

BEE/CSS 371 Business of Technology
Winter 2017
Lecture 5

Nicole Hamilton

<https://faculty.washington.edu/kd1uj>

Tonight's agenda

1. Group photos
2. Review concept of a business, opportunities
3. Vision and the business model

Group photos

OHMMMM...

OHMMMM...



CHRIS



ALEKS



ALIOU



KARINNE



CHRISTIAN

THE RESISTANCE

Brandon
Hoang

Hans
Nicolaus

Diefa
Shabirah

Arrido
Arfiadi

Chris
Ng

Banana Split



LUKE DANIEL
FRUHLING

JOE FIALA

GITIT

BEE/CSS 371

JIN KIM

CHRISTINE
JEONG



BEES

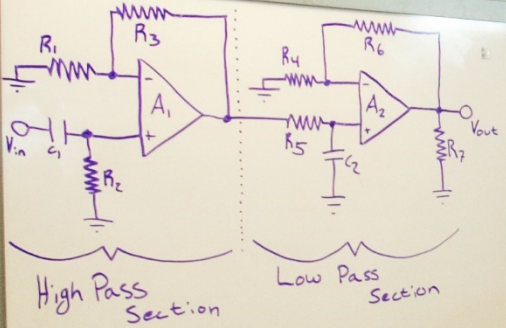
Best Entrepreneurs of Engineering and Software

Sarah
Electrical Engineer
it's a Band Pass.

David
Electrical Engineer
it's a Band Pass

Kevin
Electrical Engineer
it's a Band Pass

Abhi
Computer Science
that's not a program.



The Right stuff



Sasha
Farah
Dean
Sahj
Robert

SPACE
FACTS



Chiayi Lin

Fenrir

CSS 371 :

Hong

4.0 Squad

Son

Huynh

Lok Him Tam

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TEAM FURIOUS

A cartoon character with a purple face, wearing a black and white checkered vest over a white shirt and a black hat with a veil. He is looking to the right.

DANIEL

A cartoon character with a large, flaming crown on his head, a red face, and a white shirt. He has a pained or angry expression.

LOUDEN

A cartoon character with a blue face, blue hair, and glasses. He is wearing a yellow dress and has his arms raised in a celebratory gesture.

JOHN

A cartoon character with a green face and long black hair. She is looking slightly to the right.

CHRISTINE

A cartoon character with a purple face, blue hair, and glasses. He is wearing a white sweater and has a neutral expression.

ELLIOTT



STAR TECH

A NEW HOPE

MIGUEL HUERTA

HOA VO

WESLEY LAI

REGINA SMIRNOVA

ALAN NGUYEN

NOT IN A GALAXY FAR AWAY




Name: Talein Langford
Position: Safety Expert
Info: Confident, Collected

Name: Austen Szypula
Position: Harvesting Technician-"Tooth Peeler"
Info: Capable, Caring

Name: Chris Steigerwald
Position: Voluntary Test Subject
Info: Compensated, Comfortable

Name: Tammy Kuo
Position: Chief Technician
Info: Casual, Compassionate

Name: Silviu Gruber
Position: Public Relations
Info: Considerate, Charismatic

enam-Elton  **Labs**

ASIAN PIRATES

Htut

Bao

Sridarsh

Brandon



Who won
(my opinion but mine counts)

100



95



90



Back to business

An organization may be based on:

- 1. Radical innovation.** Something no one has ever seen before.
- 2. Incremental change.** Faster, better, cheaper.
- 3. Imitation.** Do something already being done but perhaps a little better.
- 4. Rent-seeking.** Make money by owning stuff.

Opportunities are created when the world changes.

Something becomes possible that wasn't before.

Types of innovations

1. **Incremental.** Faster, better, cheaper.
2. **Architectural.** Changes the way in which things are linked together. Reconfiguration of an established system in a new way.
Examples: Facebook, eBay, HDMI replacing S-Video, USB replacing RS-232, DirecTV challenge to cable TV in 1994, wireless replacing wired networks.
3. **Modular.** New components and modules replacing old ones.
Examples: Flat panels replacing desktop CRTs, LED and CFL bulbs that fit in standard light sockets, driverless cars that work on the same roads and use gas, smartphones replacing dumb ones on the same networks.
4. **Radical or disruptive.** New modules and new architecture.
Example: Tesla, with electric cars and a network of free solar-powered recharging stations.

