Entrepreneurship for Computer Science

Business Models- Part I

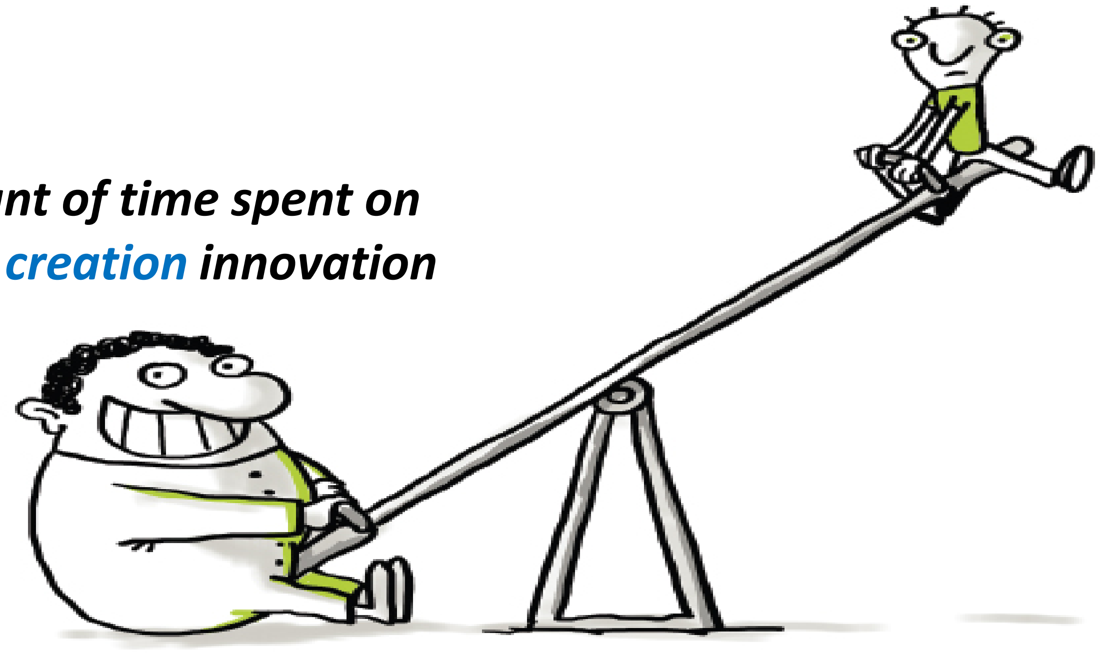
Today…

- Last Session:
  - Beachhead markets & revenue projections (*continued*)
- Today’s Session:
  - Business models- Part I
- Announcements:
  - PS1 is due today by midnight
  - CP1 is due on Feb 27 by midnight

Value Creation vs. Value Capture

Amount of time spent on value capture innovation

Amount of time spent on value creation innovation



You need to get things more in balance!

Business Models

- A business model is a *“value capture framework”* via which you monetize your product or service based on the *value* it creates for your customers
  - Hence, it is *value-based* and NOT *cost-based*
- There is no one universally right business model, as it depends on your specific situation
- It helps to think through some common types of business models, hence, we will discuss a taxonomy of famous models

