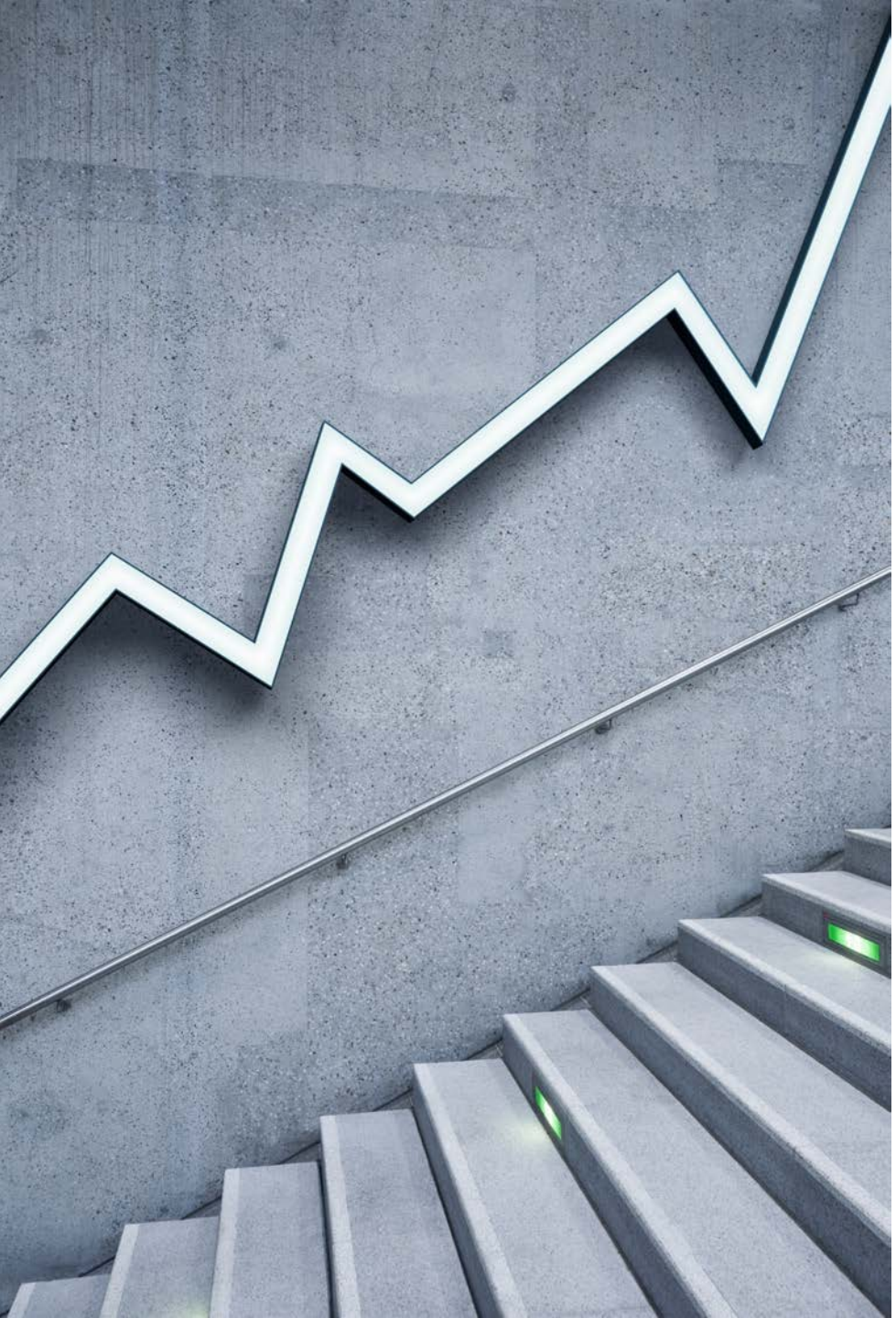


Components of Business Start-Up and The Role of Academic Institutions

BY: EMEKA OSUJI

UH MASTERS OF SCIENCE IN MECHANICAL ENGINEERING

New Ventures: What does it take?

- Resource requirements
  - Man-power
  - Innovative idea/ intellectual properties
  - Facilities and Equipment
  - Capital investments
- Innate skills and psychological vigor
  - Passion and drive
  - Creativity in developing solutions

The importance of character

- There are many lists and suggestions to ho to develop a successful start-up yet over 95% of them fail.
- Distinguishing factors in entrepreneurs boils down to.....

Character Traits

- At the top of the list? **Passion and Intensity**

A Study conducted over 71 entrepreneurs →

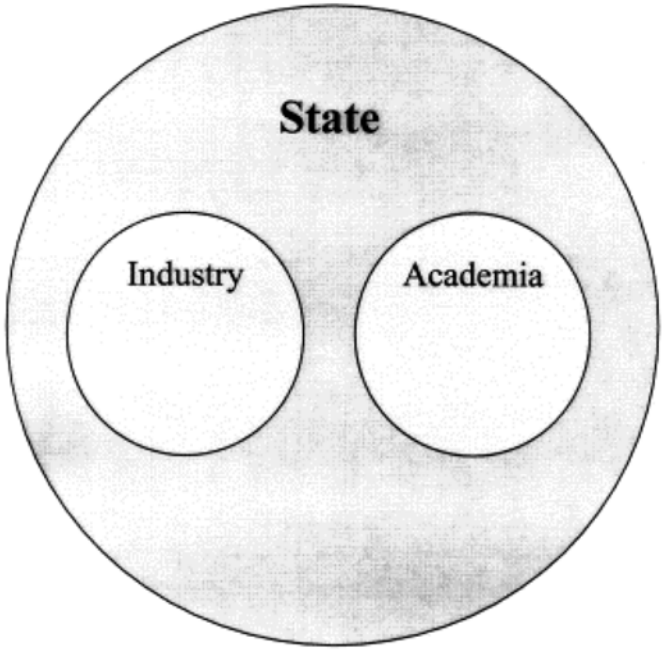
Year 1	Started (n = 34)	Gave up (n = 16)	Still Trying (n = 21)
1st month	Looked for F + E	Asked for funding Developed models Saved money to invest Organized start-up team	
1st quarter	Invested own money Asked for funding Got financial support Prepared plan	Invested own money Got financial support	Saved money to invest
2nd quarter	Formed legal entity Organized team Bought F + E Devoted full time	Prepared plan Bought F + E	Prepared plan Organized team
3rd quarter	Hired employees	Looked for F + E	Invested own money Looked for F + E Applied for L/P
4th quarter	Saved money Rented F + E Applied for L/P	Devoted full time Applied for L/P	Bought F + E

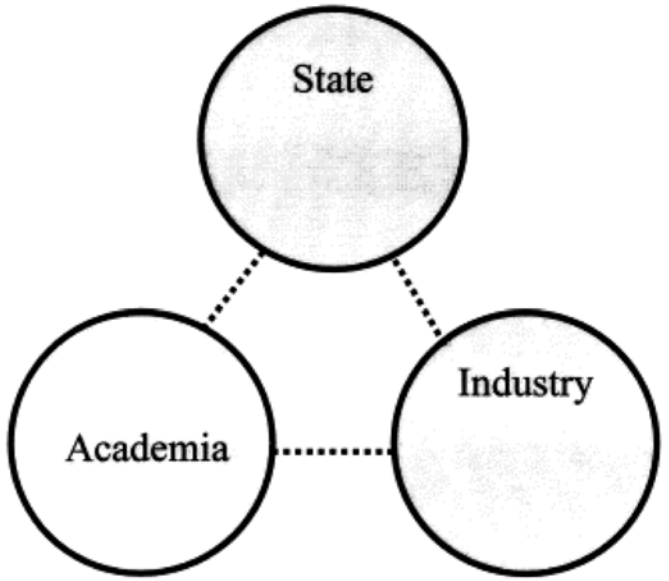
The weight of academia as an intellectual resource

Potential concerns

- Gimmicks
- No marketability
  - Too costly
  - Not user friendly
  - No existing market
- Patents stifle knowledge diffusion. Akin to a lottery ticket approach

However, universities remain highly recognized and can compete with consulting firms as a "contender for knowledge leadership"





Participation of UK university faculties in respective disciplines

Discipline	Meetings and conferences	Consultancy and contract research	Joint research	Training	Creation of physical facilities
Chemical engineering	85.5	75.4	59.0	56.5	26.2
Chemistry	67.4	58.9	46.8	45.2	17.3
Civil engineering	81.4	74.4	47.7	44.2	26.7
Computer science	59.9	42.0	42.6	31.5	17.9
Electrical and electronic engineering	81.4	69.8	54.7	53.5	32.0
General engineering	79.3	71.6	55.3	52.6	31.0
Mathematics	24.1	20.4	12.0	15.3	2.8
Mechanic. aero. and manuf. engineering	86.0	81.0	62.9	62.0	34.8

The Bottom-line

- Though we may wish it, there is no one size fits all approach to successful business development
- Focus on
  - Character development – be driven, passionate, think outside the box
  - Create value – clearly communicate the company's vision to the customer
  - Stay alert to emerging opportunities
- For the entrepreneur, universities are a premium source of innovative technologies and ideas but they are not above scrutiny.

The Strategies of Successful Startup Companies Midst Pandemic

Prepared By: Destiny Herrera
Date: 11/23/2020

Introduction

Motivation

- Identify the strategies of 3 companies that excelled during a time the economy at a whole, was failing.

Basics and overview

- **The companies:** DoorDash, a food delivery app. Epic Games, a video streaming service. Tiktok, a social media app.
- Focused their advantage of the economy having to shift from physical presence to a virtual one by laptops, phones, and televisions.

Main Marketing Strategy - Ease of Access and

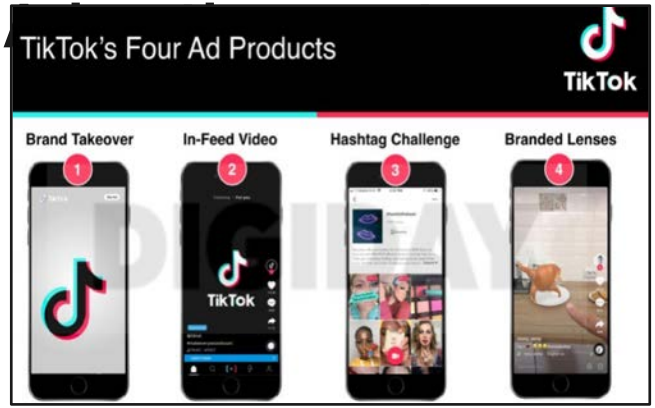


Figure 1- TikTok Advertisement

Figure 2- DoorDash Advertisement

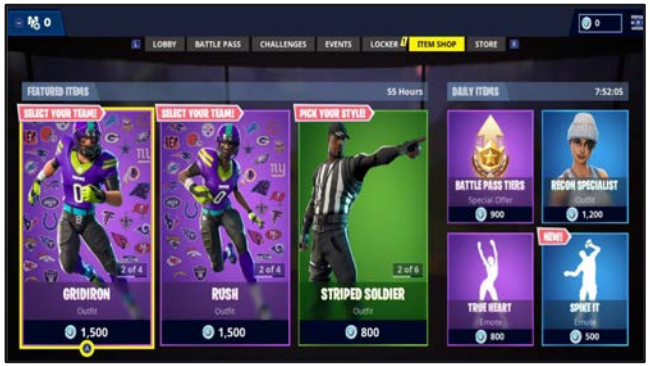


Figure 3- Fortnite Advertisement

- All three platforms are free and readily available, but generate revenue by heavy advertisements.
- Figure 1, TikTok generates individual algorithms for each user that is directed to push branding in the most liked topics of the user.
- Figure 2, DoorDash gives a numerous amount of "free" deals, but generates revenue by commissions, delivery, service fee's, and advertisements.
- Figure 3, Fortnite allows free gameplay, but the user's character is sufficiently hindered compared to others who pay for the better upgrades and features.

Markets of the Companies in middle of Global Pandemic

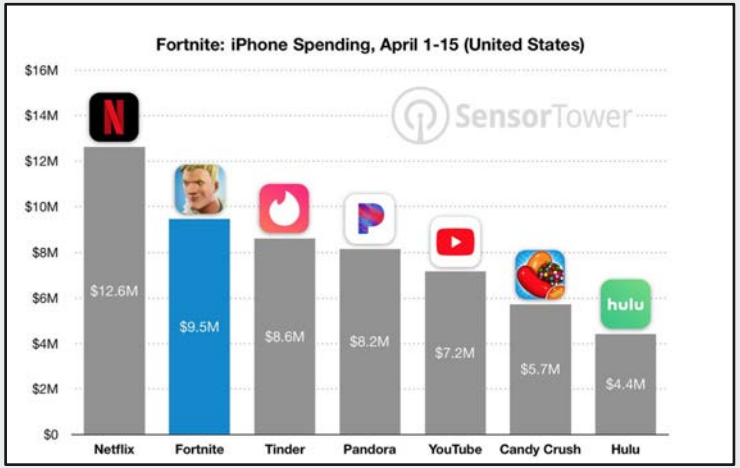


Figure 1- Fortnite Usage

- Each Diagram shows the market of each platform at the middle of the global pandemic, in April 2020.
- Figure 1 and Figure 2 show the companies at the top of usage compared to other relevant services.
- Figure 3 shows almost a 50% jump from the second quarter of 2019 going into the first quarter of 2020.

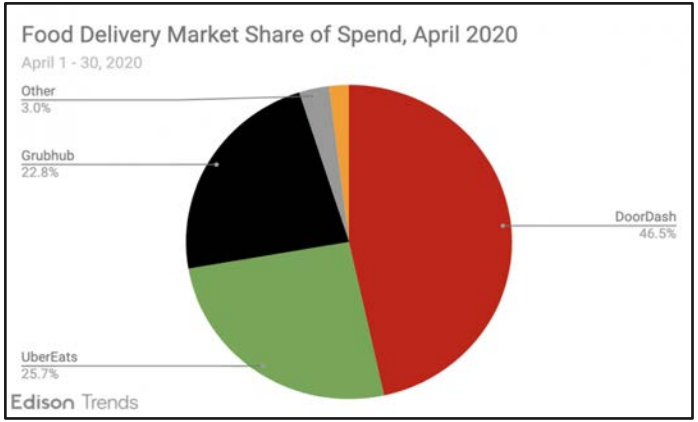


Figure 2- DoorDash Market Share

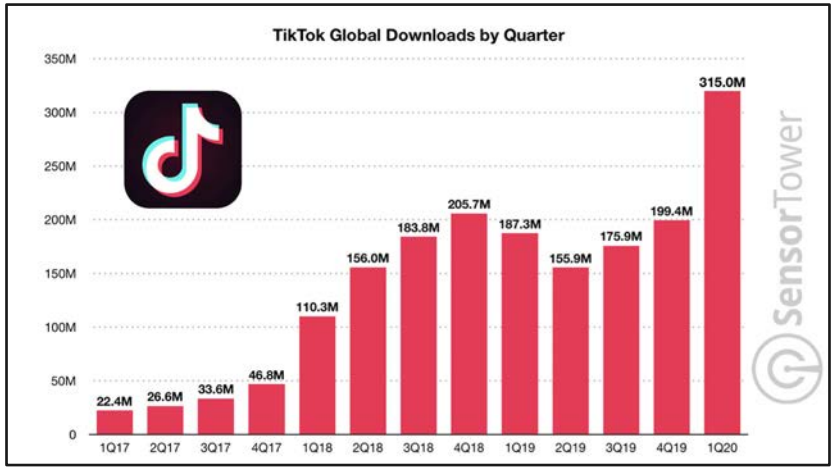


Figure 3- TikTok Usage

Conclusion

- Doordash, Epic Games, and TikTok were able to maximize on the innovative product and ease of access during a time where countries were in quarantine.
- Ease of access includes accessibility on all electronics ranging from laptops, smartphones, tablets, and even tv’s.
- Each platform is unique to its category of goods and services. This allowed them to excel past already established companies and ultimately moving to the top.
- To create revenue, the companies strategically placed increased advertisements, upgrades, and service fees on the initially free platforms. According to consumers, the advertisements slowly increased throughout the apps existence.