Do you think people will steal
your new idea?

New ideas

If an idea is *really new*, it's surprisingly hard to give it away.

If it's *really good*, most people will think you're crazy.

Most people have trouble imagining how their life would be different and why they would want that.

1. Fred Smith got a C on his business plan for Fedex.
2. I don't need navigation because I know where I'm going.
3. I don't want a cellphone because I don't want people calling me when I'm in the supermarket.
4. No one's going to buy CDs because they already have vinyl and why would they want to listen to numbers?
5. No one's going to buy a \$500 phone.



Ballmer Laughs at iPhone - YouTube

www.youtube.com/watch?v=eywi0h_Y5_U

https://www.youtube.com/watch?v=eywi0h_Y5_U

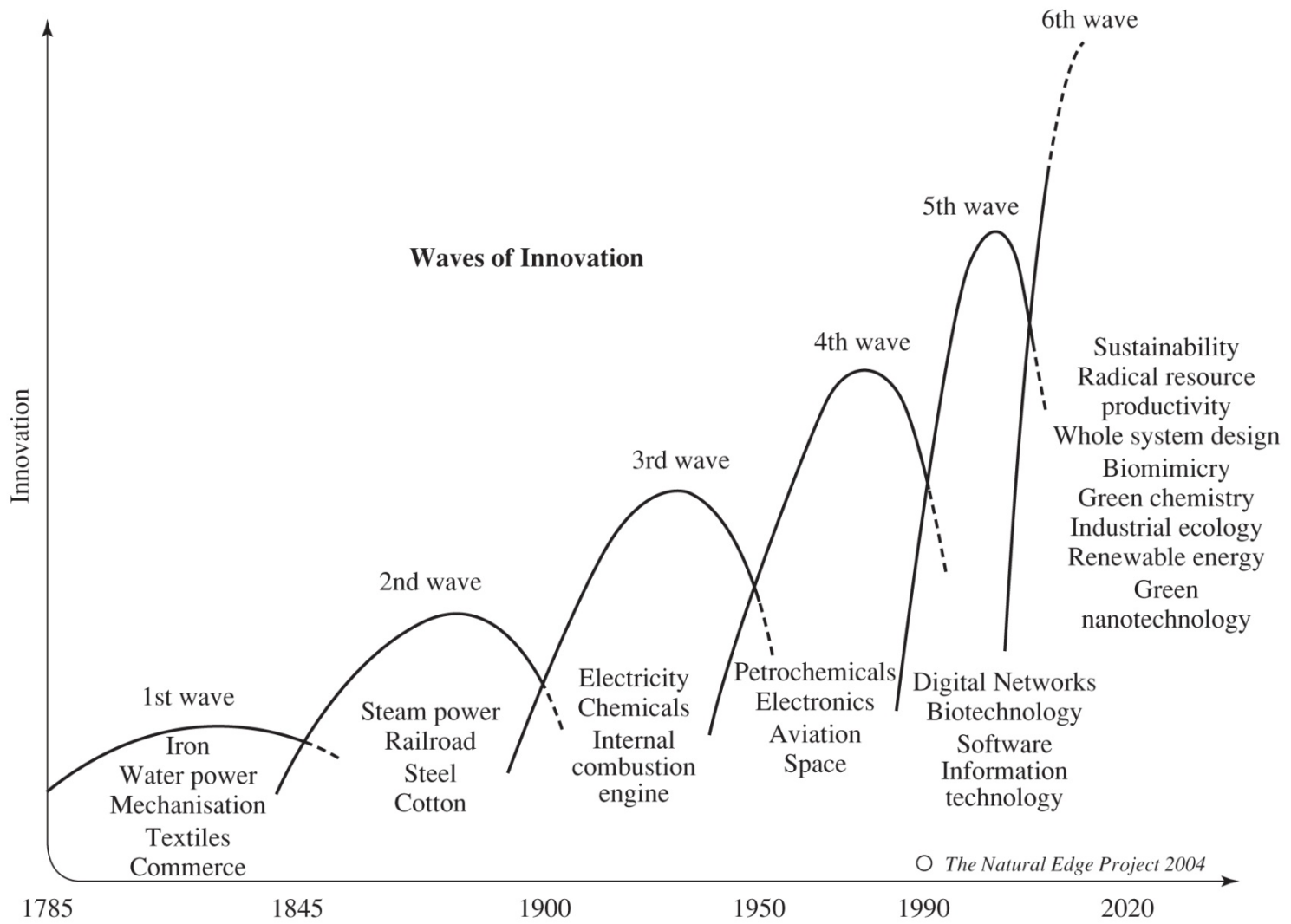
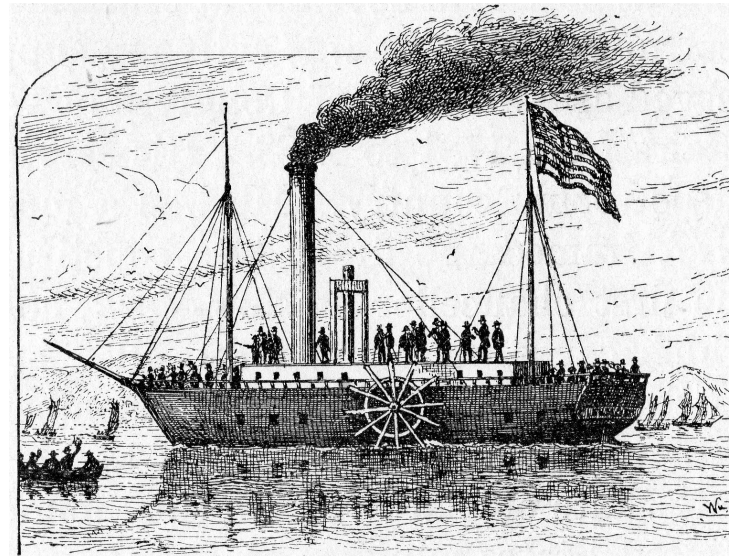


