CORNELL BUSINESS REVIEW

The Shift to Agripreneurship
Nigeria's Way to Solve Food Insecurity

Featuring an Exclusive Interview with...
Lindy Li, Youngest Female Congressional Candidate in U.S. History
Han Wang, Co-founder of FoodFul and Cornell University Student

Fall 2019 | Volume XIX | Issue 1

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Investors Are Boxing Themselves in with Subscription Box Firms

CORNELL BUSINESS REVIEW

Fall 2019

Letter From the Editor

I am proud to present you with the 19th edition of the Cornell Business Review. This past semester, we recruited a significant number of new members, and their exceptional work on their first issue is remarkable. Moreover, our Business team has continued production of our weekly online newsletter, CBR Now, and created an anti-resume initiative to highlight personality traits that are not often seen in a traditional resume. Our Design team has also worked tirelessly to produce terrific graphics for our magazine while revamping our website.

Our Fall 2019 issue encompasses the diversity of topics that our readers have come to expect. We have two articles related to fashion, yet the arguments of each piece vary significantly; one article discusses the negative impact of fast fashion on climate change, while the other analyzes the consequences of subscription fashion boxes for venture capital firms. This range of perspectives is one of the reasons why the Business Review holds a special place in my heart, as very few organizations give their members the freedom to examine their interests in whichever way they please. Moreover, our other articles discuss topics such as “agripreneurs” in Nigeria, sales in the high art industry, “rockstar CEOs” like WeWork’s Adam Neumann, and different payment models within the health care industry, epitomizing the variety of articles that defines the Business Review.

When I was elected Editor-in-Chief last December, I was thrust from being an Editorial writer into a position of significant responsibility. Although I was nervous initially, I learned quickly that my work as Editor was not driven by anxiety. It was driven by a desire not only to produce a high-quality deliverable but also to assist all members of the Business Review in becoming the best contributors possible. Over the past year, I have seen so many writers, designers, and Business team members grow and develop their skills, and I am honored to have played a part, however small, in their growth.

I would like to thank each member of our Editorial, Business, and Design teams for their diligence and hard work that helped us both produce a marvelous publication and maintain a robust organization. Special thanks go to our Managing Editor, Ethan Wu, our Business Manager, Emily Shiang, our Assistant Business Manager, Manan Modi, and our Design Director, Meridien Mach for their exceptional work ethic and dedication to the Business Review. Furthermore, I would like to thank Cornell University and our new faculty advisor, Harry de Gorter, for providing the resources necessary to our publication’s success. Without the contributions of every one of these people, our organization would not be where it is today.

It has been a pleasure serving as Editor-in-Chief for the past year. As we transition shortly to the next executive board, the benefits of this extraordinary organization have helped shape my college experience. I hope you enjoy reading our publication.

Best wishes,

Evan Shields

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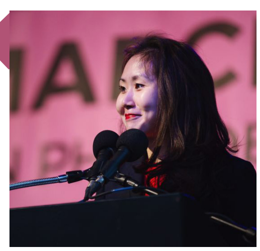

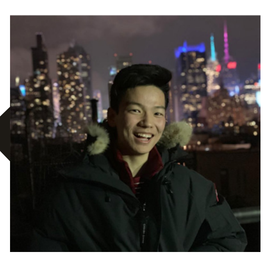

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Food Delivery Platforms Are Here to Stay

Written by Steven Romero
Designed by Ariya Feng

Food delivery isn't just for Chinese takeout or late-night pizza anymore. Nowadays, it is becoming just as common to order a convenience store snack as it is to order a complete dinner. Options are increasing, and the industry is determined to fill the rising demand for delivery that comes along with the surge in variety. New independent delivery platforms offer a way for restaurants and other stores to manage the volume of orders, and more businesses are taking advantage of the convenience they provide—letting platforms handle the entire delivery process in return for a portion of revenue.

But like any rapidly growing industry, food delivery has its share of obstacles. Questions remain regarding the most effective way to sustain a model of independent food delivery while simultaneously growing a loyal consumer base. After experimenting with flat delivery rates, platforms have now been attempting to bundle different options into a monthly subscription package. Despite some initial success, the future of independent food delivery platforms is not assured, and two important factors will decide the platforms' success going forward. First, the platforms will need to find an effective cost model that satisfies consumers while attracting new users. Second, restaurants will need to adapt to handle demand from the new delivery sector of the market; many will need to adjust or overhaul the way they process food orders to effectively capitalize on the opportunities offered by these platforms.

> "Options are increasing, and the industry is determined to fill the rising demand for delivery that comes along with the surge in variety."

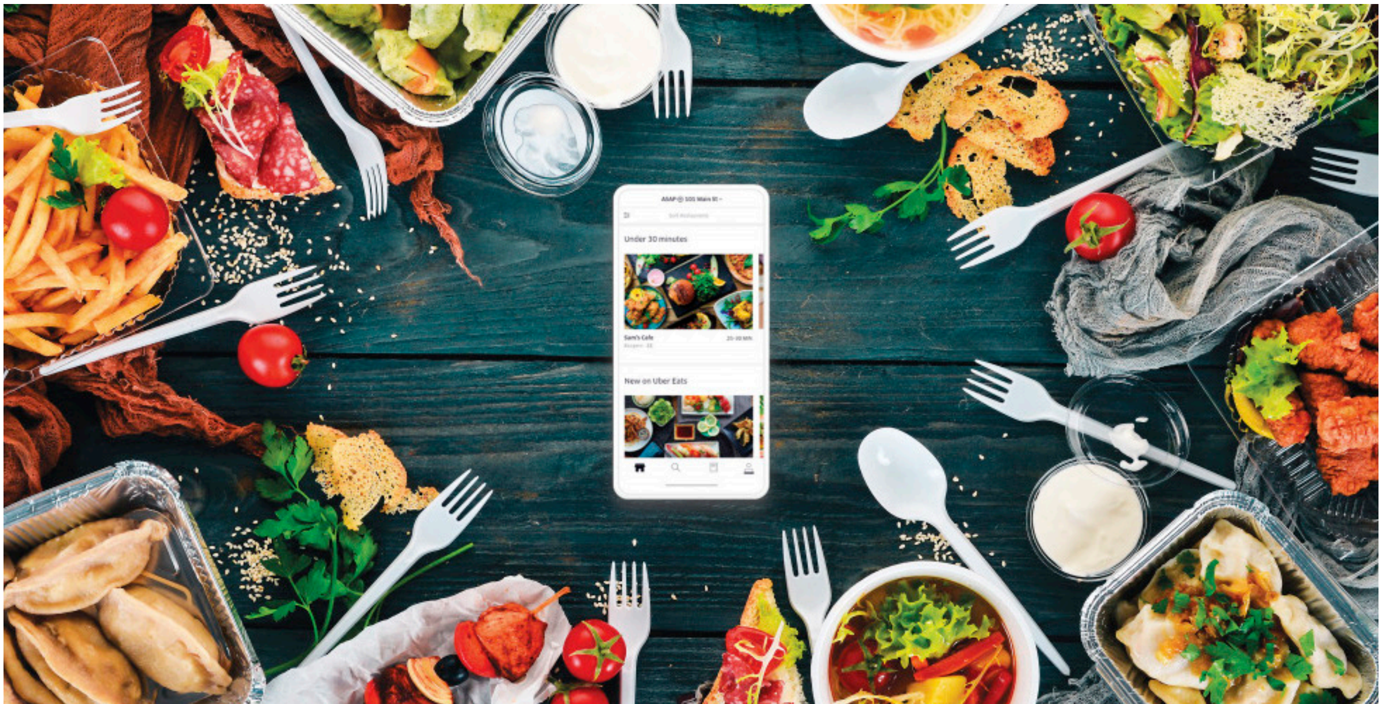
The food delivery industry is here to stay, as evidenced by its recent growth. Customers' demand for these services has ballooned the industry to $82 billion so far, and it is poised to double in value within the next six years, according to Forbes. A few players have risen to the top in North America, the UK, China, and other nations. Although the dominant companies vary by country, the underlying pattern remains that the global appetite is bigger than ever.

The recent emergence of online delivery services mean that growth has so far been driven largely by the increased availability of food options. However, as delivery options increase, customers will become more picky with which service becomes their primary ordering app and will expect a better deal out of each transaction.

Consumers' demand for convenient food extends far, but there are some limits regarding how much they would pay for certain orders. When Postmates started delivering Starbucks in 2015, the $5.99 delivery fee applied to every order, even for a single coffee. An article by The Spoon billed this method as unsustainable, and the industry responded quickly. Starbucks began partnering with Uber Eats to deliver at a lower total cost. Nonetheless, are these lower fixed rates sustainable enough to make food delivery a long term option for retaining customers? So far, fixed rates have not proven themselves among consumers that prefer to make smaller orders on an irregular basis. Although the allure and convenience of delivery can still be enough to outweigh the downside of a fixed rate, food delivery platforms are searching for a model that will reduce costs per order but will result in more orders per customer.

The subscription model is poised to add this stability to the food delivery industry. As The Spoon's article discusses, this model represents an essential step toward a successful platform. The article also analyzes the various subscription models in use already: DoorDash debuted DashPass in 2018, with a monthly fee of $9.99 for unlimited ordering. However, success has been limited by a much smaller pool of restaurants that are willing to provide the subscription service, and a minimum order of $15 has turned off consumers who prefer multiple smaller orders of beverages or snacks. No subscription service has had success in the mainstream just yet, but given the current growth of the delivery industry, it is only a matter of time before a lasting model emerges. As the number of participating businesses on these platforms approaches closer to the physical eateries available to any given consumer, the cost of delivery remains a barrier. Bundling all of the restaurants into a subscription service will create

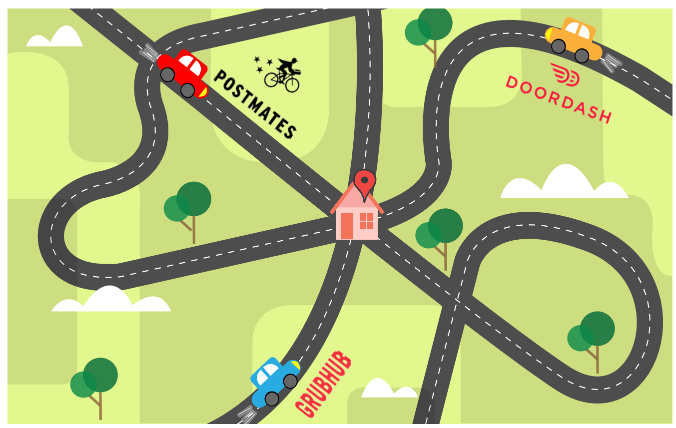
PHOTO CREDIT: WHEREYAAT.COM



more loyal consumers and will allow them to enjoy more convenient options for a simple monthly fee.

Nonetheless, while independent food delivery companies are racing to improve their services and separate themselves from the rest, they do not have complete control over the success of the industry. Restaurants and other stores are faced with a difficult decision when deciding if and how they will get involved with these platforms. Choosing to partner with a third-party delivery platform is not always an easy decision for a business. Their kitchens must be able to keep up with demand, and their location must be able to physically process and organize the orders for pickup. Increased revenue is hard to pass up (even subtracting the cut taken by the delivery service), but not all restaurants are properly equipped to process the orders from these services. Some restaurants have already maximized their capacity for delivery; Chipotle's shelf system allows online orders to be organized in a place easily accessible to food delivery drivers. However, other restaurants are not designed to handle a high volume of outside orders, and may even choose to deliver their own food without using a third-party service. While every restaurant might not be able to follow Chipotle's method exactly, they must find their own personalized method of processing remote orders quickly and accurately.

Food delivery platforms are not going anywhere, but the industry is still undergoing major developments. The success of the subscription model will be an essential step going forward and will enable companies to engage customers more effectively. Not only will this type of model eliminate the glaring flat rate delivery fee that is a turn-off for consumers, but it is also more likely to create a regular habit of ordering for many consumers. Everyone needs food, and for those that would benefit the most from consistent food delivery, an affordable plan with a delivery platform is extremely enticing. These platforms



also know the benefit of partnering with the most possible food providers, and they are counting on those businesses to fine-tune their own method of processing orders made through these platforms. Not every company can utilize a model as effective as Chipotle's delivery shelf, but they can make big improvements and further ease their integration with platforms. In addition, the increasing availability of candy, toiletries, and other convenient items delivered through these platforms will continue to expand the industry in several directions. It will capture new consumer bases and extract more value from regular users alike.

The food delivery industry will reach its full potential when it is able to satisfy consumers with a pricing model that satisfies the majority of people, and when the physical stores that provide food maximize their methods of processing orders. Ordering food for delivery is becoming as normal as getting in your car and driving for takeout, and it is a trend that shows no signs of slowing down. And while the bevy of options now means that a late night snack can be whatever you choose, chances are, pizza might still take the number one spot.