The Up-Front Charge Model

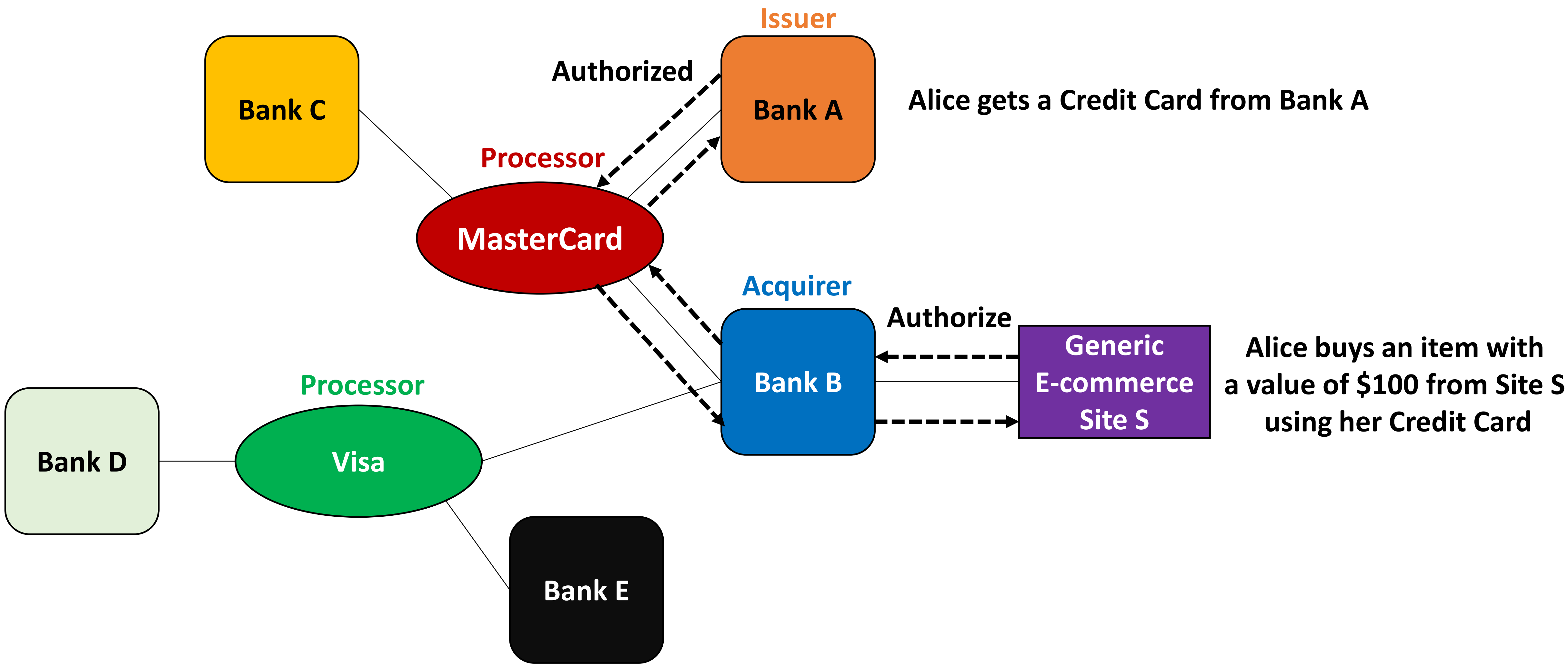
- A customer pays a *large one-time up-front* amount of money to obtain a product/service
  - The payment might come out from a “capital budget”, which might necessitate a long and formal approval process (especially, if the *end-user* is not the *economic-buyer*)
- Typically, the customer can also secure ongoing upgrades or maintenance of the product for a *recurring fee*
  - The fee might come out from an “operating budget”
- The model can serve in a large up-front infusion of cash to your business, but might impact your ability to secure a good enough recurring revenue stream

