THE NEW BUSINESS REVIEW

WINTER 2020

N:R
An Undergraduate Business Publication at UBC

OUR TEAM

TEAM

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ABOUT

The New Business Review is an undergraduate business publication managed exclusively by students at the University of British Columbia. It was founded in 2020 with the mission to foster student thought leadership by providing a platform for tomorrow's business leaders to develop and discuss meaningful business insights. NBR publishes content in print and online twice a year; it is produced on the traditional, ancestral, and unceded territory of the Musqueam people. Each article is written specifically for the publication and is the result of months of rigorous collaboration between student writers, members of the Editorial Board, and select faculty members. Combined with the researchers and artists working in all aspects of content production, they form a thriving community of intellectually curious individuals at UBC.

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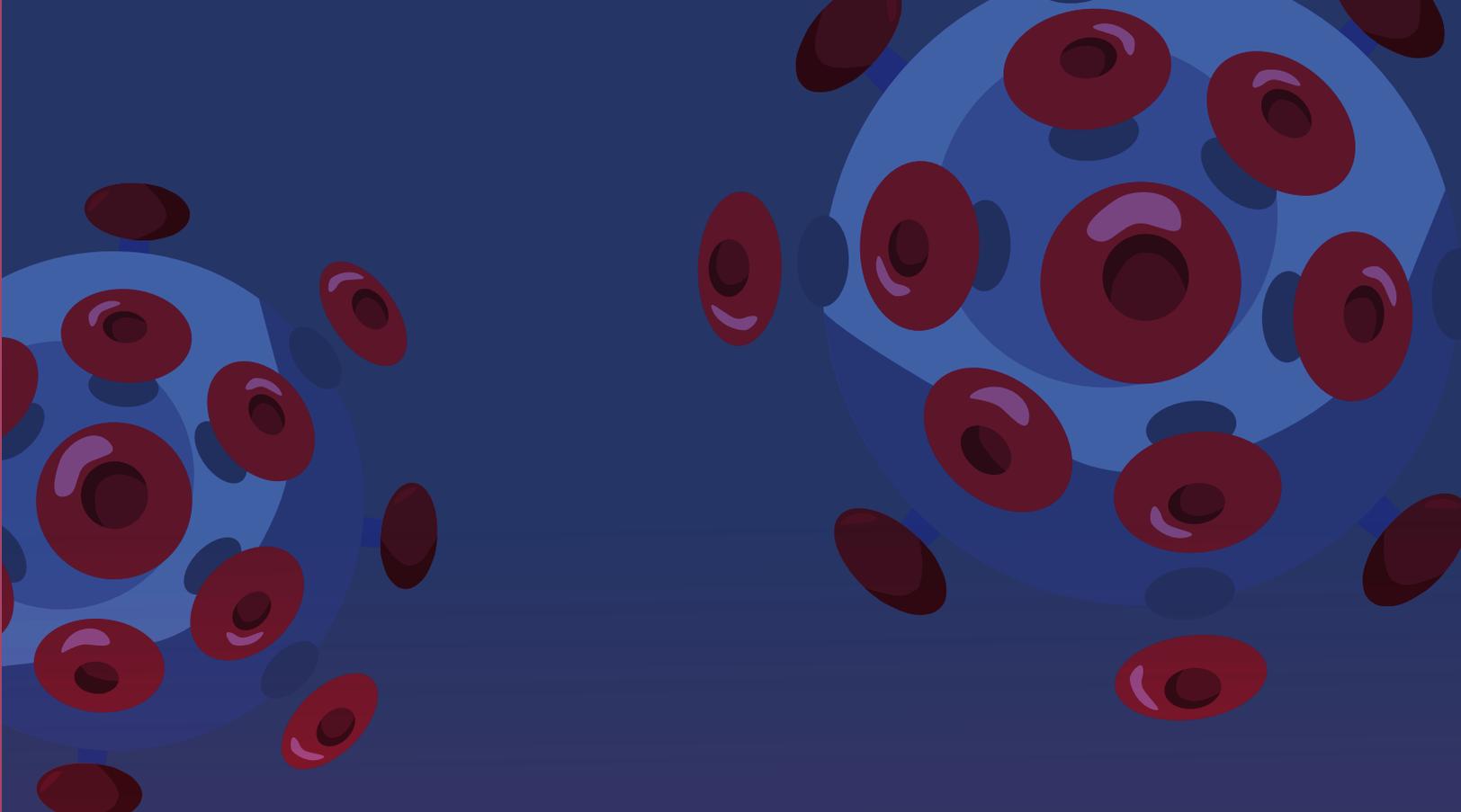
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SAAVIN LIDDER

**Founder & Editor-in-Chief
The New Business Review**

NOTE FROM THE EDITOR-IN-CHIEF

Over the past nine months, companies have been challenged with navigating the contours of an ever changing new normal. We have witnessed companies scramble to survive, pivoting amidst a changing world order. The COVID-19 pandemic pushed socio-economic inequalities like those of race, income, gender, and health access and outcomes to the forefront of social consciousness, highlighting that we have an opportunity to embark on a true transformation. A transformation that involves solving big problems through innovation, the lens of our values, and collaboration through both the private and public sector.

As we transition into 2021, we will see companies take steps towards this transformation, using strategies that consciously shape our future instead of just surviving the immediate present. The NBR team sought to develop such strategies across myriad industries. Our articles on supply chains and the emerging area of Behavioural Operations Research seek to address the heightened need for resilient and informed operations.

We highlight the paths that restaurants and regional soccer teams can carve to thrive through the ongoing transition, rooted in embracing the catalytic rise of digital. Innovation is also discussed broadly in our profile of UBC Sauder Alumni driving momentum within Western Canada's startup ecosystem and in discussion of diversity in venture capital. We also propose a strategy Apple can champion to increase gender diversity in tech.

Special thanks are given to our UBC Sauder Faculty and Content advisors, partners such as the Commerce Undergraduate Society, and others who have helped make NBR's first year and this Issue successful. Lastly, I would like to thank you, the reader, for your continued support. I hope this issue inspires and encourages you to recognize how you can use your creativity and values to shape the post-COVID-19 eras.

Sincerely,

*Saavin Lidder
Founder, Editor-in-Chief*

INTERVIEW WITH
MEREDITH POWELL

Former CMO of Microsoft for Startups and current Voyager Capital Venture Partner

ARTWORK BY ANNA ZHANG

Meredith Powell graduated from UBC with a Bachelor of Arts in 1999. An award-winning serial entrepreneur, her impact on Canada's innovation ecosystem is remarkable. Among many ventures, she founded Powell & Company, an international business and brand management firm serving fashion, CPG and lifestyle companies. Her strategic retail partners included Nordstrom, H&M, Amazon, Urban Outfitters Group, Vice and Vogue. Shortly thereafter, she built eComm marketplace Shopthefloor.com which became the largest online marketplace of its kind (acquired in 2014 by UBM).

In 2013, she co-founded The Next Big Thing - an accelerator empowering Gen Z entrepreneurs. It has supported companies like SmartSweets, Blume, and Spocket, and is known today as the League of Innovators.

Meredith went on to become the Chief Marketing Officer for Microsoft for Startups, a global group dedicated to helping B2B startups successfully scale by leveraging the power of one of the largest tech titans in the world. Today, she serves as a Board Director at the Greater Vancouver Board of Trade and a Venture Partner at Voyager Capital, a venture capital fund with $520M under management and that invests in the Pacific Northwest's most innovative early stage tech founders.

Meredith is YWCA's recipient for "Entrepreneurship & Innovation", Startup Canada's national award winner for promoting entrepreneurship, a Business in Vancouver Top 40 under 40, BC Business Magazine "Top 35 Most Influential Women in Business", and one of The Boardlist's Top Canadian Women in Tech.

We'd love to learn more about your career path, specifically: upon graduating from UBC, how did you get into entrepreneurship? Did you always know you wanted to work in tech? What inspired you to build your businesses?

I knew I wanted to do something creative and fast-paced, something where I could have a voice, flex curiosity muscles, and work collaboratively with inspired people. My Bachelor of Arts was in English Literature and Film Studies—topics I loved. I met incredible friends and memorable teachers throughout my university years.

Entrepreneurship itself wasn't an area of study at UBC during my time there, nor was applied tech or learning about venture capital. Programs like e@UBC (Entrepreneurship at UBC) didn't yet exist. What I did have was a family of innovators and inventors with a history of pioneering, and parents and loved ones who supported my goals. It wasn't unusual for us to talk about company building over dinner or to learn about, say, my uncle's latest patents.

I was fortunate to land a job directly after graduating as Director's Assistant to a well-known feature film director. He was in Vancouver shooting a star-studded movie and next thing I knew, I was working 14 hour days in a production office preparing for the shoot. On day one, I was asked to fill out excel sheets, send emails, log into networks... none of which I'd done before!

❝ This grounding in tech and UI/UX was the single most impactful move I made in my career. It supplemented my Liberal Arts education. This combination of skills eventually helped me launch and grow my own companies and brands.

Immediately, I signed up for an adult education diploma program in Web Design to learn all

things digital. I spent late nights and weekends learning about design and databases. I learned to code and to create websites from scratch, met cool hackers who gave me bootlegged copies of Illustrator, InDesign, and Photoshop so I could practice outside of the class labs. This grounding in tech and UI/UX was the single most impactful move I made in my career. It supplemented my Liberal Arts education. It propelled me forward and gave me skills no one else on job sites had at the time. This combination of skills eventually helped me launch and grow my own companies and brands.

Truthfully, I never dreamed of working in the startup world, nor do I now. I wasn't the student who loved sciences, gaming, or tech. I do, however, see technology as a support foundation for realizing your dreams. If you want to be a filmmaker then shooting, editing, distribution, animation/CG, and marketing is all enabled via hardware and software. Can't wait to start an apparel brand? Open your own eComm store, market on Instagram and TikTok, use dropshipping automation where valuable, and run a crowdfunding campaign to help support early production run costs.

Our world is ever-changing and tech is powering the majority of that innovation. If you had told me back when I was a UBC student that I would work in feature films, launch my own companies in the fashion industry, travel the world and show under the tent at New York Fashion Week, mentor thousands of early stage entrepreneurs, help lead Microsoft's $500M Global Startups program or act as a Venture Partner with an institutional tech venture capital fund... and that my passion for cutting edge innovation would help me in each of these roles... well, I'm sure you could have knocked me over with a feather.

How has COVID-19 impacted the venture capital landscape?

For many of us in Venture Capital (VC), new investments and deal flow in general went quiet the first few months of COVID-19. Everyone was grappling with a new reality and figuring out the best next steps. Our team dug in with portfolio companies to help them weather the pandemic. We put some additional funding into companies who needed it.

Being unable to attend live events, the lack of "mix and mingle" opportunities— it's changed how investors connect with founders, how we assess teams, or syndicate rounds. We run all our team meetings virtually—even our Annual General Meeting was fully virtual—and I really miss the in-person community aspect of the tech ecosystem. No amount of virtual webinars can substitute for lunch together or a fun group activity. VCs have learned we can still source and diligence new deals remotely, but my conversations across the industry tell me we're all looking forward to having "in real life" time again once things open back up.

Today, new deal flow has largely picked back up and—in our case—my team recently has completed eight new investments. In fact, some sectors have experienced massive acceleration during the pandemic, for example eComm, EdTech, TeleHealth, Cloud Infrastructure and CyberSecurity.

VC has, traditionally, been an industry with extreme imbalance between male and female representation. Studies show that—while everyone is facing unprecedented challenges—women are bearing the brunt of the economic and social fallout of COVID-19 to the tune of 1 in 4 women potentially being forced to leave the workforce.

I'm not sure we can rightly judge the impact of the pandemic on equity in VC today, this may be something better evaluated over time. How many women may fall-out of hardwon roles in venture capital? What percentage of underestimated founders may have to either step away from their startup or perhaps not launch their own tech company to begin with and therefore never be available for funding? Time will tell. But I'm deeply concerned we are moving backward not forward in this area.

As a diversity advocate, do you think the recent increase in funding available to Black founders is short term, and why or why not?

