

# New Product Development

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# Steve Jobs

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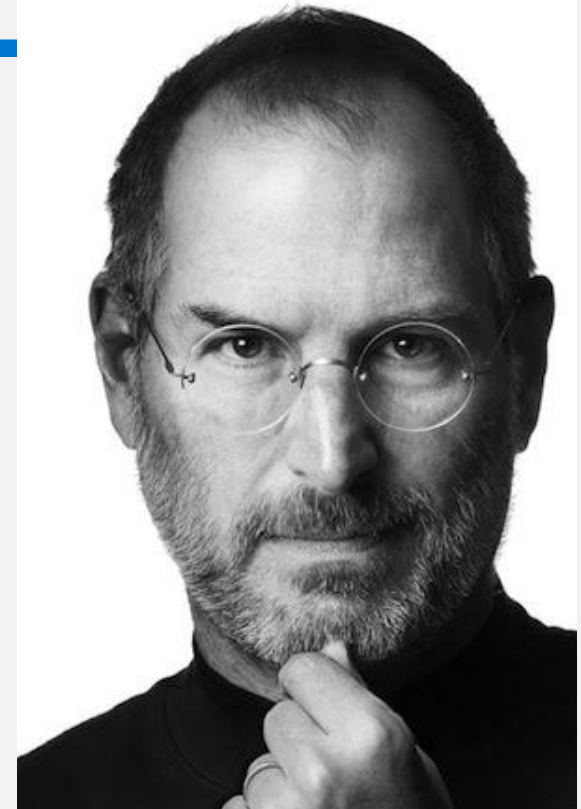
- *"You've got to start with the customer experience and work back toward the technology - not the other way around."*
- *"A lot of times, people don't know what they want until you show it to them."*
- Cofounder of Apple, NeXT, and Pixar
- Visionary of iPod, iPhone, iPad, iTunes, Macintosh, Apple II, etc.
- *Don't let the noise of other's opinions drown out your own inner voice. And most importantly, have the courage to follow your heart and intuition. They somehow already know what you truly want to become. Everything else is secondary.*
  - Steve Jobs



## A more complete version of the Job's Quote

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- “This is what customers pay us for—to sweat all these details so it’s easy and pleasant for them to use our computers. We’re supposed to be really good at this. That doesn’t mean we don’t listen to customers, but it’s hard for them to tell you what they want when they’ve never seen anything remotely like it.
- Take desktop video editing. I never got one request from someone who wanted to edit movies on his computer. Yet now that people see it, they say, *‘Oh my God, that’s great!’*”



- [http://archive.fortune.com/magazines/fortune/fortune\\_archive/2000/01/24/272277/index.htm](http://archive.fortune.com/magazines/fortune/fortune_archive/2000/01/24/272277/index.htm)
- <http://www.simonandschuster.com/books/Steve-Jobs/Walter-Isaacson/9781501127625>

## The Ten Times Rule – 10x rule

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- If your solution is ten times better at meeting the customer's needs than current products, then you have a very good chance to succeed.
  - Email is 10x better than snail mail
  - Wikipedia is 10x better than encyclopedias
  - Amazon.com has 10x times the books than the worlds largest book star.
  - Apple iPod has ten times the songs of a Sony Walkman
  - Google is 10x better than competitors
  - Facebook got 10x number of members as MySpace

# Remember the Two Key Concepts in Innovation

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- **Creative Destruction**

- Joseph Schumpeter –Harvard University economist from Austria
- **Creative Destruction** – 1934- new products and technologies make old products and technologies obsolete

- **Disruptive Innovation**

- Clayton Christensen –Harvard University Management
- **Disruptive Innovation**-1997 – new products begin in new, unexplored markets but grow in quality and capability to displace older markets.
  - Mini-computer disrupted mainframes and were in turn disrupted by PC's.
  - Steel mini-mills created poor quality steel at low prices to take the least profitable part of the steel market. They then grew to displace the old-line steel companies.

- I cannot over-emphasize how important these two topics are in understanding entrepreneurship. Creative destruction and disruptive innovation are indeed closely related, disruptive innovation is a very special case when a company enters into a very low end of a market at a place where the dominant players are not so interested because it is not profitable or not able to satisfy their largest customers. But, the company doing the disruption gets a foothold in the market, establishes itself, and then learns how to do the things it needs to do to enter the more profitable and sophisticated portions of the market.

