IVEY BUSINESS REVIEW

AN IVEY HBA STUDENT-RUN PUBLICATION

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The Ivey Business Review is an undergraduate business strategy publication conceived, designed, and managed exclusively by students at the Ivey Business School. Its mission is to provide a forum for tomorrow's business leaders to develop, voice, and discuss their thoughts on today's business strategies, threats, and opportunities. Articles are written by undergraduate students in the Ivey HBA program, and were created after months of collaboration between student writers and members of the Editorial Board.

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Note from the Editorial Board:

"Emerging Stronger From Uncertainty"

This March marks the grim one-year anniversary of the COVID-19 pandemic: twelve months that transformed our global economy, social bonds, and relationship with technology. While the last year brought no shortage of societal and business hardships—from the deaths of 2.6 million people globally to the sharpest economic downturn since the Great Depression—it has also acted as a launchpad for innovation and collaboration from individuals, firms, and governments. Indeed, organizations across tech, healthcare, retail and more heeded Marc Andreessen's call in April 2020 that it was "time to build." In record time, they developed contagion tracking systems, e-commerce logistics management systems and highly effective vaccines to combat COVID-19.

In a year of unexpected challenges, companies that dared to imagine the post-pandemic future were rewarded. Though it remains uncertain what work, education, shopping or entertainment will look like in a post-pandemic world, opportunities for proactive change are boundless. Throughout the months of February and March, our team examined 13 opportunities for businesses and governments to emerge stronger from uncertainty, leading to the Spring 2021 edition of the *Ivey Business Review*.

Facing climate change and food insecurity, we present a strategy to help Haiti integrate agriculture into its resiliency plans to ensure a prosperous economic future. In the energy sector, we chart a path forward for TC Energy to combat stagnating growth by expanding into hydrogen energy. We recommend that DJI, a world leader in commercial drone technology, expand into the agriculture technology space by creating an analytics platform. We illustrate how the widespread adoption of anti-bias AI across Canada can help close the gender gap in venture capital. Within the Canadian healthcare sector, we present a strategy to improve outcomes for long-term care homes in Ontario with the implementation of a value-based incentive system.

Our articles on Burberry, Cineplex and Ovintiv illustrate how organizations can recalibrate their strategic focus to overcome major challenges. We also highlight innovative new paths forward for Disney, Netflix and the big pharma industry through value-enhancing M&A. Finally, we showcase how technology companies like Epic Games and Uber Eats can use their existing competitive advantages to develop new strategic initiatives, while creating social good.

On behalf of the Editorial Board, we hope that this edition will provide a window into some of the many challenges and opportunities facing businesses today, as well as a playbook that organizations can follow to emerge stronger from uncertainty. By boldly building an interconnected, diverse and exciting future, we at the Ivey Business Review believe that together, individuals, businesses and governments can lead change around the world.

Sincerely,

Adam Miller, Carol Zhai & Nick Tommasini

Editor-in-Chief, Publisher & Managing Editor

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Organizations that embrace thought leadership position themselves well for the future. Thought leadership runs to the very core of The *Ivey Business Review's* mission. We thank our sponsors for their continued support as we execute this critical mission.

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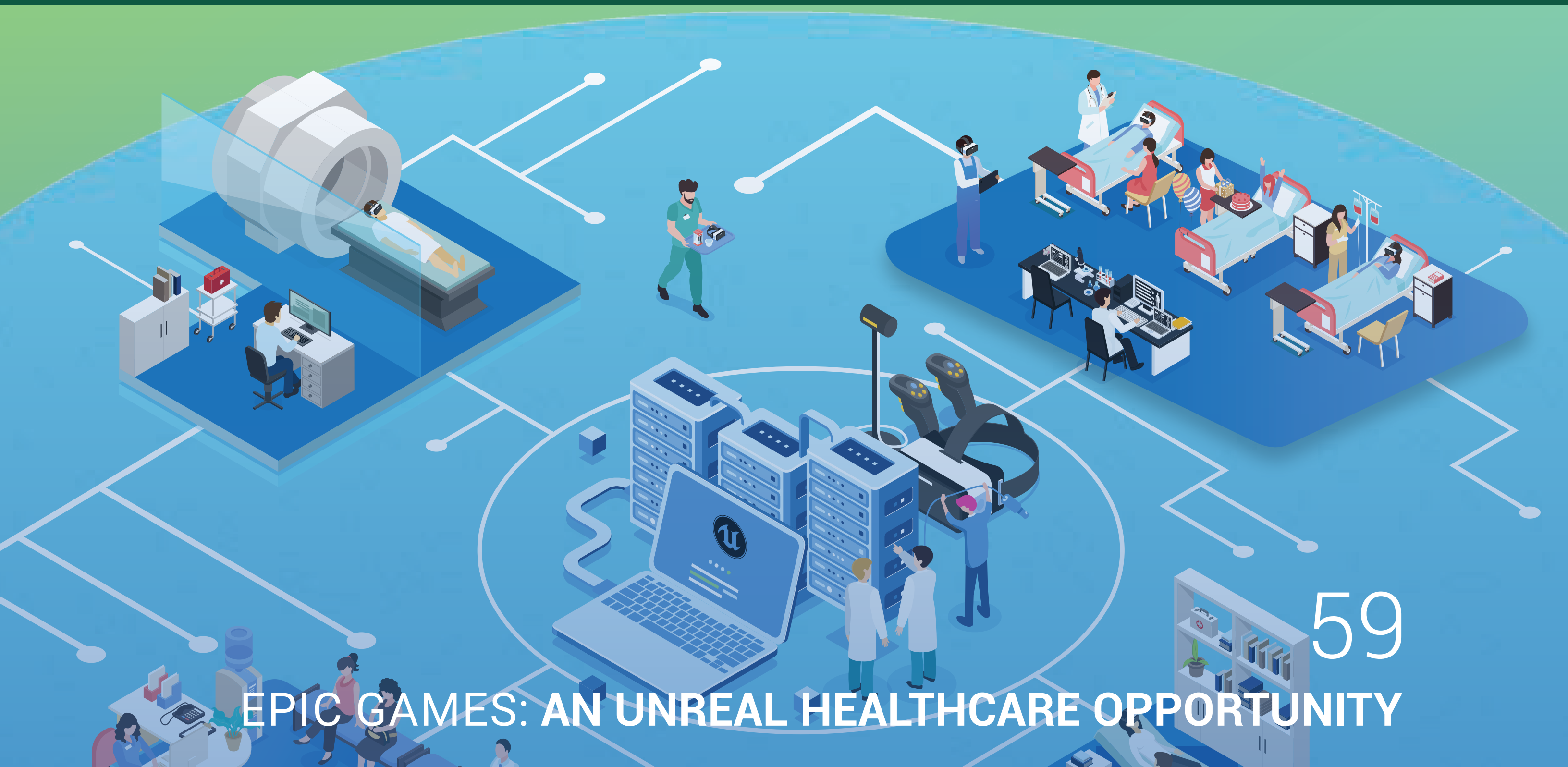

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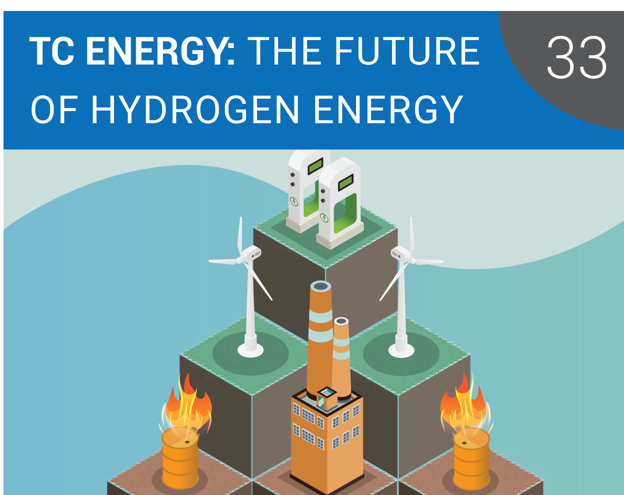


Interview: Braden Ream

Founder of Voiceflow

Illustration by: Jenny Cai

Braden Ream is a co-founder and the CEO of Voiceflow, a company that helps teams design, prototype, and launch conversational apps.

IBR: Prior to the amazing success you've seen with Voiceflow, you worked on several start-up ventures throughout your university career, including social network Flare and ridesharing app Yugo. What motivated you to begin these projects, and what characteristics do you see in yourself and other ambitious entrepreneurs that led you to continue this path?

I had three or four start-ups at university and my biggest one was Flare. Flare was what taught me everything. Yugo was a side project my friend and I built; you'd think a ridesharing system was one of those ideas that's already been done to death, but we thought we could do it better if we had some great design operations.

I've always been really interested in building things, and there's nothing cooler than building a company because it's pretty meta—you're building a thing that builds things. I've always loved the idea of leverage, which is explained in the essay "How to Make Wealth" by Paul Graham. You want to have a multiplier effect on your time.

I knew one hundred percent that I wanted to work in entrepreneurship after my first summer internship. I worked in finance doing sourcing procurement, and at one point my manager tasked me with reading five hundred pages and looking for discrepancies. I only had one month left in my term; given that our normal sourcing projects were four months long I knew they were just looking for something for me to do. I immediately thought, "I don't want someone to have leverage over a month of my time without me being able to make an impact." As an entrepreneur, if I want to try to increase our company's revenue, I can just make sales for an hour. I can hop on LinkedIn and talk to prospects or try to upsell an existing customer. You have leverage to impact change, especially when you're a small company.

The feedback loop is so tight when you have just three or four people because you can just hop on a call with customers; if they want something, you can build it over a weekend and then ship it on Monday and charge them. The bigger the company, the greater the impact of your time.

There's an inverse parabola with respect to size and leverage on your time, because when you're beginning you have maximum control of your time; once you get customers, they become your bosses. And if you become like Tobi—Shopify's CEO—you kind of make it to the other end of the spectrum, and you're your own boss again.

IBR: Beginning a new venture can be both challenging and rewarding. How and when did you ultimately decide to move on past Flare and Yugo? How should aspiring entrepreneurs think about when it's time to move on past their first idea?

Losing Flare was tough. At the time we began to abandon the project, we had launched the previous year, and while it didn't go that well, we still had momentum. The team was so excited because we had some initial results at Western; it got three thousand members within the first 48 hours. I got a notification on my phone every time a new user signed up, and my phone was sitting there, just buzzing. As students, however, we didn't have the product philosophy to make improvements at a fast enough rate; Flare was all about creating instantaneous and spontaneous events to then find on campus. It got very heavy usage during OWeek when everyone was using it to meet people. Unfortunately, once people had met people the fundamental thesis of the business stopped working. People want to have fun with friends—not to go hang out with a bunch of random strangers.

I'm an introvert and I would never have used Flare the way I intended it; I just thought other people would want to use it. People used it to find parties and things during OWeek, and after three weeks it was mostly dead. I learned that great entrepreneurs must understand their target consumer well, and relate to them to understand their wants and needs.

Every app launch, the app was changed in some way; after the third launch, the engineers weren't really working on it because they saw the writing on the wall. We didn't want a repeat of previous launches, so we decided to create an event-based chat. The original chat feature was built on a 50-metre geofence for each event and would enable people at the party to talk to those outside and encourage them to attend. We kept trying to find new events because team morale was dying.

Once you've launched and failed a few times, it becomes increasingly hard to motivate the team that the next one will work. With social networks, you have to hit a critical mass of users and maintain a participation rate. Very few people wanted to be the event hosts, but a lot of people were looking for events; the ratio was mismatched. We didn't hit critical mass and we didn't have enough events to sustain all the listeners.

In the end, I never officially closed down Flare; I just stopped working on it. I moved on pretty quick, starting what would become Voiceflow just two months later.

IBR: The entrepreneurship journey is both exciting and uncertain. You and your co-founding team at Voiceflow—Andrew Lawrence, Michael Hood, and Tyler Han—originally envisioned the company as an interactive children's entertainment company. How did the company's goal and vision evolve with time, and how did you ultimately decide to create a no-code smart skill system instead?

I view entrepreneurship as one continuous journey, constantly learning something different. The most important lessons I learned from Flare were that industry matters a lot and that you need to be solving a real problem.

It felt like a breath of fresh air after Flare failed because I could take all the lessons and apply them to a clean slate. I knew how to recruit engineers and so we were able to build the Voiceflow product quickly. If Voiceflow was to fail today, I'd start a new one, and I wouldn't make nearly as many mistakes in the financing and managerial hiring as I did on Voiceflow.

I would view startups as a version of Maslow's Hierarchy of Needs. The foundation is the industry, which is the most important thing by far—even more so than an idea. How big is it? How fast is it growing? How concentrated is it?

The next thing you need is the team. If you have three PhDs in machine learning but you're trying to start a CPG lip gloss brand, it won't work. The industry you're in determines the team you should have.

Your entrepreneurial idea is last. You should rarely change the foundation, frequently change the team, and change your ideas weekly. With Voiceflow, we picked the industry of conversational AI early on. Then we picked the team: a technical co-founder, design co-founder, and business co-founder. The idea has been changing every single week since.

When people hear the word pivot, they think 180-degree pivots. True entrepreneurship should have a few 180s, but for the most part, as you get closer to a product-market fit, it should be 15-degree optimizations. How do you talk about the product? Who's your ideal customer profile? That should be changing as you learn more. That's my philosophy.

Within conversational AI, we initially focused on the niche of Alexa and Google Assistant. At first, we were just trying to come up with ideas for the space given our team and industry. A voice commerce app inspired by Honey that optimized price comparisons from Amazon and Google was our first idea, but we quickly realized it wasn't technically possible. We then started pursuing interactive children's stories on Alexa to help kids learn to read, because smart speakers are going to be everywhere, and there's a strong correlation between educational outcomes and parents reading with their kids at night. We thought that Alexa could fill the role of parents here, and that app—Storyflow—actually did quite well.

We raised fifty thousand dollars for that idea but faced a really interesting unit economics problem which made us pivot: interactive audio content didn't exist yet, especially for children. We had to produce all the content ourselves. You can imagine that if Netflix had to produce Netflix Originals and distribute content from the beginning of the company, its economics wouldn't have worked and it would have gone bankrupt. Given voice acting and other costs, it probably cost $3,000–$4,000 per story and we had $50,000 total, so doing one story per week would kill us in around ten weeks. About five weeks into that, we had probably $20,000–$25,000 left and we realized we weren't making money at a fast enough pace—we hadn't even introduced monetization.

"When people hear the word pivot, they think 180-degree pivots. True entrepreneurship should have a few 180s, but for the most part, it should be 15-degree optimizations."

What we did have was one of the top voice apps in Canada and around three thousand families listening to us every single week. It was going really well, but the economics didn't work. This made us think, "What if we made it easy for other people to make stories and then put them on our platform?" Unfortunately, this required children's authors to code each story. We needed to create a platform to make it easy for both us and individuals to create content so we could make user-generated content feasible.

We built the first prototype of Voiceflow in 48 hours. It was just a visual interface to put together interactive children's stories that then get published to our Alexa app. We then started onboarding children's authors, and we found that they weren't very technical and it still wasn't working. So we just kept using the tool ourselves. I made a post in an online developer community about this platform that we built, and a bunch of developers asked if they could use it for their own projects. That was when the light bulb went off: we could become the Wix for voice apps. We raised half a million dollars for this idea from Ripple Ventures—a leap of faith from people who believed in us as a team.