Black Lives Matter has been a powerful and much needed catalyst for the investment community to take equity and anti-racism seriously. Well beyond black founders, it's raising big, challenging questions for VCs across all BIPOC entrepreneurs.

I don't believe this is—nor will I accept—a short term shift in accountability or awareness but rather a fire under the industry to make lasting change. Those who don't evolve will die out over time. Equity is, I believe, the path to our best possible future.

> **" *True and lasting change will only come when positions of power are diversely held and opportunity is far more widely available than it is today.***

The industry is seeing new funds pop up focused on seeding underestimated founders such as Harlem Capital, Backstage Capital, and Plexo Capital. Long standing funds are committing to Diversity Riders that can be inserted directly into term sheets. At Voyager, we not only make financial contributions in support of various organizations focused on BIPOC founders, but also commit to getting hands-on in terms of mentorship, serving on committees and the like. Recently two of us participated in Female Founders Alliance's office hours—one of the groups we sponsor—for Black Founders and it was fantastic.

The world I'm fighting for has BIPOC and female representation in Board of Director seats, as Partner-level investors, and in C-Suite roles. We must celebrate the individuals who fill those roles and not award the organizations for simply sourcing top talent. It's just smart business.

True and lasting change will only come when positions of power are diversely held and opportunity is far more widely available than it is today.

What advice do you have for UBC students, especially women, who want to embark on an entrepreneurial journey?

There's never been a better time than now to follow your dreams.

If your dreams are to be a CEO, a founder, an innovator, or even a prime minister, well, I would encourage everyone—regardless of grades, ethnicity, different abilities, age, or gender identity—to be courageous and take the plunge.

Enjoy the ride (even the hard days, because there will be really really hard days!), don't forget to make time for fun, build your tribe, make mistakes, shoot your shot.

I guarantee you, the world has your back.
And quickly you'll find yourself surrounded by a community of passionate people like myself who are rooting you on.

WESTERN CANADA'S BUDDING INNOVATION ECONOMY
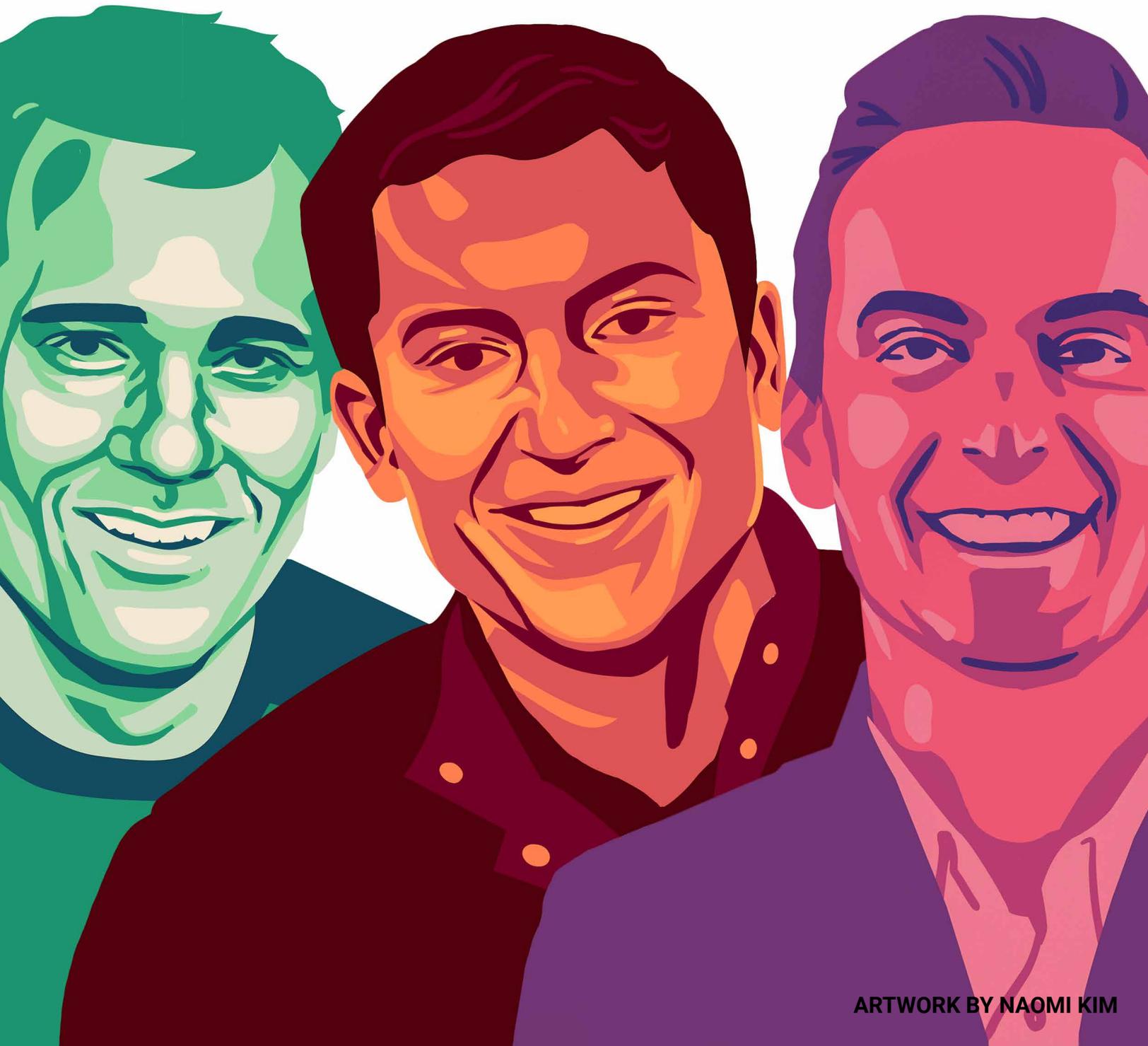
Gaining Traction

Located just above Silicon Valley, the Western Canadian startup ecosystem is becoming increasingly successful in fostering the growth of startups, particularly those in tech. Vancouver, for example, leads the top 30 U.S. and Canadian tech markets in high-tech job growth, with a growth rate of 29.2% over the past two years. The ecosystem has seen substantial growth in financings, with a 150% increase in just the past decade. The growing success rate of startups in Western Canada has also dramatically increased the talent pool, further building the ecosystem's momentum.

Attracting tech talent has now become one of the ecosystem's strengths, but it was not always the case. Applying for a tech job in Vancouver as a university student, for example, was not always viable or attractive. NBR's mission has always been to foster student thought leadership, creativity, and innovation, so it was only fitting to highlight the growing opportunity to scale startups or work in technology in Western Canada.

This semester, NBR established its official blog Pitch Deck to explore the unique challenges, needs, and strengths of Western Canada's Startup Ecosystem. Our goal with this initiative is to highlight the merits of entrepreneurship for university students entering a business environment and job market of increasing uncertainty. Further, COVID-19 has demonstrated the need for innovation and problem solving at lengths never seen before. We hope to drive discourse on the ecosystem and its exciting developments to encourage the growth of its community.

Pitch Deck features profiles of UBC Alumni leading captivating startups that are developing Vancouver's innovation economy. The first few companies and founders profiled are interrelated: NBR was grateful to interview Jay Rhind, Partner at Rhino Ventures, an early-stage venture capital fund that has invested in Jason Smith's Klue and Greg Smith's Thinkific. Together and on their own, they have played a role in crafting the narrative of the region's growing startup scene.

Rhino Ventures: The True Entrepreneurial Journey

Jay Rhind, Partner at Rhino Ventures

The moniker "Rhino Ventures" was inspired by how rhinos are tough and thick-skinned—traits required in start-up founders in order to build a successful company. Jay Rhind, Partner at Rhino Ventures, embodies this himself. His entrepreneurial experience led him to connect with fellow UBC Sauder MBA grad Fraser Hall; they bonded over the challenges of entrepreneurship and that was when the idea for Rhino Ventures was born.

In late 2016, the two raised a micro fund—or minimum viable fund as Jay calls it—of $14 million CAD under the name of "Vancouver Founder Fund". Their thesis was to invest in the best and brightest entrepreneurs building venture scale success stories across Western Canada. In the middle of 2019, they rebranded themselves to the well known "Rhino Ventures"; a name that was an even "better representation of the entrepreneurial journey than a Unicorn". Rhino Venture's purpose continued to be inspired by addressing the massive market gap between the quantity and quality of early-stage capital serving the Vancouver startup ecosystem. Jay noted that the severe gap in the market allowed them to have relative success by simply attacking it. They quickly made notable investments in Article.com, Thinkific, and Klue, among others.

For many years, Vancouver experienced under-funding because the majority of Canada's capital was concentrated in the East, emerging in Toronto and subsequent peripheries like Ottawa and Montreal. However, an innovation renaissance of sorts in Vancouver, particularly over the past 12-18 months, has driven an upswing

in funding. It has seen historic raises like Clio's $330M Series D round—the largest in Canada—and Broadband TV's $172 million CAD IPO, one of the top 10 tech IPOs on the Toronto Stock Exchange by funds raised. Large Series A raises in the past year include Rhino's portfolio companies Klue ($19.7 million CAD Series A) and Thinkific ($22 million CAD Series A). Further, many prominent Vancouver tech companies are poised to enter the public markets over the coming quarters. Cymax and Abcellera—which filed for a $200 million USD Nasdaq listing—are two of the most recent publicly-reported possible new issuances.

> **"** *Jay pointed out that the 4 M's—Management, Mentorship, Momentum, and Money—are the leading indicators of a regional start-up ecosystem's maturity.*

As the industry has continued to grow and boast more proven entrepreneurial management, investors are holding a higher willingness to invest in Vancouver startups. This has heightened the momentum in the region and is slowly generating and increasing access to greater mentorship to help serve it. Jay pointed out that the 4 M's—Management, Mentorship, Momentum, and Money—are the leading indicators of a regional startup ecosystem's maturity. Until recently, Jay felt that it was a contrarian position to believe you could build world-class companies and a venture firm that matched the founders' level of ambition in Vancouver. However, with the 4 M's moving in the right direction, that is fortunately no longer the case.

Klue: Klues to Succeed

Jason Smith, CEO & Co-founder of Klue

Klue is a competitive enablement platform that has raised over $25 million CAD from other investors in addition to Rhino, including Craft Ventures, OMERS Ventures, and angel investors Ryan Holmes (Founder of Hootsuite) and Frederic Kerrest (Co-founder of Okta). Klue's CEO and Co-founder, Jason Smith, a UBC Sauder BCom grad, is a gritty problem-solver who also embodies the idea of a "rhino" entrepreneur. Jason's early learnings in sales through past entrepreneurial adventures led him to identify a pain point in sales team processes. It was hard to keep track of competitors and their actions. This pain point ultimately led Jason to the idea behind Klue.

Klue collects and delivers updated competitive intelligence across departments such as Product, Sales, and Customer Success. These data points, collected from several internal and external sources, such as Slack, Salesforce, and email, provide companies with detailed and robust market coverage. Using artificial intelligence and machine learning, Klue synthesizes the data to deliver relevant information about a company's product, market, and competition to ensure that sales teams have the most up-to-date, relevant information to ensure success.

Competitors are present for every company. Hence, finding a way to gather and utilize data about a company's competition provides a powerful edge to businesses. By helping other companies efficiently adapt to changing markets, Klue is helping elevate this region's innovation and momentum which is integral to the success and growth of any startup ecosystem.

Klue has been recognized with numerous awards, including being a finalist in the 2019 Startup World Cup Grand Finale, and being

named Company of the Year - Growth Success by BC Tech at the 2020 Technology Impact Awards. Still, in the early stages of success, Klue shows no signs of stopping. It continues to gather investors' interest and has strong potential for future growth as it makes large strides in competitive enablement.

Thinkific: Lifelong Learning

A "rhino" entrepreneur's most valuable assets are the knowledge and skills they have acquired through building their ventures. However, sharing one's expertise online can be operationally cumbersome. Greg Smith, CEO and Co-founder of Thinkific—another Rhino Ventures portfolio company—knows this all too well.