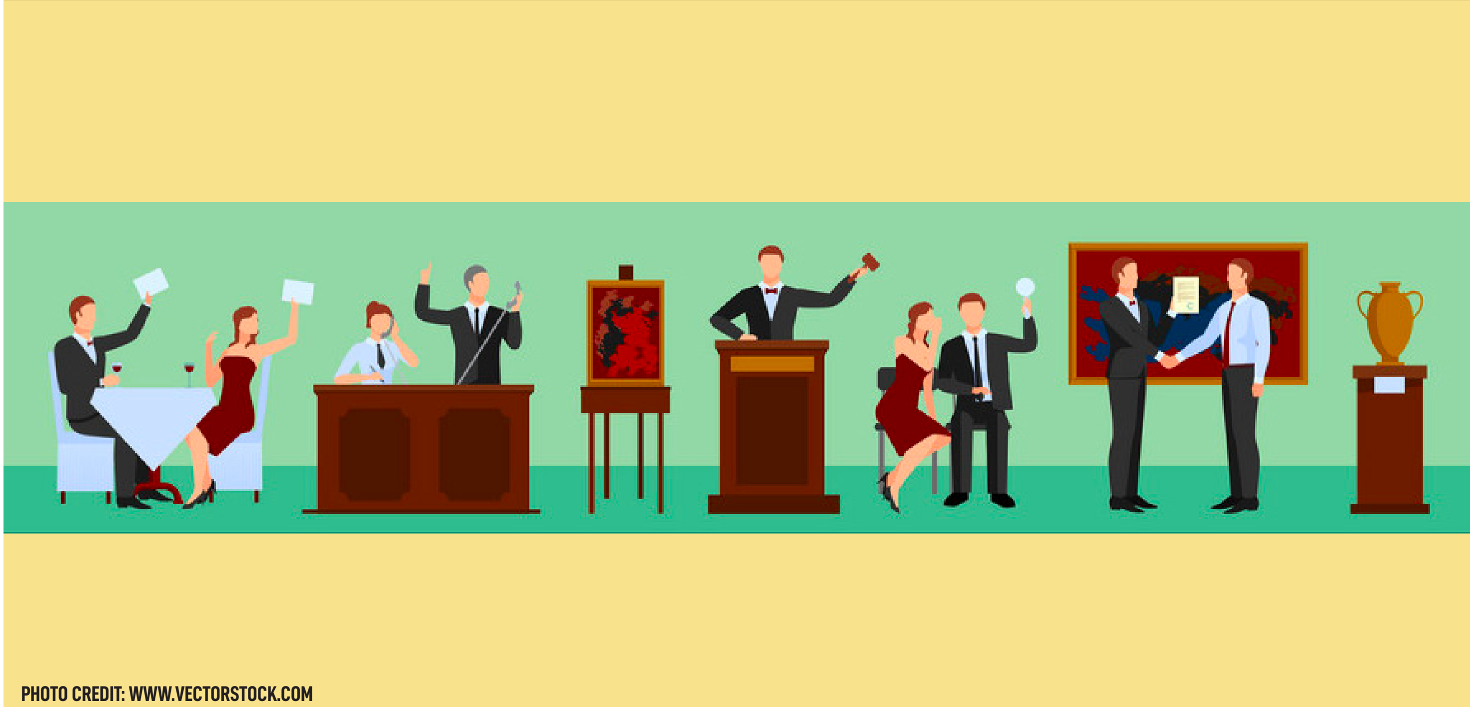


PHOTO CREDIT: WWW.VECTORSTOCK.COM

Why Normal People Are Shut Out of the High Art Industry

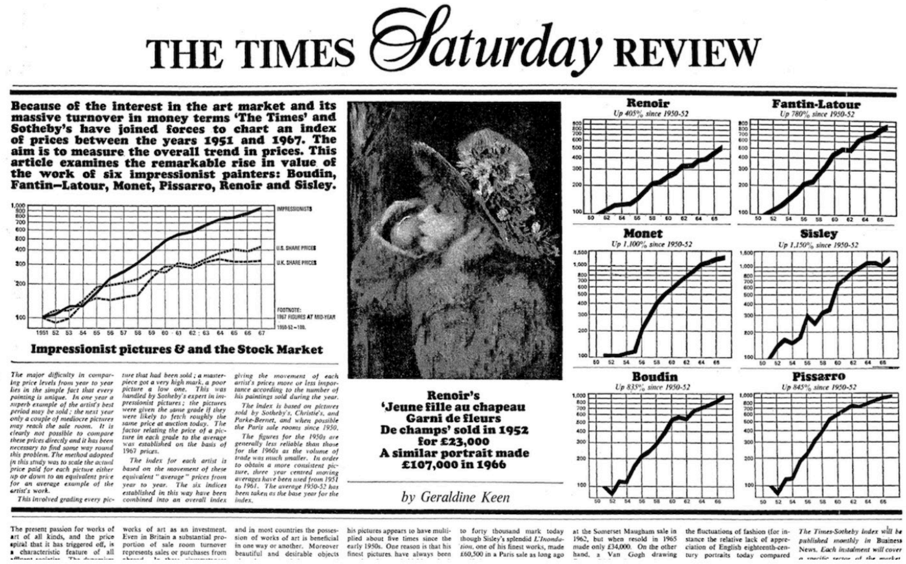
Written by Kyle Castellanos
Designed by Melanie Chen

Art dealership is a multi-billion-dollar industry. Although not covered by mainstream media, major art auction houses sell hundreds of thousands of dollars' worth of artwork every day. Christie's, the largest international art brokerage, reported over $7 billion total revenue in sales for 2018. In the same year Sotheby's, Christie's biggest competitor and largest public art auction house, made $5.3 billion in aggregate auction sales. These companies have enjoyed a duopoly over the art dealership industry, marketing over 80% of artworks worth over $1 million.

The art dealership industry as a whole has been following similar economic trends, and as the largest brokerages, Christie's and Sotheby's growth are normally indicative of the art dealership industry's trajectory as a whole. Alongside other premier art auction houses, Sotheby's continues to flourish economically. Sotheby's has experienced a 15% increase in auction house sales from 2017, an additional 50,000 new lots sold, and has also expanded its consumer base with 10,000 new bidders engaging in auctions last year. Similarly, Christie's total revenue increased by over 6% and the percentage of new buyers was up 32%. However, as expansive as the industry sounds on paper, art dealership is an exclusive industry that is both operated by and marketed to elites. The state of art dealership will never open up to the general public due to a prohibitively high cost of entry, the exclusivity of personal and professional relationships within established art dealers and collectors, and the substantial cultural knowledge necessary to participate successfully in the industry.

The most identifiable barrier of entry to the art dealership industry is the need for significant liquid capital. The first two artworks listed on Sotheby's 2018 annual report sold for $16.7 million and $26.8 million, respectively. Even lower-tiered artworks by artists such as Richard Wright, Liam Gillick, and Martin Boyce are being valued by Sotheby's at hundreds of thousands of dollars. The fact that artworks in the periphery of the art dealership industry are commanding these prices reinforces the necessity for substantial liquid capital. At Christie's, 16% of total sales in 2018 were secured through two estate sales—$832.6 million and $323.1 million from the collections of David Rockefeller and Barney Ebsworth, respectively. Without abundant financial resources or disposable income, one cannot place a respectable bid on any reputable artworks at auction. Additionally, to make a considerable amount of profit in art dealership—or even just to "buy in"—one must have readily available capital to invest. This was not always the case but is now the reality of contemporaneous art dealership.

The art dealership industry has recently become obsessed with the idea of acquiring art and flipping it for a profit—viewing art as some sort of stock. Ultimately, this is what has contributed to the monetary barrier of entry into the art dealership industry. The possibility of profit on works of art outweighed the traditional concept of buying art for display and collection. Instead, artworks have become a form of investment, holding both cultural and monetary value. In 1966, then-chairman of Sotheby's, Peter Wilson, confirmed this shift in ideals, stating that "works of art have proved to be the best investment, better than the majority of stocks and shares in the last 30 years." This comment was a reaction to the exponential increase in the price of Impressionist paintings in the 1960s. During this period, art dealership had a higher return on investment than the stock market. Leadership at Christie's and Sotheby's strived to convince investors that art collection was no longer just the preferred pastime of old-money dynasties—serious profits could be made by investing in art. And thus, funds were poured into the art dealership industry in the pursuit of above-market returns. Ever since, art dealership has become sensationalized, continuing to exponentially increase in price.


THE TIMES Saturday REVIEW

Because of the interest in the art market and its massive turnover in money terms 'The Times' and Sotheby's have joined forces to chart an index of prices between the years 1951 and 1967. The aim is to measure the overall trend in prices. This article examines the remarkable rise in value of the work of six impressionist painters: Boudin, Fantin-Latour, Monet, Pissarro, Renoir and Sisley.

Impressionist pictures & and the Stock Market

Renoir's 'Jeune fille au chapeau Garni de fleurs De champs' sold in 1952 for £23,000 A similar portrait made £107,000 in 1966

by Geraldine Keen

The first Times-Sotheby Index, published November 25, 1967 (used with the kind permission of The Times Archive)

However, price alone does not appear to be the only prerequisite to successfully acquire art. The difficulty of finding one's way into the social circles surrounding the art dealership industry is another significant barrier to entry into the industry. New collectors in today's market may struggle to purchase artworks that they are interested in acquiring—even if they have sufficient liquidity—because art dealers will only sell renowned pieces to collectors with the proper connections or reputation. Paul Ettlinger, an established international art patron, corroborated the complaints of collectors new to the art scene, stating, "If you're going for a more established contemporary artist, unless you have an advisor or unless the gallery knows you, it is quite difficult to walk in off the street and just buy art, regardless of how much money you have." But while sufficient liquid capital and connections to elite art circles ease the process of acquisition for in-demand artworks, even these do not guarantee profitable transactions without proper artistic knowledge.

Due to the cultural and social influence of works of art being their primary price determinant, a vast cultural knowledge is necessary to understand the industry and make successful flips. Familiarity with specific works of art and art movements can come either formally through an academic avenue, or informally through social connections with artists. An understanding of the cultural significance of the works up for sale and their social implications helps collectors discern whether a piece of art has the potential to grow in significance even further and thus potentially grow in market price. Without this essential knowledge—and without the needed liquid money and social connections—one cannot successfully invest in art.

In the future, the barriers of entry into the art dealership industry appear likely to intensify. Sotheby's has recently announced it is being purchased by French-Israeli Patrick Drahi for $3.7 billion, which is likely to decrease inclusivity and transparency. The purchase will transition Sotheby's into private ownership like Christie's, freeing the company from the constraints of appeasing public shareholders. Jerry Wind, a professor at the Wharton School of the University of Pennsylvania explained that "being a public company places significant constraints, especially in the market expectations for quarterly performance and the like." Instead, the company can now refocus its efforts on marketing solely to elites and auction off a greater quantity of higher-tiered artworks, alongside unreservedly spearheading a more direct approach at expanding its vast market. As a private company, Sotheby's can focus on lump-sum transactions for larger estates, mimicking Christie's sales of the Rockefeller and Ebsworth estates. Consequently, Sotheby's could potentially abandon any concessions to incorporate public opinion into their business strategy.

Sotheby's transition from public to private has the potential to exacerbate the current barriers of entry into the art dealership industry. As the company continues to push to further their economic success to compete with Christie's and art continues to be sensationalized as a form of investment, the monetary barrier of entry will exponentially increase. Sotheby's private acquisition and the continuance of Christie's business practices could also augment the economic disparity between the entry-level collector and established international art patrons. In turn, the "buy-in" to become a respected art collector in the existing social circles will increase over time, isolating those not already participating in these exclusive groups. As such, the possibility of inclusivity and diversity within art dealership at Christie's and Sotheby's looks grim. The companies' business initiatives under private ownership will come to define their public image as the two dealerships vie for industry dominance.

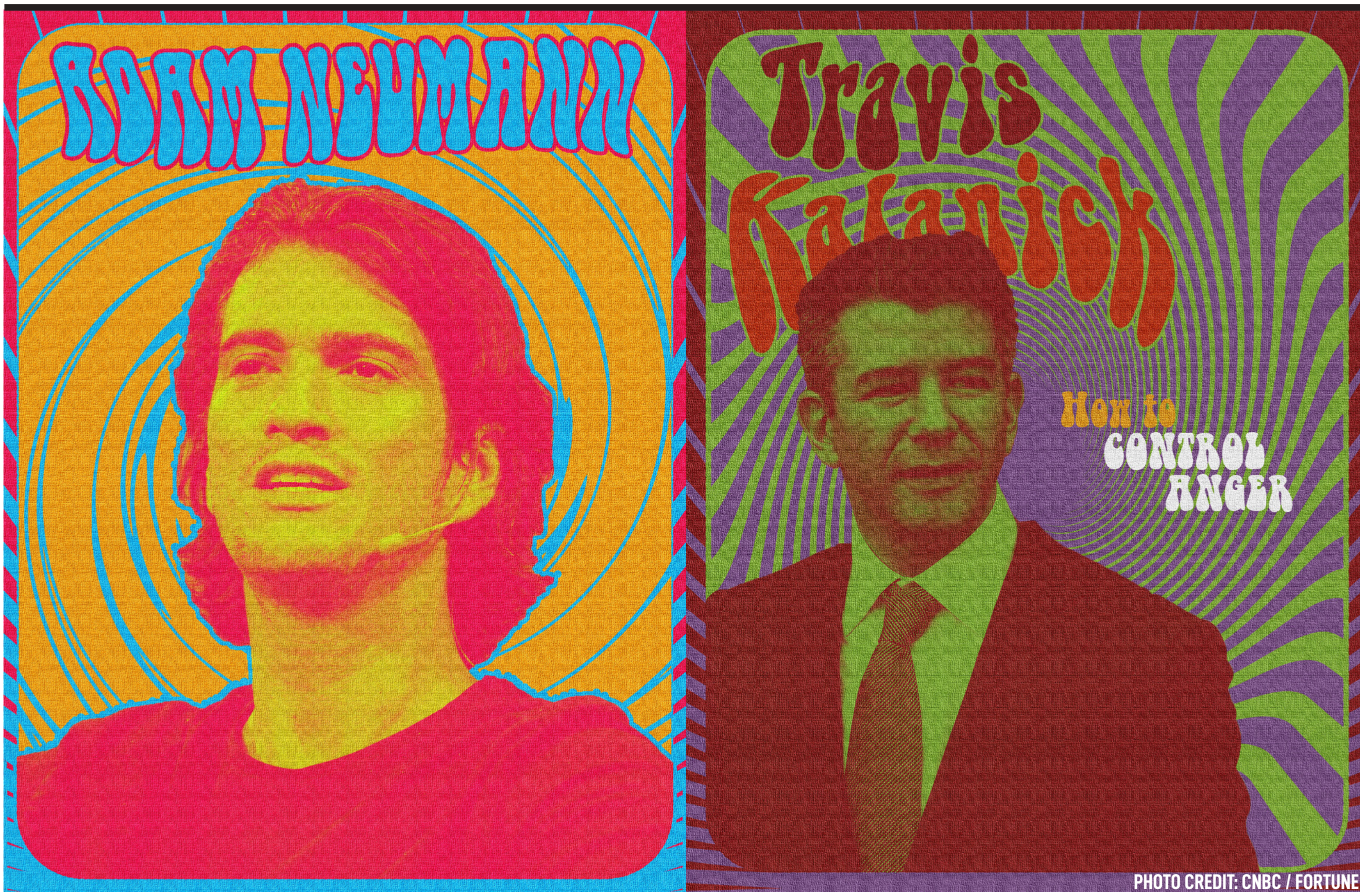


PHOTO CREDIT: CNBC / FORTUNE

The Rockstar CEO Phenom

Written by Alexandre Taylor
Designed by Edward Guo

On any given day, Adam Neumann, co-founder and CEO of American real estate firm WeWork, could be drunk, stoned, or both. Meetings were held between working hours, from midnight to two in the morning. Company retreats included regular blackouts, and for one employee, the unfortunate experience of being urinated on. Despite leaving the company, that same employee told New York Magazine that the retreat was one of the greatest moments of her life.

Thirty years ago, a marijuana-smuggling, tequila-guzzling CEO would have sent investors running for the hills. Today, considering WeWork's multi-billion-dollar series run, not to mention rabid employee loyalty, it seems the opposite is true: investors tend to prefer rockstars, the crazier the better.

So, what changed? In short, the nature of start-up venture capital (VC).

Within the past twenty years, particularly after the death of Steve Jobs, a new focus emerged in private investment: company culture. The deified Jobs, whose pressure on employees to innovate is now canonized as the secret to Apple's continued success, made a lasting impact, not only on tech firms, but also on their early partners. VCs got hooked on growth, pushing for returns to maximize their selling positions. Desire for effective management began to overshadow the need for market-ready products, and multi-series returns became the priority.

> **"Unbound by convention, such CEOs treat themselves less like executives and more like rockstars."**

The result is that today's startups face incredible pressure to grow as fast as possible, by any means possible.

Considering 70-80% of new companies fail, individuals who can match such investor fervor are often highly impulsive and delusional. To succeed is to gamble, and when one succeeds, praise and reward are unlimited. The outcome is that a section of tech CEOs are willing to take enormous risks, suffer from God complexes, and are incredibly passionate about their work. In turn, their achievement in the face of failure fosters a cult of personality, enabling unique business environments such as WeWork's open bar policy (as of last year, employees are now limited to four drinks a day) and early-morning meetings. Unbound by convention, such CEOs treat themselves less like executives and more like rockstars, soaking in alcohol, throwing outrageous parties, and hiring, firing, and promoting employees at the drop of a hat.

