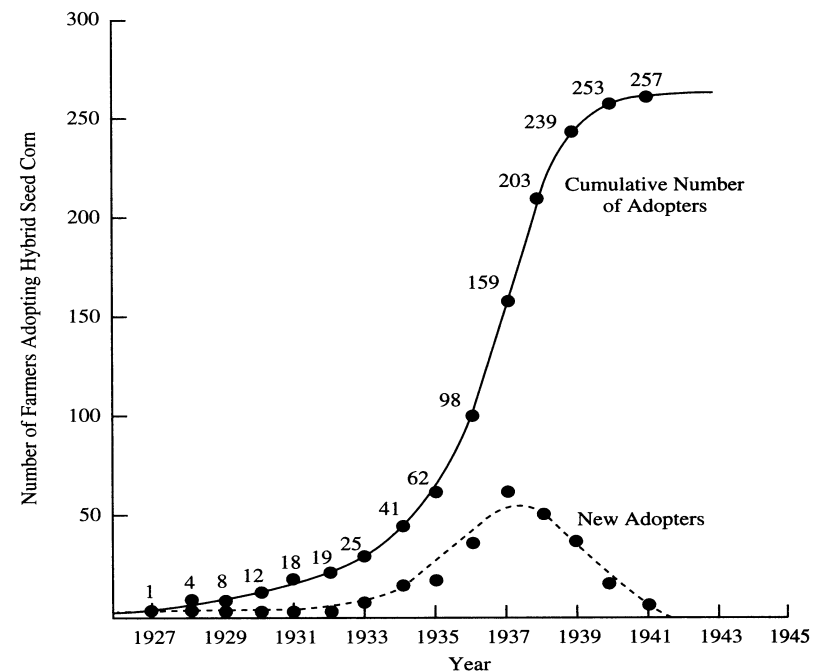
The cumulative number of adopters of hybrid seed corn approaches an S-shaped curve over time, while the frequency distribution of the number of mean adopters per year approaches a normal, bell-shaped curve.
Source: Based on Ryan and Gross (1943).

As a product matures they shift down the Technology adoption curve
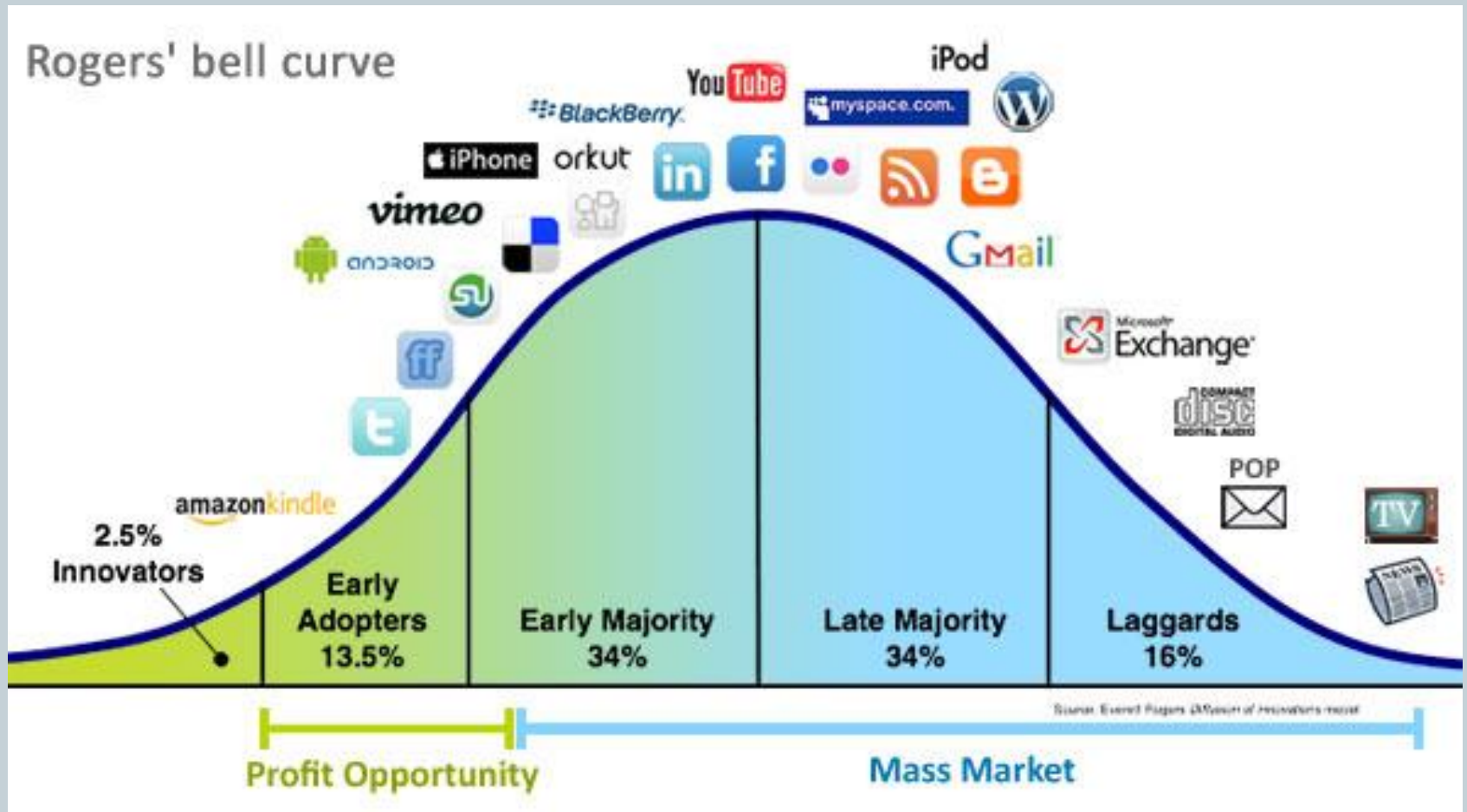
Innovators, Technology Enthusiasts, like to experiment with new technology