Greg Smith, CEO & Co-founder of Thinkific

Greg graduated with a Bachelor of Commerce from UBC Sauder in 2000 and then studied at UBC's Allard School of Law. While working as a junior securities lawyer, Greg ran LSAT courses on the side, and decided to take his classes online so he could reach more students. Although his brother, fellow UBC Alumnus Matt Smith, offered to build it for him, they found a lack of digital infrastructure to easily create online courses. That was when the idea for Thinkific was born. Eventually, the two brothers and a few other co-founders launched Thinkific to empower any person with any expertise to create, market, and sell their own online course easily.

The SaaS company is unique from other online learning platforms like MasterClass or Skillshare because they allow educators full autonomy in this way. It provides tools for educators to independently create and sell courses, enabling them to own their brand, customer relationships, and build a sustainable business. These educators are often entrepreneurs or established thought leaders in their respective industries.

Thinkific saw a 221% surge in users creating courses at the start of the pandemic as a result of the increased demand for online learning during the COVID-19 pandemic. This has allowed Thinkific to expand quickly within the online education industry, which is projected to grow to over US$350 billion over the next five years, with Thinkific being a leading force in Canada.

Thinkific has also received numerous accolades. Thinkific was named one of the Best Workplaces in British Columbia, made the Growth List of Canada's Fastest-Growing Companies by Canadian Business (ranking 17th out of 415 companies), and was named to Deloitte's Technology Fast 50 all in this year alone. Rhino recognized their traction early on and has been investing in them since 2015. Since then, Thinkific continues to lead the educational renaissance.

B.C.'s Innovation Economy: A Driving Force

COVID-19 has shifted the way we approach business and has shown us the importance of innovation. We have had to reimagine a new normal, one which saw the formation of new business archetypes. In embracing novel customer needs and trends, companies have accelerated trends that were already taking place: many have become remote services providers, resilient operators in terms of supply chains, and promoters of the gig economy.

Ultimately, "innovative companies are the engines of our future" according to The Honourable Mélanie Joly, Minister of Economic Development. BC's innovation economy, with the likes of companies like Klue and Thinkific and funders like Rhino Ventures, is developing into its own unique ecosystem. With its growing strength, it is poised to help drive Canada's innovation economy as a whole forward, creating a stronger foundation for the next set of exciting Canadian startups.

BEHIND BLOCKCHAIN:

CREATING SUSTAINABLE SUPPLY CHAINS FOR THE NEXT GLOBAL CRISIS

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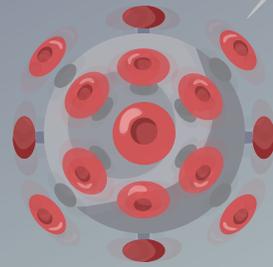
COVID-19's Effects Throughout the Supply Chain

After COVID-19 temporarily halted business operations, companies shifted their focus to employee safety and maintaining operational capacity. Once simple business activities became infinitely more complex as the virus caused unforeseen disruptions to supply chains all over the world. On February 21, 2020, 94% of Fortune 500 companies reported impairments in their supply chains due to COVID-19. Of these corporations, approximately 40% have a supply chain presence in Wuhan, China, where the virus originated. Consequently, China—the largest exporter in the world—delayed the production and delivery of products globally. Moreover, consumer behaviour quickly changed from predictable purchase patterns to panic-induced stockpiling, leaving shelves empty and businesses unable to cope with the pandemic's volatility.

Natural catastrophes, labour strikes, and deadly viruses have all previously halted trade around the world. For example, when H1N1 first appeared in 2009, companies that produced crucial medical supplies and pharmaceuticals faced extensive distribution issues. Comparatively, COVID-19 is one of the most disruptive virus outbreaks in modern history, 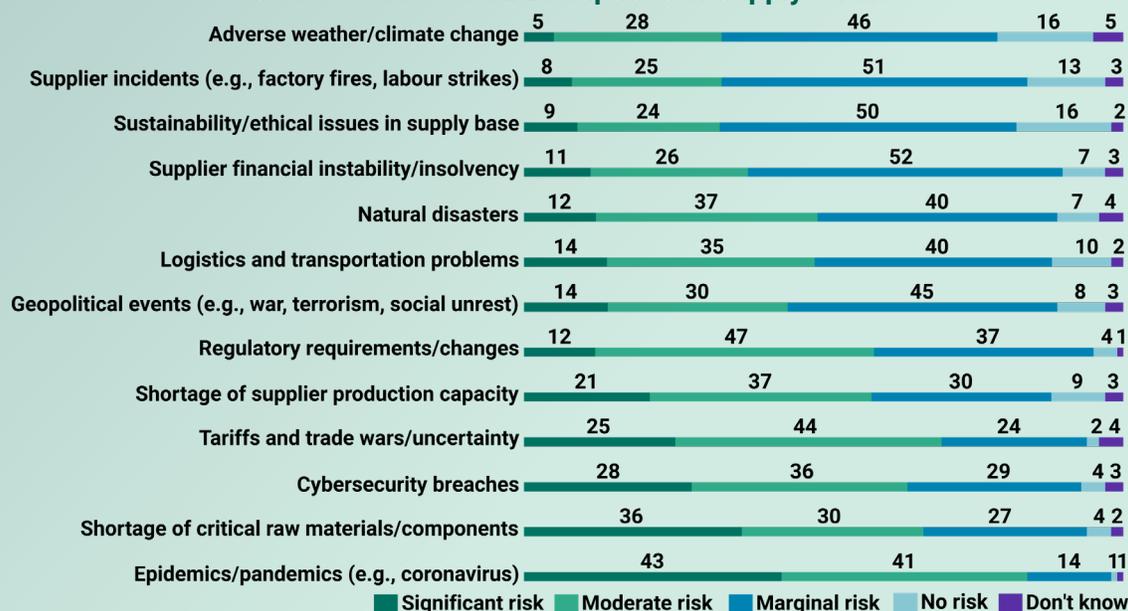bringing new logistical challenges to light. Due to the rapid spread of COVID-19, countless distributors worldwide were forced to shut down operations due to exposure risks resulting in lost revenues, mass layoffs, and widespread concern about infection.

Amongst the affected firms was Cargill Incorporated, one of the world's largest meat processors that distributes products to over 70 countries annually. Usually processing over 4000 animals a day, Cargill had to shut down their plant in High River, Alberta, after 900 employees tested positive for the virus. The effects of the plant closure were significant, with experts projecting an industry loss of over $500M CAD in only two weeks. The tremendous losses Cargill incurred during their shutdown demonstrates the risks involved when supply chains are not well diversified. Additionally, for Cargill employees being called back to work, concerns about safety and potential risks associated with COVID-19 exposure on the job increased.

Why Supply Chains Struggle

Prior to COVID-19, businesses focused on supply chain strategies with the primary objective of saving costs. For firms that manage costs tightly, investing in greater supply chain transparency, resilience, and risk-prevention is not a prior-

Sources of Potential Disruptions in Supply Chains

Source	Significant risk	Moderate risk	Marginal risk	No risk	Don't know
Adverse weather/climate change	5	28	46	16	5
Supplier incidents (e.g., factory fires, labour strikes)	8	25	51	13	3
Sustainability/ethical issues in supply base	9	24	50	16	2
Supplier financial instability/insolvency	11	26	52	7	3
Natural disasters	12	37	40	7	4
Logistics and transportation problems	14	35	40	10	2
Geopolitical events (e.g., war, terrorism, social unrest)	14	30	45	8	3
Regulatory requirements/changes	12	47	37	4	1
Shortage of supplier production capacity	21	37	30	9	3
Tariffs and trade wars/uncertainty	25	44	24	2	4
Cybersecurity breaches	28	36	29	4	3
Shortage of critical raw materials/components	36	30	27	4	2
Epidemics/pandemics (e.g., coronavirus)	43	41	14	1	1

Source: Gartner blogs. How supply chains are responding to the impact of coronavirus.

ity. Steps in a traditional supply chain include acquiring materials from producers, assembling the product, and then selling it to an intermediary before finally reaching the end-consumer. This process involves excessive amounts of paperwork and complex relationships between multiple partners. Thus, it reduces speed and undermines the quality of service.

In addition to these shortcomings, Dr. Harish Krishnan, a Supply Chain Management and Blockchain expert at the University of British Columbia, identifies two major problems with pre-COVID supply chains. Firstly, they are not transparent enough. Second, they are often too lean, meaning they hold too little inventory to be able to react to unforeseen spikes in demand.
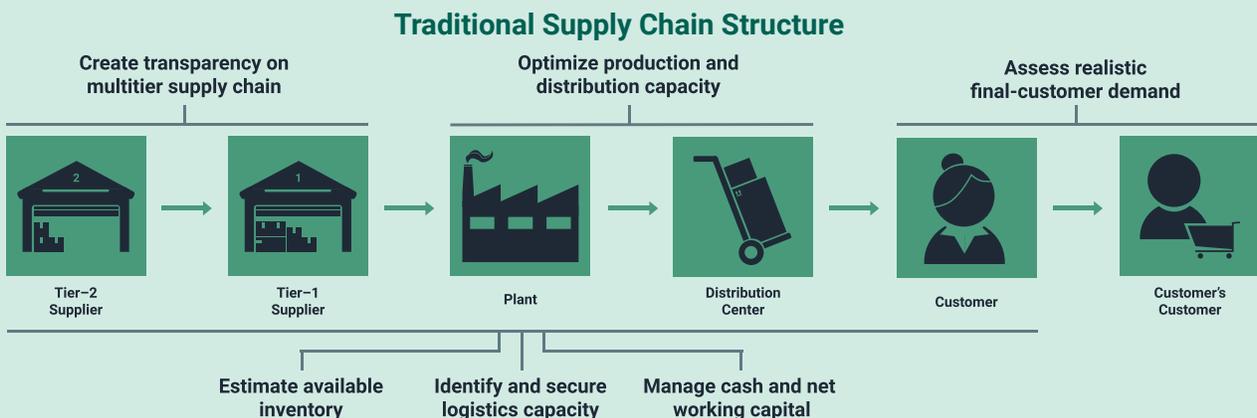
These measures exist to eliminate waste. After the pandemic, he expects that consumers will be willing to pay more for the security of storing excess inventory. Today, these outdated business practices compromise the readiness of firms for supply chain disruptions caused by natural catastrophes, conflicts, or in this case, a global pandemic. The structural complexity of distribution networks leaves companies unable to quickly identify and retrace vulnerabilities within their supply chain. As a result, stakeholders have limited knowledge of product origin and manufacturing conditions. As demonstrated through recent outbreaks such as H1N1 and COVID-19, these inefficiencies cause products to reach consumers in an untimely manner, and sometimes not at all.

Globalization and technological advancements have created a demand for more elaborate networks and alternative consumer channels. However, many industries have been slow to adapt. Firms often have too many communication channels with suppliers and partners, making it difficult to resolve conflicts that arise from the competing interests between supply chain stakeholders. This ultimately limits control over their supply chain.

Supply chains in the food industry have experienced increased pressure for transparency in their sourcing and business practices. Companies in this industry tend to be 'first-movers' in evolving their supply chains and adopting new technologies. As seen during COVID-19, industries with less responsive inventory models have struggled. The virus has been a wake-up call for companies to re-evaluate their existing supply chain structures. Can current supply chains models meet future consumer demands in times of crisis?

The Way Forward

As the issue of climate change has gained urgency amongst consumers, demand for sustainable supply chains has also grown. Sustainability in supply chains entails higher standards for accountability, reducing a company's carbon footprint and delivering products with social and environmental risks in mind. Other benefits of effective supply chain management include increased customer satisfaction, supplier bargaining power, and higher profits. Companies

Traditional Supply Chain Structure

Create transparency on multitier supply chain

Optimize production and distribution capacity

Assess realistic final-customer demand

| Tier–2 Supplier | Tier–1 Supplier | Plant | Distribution Center | Customer | Customer's Customer |

Estimate available inventory

Identify and secure logistics capacity

Manage cash and net working capital

Source: McKinsey & Company. Supply-chain recovery in coronavirus times—plan for now and the future.

selling business to business (B2B) are prioritizing suppliers and distributors that focus on sustainable supply chains and hence the triple bottom line. This is because end consumers are demanding higher ethical standards, thus all parties in the supply chain must act responsibly in order to meet evolving customer demands. Transparent supply chain models cut waste, and allow corporations to be more aware of their financial and economic implications. The phenomenon of 'Sustainability' in the context of supply chain management also insinuates that consumers want honesty and transparency. Companies will be prompted to transform their supply chain activities into readable and quickly accessible data to consumers. Corporate social responsibility is an effective way to capture consumers' attention and is an essential part of modern businesses.