Yet the emergence of impulsivity and delusion in tech executives isn't only a result of natural selection—VCs also nurture such traits. "The most critical part of [venture investing] is to identify great entrepreneurial leaders," writes Bryan Stolle of Wildcat Venture, the firm behind Ticketfly. In the eyes of VCs, great leaders are outliers. As Mr. Neumann famously claims, Masayoshi Son of SoftBank, WeWork's leading investor, once told him that he "appreciated how [Neumann] was crazy—but thought that he needed to be crazier." For Son, Neumann's "craziness"—his ambitions as a presidential candidate, his vision for WeWork to end world hunger, and his rabid cult following—was evidence of executive potential. Yet as WeWork's IPO (initially valued at $47 billion) grew nearer, cracks began to show. WeWork's valuation, based on Softbank's $2 billion investment, dropped as the company's cash hemorrhage (reporting yearly losses of $2 billion) drew fire from investors. As of late September, Neumann stepped down as CEO after a $1.7 billion Softbank buyout. For investors, the buyout spells disaster. Without Neumann's misguided direction, WeWork's days masquerading as a tech innovator are dwindling.

Had Son and others, including JPMorgan Chase's Jamie Dimon, looked back only two years to Uber's "Travis problem," the Neumann and WeWork story could have ended differently. In many ways, Travis Kalanick's fall and Uber's corresponding IPO drop (down roughly 20%) reflects the crux of the Rockstar CEO phenom. Mr. Kalanick, a UCLA dropout and Uber co-founder, succeeded Ryan Graves as Uber CEO in 2010. By that time, he had already been accused of tax fraud by the IRS as a Red Swoosh executive (his second failed startup), which Kalanick denies knowledge of.

VCs and the public were quick to forget about Kalanick's past. The same traits which could have landed the Uber CEO in prison were soon being lauded as Uber's saving grace. "Kalanick's relentless personality has pushed Uber to enter and thrive in city after city," wrote Richard Feloni of Business Insider. Kalanick's deceit and recklessness continued to rule, even in dealings with Apple's Tim Cook. Kalanick, one of the first CEOs to be named a "tech world rockstar," defied Apple's privacy policies by "fingerprinting" Apple devices. Uber account fraud, where drivers wiped phones to take advantage of new-rider discounts, had been running rampant in China. Desperate to increase Uber's revenue in China, Kalanick pushed to leave permanent data on Apple devices, shielding their new code from prying eyes by geofencing Cupertino's access to the new version of Uber's app. Surprisingly, Cook went quietly.

Just as with Mr. Neumann, Uber's business policies reflected Kalanick's leadership style. In a company-wide email dating back to 2013, when Uber was celebrating its "50th global city," Kalanick pushed employees to "have a great fucking time" and noted the importance of consent ("emphatic YES!"). Another note cautioned employees to not "throw large kegs off of tall buildings" or vomit at the Shore Club. In 2017, Kalanick, along with other top executives, visited a karaoke-escort bar in Seoul, which prompted a public complaint by a female Uber employee. At the time however, Uber was growing at incredible speed, racing past an $80 billion valuation. Yet the nightmare of Rockstar CEOs, the initial public offering, was soon approaching.

"For the likes of the charismatic, deluded, and reckless, the limit for funding is the depth of VC pockets."

Uber's valuation depends on one key assumption: that the company is in its early stages of growth. Uber has indeed grown, with revenues more than doubling to $15.8 billion since 2017. However, as seen with WeWork, which lost nearly $700 million in the first half of 2019, firm growth is not synonymous with profitability. Travis Kalanick's strategy of "growth above all else" is pitched easily, but difficult to translate into returns as investment-backed growth is successful in taking market share but affords little long-term financial security. Indeed, as Uber's losses climb ($5 billion in its last quarter), Lyft continues to sap Uber's customer and driver loyalty. In the past three years, the percentage of US customers who only use Uber fell from 74% to 51%, while the percentage who only use Lyft rose from 5% to 15%.

Market disruptors can be, and will be for the foreseeable future, one of the most profitable opportunities available to venture investors. Clamoring for the next Amazon, VCs for the past decade have surrendered to magnetic personalities, whose ideas, often grounded in fantasy, fail to create returns for investors. Moreover, from WeWork to Uber, such personalities are wholly unfit to lead multi-billion-dollar companies. Their impulsion and delusion, either un-checked or actively encouraged by investors, seeps into every framework of their business. Yet until investors and the market begin to differentiate personality from product, the world will continue to be captivated by the Rockstar CEO phenom. For the likes of the charismatic, deluded, and reckless, the limit for funding is the depth of VC pockets.

Paying for Value Is a Pivotal Step Towards High Quality Health Care

Written by Aditi Joshi
Designed by Melanie Chen

PHOTO CREDIT: WEBSTOCKREVIEW

The United States health care system is facing a quality crisis. Industry players are in constant competition to strike a balance between the quintessential health care trifecta: low cost, high quality, and easy access. It seems the only solution to achieving easy access and low costs comes at the expense of high quality. But in order to achieve high-quality care, costs dramatically increase and thus restrict access to adequate care to those who can afford it. Costs have risen so precipitously that according to the Organization for Economic Cooperation and Development (OECD), the US spent more money on health care in 2017 (17.9% of national output) than any other country in the OECD's 36-country consortium. As a nation, we are spending more than twice as much per capita than the average comparable developed nation, such as Germany and the United Kingdom. Yet our current quality of care does not reflect these monumental costs. A fundamental system flaw that is partially to blame for this gross disproportionality lies in the current process for compensating health care providers for their labor. In order to improve the quality of care that patients receive, our health care industry is undergoing a dramatic paradigm shift in provider reimbursement system.

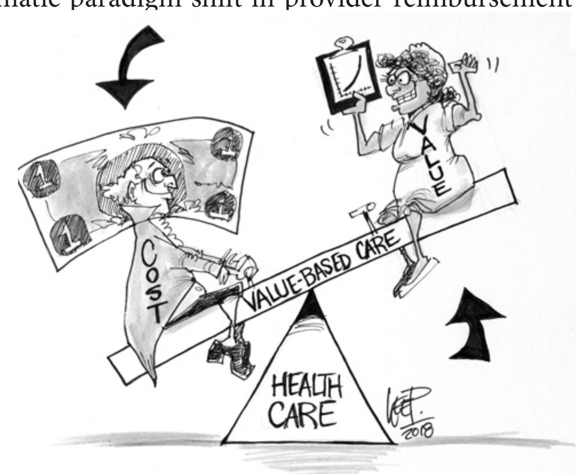
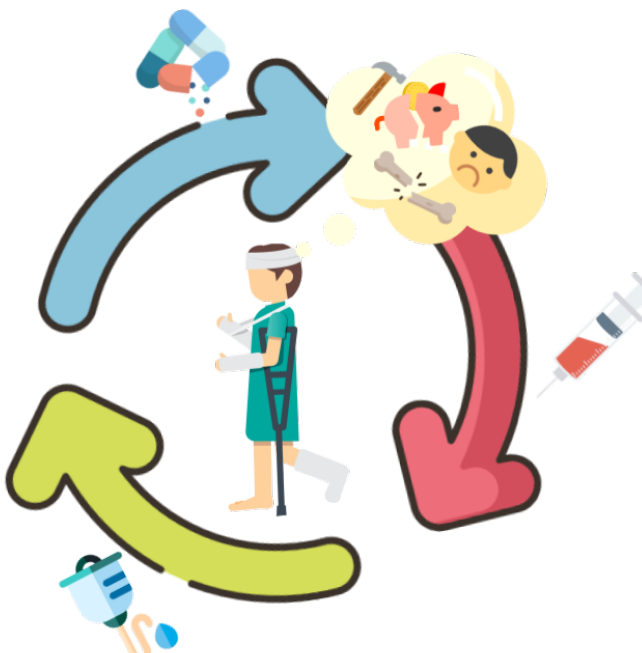


PHOTO CREDIT: WWW.MEDAXIOM.COM

Fee-for-service (FFS) is the traditional payment model of our health care system. Physicians and other health care providers are paid based on the number of services provided to a patient. Some costs come out-of-pocket from the consumer through co-pays and deductibles, but insurance companies and government programs are the predominant sources of compensation. Each service is dealt with independently: every treatment, test, procedure, and visit is separately billed at each doctor's appointment, hospital stay, or surgical consultation. The problem with this reimbursement model is that providers are incentivized to conduct as many billable services as possible in order to maximize revenue, leading to the overutilization of medical services. This drives up health care costs without an offsetting incentive to improve health care outcomes, detracting from a full focus on patient care.

In an effort to solve this problem, third-party payers (e.g., government programs and insurance companies) are increasingly switching to new reimbursement models known as fee-for-value (FFV), which consider patient outcomes as the predominant factor when calculating provider reimbursement. In other words, how much a physician is paid depends on how well she does her job—with the caveat that if a negative clinical outcome is inevitable (i.e., a patient is terminally ill), then the provider would not be penalized on quality measures. If the provider meets specific performance criteria, she will be reimbursed more: improving the outcome of the patient thus becomes the primary economic incentive.

Implementing such a drastic shift to pure value-based reimbursement is nearly impossible to accomplish overnight. A direct transition is not feasible in such a gigantic industry with hundreds of insurers, all with slightly different reimbursement policies and models. Therefore, several more commonly used payment models that hybridize both FFS and FFV models are being implemented in order to smooth this transition. Take pay-for-performance (P4P), an increasingly common reimbursement model that incorporates principles of both FFS and FFV. In the P4P model, providers are still reimbursed per service; however, they are paid more if they meet specific quality benchmarks, or penalized if they fall short. Since the FFS rates are adjusted for provider performance, a financial incentive is placed on doing what is best for the patient. Another payment system known as an Accountable Care Organization (ACO) consists of physician-led groups that collaborate to minimize the cost of care while maintaining quality. ACOs operate on a mostly fee-for-service basis, but physicians are rewarded for achieving group savings beyond a set threshold—but only if they continue to meet established quality standards. A third value-based model is known as capitation, in which providers are paid by health insurers a set amount of money per patient each month, based on historical utilization patterns. If the provider can keep costs below the fixed capitation payment, then it makes money; while if costs go above the payment, the provider loses money. The insurer is essentially handing off risk to the provider, holding them responsible for better patient outcomes and reducing service costs. This approach incentivizes a long-term investment in the patient's health, encouraging preventative care and ensuring that services are provided at the lowest appropriate cost. As opposed to a pure fee-for-service reimbursement model, hybrid setups incorporating FFV principles are a significant step toward a direction promising better quality health care.



In addition to rising health care costs, there are a number of other problems associated with our conventional FFS reimbursement system that further encourage a paradigm shift in reimbursement. Although private insurers and government-funded programs bear the brunt of these exorbitant costs, they still trickle down to health care consumers who face increased premiums and deductibles. Other issues stemming from FFS include a short-sighted focus on service volume, a tremendous barrier to shifting to low-cost health care, and a lack of focus on preventative care. If providers are financially motivated to treat patients with existing illnesses or injuries, attention to preventative care is diminished. In the context of insufficient preventative care, many patients with poorly controlled diabetes or other pre-existing conditions come to hospitals needing expensive surgeries when their illness could have been managed using low-cost, high-value precautionary services. FFS reimbursement does not provide any incentive to manage health at the community level, thus avoidable illnesses become more prevalent.

Additionally, shifting to low-cost health care is tremendously difficult because of the unique constitution of the US health care system. Big pharmaceuticals pour millions of dollars into drug research and development, which is then made available to the public at an extremely high cost in order to generate profit. Health insurance companies provide different plans that cover these expensive medications and treatments, but with subsequently high deductibles and premiums. These premiums also increase as a result of overutilization of services via FFS. As a result, socioeconomically challenged individuals are unable to afford insurance plans, and access to health care is dramatically reduced.

As with any radical paradigm shift, this changeover is facing several major obstacles. The transition is working toward a payment system based on quality care improvements and quality reporting. But one of the main obstacles comes in the difficulty of accurately reporting health care quality measures, which costs upwards of $15.4 billion. High costs result from the expensive resources and infrastructure necessary to report quality measures appropriately and successfully; these include provider data, EMR, IT frameworks, and campaign management. The costs and resources needed to adequately implement a value-based reimbursement system may not be feasible for all health care providers.

By no means is FFS reimbursement the sole perpetrator for rising health care costs and substandard quality. There are a plethora of contributing factors to this crisis, including the fact that services and diagnostic procedures are just more expensive here than in other industrialized nations. Additionally, the US allots an exorbitant amount for drug research and development as well as medical technology advancement. This particular expenditure seems justified, however, as the US leads the world in health care research and cancer treatment: the five-year survival rate for breast cancer is higher in the US than in other OECD countries and survival from colorectal cancer is also among the best. For every expenditure that have tenable results, however, there are a hundred others that are wasteful and unwarranted.

The transition from FFS to FFV compensation represents a crucial component of offsetting costs to pioneer a shift toward higher quality care. It must be undergone with a holistic view of keeping costs low, quality high, and access easy. This endeavor will not be an easy feat. Overcoming the challenges associated with transitioning payment models will require close collaboration between payers, providers, patients, and the public sector. But if it is done right, the US health care system might at long last fall in line with its international counterparts.

The Fight for a U.S. Privacy Law Is Intensifying

But it won't be won easily.

Written by Winny Sun
Designed by Michelle Tang

In 2013, whistleblower and former CIA employee Edward Snowden delivered the shocking revelation that the National Security Agency had been spying on the phone and internet activities of millions of Americans. Just a few years later, the 2018 Cambridge Analytica scandal brought the issue of online privacy under spotlight once again. More than 87 million Facebook profiles were breached, and the stolen information was used by the political consulting firm Cambridge Analytica to develop strategies for the 2016 Trump presidential campaign. Incidents like these have raised the societal importance of online privacy in the US. In fact, a 2017 Pew Research study found that 50% of Americans think that their personal data is less secure today compared to five years ago.

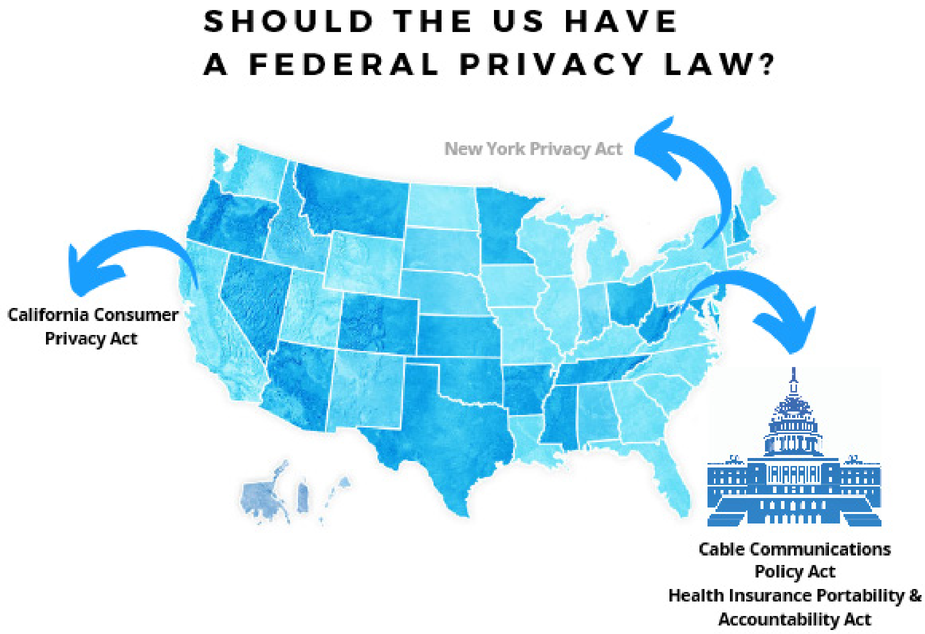
In 2018, the European Union adopted the General Data Protection Regulation (GDPR) to address similar concerns in Europe. GDPR comprises a set of strict data protection rules, requiring companies to ask users for permission when they collect their information and to remove identities from collected data, among other things. Since the inception of the EU law, discussion about creating a similar federal privacy law in the US has sprung up. But as politicians and academics battle over whether and how to regulate privacy, individual states have already begun pushing forward their own plans. The California Consumer Privacy Act (CCPA), signed into law in 2018 and scheduled to go into effect in 2020, will require companies to delete sensitive information at customers' request, among other demands. The CCPA is one of the nation's strictest privacy regulations to date. Yet, California lawmakers are not satisfied and want to make the act even stronger. They have introduced a ballot initiative, which includes new rights like allowing people to prevent their sensitive information like race, health, and financial data from being used in advertising. California is slated to take up this initiative during the upcoming November election.