- First to buy
- Eager to learn – always want more information
- Tolerant to immature product, willing to offer suggestions
- Minimal buying power
- But they are gatekeepers!

"Technology Enthusiasts" will try imperfect products and can provide valuable feedback

- Product must be technically interesting
- Product must work functionally, but does not have to be perfect
- Minimum product support acceptable
- Want to talk with product developers – system architect, CTO, …
- Deliver papers at conferences
- Publish in technical journals

Early Adopters, Visionaries: follow innovators, smell out trends early

- Want new technology to dramatically improve their business in a strategic manner
- Focus on applications not technology
- Objective: improve business
- Use "Technology Enthusiasts' as their gatekeepers

"Visionaries" can be your champion

- Smart, ambitious, and willing to take risks
  - "Builders" not "maintainers"
- Willing to fund experimental project that tailor your product to improve their business
  - Valuable market knowledge
  - Support technology maturation and product development
  - But limited revenue, not the main market
- Demanding, champions

Visionaries must see the future vision

- Sell "dream", but relate directly to their business objective
- If the experiment works, they will be your best salesmen
- Price is secondary: they want responsiveness, competency, quick & on time delivery

Early Majority, Pragmatists: want things that work

- Practical, cautious, …
- More comfortable with evolutionary, not revolutionary products
- Want proven, established products
- New, risky technology does not excite them
- Live with their decisions for a long time
  - Not interested in "dreams"; they want "proofs"
- Attend their own industry specific seminars and conferences. They are well informed

Emphasize results with "Pragmatists"

- Proven product, based on standards
- Good reference from satisfied customers are important, preferably from their own vertical industry
- Buy from market leaders
- They understand the difficulties of product integration. Buy "whole product"!
- Want competition: lower prices, other vendor alternatives

Late Majority, Conservatives: follow when it's safe

- "Back side" of curve
- Significant opportunity for sales & profits
- Technology adverse; don't like change
- Want only mature whole products, fully packaged and supported….at a low price…
- Most technology products they buy are sold through retail distribution channels
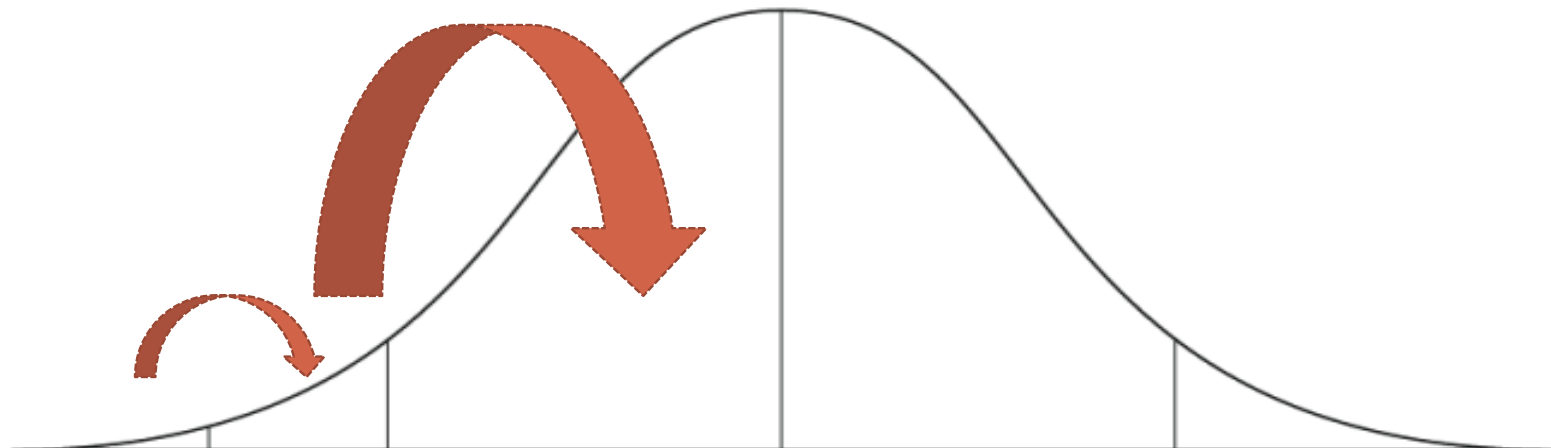
- **Don't buy technology unless they are forced to do so**
  - They believe "the billions of dollars invested in office automation have not improved the productivity of the office place an iota"
- **Don't waste your marketing dollar on them!**

Use the captured group as reference to with the next group!