Entrepreneurs and Kondratieff Wave

Dalton Curtis

Background and Motivation

What is a K wave?

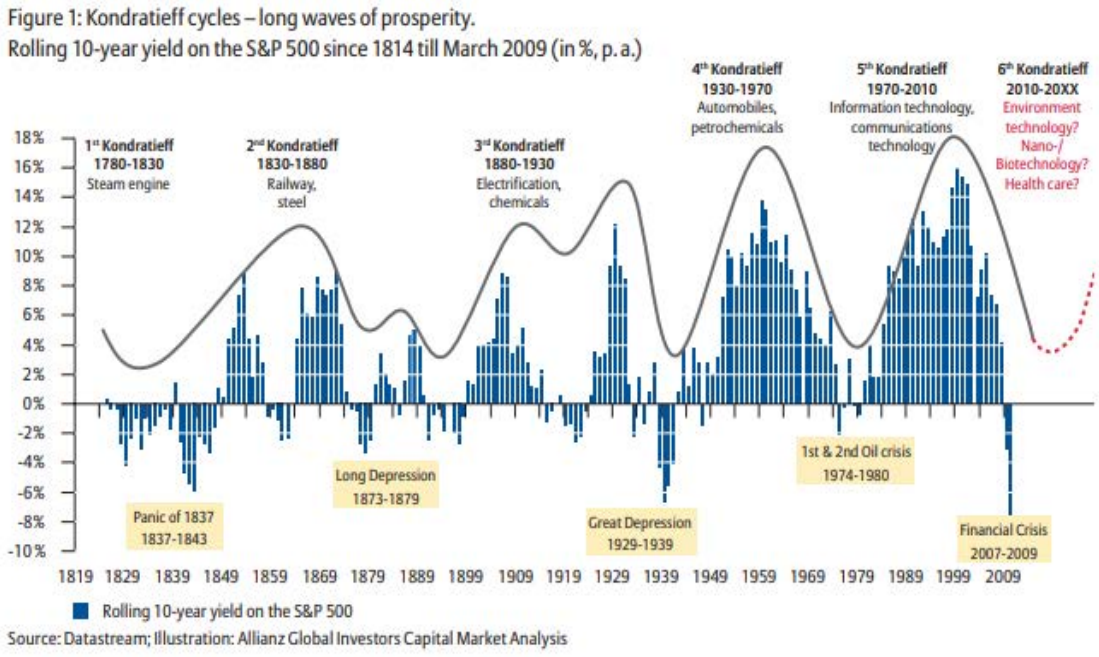
A Kondratieff wave is the apparent cyclic fluctuations of an economy averaging every 50 years

How are entrepreneurs related to K wave theory?

According to mainstream K-wave theory the economic fluctuations are tied to waves of technological innovation. These technological innovations are introduced into the economy by entrepreneurs.

- *If the above is true, then this presentation will show evidence of entrepreneurs, technological innovation, and K-wave being related.*

Evidence of Long Waves in Economy



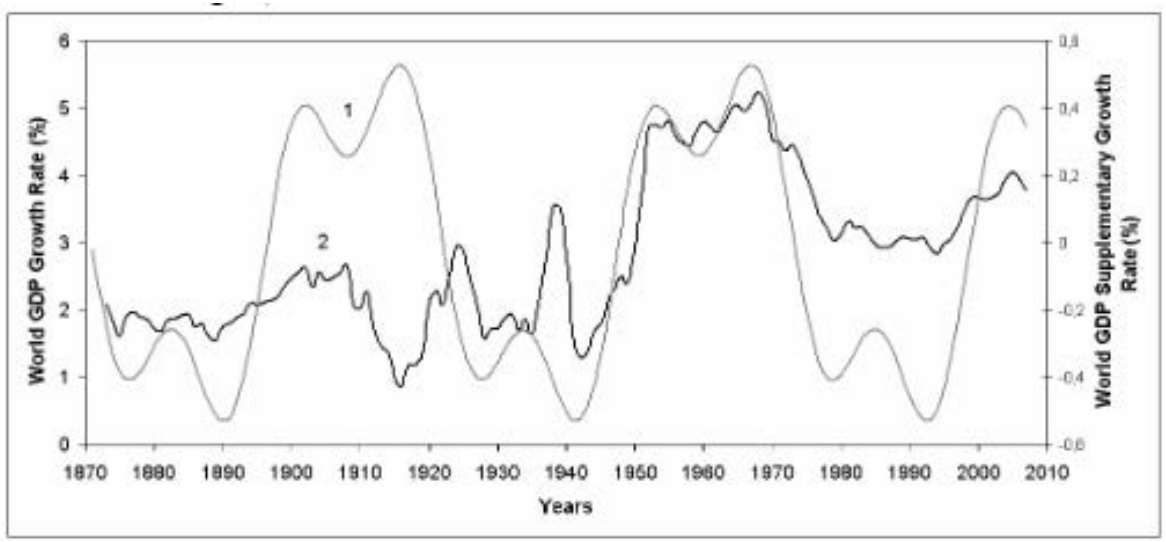


Figure shows 5 long waves starting from the 19th century. Using the S&P 500 for data values.

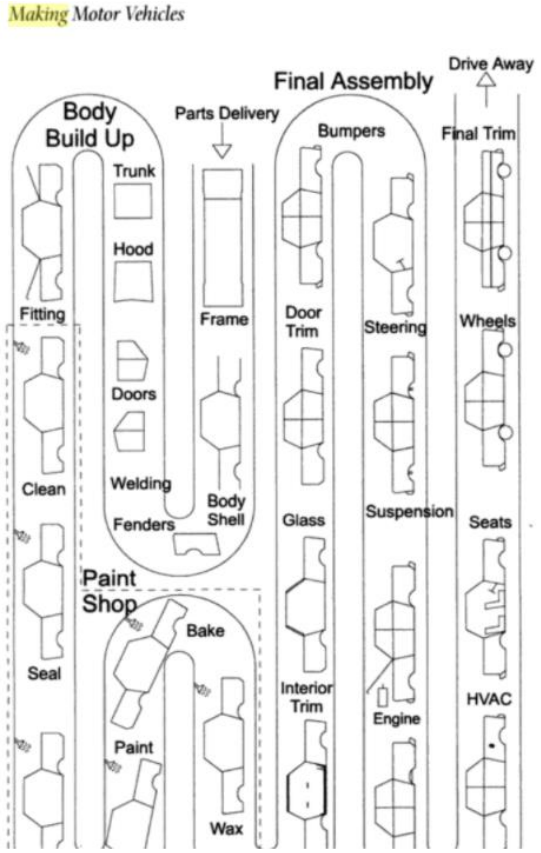
GDP growth rate being used to show cyclical nature of Long waves.

Automotive Innovation & 4th Long Wave

Table 5-3: Foreign Motor Vehicle Assembly Plants Established Between 1913 and 1928

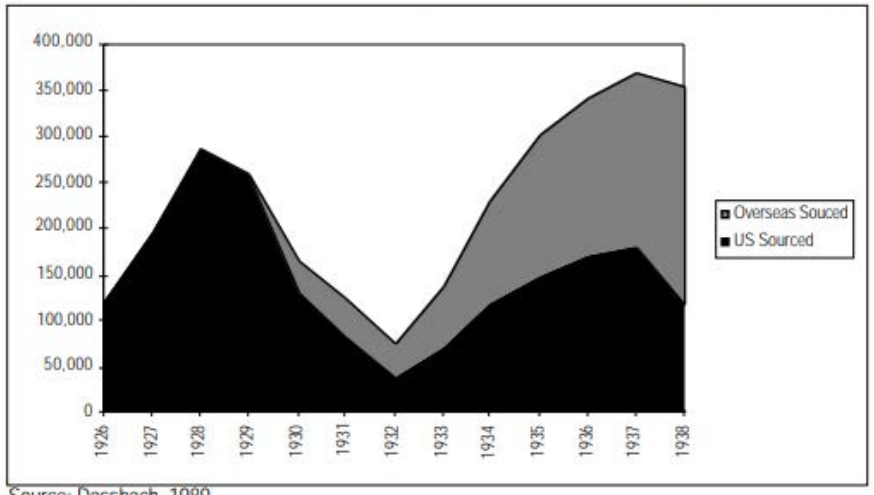
Company	Inception Date	Location	Type of Plant	Mode of Entry
Ford	1913-1925	Bordeaux, France	CKD Assembly	New Subsidiary
Ford	1915	Buenos Aires, Argentina	CKD Assembly	New Subsidiary
Ford	1919	Buenos Aires, Argentina	CKD Assembly	New Subsidiary
Ford	1919-1925	Cadiz, Spain	CKD Assembly	New Subsidiary
Ford	1919	Copenhagen, Denmark	CKD Assembly	New Subsidiary
Ford	1919	Sao Paulo, Brazil	CKD Assembly	New Subsidiary
Rolls Royce	1919-1929	Springfield, Massachusetts	Integrated Manufacture	New Subsidiary
Ford	1922	Antwerp, Belgium	CKD Assembly	New Subsidiary
Ford	1922	Sweden	CKD Assembly	New Subsidiary
Ford	1922	Trieste, Italy	CKD Assembly	New Subsidiary
Ford Canada	1923	South Africa	CKD Assembly	New Subsidiary
GM	1923	Australia	Body mfg./CKD chassis	Acquisition (Holden)
GM	1923	Copenhagen, Denmark	CKD Assembly	New Subsidiary
Austin	1924-1928	Le Mans, France	Integrated Manufacture	Acquisition (Le Bolee)
Ford	1924	Santiago, Chile	CKD Assembly	New Subsidiary
Ford	1924-1938	Yokohama, Japan	CKD Assembly	New Subsidiary
GM	1924	Antwerp, Belgium	CKD Assembly	New Subsidiary
GM	1924	London, England	CKD Assembly	New Subsidiary
Citroen	cf. 1925	Belgium	CKD Assembly	New Subsidiary
Ford	1925	Barcelona, Spain	CKD Assembly	New Subsidiary
Ford	1925	Berlin, Germany	CKD Assembly	New Subsidiary
Ford	1925	Paris, France	CKD Assembly	New Subsidiary
Ford Canada	1925	Geelong, Victoria, Australia	Body mfg./CKD chassis	New Subsidiary

CKD (Completely knocked down) manufacturing led to Ford being able to quickly mass manufacture vehicles over seas



Henry Ford was vital to the automotive boom for the innovation he pioneered: The Assembly Line

Figure 5-1: Domestic and Local Sourcing of GM's Overseas Sales, Units, 1926-1938



Source: Dassbach, 1989

The 4th K wave starting in 1930 is speculated to be caused by the automobile and petrochemical boom. This can be supported by looking at automotive sales.

Conclusion

The combination of the CKD, Assembly line manufacturing, as well as Ford's vision of the "car for everyone" made Ford one of the biggest automotive firms at the start of the 4th Long Wave.

HUMAN AUGMENTATION AS THE SIXTH KONDRATIEFF WAVE

DAMIAN KAO UHID: 1449231

DR ARDEBILI

MECE 5397

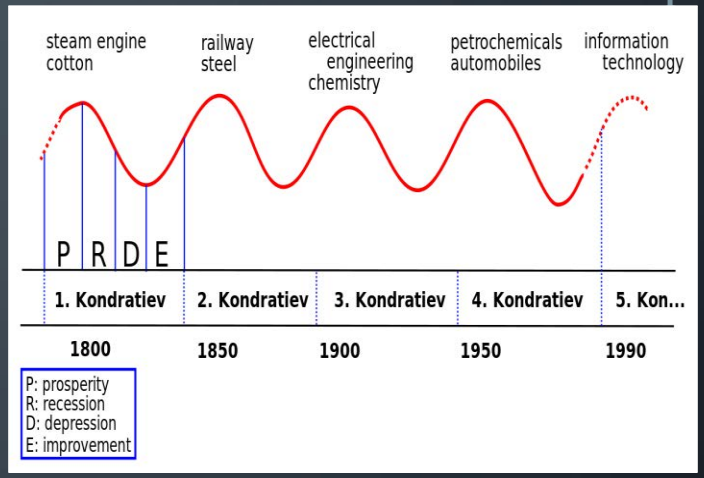
RESEARCH PROJECT PRESENTATION

INTRODUCTION

What are the Kondratieff Waves?

This is the name given to a long economic cycle that lasts between 40 to 60 years, and the trigger for these are groundbreaking innovations.

The last wave was defined by advancements in information technology, which paved the way to our current way of life.



What is Human Augmentation? And why is it relavant?

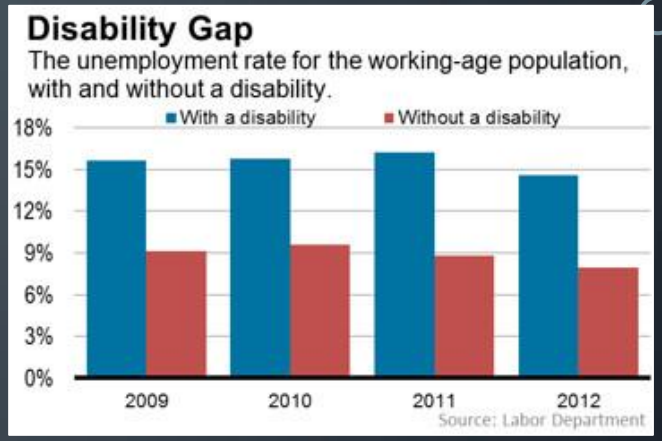
This is technology that can enhance the capability and productivity of humans. An example is the pacemaker.

Augmentations will more sophisticated technology behind them will not only be able to allow people to function as normal but can also allow them to perform better than 'normal' .

POTENTIAL GLOBAL INTEREST

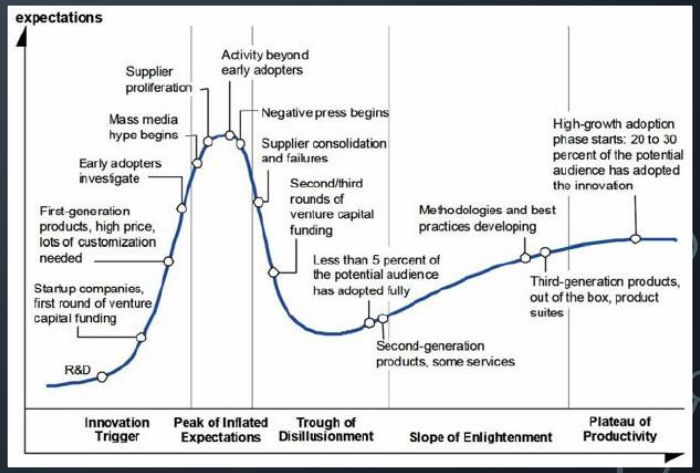
What augmentation can provide:

- More opportunities for the disabled.
- Increased capability in physical and mental tasks.
- Better standard of living.
- Longer life expectancy.