FIGURE 1.5 Waves of innovation throughout history.

When a new wave arrives, there is often a sailing ship phenomenon.

Ships for hundreds of years.
Here, the Nina, the Pinta and
the Santa Maria in 1492.



1807 Robert Fulton's steamboat

Image sources: <http://pedemacarrao.wordpress.com/2014/04/page/13/>
<http://blog.insidetheapple.net/2010/08/robert-fulton-and-age-of-steam.html>



The response from the sailing ship industry was to build faster sailing ships, known as tall ships.

Source: [https://en.wikipedia.org/wiki/Tall_ship#mediaviewer/File:N.R.P. Sagres, navio-escola. For%C3%A7as Armadas Marinha Portuguesa..jpg](https://en.wikipedia.org/wiki/Tall_ship#mediaviewer/File:N.R.P._Sagres,_navio-escola._For%C3%A7as_Armadas_Marinha_Portuguesa..jpg)

Steam won.

The **Sailing Ship Effect** is a phenomenon in business by which the introduction of a new technology to a market accelerates the innovation of an incumbent technology.

The term was coined by W.H. Ward in 1967 in reference to advances made in sailing ships in the second half of the 1800s in response to the introduction of steamships.

According to Ward, in the 50 years after the introduction of the steam ship, sailing ships made more improvements than they had in the previous 300 years.

Source: Wikipedia,
https://en.wikipedia.org/wiki/Sailing_Ship_Effect

Possible explanations

1. Old technologies improve in an attempt to avoid being replaced.
2. Components of new technology "spill over," improving incumbent technologies.
3. New technologies generate new notoriety for old technologies.

Source: Wikipedia, https://en.wikipedia.org/wiki/Sailing_Ship_Effect

Opportunities

Pull vs. Push

Demand pull

Market need → Product / service → Technology
Example: Square

Technology push

Technology → Product / service → Market need
Example: Twitter

Power of *serendipity*.