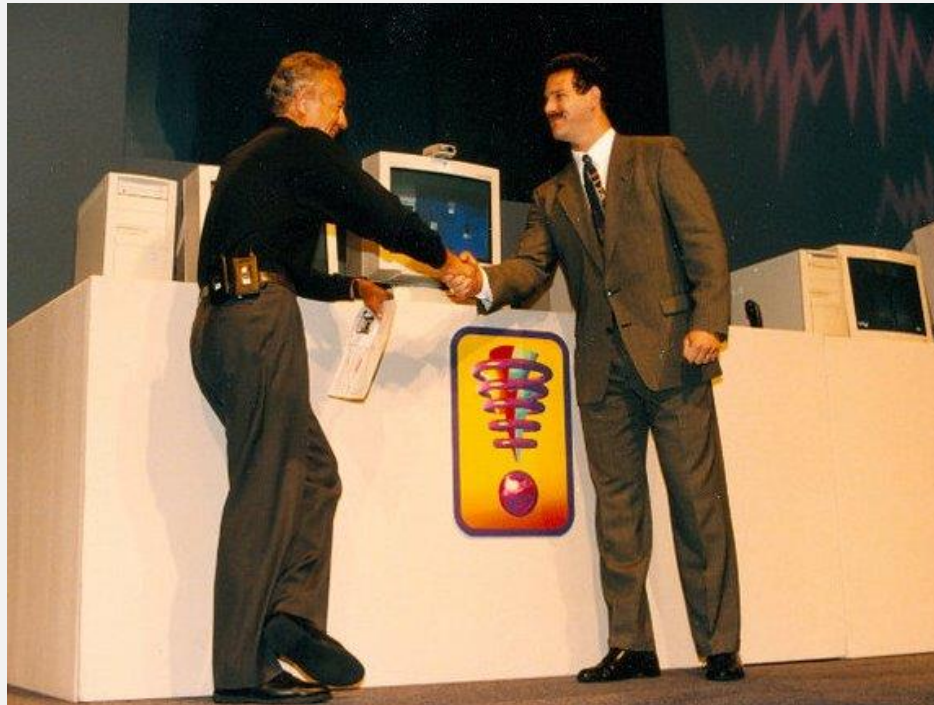
- Often the established companies never see it coming.

- <http://www.claytonchristensen.com/key-concepts/>
- [http://en.wikipedia.org/wiki/Clayton\\_M.\\_Christensen](http://en.wikipedia.org/wiki/Clayton_M._Christensen)
- [http://en.wikipedia.org/wiki/Disruptive\\_innovation](http://en.wikipedia.org/wiki/Disruptive_innovation)

# Innovation is what makes enterprises sustainable

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- In the immortal words of Andy Grove
  - the former Intel Corporation CEO
- **“Only the Paranoid survive!”**



Andy Grove congratulates Mark Bernstein of [Linc](#)