Why it could happen soon:

Human augmentation technology overall has passed the first peak of the Gartner Hype Cycle. Few generations of companies have already invested in concepts, ie: Google Glass, and CRISPR.

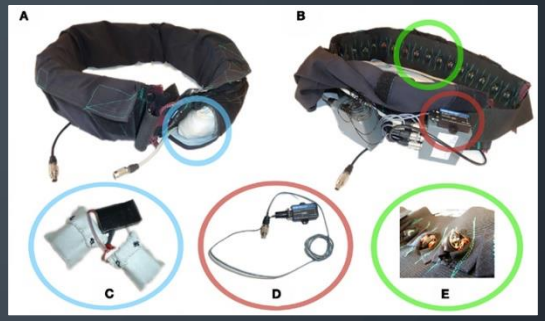


INNOVATIONS HAPPENING NOW

Haptic Wearables for Sensory:

- Tactile Belt

  Vibrational feedback relays directional information for the visually impaired.



Exoskeletons for Physical Endurance:

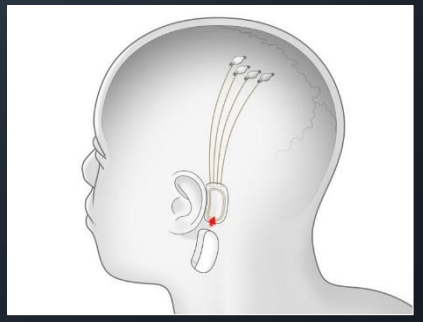
- Lockheed Martin's Onyx

  Mechanical knee actuators, sensors and AI software to improve strength and endurance.

Sensory implants for Neurological:

- Elon Musk's Neuralink

  Concept Brain-machine interface for treating neurological conditions.



CONCLUSION

- Human Augmentation has the potential to dramatically improve standard of living, especially for those who are disabled.
- Multiple companies have begun to invest and develop new augmentation technologies.
- Technological human augmentation must start, before Artificial intelligence can truly take shape and have a significant impact in our lives.

Challenges for startup companies and ways to be successful

DANIEL NACIANCENO

MECE 5397

NOVEMBER 2020

PROFESSOR ARDEBILI

What are Startups?

Young company that is beginning a business

- Brings service or product to market
- High risk of failure
- Lots of factors will dictate the success of the company
  - Background research
  - Market necessity
  - Enough funds?
  - Who are your customers?
  - Do you have the right team?

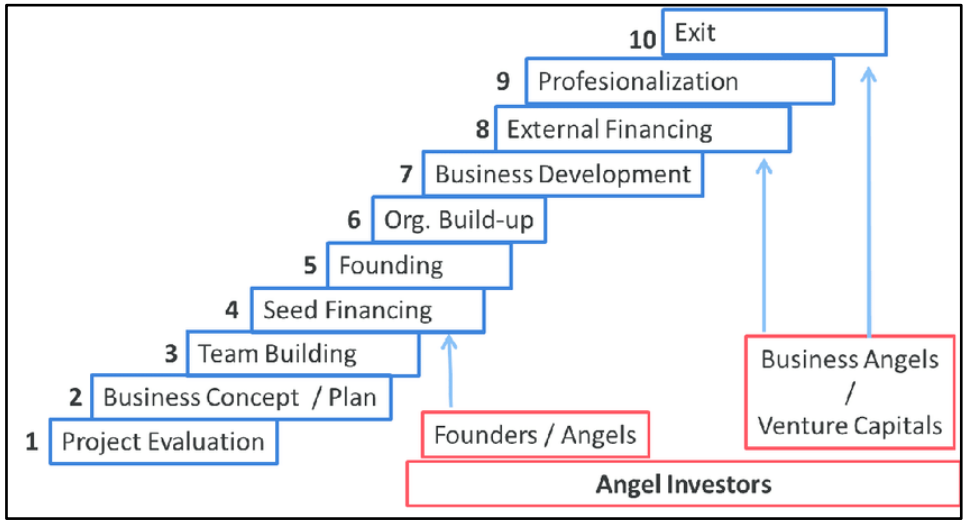


Figure 1: General steps for a startup

Top Reasons Startups Fail

According to the statistics of Cbinsights..

- 1. No market need – 42%
- 2. Running out of Cash – 29%
- 3. Not the right team – 23%

Figure 2: Top Reasons Startups Fail

According to a research paper that analyzed 51 startup failures..

- 1. Lack of money – 34%
- 2. No need for product service – 28%
- 3. Cost issues – 16%
- 4. No investors 16%
- 5. Not the right team – 14%

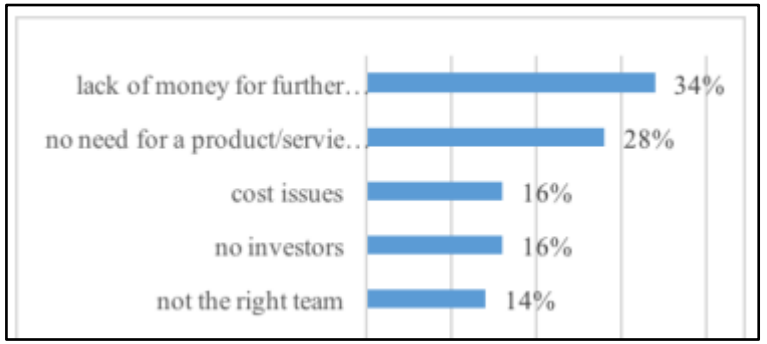


Figure 3: Reasons for 51 Startups Failure

Environmental Elements

Environmental elements deal with market necessity, customers and trust, and overall background research

- Study found by the Hawaii IC on system services – Many saw “The process of building behavioral intention as an incremental development process, not as a direct causal relationship.”

- **Environmental Factor tips and steps**
- Select a benchhead market, Bill Aulet 24 steps to a successful startup
- Find out what your customer wants, plan thoroughly
- Background research, competitors, placement of business etc.

Finances

Finances are the funds for the startup company

- Study by the IJFME in India, 85% startups reported underfunded
- 55% of funds were personal savings – 2003, 500 companies

Recommendations by Jonathan Long, of Uber Brands

- Cash flow management is key
- Track and Monitor all spending
- Limit Expenses in the beginning

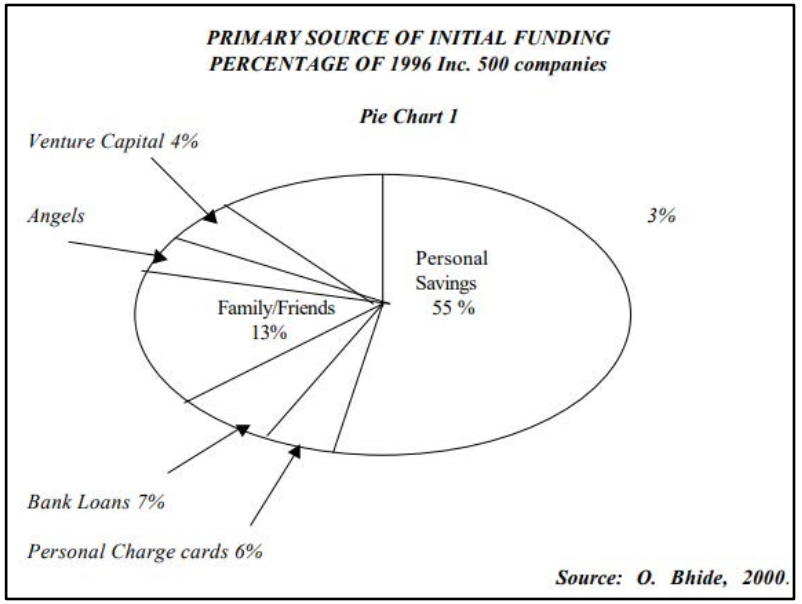


Figure 4: Primary source of funding for 500 startups

Building the Correct Team

What to look for in individuals?

Often under looked and critical for startups

- 141 Harvard Business founders surveyed – 88% said building team crucial
- 4 in every 5 believed communication helped job performance

What to look for in individuals? (Entrepreneur Article, Eric Sachs)

- Adaptability – changes within company
- Communication – productivity and efficiency
- Dedication – time and effort sacrifice
- Experience – problem solving
- Great Vision – future success

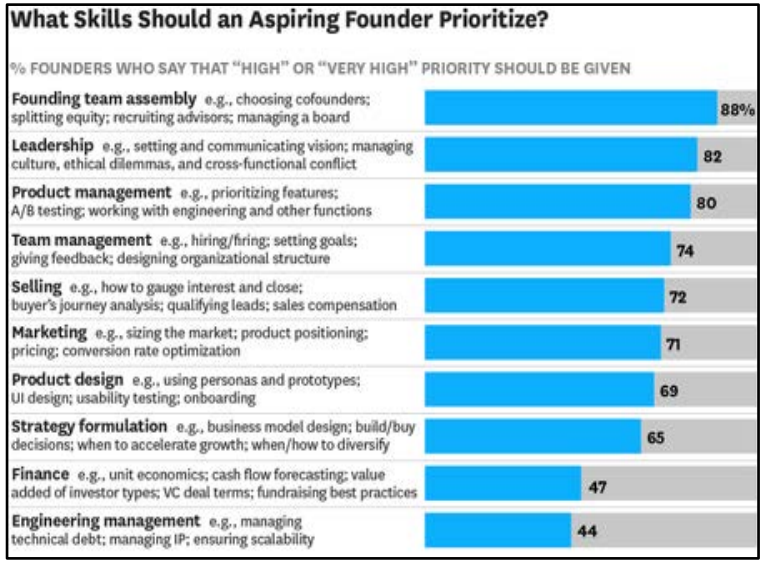


Figure 5: Skill prioritization for founders

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A Case Study of Boosted USA and the Events that lead the Company from a Booming Startup to Bankruptcy

By Devinda Dharmawardene

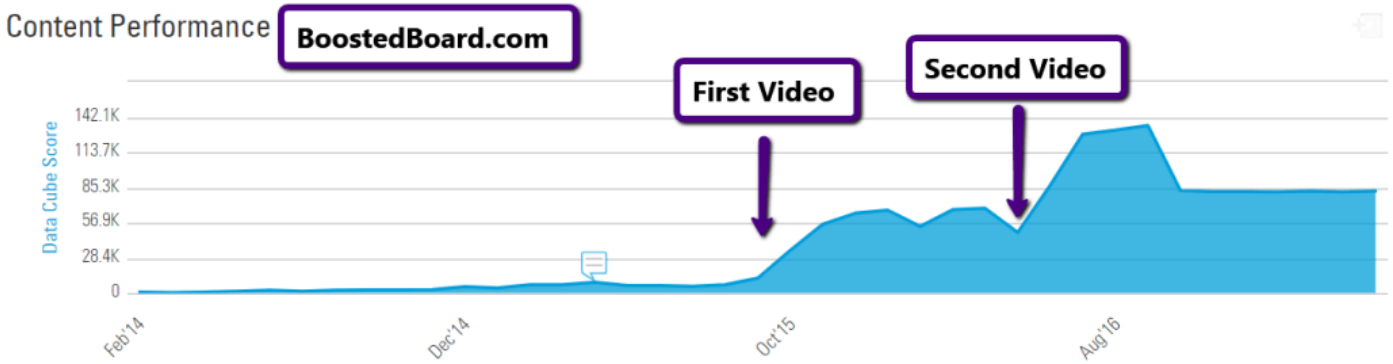
Motivation

- Boosted was a startup founded in 2012 that specialized in the emerging market of personal electric transportation, centering on their main product: The boosted board.
- They burgeoned into a multimillion-dollar company. However, despite the overwhelming success and popularity, the company ran into trouble and was sold.
- Analyzing the case of Boosted can help better understand the market and what lead to the failures.

BOOSTED USA

Boosted's Rocket to Success

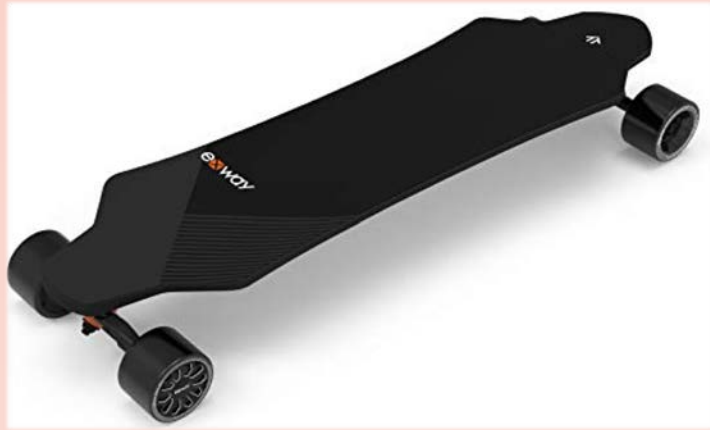
- Started at StartX accelerator program for startups
- Immense Popularity: Kickstarter goal of $100,000 in pledges. Raised $476,000 in 24 hours
- Coolness factor and endorsement by celebrity Casey Neistat in viral Youtube videos



Stiff Competition And Trade War

- China-U.S trade war led to increased tariffs, trouble with suppliers and unpaid vendors.
- Countless competitors and cheap Chinese boards flooding the market with more affordable prices

Wowgo 3

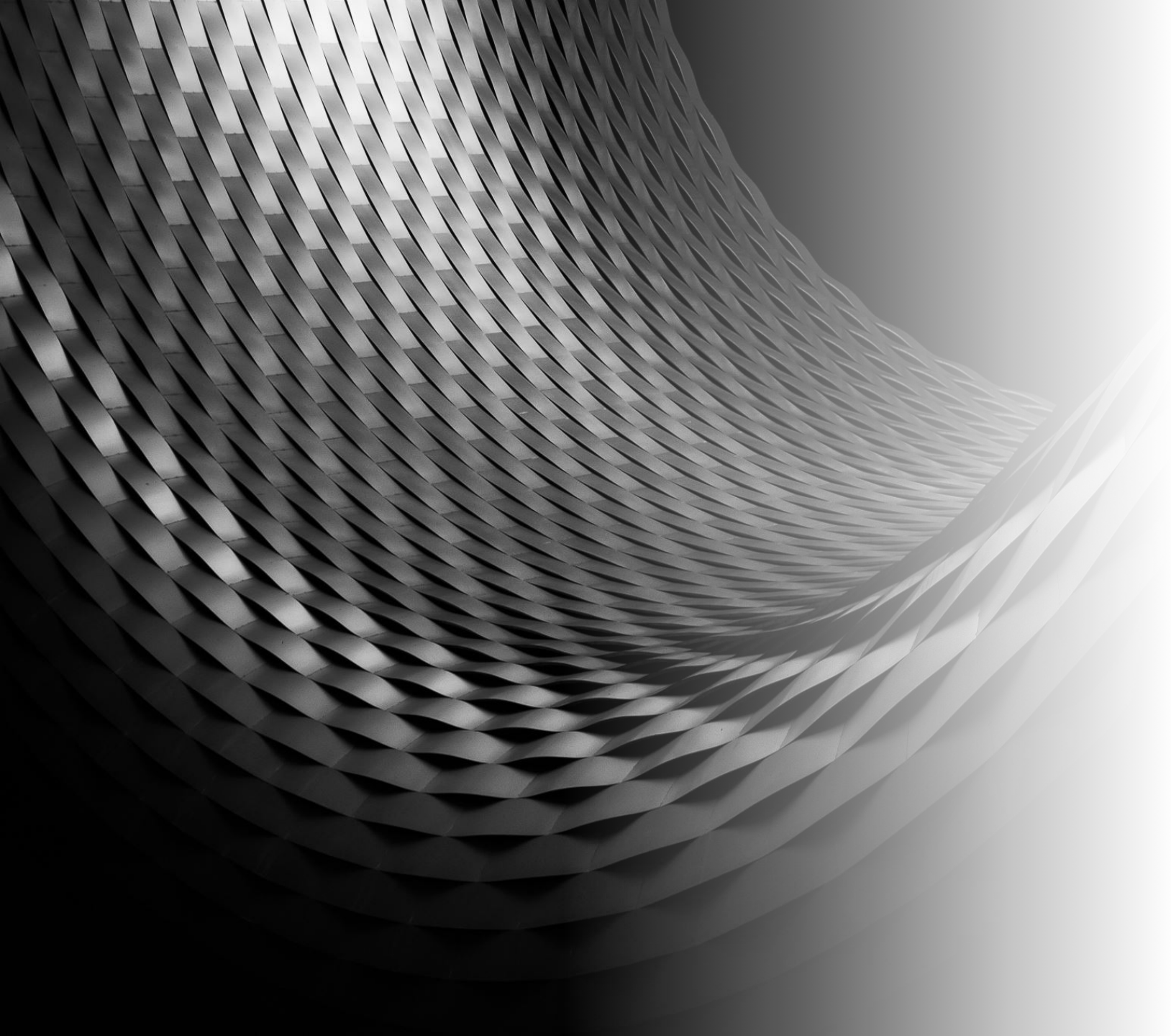


Exway X1 Pro

Backfire G2T

Takeaway

- This Case displayed the aggressive competition from Chinese goods that make it very difficult for American manufacturers and companies. This is especially difficult for businesses with high R&D and manufacturing costs.
- The failure came from the compounding of an aggressive push for expansion coupled with hefty tariffs from the trade war
- Boosted ultimately ended up cutting a large part of its staff and looked for a buyer. Stayed alive under new ownership.