Categories of opportunities

1. **Increasing value:** Improved performance, better quality.
2. **New applications:** Credit card for hotel doors.
3. **Mass market:** VMWare for developers → operation workloads.
4. **Customization:** Spotify personalized streaming music.
5. **Increased reach:** Expand overseas.
6. **Supply chain:** Wal-Mart or Costco.
7. **Convergence:** Supercomputing and other technologies → Genetic engineering
8. **Process:** Fedex
9. **Scale:** Consolidation, e.g., railroads, cable TV, financial institutions

Trends may create opportunities.

TABLE 2.4 Social and cultural trends that will create opportunities.

- Aging of the baby-boom generation
 - Increasing diversity of the people of the United States (e.g., Latino population)
 - Two-working-parent families
 - Rising middle class of developing nations
 - Changing role of religious organizations
 - Changing role of women in society
 - Pervasive influence of media—television, DVDs, Internet
-

TABLE 2.5 Trends and opportunities.

- Life science: Genetic engineering, genomics, biometrics
 - Information technology: Internet, wireless device, cloud computing
 - Food preservation: Improved distribution of food
 - Video gaming: Learning, entertainment
 - Speech recognition: Interface between computers and people
 - Security devices and systems: Identification devices, baggage checkers, protective clothes
 - Nanotechnology: Devices 100 nanometers or less for drug delivery, biosensors
 - Renewable energy: Solar cells and wind turbines
 - Fuel cells: Electrochemical conversion of hydrogen or hydrocarbon fuels into electric current
 - Superconductivity: Energy savings on utility power lines
 - Designer enzymes: Protein catalysts that accelerate chemical reactions in living cells for consumers and health products
 - Cell phones: Communications and computing
 - Software security: Blocking unsolicited e-mail (spam), preventing “phishing”
 - Robots: Teams of small coordinated robots for monitoring and safety functions
-

Evaluating the opportunity

You have to pick, so how do you compare dissimilar choices?

TABLE 2.3 Five characteristics of an attractive opportunity.

- | | |
|---|--|
| ■ Timely—a current need or problem | ■ Profitable—the customer will pay for the solution and allow the enterprise to profit |
| ■ Solvable—a problem that can be solved in the near future with accessible resource | |
| ■ Important—the customer deems the problem or need important | ■ Context—a favorable regulatory and industry situation |
-

In technology, it helps to pick things that are still a little “rough around the edges”.

Problem-solving versus problem-choosing

A fabulous solution to a problem nobody cares about is still a solution nobody cares about.

But even a mediocre solution to a really important problem can be important.

TABLE 2.6 Guiding principles for selecting good opportunities.

- Only one or two very good opportunities are needed in a lifetime.
 - Invest less time, money, and effort in the venture than it will be worth in one or two years. Calculate the probability of a large return in four years.
 - Do not count on making a high-priced sale of your firm to the public or another company.
 - Carry out a solid analysis of the current and expected conditions of the industry where the opportunity resides.
 - If the opportunity is selected and turns out unfavorably, can you exit with minor losses?
 - Does this opportunity provide a potential for a long-term success, or is it a fad? Go to where the potential future gains are significant.
 - Can the management team execute the strategy selected for this opportunity?
 - Will the customer enable your firm to profit from this venture?
-

TABLE 2.7 Basic five-step process of evaluating an opportunity.

1. **Capabilities:** Is the venture opportunity consistent with the capabilities, knowledge, and experience of the team members?
 2. **Novelty:** Does the product or service have significant novel, proprietary, or differentiating qualities? Does it create significant value for the customer—enough so that the customer wants the product and will pay a premium for it?
 3. **Resources:** Can the venture team attract the necessary financial, physical, and human resources consistent with the magnitude of the venture?
 4. **Return:** Can the product be produced at a cost so that a profit can be obtained? Is the expected return of the venture consistent with the risk of the venture?
 5. **Commitment:** Do the entrepreneurial team members feel compelled to commit to this venture? Are they passionate about the venture?
-

		Actual quality of opportunity	
		Poor	Very good
Decision	Act	2 False choice → Loss	1 Excellent choice → Hit
	Do not act	Correct rejection → Save resources	Missed opportunity → Lost chance

FIGURE 2.6 Decision matrix.