We've been making 15 degree pivots every week since, and the most major change is that we've realized that professionals and enterprises need not just Alexa and Google support, but also a creative set of tools to design prototypes

and collaboratively build conversational interfaces across any channel. Call centres, web-chats, in-car voice assistance, automated drive-through, and automated retail experiences all require really good tooling that doesn't exist. The majority of our revenue is now outside of Alexa and Google.

We still power about two hundred million conversations a year on Alexa and Google, so we have some scale there. But the majority of our business is now shifting to becoming Adobe for conversational interfaces right now.

When we raised our seed round—$3.5 million—we could finally afford to hire senior engineers and build a proper engineering team. We've only recently finished the true architecture that can actually scale to power billions of conversations. A lot of it was just rubber bands and duct tape in those early days.

IBR: Your founding team originally applied for Y Combinator twice, but walked away both times empty-handed despite making significant progress and raising capital. What were the keys to your rebound and success moving forward as a team? Once Voiceflow was up off the ground, how did you divide responsibility between each member of the team?

If Voiceflow was ever about to break, it would have been when we got rejected from Y Combinator for the second time. We had a co-founding team that really wanted to make this work—if you do entrepreneurship for the money, you're going to fail. As entrepreneurs, we were in this for the long game.

Here's a framework to consider when making these types of decisions. There are two types of wealth: power and capital. Power includes what you know and who you know; if you were best friends with Elon Musk, you would just get wealthy by association and hearing information others don't get access to through your network. Similarly, if you were ridiculously unpaid for ten years but you ran a startup that was on the cutting edge of machine learning, you have such a wealth of knowledge that you can convert into capital. This is why presidents like Barack Obama instantly become millionaires when leaving office. Money doesn't convert nearly as easily into power. If you want to play the long game, don't worry about chasing early capital. For instance, we chose to become broke university students for four years because we're investing in the power of our education and networks.

So, bouncing back from this loss, we just buckled down the next three or four months. Now that we had this idea of Voiceflow, we were way more passionate and the new idea kept us going. We kept in mind the division of responsibilities, as doing this wrong is the number one thing that kills startups. We got very lucky in that we kind of fell into our own roles: one of us was clearly the technical co-founder, another was the design co-founder. I wasn't either of those, but I drove them harder than they did me and I was a better public speaker, so I became the CEO.

When building a team, you want to have a local maximum for each skill set. The worst team is three people who are all sevens across the board because your quality of work is going to be a seven in all respects. Startups can only have one brand, one line of code for that particular piece of your product. Brute force doesn't matter as much as you want to have one person who is a ten in each area; you want complementary skill sets.

"If you want to play the long game, don't worry about chasing early capital. For instance, we chose to become broke university students for four years because we're investing in the power of our education and networks."

The early stages before we got external validation from customers were challenging. Successful VCs told me it was a stupid idea. You need to have a crazy conviction that your product is a good idea because if something was obvious, everyone would do it. The whole reason VC funding works is because they're able to pick unobvious ideas, which then can have outsized returns.

In the end, we actually got into Y Combinator on the third try, but at that point we turned it down. I wish they'd let us in earlier. We would have done it, but it didn't make sense at that point. We were already on our way.

IBR: In your final year of study at Ivey, you left the program to take on the challenge of leading Voiceflow. That was a big risk that's paid off hugely! How did you think about making that decision, and how did you know when to commit full-time to the company? Did you face any resistance or doubt from yourself, your parents, your friends or classmates, and if so, how did you overcome the pressure to take a more traditional route?

My experience from Flare taught me that it's really hard to balance school and work. You can't really focus on doing great work when there's an exam hanging in the

back of your mind, even though you could probably manage both workloads. Since entrepreneurship is so competitive, I didn't want to be split-brained. If you want to be amazing at something in life, you have to just do one thing.

What I actually did was give myself an internship. Ivey lets students take a year off to go to work, so I wasn't dropping out but rather pushing the program off a year and giving myself a year of optionality. My framework was that for every choice there is an upside and a downside—an opportunity cost. Taking a year off school provided a lot of potential upside because if the company worked, I would be financially set for the rest of my life, gain a ton of experience and do what I always wanted: build a company. The worst-case scenario was that I'd have a great resume and an awesome learning experience. The downside was that I would graduate just one year later.

I didn't view it as very risky, and funnily enough, it didn't feel like a big decision at all. So when I met my co-founders who shared this passion, I thought, "I have to take this opportunity, right? I might not find people who are the same age as me, super ambitious, and have the skill set to actually push this to the moon in the future."

IBR: As the leader of a rapidly growing tech company, what key lessons and skills did you pick up at Ivey that have helped you in your new role?

The best educational experience I ever had was FinFun (Financial Fundamentals). I loved it. It had managerial accounting baked into it; balance sheets and financial statements tell stories, and you get to be a detective. By comparing financial data, you're able to find insights about business models and determine competitive advantages.

It taught me that how you make money—your revenue model—is much harder to change than other elements of your business. You can change your logo and your name, but how you make money determines the features that you build and how you can serve customers.

I think the most important thing Ivey teaches you is how to be at business school; there is a language and a culture to how people interact with each other, and how business is done. The mechanics of the schooling teach it. Often, the structure of how you're taught is more important than the actual content. I might not remember much of the stuff I learned, but I remember how job interviews were done, the pressure of who's going to get the interview, and how to network. Soft skills are the really important stuff.

IBR: Voiceflow has been an unqualified success over the last few years, serving over 60,000 users and powering 200 million conversations, and securing brand name clients like the CBC and the *New York Times* along the way. As your team has grown rapidly and you continue to raise new capital from external stakeholders, how do you balance rapid growth with consistent direction?

Often, it comes down to a long-term versus short-term mindset. The death of a lot of startups is a massive customer coming in, saying "We're going to pay you a million dollars a year, but we want custom modifications." If you spear a whale that big, you're going to go overboard because you can't handle a client of that size and their expectations and demands. When you're a small team of four, taking on a huge customer means that you can't actually work on the core product—which is what got you that customer in the first place—which means you're not going to get new customers. You basically become an agency or service business, and service businesses have low multiples on their revenue because they're not scalable.

Technology businesses should be infinitely scalable. You need to always know what the long-term goal is and don't compromise the long-term for the short-term. Ensure you have enough cash and short-term wins to achieve the long term, but don't sacrifice the long-term for the short-term. It's a balance; you want to do the minimum viable job to achieve your short-term objectives while making sure that you're working towards the long term.

Managing customer expectations is just one of three stakeholder relationships that you must prioritize as an Entrepreneur; the two others are investors and employees. The relationship between entrepreneur and VC becomes tenuous as the company grows because VCs don't actually have the same incentives as you; they have overlapping incentives. A VC sits on a dozen boards and just needs one company to hit a billion dollars to make their big paycheck. They can only sit on so many boards at a time, so they have the financial incentive to push you to go as fast as you possibly can to either hit a wall or become a unicorn. If things don't work out, they'll just place another bet. As an entrepreneur, your incentive is to take enough risk and build a big company, but not too much risk to the point where you burn out. VCs, meanwhile, want you to take as much risk as humanly possible.

You must also manage your employees well. Right now, we have a launch coming up in two weeks for a new product suite. We're behind a little bit on our sprint in our agile development cycle. Do I push them to work on Family Day for a short-term gain, if long-term one of those people might be a little bit more disgruntled and leave?

IBR: What have been the biggest challenges you have encountered throughout this journey? What have been the biggest learning experiences?

Recruiting was a big challenge because I hadn't done it before and it was really tough convincing people to quit their jobs. Recruiting for a club has a minimal opportunity cost; you can join as many clubs as you want. But you can only have one full-time job. Also, as I mentioned before, fundraising was a big challenge.

Through this journey, my biggest learning was that your business model determines how you make money and much of the company strategy. For example, if Facebook had chosen to be a subscription-driven service instead of using an advertising model, their objective would be to create the best possible social networking experience, rather than taking all of your data.

Another thing that I've learned, even though it's hard to grasp, is value creation. Why does someone pay for your service? The truth is people pay for things because they want to either achieve an ideal in their life—it's a vitamin—or they want to reduce the pain in their life—it's a painkiller. This understanding is fundamental to sales and branding. It's also why Flare failed: because it didn't reduce a pain point or achieve an ideal for very long.

IBR: Where do you see the future of interactive voice experiences and audio going into the future? How do you believe Voiceflow will contribute to and enable this growth?

I would define our industry broadly as conversational AI, and one aspect of this is audio or voice interfaces. In this sense, an interface is an input/output system.

Audio has been challenged in the digital age because it's slower to evolve than text, video and photos. It's particularly interesting with respect to interfaces. Voice has one of the best input speeds—it's faster to talk than type—but it has a really slow output speed. For example, imagine you are picking a Netflix movie for tonight and you know exactly what you want to watch. Typing on remotes is a horrible experience because visuals require a peripheral to accept input, whereas a voice interface can do both input and output. Yet if you didn't know what movie you wanted, using a voice interface Netflix would list out 15 different movies and a 30-second description of each. You'd have cognitive overload because the data isn't coming fast enough for you to remember all of it.

The distinct advantage of voice interfaces is the lack of a physical peripheral. I can be across the room and activate my smart speaker. It's also a one-to-many interface; I can have one speaker and ten different people all interfacing with at the same time. As a result, I expect more multi-modal experiences that leverage these complementary strengths, as well as more command-driven applications. On the multi-modal side, imagine ordering an Uber with voice using your Echo and then confirming the ride and features on your phone. On the command-driven side, think "Starbucks, order me a coffee;" it's a direct query that takes advantage of the fast user input speed. Multi-turn dialogues and conversations are less engaging.

"The truth is people pay for things because they want to either achieve an ideal in their life—it's a vitamin—or they want to reduce the pain in their life—it's a painkiller. This understanding is fundamental to sales and branding."

Relating to the rest of our business outside audio, however, I think we have a huge market to tackle. If you asked someone in 1910 how big the automotive space was, people would tell you it's tiny because they would be misappropriating what industry they're in. Cars were really in the transportation space, about to displace all the horses out there. They are just one medium to achieve the goal of transporting you somewhere else. People looking at Voiceflow's Google apps do the same thing. You might think that we're in a small industry, but we're in the talking-to-people industry, which is pretty big. Do you know anyone who's talked to a retail worker or drive-through worker or call center worker? Automated conversational AI is the car to the outdated model of programmatic conversation. While AI is not as flexible as humans, as the technology gets better, you will hit a critical mass and it will take over conversationally. We will impact basically any industry which has programmatic compensation—low-level qualifying sales, anything where people say the same thing a thousand times every day. These conversations can be displaced by a voice interface, a chat interface, or a multi-modal experience. The future of the industry is this platform shift for all conversations, not just Google and Alexa, which are facilitators. We're just getting started.

DISNEY: BRINGING THE MAGIC BACK TO MOVIE THEATRES

To complement its digitally-focused D2C strategy, Disney should acquire Cineplex to further promote emotional brand engagement with its fans and increase the perceived value of movie tickets.

Connor McSweeney

Illustrations by: Annie Tan & Tracy Wang

Reflection

From early films such as *Bambi* and *Pinocchio* to late 20th century successes like *The Little Mermaid* and *Aladdin*, Disney has brought magic into the lives of billions since its founding by Walt Disney in 1929. His legacy lives on through a company that has maintained strong value creation while adding new brands along the way—most notably Pixar, Marvel, Lucasfilm, and 20th Century Fox. Having produced six of the top ten grossing movies of all time and amassing 38 percent of North American box office revenue in 2019, there is no question that Disney has created and captured significant value through its Studio Entertainment Group. The company has expanded upon and reinforced its strength in film with a company flywheel that includes theme parks, merchandising, cruise lines, and television networks.

More recently, Disney has looked to build brand engagement through its new Direct-to-Consumer and International (DTCI) strategy built on its streaming platforms. To complement its content creation, the company has created a suite of streaming platforms, launching itself into virtual content distribution. Disney+, the most recent and substantial to date, was launched in November 2019 with nearly 500 films and 7,500 episodes of television from Disney, Pixar, Marvel, *Star Wars*, National Geographic, and more. The platform is the exclusive home for some of the world's most beloved stories. With a base price of C$11.99/month or C$119.99/year, Disney is trying to penetrate the streaming market historically dominated by Netflix and subject to new entrants from companies such as Comcast (Peacock), Apple (Apple TV+), and AT&T (HBO Max).

A Whole New World

Streaming platforms have changed the way consumers interact with content. From 2015 to 2020, the industry grew at a 24.8 percent CAGR and it is expected to grow by 23.2 percent annually between 2020 and 2025. Disney has already begun to capture this growth, having acquired nearly 100 million Disney+ subscribers in just over one year of operations, exceeding the company's four-year target of 90 million subscribers. This resulted in subscription revenues increasing by over $5 billion and more than tripling the prior year's revenues derived from Hulu and ESPN+ alone. In contrast, Disney's theatrical distribution revenue from its Studio Entertainment Group fell 55 percent in 2020 due to the deferral or cancellation of significant movie releases, mainly driven by theatre attendance falling 81.9 percent as a result of COVID-19 linked shutdowns.

At first glance, it would seem that Disney+ could represent not just a treasure chest for premier content, but the future of content distribution for Disney as a whole. However, both content providers and audiences still consider theatres important, which suggests that Disney's problem is not how to best capture value in content distribution, but how to extend emotional brand engagement beyond its digitally-focused DTCI strategy.

Why Disney Needs Movie Theatres

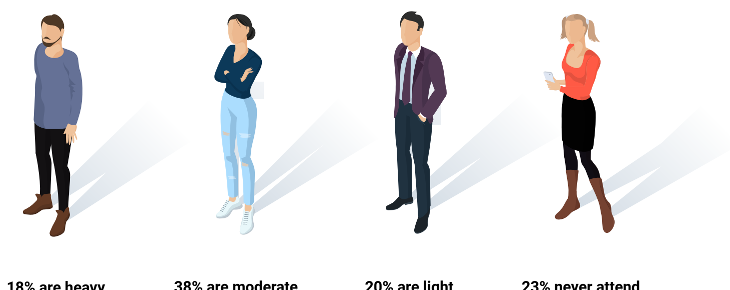
Movie theatres remain the cheapest and most effective way to promote a film and create an ancillary market for content. In a world where there are 500 million Tweets per day and the average consumer encounters 6,000 to 10,000 advertisements daily, it can be difficult and costly to advertise content at the right time and in the right place. Additionally, creating an ancillary market for content allows movie budget costs to be recouped and additional perpetual returns to be generated. This investment in IP is particularly important for Disney, which generated $16.5 billion in ancillary revenue from merchandise, parks, and experiences in 2020.

The impact of the collapse in theatrical releases has been reflected in Disney's distribution strategy. Despite having an online-only release for *Mulan*, Disney's reluctance to release *Flora & Ulysses* and *Raya and the Last Dragon* exclusively on Disney+ illustrates that online distribution is a temporary COVID-19 solution rather than the future of film distribution. At its 2020 Investor Day presentation, Disney announced that its release strategy would not completely abandon theatres, with more than 40 movies still scheduled for theatrical release. Despite the tremendous performance of Disney+, this suggests that the company as a whole is still very much tied to theatrical distribution.

Audience Perceptions of Movie Theatres

The Movie Theatre Association of Canada categorizes moviegoers into four groups based on frequency of theatre visits: Never (zero movies per year), Light (one to two movies per year), Moderate (three to nine movies per year), and Heavy (more than ten movies per year).