The Transaction Fee Model

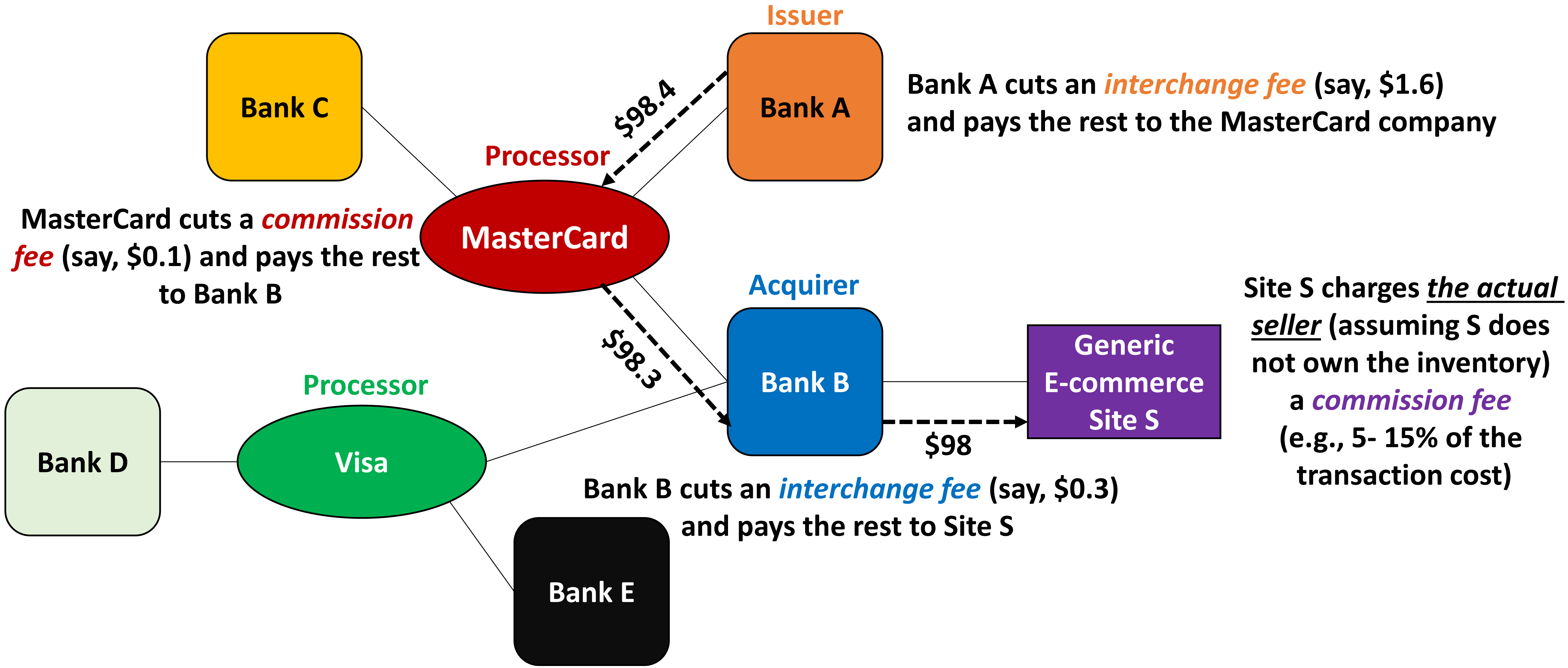
- Online retailers often pay or receive a *commission fee* for referrals that lead to sales
  - E.g., VISA Card receives a fee from each transaction, paid by the seller

- This model is similar to how credit/debit card companies work, where a percentage of each transaction goes to the credit/debit card company

The Transaction Fee Model



The Transaction Fee Model



The "Parking Meter" Model

- Parking meters charge *low* hourly parking rates (e.g., $0.25)
  - This seems to defy the logic of having large and expensive parking meters (let alone official people collecting quarters)

- However, the city charges *high* for parking tickets that become even higher if someone does not pay in an X (e.g., 10) number of days
  - No wonder cities have so many parking enforcement people!
  - Is not this aspect of the model akin to the one used by credit/debit card companies against defaulters?