Evaluating the opportunity

1. Market engagement
2. Opportunity evaluation

Test your idea with potential customers
and develop a plan to reach them.

The other thing you might do is ask people their opinions.

Focus groups

Focus groups can sometimes be used to test a product idea.

But it's hard to test new technology ideas in a focus group because people have trouble imagining why they would want it if they don't already have it.

talk to people

1. Interview customers (yours and your competitors) to find out their needs.
2. Interview suppliers and others already in the business, including people doing exactly what you plan to do.

Chapter 3.

Vision and the business model

Chapter 3. Vision and the business model

Important ideas

1. Vision
2. Mission statement
3. Value proposition
4. Business model
5. Responding to change

A firm's theory of its business

- 1. Vision:** A statement of purpose in response to an opportunity.
- 2. Mission:** The goals, products and customers.
- 3. Value proposition:** How the customer needs will be satisfied.
- 4. Business model:** Economics and activities of the firm.

The vision is long term, **why** the company exists and **what** it will do.

The mission is more strategic, **how** you'll do it.

A **vision** is an informed and forward-looking statement of purpose that defines the long-term destiny of the firm.

TABLE 3.1 Elements of a vision.

- **Clarity:** Easily understood and focused
 - **Consistency:** Holds constant over a time period, but is adjustable as conditions warrant
 - **Uniqueness:** Special to this enterprise
 - **Purposeful:** Provides reason for being and others to care
-

mission statement indicates the actions needed to ensure that the company continues in its success path.

Apple's Vision Statement

Apple's current vision statement was introduced by CEO Tim Cook, who stated, *"We believe that we are on the face of the earth to make great products and that's not changing. We are constantly focusing on innovating. We believe in the simple not the complex. We believe that we need to own and control the primary technologies behind the products that we make, and participate only in markets where we can make a significant contribution. We believe in saying no to thousands of projects, so that we can really focus on the few that are truly important and meaningful to us. We believe in deep collaboration and cross-pollination of our groups, which allow us to innovate in a way that others cannot. And frankly, we don't settle for anything less than excellence in every group in the company, and we have the self-honesty to admit when we're wrong and the courage to change. And I think regardless of who is in what job those values are so embedded in this company that Apple will do extremely well."*

Apple's vision statement is considerably detailed and reflects the company's comprehensive approach in ensuring continued growth and success. For instance, the vision statement enumerates a number of

Structure: Features, Pros & Cons

Apple Inc. Organizational Culture:

How well does this vision statement provide clarity, consistency, uniqueness and purpose?

Whole Foods Market's Organizational Culture Analysis

Apple Inc. Five Forces Analysis (Porter's Model)