For moviegoers, the biggest pull factor is genre—moviegoers rank action (57 percent) and superhero (48



percent) highest on the Theatrical Importance Index. Theatres provide the means to experience these exciting genres in the highest quality, with experiential factors including comfortable seating and realistic 3D visuals. On the opposite end of the spectrum, the largest deterrent that stops moviegoers from watching films in theatres is cost. However, it is not the economic cost of a movie theatre visit that has increased, but rather the perceived value of moviegoing that has gone down. Canadian movie theatre prices only increased by 1.60 percent annually between 2006 and 2020—below the average rate of inflation. Despite this, consumers have less reason to watch movies in theatres as they now have access to an immense collection of content for a low subscription fee. At the end of the day, the decline in consumer affinity for theatres threatens emotional brand engagement for all content creators, including Disney.

The Bare Necessities

Disney has currently positioned itself well on the Theatrical Importance Index by producing a significant number of action and superhero movies. However, Disney has limited-to-no control over movie tickets whose perceived value is derived from experiential factors, such as comfortable seating and overall theatre quality. To increase the perceived value of a movie ticket, Disney should enter into theatrical distribution to rekindle excitement around the moviegoing experience and increase emotional brand engagement.

Consolidation within the movie theatre industry has resulted in fewer players controlling more market share. 63 percent of the US market is controlled by Cineworld, AMC Entertainment, and Cinemark. In Canada, 59 percent of the market is controlled by Cineplex alone. Compared to smaller theatre companies, these four players all have higher-quality movie theatres in strategically superior locations, resulting in greater theatre attendance. As such, Disney should look to acquire one of these major players with considerable market share and a sizable audience.

Bringing the Magic Back to Movies

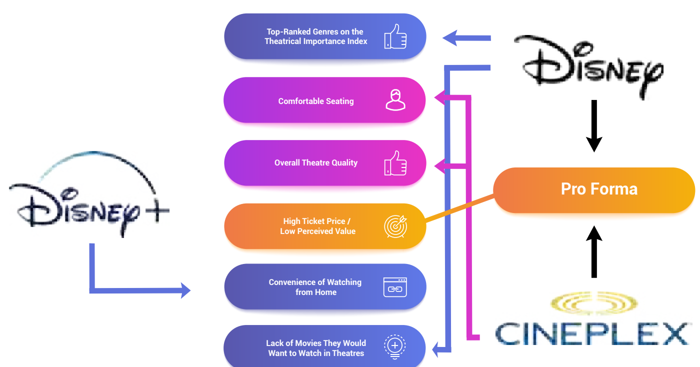
Disney should acquire Cineplex to take advantage of its strong foothold in the Canadian market. Cineplex's dominant market share has allowed it to continuously secure licenses to screen blockbuster films, becoming the go-to theatre chain in Canada for major releases. Additionally, Cineplex typically owns theatres in higher population areas, making it an attractive platform for movie distribution. Given Cineplex's currently low valuation and the potential to realize operating synergies, this transaction would be accretive on many key forward-looking financial metrics, thus representing an attractive opportunity.

For Disney, this is an opportunity to be proactive in a pseudo-test-market where it currently maintains no theme parks or resorts. Disney can combine its experiential and financial capabilities with Cineplex's strong positioning in the Canadian market to revitalize the movie theatre experience in Canada. Improving the experience will not only increase attendance for the benefit of all content producers, but it will also increase the value of Disney's other businesses including Studio Entertainment and Parks, Products and Experiences.

From a financial perspective, this acquisition would allow for significant operating synergies to be realized. In addition to corporate cost eliminations of C$40 million, Disney would be able to forgo cash outflows related to film licensing. In 2019, Disney sacrificed revenues of C$110 million in the Canadian market due to licensing agreements that required content distributors to pay producers 52.4 percent of box office revenue. As a result, Disney could realize up to $150 million in operating synergies in total, 73 percent of which would be perpetual. At Cineplex's current distressed valuation, a 30 percent premium all-stock transaction remains accretive to Disney's EBITDA and Free Cash Flow despite movie theatres' traditionally inferior margin profile. This results in a total purchase price of $2.4 billion, just over 30 percent of Disney's 2020 operating cash flow and well under its current cash balance of over $17 billion.

A New Hope

After acquiring Cineplex, Disney should work diligently with



Cineplex's team to improve the perceived value of a movie theatre ticket and build emotional brand engagement between moviegoers and Disney franchises. There are two primary actions Disney can pursue to achieve these objectives: creating "Disney Clubhouses" and expanding the reach of VIP Auditoriums.

Disney Clubhouses

The proposed "Disney Clubhouse" implementation would see select theatres fully transformed into themed, Disney-only venues. These locations would be renovated to include dedicated theatre areas that replicate content from different Disney movies. For example, a Marvel section would enable moviegoers to feel as if they are in Wakanda or on Asgard. By using augmented reality billboard technology widely used in Asia, Disney Clubhouses would be able to reflect current content and enhance the experience for younger moviegoers. The Disney experience would be further brought to life through revamped in-theatre activities, such as birthday parties.

Enhancing the moviegoing experience with this strategy will rekindle emotional brand engagement among the next generation of moviegoers. The enhanced experience for younger moviegoers will justify a premium price point to parents. This will additionally create a new distribution channel to sell Disney merchandise in theatres, further strengthening ancillary revenues.

VIP Auditoriums

Beyond the movie itself, moviegoers are driven by comfort, cost, and convenience above all else when deciding where to go to see a movie. Expanding both the quantity and accessibility of VIP Auditoriums will therefore increase the perceived value of a movie theatre ticket. Currently, Cineplex operates 84 VIP Auditoriums where moviegoers can order food and alcoholic beverages to their seats and engage in an all-inclusive moviegoing experience. These auditoriums are either a dedicated section of an existing Cineplex location or standalone VIP locations. They are designed to better reach the adult market and to increase both purchase frequency and transaction value. However, this strategy seems to have been put on hold as Cineplex's financial position deteriorated sharply in 2020, leaving it unable to make the necessary investments to improve the VIP offering. Disney can use its financial capabilities to support the integration of more VIP Auditoriums in theatres across the country. At the moment, VIP Auditoriums only represent five percent of total screens. More VIP Auditoriums can contribute to more revenue per patron, hence increasing the perceived value of moviegoing.

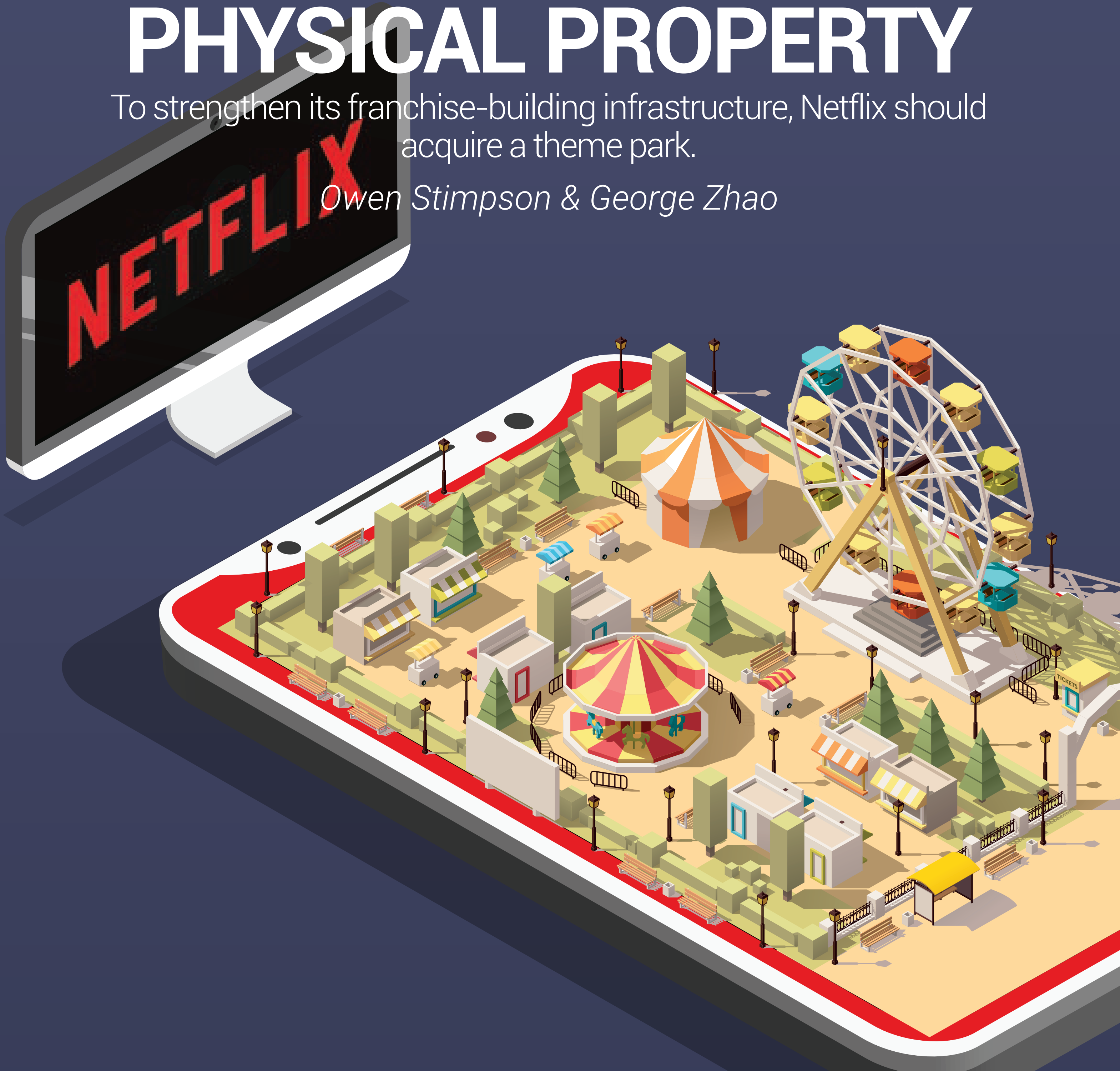
To Infinity and Beyond

Disney is already executing well on its promise to become a direct-to-consumer ("D2C") company through the release of its suite of streaming products. However, a D2C business strategy should not be limited to digital solutions. Should Disney abandon theatrical distribution, it risks compromising the box office model that has enhanced ancillary market value for its brand. Through acquiring Cineplex, Disney will be able to address the root cause of deteriorating theatre attendance: perceived value. The acquisition will allow Disney to reinvigorate the moviegoing experience for current and future generations of moviegoers. In doing so, Disney will be able to build stronger brand engagement and bring the magic back into the moviegoing experience.

NETFLIX: **FROM INTELLECTUAL TO PHYSICAL PROPERTY**

To strengthen its franchise-building infrastructure, Netflix should acquire a theme park.

Owen Stimpson & George Zhao



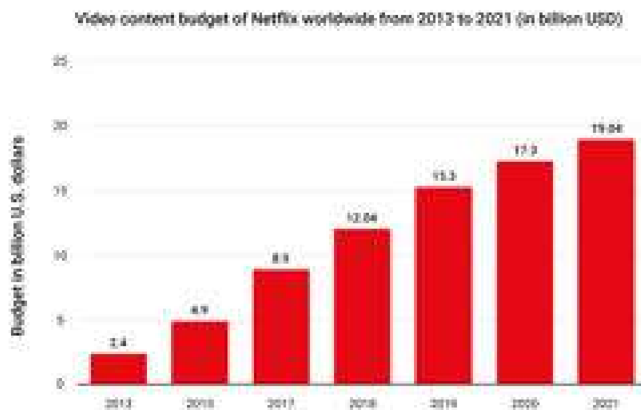
Illustrations by: Frank Huang & Madhu Nathani

Getting Streamrolled

Netflix is the undisputed market leader in streaming video on demand (SVOD) with over 200 million global subscribers in an increasingly competitive industry. The company has developed many hit projects such as *Stranger Things, House of Cards,* and *The Irishman* over the past few years. However, none are comparable in scale or scope to the top ten greatest media franchises, which include *Star Wars* and Marvel. While Netflix is making progress to bolster its intellectual property (IP) and to create long-lived franchises, Reed Hastings, Netflix's CEO, believes that "compared to *Harry Potter* and *Star Wars*, [Netflix has] got a long way to go."

Wearing Every Hat at the Same Time

Netflix aims to be the service of choice during subscriber "moments of truth:" when a subscriber wants to relax, enjoy a shared experience with friends and family, or is simply bored. To achieve leisure dominance, Netflix has spent billions on content, fueled by new debt raises. Since 2010, Netflix has been responsible for 45 percent of the industry's content spending.



Rather than focus on a few specific franchises, Netflix has developed a wide range of content. In 2019, Netflix released 371 new shows and movies—more than the total number of original series produced by all U.S. broadcast networks, cable networks and premium cable networks in 2005. Netflix contends that the breadth of its content enables it to tailor each user's experience to their individual viewing preferences, boosting viewer engagement and interest.

Although Netflix has the capability to produce Oscar award-winning content, it also develops content that caters to everyday viewers looking for a distraction to fill time. The average American watches 5.5 hours of TV per day, and most of this watching is done while multitasking. Award-winning movies are often not ideal background entertainment, but "mediocre" shows generally are. Netflix, therefore, has developed a wide range of average content that is more easily watched in the background. Business publication *Quartz* has even gone so far as to declare Netflix the "king of mediocre."

Much of Netflix's content also seems to have a short lifespan. Viewership for *Aziz Ansari: Right Now*, for example, dropped by 95 percent in its first two months. Moreover, Netflix's best content is often binged quickly: *Stranger Things'* second season (nine one-hour episodes) was watched in its entirety by 360,000 viewers in the first 24 hours.

Does Netflix Even Want a Franchise? We've Seen *Stranger Things*

Netflix, now cash flow positive and the largest SVOD service in the world, has proven many critics wrong. Netflix measures the success of its originals in five ways: the ability to acquire new subscribers, engage existing subscribers, cost per hour viewed, critical acclaim, and brand enhancement. To achieve success in these five criteria, Netflix has been focused on developing original franchises.

Importantly, franchises help acquire new subscribers. One in three streaming subscribers chooses a service just to watch one show in the catalogue. Most shows will not have the allure to attract a significant number of new subscribers but shows and movies connected to major franchises are the most likely to do so. For example, Disney+ had a goal of ten million subscribers within one year—this was achieved in just the first day, largely due to its major franchises and despite a significantly smaller original content budget.

Franchises create familiar content and reinforce brand engagement, which is especially important given rising competition. Over 55 percent of Americans subscribe to more than one major streaming service. Each of these services has thousands of options, yet viewing decisions are often made in under 90 seconds. Consumers cannot consider all the content available to them, and the abundance can make people less satisfied with their decision. As a result, consumers rewatch favourites. Twitter has reported that the mention of the word "rewatch" increased nearly 100 percent from 2017 to 2019. It is enjoyable to rewatch the same shows and movies because familiar stories are easy to process and repeatability breeds affection: a psychological phenomenon known as the "mere exposure effect." Franchises can be built out into multiple shows and movies with overlapping themes and characters that are familiar to fans, increasing engagement as consumers like the familiarity.

Building on franchises with repeatable storylines and characters can also increase the value of existing

content. Take one of Netflix's most popular shows, *The Witcher*, as an example. Originally, *The Witcher* was a Polish fantasy novel series released in the 1990s. Despite two decades on the market, the book only entered the bestseller list in 2015 and 2019 when *The Witcher 3* video game and *The Witcher* TV show were released. This is not an isolated example: online searches for old *Star Wars* movies increase dramatically with new movie releases, and the original *A Game of Thrones* novel sold four times as many copies after the show was released.