The Technology Adoption Curve

As captured by Everett Rogers in his book Diffusion of Innovations, *people tend to adopt new technologies at varying rates. Their relative speed of adoption can be plotted as a normal distribution, with the primary differentiator being individuals' psychological disposition to new ideas.*

Innovators

(2.5%) are risk takers who have the resources and desire to try new things, even if they fail.

Early Adopters

(13.5%) are selective about which technologies they start using. They are considered the "one to check in with" for new information and reduce others' uncertainty about a new technology by adopting it.

Early Majority

(34%) take their time before adopting a new idea. They are willing to embrace a new technology as long as they understand how it fits with their lives.

Late Majority

(34%) adopt in reaction to peer pressure, emerging norms, or economic necessity. Most of the uncertainty around an idea must be resolved before they adopt.

Laggards

(16%) are traditional and make decisions based on past experience. They are often economically unable to take risks on new ideas.

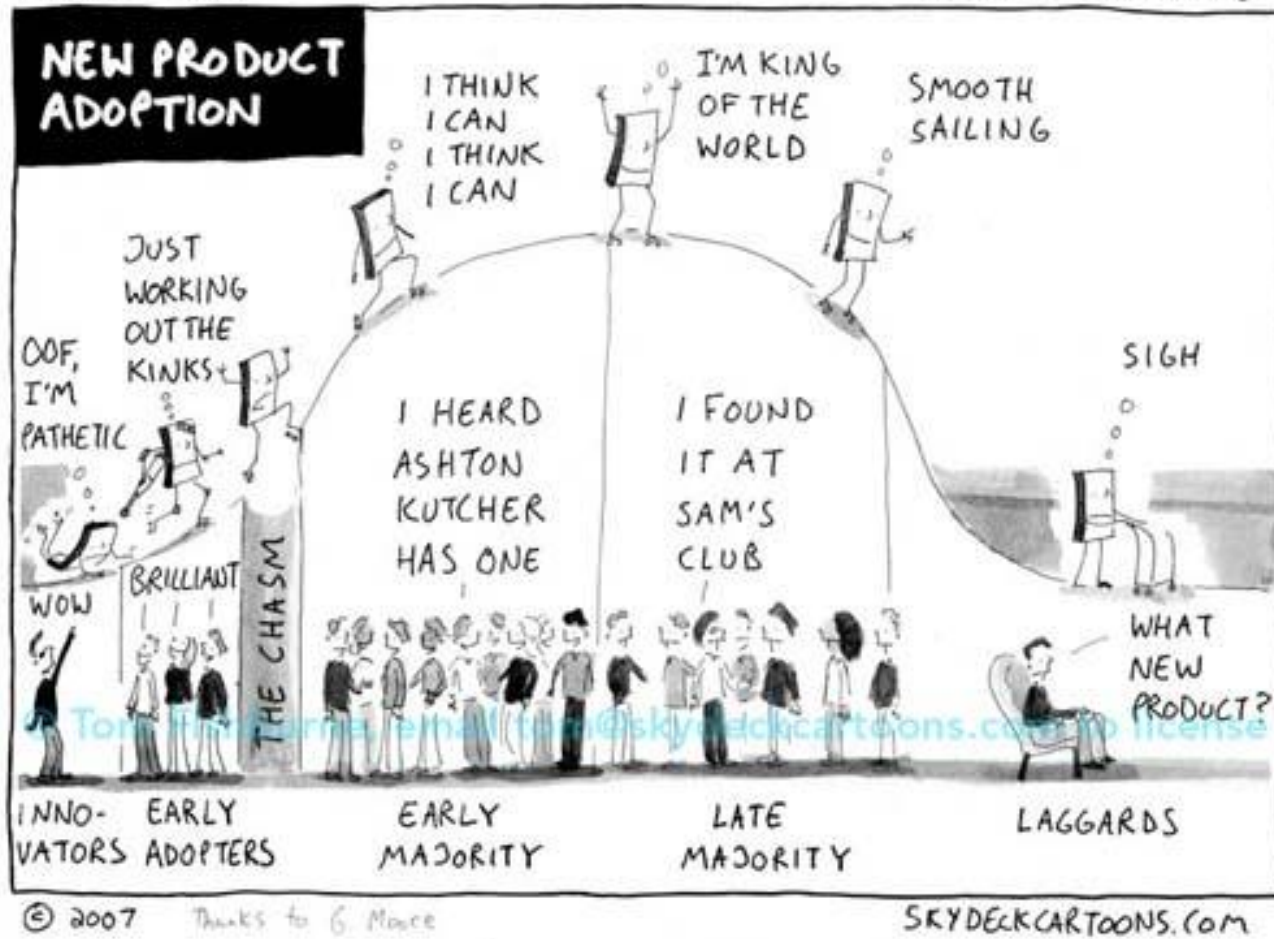# Visionaries and Pragmatists Don't Relate to Each Other

Visionaries

Pragmatics

Intro to Technology Adoption Curve

Time & process of adoption

That is the Chasm!

Must change marketing, product and sales strategies to sell pragmatists:

- Value proposition must change
- Product positioning must stress proven product; stable, solid, main stream, industry standard
- Whole product
- Sales tactics must change
  - Sales pitches, brochures, seminars, ads
- Have to reference other pragmatists

This is difficult for startup companies!