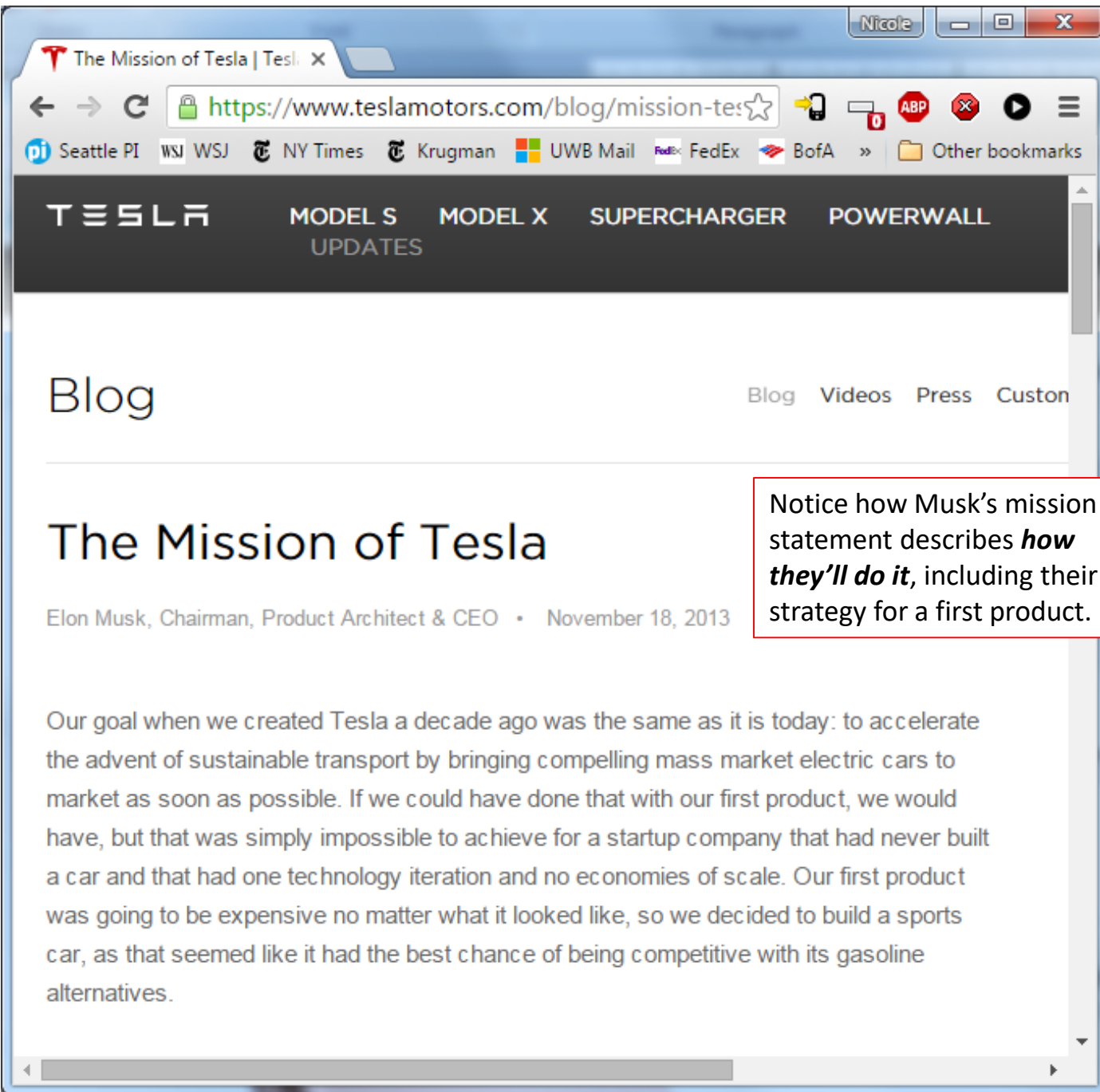
Wendy's Organizational Culture Characteristics: An Analysis

Ford Motor Company's Organizational Culture Analysis

The **mission** statement completely describes the organization's goals and customers.

TABLE 3.3 Possible elements of a mission statement.

- | | |
|---------------------------------|-------------------------------|
| ■ Core values | ■ Competitive advantage |
| ■ Customers and/or stakeholders | ■ Values provided to customer |
| ■ Products | ■ Markets or industry |
-



Notice how Musk's mission statement describes **how they'll do it**, including their strategy for a first product.

TABLE 3.4 Mission statement of eBay.

We help people trade practically anything on earth. eBay was founded with the belief that people are basically good. We believe that each of our customers, whether a buyer or a seller, is an individual who deserves to be treated with respect.

We will continue to enhance the online trading experiences of all—collectors, hobbyists, dealers, small business, unique item seekers, bargain hunters, opportunistic sellers, and browsers. The growth of the eBay community comes from meeting and exceeding the expectations of these special people.

How well does eBay's mission statement address these possible elements?

TABLE 3.3 Possible elements of a mission statement.

- | | |
|---------------------------------|-------------------------------|
| ■ Core values | ■ Competitive advantage |
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-

The value proposition

The value proposition

Value is the worth, importance, or usefulness to the customer. It is ***the value you propose to deliver.***

To be successful, a business must *create value*, selling goods or services that are more valuable than whatever it cost to create them.