With its origins in Bitcoin, blockchain is a new way of distributing data through shared records. It initially enabled users to safely perform currency transactions without the involvement of banks as intermediaries. Now, blockchain is increasingly being applied to various sectors, including supply chain management. Blockchain for supply chain management promises more transparency, sustainability, and data safety, as well as streamlined processes and lower risk. According to Dr. Krishnan, blockchain has the potential to transform supply chains as we know them.

In blockchain, every transaction is added to the chain in a new 'block,' similar to entries in a ledger. This way, changes don't delete the system previously in place. Instead, steps are recorded and distributed in real-time. Here, participating companies have an equal share of rights, meaning changes to a process can only be made if most partners agree. Decentralization allows participants to have access to the data-storing 'blocks.' Blockchain enables firms to trace products from their origin to their final destination. Every party within the supply chain can see a product's exact location and thus react to the chain's failures or disruptions more effectively. By sharing the infrastructure and having an open communication flow, supply chains are better protected from infringements. Further, it reduces paperwork and licensing requirements, saving costs and eliminating the need for conventional banks to act as middlemen. Therefore, companies that use blockchain improve not only efficiency but also safety of data.

> ❝ *Making innovative changes to supply chain technologies will enable companies to be more agile, allowing them to better react to future disruptions, minimize effects felt by consumers and create a competitive advantage over firms following conventional supply chain practices.*

Blockchain in Action

OpenSC, a joint venture between BCG Digital Ventures and the World Wildlife Foundation (WWF), is a trendsetter embracing new technologies to address issues associated with old-fashioned supply chain management. They emphasize the use of blockchain technology to trace a product through its individual supply chain and improve communication.

OpenSC's client Austral Fisheries, the world's only verified carbon-neutral fishing company, introducing blockchain to verify, trace, and share information about their products and partners. Fishing vessels at Austral are tracked via GPS,
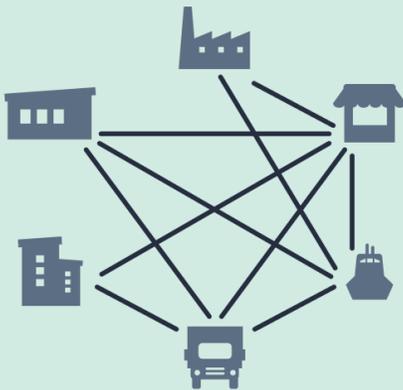
verifying operations only occur in legal areas. The catch's location is then linked to an information tag and attached to the fresh fish immediately. The data gathered can be communicated to consumers quickly and easily; packaging for grocery stores includes a QR code that summarizes information for consumers.

For Austral fisheries, sustainable practices and innovative technology have empowered partners and customers to make better purchase decisions. In the eyes of consumers, companies like Austral can achieve legitimacy through transparent business practices. As Thomas Vel-
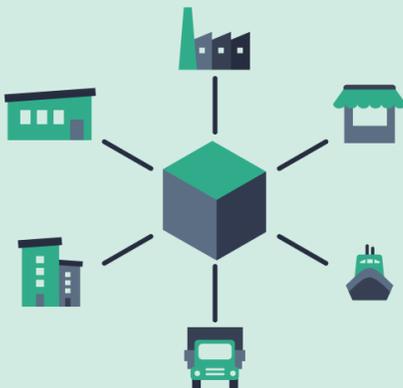
LEGACY APPROACH

Point-to-point messaging
Inconsistent State, Not Real Time

NETWORKS, BLOCKCHAINS

Multi-party, coordinated shared-state
Single Version of the Truth, Real-time, New Business Models

Source: The network effect. Traditional legacy supply chain vs. multi-party network platforms.

lacott, CEO of WWF Switzerland describes it: "What's good for the planet, can also be good for business."

Nestlé, the world's largest food company, is another early investor in Blockchain technology. Nestlé committed to increasing honesty and legitimacy in its operations by entering into a partnership with OpenSC, fortifying its commitment to responsible business. Raising inventory levels proactively when COVID-19 first affected Chinese operations enabled Nestlé to better navigate the crisis. They were able to uphold supply and are now prepared for future disruptions. By using blockchain, Nestlé can authenticate where their products are from and how they were sourced. This transparency will improve validity and limit the exploitation of workers.

What Does the Future Hold?

The COVID-19 pandemic caused companies and consumers to re-think their expectations of supply chains. Shortages experienced during this pandemic have led to a discussion about the need to revolutionize the way products are delivered. Old management methods aren't adapting fast enough and have to be replaced with business models catered towards modern trade networks. Consumers are now more vigilant towards the availability of products and the source from which they are retrieved.

The risks supply chain management is facing are amplified due to job-loss and supply shortages worldwide. In the future, the scale at which a single disruption affects whole industries can be reduced through modern technologies and investments in sustainable practices. Blockchain could be part of this revolution and address many of the questions consumers and partners have about the transparent and safe delivery of products. What was once a unidirectional process is now a collaboration between companies and their supply partners. The pandemic acts as an incentive to build a new supply chain that is transparent, resilient, and sustainable to avoid similar disruptions and provide stability in the future.

FROM CHOPPING BLOCK TO TABLE:
HOW CANADIAN RESTAURANTS CAN SURVIVE A GLOBAL PANDEMIC

SIENNA LALONDE

A Recipe for Disaster

The COVID-19 pandemic has changed Canadian dining habits, forcing the entire restaurant industry into a downturn. It's projected that the pandemic could result in the closure of nearly 60% of Canadian restaurants by March 2021. With drastically reduced capacity due to social distancing guidelines, restaurants are no longer a social hub where people can relax and spend time with others. The decreased demand and newly-incurred COVID-19 safety expenses have hit restaurants harder than any macroeconomic event before; inherently slim industry margins saw few restaurants have cash reserves strong enough to act as a buffer for such financial hardship.

Restaurants must adapt to this 'new normal' by adopting strategies that will help them overcome lower customer traffic, supply chain disruptions, operational barriers, and new consumption trends. These strategies include diversifying revenue streams, strengthening takeout channels, revising menus, and focusing on local customers.
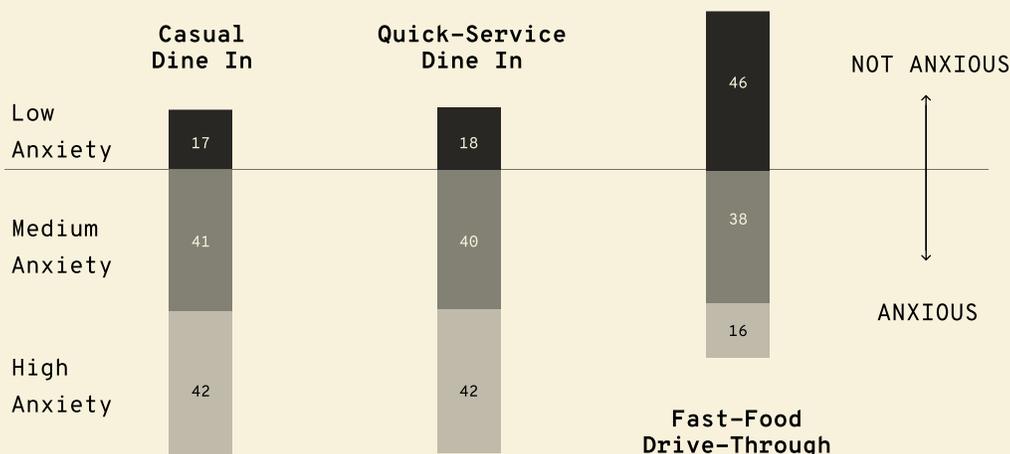
Not So Happy Hour

In adapting to COVID-19 induced challenges, restaurants must navigate the rise of two con-sumption trends: increased home cooking and takeout orders. With 80% of people reporting medium to high levels of anxiety surrounding dine-in, many people have taken up cooking as a safer, cheaper, and easier alternative to eating out. In fact, surveys have found that people are cooking at home 60% more than before the pandemic. Further, the popularity of takeout hit an all-time high in August 2020, with Uber reporting a 103% increase in Q2 delivery revenue over the previous year.

The rise of these two consumption trends has in turn highlighted two ways restaurants will have to adjust. First, restaurants will need to cater to millennials and younger generations in terms of taste and price point because they are generally less fearful of the virus and ordering from restaurants. Second, restaurants will need to strengthen their takeout channel to embrace the growth of delivery and pickup orders.

Unfortunately for most Canadian restaurants, takeout has traditionally been unsustainable in the long run. This is because major players in the food delivery industry such as UberEats and Skip the Dishes charge up to a 30% commission fee on top of the restaurant's razor-thin margins. Furthermore, alcoholic beverage sales are typically a key profit driver for restaurants, generating 20-25% of restaurant revenue. Due to

More than 80 Percent of Consumers are Anxious About Indoor Restaurant Dining
Consumer restaurant-dining anxiety, % of respondent

	Casual Dine In	Quick-Service Dine In	Fast-Food Drive-Through
Low Anxiety	17	18	46
Medium Anxiety	41	40	38
High Anxiety	42	42	16

NOT ANXIOUS

ANXIOUS

Source: McKinsey & Company. Eating out(side): Restaurant dining in the next normal.

extreme markups and the accessibility of liquor stores, there are few incentives for customers to purchase alcoholic beverages with their order. Moreover, takeout was designed to be a secondary stream of revenue. In particular, upscale restaurants are struggling to maintain the quality and experience of their food through this new channel.

To overcome the challenges of growing takeout and home cooking desires and more, there are four strategies restaurants can employ.

The Menu for Success

Re-thinking Delivery Systems

Firstly, restaurants should look to improve their margins by exploring new delivery and takeout strategies. It's no secret that third-party delivery apps aren't feasible in the long run for many restaurant owners. Major companies like UberEats and DoorDash charge commission fees of approximately 30%, resulting in substantially lower profits. Newer players in the delivery industry tend to offer more affordable online order management and delivery. For example, Tock To Go is a platform that coordinates reservations, pickup, delivery, contactless payments, and more for restaurants in Toronto and Vancouver for a 3% commission fee. For restaurants that require delivery drivers, smaller companies such as Vancouver's From To and Toronto's volunteer-run iRover boast commission fees far below 30%. To bypass third parties altogether, restaurants can offer discounts on orders not placed through apps to incentivize consumers to adopt a new habit of ordering directly from the business. Other options for restaurants may look similar to that of a group of restaurants in Ontario. In an effort to evade high commission fees and to connect more personally with customers, these restaurant owners pooled in resources to begin their own delivery system.

Diversifying Revenue Streams

Restaurants should diversify their revenue streams to cover costs in the wake of full-service restaurant sales dropping by 78% since February 2020. For example, Earl's Kitchen and Bar recently introduced their Earls at Home collec-

Total Meal Cost Relative to Restaurant List Price
(includes all markups)
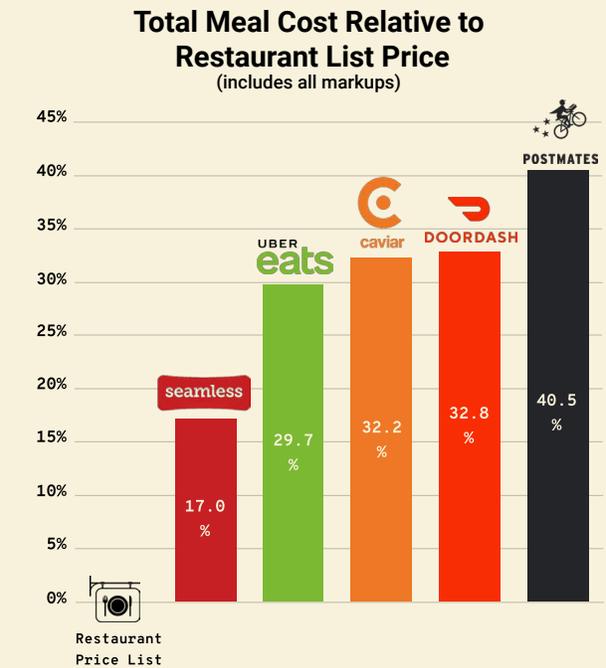
Source: Techcrunch. The hidden cost of food delivery.

tion, ranging from alcohol deliveries, meal kits, and even grocery services. Due to their existing supply chain, it was relatively straightforward to implement, all while accessing a customer segment that was unwilling to dine-in.