Moore's Chasm: Between Early Adopter & Early Majority

Focus on a target market with all energy

The strategy of D Day - Normandy Invasion:

"Concentrate an overwhelmingly superior force on a highly focused target. Gain control, and expand …"

The strategy of Crossing the Chasm:

"Focus an overabundance of support into a confined market. Dominate, and expand …"

Choosing a confined market = "Market segmentation"

Overabundance of support = "Whole product"

Market segment is a sub-group of customers

- Set of potential customers
- Who have similar needs
- Who <u>reference each</u> other when buying
- Are <u>alike</u> in the way they:
  - Perceive value
  - View & use products
  - Purchase products

US Housing Market Segments

- Apartments - Rental
- Condos
- Trailer homes
- Single family tract homes
- Custom built luxury homes

You are a real estate developer, does this market segmentation provide you useful information?

What if you are in home appliance business …?

Another example: Radar

- Ground based radar
- Airborne radar
  - Weather radar
  - Reconnaissance radar
  - Fire control radar
- Space based radar
- Automotive radar

No Ground based radar supplier has ever won a airborne radar contract, and vise versa!

Focus enables deeper understanding of customers

- Easier to understand customer needs
- Can design product to narrower set of customer needs
- Easier to become leader in smaller market (Big fish in small pond)
- More effective use of marketing dollars
- Generally more profitable

PIMS: Profit Impact of Marketing Strategies

- Originally a General Electric study
- Now the Strategic Planning Institute
- Studied 2600 business units since1960s
- Evaluated 28 factors related to ROI
- Determined the factor that most affected ROI was <u>market share</u>

Relationship between market share & Pretax ROI

SOURCE: Robert D. Buzzell and Frederik D. Wiersema, "Successful Share-Building Strategies," *Harvard Business Review*, January–February 1981, p. 137.
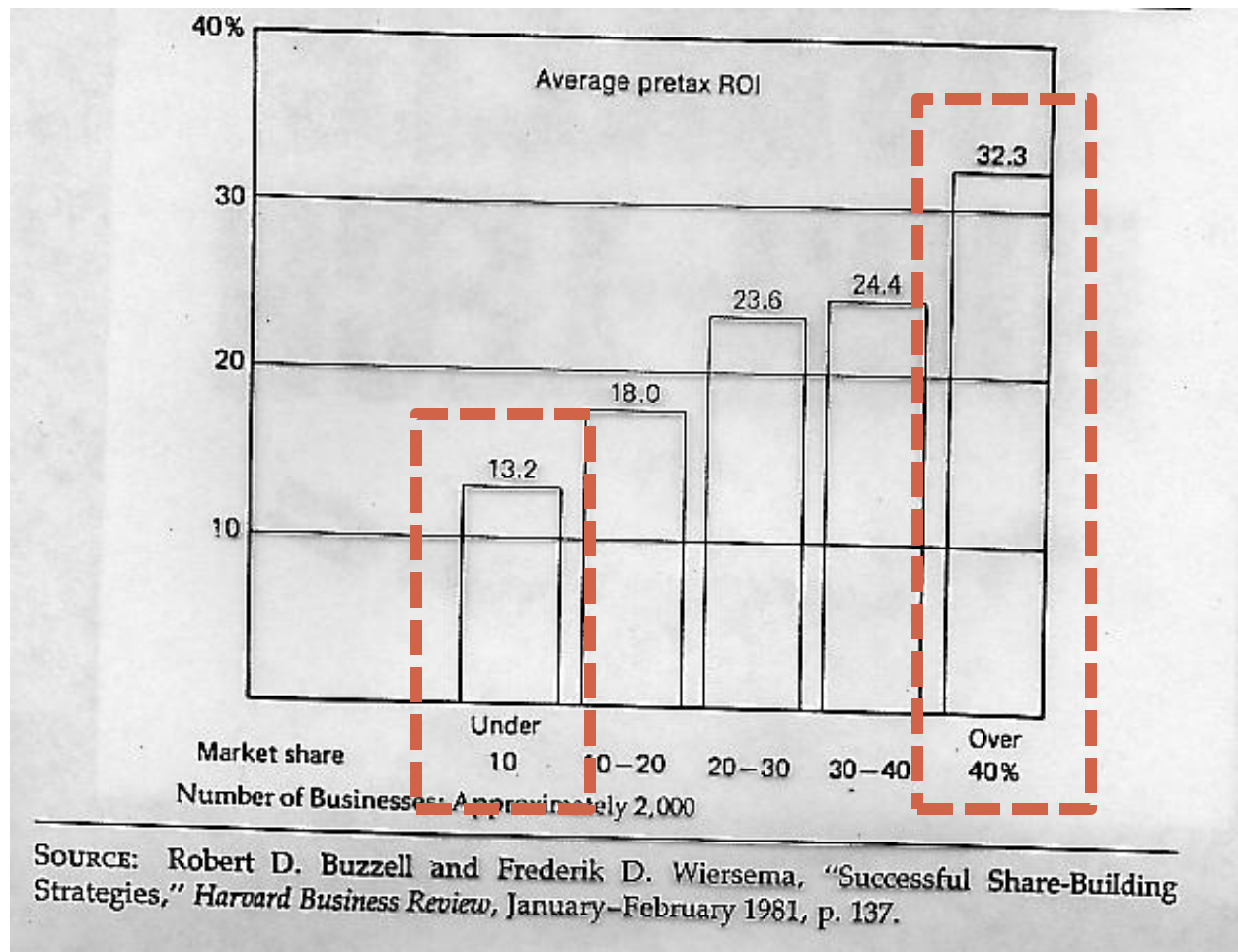
Profitability Increases with Market Share

- Market share of up to 10% = 13.2% ROI
- 10% - 20%, ROI = 18.0%
- 20% - 30%, ROI = 23.6%
- 30% - 40%, ROI = 24.4%
- Over 40% market share, ROI = 32.3%

Segment your market based on what drives customer purchasing decisions

- Demographics
- Geography
- Application & Usage
- Platforms
- Technical Sophistication
- Price

- Distribution channel
- Customers
- Purchase volumes
- Hardware architecture
- Psychographics
- ....