Finally, franchises often improve content unit economics. Content based on similar stories and characters can often use the same sets, costumes, and equipment. Actors can even be signed on for longer-term contracts at a lower per-project cost.

Beyond the value of franchises to Netflix, the existing strategy may also begin to lose some of its effectiveness. While successful so far, there is likely a point of content saturation. Incremental spend on content will lose marginal value as consumers have finite leisure time and an unwillingness to consider everything they could watch.

The Marvel Cinematic Universe Wasn't Built in a Day

Many media companies have tried and failed to create new franchises. It is more than making a top quality TV show or movie—Netflix has already done this several times. Nor is it as simple as creating spinoffs based on the same intellectual property quickly; in fact, this strategy can annoy customers and dilute the value of IP, as Disney learned with *Star Wars.*

There is no magic formula to create a new franchise. The content needs to be especially well-received by the audience and there is an element of serendipity. However, one key success factor for franchises is allowing fans to engage with a wide range of content forms. The Marvel Cinematic Universe gives fans many ways to engage with its content. From watching movies and shows to playing video games or visiting the soon to-be-built Avengers Campus at Disney theme parks, fans have a diverse array of options. How can *Stranger Things*—or any other Netflix series—possibly compete with this?

It will not happen overnight, but Netflix needs to begin piecing the system together so that it can capitalize on any new show or movie with franchise potential. A franchise system needs to allow fans to interact with IP in between new releases. Netflix cannot create a franchise if fans are left with few options to engage with the IP beyond re-watching the series. Since 2016, there have been just three seasons of *Stranger Things*, and little else for fans to do to interact with the IP other than re-watch shows. There is also less content for fans to talk about, especially relative to a universe as expansive and immersive as Marvel.

Netflix has developed two teams dedicated to developing franchises and has started to create ways for fans to engage with IP in new ways such as licensing its IP to book publishers. However, COVID-19 has created a specifically attractive opportunity for Netflix to begin building franchises: theme parks.

It Can't Get More High Definition Than This

A Netflix theme park would allow current fans to engage with the company's IP in a completely new way. While Netflix has attempted this approach through licensing a *Stranger Things* Halloween attraction at Universal Studios, a theme park solely dedicated to Netflix content would award it the most flexibility.

IP-based theme parks are not an unproven concept. Disneyland is iconic, and Disney continues to expand its theme park presence with a recently launched *Star Wars* attraction in two of its parks and an Avengers Campus that is set to debut later this year. Super Nintendo World is opening its doors in February at Universal Studios Japan, as the company attempts to better connect consumers with its video game-based IP. WarnerMedia and 20th Century Fox, who have so far decided against building their own theme parks, have licensed the rights to build attractions to competitors. WarnerMedia, for example, licensed one of its most valuable IP assets, *Harry Potter,* to Universal Studios, which built The Wizarding World of Harry Potter—and attendance has remained high since its 2010 opening.

Theme parks can give fans an incredibly engaging medium to interact with IP. Rather than watch their favourite content, fans can immerse themselves directly in it. This high level of immersion is memorable and increases fan attraction to the IP. Disneyland has shown that this effect can be powerful. The original goal of Disneyland was to create memorable experiences for fans that would increase the longevity of their IP. A clear example of this is *Snow White.*

When Disneyland opened in 1955, 18 years had passed since the original release of *Snow White and The Seven Dwarfs*. Since Disneyland opened, *Snow White* has been re-released six times, and the IP has been used in video games, Broadway musicals, and comics. In 2022, a live-action Snow White movie will be released—85 years after the original movie. In sum, a theme park will allow Netflix to begin building tangible franchise value by creating memorable experiences for fans to seek out, talk about, and experience, beyond simply re-watching a series.

A theme park would also provide Netflix with an opportunity to cross-sell merchandise and products that deepen engagement further, such as clothing and books, while being a revenue-generating segment in its own right.

Buckle Up for the Ride

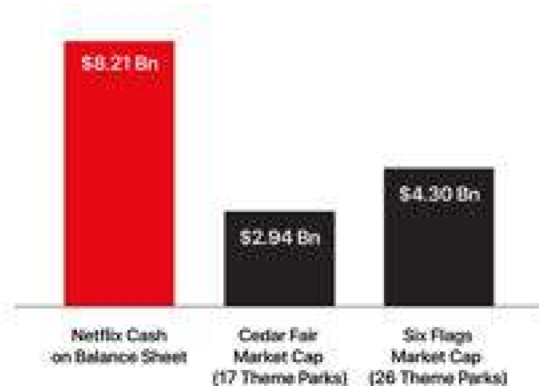
Netflix likely does not have enough IP to fill an entire theme park with IP-based attractions. However, this is not necessarily an impediment. Disneyland, on its opening day in 1955, had only a few rides based on IP and most attractions were unbranded. In the short term, Netflix should look to acquire one location and begin adding IP-based attractions throughout the theme park, one ride at a time. By avoiding creating an entirely new IP-based theme park, Netflix ensures the location can avoid downtime and continuously generate revenues. With a large library of content to choose from, Netflix should take its time in testing the viability of certain TV series and movies to translate into attractions.

While a standalone theme park can be successful, several cross-selling opportunities could be captured with Netflix's current subscription platform, enabling discounts on food and admission. This would incentivize existing subscribers to go to the theme park while attracting new subscribers.

The Watchlist

Now is an opportune time to acquire a theme park. COVID-19 has greatly reduced foot traffic, with publicly traded amusement park companies such as Six Flags and Cedar Fair suffering severe financial losses in the past year. While both companies' stock prices have rebounded, the pandemic has forced both to restructure operations and take on significant debt burdens. As a consequence, Netflix can acquire one or several parks for an attractive price before they reopen fully.

Netflix's 2020 content spend is over $4 billion more than the combined total enterprise values of Six Flags and Cedar Fair, which own a combined 43 parks among other assets. While Netflix should begin by acquiring a location near its headquarters in California, Netflix could consider other tourist destinations such as Florida or New York as potential targets.



The Next Episode

With the entry of media providers like HBO and Disney into the SVOD space, Netflix risks losing on both subscriber growth and retention to superior and longer-lived franchises. By acquiring a theme park, Netflix can begin building stronger customer engagement that provides exciting new experiences. Ultimately, Netflix should take its first step in creating a system that can enable them to transform excellent content, like *Stranger Things*, into long-lived and valuable franchises.

BURBERRY: **BRINGING SCREENS TO THE STREETS**

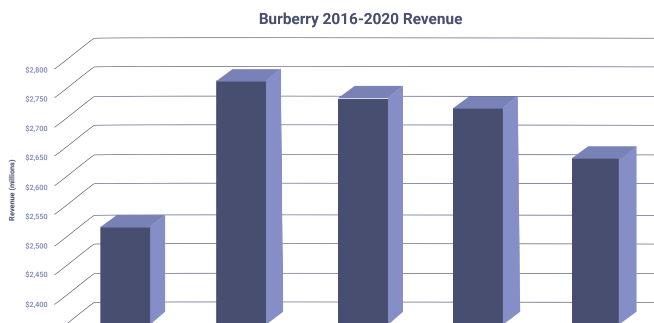
Amidst an identity crisis, Burberry should collaborate with Studio Ghibli to make its brand more relevant to younger consumers and better compete against other luxury fashion houses.

Lucy Cheng

Illustrations by: Sabrina Wen & Harrison Angellotti

Burberry, the British luxury fashion house renowned for its signature check pattern, was founded in 1856 by Thomas Burberry. With the invention of gabardine—a light, durable, and weatherproof fabric—Burberry's trench coats quickly became a favourite among the British elite in the 20th century, and are still one of the brand's best sellers to this day. With revenues in excess of $3.7 billion, Burberry is one of the most valuable luxury companies in the world today.

Despite its illustrious past, Burberry has found itself in a slump. Aside from the devastating impacts of COVID-19, revenues have declined by an average of two percent per year since 2017, attributable to stagnating growth in the Americas and EMEIA. Furthermore, sales in apparel, which account for over 55 percent of Burberry's total revenue, have failed to maintain historical growth, declining by one percent between 2019 and 2020. This is particularly concerning since competitors like Gucci and Louis Vuitton have thrived in the economic boom leading up to 2020, with revenues growing at a 30 percent and 20 percent CAGR, respectively.



Burberry's key issues currently stem from unintentional brand dilution. For nearly a decade since the early 2000s, Burberry apparel was adopted by the Chavs, a subculture of the cigarette-smoking, tracksuit-wearing, football-loving young British working class. As a result, the brand's signature check pattern came to be known as the "Chav check." This association drove a significant decline in brand equity, and the fashionable elite were quick to abandon Burberry in favour of other luxury designers. Since then, the decline in Burberry's status has made it difficult to grow revenues and the company has taken steps to reclaim its image as an innovative and premium luxury brand.

In 2006, Angela Ahrendts became the CEO of Burberry to reverse the unfavourable trajectory of the company. Ahrendts and her successor, Christopher Bailey, repurchased many of Burberry's licensing agreements to protect the exclusivity of its trademarked designs. In 2018, Burberry initiated a complete rebranding under its current CEO, Marco Gobbetti. The multi-year plan includes a modernized typeface, a new logo, and the incorporation of streetwear into Burberry's ready-to-wear segment. These initiatives have strengthened Burberry's brand by reducing its association with the Chav subculture.

Streetwear, in particular, is an industry Burberry has bet big on. It is currently the fastest-growing segment in luxury fashion with an estimated market size of $185 billion, making it about ten percent of the global footwear and apparel market. Yet despite other brands' success in this fast-growing and lucrative segment, Burberry's apparel revenue has been stagnating.

Creating Hype with the Supreme Model of Branding

Burberry's venture into streetwear was lacklustre for two reasons. First, Burberry's brand image and history do not align with the origins of streetwear, which began in the streets of the Bronx as a subset of hip-hop culture. While Louis Vuitton found success in collaborating with the prominent streetwear brand Supreme, Burberry ventured into uncharted territory without the guidance of a strategic partner. As a result, awareness and brand loyalty with streetwear enthusiasts were never established.

To achieve success in the streetwear market, Burberry should study the playbook of Supreme, an American luxury streetwear brand. Supreme applies a drop model that creates exclusivity by only notifying select regulars of limited edition new items. This exclusivity, coupled with the minimalistic design of its website, sent a clear message to consumers: "You chase us, not the other way around." The success of this model can be seen in the massive line-ups in front of Supreme stores every Thursday, as well as the secondary resale market, where markups on Supreme merchandise can be as high as 1,500 percent.

In the past, Burberry's customer buying experience was traditional: customers walk into the store, see something they like, and take it home. The brand created intangible value through the artistry and craftsmanship of its merchandise, which consumers perceived as a status symbol and therefore paid premium prices for. In recent years, Burberry has begun to release products through a drop model in Asia. So far, this strategy has proven successful at a small scale and should be implemented when expanding its streetwear line to create a sense of exclusivity.

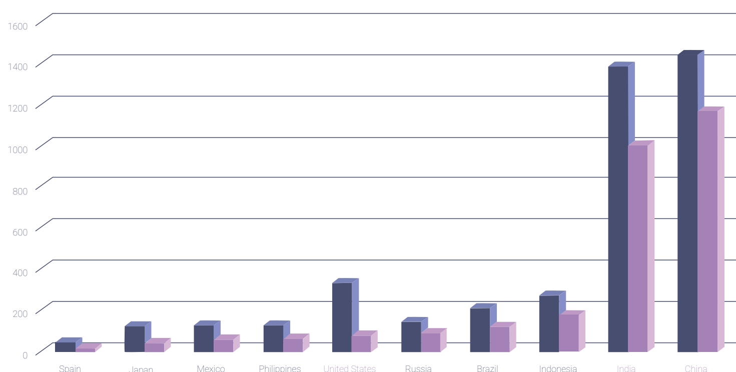
The Rise of Japanese Culture

While it is difficult for Burberry to change its brand positioning to match that of "hype" brands, there is an opportunity to succeed by overhauling its brand image. Radical transformations are necessary in the current

environment given the maturity of the luxury retail space. Louis Vuitton's recent success is a result of collaborations with pop culture brands that appeal to consumers around the world. Similarly, Burberry should embrace pop culture as an opportunity to make its brand relevant again to young and diverse audiences. The most promising opportunity to do so lies in Japan.

Japanese media has experienced a global surge of popularity in the past decade, supported by shifting cultural trends and the rising adoption of online streaming platforms. In particular, the $20.5 billion market for Japanese animated content (anime) is expected to grow by 8.8 percent annually. This explosive growth can be attributed to an expanding viewer base outside of Japan through platforms like Netflix, where anime content viewership increased by 100 percent in 2020. This surge in anime popularity presents an excellent opportunity to build brand equity among younger consumers both in and outside of Asia. Almost half of Americans between the ages of 18 to 29 and one-third of those between 30 and 44 have favourable attitudes towards anime. Many luxury brands have started taking advantage of the popularity of anime in Asian countries and the U.S. through collaborations with popular Japanese franchises. Most recently, Gucci partnered with *Doraemon* to create a limited edition Lunar New Year collection. Burberry should therefore look to expand a partnership with one of anime's leading names: Studio Ghibli.

Anime Viewership by Country



Studio Ghibli: Asia's Disney

Located in Tokyo, Studio Ghibli is one of the most distinguished animation studios in Asia, boasting a list of critically acclaimed films and award nominations. In 2003, Studio Ghibli's *Spirited Away* became the first Asian-animated movie to win the Academy Award for Best Animated Feature. In addition, five of its movies are among the top ten highest-grossing anime films worldwide. In early 2020, Netflix secured a contract for exclusive rights to stream 21 Studio Ghibli movies on its platform. By using partnerships with Western media platforms, Studio Ghibli has been able to build a broader global audience for its critically acclaimed works.

Despite more than 18 years passing since its initial release, the release of *Spirited Away* in China in 2019 outgrossed Disney's *Toy Story 4*. Not only did this demonstrate the studio's popularity with Asian audiences, but it also showcased the nostalgic value of Studio Ghibli's works. Through the Netflix partnership, Studio Ghibli is on track to become one of the most recognizable animation studios in the world alongside powerhouses such as Disney, Pixar, and DreamWorks.

Meet HENRY: The Segment Redefining Luxury

High Earners, Not Rich Yet (HENRYs) are a segment consisting of Gen Z and millennial consumers earning between $100,000 and $250,000 annually, with investable assets less than $1 million. This group accounted for virtually 100 percent of the luxury market's growth in 2018, compared to 85 percent in 2017. Streetwear's popularity has been fueled by this segment, as HENRYs reported spending five times more on streetwear than non-streetwear. As such, luxury brands are keen to capture this fast-growing and lucrative segment.

Furthermore, there is strong potential for overlap between HENRYs and anime viewers. Many of Studio Ghibli's classics, such as *Howl's Moving Castle* and *Princess Mononoke* became favourites among children and teens in the late 1990s and early 2000s. Studio Ghibli's industry-defining works were released when millennial and Gen Z consumers were growing up, and these nostalgic connections hold the key to driving purchasing decisions. The success of incorporating nostalgic childhood franchises into fashion can be seen through the success of other luxury partnerships in Asia. For one example, the Gucci x *Doraemon* partnership earned an estimated $9.8 million in intangible media impact value.