Nando's also implemented this strategy by introducing their bottled sauce for wholesale in 2004. Sales for their legendary Peri-Peri sauce have expanded into major grocery outlets such as Costco, Save-On-Foods, and Walmart. In addition, they launched a limited-edition Spicy P(ERi-PERi) sauce with Toronto Raptors star Pascal Siakam in February 2020. Not only does it diversify their revenue streams, but their sauce collection generates brand awareness with favourable margins.

Managing the Menus

Restaurants may also consider the pandemic and uptick in takeout orders as an industry signal to fine-tune and specialize their menus. With an inundation of challenges to juggle, from health and safety guidelines to virtual QR code menus, restaurants have the opportunity to embrace the changes and reflect on menu items to create a dining experience that is better suited to the needs of their market in the COVID era. By doing so, restaurants can focus more on consumer

favourites and optimize the subsequent take-out experience. Adjusting menus accordingly through simplifying them, can help reduce waste and overall costs. Sourcing certain items from local suppliers can also lead to cost savings and fresher ingredients, ultimately resulting in a better experience for customers. Additionally, research by Loyalty.com saw that 61% of Canadians preferred purchasing local food and that 87% were more willing to increase their budgets if local alternatives were more available. While it may not be feasible for larger or chain restaurants, smaller restaurants may reap long term benefits from making these changes.

Sales Gains for U.S. Chains that Simplified their Menus 75% Higher Compared to Brands that Added New Items
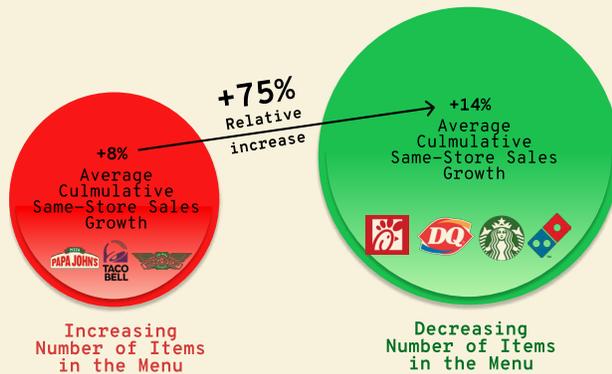
Source: Aaron Allen & Associates. Menu simplification: It's working.

Engaging New Customer Segments
Another critical consideration for restaurants in a pandemic is the shift in their target segments. With a 96.6% decline in travel to Canada due to border closures, local consumers are the lifeline keeping many restaurants alive. Restaurants can reach local consumers by creating loyalty programs and other discounts specifically for locals. They can also engage in community initiatives that focus on increasing awareness amongst locals.

This engagement could entail providing meals to front-line workers, generating favourable PR through social media contests, giveaways, or cooking lessons with local chefs and allowing people to try menu items firsthand. Cooking lessons in particular may be an effective way to

turn the threat of home cooking into an opportunity. Restaurants could sell packages of ingredients for select menu items (to avoid cannibalizing sales in the long run) that customers can pick up. Customers could then follow along to a livestream of the Chef sharing their preparation techniques. These strategies would work well for restaurants located in residential neighbourhoods, where they can develop long-term relationships with the people living close by, creating long-term prosperity.

A Community Story

Yellow Door Bistro, located within the Hotel Arts in downtown Calgary, is a prime example of a restaurant that has taken the pandemic in stride. They officially reopened for dine-in on June 18th, 2020, but were limited to just 50% capacity. To offset this significant reduction, they set up a curbside pickup system. The Yellow Door team created a website for their to-go offerings in a pinch, and renowned Chef Quinn Staple continues to offer Chef-inspired gourmet takeout meals. The curbside pickup program was well received and bolstered by community support, with some volunteers picking up and delivering orders to elderly customers.

They also saw interruptions in their typical supply chain as an opportunity to focus on local and regional producers and suppliers. Impacted heavily by border closures and travel restrictions, they re-evaluated where they chose to source their ingredients. Yellow Door Bistro has opted to simply accommodate what local suppliers have available during this time. They take pride in their unique Chef-inspired dishes and look forward to incorporating new ingredients.

Cheque, Please

The majority of restaurant owners are chefs, rather than business strategists, but are now required to do both by circumstance. Before the pandemic, restaurants could thrive off of reputation and great food. However, new barriers concerning accessibility, safety, and logistics of the foodservice industry emphasize the importance

of a robust business model. While these recommendations can help restaurants stay afloat in the coming months, the impacts of COVID-19 are far from over. Ultimately, there is only one person who can help keep restaurants and small businesses alive: you.

Here are some actions that you can take to help support local restaurants and businesses:

1. Order from local restaurants and avoid third party delivery services such as UberEats when possible.
2. Take precautions to keep your community safe so small businesses can stay open.
3. Share your favourite local restaurants with friends and family.
4. Provide much needed immediate funds to restaurants you're planning to visit by purchasing gift cards for later use or as gifts.

The combined conscious actions of consumers and creative flexibility of restaurant owners will enable restaurants to not just survive, but thrive in the face of persisting uncertainty.

THE EFL CHAMPIONSHIP LEAGUE:

BRINGING THE MATCHDAY HOME

ANDY PHUNG

The EFL Championship: A House of Cards

With its highly competitive system of promotion and relegation, English football has long attracted global attention. The English Premier League (EPL) is the highest tier English football league and most valuable national league in the world, boasting an audience of 3.2 billion and annual revenues of £5.16 billion ($8.86 billion CAD). It is home to notable teams like Manchester United F.C. and Liverpool F.C. The EPL is followed by the EFL Championship League, featuring teams such as Swansea City A.F.C. and Norwich City F.C. It is the second highest tier in the English football league system with revenues of £785 million ($1.35 billion CAD), signifying its powerful position despite being a lower-tier league.

Football clubs have three main revenue drivers: broadcasting, commercial, and matchday. Matchday revenues have traditionally been clubs' steady revenue foundation, attracting large ancillary broadcasting and commercial revenues. However, they have declined as a

EFL Champsion League Clubs Profit 2017-2018

−£57.2m	Wolverhampton Wanderers
−£45.2m	Fulham
−£39.3m	Cardiff City
−£37.6m	Queens Park Rangers
−£37.5m	Birmingham City
−£36.1m	Aston Villa
−£25.4m	Bristol City
−£21m	Reading
−£19.9m	Sunderland
−£8.1m	Nottingham Forest
−£6.4m	Middlesbrough
−£5.2m	Ipswich Town
−£5m	Millwall
−£4.3m	Leeds United
−£3.9m	Brentford
−£2m	Sheffield United
−£1.2m	Derby County
−£0.2m	Barnsley
Burton Albion	£0.5m
Sheffield Wednesday	£0.2m
Preston North End	£1.2m
Norwich City	£18.5m
Hull City	£23.7m

Source: BBC. Championship 'bubble waiting to burst' with clubs posting record losses in Premier League 'gamble'.

result of government imposed bans on stadium game attendance due to COVID-19. Similarly, while broadcasting and commercial revenues have historically surged, these streams took a hit when games were cancelled during the COVID-19 lockdown between March and June 2020. Most broadcasters have been offered rebates by clubs—the EFL recently returned £7 million ($12 million CAD) to Sky Sports—and commercial entities have reduced contract values and deferred payments into the next year.

However, clubs' financial positions were already strained before the pandemic hit. Many EFL teams notoriously burn cash on player wage expenses in hopes of meeting the performance requirements to be promoted to the EPL, which rewards teams with substantial additional revenue. Consequently, the excessive spending has led to many EFL teams recording operating losses for the last four seasons.

Thus, the impact of COVID-19 on revenue streams has only exacerbated the poor financial health of EFL Championship clubs. Many are on the verge of administration (bankruptcy protection), with Wigan Athletic F.C. being the first on the chopping block. A financial bailout from the EPL or "phoenixing" (fans resurrecting a liquidated club) are potential solutions. However, the most effective tactic to stabilize league spending and ensure the long run financial health of clubs would be the implementation of Deloitte's suggested annual wage cap of £18 million. Regardless, there remains the need to recover from the impacts of COVID-19 by diversifying revenue streams and adapting to changing fan preferences. EFL Championship clubs should therefore enhance the at-home fan experience through monetized official team apps and a digital fan club ambassador program.
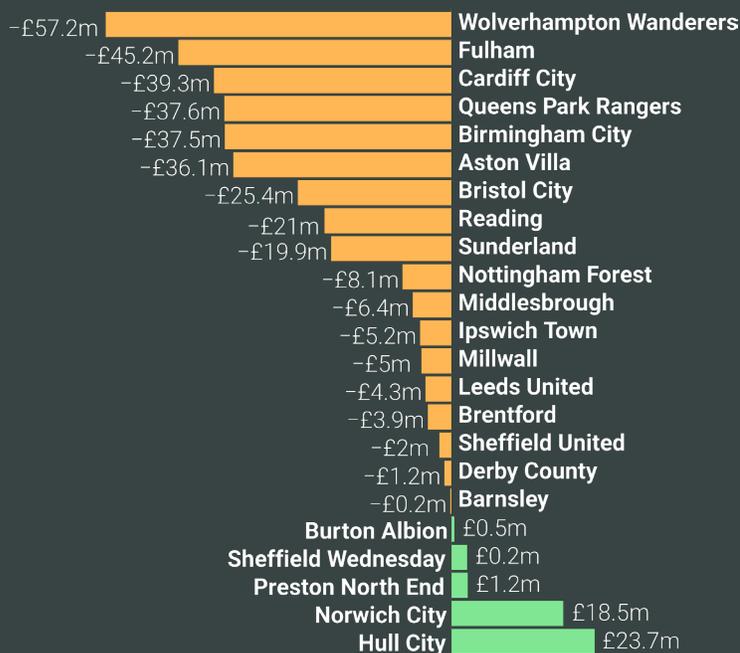
The Online Stadium Experience

A monetized official team app would serve as a club's roadmap to extending the beloved stadium experience, both during the 'new normal' of COVID-19 and after, to fans at home. EFL Championship League clubs should have a monetized

English Football League Structure

official team app for two reasons. Firstly, it would be an additional source of income. Second, it also provides data points on fan behaviour that can be leveraged to strengthen and inform fan engagement campaigns.

The app would serve as a revenue source by operating on a freemium model: a free app with additional fees to engage in certain activities. It would hold tiered offerings available through purchases that bring fans closer to the club and provide a deeper behind-the-scenes experience. Thus, each new app feature would be a distinct sales opportunity for the club.

While many clubs do not have apps, some such as Swansea City A.F.C. and Watford F.C. have modest existing apps that have demonstrated strong user engagement. Their apps have leveraged common features such as live audio for all matches, push notifications for score and team updates, and exclusive interviews with players. Both clubs with existing apps and those that would look to develop one should push beyond these features and employ more favoured live

" *Employ more favoured live matchday components digitally. This would make the app more intimate…*"

matchday components digitally. This would make the app a more intimate and experiential offering.

For example, a memorable aspect of live stadium games is matchday food. The clubs should therefore integrate partnerships with food delivery apps such as UberEats that could deliver stadium-like snacks to fans, ideally with a discount via the partnership. Other features would include paid opportunities to have player meet-and-greets over Zoom, merchandise advertisements linked to player biographies, and content and advertisements from club sponsors.