> ***"But even if lawmakers decide to adopt a federal privacy law, it likely will not come to fruition until important questions have been answered."***

Elsewhere in the country, things are more complicated. New York State's approach, embodied in the proposed New York Privacy Act, was intended to be even more bold than California's, yet the bill failed to pass due to industry lobbying and a lack of support in the NY Senate. The Trump administration reportedly wants a federal privacy law, but senators cannot agree on what rights to include and not include. For example, should consumers be allowed to directly sue businesses that violate the new federal law? While politicians have differing opinions, the majority of tech companies have reached a consensus. A group of 51 large companies, including Amazon, IBM, and Salesforce, recently signed a letter to US congressional leaders asking for a federal consumer data privacy law. For the companies, regulatory certainty is the highest priority, as it is simply too difficult and expensive to comply with numerous individual state privacy laws.

One major benefit of having a federal privacy law is that it would simplify the existing legal framework. Currently, the US has a patchwork of confusing and conflicting federal and state laws. At the federal level exist laws such as the Cable Communications Policy Act (CCPA) and Health Insurance Portability and Accountability Act (HIPAA), but they only grant protections to certain demographics. The CCPA protects the personal information of cable TV service subscribers, while HIPAA prevents patients' sensitive health records from being released without their knowledge. There are also wide discrepancies across state laws. They differ in the harshness of rules and the extent of rights covered. Wyoming and Mississippi are some of the worst states for online privacy, according to an analysis performed by the research agency Comparitech. The two states lack basic laws baring employers from breaching employees' personal information, for example.

Faced with this legal muddle, a federal law that reduces inconsistencies and overlaps would reduce compliance costs and improve revenues. A 2019 Cisco report found that businesses who followed the European GDPR regulations experienced increased consumer trust and shorter sales delay. But it's not only the businesses that benefit. Consumers will also be able to take ownership of their privacy rights more easily, assuming that a unified law is simpler to interpret. Another major benefit of enacting a federal law is that US companies can effective-



ly compete in the international market. Earlier this year, Google received a hefty fine of $57 million for GDPR violations. The French privacy authority accused the search engine giant of being non-transparent in how it collects personal data and creates personalized ads. Regardless of what policies are like in the US, Silicon Valley tech giants have to comply with strict European regulations nonetheless, and stricter regulations at home would help with this.

Privacy advocates in the US wish that a national privacy act, if enacted, could mimic the GDPR—imposed across the nation and yet still composed of strict requirements. But the US and Europe are fundamentally different, where the latter places a heavier emphasis on privacy in general. During the Second World War, the Nazis, with their secret police, were notorious for invading individual privacy, which ingrained pro-privacy attitudes among the Europeans. Additionally, unlike the US Constitution, the European Union's Charter of Fundamental Rights also includes rights to protection of privacy and personal data. Therefore, for historical as well as legal reasons, Europe institutes much stricter privacy regulations on tech companies. By contrast, America's long-standing attitudes in favor of free markets and competition could water down any potential federal law.

But even if lawmakers eventually decide to adopt a federal privacy law, it likely will not come to fruition until important questions have been answered. For example, what organization should enforce the law? Currently, the Federal Trade Commission (FTC), Department of Commerce, and Department of Health and Human Services (HHS) each oversee some aspects of data privacy. Additionally, what is the definition of "personal data"? The meaning of this term has become increasingly complex and states often define it in different ways. A new privacy law will need to redefine the term, explicitly stating what "personal data" encompasses and to what extent companies are allowed to use it. There will likely be clashes between businesses and consumers, as companies want a narrower interpretation of personal data to evade as many regulations as possible while consumers and privacy rights activists want a more comprehensive definition. Another controversial question is whether the new federal law would preempt state laws. In other words, once a federal law passes, are individual states still allowed to impose their own privacy acts?

Putting these questions aside, one of the trickiest things of establishing privacy regulations in the 21st century is maintaining an intricate balance between consumer data protection and innovation. Artificial intelligence poses privacy challenges yet it has devised solutions to numerous health and financial problems. For example, machine learning has succeeded in predicting Alzheimer's Disease based on brain scans six years before patients were diagnosed. It has also triumphed in accurately assessing consumer and business credit risks by looking through massive quantities of financial data. Interestingly, despite its privacy concerns, AI can also help people protect their personal data. A program developed by researchers from the University of Wisconsin-Madison and the University of Michigan helps people interpret websites' complex data protection policies, by translating the terms to simple graphs and color codes.

Privacy laws may also harm business innovation by reducing healthy competition and preventing small businesses from thriving in an industry. A report put together for the California attorney general's office found that compared to big companies, smaller companies may be subject to a disproportionately large portion of compliance costs. Small companies with less than 20 employees may incur up to $50,000 in privacy compliance costs.

Instituting a national privacy law is no easy task, as illustrated by the current limbo politicians are in. But given society's rapid digitization and people's increased concerns about their safety online, the issue of privacy will sooner or later come to a national attention. When that time comes, lawmakers need to pay extra attention to make sure that a new federal law will advance privacy while maintaining a healthy competitive ecosystem.

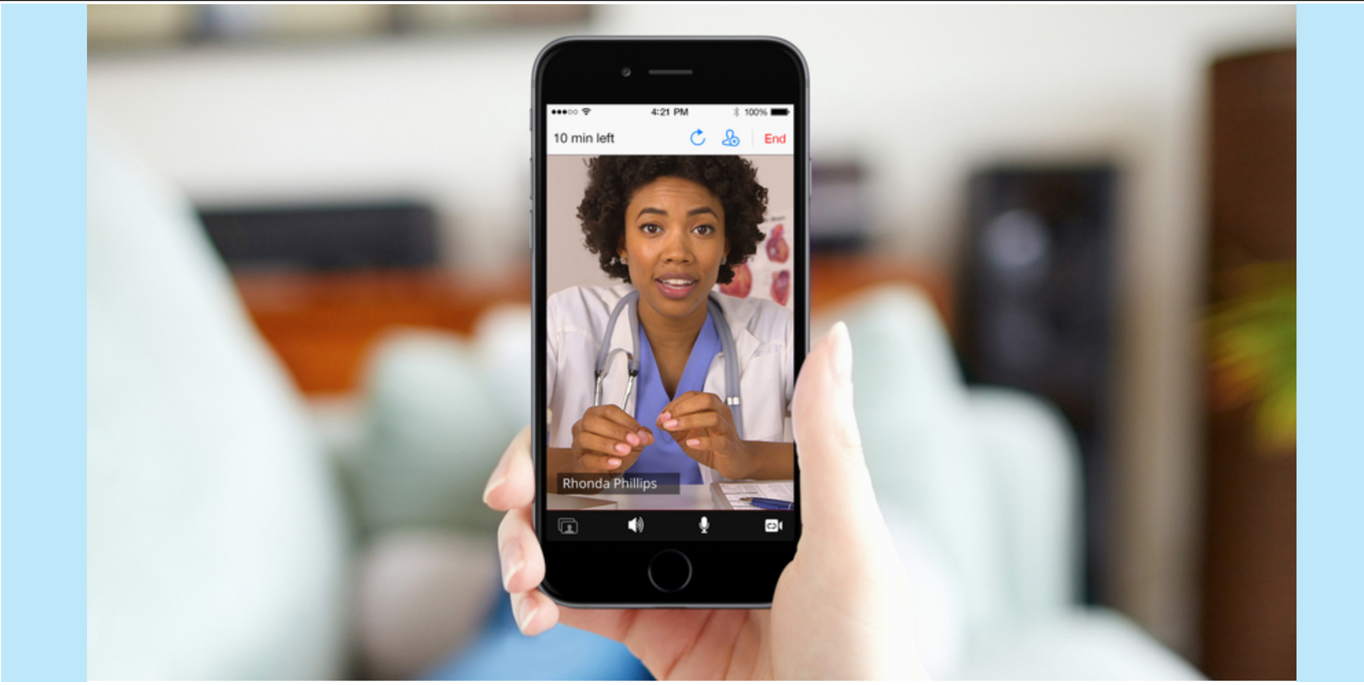


PHOTO CREDIT: FIERCEHEALTHCARE

For Tech Firms, the Health Care Industry's Shortcomings Are a Big Opportunity

Written by Isabella Picillo
Designed by Jessica Sun

The emergence of technology has transformed many industries, particularly retail. Today, many people rely on online retailers to purchase items: according to a 2018 NPR/Marist Poll, 25% of adults in the U.S. buy an item online at least once a month. It is not surprising that so many people gravitate towards online retailers. They offer people the convenience of checking out by simply clicking a button while never having to leave the comfort of their homes. Moreover, the growth of online retailers has paved the way for the increased demand for value, or quality care at low costs, as well as consumerization. We have seen online retailers add value to the consumer's experience by using recommendation engines to suggest products to consumers based on their past purchases, tastes and preferences, and by allowing users to access information about products quickly. Therefore, we see this shift towards consumerization, which means more of a focus on the individual consumer as the end-user. The shift towards consumerization and value has spread to the health care industry in the form of telehealth and retail clinics, reflecting the growing demand for convenience, affordability, and accessibility.

An early sign of this shift towards health care consumerization was the emergence of retail clinics in the 2000s. These clinics are usually attached to well-known pharmacies and supermarkets, such as CVS, Walmart, and Rite Aid, and they have quickly become popular. For example, a study conducted by Deloitte revealed that one in four participants had used a retail clinic. The Deloitte study highlighted this demand from the consumer side by asking participants to rank the importance of 64 different health care interactions. Participants rated "desire for minimal to no wait times in waiting rooms at doctors offices, hospitals, laboratories, or other specialized providers for testing" and "the availability of appointment for the day and time desired by patients" tenth and twelfth, respectively. Thus, we can see that people want to access health services almost instantly when it is convenient for them. Moreover, consumers also value the transparency supplied by retail clinics in their price systems, since many physicians and emergency room visits have hidden costs and fees. The growing demand for convenient health care at relatively low prices will continue to favor retail clinics.

Telehealth companies, which use telecommunications and virtual technology to deliver health care services, are similar to retail clinics in the sense that they provide convenient health care at low costs. Telehealth companies avoid many of the issues we see in our current health care system, such as high associated costs and long wait room times. For example, the company Teladoc allows patients to connect with a primary care physician, dermatologist, or behavioral health provider in less than ten minutes, whether it's via phone, video chat, or app for around $49 per visit. Patients can upload images of their skin issues to the app and then hear back from dermatologists, who also recommend a treatment plan and prescribe medication if needed. Patients can get medical opinions on a medical condition, treatment, and diagnosis, as well as get connected to local doctors via phone or video chat. This type of service is particularly beneficial to patients living in remote areas, who can now access health care services without being burdened by transportation-related issues, such as traveling for care, and associated costs.

However, there are several drawbacks to telehealth services. Because telehealth does not provide for physical examinations, there may be a higher risk for patient mismanagement, as well as patient misdiagnosis. These effects can be exacerbated by poor internet connection and technological glitches, which make it more difficult for online providers to assess the symptoms of the patients.

"The shift towards consumerization and value has spread to the health care industry in the form of telehealth and retail clinics."

Additionally, telehealth reduces care continuity; telehealth doctors may not share their observations or treatment plans with the patient's primary care provider, which can result in incomplete patient medical records.

Despite these drawbacks, telehealth remains popular, with economists predicting that the global telehealth market will reach $16.7 billion by 2025. We have even seen some providers begin incorporating telehealth services into their practices for acute illnesses and minor injuries. This incorporation is because providers are beginning to recognize that they must find ways to retain patients and keep up with the demand for convenience. Moreover, medical professionals must acknowledge that medicine is no longer merely about providing care but also about delivering value through low-cost individualized care. Medical professionals and health care providers must enhance the experience of their patients, whether it be by increasing transparency or making their experience more patient-centered. These changes can manifest in transparent pricing systems and improving efficiency in waiting rooms, in addition to adopting telehealth services.

Providers can also cater to the modern patient by using the features of apps and wearable health devices to tailor care to the individual. Many of these products are being created by large tech companies, who are trying to break into the health care industry. Apple first entered the medical industry in 2018, when the Food and Drug Administration cleared the Apple Watch Series 4 as a medical device. The Apple Watch can detect falls, monitor heart rate, and notify individuals when their heart rate seems irregular. Some people have generally expressed concern about the legitimacy of wearable health devices, which can provide false positives or negatives. Corporate lawyers can also find narrow legal provisions that let companies receive fast-tracked FDA clearance, raising further quality control concerns.

Still, these wearable health devices empower patients to monitor significant characteristics related to their physical wellbeing. For example, some devices vibrate when a user's heart rate or blood pressure is too high, signaling to patients that they need to take steps to address the present health issue. Therefore, people can use these devices to help take better care of their health, and we may even see patients needing to visit their providers less frequently.

Apple has also created a Health app, which consolidates health data from other devices and apps, that can be used similarly to the wearable health device. The Health app is capable of tracking daily steps, monitoring sleeping patterns, and maintaining food diaries. One of the major concerns of the different health apps circulating is if they properly preserve users' privacy. Apple, along with many other companies, has taken the necessary steps to ensure that health data is protected by encrypting it. Health care providers can use the features of these health apps, as well as wearable health devices, to cater to the modern

patient. For example, the Apple Watch features a health app that can do a form of an electrocardiogram; providers can monitor, from afar, how patients with known heart problems are functioning in their everyday lives. Doctors can also use the information from the patient's app to develop a plan that is best tailored to their goals, like losing weight, demonstrating how health care providers can leverage technology to add value through individualized care.

We have seen the emergence of a new type of health care innovation addressing problems in health care delivery that traditional providers have been unable to solve, such as high costs, hidden fees, and long wait room times. Non-traditional actors, mainly tech companies, are leading the way in disrupting older business models, posing a threat to traditional providers.While this disruption is worth encouraging, it is important that the Food and Drug Administration ensures that new players do not forsake the wellbeing of patients by fast-tracking the clearance and approval process for new medical devices and technologies, including telehealth. Only then can we ensure both safety and the proper delivery of care.