TABLE 3.7 Primary and secondary values for leading firms.

		Primary Value				
		Product	Price	Access	Service	Experience
Secondary Value	Product	—	Wal-Mart	Amazon.com	Honda	Harley-Davidson Disney World
	Price	Target	—	Holiday Inn	Wal-Mart	Olive Garden
	Access	Google Barnes & Noble	Priceline Visa	—	Dell Computer	Starbucks
	Service	Toyota Home Depot Intel	Southwest Airlines	McDonald's	—	Carnival Cruise Line
	Experience	Mercedes	Virgin Atlantic Best Buy	AT&T	Nordstrom	—

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Wal-Mart is the leader in low prices and huge selection.

TABLE 3.7 Primary and secondary values for leading firms.

		price, selection, and convenience continue to be at the core of Amazon.com's value proposition				Primary Value	
				Access	Service	Experience	
Secondary Value	Product	—	Wal-Mart	Amazon.com	Honda	Harley-Davidson Disney World	
	Price	Target	—	Holiday Inn	Wal-Mart	Olive Garden	
	Access	Google Barnes & Noble	Priceline Visa	—	Dell Computer	Starbucks	
	Service	Toyota Home Depot Intel	Southwest Airlines	McDonald's	—	Carnival Cruise Line	
	Experience	Mercedes	Virgin Atlantic Best Buy	AT&T	Nordstrom	—	

TABLE 3.7 Primary

Our focus on retail sales to individual buyers has a direct correlation to the high resale value of **Honda** products, which is a key factor in the value proposition for our customers

					Value	
		Prod			Service	Experience
Secondary Value	Product	—	Wal-Mart	Amazon.com	Honda	Harley-Davidson Disney World
	Price	Target	—	Holiday Inn	Wal-Mart	Olive Garden
	Access	Google Barnes & Noble	Priceline Visa	—	Dell Computer	Starbucks
	Service	Toyota Home Depot Intel	Southwest Airlines	McDonald's	—	Carnival Cruise Line
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	Experience	Mercedes	Virgin Atlantic Best Buy	AT&T	Nordstrom	—

more power, greater efficiency and unmatched safety, backed with an improved value proposition. Not only is the new **S-Class** the most intelligent car on the road ...

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	Access	Google Barnes & Nob	Priceline	—	Dell Computer	Starbucks
	Service	Toyota Home Depot Intel	the Dell value proposition of aggressively priced systems custom-built for each customer.			Carnival Cruise Line
	Experience	Mercedes	Virgin Atlantic Best Buy	AT&T	Nordstrom	—

TABLE 3.7 Primary and secondary values for leading firms.

		Primary Value				
		Product	Price	Access	Service	Experience
Secondary Value	Product	—	Wal-Mart	Amazon.com	Honda	Harley-Davidson Disney World
	Price	Target	—	Holiday	McDonald's is famous for its value proposition: food of a constant quality that is served quickly and consistently across the globe.	
	Access	Google Barnes & Noble	Priceline Visa	—		
	Service	Toyota Home Depot Intel	Southwest Airlines	McDonald's	—	Carnival Cruise Line
	Experience	Mercedes	Virgin Atlantic Best Buy	AT&T	Nordstrom	—

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	Price	Target	—	Holiday Inn	Wal-Mart	Olive Garden
	Access	Google Barnes & Noble	Priceline Visa	—	Dell Computer	Starbucks
	Service	Toyota Home Depot	Southwest Airlines	McDonald's	—	Carnival Cruise Line
	Experience	Mercedes	Virgin Atlantic Best Buy	Carnival built an unmatched value proposition on the promise of fun.		