K Waves and Innovation Diffusion

Presentation of review paper

ENGI 6397

Dhaivat Solanki

1498917

Introduction

- Concept of K wave
  - Motivation to study K wave and innovation diffusion
  - Causes of K wave
  - K wave in recent era
  - 5^{th} K wave with respect to ICT in developing countries
- Models for diffusion of innovation
  - Diffusion of innovation in healthcare sector
  - Role of manufacturing sector
  - Heterogeneous diffusion

K waves observation with product life cycle

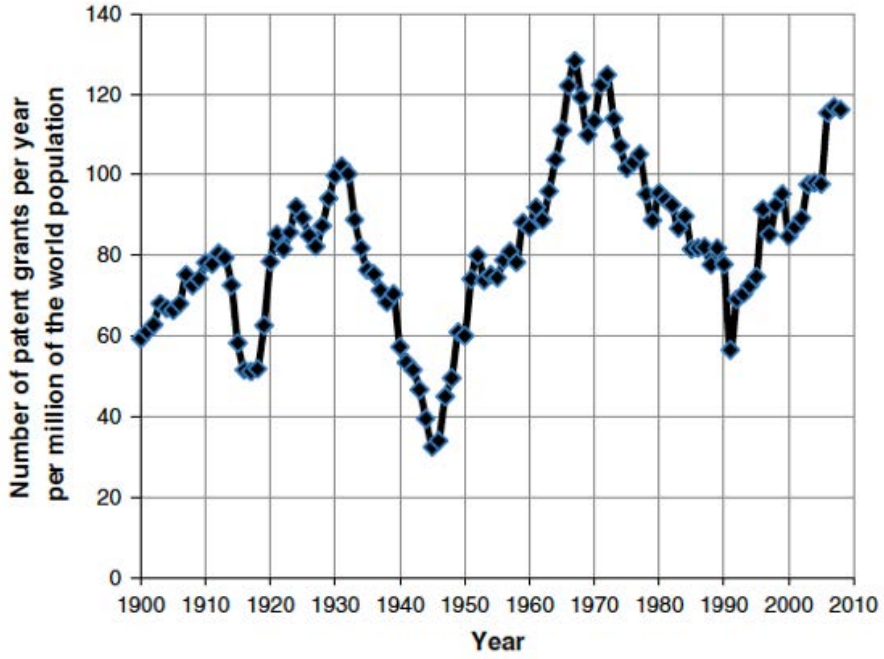


Figure 1 Number of patterns granted worldwide normalized to per million of the population[4]

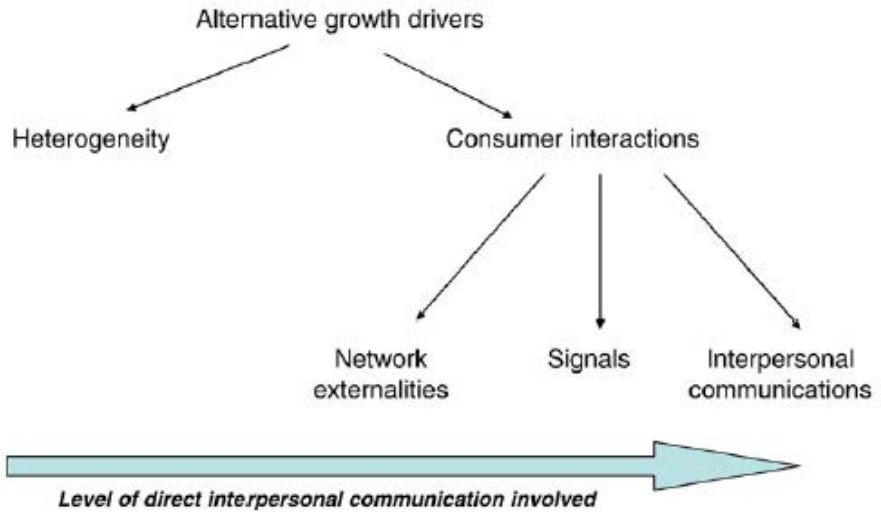


Figure 2 Factors affecting diffusion of innovation[8]

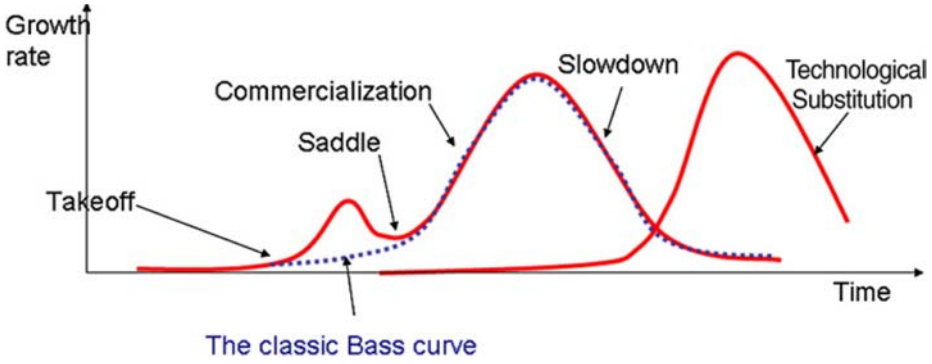


Figure 3 Turning points in product life cycle[8]

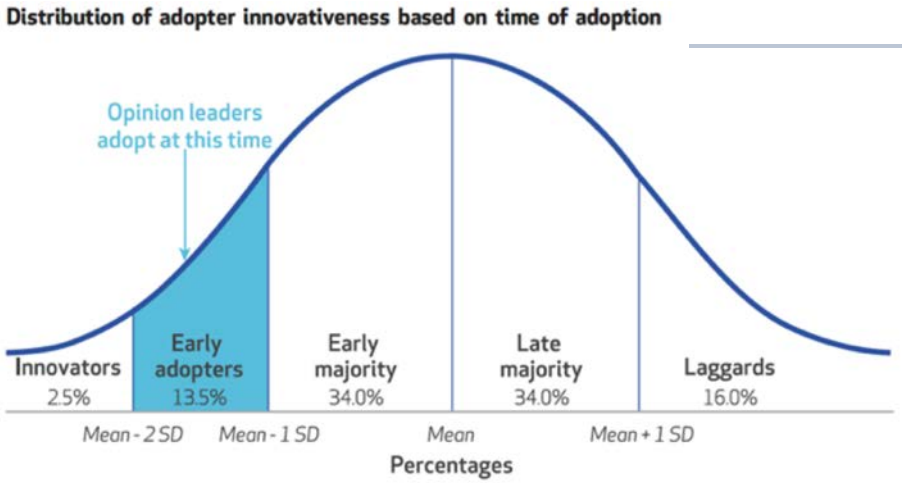


Figure 4 Adoption of diffusion[7]

Diffusion rates in USA and trends of convergence and divergence

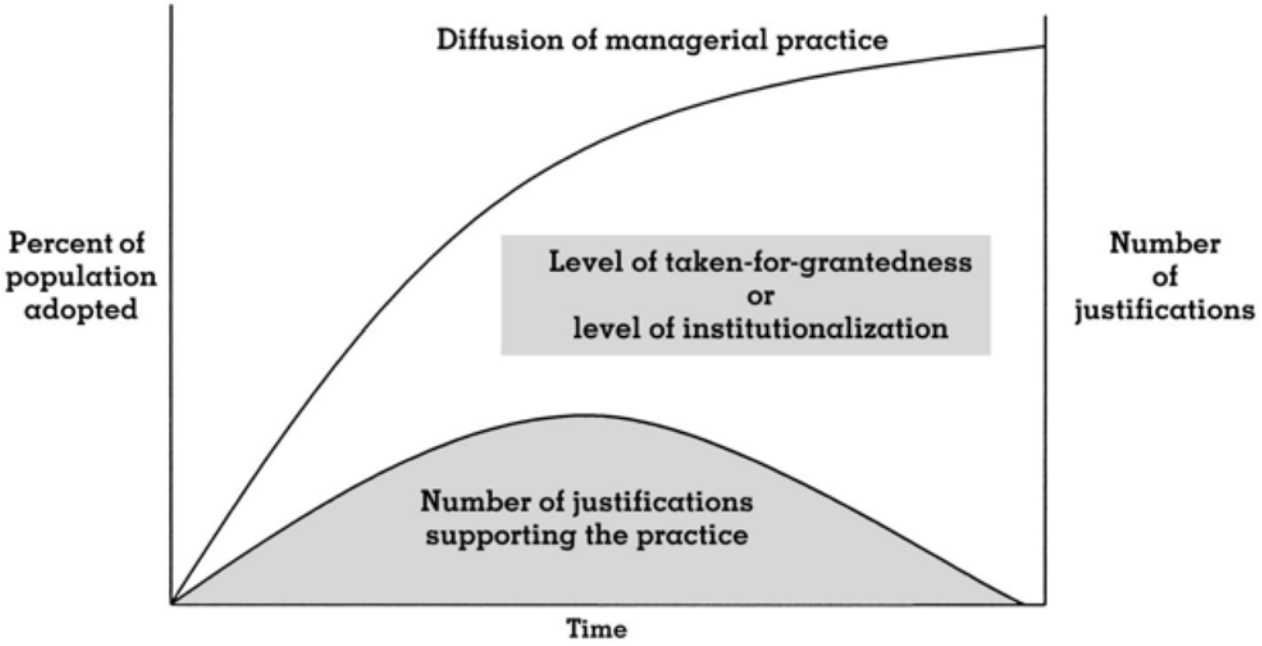


Figure 5 Rhetorical theory of diffusion[10]

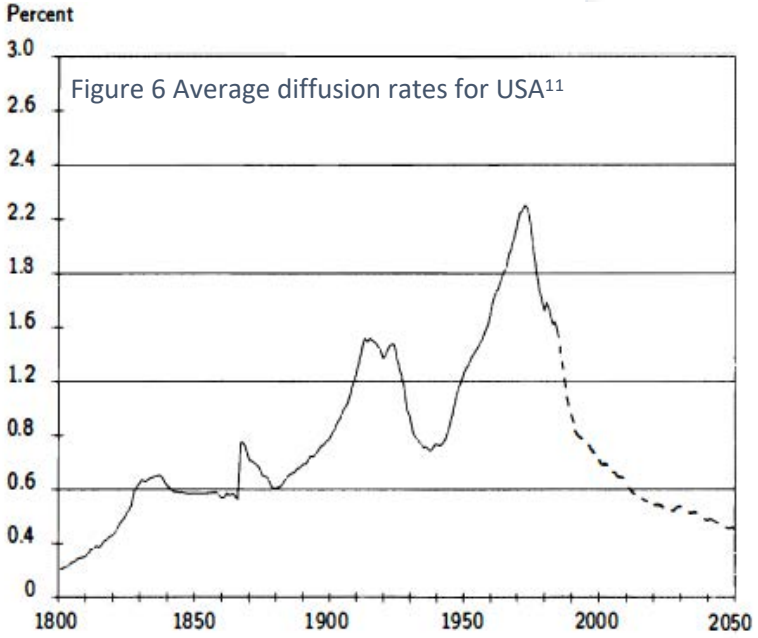


Figure 6 Average diffusion rates for USA[11]

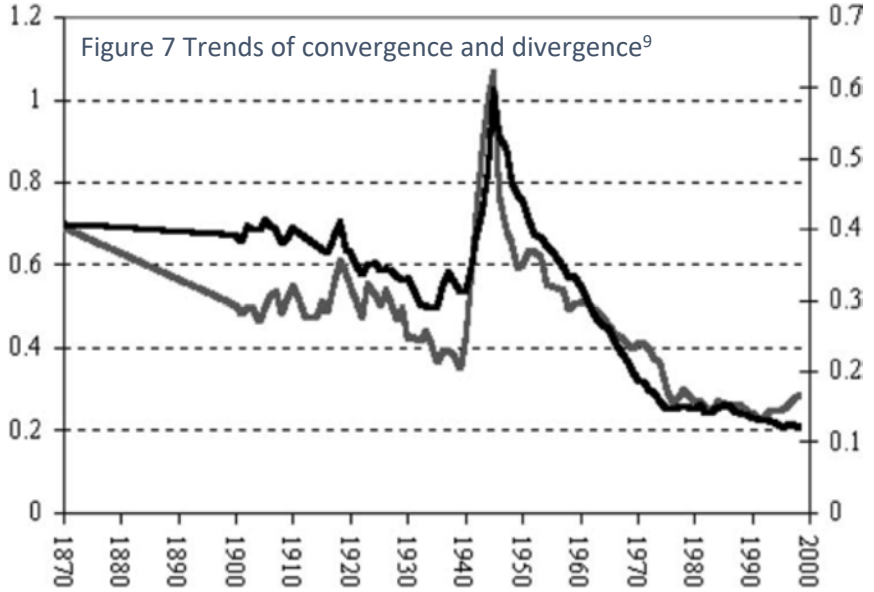


Figure 7 Trends of convergence and divergence[9]

Conclusion

- K waves are effective tool to describe economy
- Forecast may not be accurate
- Effect of human and artificial intelligence in diffusion of innovation
- Paradigm shift due to nano/biotechnology, modern warfare, AI, etc.