VCs Are Boxing Themselves in with Subscription Box Firms

Written by Sophie Jin
Designed by Samantha Mulvey

In the cult classic Clueless, Cher Horowitz famously scrolls through her gigantic closet with the ease of swiping on a tablet. At the time, many admired her exaggerated closet full of the newest season of designer clothing. Now, two decades later, there are various ways to achieve Cher's reality—one of them being direct-to-consumer (DTC) subscription boxes.

The world of high fashion is not the only sphere being infiltrated by subscription boxes offering curated convenience. The once novel concepts of delivering a tailored selection of food, clothing, and other household products are all successfully embodied in companies like Blue Apron, Stitch Fix, and Dollar Shave Club. There is a surge of excitement from all areas of the business community—from venture capital (VC) firms to entrepreneurs to consumer brand companies—over the DTC subscription-based goods market after seeing these companies succeed. However, this excitement is ultimately misguided: the oversaturated market has the makings of a bubble.

One of the most well-known subscription services, Rent the Runway, allows consumers to borrow gently used designer items for a monthly fee. However, the firm has been crippled by pervasive supply chain issues, even temporarily halting the acquisition of new customers in September of 2019. A large part of the reason behind these mounting supply chain issues was the pressure to find more designers and to lower prices. Since the increased popularity of these fashion-subscription based DTC boxes skyrocketed within the last three years, Rent the Runway and similar firms find themselves in positions cornered by increased customer acquisition costs and increased competition.

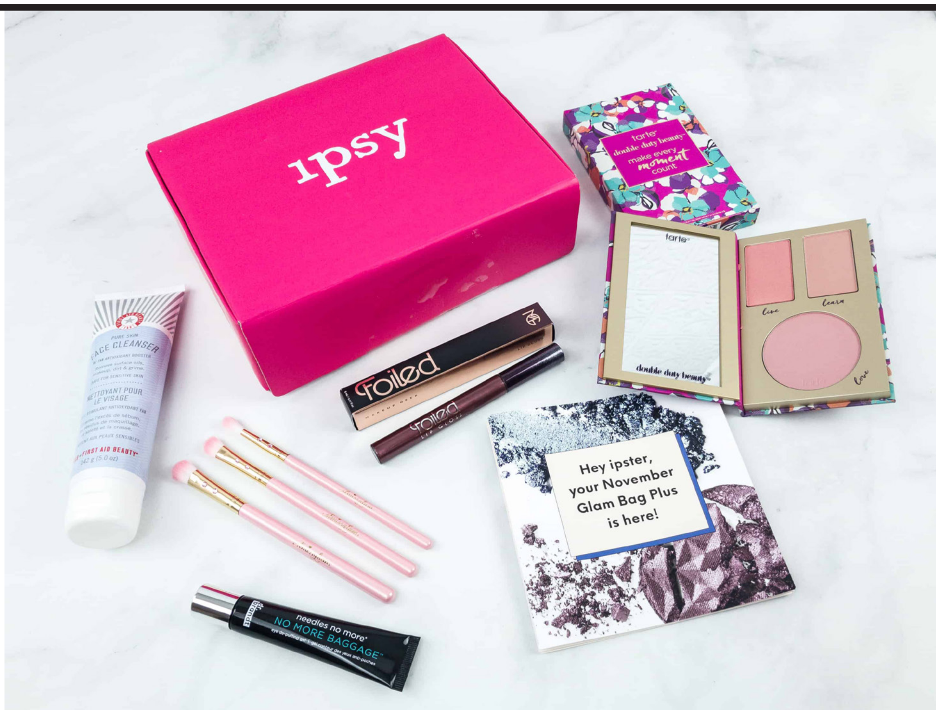
But despite this setback, Rent the Runway reached a private valuation of $1 billion in March. VC firms and industry experts still believe in the firm's ability to profit off of increasing demand for subscription goods, especially among its niche target market of young women in high-income brackets.

On the surface, it is easy to believe that the subscription box market will continue to expand. Monthly visitors to these online storefronts reached over 21 million in 2016, a 3,000% increase from 3 years prior. Consumers idealize boxes that are delivered right to their doorsteps as convenient, novel, and customizable, offering varying degrees of personalization. There also appears to be several profitable niche segments within this overall market, and companies like Rent the Runway have chosen to pursue consumers with particular demographics: women make up 60% of the total addressable market, while millennials are the most likely age group to subscribe.

To take advantage of market growth, many VCs are eager to discover the next company satisfying the current increase of interest, especially among women and young consumers. Birchbox, a subscription box selling makeup products, received a $15 million investment from the VC firm Viking last year, placing its total investment at $90 million despite major, public profitability issues. Unlike other DTC companies, Birchbox does not generate revenue from its subscription boxes, which have thin profit margins: the business relies on siphoning online retail sales.

Both Rent the Runway and Birchbox highlight many of the common issues facing DTC companies, which VCs in this space have continued to downplay. However, funneling continuous funding can only go so far—businesses have already started to bend to exogenous market conditions. VC firms fear falling behind on the next big thing—even as startups continue to suffer from tough market conditions, including thin profit margins and competition from other DTCs or traditional retailers, outside of their control.

However, not all subscription-based boxes are unsuccessful. The beauty industry is a competitive space with both existing large, successful retailers such as Sephora and other subscription services, including IPSY. IPSY provides DTC boxes containing make-up samples, similar to



Ipsy was cofounded by influencer Michelle Phan. PHOTO CREDIT: HELLOSUBSCRIPTION.COM

Birchbox. Although the DTC beauty market is tough, IPSY reached over $500 million in revenue in late 2019 using a similar profit model. However, unlike Birchbox, which relies purely on the retail and subscription market, IPSY was co-founded by popular beauty influencer Michelle Phan.

Phan has driven the firm's strategy of utilizing influencer marketing to build market share and brand loyalty; a significant portion of IPSY's success can be attributed to the power of its brand ambassadors. Birchbox even had the first-to-market advantage, but despite being initially comparable through the lens of the tough siphoning to retail business model which many DTC companies do, it was IPSY's innovative marketing that propelled it to profitability.

Overzealous entrepreneurs remain interested in the expansion of this field despite the tough business model. Evidence of this are the creation of new online platforms of Subbly and Cratejoy, both of which are ecommerce sites that exclusively promote DTC-based subscription box start-ups. New entrants abound, driven by excessive excitement surrounding the market. But what they often overlook is the large price of customer acquisition needed to establish a customer base. A substantial customer base is absolutely critical to a DTC company since the only way for shipping, packaging, and product costs to be lowered to an affordable range is to supply in bulk. The inherent obstacles of needing to raise significant portions of capital while maintaining the acquired customer base just to carry out the initial business model of supplying in bulk can be an impossible task for young companies.

But despite the multitude of services available offered by these new entrants, the subscription goods and services market is saturated, with little room for disruption. One area of opportunity gaining traction—particularly from established companies—is groceries. Traditional department stores have chosen to create footholds through groceries, coupling necessities to other household goods. For example, Amazon's launch of Amazon Fresh, a subscription-based grocery service, has led Walmart to unfurl its own plans. Namely, the company is working to lower prices and implement same-day delivery.

In order for any new entrant to thrive within the space of DTC groceries, they will have to compete with giants backed by massive amounts of capital. Of course, while it is rarely easy for any new company to compete against established companies, the difficulty is exacerbated due to the need for a large existing customer base to cut costs before reaching profitability in the first place.

Even existing consumer brands are now actively participating. Vince, a high fashion retailer, recently entered the subscription-based services with its own minimalistic box titled Vince Unfold. These developments only mark further expansion of the bubble. Historically, when passive participants are hoping to directly gain a slice of the growing pie, there is an influx of indifferentiable services amongst companies. Existing consumer brands are then able to monopolize the market, and newcomers are rarely able to overcome steep market conditions. All of these factors are visible in the DTC market, indicating the makings of a bubble.

Going forward, the only companies that will thrive are ones that are innovative beyond the common difficulties of thin margins, shipping costs, or business models reliant upon retail sales. Only the most innovative firms with qualities such as social media influence or a viral marketing nature can propel a subscription box into the common zeitgeist.

The market for subscription boxes is currently attracting a slew of VCs, entrepreneurs, and existing companies all trying to participate despite the oversaturation and thin profit margins. Nevertheless, it is possible for a select few subscription services to strike gold before the bubble bursts, presenting dreams of convenience—just like Cher Horowitz's closet.

“ However, this excitement is ultimately misguided: the oversaturaed market has the makings of a bubble. ”

an exclusive interview with

Lindy Li

The Youngest Female Congressional Candidate in U.S. History

Lindy Li, a graduate of Princeton University in 2012 and a first-generation American, is the youngest female Congressional candidate in U.S. history. Beyond that, she carries a myriad of experiences and skill sets under her belt— including serving as the longest consecutive female elected class president in Princeton history, professional working experience in investment banking at Credit Suisse, Merck & Co, and Morgan Stanley, and finally, spearheading fundraising efforts for the American Association for Cancer Research Foundation as the youngest trustee on America's oldest cancer research organization. Currently, she's actively involved in the Biden campaign, and has been featured in publications like The New York Times, Forbes, The Washington Post, NBC News, and Cosmopolitan.

Cornell Business Review's Business team was very fortunate to have the chance to speak with her and gain insight into her career path and future aspirations.

Could you speak a little about your background and current passions?

I have been involved in public service and politics for what seems like forever, but I suppose it's only been 5-6 years. It's been a common thread in my life. In high school, I interned for my Congressman, and right now I'm a political contributor for MSNBC and NBC News. MSNBC is a TV channel, and NBC News publishes news articles online and is also one of the nation's foremost broadcasting networks. I also help lead Asian-American political and fundraising efforts for the Biden campaign. It's been crazy lately, as Trump was so scared of Biden that we are now in an impeachment inquiry. A lot has been going on on that front.

As you know, there's an impeachment hearing today, but I'm also working on a piece about Latino outreach. I know I'm not Hispanic, but I think a lot of Asian-Americans and Latinos share commonalities that are worth sharing. Much of the problem today is that many people see everything as a zero-sum game, meaning that if my group succeeds, then your group doesn't. However, I sincerely believe that the pie is big enough for everybody, and we shouldn't be so tribal in America.

A lot of students are pressured into pursuing a career in finance or consulting traditionally, and we see that you've previously worked on Wall Street and you were also, potentially once in our position. What advice would you give to students going through that process?

Well, I'm currently alumni class president at Princeton, and I mentor a lot of current Princeton students as well as high school students all over the United States. Also, my mother owns an education company and finance is a topic that comes up very often among our students. I know there's a tremendous amount of pressure to go down this route, but it's important to explore on your own and actually pursue your own interests. I mean, how many of us going to Cornell or other elite schools enter thinking that our dream is to create spreadsheets and PowerPoints for the rest of our life? I'm sorry to reduce it to that, but for the first two years that's a large part of the job. Our economy and our country would be nowhere without the mechanisms of finance and Wall Street, but it's important to understand the role before committing to that path. In terms of preparation, using guides like Vault is helpful and important for interviews.

What was your experience like in the field?

I worked at Credit Suisse and Morgan Stanley, and while I was there, I felt that my purpose was not being fulfilled. I worked in the M&A group at Credit Suisse, and the work was intense. I remember implementing a recycling program because I was so heartbroken by the reams of paper from PowerPoint we were throwing away. Each time there was a new iteration, you had to print it out and then the managing director had to go through it line by line, circling even a misplaced comma. We'd waste so much paper printing single-sided, and it was difficult to get people to recycle. Everything was about getting to the end result and the ends justifying the means. What about the negative externalities that come with our work? There's so much more to GDP than just the pure financial numbers. It doesn't include environmental impact, nor does it include emotional well-being. These are all important indicators of national health and need to be considered.

What advice do you have for current college students who have career goals or interests that are different from the norm, and are still trying to figure out how to apply their passions to their everyday lives and beyond college?

First, I would give them a huge hug because that is a brave thing to do. Following your heart, I know it sounds terribly hackneyed, but when you do what you love, the money will come. If you're constantly miserable at a job, that's not right. Life is way too short, why waste it?

I'd say to them that they should not be afraid to reach out to alumni and working professionals—it doesn't have to be people from Cornell either. Adults in the field and leaders are happy to pave the way; I would be nowhere without the people who lent a hand to me and I'll always be happy to return the favor. I just really encourage people to reach out. There's nothing wrong with cold-emailing. Just a few days ago, I emailed a random person I had never spoken to on behalf of a friend. What's the worst that can happen? Literally nothing. You're not going to lose a leg. There's only upside, and networking is the key to career success.

The financial services industry, especially banking, is primarily dominated by men as it is politics. What is it like? What was it like being a woman and a person of color in the different roles that you've held in like finance and in politics?

I'm in my 20s, and in politics, it's like being a baby. I don't think it has been easy. I know that Wall Street has been better about elevating women, for example at Morgan Stanley specifically, they have a Women's Empowerment Program and other networking events available. They've definitely made strides in recent years, but certainly not enough, especially as you get to the top. Very few managing directors are women. However, one of my friends from Princeton is Global Head of Research at J.P. Morgan. It is possible, but our current efforts are not enough.

Why did you choose to run for Congress?

I don't think it was a choice. I think I've always wanted to do it. I'm an immigrant; English is my second language. I came here when I was five years old, and America is the best thing that's ever happened to me. I've always wanted to serve in some capacity; I just didn't realize I would be running for Congress at age 25.

What instigated me initially was Sandy Hook. It was devastating for me. It was December 14, 2012, my birthday. After it occurred, I adopted reducing gun violence as my mission. And that's the reason why I chose to work for former Vice President Biden. He's extremely strong on this issue. And I think people, all Americans should be allowed to walk down the streets without worrying about getting shot. I think that's just a basic human liberty. And the fact that that's not the case is just such a shame. Our country can do so much better than that. Even in terms of other issues, like the $1.3 trillion dollars in college loan debt that we have right now, it's just not acceptable. We should be incentivizing students to get an education rather than burdening them with mountains of debt. As someone who is young and close to that, I think it's important to have a voice at the table because if you're not at the table, you're on the menu.

Do you think that there should be more representation of the financial industry in government or more regulation by the government of the financial industry?

I think it's not helpful to villainize the financial services industry. It's important to strike a compromise instead of calling the other side a monster. I'm not so keen on Elizabeth Warren's way of doing things; I believe it should be a collaborative effort from both parties. I think dismantling Dodd-Frank and relaxing restrictions isn't a good idea. We are quick to forget the pain of the 2008-2009 financial crisis. When I graduated from college, America was still recovering from that. I remember that banks like Goldman Sachs all cut back on hiring; many of them didn't come to campus during that time. Our prosperity would be lengthened if we had proper guardrails in place.

What was your five-year plan upon graduating from Princeton and how has it panned out since then?

The quick answer is no. In your 20s and 30s, changes happen so quickly that having a five-year plan seems pollyannaish. You don't know if you're going to fall in love. You don't know if you'll get married or have kids. You just don't know. I think people should be open to these possibilities. At our age, we're the most flexible. We don't have kids or as many responsibilities. When I graduated, I knew that I wanted to run for Congress, though I did not imagine that I would so in fewer than five years. Within two years, I was already at it. It's just been a remarkable journey. It's made me stronger, but I've also been tested and refined by life. It hasn't been easy, but I don't think I would be as strong today had it not been for the various challenges.