- Caveat: loyal customers might become alienated by late fees (discovered by Blockbuster and precluded by Netflix)

The Usage-Based Model

- The usage-based model is similar to how electric and water utilities are metered (i.e., *pay-as-you-go a service fee*)
  - E.g., Cloud Computing services like Amazon EC2

Conventional Computing	Cloud Computing
Buy and own (hardware, system software, etc.)- Pay $$$$ (High Cost)	Subscribe (*for free*)
Install, configure, test, verify, evaluate, and manage- Pay $$$$ (High Cost)	Use
Use	Pay $ for what you use

The Usage-Based Model

- The usage-based model is similar to how electric and water utilities are metered (i.e., *pay-as-you-go a service fee*)
  - E.g., Cloud Computing services like Amazon EC2
- The service fee is typically constant and NO up-front (or *base or subscription*) fee is incurred
  - This makes the model *flexible*, but *unpredictable*!
- The model provides *control* to customers over their expenses because they only pay for the amount of resources they use (*rather than paying for extra capacity they do not use*)

The "Cell-Phone" Model

- This is a variant of the usage-based model
  - Pay a *base fee* in exchange for a certain amount of usage
  - Pay *additional fee* (often at much higher marginal rates) if you use more than your allotted amount

- Both sellers and buyers get *predictability* from the base charge

- Customers get *flexibility* via being able to obtain additional resources if needed (*although at a somehow large cost*)

The Subscription or Leasing Model

- A customer pays a *subscription fee* at the end of every predetermined time period (e.g., bi-weekly, monthly, annually, etc.) for obtaining your service or product
  - E.g., Netflix
- Typically, you can extract higher payments over shorter periods of time (e.g., monthly vs. yearly)
- The model provides *flexibility* to customers (assuming they can unsubscribe at anytime) with *predictable*, fixed payments for businesses over agreed-upon periods of time

The Licensing Model

- You can license your product (or your intellectual property if it is very strong) and receive a *royalty* on sales (*dynamic revenue*) or a regular fixed amount of money (*static revenue*)
  - Royalty rates are typically one-twentieth or less of the revenue per sale (5% royalty is about the best you can hope for)
- Consequently, you avoid making big investments in production and distribution capabilities
- But, you would rely on other companies to sell your product
  - This limits your ability to continually invent (you cannot learn from end-users!)

The Consumable Model

- A customer pays for your product, but also pays *ongoing fees* for using it
  - E.g., The razor-razorblade model of Gillette
  - E.g., HP printers (actually almost all if not all HP’s profit on printers comes from selling inkjet cartridges)

- The model allows you to:
  - Reduce the friction to capture new customers
  - Get some up-front cash
  - Secure a recurring revenue stream

The Upsell Model

- You can sell your product at a very low margin, but increase your overall margin via selling add-on products and/or charging for necessary future services
  - E.g., Consumer electronics (e.g., cameras) and automobiles (add-ons include warranty extensions, accessories, etc.)

- Attractive for customers
  - Initially, they might not pay much

- Profitable for businesses
  - They usually incur large margins on add-ons

The Freemium Model

- A customer pays zero money for a basic functionality of your product, but pays for obtaining *premium features*

e.g youtube

- Many people can try your product
  - However, will these *people* (*they are not customers until they pay*) pay for the extra features available in your product?

- Caveat: If people do not pay for your extra features, you do not have a business (*recall the solo condition for having a business*)
  - Is freemium a business model?
  - Can you not offer premium features and make money through a third party?

The Advertising Model

- You can make your product free, but monetize your ability to attract and retain a desirable demographic via providing Ads for third parties who want access to them
  - E.g., Google's AdWords

- Appealing to users and third parties, especially that Ads are seamless (*no banners!*) and targeted

- Caveat: many startups have fallen substantially short when they relied *solely* on Ads

The Reselling Model

- You can make your product free, but monetize your ability to collect data via *reselling* data itself or corresponding analytics to third parties
  - E.g., LinkedIn’s recruiters package

- Transparency is critical!
  - Users should know that some analytics or data about them are being sold to third parties
  - Interestingly, users might use your product just for this specific purpose (e.g., LinkedIn users)

The Franchise Model

- You can obtain a percentage of sales (*dynamic revenue*) and/or a large initial startup fee (*static revenue*) in return of providing your knowledge and permission to use your *known* brand
  - Expand without investing on the ground!