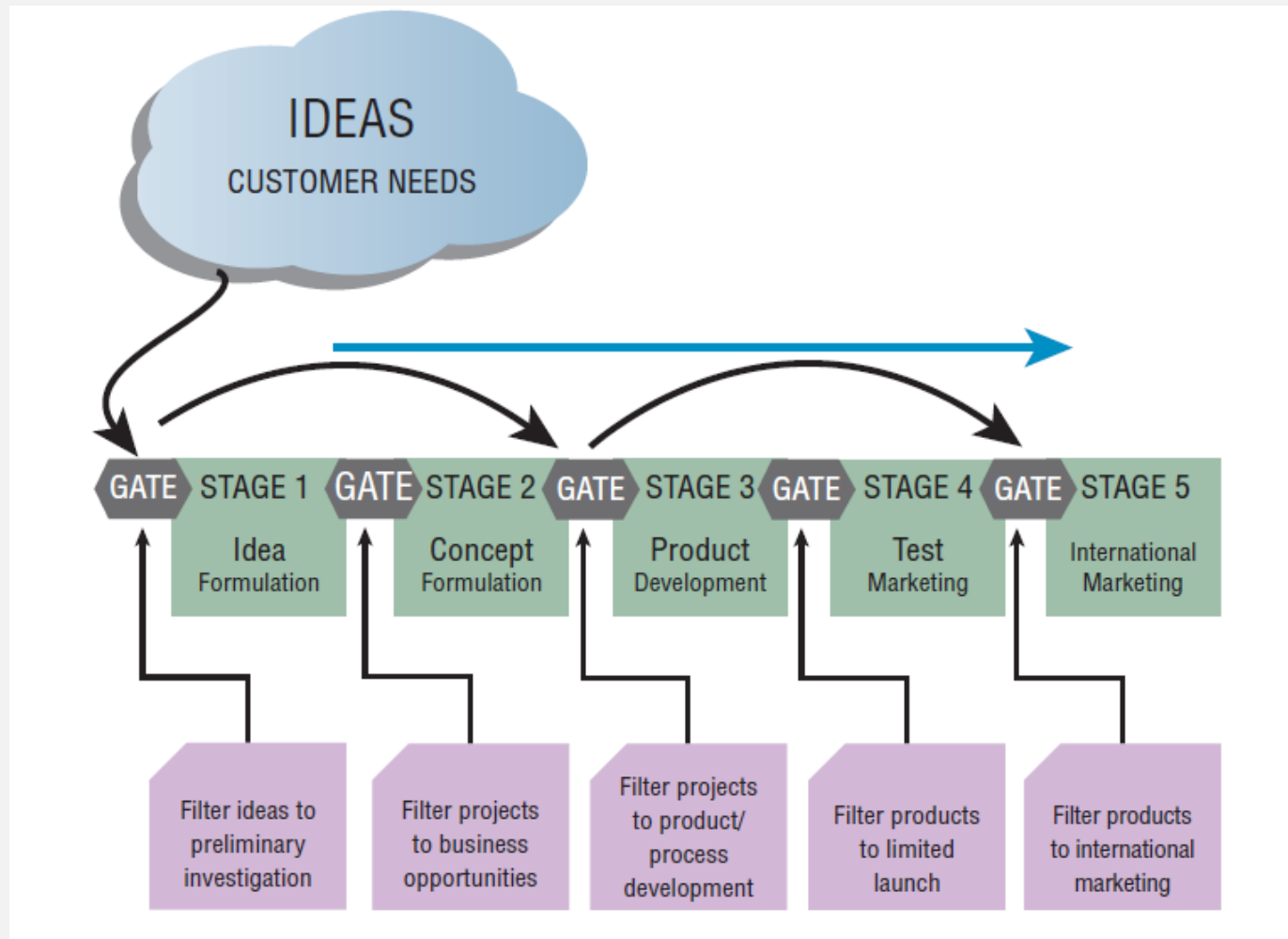
# NetFlix and Blockbuster – a great example of creative destruction.

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- Blockbuster and other vendors would rent video tapes to homeowners who would need to return them or incur a late fee.
- Videotapes were later replaced with DVD's but the model of rental remained the same.
- Netflix introduced a business model in which DVD's were mailed to subscribers and there were no late fees. Viewers no longer had to go to a store to get the disc. Blockbuster went bankrupt.
- Digital delivery of Video then began to displace video disc mailing and video was delivered over the network directly to the viewer.
- Netflix managed to get through this change in business models –at least to this point.
- [NetFlix Case](#)