Not all market segmentations provide useful information!

- Choose target markets
- Determine product launch strategies

Mistakes made by Traditional Market Research

- Market segmented by:
    - Product attributes
    - Customer attributes
    - Available data

Leads to a set of quantifiable data, but often you can not use it to make marketing decisions. They are irrelevant to how customers want from these products

Try: Mobile Accessories

- In-box vs Aftermarket accessories
- After-market revenue:
  - CAGR: 3.7%
  - 2012: $36B
  - 2017: $50B
- Market size by product category
  - Protective/carry cases (23%)
  - Charger (15%)
  - Blue tooth devices (15%)
  - Memory Cards (13%)
  - Wireless headsets (10%)

You have data! But how will you use it to select a target market?

- Competition: Palm, Sony, Compaq, Nokia
- Product features:
  - Digital Camera
  - Handwriting Recognition
  - Word, Excel
  - Wireless E-mail
  - Phone

Blackberry Market Segmentation (Option 2)
Define by Demographics – The business Traveler

- Competition: Notebook, computers, phones
- Product features:
  - CRM software
  - Stock trading
  - Books, magazines
  - Online travel sites
  - Phone, e-mail

Blackberry Market Segmentation (Option 3)
Define by Job-to-be-Done: "Better use of time"

- Competition: Wall Street Journal, Cell Phone, CNN Airport News, Boredom
- Product features:
  - Voice phone
  - E-mail
  - Brief news summaries
  - Simple mindless games
  - Always on

Inadequate market research is often the root cause of new product failures

- "Availability of data" should not be driver of market selections. It seldom tells why a product is needed
- "Job-to-be-done" approach does
  - "What if I have a new product allow you to …
    - Read and reply your e-mails wirelessly anywhere at anytime?
    - Charge your cell phone battery wirelessly?
  - It will also tell you which product attributes (i.e. product differentiations) are important
- There might not be readily available data on market size or market growth rate. You have to get it through your own market research

Questions

- **Many new businesses never even get to the chasm!**
  - What does it take to get the endorsements from techies?
  - What does it take to get visionaries' sponsorships?

Answer:
  - Your product must provide a solution to a problem that causes "excruciating pain" to your customers
    - **Nice-to-have does not sell**
  - Demonstrable (at least) to techies
  - Need the support from well-heeled visionaries who can foresee an order-of-magnitude improvements by implementing your solution

This framework was for B2B. Does it apply to B2C?