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DIFFICULTIES OF DEVELOPING A STARTUP AS A COLLEGE STUDENT

Gregory Abraham (1515109)

11/23/2020

Introduction

- College students have a desire to start up a business
  - *70% of college students or recent college grads would like to start a business at some point [8]*
  - *But, according to Harvard Business Review, the average age of a successful startup founder is 45.*
- College Students often have qualities to be successful
  - *Energetic*
  - *Optimistic*
  - *Hardworking*
  - *Creative Ideas*
    - Professor Neil Anderson says creativity is vital to creating a well performing organization. [2]
- Almost 90% of start-ups fail [8]
- Why do Students with qualities to succeed and dreams of creating a startup fail so often?

http://clipart-library.com/clipart/college-student-clipart_8.htm

Challenges Students Face I

- Lack of Entrepreneurship Experience or Education [5]
  - *Often time tech startup founders have engineering or science background but have little business experience*
  - *Oftentimes as you get older your business acumen will grow with your acquired experiences.*
- Lack of Financial Resources [5]
  - *Students have a more difficult time getting access to credit to fund their business venture*
  - *Prof. Blair acknowledges that acquiring funding through debt or equity is key to getting a company of the ground. [4]*
- No Access to Accounting and Legal Service [6]
  - *Many students have no way of accessing the legal, patenting, and accounting services that are needed for any company to run.*

Challenges Students Face II

- Perceived Risk/High Uncertainty [3]
  - *The high risk of failure associated with starting up a business lead many high achieving students to turn away from this path.*
  - *Many students that would like to potentially build a startup decide to instead join a private/established company after college for stability.*
  - *Students often have a fear of what their family would think if they pursued a startup and failed.*
- School/Work Life Balance [6]
  - *Very difficult for students to balance schoolwork, tests, and projects associated with their degrees as well as creating a startup.*

https://www.southuniversity.edu/news-and-blogs/2020/01/9-tips-for-achieving-work-life-school-balance

Conclusion

- College students oftentimes have the key qualities to be great entrepreneurs
- The main difficulties college students face when developing a startup include
  - *Lack of experience in entrepreneurship, resources, and various legal services*
  - *Difficulty balancing school and developing a startup*
  - *Perceived risks holding back prospective entrepreneurs*
- Universities can help their students that are prospective entrepreneurs greatly by creating programs that provide these students with key resources
  - *Ex. UH Technology Bridge [7]*
    - Provide mentorship
    - Assist startups with day-to-day needs
    - Matches student with investors

Citations

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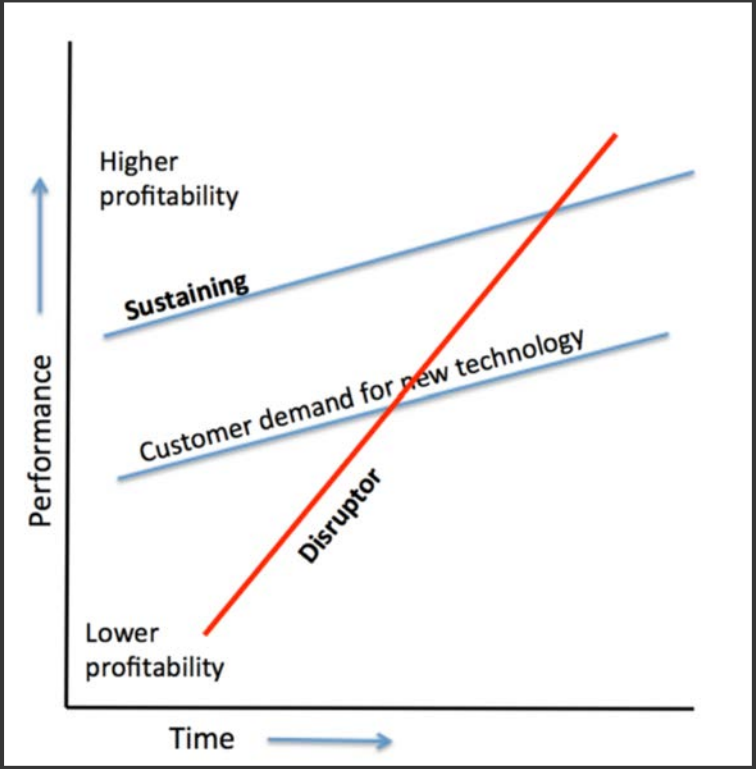
- [8] “70% Of New College Grads Would Prefer to Start Own Business.” CpaPowered.org www.cpapracticeadvisor.com/small-business/

Identify Disruptive Innovations

Hi Phan - MECE 5397

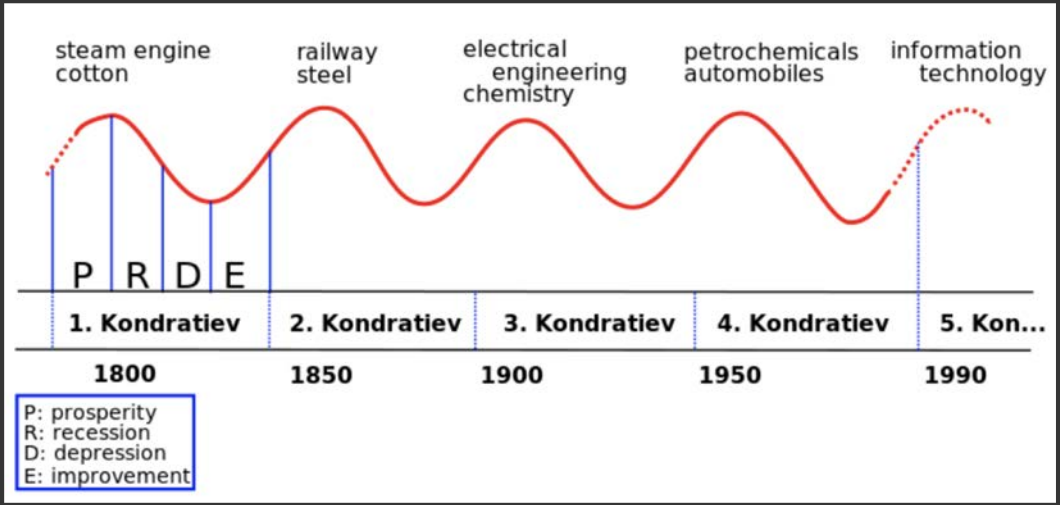
Overview

- **Why?**
  Why is it important to identify Disruptive innovations?
- **Disruptive Innovation**
  New market that challenges the old.
- **K-Wave**
  Economic cycles from technology innovation..
- **How?**
  Examine relationships between disruptive innovation and K-wave.



Disruptive Innovations

Kondratiev Wave



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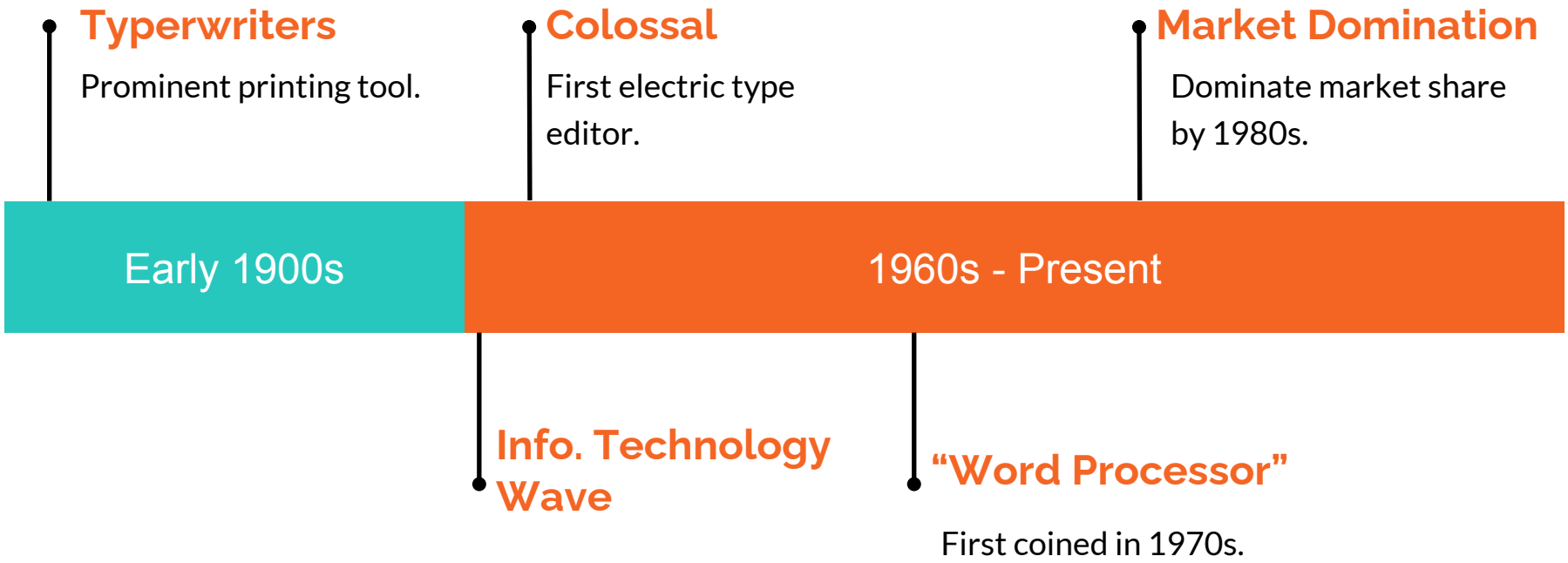
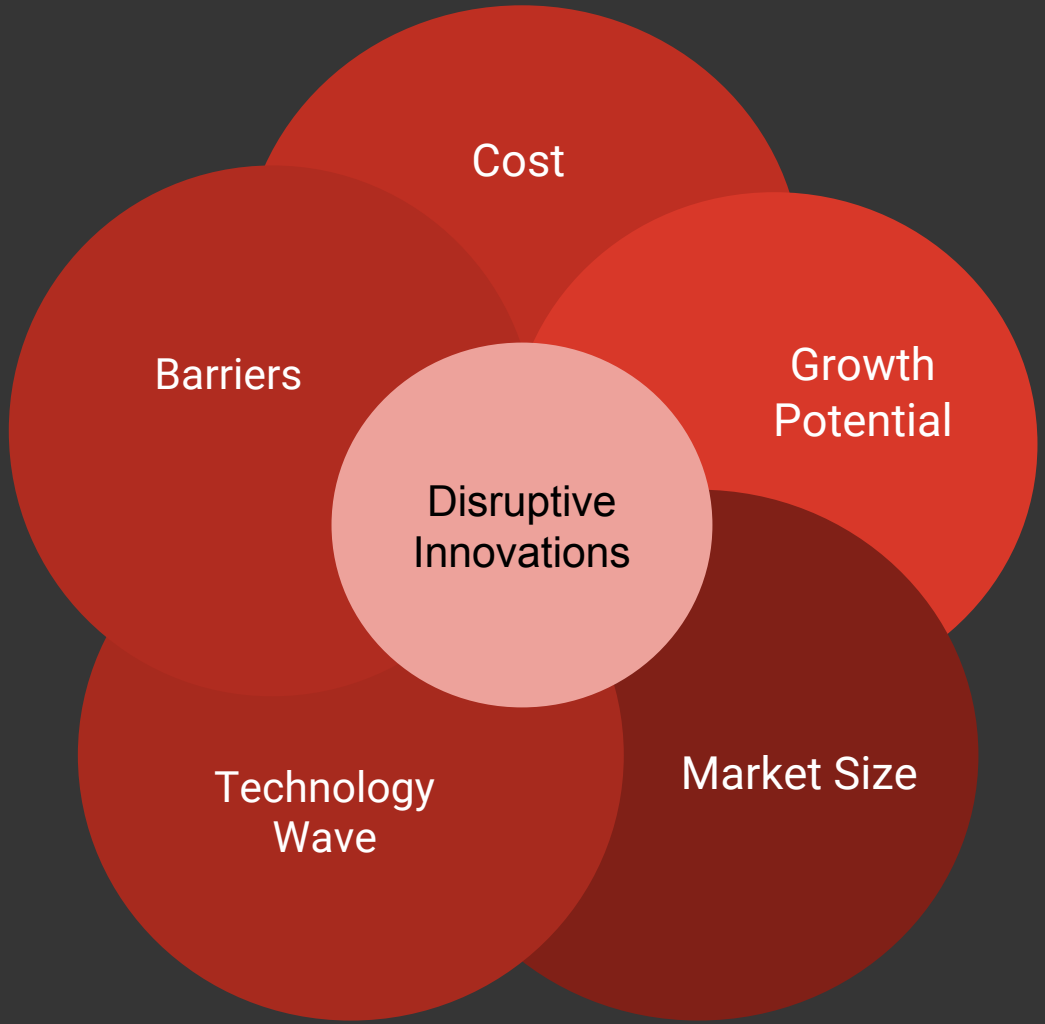


Conclusion


Cost
Barriers
Growth Potential
Disruptive Innovations
Technology Wave
Market Size

UNIVERSITY of HOUSTON
CULLEN COLLEGE of ENGINEERING

Key challenges and creativity in startup

November 23, 2020

Hamidreza Fallah

PSI: 1637067

Overview

- ASTART-UP is a newly established venture founded by individuals termed as entrepreneurs with the primary purpose of developing products or services

- Startup companies represent a powerful engine of open innovation (OI) processes

- While the overall contribution of startups is crucial, the high-risk and high-reward strategy followed by these startups leads to significant failure rates and a low ratio of successful startups.

- The methodology adopted for the analysis of startup failure is based on the SHELL model

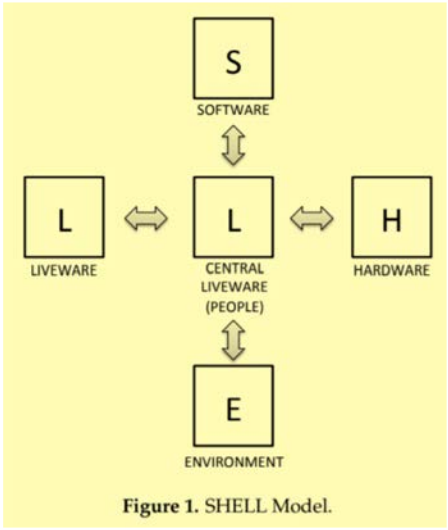


Figure 1. SHELL Model.