In what ways is your experiences at Princeton and shape your decision to go into to pursue your goals after college?

I ran for class president when I was 17 and ended up winning every

Lindy Li is pictured speaking with Nancy Pelosi, the Speaker of the United States House of Representatives.

year. I was the first woman to be elected all four years, and I think that really gave me the confidence moving forward. I don't think that I would've run for anything had I not done so at Princeton.

My senior thesis was on the ethics of climate change legislation. These are issues that I'm still working on and still resonate with me. While in college, I was fortunate enough to collaborate with Cornell on Save the Children, a human rights organization. There, I was lucky enough to work with students outside of Princeton, many of whom ended up being some of my lifelong friends. A dear friend of mine served as President of Cornell's Class of 2012.

What's your favorite book?

Oh, my goodness. One of my favorite lines from Anna Karenina is: "He stepped down, trying not to look long at her, as if she were the sun, yet he saw her, like the sun, even without looking." It's one of my favorite quotes because it just embodies the oceanic magnitude of love. Russian literature is phenomenal and breathtaking, it's the height of human civilization, I'm absolutely convinced. There's so much suffering in Russian Literature, and as someone who has suffered it really hits me hard.

I'm currently rereading The Brothers Karamazov. There's a lot of business knowledge you can extract from fiction. Harvard Business Review came out with an article a few years ago about how fiction can be valuable when maneuvering office politics.

What's the most significant piece of advice you've ever received?

Someone once told me that a man looks into a mirror and thinks he's a senator, while a woman looks in the mirror and sees all the pimples and blemishes. And that's so true. We're still so hypercritical of ourselves. Sometimes even today, I'm like that. And I just have to remind myself that it's a distortion of ourselves.

I think an important thing to remember is that a lot of people who are less qualified than you are already doing what you're dreaming of, only because they believed in themselves and you didn't. You're never going to feel fully ready for anything—so just go for it.

Follow Lindy Li on Social Media

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Central Bank Independence Is Imperfect, but Don't Abandon It

Written by Robyn Bardmesser
Designed by Edward Guo

The United States is ostensibly in solid macroeconomic health, stock markets continue to break records, unemployment is at a record low, and the recovery from the 2008 recession is now stretching into over a decade. There are still some reasons for concern, such as key manufacturing indexes dipping over the summer and a stubbornly depressed labor force participation rate. But overall, there seem to be few structural undercurrents that would justify pushing the federal funds rate, the main tool the Federal Reserve uses to steer the economy—which is typically employed as a countercyclical measure employed during, not before, a recession. Nothing, except for President Donald Trump, and his increasingly tempestuous relationship with Jerome Powell, the Chairman of the Federal Reserve.

President Trump has gone where presidents typically do not go—criticizing the macroeconomic decisions of the entire Federal Reserve system, typically in the form of tweets. For example, on Sept. 19, 2019, the president tweeted, "Jay Powell and the Federal Reserve Fail Again. No 'guts,' no sense, no vision! A terrible communicator!" Then, on Oct. 1, Trump struck a similar chord: "As I predicted, Jay Powell and the Federal Reserve have allowed the Dollar to get so strong, especially relative to ALL other currencies, that our manufacturers are being negatively affected. Fed Rate too high. They are their own worst enemies, they don't have a clue. Pathetic!"

While we are accustomed to Twitter being a political tool within President Trump's repertoire, the usage of Twitter to publicly shame Fed decisions and threaten to fire Powell harms what is seen as one of the fundamental pillars of monetary policy—central bank independence. By coercing Powell into lowering interest rates, President Trump is spurring a brief spurt of economic growth, just in time for the 2020 elections. This situation reinforces why central bank independence is crucial for monetary policy. Even though central bankers are often ineffective, if not outright destructive, and political intervention is sometimes warranted, autonomy is necessary for protecting monetary policy decisions from politicians. This is especially true for the United States, where the president has outsized power compared to leaders elsewhere in the world.

The practice of the independence of central banks is being challenged not just in the United States but also in Europe. Christine Lagarde, former head of the International Monetary Fund, was appointed to head the European Central Bank—with the EU at an existentially pivotal point in its history, in part due to monetary policy controversies in its last decade. In response to these controversies, central bankers from around Europe expressed reasons to be concerned for the independence of the ECB through a memorandum, published in October 2019. Specifically, they criticized the efforts to prevent a deflationary spiral—when an economy becomes trapped in a negative inflation environment—which has not been a risk since 2014. The authors also called out the lack of focus on price stability, coupled with an overly loose monetary policy. They argue that "like other central banks the ECB is threatened with the end of its control over the creation of money. These developments imply a high risk for central bank independence—de jure or de facto."

Similar concerns are echoed in India as well. Over the summer, the deputy governor of India's Reserve Bank of India, Viral Acharya, departed his position, constituting the third departure of voices dissenting the economic agenda of the Indian government within three years. The former governor, Urjit Patel, similarly left, and

> **"As monetary policy has an inherently long-term vision, shielding it from political decisions that tend to be short-sighted is justified."**

was replaced by a civil servant. By changing the key decision-makers to those who agree with the consistently fiscally irresponsible government in New Delhi, the government is creating a sycophantic central bank. This change in staff is concerning, firstly because the Reserve Bank of India has developed a new inflation-targeting agenda, in order to increase the usage of the Indian rupee abroad. The makeup of the new cabinet casts doubt on its ability to follow through with this new agenda. Furthermore, central bank independence is considered a feature of modern developed economies by investors, and by undermining this, the Indian government is jeopardizing its perception within international capital markets. This also echoes the concerns evoked with President Trump threatening to fire Powell.

As monetary policy has an inherently long-term vision, shielding it from political decisions that tend to be short-sighted is justified. Most central banks control the macroeconomy within their country (or economic region, in the case of the European Central Bank) primarily using interest rates. Interest rates control the extent of investment in the economy—lower interest rates spur investment and grow the economy, while higher interest rates work in the opposite way. The traditional monetary policy tool of central banks during a recession within developed countries is lowering interest rates.

However, interest rates in Europe and Japan are now negative, which is not only unhealthy for the financial industry but also renders the central banks less capable of dealing with a recession. This is because if rates fall too far below zero, the incentive to hold cash, effectively a zero-interest investment, grows. And once cash-hoarding gets going, monetary policy, which largely operates by influencing financial markets, begins to lose its bite. Great Britain is close to zero, and the United States is not far above that. The question then becomes—do the central bankers actually know what they're doing?

This question can be similarly asked of Ben Bernanke, who was the Chairman of the Federal Reserve in the lead up the 2008 crash, when he was presented with much evidence of a housing bubble, which then led to the worst recession this world has seen since the Great Depression. Ben Bernanke is an academic by training, a similar background to many of those who work in the Federal Reserve, leading to accusations of the Fed exhibiting groupthink. That has led some to argue in favor of political oversight, to keep the economy from being solely managed by a like-minded cadre of academics. Nevertheless, independence of the Fed from politics is correctly seen as important, especially given that the head of the political system of the United States is President Trump, who is by no stretch of the imagination a scholar of economic theory.

Within the controversies with India, the EU, and the United States, it is easy to forget that central banks often fail, even as they are independent, and political intervention does not inherently constitute politicization. Central banks have failed before in their monetary policy decisions, even while independent, and sometimes removing that autonomy is not poisonous to economic growth.

Beginning in the 1990s, the Bank of Japan's abrupt swings in monetary policy jeopardized the Japanese economy, leading to Prime Minister Shinzo Abe removing its de facto autonomy. In 1999, the BOJ adopted a zero-interest-rate policy in response to deflationary concerns, while simultaneously not expanding the money supply, a decision widely criticized as incoherent. Afterwards, it raised interest rates despite a decline in inflation, before reversing this decision seven months later. It then promised to increase the interest paid on reserves held at the BOJ, but instead reversed the policy in 2006, despite the lack of sustained recovery it had expected—just in time for the 2008 global recession.

When Shinzo Abe took office, he threatened to change policies governing the banks unless they complied with his economic agenda, and he appointed a governor that shared his views. As a result of monetary policies they ended up adopting, inflation finally picked up in the Japanese economy. Without removing the autonomy of the Bank of Japan, Abe would not have been able to effectively utilize it to revitalize the economy, and the Bank of Japan may have continued with its flip-flopping, ultimately destabilizing monetary policy and the entire economy.

The Fed's central mandates of macroeconomic and financial stability, along with low inflation and maximum employment, require it to be in sync with politics, not just macroeconomic theory. Central bank independence rightly assumes that politicians will not know what they're doing when they tinker with complex macroeconomic controls such as interest rates, or will be self-serving in the short-term but destructive in the long-term. But independence also simultaneously depends on central bankers knowing what they're doing, which isn't always the case. That said, central bank independence remains crucial for monetary policy, precisely because politicians like Abe are rare—and political regimes like Trump's and Modi's far less so.

Online Banks Are Taking Over. That Has Big Banks Scrambling.

Written by Jacob Spiegel
Designed by Ariya Feng

Do you remember the moment you opened your first bank account? Did you go over to your local bank and make your first deposit of a few dollars with perhaps your proud parent standing behind you? Or, did you download the "bank app" on your smartphone, enter your personal information, and deposit funds into your account via PayPal or other virtual money-transfer service? While a visit to the local bank may have been the experience of new bankers for centuries, current and future generations may more often taking their visit virtually. Many new banks are online-only—they have no tellers or branches—just a website, app, and perhaps customer service reps. While banking at these institutions involves no face-to-face interactions, they offer many attractive features for younger customers, and are forcing the brick-and-mortar banks to adapt to the digital age.

Take the example of online bank, Ally. Ally has no branches or tellers; business is done completely online, yet consumers may open and manage a savings, money market, interest-checking, or investing account. The bank also offers home and auto loans, where borrowers go through the application process with a loan advisor over the phone. There are now dozens of these types of banks, who, due to their significantly lower overhead costs, are able to offer many competitive features such as higher interest rates. Ally offers a 1.8% annual percentage yield (APY), compared to 0.03% for a standard savings account at Bank of America. Online bank Wealthfront offers a rate of 2.07%, or over 20 times the national average of 0.1%. Because of these attractive interest rates, as well as their sleek, simple interfaces that appeal to tech-savvy segments of the population, a market research firm projects the online banking market size to register a compound annual growth rate of 22.6% from 2017 to 2023. These banks currently have about 10% of the US deposit market, or roughly $1.26.

While many online banks offer retail services, many also offer investment portfolios and robo-advisory services on their platform. For example, Robinhood is an app offering commission-free investing. Robinhood, which launched in 2013, is now practically a household name with over 6 million user accounts. Through their app, consumers can buy stock with the tap of a screen, never once interacting with a broker. So if there is no commission, how does the company make money? One way is through Robinhood Gold, a premium version of their investment portfolio that offers margin investing and research reports for a monthly fee. It also earns rebates from trading venues, and by sweeping customers' uninvested cash into a network of program banks. However, this is one of the reasons the US is trailing Europe in financial startups—while Europe is encouraging online bank growth through lax regulation, American financial startups must set up partnerships with traditional banks to hold deposits. Robinhood has still managed to grow, though; since launching in 2013 with $3 million in venture capital, a recent funding round valued the company at $7.6 billion. Robinhood is the largest app of its kind; however, competitors such as Acorns, Betterment and Wealthfront are all quickly approaching the billion-dollar valuation range. These are just a few of the many apps offering similar mobile investing services that have launched in the last few years.

These online banks have 10% of the market, but who exactly uses them? The target market consists of Gen-Z, millennials, and other younger, more technologically adept segments of the population. According to data from a US Financial Health Pulse Report, 65% of millenials have used online banking. When Robinhood was launched, the appeal to millenials was the simple, friendly trading interface as well as no minimum balance and lack of fees— addressing the misperception among many younger people that investing requires significant upfront capital. This shows how online trading and banking platforms can cater to populations who may have been alienated by traditional platforms.

The success of these services has not gone unnoticed by big banks, who are now forced to offer digital services with high interest rates to compete with this younger

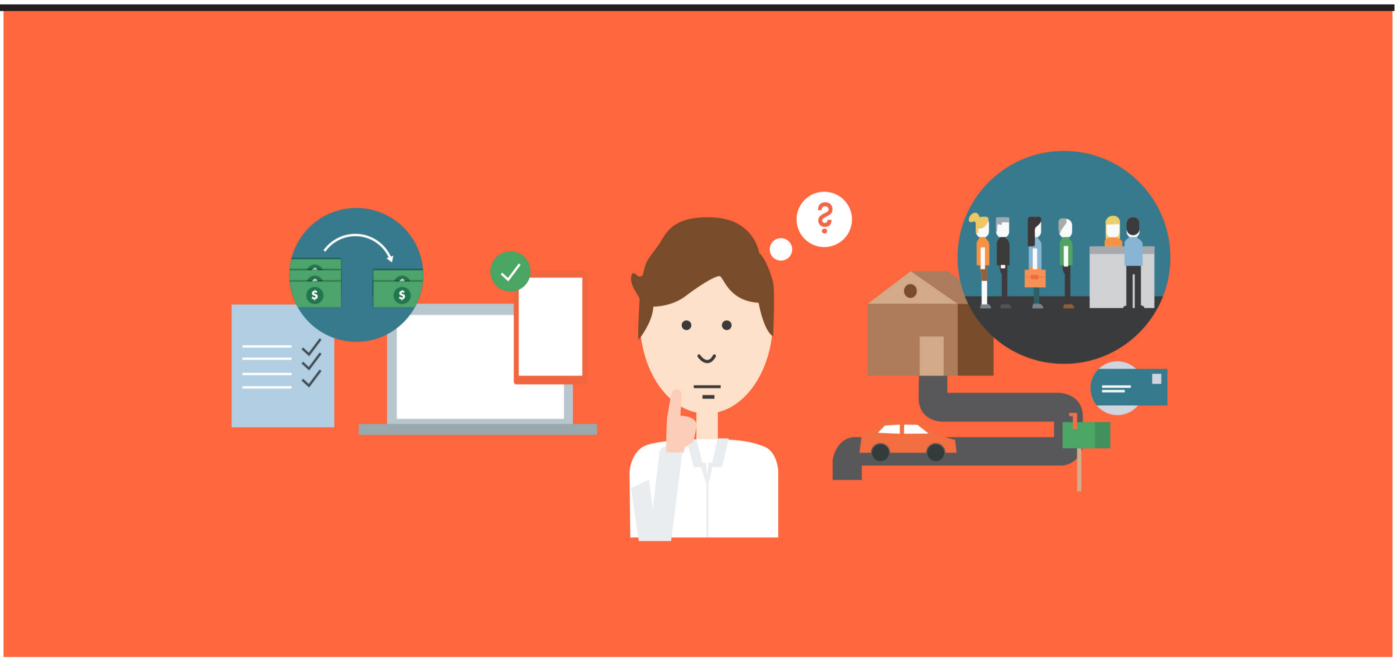

PHOTO CREDIT: DISCOVER.COM

market segment. Goldman Sachs is trying to change its business strategy after the 2008 financial crisis led to the imposition of regulations on its bond and investment segments, shifting its strategy to enter retail banking for low and middle-income individuals. In addition, Goldman is hoping to repair its image after attracting blame during the crisis. In 2016, Goldman launched Marcus, a simple, online retail bank that offers small fixed-rate loans and a high-yield savings account. This trendy offering tailored to small borrowers is a significant change in Goldman's traditional image of serving only large institutions and high-net-worth individuals. While established investment banks such as Goldman Sachs are entering retail banking for the small borrower, they still do not operate as commercial banks with branches and high overhead costs, competing with online-only banks. Other established banks, such as Citizens and HSBC, have started competing with online banks by offering far higher interest rates and stylish online platforms. In essence, the impact of online banks on competition in the banking industry has been substantial.