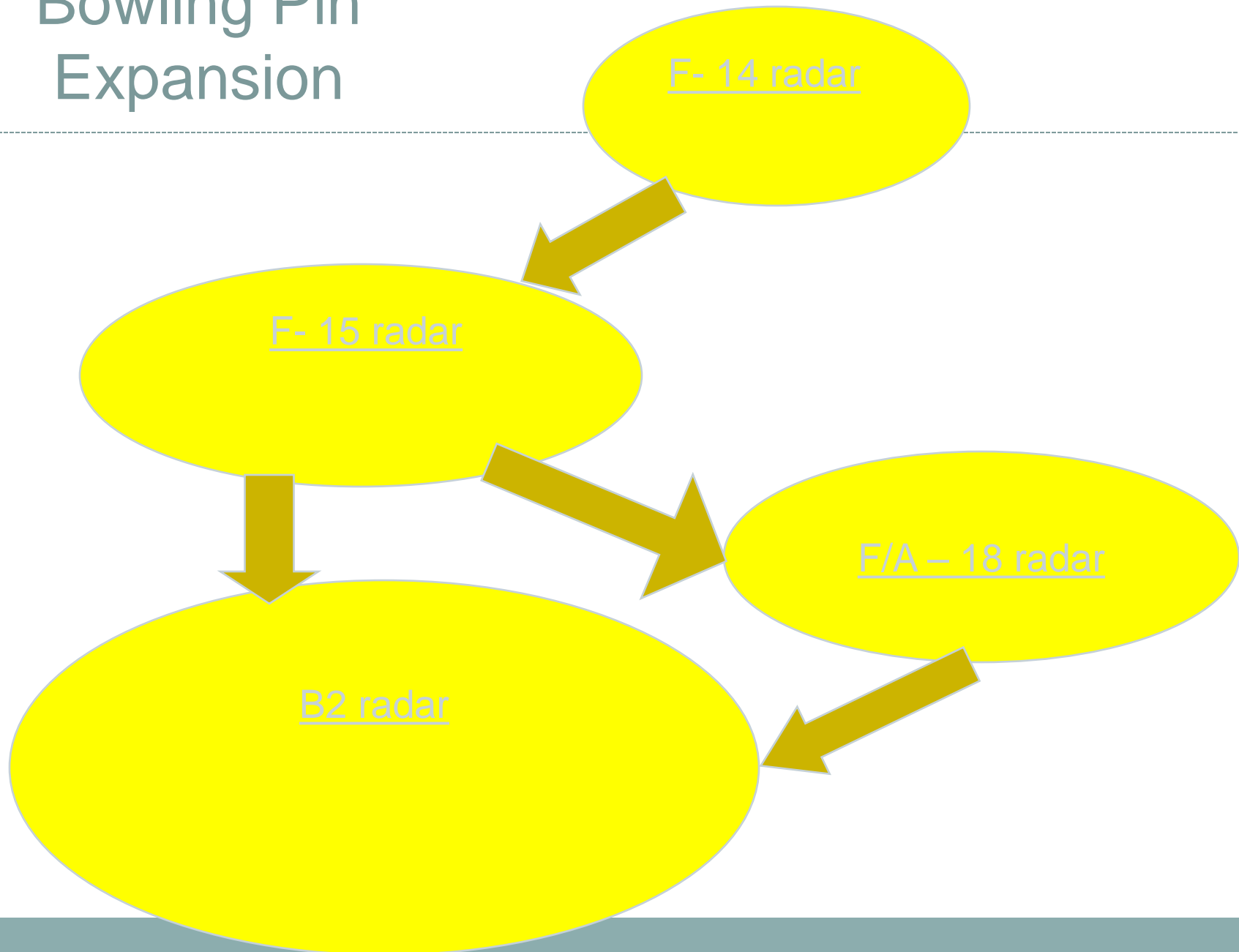# *Bowling Pin Strategy*

How to generate Bowling Pin effect?

Attack adjacent markets!

- Customers …
- Products…
- Price …

Examples?

Bowling Pin Expansion
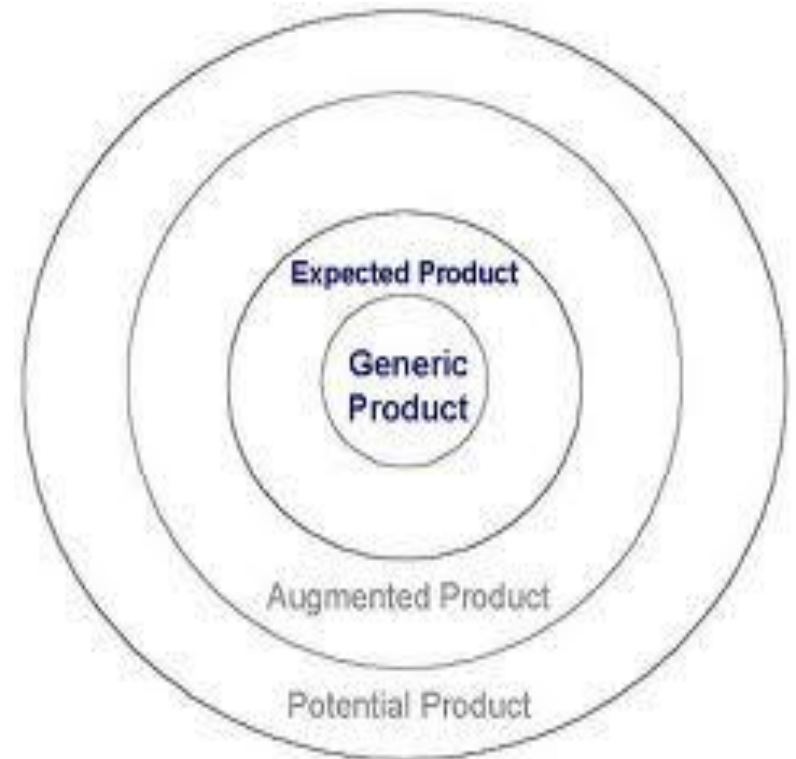
F- 14 radar

F- 15 radar

F/A – 18 radar

B2 radar

- Generic product plus whatever else the customers need in order to achieve compelling reason to buy
- Examples?