- You can also make money via selling your brand-name products to the franchisees to be distributed

- Quality control might become a concern, *but if done rightly, it can improve quality*!
  - One study showed that franchisees outperformed their company-owned counterparts by an average of 10% to 30%

The Franchise Model

- From a franchisor's standpoint, there are four pillars of quality:
  1. Franchisee Selection
     - *Here is where quality starts!*
  2. Franchisee Training
     - Not one-time (initially), but rather continuous
  3. Ongoing Support
     - This shall span multiple domains, including marketing, public relations, and technology, among others
  4. Compliance
     - A franchisor cannot fire a franchisee the way that she/he could fire an employee
     - However, she/he can enforce compliance via a well-crafted contract

A Taxonomy of Business Models: Summary

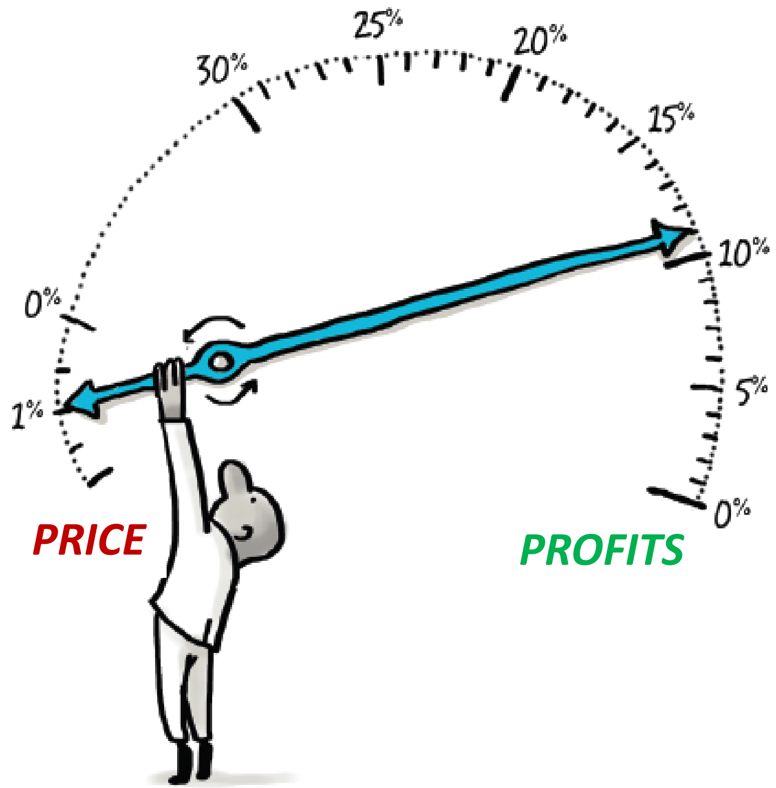
Business Model	Description
(1) The Up-Front Charge Model	A customer pays a large *one-time, up-front* amount of money to obtain a product/service
(2) The Transaction Fee Model	A customer pays a *commission fee* for a referral that leads to a sale
(3) The Parking Meter Model	A customer pays a small fee for a limited duration and *"fined"* high if she/he exceeds that duration
(4) The Usage-Based Model	A customer pays only for what she/he uses (*no base or subscription fee*)
(5) The Cell Phone Model	A customer pays a *base fee* for a limited amount of usage and high additional *usage-based fee* for exceeding that amount
(6) The Subscription Model	A customer pays a *subscription fee* at the end of every predetermined time period
(7) The Licensing Model	A seller licenses her/his product (or strong IP) to a business and receives in return a *royalty* on sales or a regular fixed amount of money