While Goldman is entering the retail banking industry, other investment banks are trying to compete with apps like Robinhood who offer investment portfolios with zero-commission trades. In 2010, Merrill Lynch launched Merrill Edge, a web-based investment platform allowing investors to make trades and monitor their portfolio independently, and with a $0 minimum investment. Established names in the financial advisory industry such as Charles Schwab, Vanguard, and Fidelity are now offering commission-free stock or ETF trading, too, while others are charging flat monthly fees, and many now offer online, self-guided platforms. The trends in banking being brought about by online banks is making it easier for young people with little capital to get into investing.

Established banks are adapting, but according to many analysts, not fast enough. According to an analysis from McKinsey and Company, the brands that many banks have built to convey trust and security are now restricting their progress. The analysts at McKinsey believe that this is for four reasons. First, the correlation between branch scale and deposit growth has shrunk for US retail banks. For the top 25 US banks, there has been a 210% increase in deposits since 2008, but a 15% decline in branches, suggesting banks need to cut branches at a faster rate to keep pace with online-only competitors. Second, customer satisfaction with their experience is hampered at big banks due to their legacy IT infrastructures. Third, with the shift from physical to digital channels for customer acquisition, large banks are no longer the most efficient market players. Finally, a decline in customer loyalty has reduced the customer-bank relationship of getting all financial products at one place. Tunde Olanrewaju, a senior partner at McKinsey, said in 2014 that brick-and-mortar banks have been slow to adapt to these trends because they view technological adaptations too narrowly—as an app or online comparison charts. With more and more people switching to online banks, established institutions need to do more to adapt and compete.

Online retail and investment banking services are providing younger, tech-savvy generations with an opportunity to invest with limited capital and open savings accounts with interest rates 20 times what you could get at your local branch. The introduction of online banks is a major trend in the history of banking as digital tools create a vastly different banking experience. Big banks are adapting slowly by cutting branches and raising APYs, but are facing the consequences of missing out on a huge market share that online banks are reaping. However, this competition in the banking industry both allows many younger generations to become involved in banking and investing, and is great for depositors in general. When Goldman launched their retail bank in April 2016 (then called GS Bank), it was the first time in the investment bank's 147-year history that they entered the retail banking sphere. This is as indicative as it can get that this is a significant period of promise and change in the banking industry.

The Shift to Agripreneurship

Nigeria's Way to Solve Food Scarcity

Written by Madison Kang
Designed by Michelle Tang

From the Bakken Formation in North Dakota to Eagle Ford in Texas, increased U.S. oil fracking since 2014 has taken its toll on crude-dependent Nigeria. The 2014 rise in American oil production robbed Nigeria of its largest consumer and induced an international collapse in prices. The price of Nigerian oil fell from the break-even $122-a-barrel to just $50 by 2016, leading to recession. With a 6% decline in oil exports, Nigeria also experienced currency devaluation of 20% against the U.S. dollar.

According to the World Bank, Nigeria emerged from its recession in 2017, with a positive gross domestic product (GDP) growth rate of 0.8%, primarily driven by the oil sector. Growth in 2018 improved to 1.9%, supported by a broader range of sectors, but still fell short of expectations based on population growth and pre-recession levels. Despite hints of recovery, Nigeria remains a laggard on many development indicators. In 2018, the country's GDP per capita was $2396.30—only 19% of the world's average.

Though well-endowed with natural oil reserves, Nigeria continues to experience slow growth, failing to fully utilize its workforce. The oil sector generates 70% of national income, but is not labor-intensive enough for the population to derive direct economic benefits from production. Job creation is pertinent: nearly a quarter of the workforce was unemployed in 2018, and 20 percent under-employed. Considering the United Nations' projections of a rise in the proportion of working-age Nigerians (aged 15 to 64) in the next 30 years, from 53% of the population being working-age in 2010 to 59% by 2050, domestic demand for employment will only intensify.

Since assuming office in 2015, President Muhammadu Buhari has promised to promote development through alternative sectors, focusing on agriculture, as the sector currently employs two-thirds of the Nigerian workforce. Buhari's administration has sanctioned various policies aimed at increasing agricultural production and national self-sufficiency in agricultural products, most recently by closing Nigeria's border with the Republic of Benin this past September.

With a population around 5% of Nigeria's, Benin is the world's second-largest exporter of rice. In contrast, the U.S. Department of Agriculture anticipates that Nigeria will be the second-largest importer of rice this year, after China. The Benin border closure was meant to prevent rice smuggling and allow Nigerian farmers better access to local rice markets. However, Nigeria's agricultural sector is incapable of accommodating demand, evidenced by a shortage of 2.2 million tons of rice and the 75% rice price hike that followed the closure.

The adverse effects of the Benin border closure demonstrate the need for improvement in domestic agricultural yield to precede trade policy curtailing imports, which does little to achieve self-sufficiency without adequate domestic production. Food insecurity and inflated prices will persist as domestic farmers take advantage of limited supply.

To prevent food scarcity, Nigeria needs to develop its domestic agricultural capacity. That will necessitate an overhaul, from rural subsistence farming by smallholder farmers (i.e., those who own less than 10 hectares) to profit-driven agripreneurship. A shift to agripreneurship could realize some of Nigeria's most pressing development objectives: employment opportunities in rural and urban areas, improvements to food security and diets, import substitution, and the integration of smallholder farmers into larger markets.

Agripreneurship is the synthesis of agricultural and entrepreneurial practices. Agripreneurs recognize and create exploitable business opportunities through various strategies such as mechanization, global marketing, and organic farming. Agripreneurship has already made large differences in other developing nations, such as Myanmar and Guatemala. One of Myanmar's largest commercial banks, Yoma Bank, provided loans in 2018 to help transition smallholder coffee farmers from producing low-grade commodity coffee to high-value specialty coffee sold at premium prices across global markets. The transition from commodity to specialty coffee exports was largely enabled by Mandalay Coffee Group Company Ltd., which bought, processed, roasted, and shipped the coffee to overseas retailers. Enabling such forms of agripreneurship has tripled the average income of Myanmar coffee farmers and boosted the export value of the country's coffee industry from $1.5 million to $6 million.

In Guatemala, heavy use of chemical pesticides in vegetable production resulted in soil nutrient depletion and low productivity, as high chemical levels often led to rejection for export. In 2013, a major agribusiness firm called Popoyán began assisting 4,500 smallholder farmers in the testing, procurement, and implementation of cost-efficient biological pest control products such as insects and fungi as alternatives to harsh agrochemicals. Guatemala's vegetable export value rose by 13% from 2013 to 2014. In both Myanmar and Guatemala, high private sector involvement in connecting smallholder farmers to agricultural inputs, capital, and markets was crucial for success.

> *"Agripreneurs recognize and create exploitable business opportunities through various strategies such as mechanization, global marketing, and organic farming."*

Nigeria stands to learn much from the experiences of Myanmar and Guatemala. Indeed, Nigeria's government and private sector have already begun stimulating agripreneurial practices in the cassava and rice industries through the Value Chain Development Programme (VCDP), established in 2015.

The VCDP is a six-year development initiative that partners Nigeria's International Fund for Agricultural Development (IFAD) with Olam International, a private food and raw materials supplier. It aims to increase Nigeria's food supply and promote growth in smallholder production. Olam brings smallholder-harvested cassava to its cassava processing centers in Lokogoma and Katchia within Niger State and then markets the processed cassava derivatives overseas. The firm has also made key productive capacity investments in the rice industry, agreeing to purchase rice at prevailing market prices. In return, Olam has gained access to a consistent supply of high-quality rice.

Local farmers have benefited from the infrastructure investments made through the partnership: the VCDP has developed and parceled out 1,192 hectares of land to participating rice and cassava farmers, established produce aggregation centers, formed a price determination committee to remove market distortion, and promoted cashless credit. The program has also championed agricultural mechanization, advancing the use of smart power tillers to facilitate land preparation. Since 2015, VCDP farmers' average incomes have doubled, with $137.5 million in cash receipts to smallholders and 2,500 new jobs.

Nigeria's VCDP ends June 2020, but has only begun to address training farmers on how to respond to changing consumer habits and greater environmental regulation. In its place, other private companies must step up to extend their resources, networks, and industry-specific entrepreneurial insights to guide the country's smallholder farmers for further growth, especially in the cassava and rice industries. As the world's largest cassava producer and Africa's largest rice importer, Nigeria would benefit from enhancing cassava's competitiveness in the international market and streamlining domestic rice production and processing to curb import dependence.

As the private sector cultivates agripreneurship, the state must in turn rein in its own excesses. Nigeria's outdated Land Use Act of 1978 endows the state with excessive control of land ownership, use, and development, preventing smallholder land acquisition. Nigerian smallholder farmers currently manage an average of only four to five acres of land. With 51.4% of the Nigerian population living in rural areas and a high percentage of arable land (37.33%), Nigeria should push to abolish the Land Use Act, allowing rural residents to readily purchase land.

September's border closure—and the resultant food shortage and inflation—evinced the persistent inadequacies of Nigeria's import-dependent agricultural sector. In order to stimulate development and propel crude-reliant Nigeria out of post-recession economic risk, private firms must help initiate the transition from smallholder subsistence farming to agripreneurship in global markets.

Fast Fashion's Long Road to Climate and Economic Sustainability

Written by Jessica Zand
Designed by Jessica Sun

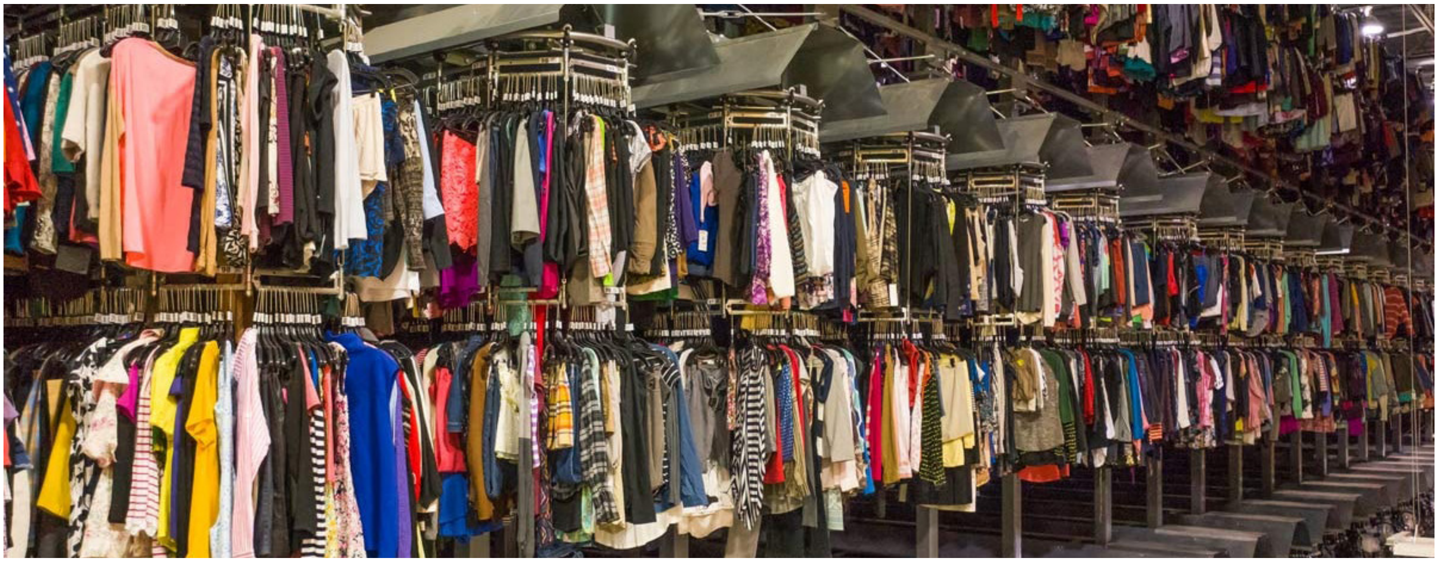

PHOTO CREDIT: FASHIONUNITED.UK

Valued at $3 trillion, the textile industry plays a significant role in the global economy, accounting for 2% of global gross domestic product. However, industry growth has been offset by the ways through which clothing is designed, produced, and consumed—non-renewable resources are used to produce clothes that are made cheaply and disposed of quickly. Overconsumption of cheaply produced clothing and underlying environmentally unsustainable practices have led to more than $500 billion in annual losses.

Within the fashion industry, fast fashion is notorious for its negative impact on the environment, exploiting consumer desire for instant gratification. Fast fashion companies depend on rapid cycles of production and distribution to transport clothes from the design stage to retail channels in a matter of weeks. This process differs from the "slow fashion production process," which takes up to nine months to finalize product ideas. In addition to highly responsive supply chains, fast fashion firms also have low replenishment rates. More specifically, with consumers valuing high differentiability, it is critical for fast fashion firms to eliminate the need to replace distinct items that run out of stock in retail. Increasingly fast cycles of prototyping, larger quantities of poor-quality garments, and widening assortments of designs are the norm in the fast fashion industry.

On the production side, in a little over a decade the number of fashion seasons has increased from two per year (Spring/Summer and Fall/Winter) to 50 to 100 micro seasons, drastically increasing air, water, and land pollution. Forbes projects the fashion industry to be responsible for approximately 10% of global CO_2 emissions, 20% of industrial wastewater, 11% of pesticides, and 24% of insecticides.

To create high levels of throughput in response to consumer demand, textile production relies on 98 million tons of non-renewable resources every year. The depletable resources utilized include oil for synthetic fiber production, fertilizer for cotton growth, and chemicals to dye and finish fibers. Clothing manufacturing also entails the use of around 93 billion cubic meters of water annually.

By employing fast manufacturing time scales and providing inexpensive clothing, the fast fashion industry encourages a mentality of disposability among its consumers. Clothing is treated as replaceable commodities, fueling revenues and landfill growth. The United Nations Economic Commission for Europe estimates that the average consumer purchases 60% more clothing than they did 20 years ago, but only wears each garment for half as long before disposal. With fashion trends changing daily, it has become increasingly difficult to wear items for longer periods of time, especially when new items are cheap.

The appeal of trendy clothes creates a pressure on retailers and manufacturers to provide apparel more frequently, fabricating a dangerous cycle of continuously increasing consumption and production. In the process, the environment is exploited, placing pressure on natural resources. At the current rate of manufacturing and clothing utilization, the textile industry alone could use up more than 25% of the carbon emissions budget set by the Intergovernmental Panel on Climate Change (IPCC) for all industrial emissions.