Methodology for Startup failure

- The SHELL model, whose name derives from the initial letters of its components, Software, Hardware, Environment, Liveware People and Liveware Environment, was developed by Hawkins in 1975 basing on the original work proposed by Edwards in 1972 under the name SHEL model.
- The SHELL model emphasizes the interfaces between a person and the other four components more than the individual impact of the components themselves

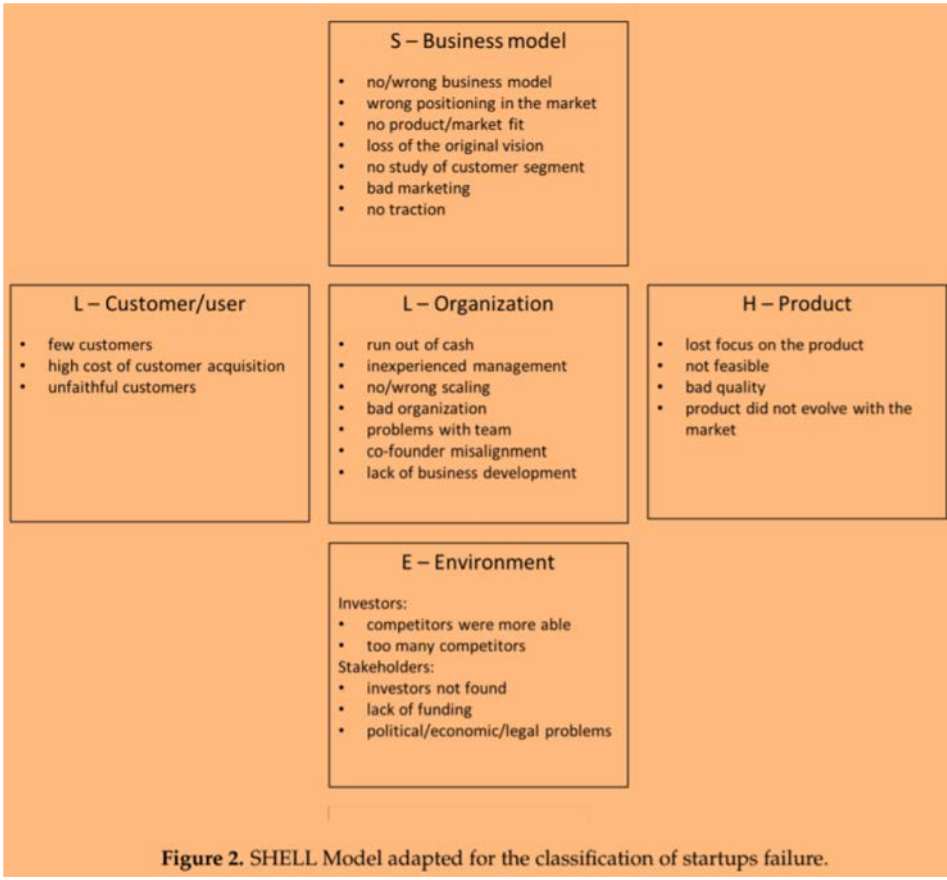
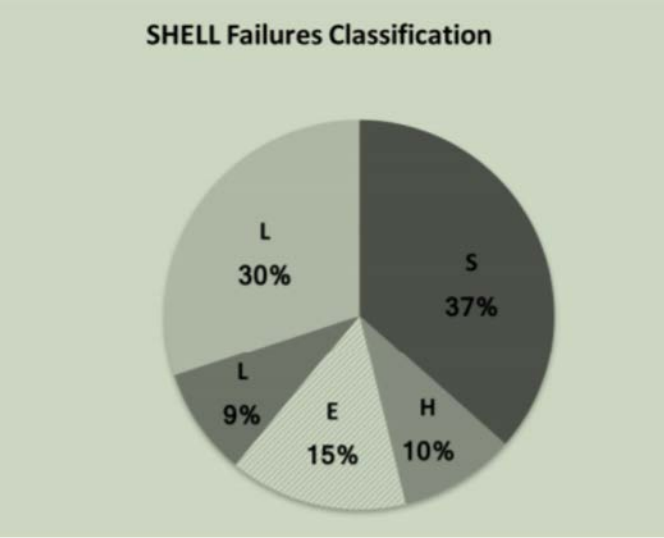


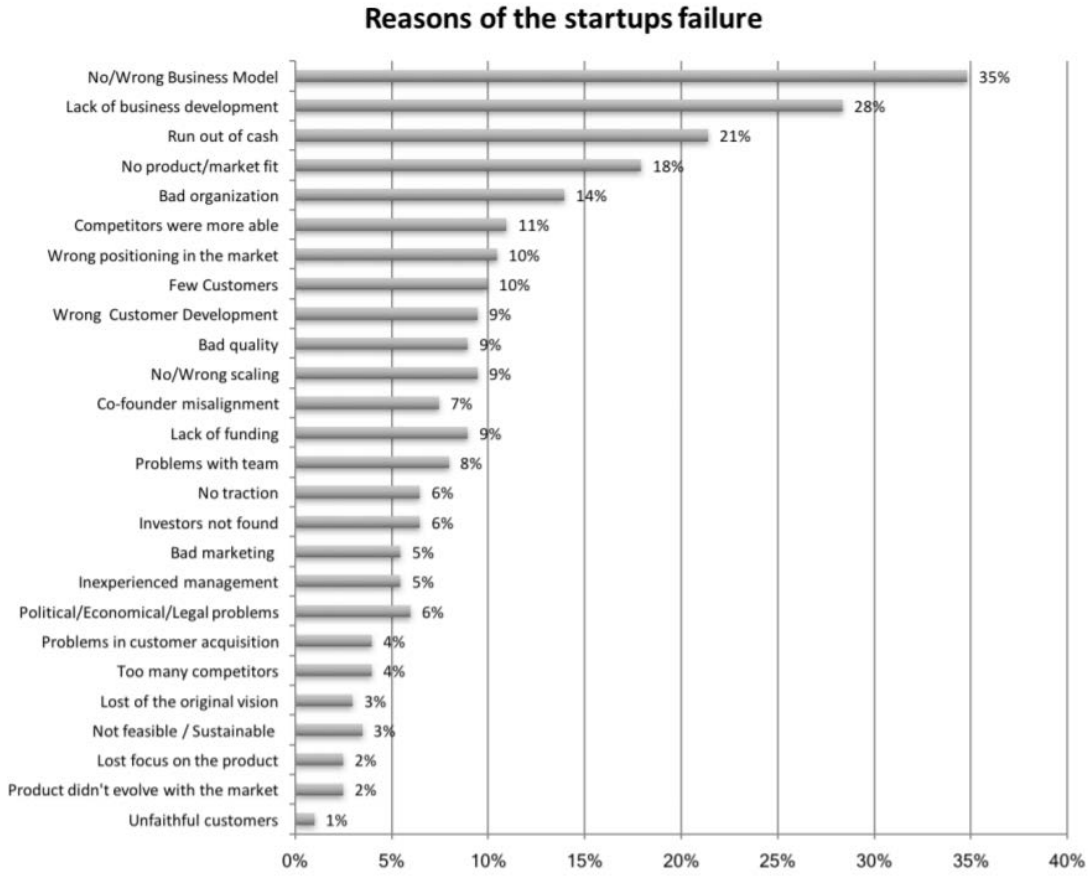
Figure 2. SHELL Model adapted for the classification of startups failure.

http://dx.doi.org/10.3390/su10072346

Shell model for Startup failure

- The following figure reports the main reason of the startups failure and its distribution





Conclusion

- **The SHELL** appears to be a powerful model, especially if applied to a large database, because it allows the development of a standard model or survey for the autopsy of the startups failed.

- A typical failure pattern related to the Business Development process emerges. Actually, after consolidating the Business Model, entrepreneurs seem to focus directly on the sales or on the product/service improvement, disregarding the design of a reliable, measurable and engineered Business Development phase

- In case the company undergoes an incubation/acceleration process (3/4 years) the focus of mentors is in clarifying the Business Model and create a first, reliable structure

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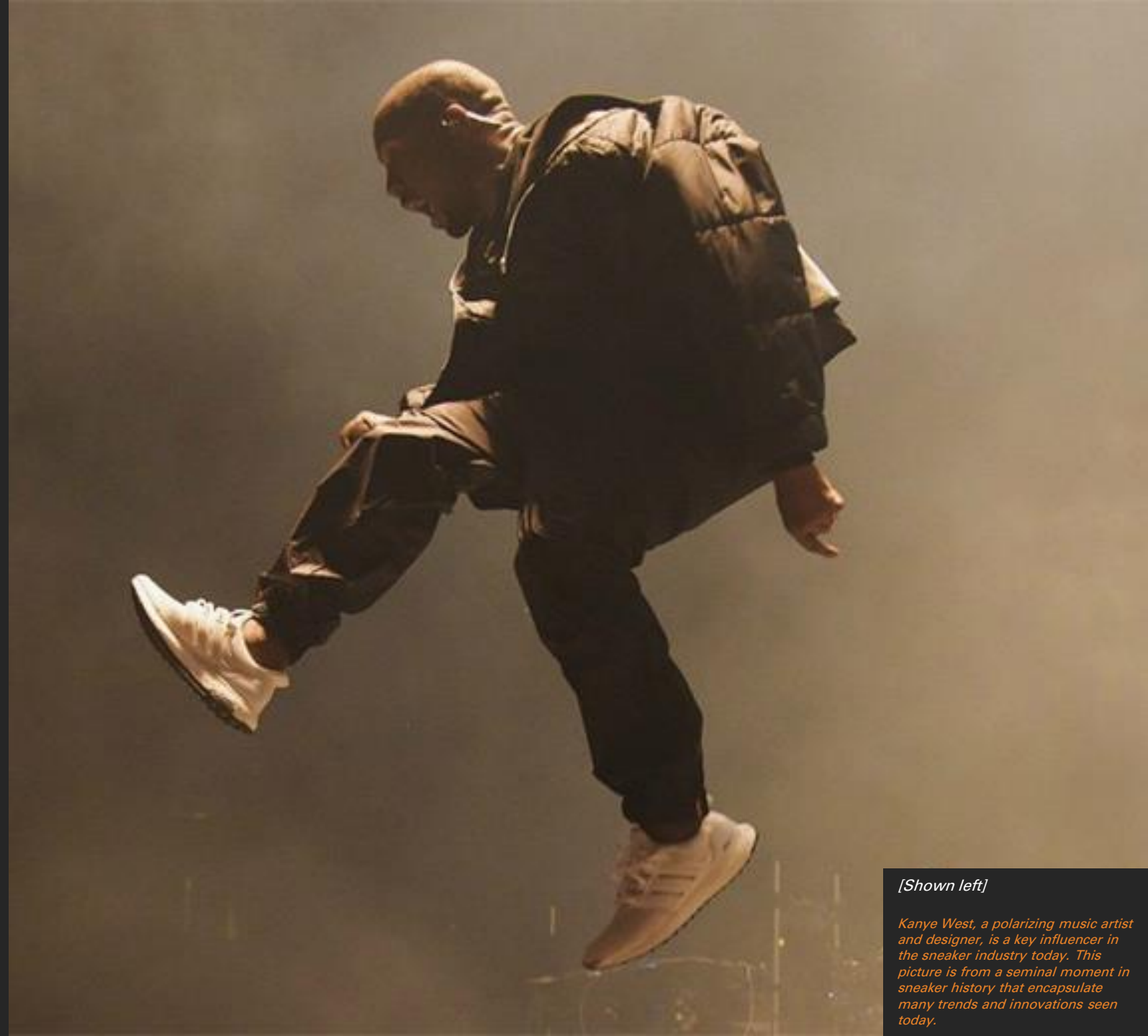
SOLE SEARCHING

HOW ALL 4 TYPES OF INNOVATION, AS VIEWED IN THE PROBLEM AND DOMAIN MODEL, HAVE SHAPED THE MODERN SNEAKER INDUSTRY PARADIGM

ISAAC JOHN

PS #1605434

ENGI 6397



[Shown left]

Kanye West, a polarizing music artist and designer, is a key influencer in the sneaker industry today. This picture is from a seminal moment in sneaker history that encapsulate many trends and innovations seen today.

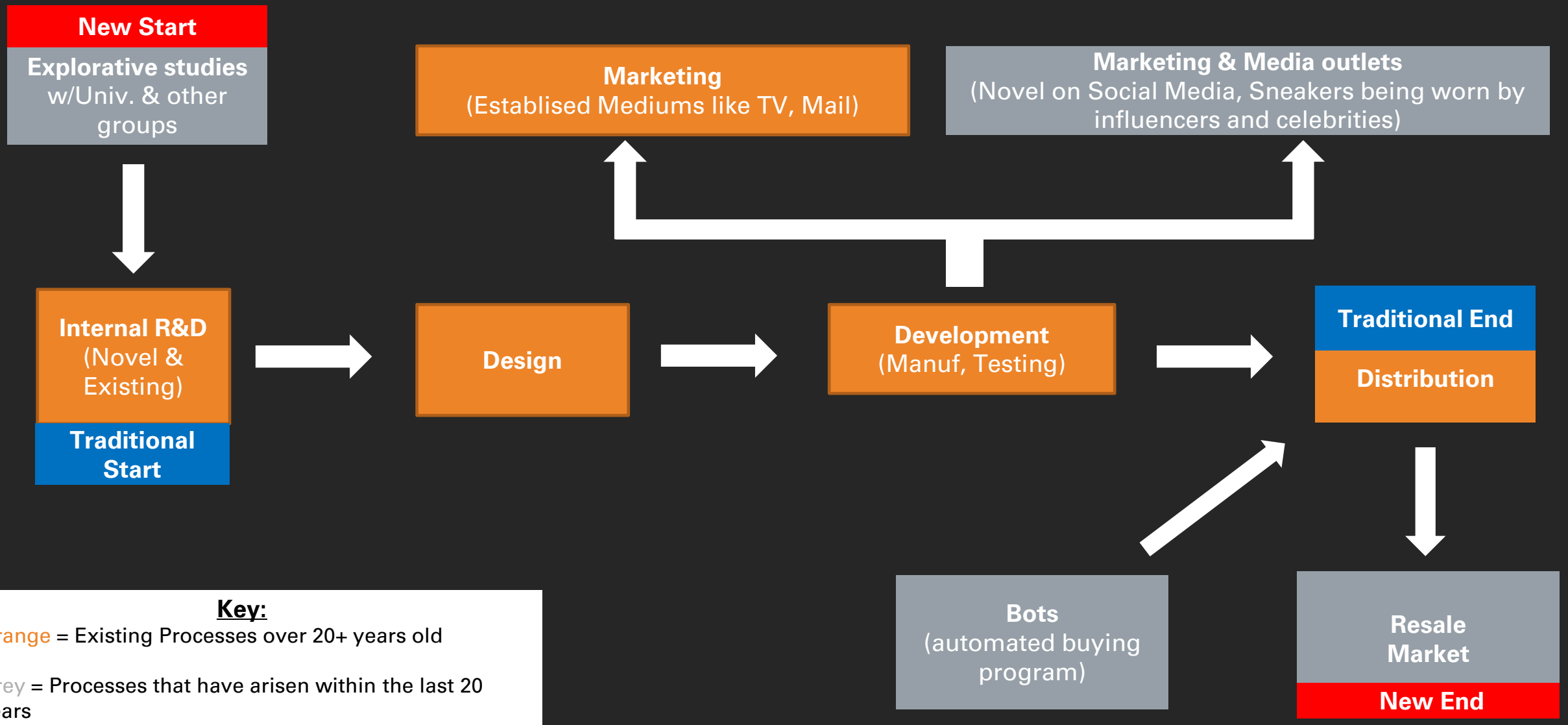
INTRODUCTION

- **Motivations:**
  - To explore innovations and trends in the sneaker industry over the last 20+ years, through the lens of this ENGI 6397 course
  - To understand how the current model of the sneaker industry arose, and possible inferences we can make going forward

- **Crash Course of the Sneaker Industry:**
  - ***Sneaker Industry –*** All companies and parties involved with sneaker research, marketing, production, distribution, consumption, reselling, and media
  - Most profits made by brands like Nike and Adidas are from lower tier sneaker sales at outlets and stores like Famous Footwear. However, brand hype and interest today is derived from media influencers, celebrities and athletes cosigning the brand, and from ambitious higher tier athletic and lifestyle products that provide a ***halo effect,*** or impression to buy these same products or similar lower tier products.
  - ***Introduction of the Internet and Social Media –*** The internet has affected many industries, particularly the sneaker industry. As we will touch on in the next slide, this has allowed companies to more intimately connect with consumers, as well as draw in new ones on media platforms like Youtube, Twitter, and Instagram. This also has allowed new markets for consumers to tap into: their fellow consumers. Many consumers are not able to buy a shoe at its retail release, and later in life, when fiscally able to, want to buy that same shoe. This shoe may not currently be in production, causing a limit in supply. Other consumers who have those same shoes may feel compelled to sell those shoes on new online markets, allowing for both parties a beneficial transaction. We will explore how companies have recognized this and integrated their way into this process as well.