A Taxonomy of Business Models: Summary

Business Model	Description
(8) The Consumable Model	A customer pays an up-front amount of money for a product, but also pays *ongoing fees* while using it
(9) The Upsell Model	A customer pays *low-margin fee* for a product and *high-margin fee* for corresponding add-on products
(10) The Freemium Model	A customer pays zero money for a basic functionality of a product, but high fee for obtaining its *premium features*
(11) The Advertising Model	A customer (typically a third party) pays for having Ads directed and shown for a desirable demographic (or what is referred to as *targeted* Ads)
(12) The Reselling Model	A customer pays for obtaining analytics/reports generated from user data
(13) The Franchise Model	A customer pays a percentage of sales and/or a (large) initial *startup fee* in return of obtaining a permission to use a *known* brand

Pricing Framework

A price that is 1% higher, leads to an 11% increase in overall profits ("The 1% Windfall" by Rafi Mohammed)



Fine-tuning your pricing strategy can have a huge impact on your earnings!

Improving pricing
can have a big effect on profits…
but be patient until the market
matures and you have enough info

Pricing Framework

- Pricing is set based on your business model
  - Business model is "static" (i.e., it rarely changes)
  - Pricing framework is "dynamic"
    - Some businesses change pricing on a *daily basis* (e.g., gas stations)
    - Some businesses even change pricing on a *real-time basis* (e.g., airline tickets)

- Getting pricing right is an *iterative* and *ongoing* process!
  - Start at some point that is the best guess for the moment, then spiral closer and closer to a better answer
  - **Objective**: strike a balance between **maximizing revenue and maximizing customer base**

Basic Pricing Concepts

1. Do not use cost as a factor in deciding the price of your product
   - Set your **price based** on the **value that the customer gets from your product** (which stems from your business model)
     - E.g., a **subscription model** allows pricing higher than an up-front charge model
   - Cost-based strategies almost always leave money on the table
     - In software, the *marginal cost* (the cost of producing one more copy of the software) is almost zero; hence, pricing based on cost would make it difficult to make any money

"My business is very simple. My customers give me $2 and they get back $10. That is why we are so successful" by Steve Walske

Basic Pricing Concepts

2. Use the *Decision-Making Unit* (DMU) and the *process to acquire a paying customer* as a way to identify key price points
   - Example: Kinova Robotics
     - Business Branch: Selling Jaco assistive robotic arm
     - One Market: Netherlands
     - Primary Market Research:
       - End-users: disabled people on wheelchairs
       - Economic-buyers: mainly health insurance companies, which reimburse up to only 28,000 euros
     - Decided Pricing: 28,000 euros
     - Results: Sales cycle length & Cost of Customer Acquisition (COCA) were dramatically decreased, which allowed Kinova to quickly ramp up sales and enjoy a large market share