# The path from idea to a product

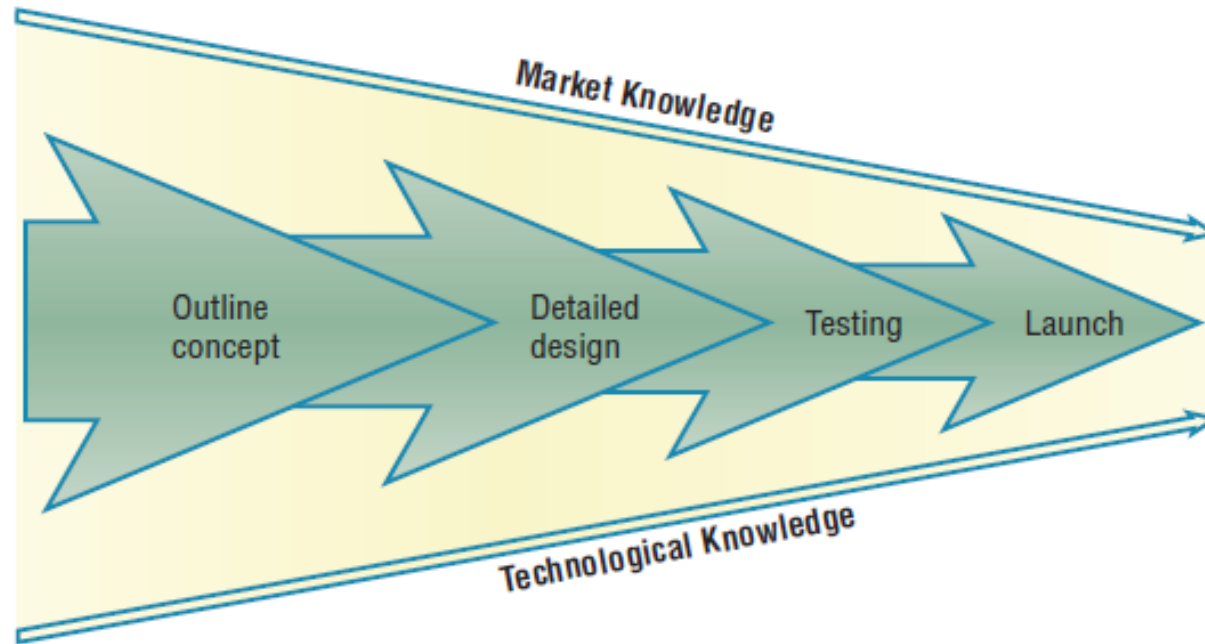


**FIGURE 11.1** Stage-gate product development process

Sources: Derived from Cooper, R., *Winning at New Products: Accelerating the Process from Idea to Launch*, 2001, Cambridge, MA: Perseus Books; Doing it right: Winning with new products, 2000, *Ivey Business Journal*, 64(6), 1-7.



# The Development Funnel



**FIGURE 11.2** Product development funnel

Source: Derived from Wheelwright, S. C. and K. B. Clark (1992) *Revolutionizing Product Development*, New York: Free Press.

# An Alternative View of the Product Development Funnel.

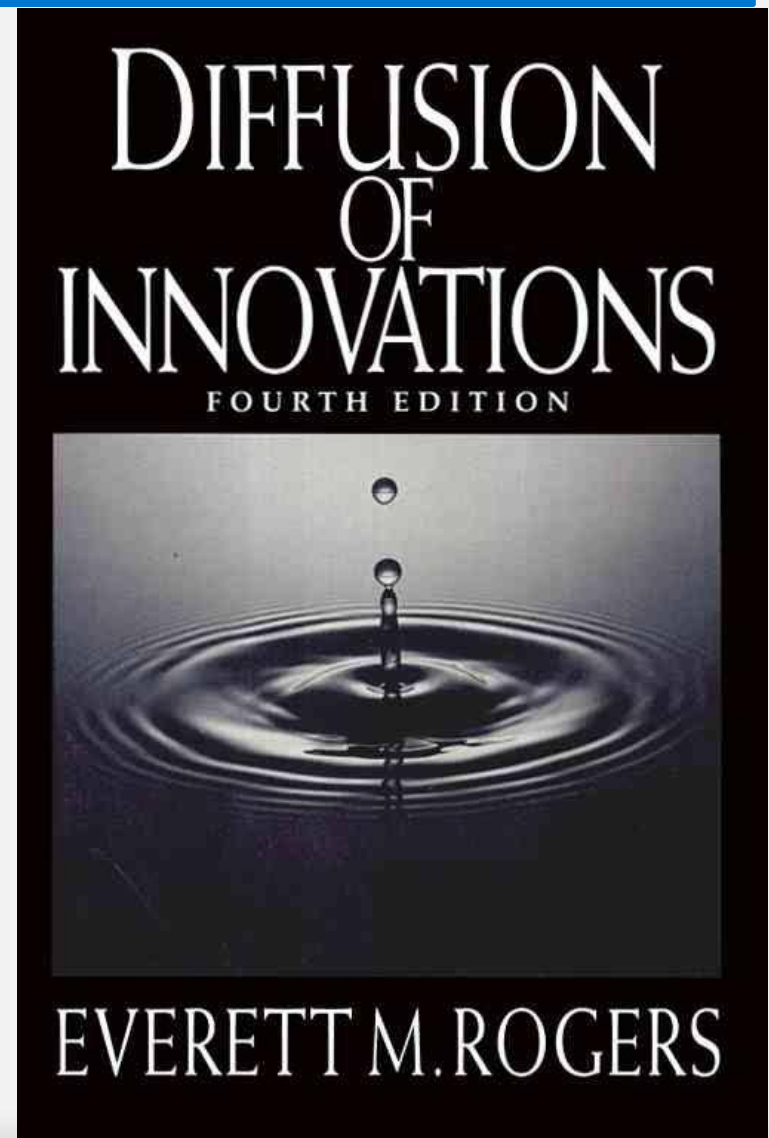


# Diffusion of innovations

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- Diffusion is the means by which innovations are translated into social and economic benefits.
- We know that the impact of the use of innovations is around four times that of their generation
- However, the benefits of innovations can take 10–15 years to be fully effected, and in practice most innovations fail to be adopted widely, and so have limited social or economic impact.