Burberry's growth has stagnated in recent years because it has not established a long-lasting emotional connection with younger audiences. In particular, these audiences do not see Burberry as a trendsetter, nor an aspirational or inspiring brand. Many young, wealthy consumers describe Burberry as "their parents' brand" and therefore irrelevant to them. For Burberry to successfully reinvent its brand, it must create a strong emotional appeal to younger audiences with higher customer lifetime values. If Burberry can tap into the connection that Studio Ghibli has built with younger consumers, then it can capture this fast-growing segment of luxury fashion.

Spirited Apparel

Back in the 90s and 2000s, Studio Ghibli had amassed a considerable fan base. Today, the majority of that fan base has grown into the HENRY target demographic for luxury goods. Given the studio's widespread recognition in Asia and North America, Burberry should capitalize on the strong brand equity Studio Ghibli has developed with millennial and Gen Z consumers.

Specifically, Burberry should establish a partnership to create *Spirited Away* streetwear apparel featuring the movie's eccentric cast of beloved spirits. As opposed to other franchises like *My Neighbor Totoro, Spirited Away* features a darker colour scheme and quirky character design that may better resonate with streetwear enthusiasts. This partnership provides an avenue for Burberry to connect with a younger Asian demographic and encourages HENRYs to reevaluate their preconceptions about the brand. It would also benefit Studio Ghibli by strengthening the value of the *Spirited Away* franchise and bringing the studio's most popular content to the world of high fashion. Studio Ghibli has also experienced past success with fashion collaborations, including a leather goods and apparel collaboration with the Spanish brand Loewe centred around *My Neighbor Totoro*. A new mutually beneficial collaboration would increase both Burberry and Studio Ghibli's visibility and provide support in expanding into new markets.

SS 2021

To achieve exclusivity around this collaboration, Burberry should employ a revenue-sharing model with Studio Ghibli. The brand should create a limited quantity of merchandise and use a drop model. Similar to Supreme's promotional model, Burberry can generate exclusivity around this collaboration by releasing select quantities in flagship stores around the world. In particular, Burberry should focus on stores in Japan, China, and the U.S.: three established luxury markets that also have some of the highest levels of anime viewership in the world. The exclusivity generated by low retail volume can potentially create high resale values for the limited edition merchandise on the secondary market. While Burberry and Studio Ghibli cannot profit directly from resales, the high prices create intangible value by shifting both companies to a more premium brand category.

To secure a long-term partnership with Studio Ghibli, Burberry should first receive exclusive rights to create a capsule collection centred around the *Spirited Away* franchise. The luxury house should work with the studio to create unique designs featuring dark tones and imagery reminiscent of the early 2000s that would suit current streetwear trends. Burberry should design streetwear apparel and leather accessories targeting wealthy HENRY consumers between 18 and 35 who have an emotional attachment to the film franchise. The products should be launched in 2021 in honour of the 20th anniversary of the film's release, with an initial launch in China and Japan, followed by the U.S. Releasing the product line for *Spirited Away*'s 20th anniversary will generate media coverage and revitalize Burberry's lacklustre streetwear segment.

Burberry's Back

Through a partnership with Studio Ghibli, Burberry has the potential to form a strong connection with an increasingly important consumer segment in luxury fashion. By capitalizing on the growing popularity of Japanese art and digital content, Burberry can transform its English heritage brand into one that is truly international and poised for long-term growth at the apex of luxury fashion. Further down the line, the two companies can expand on their partnership through collaborations on new film releases and other beloved franchises.

DIVERSITY IN CANADIAN VENTURE CAPITAL: **BUILDING EQUITY**

The solution to the female funding gap lies in the widespread adoption of anti-bias AI in the VC funding process.

Divine Nwaokocha

Illustrations by: Jessica Zhu & Sabrina Wen

(Venture) Capitalizing on Opportunities

Founded in 1974, the Canadian Venture Capital and Private Equity Association (CVCA) strives to drive innovation in Canada by supporting private capital investors. The CVCA represents more than 270 firms, of which 41 percent are venture capital (VC) firms. The association brings leadership, mentoring, talent management, connections and advice to growing Canadian companies at all stages across diverse sectors. Its work is currently divided into three key segments: policy and advocacy, research and data, and member resources. As part of their research and data work, one of the CVCA's current focuses is in supporting women and people of colour in the private capital ecosystem. Despite this work, there is still a clear diversity gap in VC, with women and cultural minorities facing additional barriers to funding while having poor representation at the investor level.

Girls Just Want to Have Fun-ding

The path to VC funding involves three general steps: sourcing, pitching, and evaluation. Sourcing includes the initial contact a firm makes with a prospect, which is often facilitated through a mutual contact, investor, portfolio company, or direct outbound research. Once a VC firm believes there may be potential in the prospect, the prospect is asked to pitch, a process that includes a slide deck and/or a live presentation detailing the merits of the opportunity. Following that, the firm performs a thorough evaluation of the selected prospect, including an analysis of their financial history, reputation, and management. While many VC firms believe their process selects the best candidates, the selection process relies heavily on personal judgement and is notoriously prone to bias.

Unconscious bias is one of many barriers for women which have led to a clear gender gap in investing. In the United States in 2018, less than three percent of VC funding was granted to female-led businesses, despite 40 percent of American businesses being led by women. This mismatch can in part be attributed to the lack of diversity within VC company ranks: currently, over 82 percent of VC firm employees and 89 percent of VC partners are men.

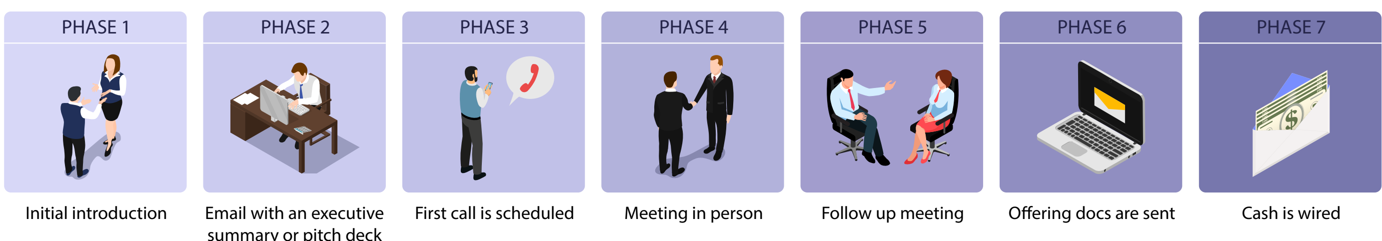
Additionally, the wide use of personal networks in VC investments leaves too much room for bias and results in missed opportunities for firms. As seen in the 2018 Pitchbook Venture Capital survey, 59 percent of respondents value personal networks as the primary avenue when sourcing prospects. With men constituting the vast majority of today's VCs, they follow the homophily principle: birds of a feather flock together. These VCs consequently primarily form networks of male founders, networks that female founders and VCs cannot access.

AI-ming for Transparency

Unbiased funding strategies have also shown merit financially, with gender-balanced portfolios yielding an average of 10 to 20 percent higher returns than traditional funds. According to a study from the UC Davis Graduate School of Management, twenty-five firms with the highest proportion of female leaders produced 74 percent higher ROA and ROE metrics than the average surveyed firm. From a management perspective, funds with gender-diverse leadership teams were also found to outperform their counterparts by an average of 25 percent. Representative and diverse leaders can change decision-making and outcomes in companies, with studies proving there is a clear link between diversity and business performance.

A few players in the industry are turning towards technology—namely artificial intelligence (AI) and predictive analytics—to improve their selection process. Major VC firms like Alphabet's GV and Georgian Partners have invested millions into proprietary technology aimed at revolutionizing the VC decision-making process. Another impressive player is Canadian lending company Clearbanc. Clearbanc's solution to eliminate bias in the VC selection process involves using artificial intelligence to enable more data-driven decision-making. Clearbanc founder Michelle Romanow explains, "We use artificial intelligence to figure out effectively the same type of diligence that VCs used to do." Clearbanc's use of technology allows it to strictly focus on financial and operational metrics. As a result, Clearbanc funds eight times more women-led businesses than the industry average. Instead of focusing on soft aspects of startups like the founders or company stories,

The current selection process standard to the VC industry



these initiatives help eliminate human bias by providing objectivity in evaluating a business's potential.

Which Way? Data-Way

To successfully achieve greater diversity and inclusion in private capital while also achieving better returns, VCs must collaborate to tackle existing biases in sourcing and business evaluation. As the voice of the Canadian VC industry and an advocate for diversity, the CVCA should look to champion technological tools to help drive this change in Canada. Specifically, the CVCA should provide technology-driven tools for diverse sourcing and inclusive deal evaluation for the firms in their network. The tools should focus on equitable sourcing through standardized online outreach and predictive analytics for less biased evaluation.

Seed-ing Change

To reduce bias in the venture evaluation process, one key step that should be taken is relying less on subjective stories and more on quantifiable financial metrics. With the help of data analytics, VC firms can identify top funding opportunities based on objective criteria like financial growth metrics, customer acquisition trends, and other performance measures. After collecting this information, VC firms can then apply predictive modelling in their evaluation process to single out the most probable success stories.

Case Study: Honing in on the Opportunity

The high-touch nature of the VC funding processes means a full transition to a data-driven approach would require clear financial incentive. A process like this prevents over-reliance on factors affected by bias, like the founding story, and instead focuses on measurable financial success. In the past, Hone Capital, a Silicon Valley-based VC firm, garnered wide attention when it partnered with AngelList, a startup employment website, to create a machine learning model that assesses a startup's chances of succeeding. With this model, Hone Capital was 2.5 times more accurate than the industry in predicting the likelihood of a business succeeding in a follow-on round of funding. Not only would a more widespread acceptance of data-driven decision-making help reduce unconscious bias, but it is also a lucrative financial opportunity.

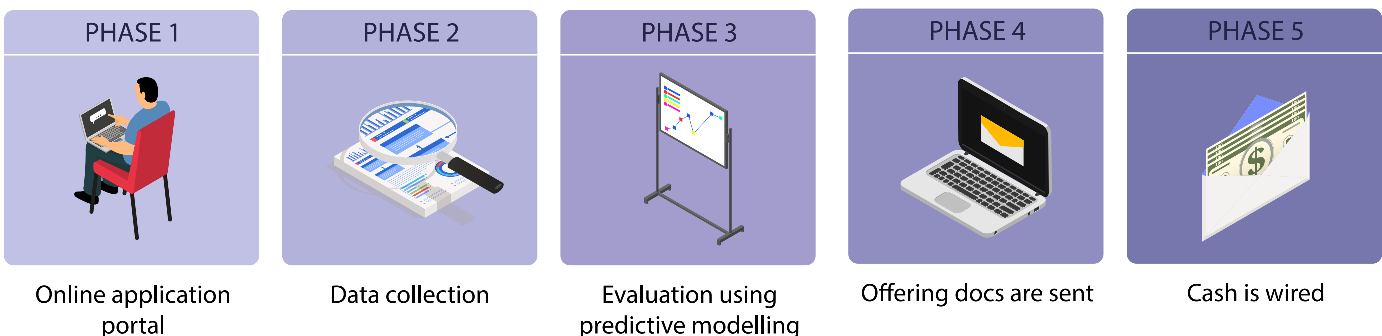
Establishing Fund-amentals

CVCA should aim to create a similar machine learning model to Hone Capital's, but aggregate data from all participating VC funds in its network. The model would receive financial data from participating CVCA partners' prospective investments and measure the actual returns at exit. Not only would the model remove the bias inherent in current VC investment processes, but it would also likely be widely adopted throughout CVCA if it amplifies returns. Effectively, CVCA can provide a standardized analysis tool that partners can use to improve diversity efforts while boosting returns.

When conducting research to develop their tools, the CVCA should first aim to better understand the nature of predictive modelling. Given that its member firms each have different capabilities, the CVCA should provide accessible tools without high barriers to usage. They should partner with researchers from neighbouring academic institutions such as the University of Waterloo to evaluate how predictive modelling has been used in the past in an investing context. Alongside an academic institution, they should also consider forging external partnerships with AngelList or other equity crowdfunding platforms to collect data on which metrics actually help predict startup success.

The CVCA should make its screening tools and machine-learning models accessible to all members. This would contribute to breaking the glass ceiling female VCs traditionally face: namely, the network and resources required to succeed through traditional venture capital processes. As a knock-on effect of having more women VCs, women-led startups will also be more likely to receive funding. Across Seed and Series A stage investments, female VCs are twice as likely to back female founding

A selection process that provides objectivity



teams. This is further amplified in the startup ecosystem by women-led founding teams being six times more likely to hire female employees.

These tools will be used in collaboration with the current code of conduct CVCA offers for industry standards on diversity and inclusion. VCs who use this tool and surpass the benchmarks will receive an additional certification and access to the network of global investors seeking to capture the business benefits of inclusion. The reasoning for this is twofold: firstly, external investors are increasingly seeing the need for unbiased and diverse funding; secondly, female and minority entrepreneurs are encouraged to work with firms and investors who are operating with unbiased tools. Female and minority entrepreneurs who see this information can feel more encouraged to get in touch with these VCs who are evaluating on unbiased standards.

Empow-her-ing the Future

As a result of systematic biases in the VC industry, there is an evident gender gap with disproportionately lower numbers of female entrepreneurs receiving funding and female investors making funding decisions. Subsequently, fund performance has widely fallen short of its potential and diverse entrepreneurs have missed out on valuable funding opportunities. Bringing objectivity to the funding process through predictive analytics will increase returns for VC firms while empowering diverse founders. Furthermore, an increase in support and resources for female leaders in the venture ecosystems will ultimately level the playing field for female founders. By implementing systemic change at the source of the capital, the CVCA can start a cycle of change leading to elevated levels of equality in Canadian startups. Ultimately, in an expanding marketplace of budding entrepreneurs, the VC industry needs to embrace diversity and inclusion to create better outcomes for inventors and entrepreneurs alike.

DJI: GOING TO GREENER PASTURES

To counter stiff competition in its core market and maximize pre-IPO growth, DJI should look to the agtech industry by creating an analytics platform for its existing products.

Gabor Simon & Joe Olij

Illustrations by: Carlee Olsen & Jessica Zhu

DJI: Flying High

Da-Jiang Innovations (DJI) is a leading developer of recreational and professional drone technologies. The company has seen tremendous growth since its establishment in 2006 by CEO Frank Wang. Now valued at $21 billion, DJI manufactures drones with a variety of consumer-based and professional-grade videography, photography, and aerial surveillance functionalities. While the majority of DJI's manufacturing capabilities are based in Shenzhen China, its products can be found all over the world. Approximately 80 percent of its revenues come from outside of China, with 40 percent of revenues from the U.S alone. DJI's product offerings include a wide range of high-quality drones and camera products, with capabilities suitable for numerous industries including film, agriculture, defence, and construction. Its drones have been involved in filming numerous hit television series including *Game of Thrones* and *Better Call Saul*, and various DJI sensory technologies are employed by militaries and government agencies.

As of 2021, DJI is a privately held company. The company has engaged in several rounds of pre-initial public offering (IPO) financing, with investments totalling $105 million coming from Accel Partners and Sequoia Capital. Rumours of a DJI IPO have been circling since 2018, and with a public listing now likely in the near future, the primary concern for DJI is now optimizing its pre-IPO market position. Therefore, DJI needs to diversify its revenue streams and pursue further growth to maximize its potential before going public.