Outsourcing also enables faster production timelines and greater volumes. Many fast fashion brands outsource manufacturing, breaking down traditional creative design processes into a more collective, less-centralized process spanning several countries. This shift has placed design decisions in the hands of manufacturers. In Turkey, for example, Zara factories also have innovation responsibilities. After fabrics are produced, manufacturers interpret and produce creative designs. Traveling representatives from Europe or the United States provide feedback on these prototypes, which are then finalized and produced. Sustainable fashion brands do not bundle up design decisions and manufacturing; for example, Everlane designs all clothing in California before manufacturing begins in Spain, Italy, and eastern China. This system allows factories to focus solely on production, generating garments of higher quality.

Some companies within the industry are making an effort to change. In 2017, H&M factories were revealed to emit major pollutants from viscose, a chemical-heavy and highly volatile substitute to cotton and polyester. Viscose is a low-cost alternative to silk and is largely responsible for the pollution of China's largest freshwater lake, Poyang Lake. H&M's response to public backlash regarding toxic chemi-

cal use came in 2018, with a sustainability report that spoke of environmental awareness. The company strives to become "climate positive" by 2040, meaning that H&M wants their production process to eliminate more greenhouse gasses than it emits. H&M hopes to achieve this goal through a more "circular and renewable science-based approach," and has undergone dramatic operations changes in recent years. The percent of recycled, sourced cotton (certified organic) has increased by 61%, and garments gathered through its collection initiative has increased by 8,308 tons.

In addition to general concern for environmental ethics, it is vital for today's fashion markets to switch to more environmentally sustainable business models to maintain profits. By 2030, companies could see a decrease in earnings of more than 3%, a loss of $52 billion for the overall industry. A key driver of this decline will be negative effects on brand reputations due to environmental footprints. Non-governmental organizations such as Greenpeace and Fashion Revolution continue to expose the detrimental environmental impacts of fast fashion production. It is estimated that the industry could grow by an additional $192 billion by 2030 if more firms successfully take on environmentally friendly initiatives. By switching to a sustainable textile enterprise, all constituents can benefit.

"Sustainability and profitability are not mutually exclusive."

Profitability and environmental sustainability are not mutually exclusive. When companies use recycled materials, they cut costs and reduce engagement with resource price volatility. Recycled materials are cheaper and could lessen the $100 billion annual loss due to landfill incineration processes. Patagonia—a popular outdoor clothing brand—uses soda bottles, manufacturing waste, and secondhand garments to produce new clothing, generating $400 million in annual revenues. Patagonia's investments in reusable materials allows the firm to reap the dual benefits of consumer trust and higher margins.

The business benefits of a circular economy are becoming more accepted as companies rethink traditional supply chains. The 2015 Nielsen Global Sustainability Report revealed that brands that demonstrated commitment to sustainable practices increased profits by 3%. With growing climate change awareness, a greater number of consumers are willing to pay more for sustainable clothing.

A company that remains unresponsive to the global climate change discussion remains blind to a real business threat. A 2018 report by the Shelton Group found that 86% of consumers support corporate activism and want companies to address social issues. In Singapore and Malaysia, growing attention to environmental issues has led to a decline in fast fashion demand. H&M's first-quarter report for 2018 revealed a 1% and 10% drop in sales for Malaysia and Singapore, respectively.

A popular argument against sustainable fashion involves price. Low-income consumers often cannot afford the higher prices that come with sustainably produced clothing, which utilize ethical manufacturing practices and higher wages. Scaling up short-term clothing rentals, such as subscription clothing, is a promising business opportunity that addresses issues of affordability. Successful examples already exist: in the United States, Rent the Runway draws in more than $800 million in retail value per year, and Houdini Sportswear offers customers second-hand sportswear for 25% off the retail price. By introducing more rental systems to the market, businesses can draw in more profits.

Globally, businesses cannot afford to continue to design and manufacture clothing in environmentally hazardous ways. It is essential for more fashion companies to adopt sustainable practices and disrupt the current linear pathway of production, which offers negative value.

An Exclusive Interview with...

Han Wang

FoodFul, Start-up Co-founder and Cornell University Student

Company brief: FoodFul modernizes dairy herd management by installing sensors in barns to monitor cow's health and feed intake. The scanners are placed in the feeding alley of barns to determine if a cow is eating or not. Machine learning algorithms are applied to the data collected to identify which cows are on the onset of sickness and which cows are most feed efficient.

How did you get Foodful started in the first place?

In the very beginning of last semester in Spring 2019, I joined the Digital Agriculture Hackathon at Cornell. It was the first time I attended a hackathon at Cornell. I used to love hackathons -- I was a pretty big hackathon junkie back in Vancouver. It was a lot of fun to me, especially because I love building and creating cool stuff that I wouldn't normally create within certain time constraints. So I just wanted to see how the Digital Agriculture Hackathon would go. I was not really well-versed in the agricultural space, or agriculture tech in general at all, back then. So I just kind of joined for the fun of it. And then at the hackathon, I got to meet this team of really great guys: one of them (Xiting Zhao) was getting his Masters of Engineering in Computer Science , while the other one (Joseph Tarnate) was getting his Master's in Food Science.

And we just came up with this seemingly silly idea from observing cows. One of the guys took us to the Cornell Barn, and we got to see actual cows. We noticed that the cows have these little tags on their ears -- RFID tags -- and work the same way our Cornell cards work; they can scan just like our cards do. Xiting worked with RFID sensors before, and he hypothesized what would happen if we had these sensors placed at the bottom of the stalls; every time a cow bends down to eat, the tags would pick it up, and then we'd correlate all sorts of information. At first, we thought it was a really silly idea in which we thought that this had already existed and that we didn't know how useful it would be. But shortly afterwards we thought, "It'd be a cool hackathon idea, right?" So we pulled all-nighter just building it out of hardware and then also the web app to visualize the data. We actually ended up winning most market-ready category, which came with a prize package of $2,000. So we were very happy about that. Afterwards, we started getting in conversations with professors about the idea, and a few of them were so excited about our idea. They mentioned that if that actually exists, that would be really useful given that dairy farmers really do have a problem of telling how much their cows actually eat. And [then we thought] the dairy farming industry is essentially just like a unit economics game, right? All that matters to them is how much the farmers are spending to feed the cows versus how much milk they are producing to sell, right? They typically don't have data on individual feed consumption for the cows.

Once we got the idea going on, we thought - "okay, that's interesting." So we took more time on it and interviewed dairy farmers. Over the course of several weekends, we just drove in a car and bounce around upstate New York just talking to dairy farmers and literally went to their doors and asked if they wanted to talk. You'd be surprised -- a lot of them are actually really open. So we did a little more research and realized that we did have something that was more than just a hackathon idea. So we pursued it more and applied for accelerator funding. We were really lucky to have been accepted to ERA (Entrepreneurs Roundtable Accelerator) over the summer. We went over there, developed for about three months, and had our demo day. Then, we got another grant from the National Science Foundation to just do customer interviews across the country. So currently the other two members are just bouncing across different states right now, talking to dairy farmers. And I'm working more with that product.

So what challenges do you anticipate Foodful might encounter in future years and how do you plan on mitigating these risks?

I see a lot of challenges, honestly. For one, just really scaling the business and also getting a lot of farmers on board to use our product. Right now, the difficulty is developing the product. We want something that is scalable, affordable, easy to manufacture, and reliable over the course of very long periods of time. If you have been to a barn, you know what it's like -- it's a lot to handle. For one, the cows have very strong heads, so having the product be durable and manufacturable is very important. That's the current problem, but in the long term, one of our biggest concerns is about the market need for it and also getting them to the farmers. Dairy farming in general is a very loosely connected industry. If you go upstate and drive around you'll realize that they operate in their own kind of way. They typically sell their milk to the next level in the supply chain and go about their days. There is no easy way to sell directly to all of the farmers. A lot of the more conventional ways of mass marketing can't apply in this situation. It's a lot harder when you're trying to market within the dairy space because the market is relatively fragmented. So we're trying to find ways to approach that as well.

Talking about the potential future challenges with assessing that market, how have you gone about marketing Foodful? And what steps or plans do you have in expanding across the country like you talked about in talking to different farmers or is it expanding through the supply chain, perhaps?

So our current strategy is more or less just like getting connected with these groups called co-ops where certain dairy farmers have to choose to participate in these collections and groups of farmers. The easiest way to go about doing this is to target the co-ops and talk about what the implications are of what we can do, and then we can focus on those individual dairy farms associated with these co-ops rather than knocking on every single dairy farm's door and asking if they'd want to buy our product because that's not scalable at all.

We have our very first early adopters -- six farms who have signed up to buy our product once we develop the product, so we're still working on developing that. It was a lot of cold calling for those six farms, honestly. Though we didn't have that many connections within the dairy space, we decided that we would just knock on doors, email people we've received contact for, and call the numbers we were given. And a lot of them were actually really receptive. We realized a lot of them are interested in the space. If you somehow connect with them, it's really interesting how easy it is to really build a relationship and have them gain interest in your products that way.

What challenges have you faced taking on this responsibility of working on a startup while being in school as well?

It's a huge responsibility and a huge time commitment, honestly. A startup is very much defined by the commitments of each single founder, right? Because you don't have the resources or the right scale to really go about doing all sorts of things. Every single person is really responsible to hold up their end of the bargain, and I'll say that alone encompasses a lot. Currently, I'm mostly focusing on the platform, software, and data that we're collecting at the dairy farm right now. Though it might not seem like a lot, there is a fair amount of work to do on a weekly basis because I have to check tasks off the agenda while balancing school. The good thing is that I'm actually getting research credit for this, which definitely helps!

Along with that, what experience from majoring in Information Science do you hope to apply to the future for Foodful and in post-college life?

A: I'm still very interested in the tech space in general. The great thing is that Information Science teaches you a different variety of things. For example, I'm probably concentrating in data science, but I'm also very interested in front-end development and the user interface (UI) component of it. I did a tremendous amount of that during the summer, such as developing the actual platform and doing all sorts of data analysis, which is very applicable to the core of what information science really is. I think being aligned with this major and what I had to do at Foodful actually made a lot of sense, and the other co-founders feel this way as well. Xiting focused on the hardware component, and Joseph was the person who was connecting with dairy farmers and understanding the problem space within the dairy industry. So studies-wise, a lot of our backgrounds really came together to form a really cohesive and holistic team.

Going off of that, what unique perspective do you think you bring?

I'm very software and data science focused. So throughout the summer, a lot of what I did was software heavy. Even for the technical stuff, a lot of what we had to do was just developing it, and a lot of what I got into was just focusing on everything software. This encompass so many things, such as developing the platform, designing the platform, integrating the data, choosing cloud providers, talking to these cloud providers for start-up discounts, choosing the best data structure to store data, processing the data, and all sorts of these kind of things that are what you would do over software was what I was focused on. The team was very wired on getting the hardware component done well. So I think that's the perspective and hard work I think I bring to the team.

Would you want to do entrepreneurship in the future?

Definitely. I think something that also I've come to realize is that entrepreneurship is quite like an art just by itself. I honestly think that a lot of people should get into entrepreneurship at some point in time because it really teaches you a lot about how the backbone of many things got started, what really needs to happen to get a company to really create value, and what essentially all companies do. I think a lot of people have the impression of Microsoft or Facebook, for example, as these companies that are really well-established and that they're just making money. But what people don't understand without having a history of entrepreneurship experience is that in order for these companies to get going, they really need to be solving some hardcore problems. Especially if the companies are to really sustain what they're doing. And when you're working at a big company, you don't really consider that as much. You don't consider the value creation part of it, and you don't consider the problem space that all of these companies are solving. And I think getting into entrepreneurship really taught me and gave me that laser-focused vision of being very user-driven and always being about your customers. Honestly, what are companies if they don't consider the customers? The dynamics of how people are -- it's really important to have an adaptable skill set. Because when you're a co-founder, you realistically have to do so many things right to compensate, and you have to work really hard. And it really embeds a drive that I think a lot of people would benefit from having.

What might be one of the biggest challenges you faced from your entrepreneurship experience?

It's just a lot of pressure really. I think a lot of the pressure that comes from these kinds of ventures from yourself. Over the summer at the accelerator, my schedule was tight -- I would wake up in the morning at seven o'clock, go on the transit for an hour and 45 minutes, did absolutely nothing but work on this until six o'clock, come back at eight, grab dinner, keep working on this until midnight, and then repeat. We kept working like the vast majority of the time and a lot on the weekends as well. We would just work non-stop on Saturday and Sunday. I actually remember when some of my friends were in the city over the summer as well. We planned beforehand and said we should all meet and do something in the city. In order to do that, we had to push two weeks ahead of our schedule just for me to see my friends on Saturday. We knew that in order to do well, we had to go pretty hard. A lot of that was from ourselves. We got accepted to the accelerator, and we received trust from ERA to do well and we knew we couldn't just fail and under deliver. That was absolutely one of the biggest challenges. I think there's really a dark side to the startup life. There are parts of it that are not as glamorized -- the parts that are not shown and the parts that people don't think about. For example, your personal life being conflicted by the start-up is very real, and I got to feel that over the summer, at least a little bit. It felt very lonely at times, and I was with the same guys eating the same meals virtually every single day for like three months. It can get very isolating. But then again, it got me a sliver of what it takes.

Also, ERA was completely right. We've actually gotten yelled at a few times. It's funny because people see these accelerators or incubators as like, "Oh, an accelerator! My company is going to grow." And then what they don't see is that in order for that growth to happen, a lot of it is on yourself. They definitely help you with the funding and the connections, but the value of what that growth is and where the meat of the work is from -- comes from the founders. So what they do is they really push you hard.

There is an entrepreneurship consultant, Felix, over at eHub Kennedy. When we spoke to him about getting into ERA and told him that that's what we were probably doing over the summer, he said that we were essentially selling our souls away. Those were virtually his exact words. Because it was, and I got to understand more what that meant. They just kept pushing you -- every week or every other week, they would talk to us about what we're doing wrong and why we're not growing fast enough. And sometimes it was really rough. We've been in meetings where there's a bunch of these other guys who are investors of ERA and probably very successful people literally pointing at us and noting what we're doing wrong. And asking why we weren't seeing profits, why we weren't getting our first customers, and asking these kinds of things. And these were some of the challenges that we've experienced working on Foodful.

Is there anything else you want to say?

I think Cornell has a fair amount of resources and connections to entrepreneurship in general. This was one thing I was pleasantly surprised by. Over the summer, we would have these sessions on Wednesdays where we would get some well-established people or companies to speak, like some venture capitalists who've invested in Uber early stage for example. Or even someone who has sold his or her company for $500 million or who currently has a company that's pulling off $300 million a year. The thing is that a lot of them are from Cornell. Every time that happened, we thought that was really cool. The fact that a lot of them went to Cornell is one thing, but another point is that at Cornell, there's so many resources -- eHub, eLab, Blackstone, Life Changing Labs, and so many resources that are designed to help students see through their ideas. At some point, I believe most students here probably had some idea that they really wished to build into something great. I would like to say that you should not be discouraged if you don't have entrepreneurship experience. There's tons of people who are and are more than happy to help you out. So even if it's an idea that's as silly as something that came out of a hackathon, if you're willing to talk to these people and learn about entrepreneurship, you'll see yourself and your project going a long way.

FoodFul Co-founders: Joseph Tarnate (Left), Han Wang (Middle), Xitang Zhao (Right)

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