- Rogers' definition of diffusion is used widely:
  - 'the process by which an innovation is communicated through certain channels over time among members of a social system. It is a special type of communication, in that the messages are concerned with new ideas'
  - "Diffusions of Innovations;" Everett Rogers; Simon & Schuster; (1962).



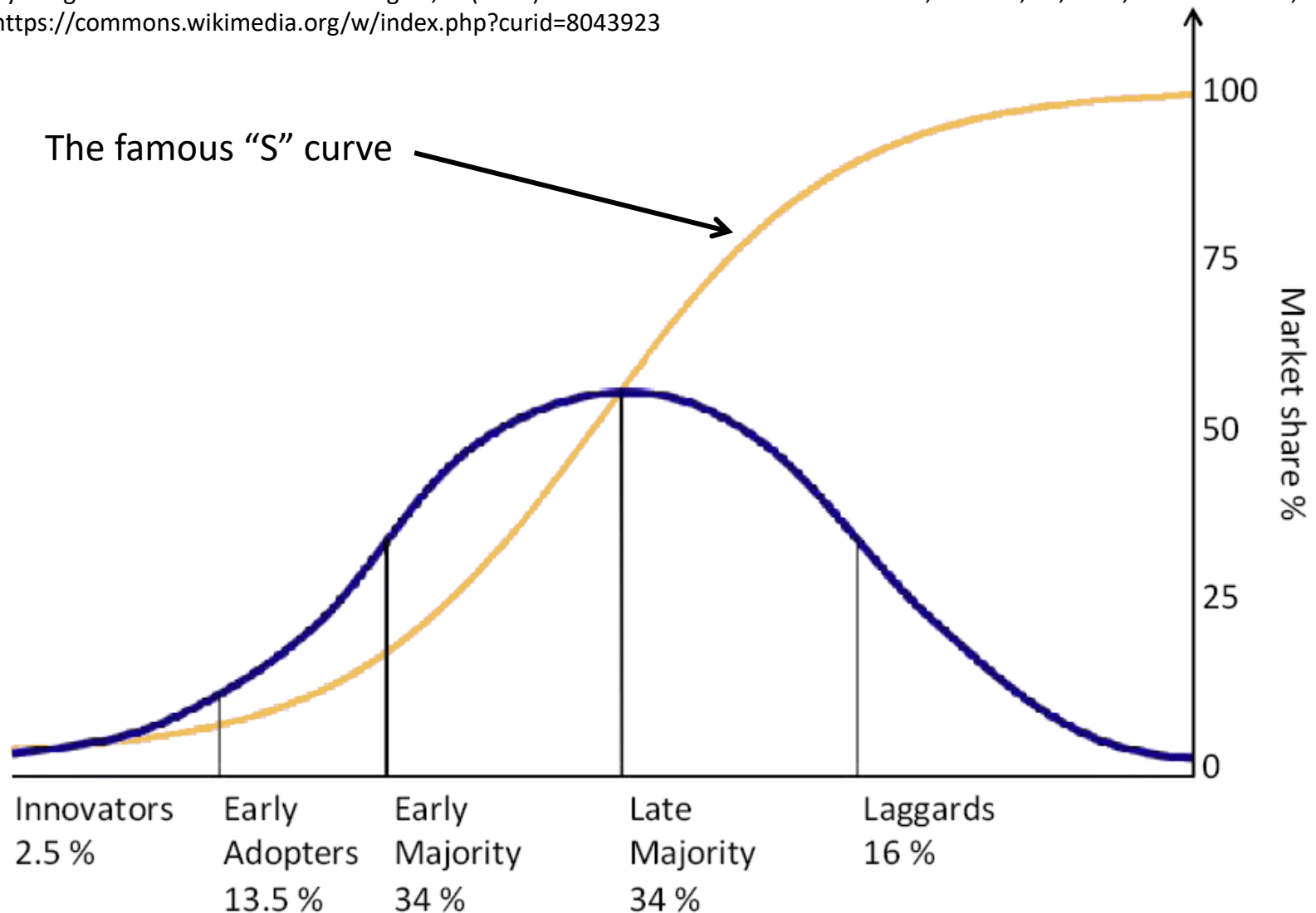
# Rogers' 3 types of innovation decision