App Appeal: Building Superfans

For EFL Championship League fans, who are predominantly domestic English supporters, showing their loyalty through team merchandise and travelling to away matches is an integral part of their social lives. This revere fans feel for certain clubs is often driven out of family or close social connections. Their passion can be seen in their digital consumption to keep up with teams outside of live games: 83% of fans use official club websites and 66% use social media channels to access timely information about favoured teams. Creating an official team app would blend many of the benefits of social media and an official website into a 'one stop shop' for fans, which is likely to boost adoption.

Maintaining select free features not only attracts more customer traffic, but allows fans to derive some value without spending. This is likely to increase the time they spend on the app, which creates a greater opportunity to influence them to purchase offerings or spend more on average to support their teams. These free offerings should be kept minimal, but could include trivia games where fans can predict scores or starting lineups with the chance to win prizes.
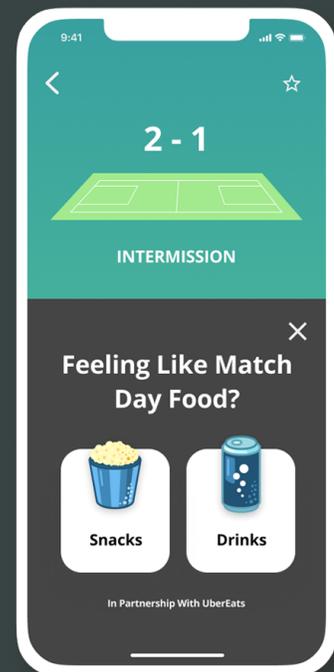
Additionally, achieving a critical mass of users through free offerings would allow for more data points to be generated through the app. It would allow clubs to control the fan journey the same way they do in a live setting, but in an even more

Sponsorships

Player Meet & Greets

Food Delivery Partners

targeted and efficient manner. The data points on what and where fans direct their attention would enhance understanding of fan behaviours and preferences. This can inform future app offerings, strengthening the app's ability to generate revenue. Further, it can inspire future fan engagement campaigns or marketing strategies. Most importantly, the data can be used to assess fans' willingness to pay to ensure offerings are priced effectively. Using the data to inform pricing decisions is critical to drive higher average spending per fan. It would also mitigate fan criticism, such as that expressed when the EPL decided to charge £14.95 ($25 CAD) to watch certain matches.

Finally, these valuable data points and unique new sales opportunities can be achieved at low cost. After the initial development and fixed cost of the app, the successive variable costs will be very minimal. As clubs look to add more value to the app through more behind-the-scenes and other unique opportunities, the digital nature of this development keeps costs very low.

Who's the Real MVP? The Twelfth Player

Akin to how an app can help digitize the live matchday events, fan club ambassadors can serve as the same fan engagement tools as traditional matchday hosts do. Surprisingly, fan ambassadors are absent from all EFL club rosters—as such, an ambassador program of club fans is a cost-efficient way to build advocacy for the club and reach new audiences to ultimately boost revenues. In short, this form of ambassadorship has an inherent advantage: clubs leverage the existing brand loyalty of their fans to produce engaging and passionate advocates. This is in contrast to conventional digital marketing ambassadorship, which often hires solely off of social media followings.

Pre-pandemic, football clubs around the world had employed ambassadors to varying effects. The most powerful EPL teams used ambassadors to meet-and-greet fans at live games and as customer service agents, while several smaller teams worldwide have hired ambassadors to convert sales leads, organize community programs, and promote special events. Regardless,

the use of ambassadors not only as a push-marketing tool but rather as an engagement catalyst is ubiquitous. For EFL clubs, season ticket holders or regular game attendees can be onboarded as ambassadors, and activate key COVID-era engagement activities such as online viewing parties for games, community fantasy tournaments, charity fundraisers, and FIFA or Football Manager video game streams. Paid over three-to-six month contracts, these ambassadors can be powerful forces of community-building for clubs—rallying and solidifying fan bases. Naturally, this excitement translates into app revenues as fans reignite their love for their home club.

In addition, these ambassadors do not require substantial social media followings to hugely impact an EFL club. Official social media accounts can present opportunities for 'fan takeovers,' maintaining a tight-knit community of fans that can ultimately drive greater broadcast viewership. At the end of the day, the motivations of a fan who wants to buy game tickets and a fan who wants to become an ambassador are similar: they want to interact with people who are just as invested in the ups-and-downs of the beloved club as they are. This has two consequences: (a) that there is massive feasibility in finding potential ambassadors among the existing fan base, and (b) that reinforcing a community of engagement through an ambassador program can realize greater broadcast viewership in addition to increased app revenues from riled-up fans. By adapting the role of a club ambassador to a solely digital world, EFL clubs stand to solidify their fan bases—with online and delocalized ambassadors paving the way for potential international audiences in the future.

The Away Game: Fan Engagement to Outlast a Pandemic

The business of football is football - the bottom line is to give the fans a club they can be proud of and an experience they can treasure. What better way than offering opportunities to stay engaged with their favourite players, moments, and communities? By bringing the matchday experience online, clubs stand to gain substantial revenues and strengthened fan bases—placing them in pole position for a post-COVID world. With thoughtful implementation, club apps and fan ambassadors can serve as robust supplements to revenue streams long into the future. Potentially, these tactical recommendations might herald advancements for the EFL Championship League's fan presence as a whole—perhaps one day rivaling the EPL for its top spot.

THE FUTURE OF WOMEN IN TECHNOLOGY:
WHAT APPLE CAN LEARN FROM JAPAN

SHAIVALINI SHUKLA
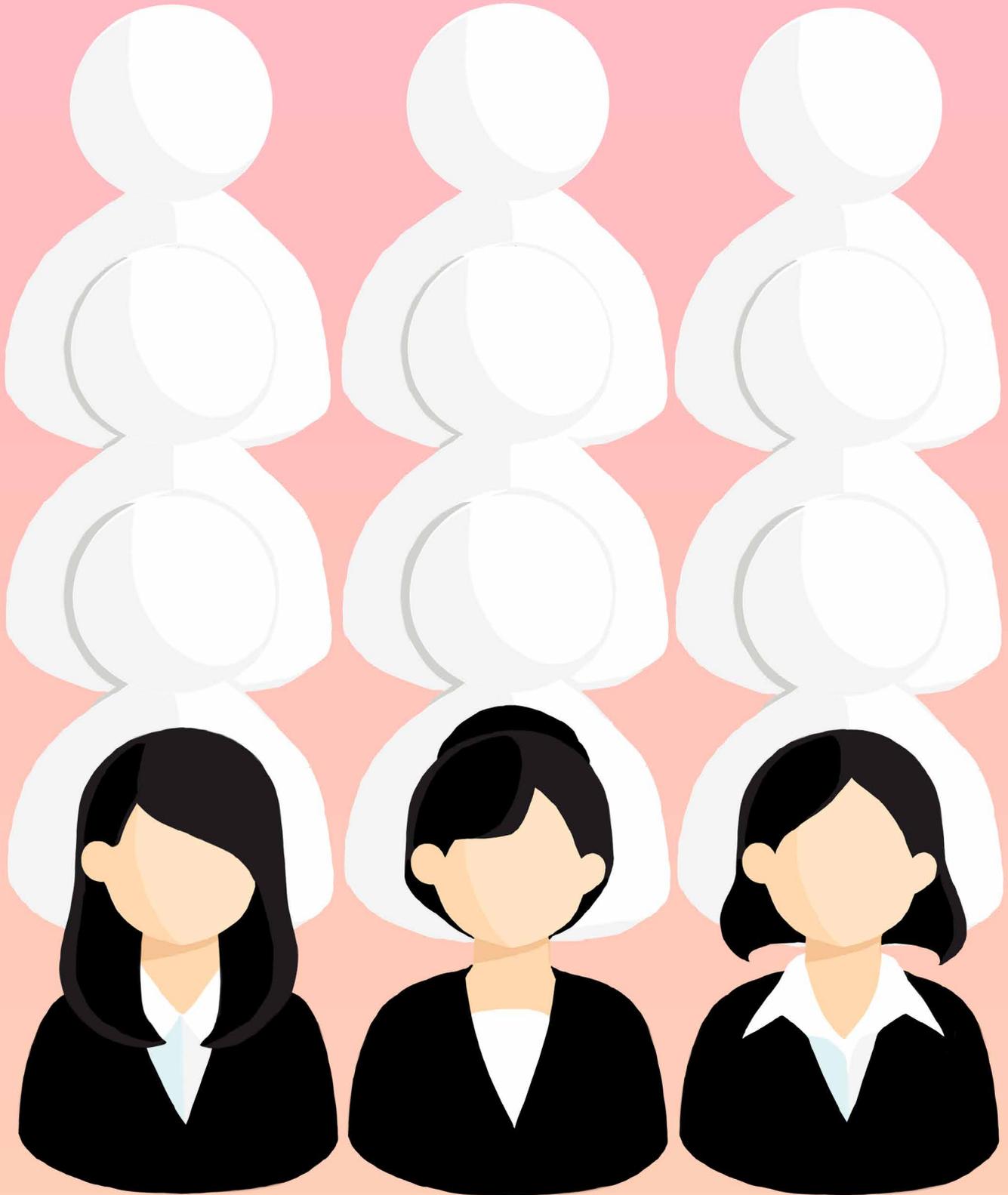
Planting the Seed

Earlier this year, the Fortune 500 celebrated a record high of female CEOs leading America's top companies. In the past decade, female representation in the C-Suite has more than doubled, from 15 female CEOs in 2010 to 38 in 2020, with Jane Fraser adding to the list in 2021 as Wall Street's first female CEO. However, as a Fortune Magazine study indicates, the 500's 38 female CEOs are concentrated in the bottom tier of the list, mostly in the retail industry, while female leadership in tech companies remains uncommon.

There are significant barriers for women in the tech industry. Harvard Business Review recently highlighted that a greater emphasis tends to be placed on the role of individual women rather than collective organizational policies in reducing gender inequality in the tech industry. Each woman is expected to change her own attitudes and behaviours to navigate the existing structural inequalities in hiring procedures and corporate culture in order to progress. However, this practice is counterproductive to a company's outlook as corporations exceeding in female empowerment have been shown to experience

> **Harvard Business Review recently highlighted that a greater emphasis tends to be placed on the role of individual women rather than collective organizational policies in reducing gender inequality in the tech industry.**

47% higher returns than industry average, showing a positive correlation between diverse leadership and business performance.

Within the tech industry, Apple possesses the greatest brand value in terms of financial power and consumer sentiment. However, their gender equality efforts are some of the lowest among tech companies, since women only occupy 33% of Apple's workforce, 23% of tech roles, and 29% of managerial positions as of 2018. Innovation is at the core of Apple's business performance, and numerous studies have shown how diversity of all dimensions is critical to fueling innovation. Therefore, Apple should bolster its gender equality efforts by implementing strategies adapted from Womenomics principles.

REPRESENTATION OF WOMEN IN THE APPLE WORKFORCE

Women 33%
Overall
Men 67%

Tech Roles: 23%
Non-Tech Roles: 41%
Managerial Positions: 29%
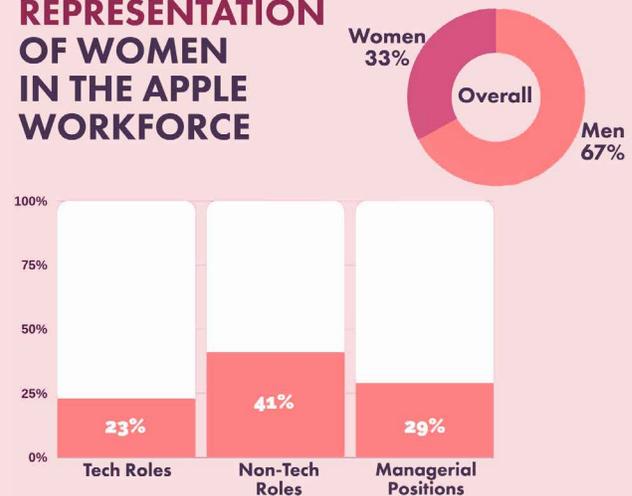
Womenomics

Womenomics is a poignant gender-based policy agenda that was implemented specifically at the corporate level by Japanese Prime Minister Shinzo Abe. The term "Womenomics" was coined by Kathy Matsui, the Chief Japan Strategist at Goldman Sachs. With a shrinking workforce and ageing society, Abe's strategy was to use Japan's under-represented female workforce to increase economic activity while simultaneously tackling Japan's long-standing gender inequality.