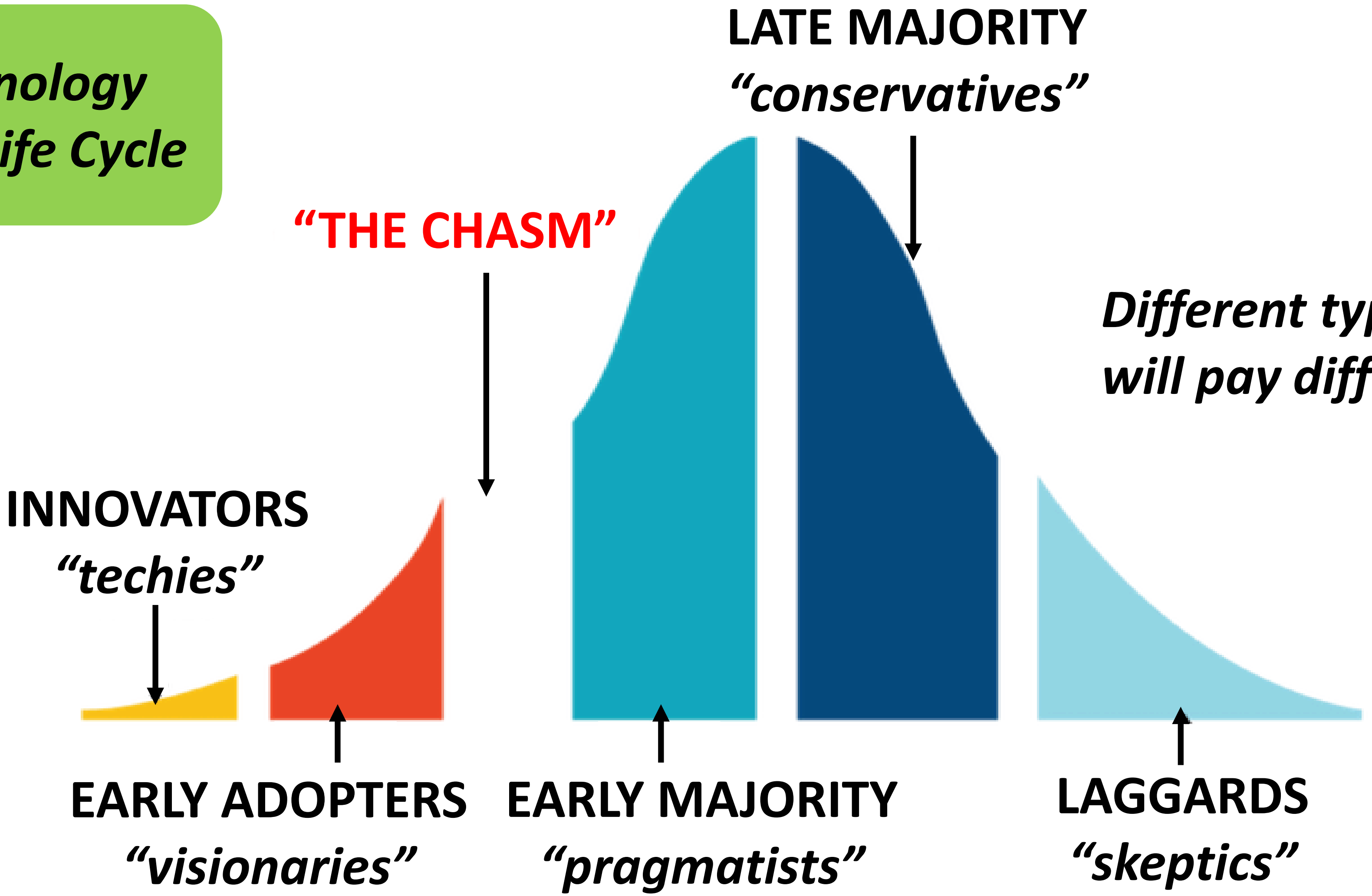
Basic Pricing Concepts

3. Understand the prices of your customer's alternatives
    - Are there alternative products available?
    - If so, how much the customer would pay for each?
    - What distinguishes your product from the available alternatives?
    - It might be better NOT to set the price of your product *higher* (not even initially!) than alternatives, although it might be more advanced

4. It is always easier to *drop* rather than to *raise* the price
    - It is best to price high and offer discounts initially, rather than price too low and raise later
        - **In Reality**: each left segment in the "technology adoption life cycle" is willing to pay more than its neighboring right segment

Basic Pricing Concepts

The Technology Adoption Life Cycle



Different types of customers will pay different prices!

Basic Pricing Concepts

5. Be *flexible* with pricing for early adopters and "lighthouse customers"
   - *On one hand*, these customers can help you cross the chasm!
   - *On the other hand*, you do not want your early one-time-only deals to define your general pricing strategy
   - **Options**: Offer them discounts on up-front charges, or free or low-cost trial period; but have them sign an agreement where their pricing terms be kept confidential

Summary

- Pricing is primarily about determining how much value your customer gets from your product and, accordingly, capturing a fraction of that value back for your business

- You can charge higher price to early customers as opposed to later customers, but be flexible in offering special, one-time-only discounts to early testers and lighthouse customers

- Unlike your business model, pricing will continually change (e.g., in response to market conditions)

Next Class

- Calculate the Lifetime Value (LTV) of an Acquired Customer