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- **Individual,**
  - in which the individual is the main decision-maker, independent of peers. Decisions may still be influenced by social norms and interpersonal relationships, but the individual makes the ultimate choice. For example, the purchase of a consumer durable such as a mobile phone.
- **Collective,**
  - where choices are made jointly with others in the social system, and there is significant peer pressure or formal requirement to conform. For example, the sorting and recycling of domestic waste.
- **Authoritative,**
  - where decisions to adopt are taken by a few individuals within a social system, owing to their power, status or expertise (e.g. adoption of ERP systems by businesses, or MRI systems by hospitals).

# Rogers Model of Diffusion

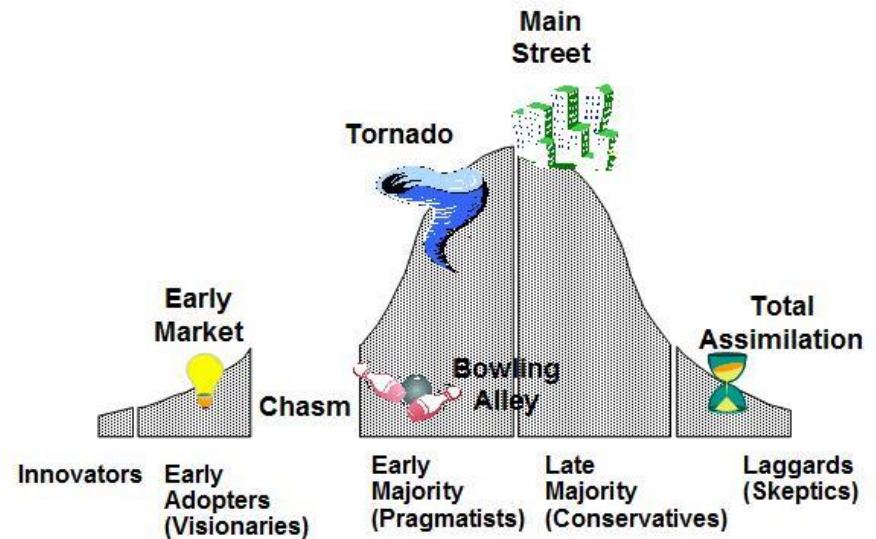
By Tungsten - self-made based on Rogers, E. (1962) Diffusion of innovations. Free Press, London, NY, USA., Public Domain, <https://commons.wikimedia.org/w/index.php?curid=8043923>



# Crossing the chasm: some jargon

- Early market –
  - the early adopters
- Chasm –
  - getting from the early adopters to the early majority.
- Bowling Alley –
  - once established in the early majority
- Tornado –
  - as the innovation moves from early majority to late majority it becomes a tornado of adoption.
- Main Street –
  - we made it!
- Total Assimilation
  - Now it is old news!

## Technology Adoption Life Cycle: Diagnose and adapt as markets evolve



Source: Moore (2002), *Crossing the Chasm*; Wiefels (2002), *The Chasm Companion*.

# Barriers to Adoption

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- Economic –
  - personal costs versus social benefits, access to information, insufficient incentives
- Behavioral –
  - priorities, motivations, rationality, inertia, propensity for change or risk
- Organizational –
  - goals, routines, power and influence, culture and stakeholders
- Structural –
  - infrastructure, sunk costs, governance.



# Factors affecting diffusion

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In predicting the rate of adoption of an innovation, five factors explain 49–87% of the variance:

- **Relative advantage**
  - the degree to which an innovation is perceived as better than the product it supersedes, or competing products. Typically measured in narrow economic terms, for example cost or financial payback.
  - Non-economic factors such as convenience, satisfaction and social prestige may be equally important.
- **Compatibility** –
  - how compatible is the innovation to existing systems?
- **Complexity**
  - How complex is it to implement?
- **Trialability**
  - the degree to which an innovation can be experimented with on a limited basis. An innovation that is trialable represents less uncertainty to potential adopters, and allows learning by doing. Innovations which can be trialled will generally be adopted more quickly than those which cannot.
  - Sometimes called 'divisibility' – how far can the risk of adoption be broken down into small steps rather than requiring a full commitment at the outset
- **Observability.**
  - the degree to which the results of an innovation are visible to others. The easier it is for others to see the benefits of an innovation, the more likely it will be adopted.
  - The simple epidemic model of diffusion assumes that innovations spread as potential adopters come into contact with existing users of an innovation.