Expected Product
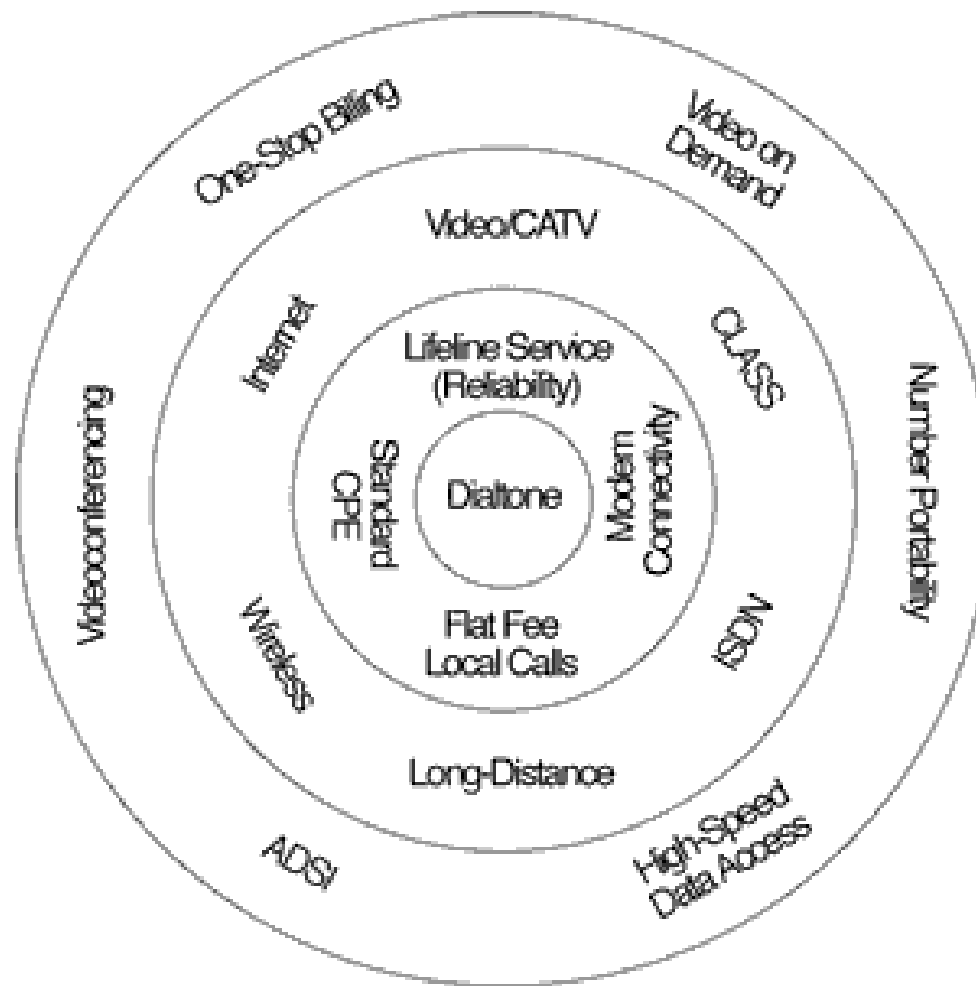
Generic Product

Augmented Product

Potential Product

Elements of Whole Product

- ## Sales process
  - Pre-sale support, financing, warranty, trade-in policy
- ## Product related
  - Peripheral devices & operating environment , future product strategy, product upgrade, product conversion, adjacent services
- ## Physical package
  - Off season storage, travel shipping
- ## Post-sales support
  - Installation, training, telephone & on-line support, disposal, …

Standards and Procedures

Additional Software

Training and Support

Generic Product

Additional Hardware

Cables

System Integration

Installation and Debugging

Whole product for telco services

Different Viewpoints of a Product

Technologist View

- Product focused
- Features & functions
- Minimizes product "packaging"
- Minimizes corporate "imaging"

Customer View

- Looks at bigger, total picture
- Evaluates entire, "*whole*" product offer
- Interested in extras
- Concerned about company image

Engineering designs the generic product. Marketing leads the completion of the "whole product"

To Provide Effective Whole Product …

- Understand customers' problems:
    - How product will be used
    - Anticipate customers' needs (from all aspects)
    - Determine the "whole product" requirements
- "Whole product" can not be an after thought. Design it from the start
- Strategic Alliances: Critical To Whole Product
    - Focus where you add most value. Outsource all other activities

Other good topics in Moore's Book

❑ Creating the competition:
- Market alternative – target customer & compelling reason to buy
- Product alternative – technology leverage & niche differentiation

❑ Elevator speech – Explain you product

❑ Good summary on distribution channels
- Direct sales, retails, internet retails, VAR, OEM, system integrators

Competition?

"Our solution is so unique that we don't have any competition!"

"If there is no competition, most likely there is no market"

Competitions come in different forms

- Competing technologies
- Competing designs
- (Substitutes) Alternating solutions
- Non-consumption (*no market, no competition*)
  - Lack of a compelling reason to buy
  - Nobody understand the compelling reason to buy
  - Fear of risk

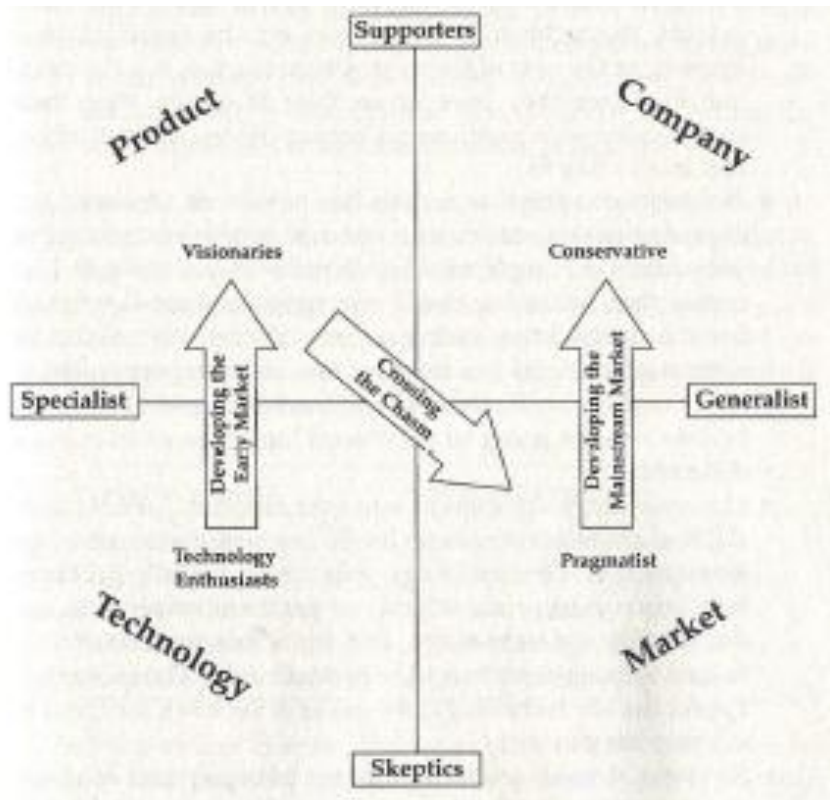 ***It is difficult to be the first buyer!***

Competition is a fundamental condition for purchase!