Getting Cropped Out

DJI is at the forefront of innovation within the drone industry. It has an overwhelmingly dominant market share, possessing 70 to 80 percent of the worldwide commercial drone industry. DJI's industry dominance has grown to such an extent that "rivals don't so much compete with DJI as cower before it" according to Bloomberg Businessweek's Blake Schmidt and Ashlee Vance. This industry dominance is a result of extremely competitive pricing coupled with superior drone and imaging technologies. Additionally, the company is known for its relentless push towards innovation, devoting 25 percent of its engineers towards R&D efforts and prioritizing internal competition through team-based projects and competitions. These efforts have allowed DJI to stay at the forefront of drone technologies and consistently beat out smaller and less well-capitalized competitors.

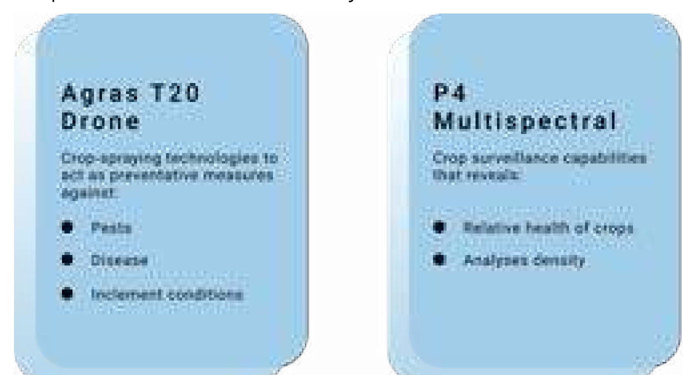
While its market share may be dominant, there are concerns surrounding stagnating profits and growth. CEO Frank Wang predicted DJI's commercial drone sales might hit a ceiling in the future if the firm continues without new avenues for growth. Therefore, DJI faces immediate concerns around perceived limited growth opportunities. Furthermore, its market share dropped by five percent from 2018 to 2019 while the commercial drone industry grew by 56 percent. This further substantiates claims concerning DJI's stagnating growth within the commercial drone industry. Consequently, with ongoing concerns for future growth, eroding market share, and a potential IPO on the horizon, DJI should diversify its product offerings. In particular, the precision agriculture technology (agtech) space could provide an interesting opportunity for DJI, given the segment's limited selection of drone offerings and fit with DJI's existing capabilities.

An Opportunity in Data Farming

In the United States, 20 to 25 percent of agricultural crops are devastated each year by pests, disease, and bacteria. Agtech helps farmers grow crops using real-time actionable data that allows for more efficient practices to take hold. As a result of agtech implementation, an additional $500 billion of GDP will be generated by the agricultural industry by 2030.

With a projected CAGR of 31.1 percent through 2025, the agtech drone industry shows great promise. However, the agriculture market in the developed world today consists of an aging demographic of farmers—the fraction of farmers younger than 40 in Canada was 9.9 percent in 2011, down from 26.5 percent in 1991. These aging farmers are less willing to adopt novel and unfamiliar technologies. Market share is also in contention in this growing industry segment, with many new entrants and specialized precision agriculture players such as AgEagle. Therefore, DJI must differentiate itself with perceived utility and ease of use for farmers to successfully compete.

DJI currently offers two drone-based crop products serving the agtech space. The first, the Agras T20 drone, is equipped with crop-spraying technologies to help prevent pests, disease, and inclement conditions. DJI's second product, the P4 Multispectral, is equipped with crop surveillance capabilities that indicate the relative health of crops in terms of their density.



Both of these product offerings require a high level of technical expertise to use, from using the spraying functions to analyzing the crop surveillance data. As a result, most farmers will hire an agronomist to analyze the drone data that is collected. If DJI can offer third-party agronomist services bundled with its drone products, it has an opportunity to differentiate itself from competitors such as Parrot, whose products require the addition of further services.

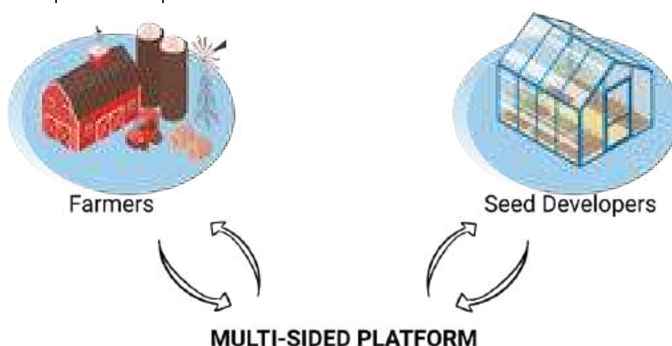
Strategic Solution: Growing a Vertical Crop

With the precision agtech industry anticipated to reach $43.4 billion by 2025, DJI must strategically position itself to grow market share by reimagining its value proposition for its current agtech solutions.

Currently, farmers hire third-party agronomists to analyze data that is exported from a drone. To differentiate itself, DJI should pivot to create an integrated platform that combines historical crop data, clinical seed research, weather mapping, and real-time NDVI heat maps to give farmers accessible insights. DJI can then supersede the agronomists and integrate regional and seed-based expertise into this new platform.

According to Cherilyn Jolly-Nagel, a prominent advocate for modern farming practices, farmers are aware of drone technology, but there is some hesitancy to adopt the technology as preferences lean towards historical experience and insights. By grouping together various real-time and historical data points from both the crop and the external environment, DJI can break down barriers for adoption. Providing farmers with preventative insights on infestations, drought, and disease would give them the chance to remedy these destructive forces before they take root.

From a financial perspective, this platform could achieve monetization by aggregating farmer data and selling it to seed developers. This would create a multi-sided platform (MSP) where value could be extracted from both sides while benefiting all parties—a strong two-sided network effect that encourages lock-in. DJI should leverage its existing analytics partnerships with companies such as Delair, which specializes in data analytics, to help develop this potential platform.



Who Benefits from All this Greenery?

The creation and implementation of an agtech drone-centred platform would include numerous stakeholders, but farmers are the primary concern. Currently, one percent of all farms globally own 70 percent of the world's farmland, as arable land has been consolidated over time into large-scale industrial farming operations. These are the consumers that DJI should pursue, as they stand to gain the most from adopting DJI's drone technologies. Not only would these large-scale farms possess the financial capital to implement DJI's data-driven solutions, but the sheer size of their operations demands crop monitoring on an immense scale. By partnering with DJI, these farmers would gain real-time actionable insights into their crops provided by drone monitoring.

One specific potential use case is disease monitoring, whereby DJI's crop surveillance drone would analyze the presence of disease within a farmer's field. Traditionally, farmers have only been able to identify diseases past the point of possible prevention. However, with NDVI drone imaging, farmers can receive actionable insights in a faster time frame to take preventative measures. Additionally, farmers can benefit from yield increases provided through drone monitoring. Drone monitoring has been proven to help increase crop yields, with surveillance indicating fertilizer absorption rates. Once absorption rates have been collected, farmers then can reapply fertilizer as necessary given the varying absorption rates of a given plot of land. Currently, the OCEALIA group, a French-based agtech firm, utilizes this drone surveillance method and has increased crop yields by ten percent through it.

Data collected by this platform would also lend itself to future partnerships with another key stakeholder group: seed developers such as Syngenta, BASF, and others. Through partnerships with these firms, DJI would be able to sell aggregated data collected through drone surveillance to further R&D efforts by these companies. Bayer, the largest seed developer, spent $1.67 billion in R&D in 2017, a testament to the scale of what seed developers invest into improving their products.

Money Does Grow On...

By monetizing the aggregated data, the analytics farmers receive could be offered as a free service with the purchase of the physical drone. This would assist farmers free of charge, and as the offering scales, DJI could also pursue a revenue-sharing model for farmers that would compensate them for their data, ultimately commoditizing farm data.

There would also be a positive feedback loop for both

farmers and seed developers. As the platform gathers more data on various seed varieties, increased aggregated data lends itself towards superior development of seeds. Subsequently, the vast amount of expertise provided by seed developers could be passed along to farmers in analytics. By partnering with these seed developers, DJI would have access to vast amounts of agricultural data that could be used to create personalized insights for various crops, growing conditions, and regions. In addition, farmers would collectively benefit from greater seed variety and efficiency as a result of robust real-world R&D from seed developers. Therefore, through the aggregate sharing of data, both parties stand to benefit.

Finally, this platform would lay the foundation to apply data analytics to DJI's other commercial drone product lines. That is, agtech presents the company with a revenue stream that can be used to build experience and assets in the analytics space. Once the platform is well integrated within the agtech sector, DJI has the opportunity to transfer its new-founded data analytics competencies towards other core operating sectors including construction, infrastructure analysis, and power line monitoring.

By adopting new drone surveillance technologies, DJI can position itself to not only increase market share and profitability, but it can also help combat food scarcity, improper use of arable land and water, and aid farmers on a global scale. In the process, it will build a robust data ecosystem while reaffirming its dominance in the commercial drone space.

TC ENERGY: **THE FUTURE OF HYDROGEN ENERGY INFRASTRUCTURE**

As TC Energy faces stagnating growth, it should use existing infrastructure to expand into hydrogen energy.

Jerry Wu & Michael Wu

Illustrations by: Stanley Ho & Sahil Asthana

A Giant in Midstream Infrastructure

TC Energy (TCE), an industry leader in North American midstream energy, has once again captivated attention in the oil and gas industry: its Keystone XL (KXL) pipeline was cancelled, bringing an end to a project that has become symbolic of tensions between the industry and community stakeholders.

Founded in 1951, today TCE's pipeline network transports 25 percent of North America's natural gas as well as two billion barrels of crude oil annually from Alberta's oil sands to refineries in the U.S. Midwest and Gulf Coast. In 2020, TCE continued to build on its $100 billion asset base by bringing another $5.9 billion of assets into service. It has also built a reputation of strong sustainability practices and industry-leading safe delivery rates, investing over $1.3 billion in pipeline integrity services.

The Flows are Slowing

TCE remains insulated against a backdrop of negative sentiment towards the oil and gas industry, with 95 percent of its cash flows locked into long-term contracts which minimize short-term revenue fluctuations. However, while the Toronto Stock Exchange Oil and Gas Index has declined less than one percent since February 2020, TCE's share price has dropped nearly 20 percent over the same period. Furthermore, TCE has seen revenue fall 2.5 percent over the last three years. Consensus estimates also show stagnant projected growth, with EBITDA estimated to grow just 3.8 percent from 2020 to 2021. This slowdown in growth is concerning, as TCE has long-term debt obligations that need to be serviced—20 percent of its $58 billion in long-term debt needs to be serviced over the next five years. The KXL cancellation, along with other political decisions, social trends, and economic indicators, is just the latest in a series of headwinds facing TCE.

A New President in the White House

On January 17, 2021, newly-elected President Joe Biden announced plans to cancel the KXL pipeline, a project that would have transported over 590,000 barrels of oil per day. Along with this executive order, Biden announced plans to invest $400 billion into clean energy and innovation over the next ten years, which would increase pressure on fossil-fuel-driven energy companies to produce more environmentally-friendly alternatives. This trend is further emphasized through BloombergNEF's prediction that 58 percent of all automobile sales in 2040 will be electric vehicles. Canada has established similarly ambitious carbon emission targets, with goals of achieving net-zero emissions by 2050.

A Fossilizing Arena

The upstream oil and gas industry is enjoying rising interest rates alongside crude prices which exceed pre-COVID-19 levels. In years past, this has generally translated to upstream producers increasing production, thus increasing the demand for TCE's midstream transportation of energy. However, over the last few years, upstream players have prioritized cost reduction to increase profits rather than increasing production to drive top-line growth. The Canadian Association of Petroleum Producers has decreased estimates of Canadian Oil and Gas investment in 2021 to $27 billion, a drop of over 65 percent relative to its 2014 estimate of $81 billion. Consolidation has become the new theme of the energy sector. With cash flows diverted into shareholder pockets rather than into the ground, TCE faces a limited need for takeaway capacity. The company must find other ways to stimulate growth within its mature and slowing industry.

Environmental, Social, and Gas (ESG)

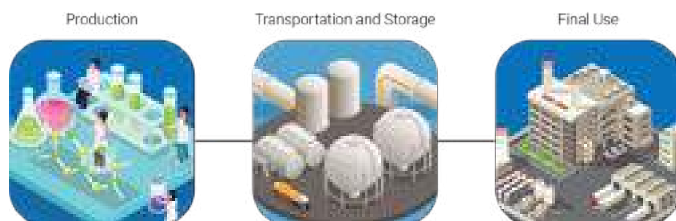
Another headwind facing the energy market is the growing importance of environmental, social, and corporate governance (ESG) factors in shareholder decisions. In early 2021, Norway's Government Pension Fund sold off its entire portfolio of oil production stocks after losing $10 billion. An estimate from the Global Sustainable Investment Alliance reports that global ESG investments equate to $30 trillion annually, presenting a clear danger to TCE and its shareholder confidence. There are pressures from governments and external stakeholders, both calling for TCE to shift away from the transportation of oil towards more environmentally-friendly energy sources.

Pipelines: Out of Order?

Without a shift to a more sustainable business model, TCE cannot continue its history of achieving steady long-term growth. The logical next step in the energy transition would be a shift toward natural gas, as Asia represents a growing market for liquified natural gas (LNG) exports. Countries such as China are transitioning from high emission fossil fuels such as coal to lower emission fossil fuels such as natural gas. TCE already expects to capitalize on growing LNG exports with the Coastal GasLink project, a pipeline running from Northeastern B.C. to an LNG export terminal in Kitimat, B.C.. However, Pembina Pipeline Corporation's Jordan Cove and AltaGas' RIPET terminal are just two examples of companies taking advantage of the LNG export opportunity. The export terminals alongside existing natural gas pipelines such as the Enbridge B.C. pipeline make it clear that the LNG export market is becoming saturated. Is there a better sustainable growth path for TCE to take part in the transition towards renewable energy?

Infrastructure: Taking a Blended Approach

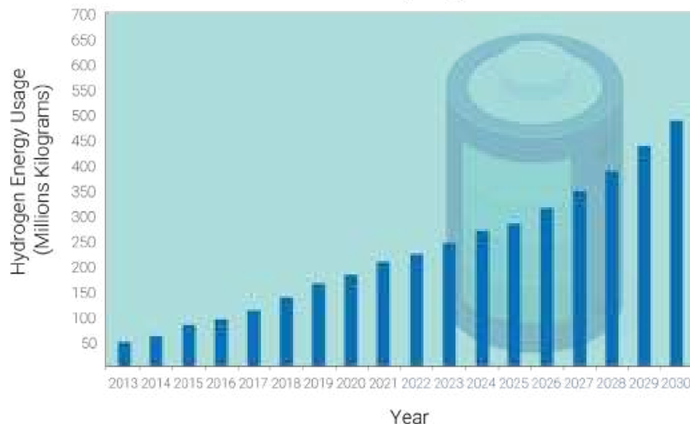
The answer for TCE is providing pipeline and storage infrastructure for hydrogen energy. The hydrogen value chain involves the production, storage, transportation, and use of hydrogen. The production stage requires electrolysis plants to take electricity and split water molecules into oxygen and hydrogen. Hydrogen can also be created through natural gas in a reforming process by using high-temperature steam. Hydrogen can ultimately be used in fuel cells, in industrial applications, or as a method of storing renewable energy. The segment of the value chain where TCE has the potential to make the largest impact is the transportation and storage of hydrogen, given its comparable existing infrastructure.



Why Hydrogen?