# Key Asset Access

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- Today many companies are dependent upon things like
  - Facebook
  - Amazon Web Service –the Cloud
  - IBM Watson
- Hootsuite is a tool to manage twitter accounts.
  - <https://hootsuite.com/#>
  - Twitter could block access or go into competition.
  - Partnerships are often key to such relationships.
  - Larger companies often cut off potential competitors to their own products.

# Proof of Concept –Selling the Product before Making It

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- In software this is often called selling “vaporware.”
- Example: Jackie Courtney –Nearly Newlywed
  - Second hand wedding dresses.
  - Did not work
- Example: ILinc
  - Met with many successful entrepreneurs
    - Bugle Boy, Wellfleet, Interlan, Bay Networks, Nortel, MapInfo, etc
  - Went against advice
  - Decided to sell vaporware.
  - **Success magazine** called it the “Wimpy method”
    - Wimpy: “I’ll gladly pay you Tuesday for a hamburger today!”
    - ILinc: “I’ll gladly give you software next year for \$300,000 today.”
  - Against all odds (and reason): It worked!
  - First Customers: IBM, AT&T, GTE, Sprint, Office Depot, and News Corp.
  - We also had received funding from the Air Force SBIR program.

# Key terms to know

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- Gross margins
  - $(\text{Price} - \text{COGS}) / \text{COGS}$  as %
- COGS- Cost of Goods Sold
- CoCA- cost of customer acquisition (also CCA)
- ARPU-Average Revenue per User over a period of time
  - Repeat business is a good thing.
  
- Scalability:
  - My partner, Mark Bernstein, told his father, a dentist that a dentist could only treat so many patients per day, but that selling software had no limit as to how much he could sell (or make) in a day.
  - Variable costs versus fixed costs
    - Variable costs do not help in scaling. The amount of steel in every similar car is the same.
    - Fixed costs do not go up with more sales. A machine that stamps steel fenders does not cost any more to stamp 100 per day as it does to stamp one.

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- The following pages are optional checklists for the user.

# Checklist for Relative Advantage

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- How well does my plan show how much better off people will be when they adopt it?
- Why is this plan better than what has been done before?
- What advantages or benefits may there be to accepting the plan?
- Who will gain from the implementation of the plan?
- How will I (or others) be rewarded by adopting the plan?
- How can I emphasize the plan's benefits to all?

# Checklist for Compatibility

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- How well does my plan demonstrate that it is compatible with current values, past experiences and needs?
- Is the plan consistent with current practice?
- Does the plan meet the needs of a particular group?
- Does it offer better ways to reach our common goals?
- Who will naturally support and agree with the plan?
- Can it be favorably named, packaged or presented?

# Checklist for Trialability

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- How well does my plan allow for trialability?
- Can the plan be tried out or tested?
- Can uncertainty be reduced?
- Can we begin with a few parts of the plan?
- How can others be encouraged to try out the plan?
- Can the plan be modified by you or others?



# Checklist for complexity

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- How well does my plan provide for easy communication, comprehension and use?
- Is the plan easy for others to understand?
- Can it be explained clearly to many different people?
- Will the plan be easily communicated?
- How can the plan be made more simple or easy to understand?
- Is the plan easy to use or follow?

## Checklist for Observability (Visibility)

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- How well does my plan provide results that are easily observed and visible to others?
- Is the plan easy for others to find or obtain?
- Can the plan be made more visible to others?
- How can I make the plan easier for others to see?
- Will others be able to see the effects of the plan?
- Are there good reasons for not making the entire plan visible?

Viral marketing is a derivative of this issue that is a critical way of bringing your new product to the public's attention.

## What other factors do we need to pay attention to?

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- What other resources will I need; how can I get them?
- What obstacles exist; how can we prevent or overcome them?
- What new challenges will be created; and dealt with?
- How can I encourage commitment to the plan?
- What feedback about the plan is needed?