As a global economic leader, Japan's female labour participation rate before Womenomics was implemented was well below the OECD (Organization for Economic Co-operation and Development) average, and the environment is generally male-dominated with fewer opportunities for females in managerial roles. The OECD comprises 37 countries, with the goal being to stimulate economic progress and world trade. Abe's government had implemented various Womenomics initiatives that were directed by five key performance indicators (KPIs).

Out of the five KPIs, Female Labour Participation rate most notably increased by 15% over the last two decades. Progress was achieved with strategies that enhance workplace culture through employee benefits and targeted training programs.

Notably, Japan is at the forefront of global technology innovation, housing tech giants such as Sony, Canon, Nintendo, and Mitsubishi. Therefore, Abe's Womenomics serves as a valuable example of a diversity and inclusion (D&I) initiative applied to a broader socio-economic environment that is facing a similar narrative of gender inequality as Apple.

Apples to Oranges

Goldman Sachs' 2019 report, written by Matsui on Womenomics, suggested that unconscious biases and gender role stereotypes play a large role in the outcome of Womenomics policy and that its targets for various KPIs may be too ambitious for Japan's cultural climate. For instance, Abe's goal to increase female representation in leadership to 30% and paternal leave ratios to 13% by 2020 showed slow signs of progress. Therefore, cultural differences between Japan and North America are useful to keep in mind when understanding how Apple may adapt certain Womenomics principles.

Japan is largely a patriarchal society which informs how most Japanese corporations operate. Japan emphasizes tradition in cultural and societal practices and may often refrain from

adapting progressive strategies. Comparatively, North America generally prioritizes adapting their practices with evolving shifts in society. Given its dominant North American presence and western perspective, Apple will presumably be more receptive to strategies that address persistent gender inequality in its corporation.

Lady Apple: Apple and Female Representation

Apple's overall D&I agenda has focused on racial, cultural, age, and gender diversity. A key focus has been placed on increasing diversity via new hires, improving the gender pay gap, and advancing racial minorities in leadership positions. Apple has implemented programs that improve the gender pay gap internally and externally and support racial minorities internally. However, despite progressive hiring policies, they have fallen short in improving internal female representation, specifically in tech and managerial positions. In Apple's most recent D&I report, there was an overall 3% increase in female representation in tech roles between 2014 to 2018, while there was double that increase in the same time frame for non-tech roles.

Apple can increase female representation (or participation) in tech and leadership positions by using strategies inspired by select Womenomics KPIs. These strategies require collaborative organizational action to tackle structural inequalities in workplace culture and employee development and benefits.

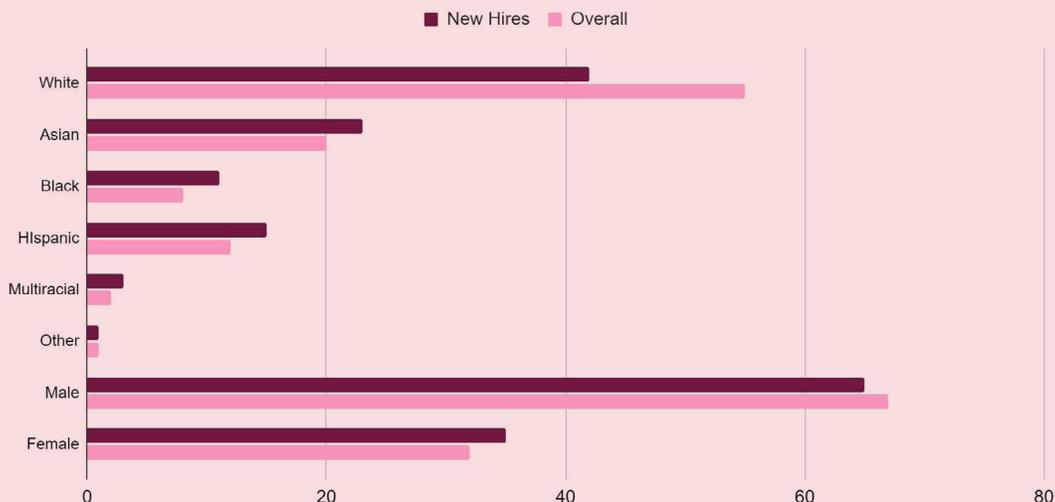## iWomenomics

Womenomics KPI 1: Workplace Culture
Womenomics spurred the Nadeshiko Brands designation and the Eruboshi certification, two external factors that have encouraged Japanese companies to improve gender equality in the workplace. Apple can pursue public-private partnerships inspired by the first and internal programming inspired by the second to increase female representation in leadership and tech positions.

Firstly, the Nadeshiko Brands designation highlights Tokyo Stock Exchange (TSE) listed companies that empower women in the workplace through targets focused on progressing female leadership. The Ministry of Economy, Trade, and Industry (METI) has selected 46 companies from the TSE that are outstanding examples of female empowerment. The initiative also attracts investors seeking to invest in top-performing diverse companies, encouraging other TSE-listed companies to promote gender diversity.

Apple can pursue public-private partnerships with subsidiary ministries parallel to METI in Japan that support objectives for increased female labour participation within their region. For example, in Canada, if Apple were to partner with the Ministry of Innovation, Science, and Economic Development (ISED), a recognition list similar to the Nadeshiko Brands could be established for companies in the tech industry leading in gender equality. This public-private partnership can be beneficial in providing Apple and the tech industry gender equality targets that can incentivize internal changes in gender policies.

Apple New Hires Compared to Overall Diversity

Women at Apple

Under 30 Years Old Overall Representation

	2014	2015	2016	2017	2018
Under 30 Years Old	31%	33%	35%	36%	38%
Overall Representation	30%	31%	32%	32%	33%

Having an industry recognized list of tech companies progressing in female representation not only encourages other industry competitors to follow in line, but can also attract investors, while reducing gender barriers across the industry. It is important to note that in Japan's context, government involvement in private affairs is common and at times encouraged. While North America has a favourable stance on public-private partnerships, this should not be taken for granted for Apple's global strategies.

Second, the prestigious Eruboshi certification awarded by the Ministry of Health, Labour and Welfare offers an incentive for companies to adopt gender equality targets including extension of child care leave period, increase of females hired after childcare leave, and female leadership ratios, among others. For example, as a recipient of the Eruboshi certification, Sony continued to hold diversity seminars for managers and career programs exclusively for female employees.

Similarly, Apple can provide greater training opportunities for the female workforce, thus broadening the talent pipeline of candidates qualified to advance into tech and managerial roles. Upskilling can take the form of online courses through platforms such as Udacity and supporting university-level education. For instance, Google introduced free training programs (Google IT Support Professional Certificate) and a Women Techmakers program to develop core skill sets needed in tech positions.

The funding and resources needed for upskilling such as facilities, digital tools, and expanding community partners can be supported by Apple's current investments in D&I initiatives. The tech industry can best prepare their workforce for the growing demands in technology through upskilling, and the government can play a fundamental role by incentivizing employer-led programs through funding, tax incentives, and challenges grants. Moreover, technology leaders in Silicon Valley will benefit from close partnerships with educators and government leaders. This aligns similarly with the Eruboshi certificate and emphasizes the importance of collaboration between the private and public sector. Apple can adapt similar initiatives to the Eruboshi certification, by rewarding internal departments that promote female representation through their hiring practices and promotion opportunities. In the long-term, this allows Apple to focus their financial resources to areas that can benefit from upskilling and empower females in tech-specific and leadership roles.

Womenomics KPI 2: Female Labour Participation Rate

Womenomics 2019 progress report shows that female labour participation rate in Japan surpassed leading OECD countries in America and Europe at 71%. There are various factors behind Japan's rapid increase in female labour participation. One factor is Japan's workforce reform called 'Equal Pay, Equal Work'. This reform came into full effect in April of 2020 and requires employers to pay and provide benefits for part-time workers that do the same work as full-time

workers. The increase in pay, benefits, and recurring education opportunities for part-time positions incentivized many females to enter into the labour force. This policy not only limits unwarranted discrimination by basing pay on skill and merit, but also provides a strategy for corporations to increase their female talent pool.

Similarly, Apple has also made substantial changes to how it compensates its employees. In the U.S., Apple has remedied pay gaps by analyzing salaries, bonuses, and annual stock grants. After a year-long study in 2016, Apple's CEO Tim Cook reported that female employees made 99.6 cents to the one dollar earned by men in the same role. Now, Apple has mentioned that in the U.S. and U.K., female employees are paid equally to male employees. However, a key note to mention is that 67% of Apple's workforce is composed of white males, which has not changed at all (~1%) since 2014.

Apple's equal pay initiatives in the U.S. and U.K. is certainly a step in the right direction, but equal pay will not work alone to bridge gaps in female representation without other policies as suggested in this article. By applying the Womenomics' example of 'Equal Pay, Equal Work', Apple can consider how broader policies and workplace culture initiatives play a significant role in bridging the gap between the representation of females across its workforce.

Moving the Dial

Apple plays an increasing role in shaping global culture through advancing technology that further connects our world. Given Apple's global operations, it would be valuable for Apple to analyze the trends in female leadership among its various regions. As the discussion of female leadership in Japan suggests, training and career experience play a key role in advancement opportunities. Similarly, Apple can modify this concept and invest further into upskilling and career experience opportunities for current and future female employees in tech specific roles.

Moreover, this discussion reflects on how government policies can complement corporate strategies and vice versa. This can be reflected through the upsurge in public-private partnerships in various industries and could be a strategy, as discussed, to implement for D&I issues in years to come. Apple and the technology industry at large will benefit from using their global platforms to lead the dialogue for female representation in the workplace by initiating strategies and concepts discussed in this article. While Womenomics as a policy framework has flaws of its own, it provides a starting point for Apple to consider broader strategies that can move toward resolving gender inequality in the technology industry.

HUMAN BEHAVIOUR AND INVENTORY DECISIONS:

A BEHAVIOURAL NEWSVENDOR STUDY

JANICE LAN

AVERAGE

OPTIMAL

OPTIMAL

Behavioural Inventory Decisions

Operations management is a discipline focused on efficiency in business operations and the production of goods and services. It uses models that simplify reality by assuming people are rational versus irrational, enabling us to make inventory planning or operations decisions relatively easily. In reality, it is much harder to predict how people act and therefore how much inventory should be stocked. These types of questions are now answered in the developing field of behavioural operations research, which combines operations research with behavioural economics.
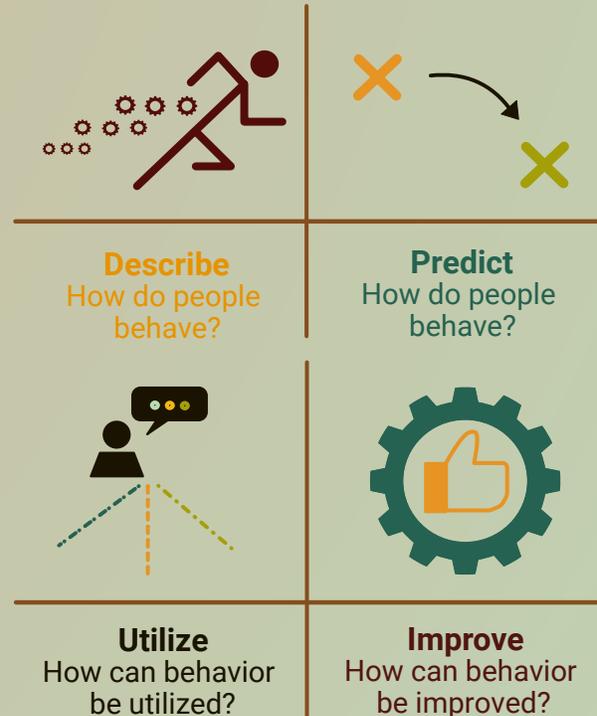
Behavioural operations research combines existing rudimentary models with factors such as irrational human behaviour. This can play a pivotal role in helping firms maximize their efficiency and increase profits through improved inventory planning. Notably, stock-outs have serious ramifications; Harvard Business Review found that depending on the product category, a stock-out causes 21% to 43% of consumers to buy a product from competitors instead.