The hydrogen market is still in its early stages with no dominant midstream company. The International Energy Agency has emphasized that infrastructure such as pipelines and storage will be crucial in supporting large-scale development of hydrogen production and use. This is where TCE's existing network of pipelines across North America can provide a large advantage when entering this industry.

Meanwhile, expanding into hydrogen infrastructure reduces regulatory risk exposure, since there is increased social and political interest in renewable-based infrastructure.



The Government of Canada released a call to action in December 2020 outlining the future of hydrogen in Canada: it estimates that upwards of 30 percent of Canada's energy will be delivered through hydrogen and it will be an essential pillar to achieving net-zero emissions by 2050. With the U.S. expected to launch a similar call to action, given its $400 billion investment into renewable energy, a hydrogen pipeline would circumvent much of the political scrutiny present with hydrocarbon-based transport.

There are strong use cases for hydrogen in the form of fuel cells in industries that are difficult to electrify, including long-distance transport and heavy machinery. Additionally, hydrogen can serve as a method of storing excess renewable electricity that is not immediately absorbed by the power grid in a form of potential energy. Electrochemical battery technology like lithium-ion is effective for storing and discharging energy for short periods. However, technological limitations reduce efficiencies for longer discharge and storage, pointing to hydrogen to fill that gap. These use cases further the argument that hydrogen will be essential to reaching a net-zero future.

Renewed interest in environmentally-conscious capitalism is leading to higher valuations for renewables-based companies. Midstream oil and gas companies trade at an average Enterprise-Value-to-Revenue Multiple of around 5x, compared to hydrogen companies, which trade at multiples exceeding 50x. The difference reflects the tremendous growth investors expect in the hydrogen sector and the stagnation of upstream growth for the midstream oil and gas industry. TCE can capitalize on this growth opportunity by using its existing infrastructure as a gateway into the sector.

Blending the Lines

TCE should begin introducing hydrogen by blending hydrogen gas into existing natural gas pipelines. For example, Enbridge started a project in the Greater Toronto Area that blends hydrogen into local natural gas lines, reducing greenhouse emissions of burning natural gas in homes. Tests from the U.S. Department of Energy show it is possible to blend up to 20 percent hydrogen without an increased risk of ignition or leakage. However, investment in blending infrastructure is required to make hydrogen blending possible, and TCE will need to be cognisant of the metal used in the pipeline, as certain types of steel degrade in the presence of hydrogen.

Fueling Partnerships

One of the leading applications of hydrogen is the storage of off-peak renewable energy production. Electricity produced from renewable sources can be stored as hydrogen through electrolysis and used to produce energy when there is a shortage of supply in the electrical grid.

To establish TCE's presence within this space, suitable partnerships should be explored with all companies along the hydrogen energy value chain.

Beginning at the point of energy production, TCE should secure partnerships with wind farms, such as Enel Green Power's Riverview and Castle Rock Ridge wind farms in Southern Alberta. Intermittent energy sources such as wind pose a challenge to Alberta's power grid, which is accustomed to the baseline power provided by hydrocarbons such as coal. Storing excess off-peak electricity in the form of hydrogen is a viable solution, as hydrogen can be converted to electricity on-demand similar to non-renewable generation.

Next, the development of a hydrolyzer is required to convert electricity from the wind turbine to hydrogen. Hydrolyzers are projected to decrease by up to 60 percent by the end of the decade, and TCE can capitalize on this through a partnership with a hydrolyzer producer. Cummins or Parker Hannifin, two of North America's largest hydrolysis equipment manufacturers, can provide the hydrolyzers necessary to convert the excess electricity generated from the Pincher Creek wind farms into hydrogen.

The next step in the process is to transport the hydrogen to storage and/or into Alberta's power grid. A portion of TCE's Nova Gas Transmission Line pipeline system is well-situated in southern Alberta surrounding Pincher Creek and the existing wind farms. This portion of the pipeline could be modified to transport up to 20 percent hydrogen blended with natural gas. The existing pipeline system is TCE's competitive advantage in entering the hydrogen market. It would provide crucial infrastructure connecting renewable electricity producers and hydrolyzer manufacturers to the fuel cell companies which can supply Alberta's power grid. A partnership with Cummins would extend further down the value chain as Cummins recently completed the acquisition of Hydrogenics, a fuel cell company that could be the end-user of hydrogen.

A major pitfall of hydrogen conversion is the round trip efficiency. Storing excess electricity as hydrogen and converting back to electricity is approximately 35 percent efficient compared to approximately 95 percent for a battery. That being said, the cost of hydrogen energy storage becomes much lower compared to battery storage once storage lengths exceed 13 hours, and this efficiency has the potential to continue improving. Efficiency improvements will allow Pincher Creek and other wind farms across Alberta to further improve scalability and reduce intermittency. With this scalability, Alberta can cost-effectively decrease its coal reliance before the Canadian federally mandated coal phase-out by the end of 2029.

Reacting for the Future

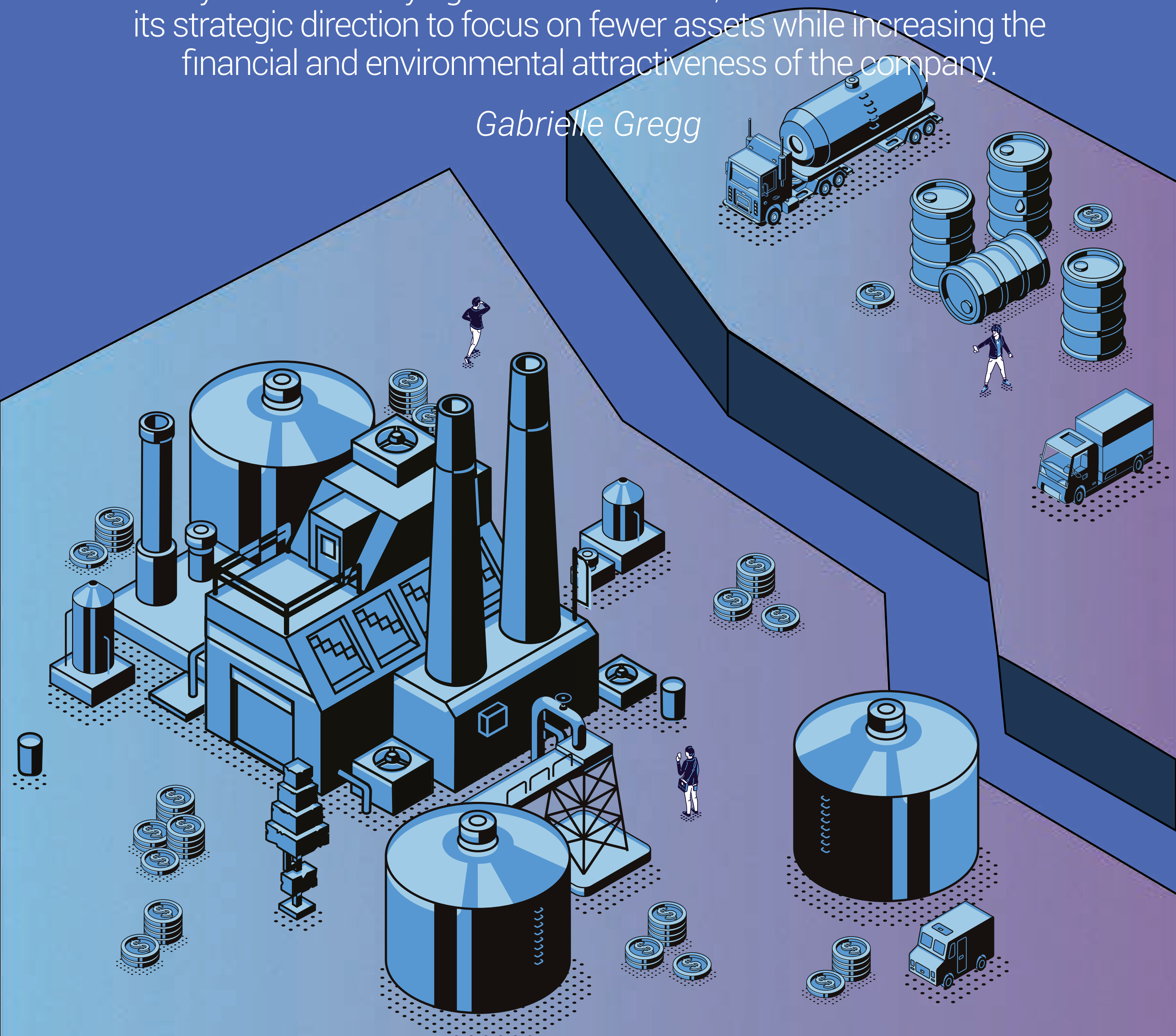
Facing a commodity market with an uncertain future and a dearth of exploration and production investment, midstream energy companies must look to adapt amid the growing influence of governments on clean energy initiatives and focus on creating value from existing infrastructure. As the price of hydrolyzers decreases and investments increase within the hydrogen energy market, TCE should utilize strategic partnerships to transition to a sustainable path of growth.

1. The varying output of wind farms doesn't always match fluctuating electricity demands creating a need for energy storage.
2. Excess electricity powers Cummins/Parker Hannifin hydrolyzers.
3. Hydrogen is stored/transported by TC Energy pipelines.
4. Hydrogenics Fuel Cell converts Hydrogen to electricity providing energy on-demand.

OVINTIV: **INACTIVITY FUELS THE ACTIVISM FIRE**

After years of destroying shareholder value, Ovintiv must recalibrate its strategic direction to focus on fewer assets while increasing the financial and environmental attractiveness of the company.

Gabrielle Gregg



Illustrations by: Stanley Ho

With an oil price crash and a sharp economic downturn brought on by the COVID-19 pandemic, 2020 marked a difficult year for the oil and gas industry. One clear victim was Ovintiv, a North American exploration and production (E&P) company that operates a broad portfolio of assets in Canadian and U.S. basins. Already facing pressure to meet the challenge of transitioning to renewable energy, Ovintiv now also faces a reduction in its credit rating to below investment grade, making future expansions fuelled by debt more expensive. These concerns, coupled with the company's elevated debt levels, have resulted in a depressed valuation of 5.2x based on Enterprise Value to EBITDA—about half the multiple it commanded just four years ago.

Ovintiv: A Rich History

Ovintiv originated from Canadian Pacific Railway's first push into Western Canada in the 1880s. The company continually improved its core assets over the next century and merged with the Alberta Energy Corporation to form Encana in 2002. Encana succeeded in its early years by concentrating on strong core operations, selling underperforming assets, and prudently managing debt. Over the following seven years, investors remained confident in Encana's strategic plan and ability to outperform market expectations. By 2008, it was Canada's largest energy company by both market capitalization and production volume.

However, confidence in the company faded seemingly overnight when a pipeline burst in Northeast British Columbia in November 2009. This news was exacerbated by claims that Encana failed to follow its safety-response plan during the crisis. Encana also faced broader market issues caused by the worldwide financial crisis and plunging natural gas prices due to the shale revolution. In hopes of recovering from the pipeline accident and low energy prices, a new strategic plan was introduced in 2013, in which the company shifted focus away from its core operations toward multi-basin expansion. Efforts to drive margin growth and diversify product lines were not enough to revive Encana from the confidence crisis that had begun years earlier. After years of net losses and increasing debt, Encana rebranded yet again in 2019 to become Ovintiv. Once a company that had revolutionized Canada's energy market, Ovintiv's headquarters departed Canada in search of U.S. investor capital. The departure of Canada's most historic energy company was striking for the industry, with leading experts claiming that the energy industry in Canada was "no longer associated with innovation."

Kimmeridge: The Activist Investor

Despite maintaining a portfolio of industry-leading assets, Ovintiv has consistently generated below-industry returns for shareholders. Ovintiv's shares have fallen 84.4 percent since June 2013 while peers have fallen comparatively less—just 11.1 percent over the last eight years. This gap between potential and achieved performance has attracted activist investor Kimmeridge Energy Management to seek change within Ovintiv via a proxy fight for three board seats. Kimmeridge is a powerful fund that strives to be a thought leader in the industry and has raised $3.0 billion of LP commitments since 2012. Through several white papers directed to shareholders, it has highlighted supposedly fatal flaws in Ovintiv's current operations. Key areas of concern include poor environmental stewardship, capital allocation, and corporate governance. While Ovintiv has recently agreed to elect one board member from Kimmeridge, its hostile attitude towards the activist fund leaves room for improvement.

Drilling Down to the Root Causes

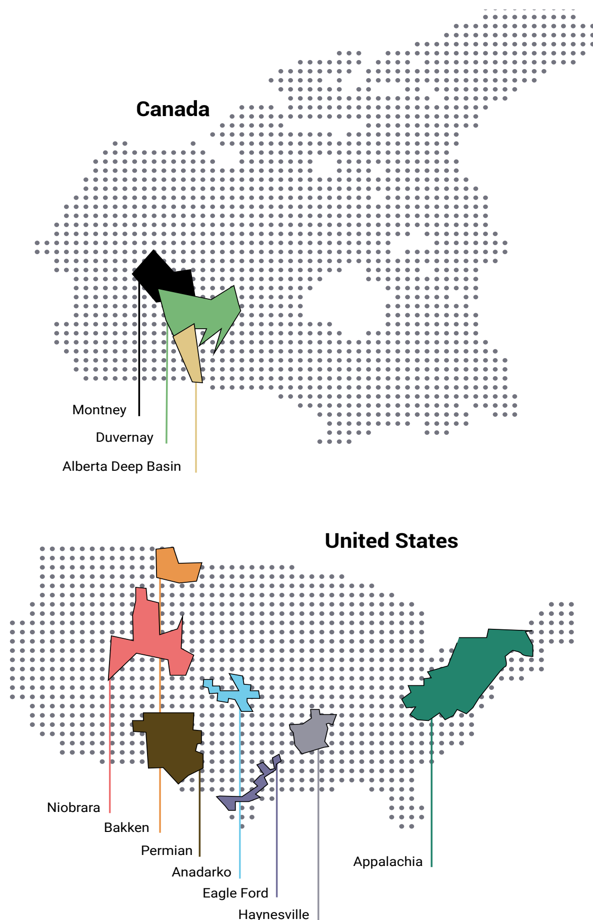
Despite the recent change in board members, problems have persisted within Ovintiv. Poor capital allocation, government concerns, and lack of environmental stewardship all need to be addressed to ensure a successful turnaround.

Ineffective Capital Allocation

Management has allocated capital poorly, demonstrated clearly by its underperforming acquisitions and inefficient operations. Net debt has increased 53 percent since 2013 from $4.6 billion to $7.1 billion, mostly funding several poorly timed acquisitions. Both Athlon Energy, acquired in 2014 for a 25 percent premium, and Newfield Exploration, acquired in 2018 at a 35 percent premium, were costly relative to industry valuations at the time. These acquisitions forced management to shift focus from innovation on existing assets to prioritizing cost savings to meet synergy goals.

The company currently holds assets in three core basins as well as four non-core areas. Over the last few years, Ovintiv has deployed upwards of three-quarters of its capital to each of the core basins without a strategic focus on any particular basin or commodity. The key challenge in capital allocation is that each basin offers exposure to a unique commodity: the Montney provides condensate and natural gas exposure in Canada, the Permian provides U.S. oil exposure, and the American Anadarko contains both gas and liquids. This diversified approach directly contrasts with the company's successful strategy in the late 2000s. In that era, Ovintiv sold international assets in Ecuador and Brazil, divested storage and midstream assets, and even spun-off its oil sands business. Alongside its prudent management of debt levels, this directional clarity gave investors comfort in knowing what company they were

purchasing today and years into the future.