If there is no competition, create one!

It is part of "educating the customers"
Create the "compelling reason to buy"

The competitive-positioning compass
market competitions & product competitions

Crossing the chasm requires moving from

- an environment of support back into one of skepticism
- the familiar ground of product-oriented issues to the unfamiliar ground of market-oriented ones
- Familiar audience of like-minded specialists to unfamiliar audience of essentially uninterested generalists

Creating the competition: Silicon Graphics

- **Creating competition: using two competitions as beacons so the markets can locate your unique value proposition**

  - Market target: Hollywood post production film editing process
  - Product: Digital film editor (a special purpose workstation)
  - Market alternative (the target): traditional editing vendors
  - Product alternative (the proof): other work station vendors such as Sun, HP, and IBM

Creating the competition: Silicon Graphics
a possible "elevator speech"

"<u>For</u> post-production film engineers

<u>who</u> are dissatisfied with the limitations of traditional film editors,

<u>our</u> workstation is a digital film editor that lets you modify film images any way you choose.

<u>Unlike</u> workstations from Sun, HP, or IBM,

<u>we</u> have assembled all the interfaces needed for post production film editing."

Distribution and Pricing
when crossing the chasm

- Customer-oriented distribution – A distribution that main stream customers feel comfortable
- Distribution-oriented pricing – A price that is "price to buy" for customer, and financially motivating for channel

Revenue and profit are not the focus!

Distribution Channels

- Direct sales
- 2-tier retail: Ingram – Compuware
- 1-tier retail: superstores – CompUSA, Fry
- Online stores
- VAR (Value added reselling)
- OEM
- Systems integrators

Key considerations:

- Demand creators vs Demand fulfillers
- Role in providing Whole Product
- Potential for high volume

If you are in B2B, which channel will you choose?
If you are in B2C, ...?
If you are a electronic parts supplier, ...?
If you are FoxConn, ...?

Which channel will you choose when you are crossing the chasm?
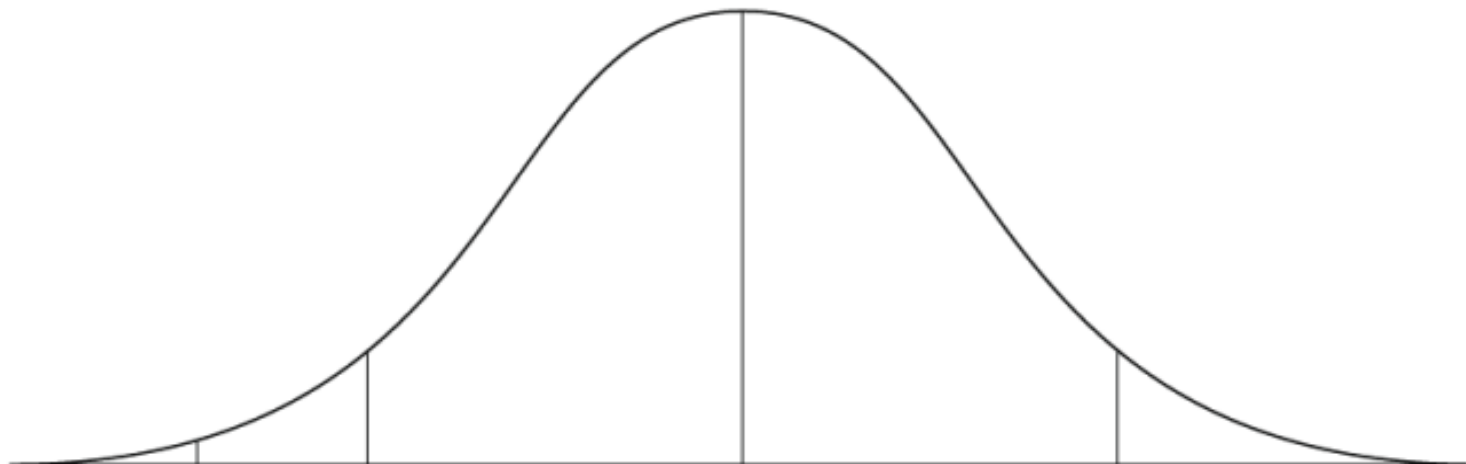
Good reading materials

- ## Crossing The Chasm
  - The whole book,
  - (must read) Chapters 1 – 6

- ## Strategic Management of Technology and Innovation
  - Reading II-7 (page 429 – 435)

Different marketing strategies & sales tactics are needed for each customer groups

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Technology Adoption Curve

2.5% Innovators

Early Adopters 13.5%

Early Majority 34%

Late Majority 34%

Laggards 16%

Source: Everett Rogers *Diffusion of Innovations* model