- **Overview:**
  - We will overview new components of the sneaker industry flow that have arisen over the last 20 years
  - We will examine how all 4 types of innovation, as viewed in the problem and domain model, have shaped the modern sneaker industry today
  - We will review and explain what this means for the future

CURRENT QUARTERLY SNEAKER PRODUCTION CYCLE (2020)



Key:

- Orange = Existing Processes over 20+ years old
- Grey = Processes that have arisen within the last 20 years

Breakthrough Innovation

Platforms like StockX and GOAT allow consumers to have access to verified, new sneakers they could not originally buy on release day.

Consumers and Resellers pay a fee to use the platform. Platforms authenticate sneakers to avoid fakes, and provide a free market structure for sneaker prices to rise and fall based on demand, similar to stocks.

Sustaining Innovation

Companies continue the cycle of consumer feedback, self-assessment, R&D for new tech, development into a new sneaker, and marketing, leading to innovations such as Nike Air and Adidas Boost.

Continued improvements and fine tuning of these innovations offer better performance for consumers.

Basic Research

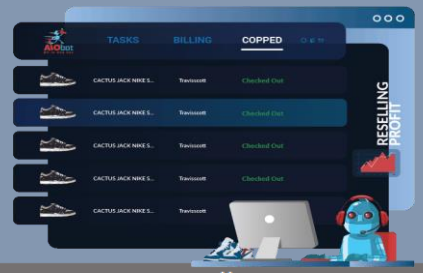
Sneaker companies are increasingly collaborating with universities like CU Boulder and UMass, as well as entities in different fields, like the International Space Station to perform explorative studies in the fields of biomechanics, material science, and sneaker performance.

The finding from these studies can kick off years of sustained research.

Disruptive Innovation

Coders, with sneaker releases increasingly moving online, have created programs called 'bots' to monopolize popular releases by instantaneously buying product, driving the resale market up. This in turn makes popular shoes harder to buy on online retail platforms for normal consumers.

This creates a need and desire to more consumers to purchase a bot on a release date to increase their chances at a shoe.



Well

Not Well

How well is the problem defined?

Not Well

Well

How well is the domain defined?

CONCLUSIONS

- Digital Shift
  - Sneaker brands and distributors, especially today with COVID, are shifting from brick-and-mortar stores to digital mediums
  - Digital advertising is more effective, less costs on business, and easy ad-to-website transition for consumers

- Sneaker Brands Respond to Bots
  - Sneaker brands have started to integrate new steps into the purchase process to deter the use of bots, and more fairly distribute product
  - No clear method to filter out bots, trial and error stage for companies (new apps, raffles, accounts with brands, reCAPTCHA)

- Integration of Retail Distribution and Resale Market
  - GOAT, the resale platform received an investment of $100 Million from Foot Locker, a primary distributor. First example of retail-resale integration
  - Could be the future of Resale, where the distributors themselves buy a certain amount of their own inventory at MSRP, and resell later at higher value

MECE 5397 - Engineering Innovation & Entrepreneurship

Overcoming Challenges in Innovation

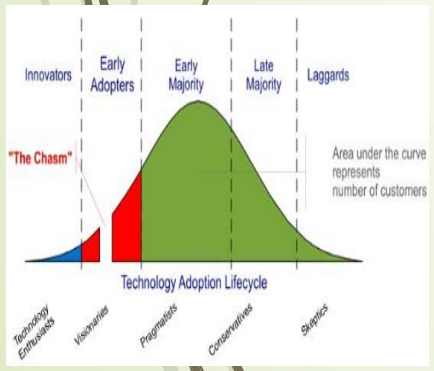
Joao Buemi
1801210

Introduction

- Innovation and creativity stand out as the cornerstone of most companies, businesses, and organizations
- It ranges from the introduction of new and existing products or services, redefining a new market, identifying a new procedure or process in an industry, amongst other modern and creative inputs
- Businesses are encouraged to incorporate an innovation culture.
- Overcoming challenges in innovation is the key to escape a crisis

Overcoming Challenges in Innovation:

- Financing
  - Apply for university or government funding
  - Seek equity financing
  - Initiate an initial public offering as a budgetary source of innovation funding
- Innovation Culture
  - Organizations must take a keen interest in drafting and promoting a robust culture that embraces creativity and innovation
  - Creating a company culture that merits the importance and benefits of innovating
  - Promotes empowerment and a feeling of ownership



- Support begins from the top
  - The top leadership have to walk the walk and equally commit to advancing the needed enforcement and changes as innovated.
  - Reward and empower innovative employees through incentives that would evoke the entrepreneurial spirit, thereby boosting creativity.
- Intellectual Property and Legal Risks
  - Organizations require sufficient data to decide the ideas, inventions, and innovations to be pursued.
  - It is a long process that involves the sharing of ideas while withholding vital information warranting patent.
- Adoption Rate
  - Organizations must adopt innovative processes that are relatively localized to create synergies as well as scale-up practices.
  - Uphold the following factors throughout the innovation cycle in order to Improve the adoption rate.

Conclusion

- Innovation is an essential and prioritized attribute in any organization. It sets the pace and informs the prospect and competitive advantage of various entities.
- To offset financial challenges, it is advisable to inculcate external and internal financing that involves budgetary allocations, notable third parties, and other investors
- For innovation to be feasible, organizations are encouraged to review their innovation culture to embrace creativity, diversity, and inclusivity.
- Leadership support from the top is an essential component for innovation growth.
- Challenges bordering on legal risks and intellectual property posses a chance of slowing and halting open innovation processes.
- Organizations can advance their adoption rate by localizing innovation to denote their relative advantage, trialability, and compatibility.

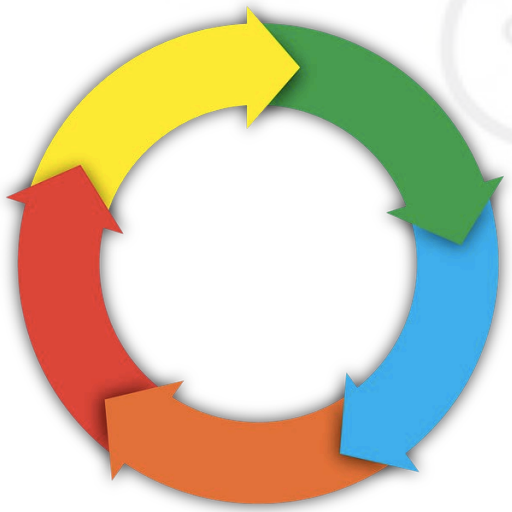
CHALLENGES AND PROJECTIONS FOR THE NEXT CYCLE OF CAPITALISM

JOAO FILIPE GALVAO FREIRE

INTRODUCTION

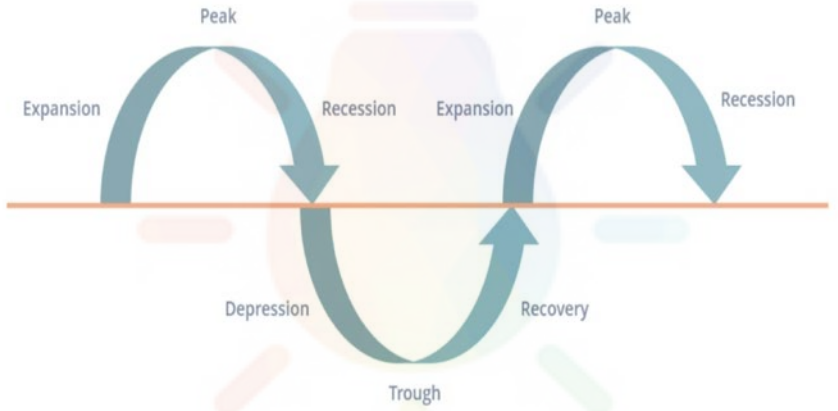
Motivation:

- Life cycle
- Economic cycle



Business cycle:

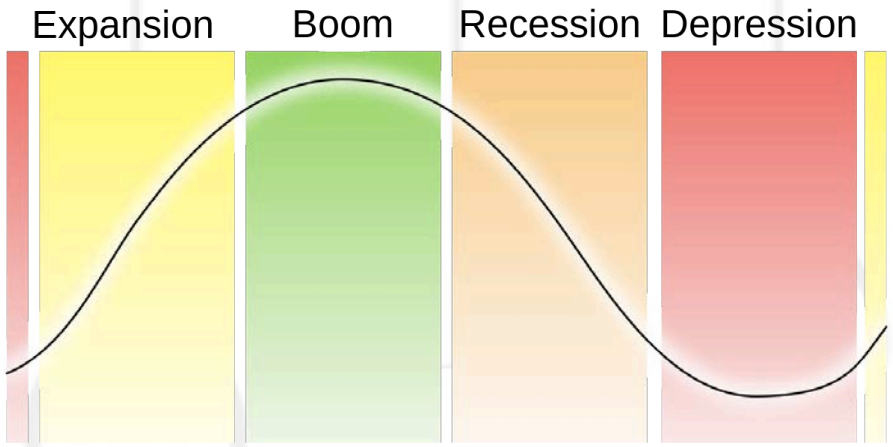
- K-wave



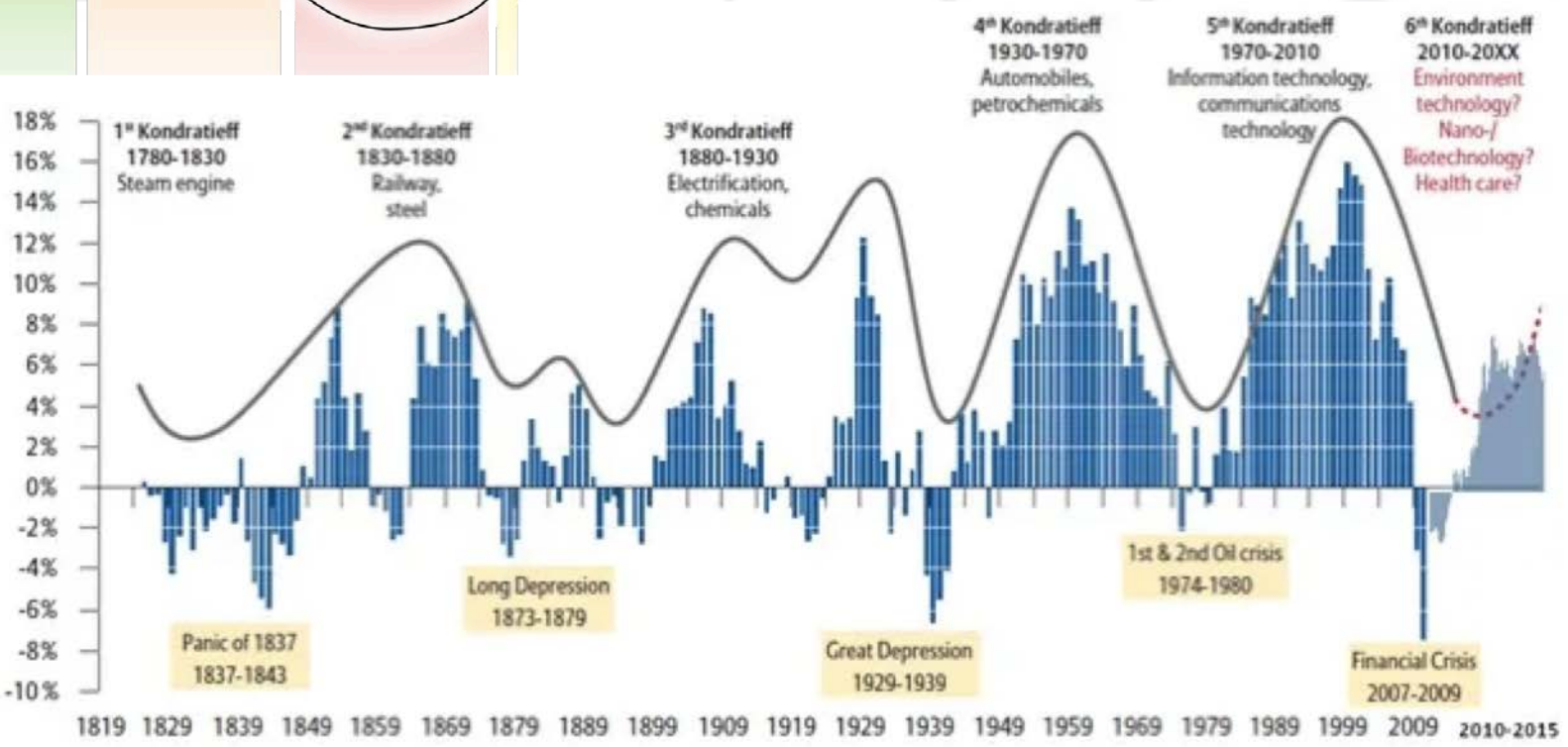
What is next?

- Healthcare
- Robotics
- Alternative Energies
- Human Enhancement Technologies

KONDRATIEFF-WAVE



- The major economic cycles (1925)
- Waves last for 40 to 60 years
- 1st to 5th wave
- 6th wave?



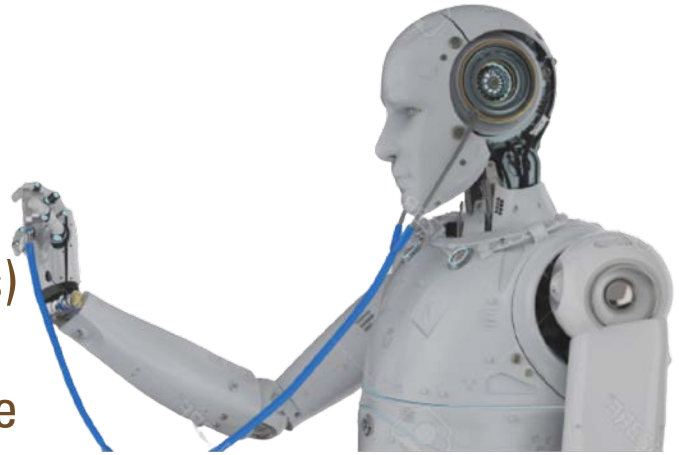
WHAT IS NEXT?

- Healthcare

Data Science

Technology (Robots)

Personal Healthcare



- Alternative Energies

Solar vs Wind Energy

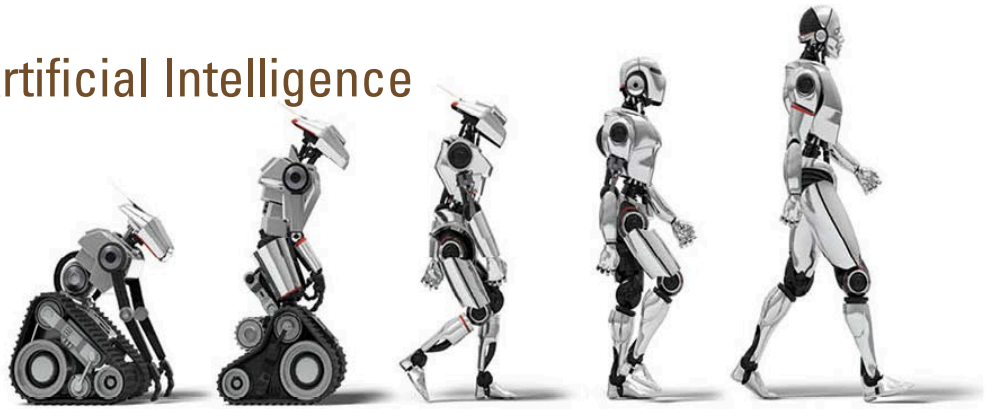
26% to 30% of the world's electricity by 2024

What about 2050?