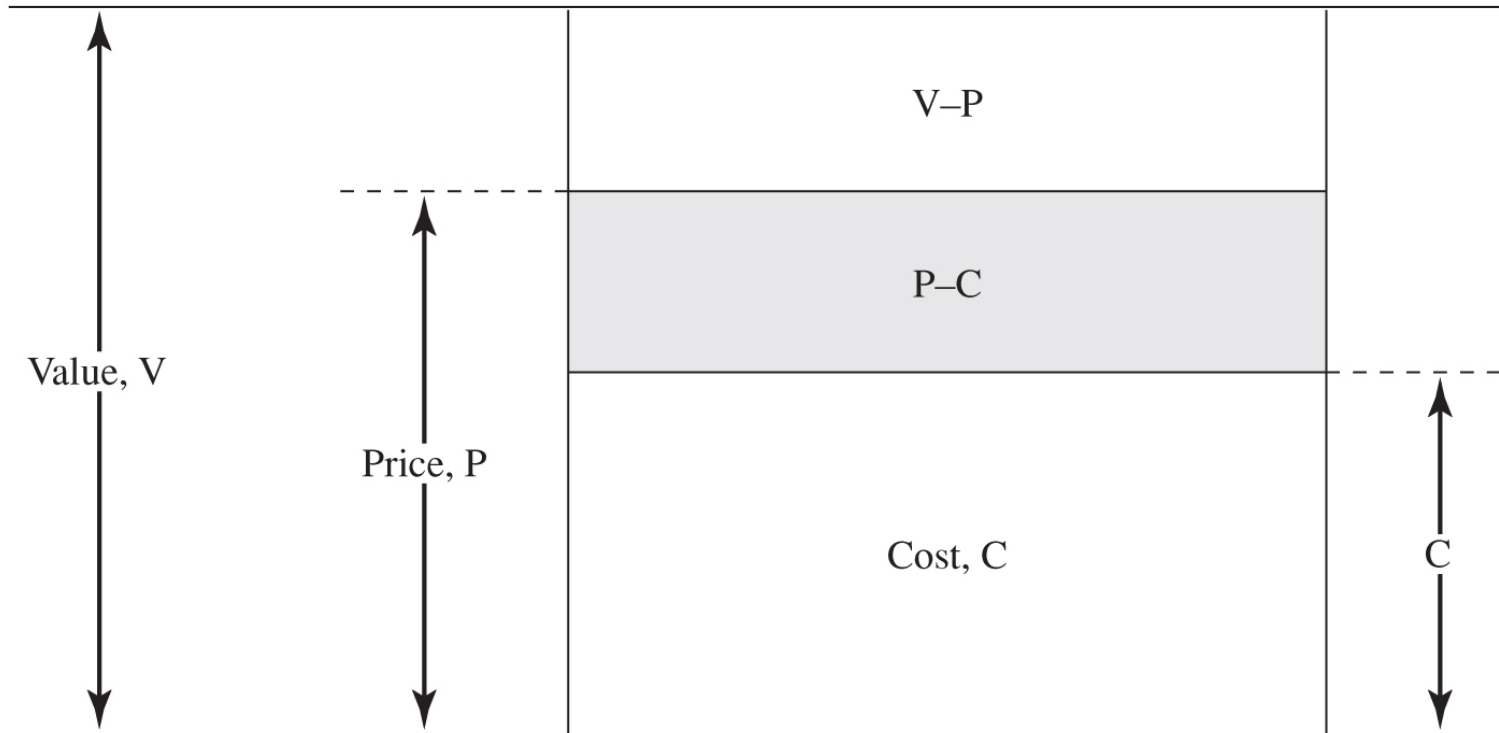


FIGURE 3.5 Value and return to the customer and the firm.

The **business model** is an integrated description of:

1. The firm's unique customer value proposition.
2. How the firm will configure its resources and activities to deliver that value and earn sustainable profits.

TABLE 3.8 Elements of a business model.

■ Customer selection:	Who is the customer? Is our offering relevant to this customer?
■ Value proposition:	What are the unique benefits?
■ Differentiation and control:	How do we protect our cash flow and relationships? Do we have a sustainable competitive advantage?
■ Scope of product and activities:	What is the scope of our product activities? What activities do we do, and what do we outsource?
■ Organizational design:	What is the organizational architecture of the firm?
■ Value capture for profit:	How does the firm capture some of the total value for profit? How does the firm protect this profitability?
■ Value for talent:	Why will good people choose to work here? How will we leverage their talent?