> **"** *Our research focuses on understanding how inventory decisions are made and why inventory managers fail to make the right operations decisions...*

With my keen interest in the psychology behind decision-making and appetite for challenge, UBC Sauder Professor and Canada Research Chair in Operations Excellence Tim Huh encouraged me to explore the field of behavioural operations research. Our research focuses on understanding how inventory decisions are made and why inventory managers fail to make the right oper-

ations decisions, such as understocking when they could have maximized profits by overstocking above the typical demand level.

Behavioural Operations Research Goals

Describe
How do people behave?

Predict
How do people behave?

Utilize
How can behavior be utilized?

Improve
How can behavior be improved?

Source: Karen Donohue, Özalp Özer, and Yanchong Zheng. Behavioral Operations: Past, Present, and Future

Our Idea

Our research question started out quite broad with simply trying to understand how people make decisions under uncertainty. Since this was our first empirical study in behavioural operations research, we began by exploring the literature, where we identified that much of the research in the area uses the newsvendor model. Further, it led us to become more interested in how people react to unknown distributions or changes in distribution. In real life, this is similar to an inventory manager not having enough data to forecast demand or needing to make decisions about multiple, heterogeneous products. We were also curious as to whether people would be able to learn or adapt their knowledge as they received more feedback. Thus, our research questions became: how do people respond to changes in distribution, and how

close are people in finding the optimal quantity with limited demand information?
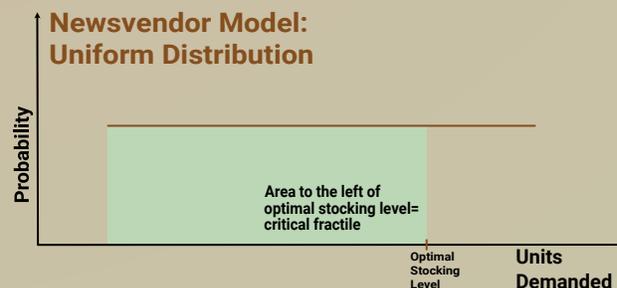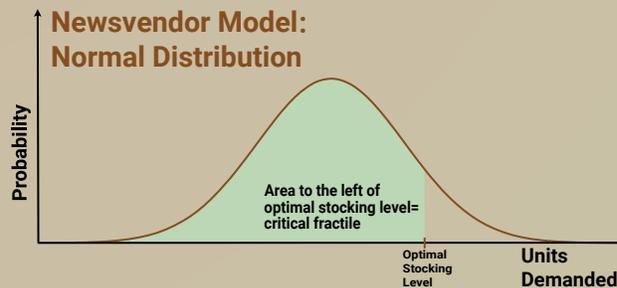
Newsvendor Model

The newsvendor model explores how perishable goods, like newspapers, should be ordered to optimize inventory when demand is uncertain (Arrow, Harrish, & Marschak, 1951). Its application is far reaching; it can be used to calculate how many airline tickets to overbook to minimize losses from last-minute cancellations, or evaluate retail inventory levels to balance variety and price for budget-sensitive shoppers.

The model shows that when demand is uncertain and the selling price is constant, if the cost of the good is low, then the optimal inventory level is to overstock above average demand. This is because the revenue that you would get from selling each unit of the good can offset the additional cost of overstocking a few more even if they do not sell. Conversely, if the cost of the good is high, then you should understock below average demand for the optimal inventory level. This is a simplification of the model. It normally includes additional factors that affect the true price of the good like disposal costs for overstocking.

Behavioural Newsvendor Models

Procurement managers and other decision-making executives working in operations often have limited information about the true distribution of their products to which they may apply the newsvendor model to (Bolton et al., 2012). They generally only have historical demand information which can resemble either a uniform or normal distribution. The newsvendor model has been adapted to work with different distributions including the normal distribution and the uniform distribution. We used the uniform distribution which is a limitation in our study as we would have liked to be able to test the normal distribution if we had more participants. The normal distribution can be used in a future follow-up study depending on the results of this one.

Newsvendor Model: Normal Distribution

Probability / Units Demanded

Area to the left of optimal stocking level= critical fractile

Optimal Stocking Level

Newsvendor Model: Uniform Distribution

Probability / Units Demanded

Area to the left of optimal stocking level= critical fractile

Optimal Stocking Level

Reducing the amount of information that people can use will result in them falling back on certain biases or trying to learn and find patterns in the demand for them to use. These biases and the patterns that people learn will not necessarily be the correct ones that help them find the optimal ordering quantity. Hence, in many different versions of behavioural newsvendor studies (Schweitzer and Cachon, 2000; Bolton and Katok, 2008; Bolton et al., 2012), the conclusion is that people deviate from the optimal inventory ordering quantity.

Pull-to-Centre Bias

Cited as the reason why people do not choose the optimal quantity, the pull-to-centre bias is one of the most common biases in behavioural newsvendor models (Schweitzer and Cachon, 2000; Ren and Croson, 2013; Ovchinnikov et al., 2015; Bolton et al., 2012; Lee and Siemsen, 2016; Bolton and Katok, 2008; Moritz et al., 2013; Bostian et al. 2008). The bias describes how people tend to settle on order quantities between those of the average demand and the actual optimal inventory amount (Zhang and Siemsen, 2018). People are inherently attracted to choosing the average demand as they tend to conclude that it is the quantity that is ordered the most often. However, the newsvendor model statistically

proves that the average demand is rarely the optimal ordering quantity.

Study Methodology

The design of our experiment is a survey-style simulation performed using the PythonAnywhere platform. Our participants will be first or second year undergraduate students who are taking a course on decision-making. These students are unlikely to have encountered the newsvendor model in their studies thus far, but Bolton, Ockenfels, and Thonemann (2012) concluded that undergraduate students make similar decisions to operations managers when faced with the same newsvendor ordering problem.

Students will play four models, where they are told that they are operations managers needing to make orders for some of their perishable goods. Each model is broken into two treatments corresponding to whether the cost of the good to the operations manager is high or low, hence resulting in different optimal order quantities according to the newsvendor model. Each game has 50 rounds, allowing us to test if they learn by comparing their initial choices with their choices nearer to the end of the game.

Experiment design

Model with constant demand distributions & 10 demand points
— Treatment 1 (low cost of good)
— Treatment 2 (high cost of good)

Model with unknown but constant demand distribution & 10 demand points
— Treatment 1 (low cost of good)
— Treatment 2 (high cost of good)

Model with changing demand distributions & 10 demand points
— Treatment 1 (low cost of good)
— Treatment 2 (high cost of good)

Model with unknown but constant demand distribution & feedback
— Treatment 1 (low cost of good)
— Treatment 2 (high cost of good)

*Each treatment (game) will have 50 rounds

Model with Constant Demand Distributions and Ten Demand Points

The first model is a baseline to compare against the newsvendor model to see if people deviate from the optimal order and by how much. Participants have enough information to calculate the optimal newsvendor quantity if they manage to deduce that this is the model that underpins the game because they are given two pieces of information. First, they are told the distribution, which stays constant throughout the game. They are also given ten demand data points which they are told are predictions from a market survey by experts about what demand can be. However, these ten demand points should only be used as guidelines as the real demand can be and often is a different number.

We will also use this model to see if people are subject to the pull-to-centre bias by comparing their orders against the average. If the pull-to-centre bias is true, then our expectation is that people will order quantities below the optimal and close to the mean when the product has a low cost. In contrast, people will order quantities above the optimal and close to the mean when the product has a high cost.

Model with Unknown but Constant Demand Distribution and Ten Demand Points

For the second treatment, participants are not told the distribution of the product they are ordering in the 50 rounds of the game. The only demand information they can use is the ten data points that we provide for them each round. These ten data points change for each round, hence participants who wrote down all the data points as they went through the experiment should be able to deduce more information about the distribution. Our main expectation is that participants will choose to order closer to the average than to the optimal order quantity which follows the pull-to-centre bias. We also expect that they may order the average amount more often than with participants that are told the distribution like in the first model.
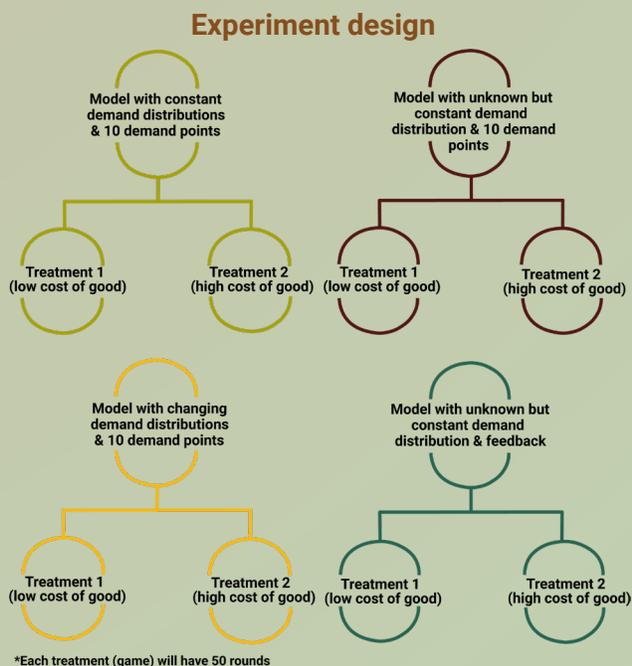
Model with Changing Demand Distributions and Ten Demand Points

In the third treatment, participants are still told the distribution, but this distribution changes each round. For instance, the distribution for the first round could be numbers between 50 and 150 distributed evenly, and then 30 to 130 distributed evenly in the second round. They are still given ten demand points to help them as guidelines. We would take this model and compare each round against the newsvendor optimum. Similar to the first model, we expect the pull-to-centre bias to lead people to order quantities below the optimal and close to the mean when the product's cost is low, and that they will order quantities above the optimal and close to the mean when the product's cost is high. By using changing distributions, we aim for participants to have a fresh start to each round which may help reduce other biases that come from playing a continuous game like chasing the actual demand from the previous order.

Model with Unknown but Constant Demand Distribution and Feedback

The most unique from the previous models, the last model enables us to see if a continuous game will help a person learn to make the optimal decision. Participants will start with ten demand points like all the previous models, but they will not be told the distribution that underlies the demand points. Each round, they will be told the actual demand for the round and then this amount is added to the historical demand data that they are given such that in the 50th round, they should have 59 data points to assist them in making their decision. Similar to the first model, we will mainly be testing the results from this model against the optimal newsvendor quantity. Our expectation for this model is that there will also likely be some pull-to-centre bias, but we are curious to the extent of this bias. Perhaps the lack of having a defined mean by providing the distribution will mean that there is less of a pull towards the centre.

Limitations

The most prominent limitation in our experiment is that COVID-19 has moved school online which makes conducting laboratory tests much more difficult. We have had to pivot to conducting the study online which means that there are aspects to the environment that we cannot control for our participants. Another limitation is that our game is only 50 rounds, which was set primarily to fit in with the undergraduate classes where we would be drawing our sample from. In Bolton and Katok (2008), they demonstrated that learning does continue beyond 50 rounds in their 100-round study, hence a longer study may allow us to see that participants learn more later on.

Implications

Within most studies using the behavioural newsvendor model, there are no well-known papers that have utilized changing distributions. By doing so, we will be examining how people make decisions under significant demand uncertainty in a way that has extensive real world implications. This is because operations managers rarely make decisions for just one product, and smaller companies may not have the data to do complete analyses to figure out that there is one underlying demand distribution.

Hence, it is useful to see how people react and perhaps even learn to make better decisions as they become more familiar with the product. Furthermore, smaller businesses that lack the capital to invest in advanced inventory management and forecasting systems may be able to use the newsvendor model with some limitations to strengthen their predictions. Additionally, this study is proof that even as a business student, it is possible to innovatively combine your passions, such as mine in the psychology of decision making, with emerging business topics to develop interesting research questions that have real world impact. I hope you can leverage your passion in a way that solves problems or simplifies the increasing complexity of today's market landscape.