- Robotics

Manufacturing process

Artificial Intelligence

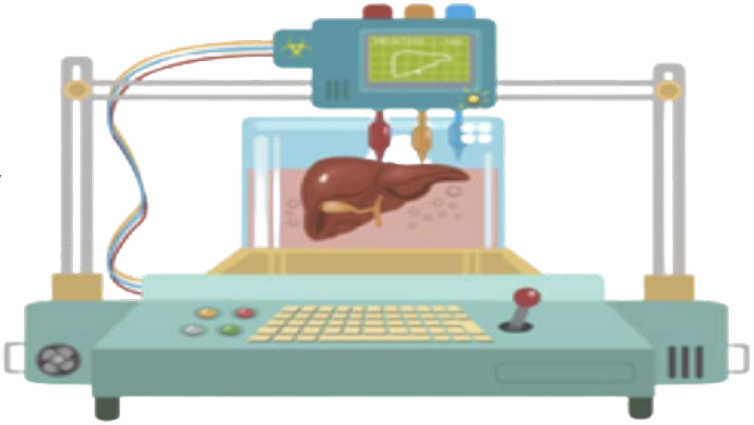


- Human Enhancement Technologies

Gene Therapy

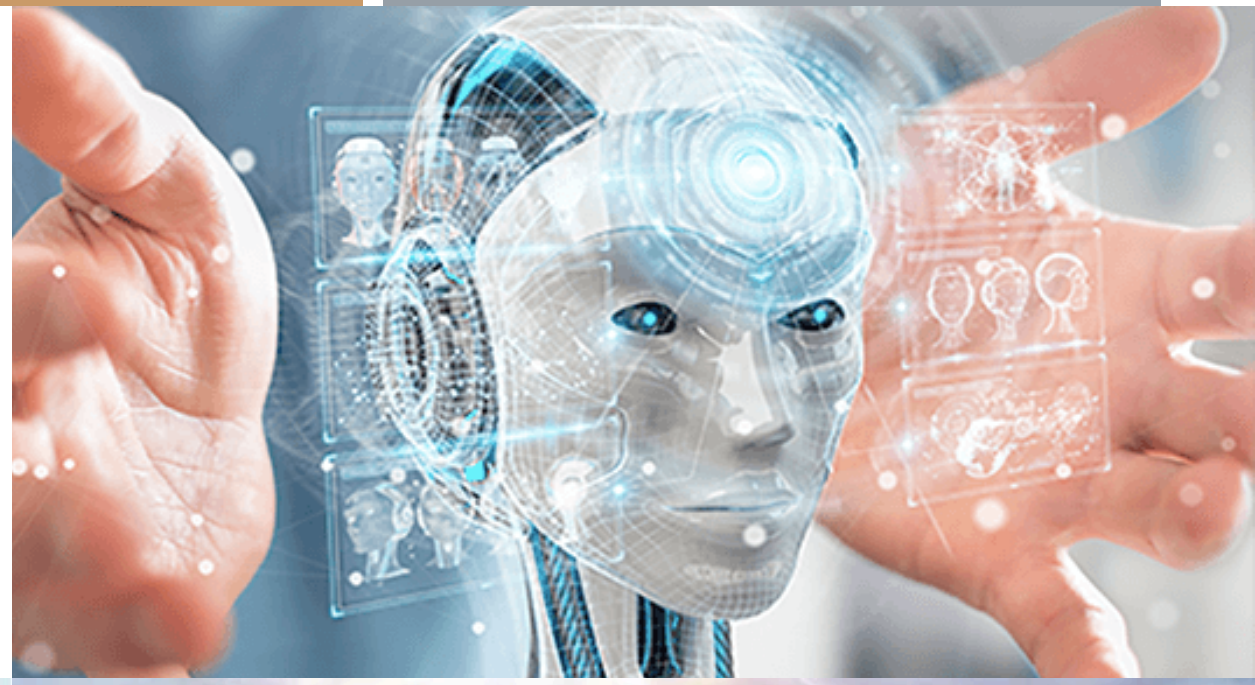
Neurotechnology

3D Bioprinting



CONCLUSIONS

- 6th wave
- Challenges
- Projections



ENGINEERING INNOVATION & ENTREPRENEURSHIP

IS IT THE 6TH K-WAVE YET?

What should we anticipate after the rapid influx on innovation of the 2010's and the Great Recession?

Jocelyn Guerrero

MOTIVATION AND OVERVIEW

- Interest in the beginning the Cybernetic Revolution within the Health Field
- Finished a internship in a Nutrition and Bioscience Facility this summer
- The world is under a pandemic (COVID-19) & U.S. is rushing for a vaccine
  - disrupted lifestyles, politics and economics
- Curious how all will lead to a shift in our economics through innovations and inventions

Kondratieff Waves

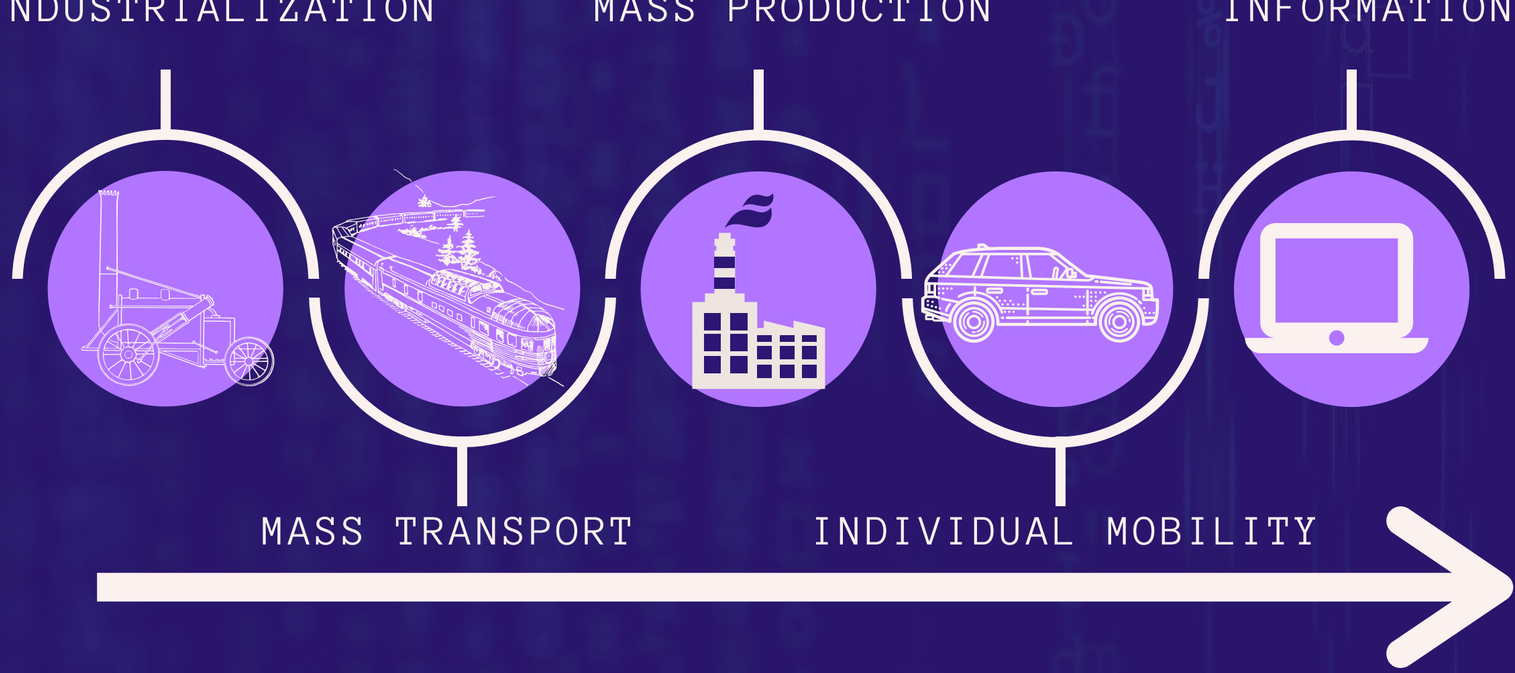
INDUSTRIALIZATION

MASS TRANSPORT

MASS PRODUCTION

INDIVIDUAL MOBILITY

INFORMATION



HEALTH TECHNOLOGY

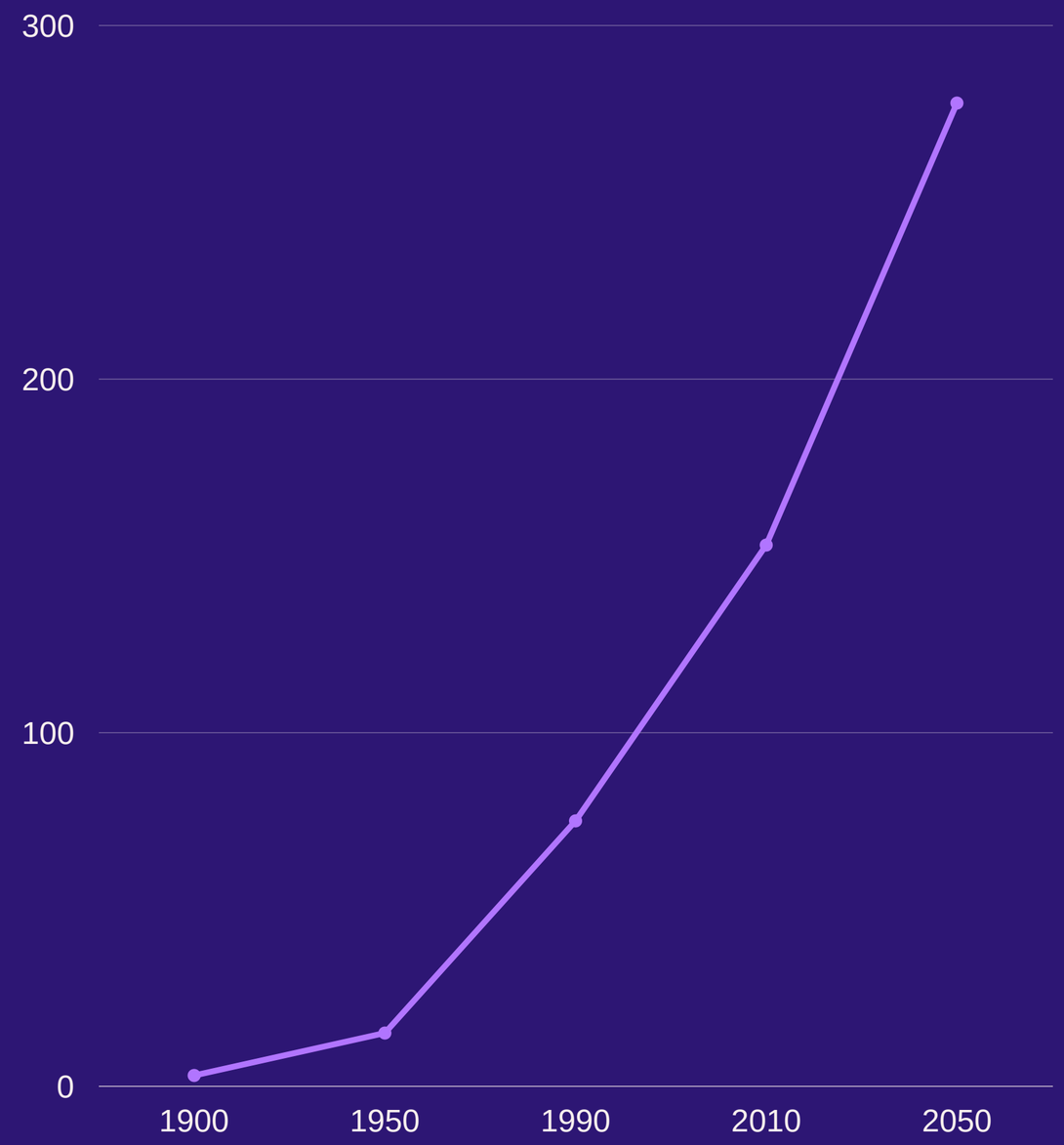
The 6th wave would consist when technology and human-kind are more
merged with technology such as bio-nanotechnology

THE 6TH K-WAVE MAY LOOK LIKE:

Early stages of the Cybernetic Revolution, but there a projection that it will focus more in health

- Robotic-aided surgeries
- Pandemic/illness tracking
- Treatment/vaccines acceleration

COVID-19 brought on months of quarantine and over a 30% unemployment. This will accelerate the world of research and medicine.



CONCLUSION

Toward the beginning 2020, the world has been shifted due to the COVID-19 pandemic; it disrupted lifestyles, politics and economics. In addition, the global medical community is also currently being rushed to produce a treatment/vaccine to help return to “normal". There are so many factors, such as diseases or a recession, that may alter the needs and desire of the cybernetic revolution. Nonetheless, our generation will see a revolution in medicine and health innovation/technology.

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NASA INNOVATION DIFFUSION

By John Jalufka

For MECE 5397

Engineering Innovations and Entrepreneurship

MOTIVATION

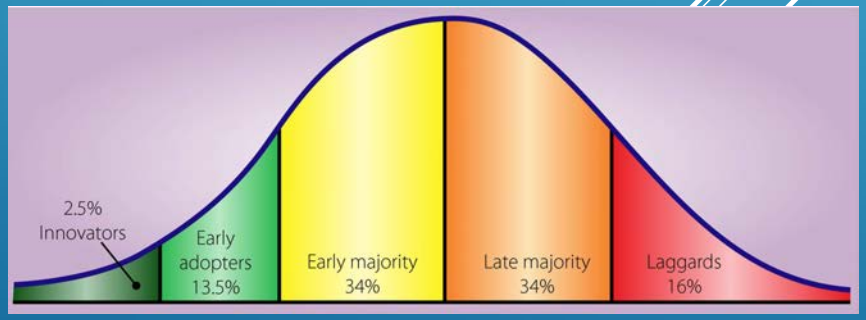
- I chose this topic because I do not (or did not) support the government funding of the space exploration industry
- This report and presentation discuss some of the technology and innovation diffused from NASA since its creation
- This report will also address the differences in diffusion from NASA compared to diffusion from a traditional commercial industry.

NASA SPINOFF

- When NASA was created, it was mandated to disseminate its innovations as widely as possible
- NASA Spinoff publishes important technological discoveries and has recorded over 2000 innovations that changed the lives of Americans
- Technologies like GPS, weather prediction, and wireless communication all stem from technology originating at NASA

INNOVATION DIFFUSION THEORY

- I anticipated a effect on innovation diffusion caused by the differing nature in a technologies origin.
- However, from the research I conducted, while there may be a greater amount of innovation diffusing from NASA because of their required dissemination, the mechanism at which that innovation diffuses is recorded similarly



CONCLUSION

- NASA has contributed in more ways then I ever considered
- A population adopts a technology in a similar fashion weather from NASA or from commercial origin
- Technology and innovations are very interconnected across industry, people will innovate and find application for technology in every industry.