Governance Concerns

The second concern is an inappropriate governance structure. There is a lack of alignment between compensation and performance, with repeated increases in executive pay while Ovintiv's share price and performance metrics underperform its peers. Even with the introduction of a long-term incentive equity plan, the company lacks significant ownership by key insiders. This has led to a lack of accountability and misaligned management incentives.

Weak Environmental Stewardship

Increased demand for decarbonization and calls for reduced emissions have been strong headwinds for the traditional oil and gas sector. As a result, curbing crude production emissions has been a major focus for E&Ps, primarily through drilling innovation that reduces emissions per barrel.

Ovintiv's elevated intensity of CO_2 emissions and CDP climate change score of "D" place it among the worst in its U.S. peer group for environmental stewardship. Inadequate transparency around target setting has resulted in a perception that the company is failing to comply with enhanced ESG requirements. With a greater focus on ESG standards across the industry, a company's ESG profile is critically important to its ability to access and deploy capital, in addition to overall investor confidence.

Ultimately, Ovintiv must address these problems with strategic precision as the implications for inaction include further erosion of returns, efficiency, and competitive positioning. It is imperative that Ovintiv views its relationship with Kimmeridge as a strategic partnership in the midst of its current shortcomings, in contrast to its currently hostile approach to managing relationships with activist investors.

Migrating South

To recover from decades of poor performance and weak investor confidence, Ovintiv should focus resources on a revised board of directors, improved capital allocation, and a U.S. core asset base. By doing so, Ovintiv can create a new strategic direction that focuses solely on the American oil and gas industry.

Welcome with Open Arms

First, Ovintiv should willingly accept the remaining two Kimmeridge nominees to the board. By supporting the individuals recommended by Kimmeridge, it will be well-equipped to navigate the U.S. energy industry with an emphasis on ESG. The Kimmeridge nominees bring knowledge of U.S. shale technology and ESG reporting critical to the energy transition. With sufficient support from Ovintiv, Kimmeridge can employ its historically successful playbook to improve financial returns and make the company competitive on a national scale once again.

Capital Allocation

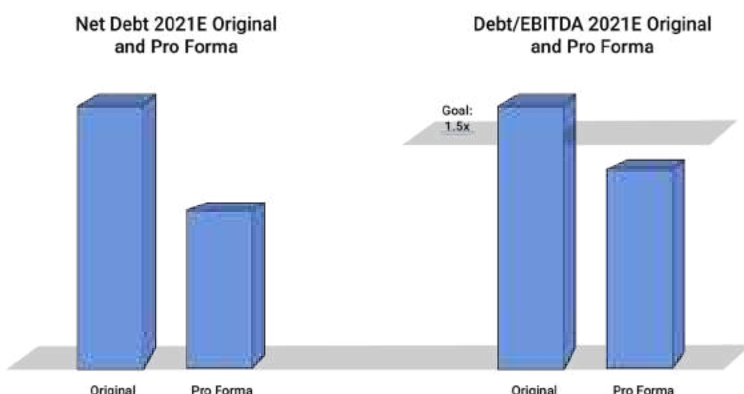
Following the appointment of the three Kimmeridge board nominees, a revised strategy should prioritize disciplined capital allocation to specific high-returning assets. The cyclicality of the energy industry has shown that a generalist, diversified E&P company does not warrant increased investor appetite. However, by following the Encana playbook of the late 2000s, Ovintiv can drive higher returns and regain investor confidence. With a renewed focus on core assets, it will have the scale to increase ESG stewardship, pay down debt, and improve production efficiencies for these core operations. The implementation of this strategy will bring innovation back to the forefront of decision-making at Ovintiv.

Shift Towards Core Assets

To meet debt reduction and asset simplification goals, Ovintiv should sell off its Montney assets. Providing

around 40 percent of the company's total production volume, the Montney comprises a significant portion of its asset base. When Encana rebranded itself as Ovintiv, its primary objective was to grow its U.S. operations. To prove commitment to this directional shift, Ovintiv should divest its Canadian operations and dedicate resources towards the Permian, a region where Ovintiv has a strong track record of success in cost reduction and technical innovation.

Given that the Montney basin provides commodity mix optionality and insulation from pricing volatility, there is substantial demand for assets in the region. For example, a recently-announced $8.1 billion merger between Arc Resources and Seven Generations is expected to create the largest pure-play producer in the Montney basin, producing 340 thousand barrels of oil equivalent per day by 2021. Since the announcement, both companies' share prices have appreciated 15 percent, indicating high investor confidence in high-quality natural gas assets in the Montney. With LNG coming online in the next few years to the Canadian West Coast, the demand for assets in these Western Canadian basins will only increase. Transactions like this in the Montney provide economies of scale and operational flexibility, driving up asset valuations. Now is the ideal time for Ovintiv to sell its assets in the Montney at a high price to other upstream players consolidating



assets in the basin.

Following the recent disposition of Duvernay assets for $263 million, Ovintiv is close to reaching its debt reduction target of 1.5x Net Debt-to-EBITDA. A disposition of Montney assets will allow the company to pay down debt and increase focus to core areas in the U.S. Using conservative estimates based on the Seven Generations and Arc Resources merger, the company can reduce debt well below its target. With high-value condensate production of over 80 thousand barrels per day and more than ten years of inventory, other E&Ps looking to further consolidate in the basin would benefit greatly from acquiring Ovintiv's assets. Focused U.S. operations will create the opportunity for improved technological innovation, transparent ESG standards, and management accountability.

Creating a Well-Oiled Machine

Leveraging the expertise of the three Kimmeridge nominees will allow Ovintiv to redefine its strategy and competitive positioning. Within months, the new strategy would allow for prudent capital allocation, increased ESG stewardship, and production efficiencies. To capitalize on high valuations in the Montney, Ovintiv should sell its Montney assets quickly and use proceeds to focus on core operations in the U.S. If it follows this strategic plan, it will be well-positioned to reemerge as the darling North American E&P leader it once was.

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CINEPLEX: STEP INTO A NEW DIMENSION

To maintain its position in the increasingly streaming-centric movie distribution chain, Cineplex should lease excess showrooms to production companies to build content-focused immersive experiences.

Sunny Bhandari & Insha Jesani

Illustrations by: Annie Tan & Jenny Cai

Cineplex: A Lost Cause?

Catering to 70 million guests annually across the country, Cineplex is the leading movie theatre chain in Canada. With 165 theatres and a commanding 75 percent domestic market share, Cineplex saw immense success throughout the 2000s and early 2010s, with its share price nearly quadrupling between 2009 and 2017. Yet in recent years, the company has seen a rapid deterioration of its value proposition, profitability, and solvency. In light of these factors and the effects of the COVID-19 pandemic, Cineplex's revenues plunged 75 percent in 2020.

One pervasive issue Cineplex has struggled to overcome—alongside many other theatre operators—is the rise of streaming services. Not only has the availability of on-demand digital content increased rapidly, but movie theatres' negotiating power has also decayed as consolidation accelerated in the film and entertainment industry. Most notably, Disney's acquisition of 20th Century Fox cemented its position as the largest studio in the world with over 51 percent of global box office sales in 2019. This has allowed Disney to steadily impose increasingly detrimental revenue-sharing terms on theatres' box office sales. For example, Disney took a 65 percent share of revenues for the 2019 blockbuster film *Avengers: Endgame*. This lack of bargaining power worsened during the COVID-19 pandemic as theatrical exclusivity windows for major releases with Disney and Universal shortened from three months to as little as 17 days; a consequence of on-demand providers enticing consumers to their respective streaming platforms. In aggregate, Cineplex's value proposition has been eroded, with little chance of recovery on the horizon.

Moviegoers themselves also see less value in the physical moviegoing experience. After COVID-19, 42 percent of consumers said they would rather view a new release at home than at a theatre, 23 percent said they are indifferent, and only 35 percent prefer the in-theatre experience. Among several reasons, consumers cite cost as the largest barrier to frequenting theatres. If theatres are viewed simply as a "place to watch a movie," streaming services can provide the same value at a fraction of the cost. As a result, Cineplex and other theatres must either match the cost of streaming services—which is impractical given theatres' margins—or become more than just a place to watch a movie. Otherwise, theatre revenues are likely to continue their downward trend, falling even further.

To address these issues, Cineplex needs an extremely low-cost strategy. The pandemic caused a collapse in cash flow, which led to additional debt issuances, the sale of its headquarters, and the closure of TimePlay. The company is now faced with addressing the long-term challenges of streaming while managing a severely deteriorated financial position in the short term.

Studios: Ride or Die

The responsibility of engaging with moviegoers does not solely rest on movie theatres themselves. Production companies such as Disney and Universal are constantly seeking new ways to engage with customers beyond the big screen. One such example is the Wizarding World at Universal Parks, a *Harry Potter*-themed park section that increased Universal's attendance by 30 percent in 2010. Not only were consumers drawn into the park, but they were also more likely to purchase related merchandise as a result. Brad Globe, president of Warner Bros. Consumer Products, explained that there is nothing better that could have been done to keep the *Harry Potter* brand alive between releases. High-engagement, in-person interactions with consumers are coveted.

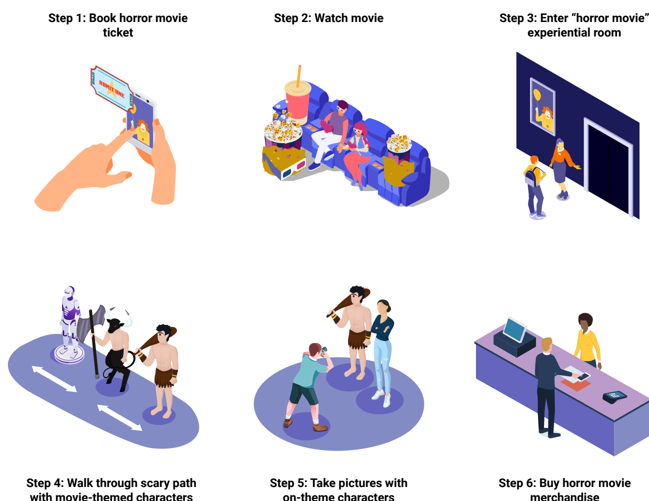
Similar to *Harry Potter*'s success at Universal, other Hollywood film studios also recognize the significance of growing franchise value. Disney's Park and Attractions segment, which generates nearly double the revenue and 60 percent more profit than the company's studio division, draws more attention to both existing and new releases. These initiatives further strengthen beloved franchises like Marvel and *Star Wars*. Even in cinemas, production companies should recognize that consumers strongly value the in-person experience. Studies have shown that the average consumer recalls more detail and is happier with their cinema experience in theatres compared to when using online media channels such as streaming sites.

Putting the Box in Box Office

Facing a precarious financial situation, Cineplex must find a solution that is highly cost-effective and quick to implement. Due to its dwindling cash balance, Cineplex cannot make significant investments into high-growth technologies. Its position in the value chain also means that Cineplex is not capable of capitalizing on content the way that HBO and Disney can. However, its unique position as a distributor allows for the creation of a D2C platform

for intellectual property.

To maintain its position as the leading film and entertainment destination in Canada, Cineplex should convert showrooms in locations with excess capacity into leasable entertainment spaces for film studios called "Immersion Rooms." Studios can use the space for a wide array of marketing and engagement formats, allowing distributors to provide a higher-engagement, themed moviegoing experience to customers. Along with commonplace examples such as merchandise stores or mascots from movies, the integration of Immersion Rooms with movies lends itself to highly creative marketing initiatives. For example, the space could be set up as a VR suite to let guests experience flying a spacecraft through an asteroid field prior to or after viewing a science fiction film. Alternatively, after watching a horror movie, guests might be directed into the adjacent space where a themed haunted house is set up, prompting them to confront the horrors they just witnessed on-screen.



Such a strategy would be of minimal cost to Cineplex, while simultaneously being highly flexible to any studio's needs. While converting theatres will have a cost, it pales in comparison to the investment required for film production and digital distribution. Since theatres will likely remain under capacity even after reopening, there is little to no opportunity cost attached to conversion as well. For the consumer, this would supplant and surpass the level of interactivity previously offered by TimePlay, and provide a moviegoing experience truly differentiated from streaming.

For supplying the space, Cineplex would receive rental income, and any merchandise sales would be split between the two parties. This contract structure re-aligns production companies' and Cineplex's incentives—both benefit from selling content-related merchandise while providing a more immersive moviegoing experience.

A Blockbuster for Studios

Film studios also stand to benefit greatly from partnering with Cineplex. Cineplex's offering would provide studios with a creative and cost-efficient way to amplify engagement for moviegoers, fuelling demand for the many ancillary offerings that studios depend on for a large portion of their revenues—merchandise, theme parks, and their respective streaming services. Despite the successful launch of streaming services by multiple production studios, box office releases remain a major component of film marketing. Studios continue to rely on in-person viewing to drive brand engagement, particularly for franchises with strong fan bases such as *The Avengers* and *Star Wars*. In December 2020, Disney announced over 40 films slated for traditional theatrical exclusive release post-COVID, indicating the importance of tentpole box office releases even in a world where most consumers have become accustomed to digital releases viewed at home. Studios with nascent D2C strategies such as Paramount will benefit from Immersions Rooms even more. Unlike Universal and Disney, Paramount does not have high-engagement attractions for its IP. Thus, the studio is missing out on a crucial touchpoint with consumers for beloved franchises like *Mission Impossible* and *Star Trek*. With these spaces, Cineplex gives production companies an avenue to create a riveting theatrical experience that is differentiated from streaming.

Scripting a Partnership

Cineplex should first establish a partnership with a major studio that has the financial capabilities to build out these branded, content-specific Immersion Room experiences. The most opportune partner for the Immersion Rooms is Paramount due to its lack of existing high-engagement, in-person attractions and competitive pressure from Disney and Universal. While Paramount used to operate its own theme parks, it sold them to Cedar Fair in 2006 due to poor performance and future plans to build theme parks are at least several years away. Its vast inventory of intellectual property could be used to create arcade games, merchandise, and interactive experiences with greater flexibility and lower cost than traditional theme parks. Cineplex could introduce the idea as an opportunity to expand Paramount's content flywheel to enable high-engagement interactive experiences with all theatre attendees. Ultimately, these interactive experiences would develop the company's D2C strategy and consequently reinforce its existing intellectual property (IP) through increased brand engagement.

The Pre-Screen

While COVID-19 restrictions last, Cineplex should select one theatre to experiment with the Immersion Room.

Source: Concrete and Building Materials

Cineplex's only cost would be emptying out a showroom and allowing the production partner to fill it with content-specific experiences like games or merchandise. When the first Immersion Room is complete and pandemic-related restrictions are loosened, Cineplex should open the room to movie-goers. To provide convincing data for future partnerships, Cineplex can run A/B tests on consumer engagement and the perceived quality of the Immersion Room experience. The company should survey consumers to confirm that they have a stronger level of engagement with content that goes beyond the simple experience of viewing.

Rolling the Credits

Immersion Rooms are easily scalable across geographies and partnerships. Cineplex can identify theatres with excess capacity and close down select showrooms to convert into Immersion Rooms. Additionally, more production companies are likely to partner with Cineplex once early partnerships are proven, especially film producers looking to build franchises with high levels of consumer stickiness. As demand for these experiences from consumers intensifies, Cineplex can generate more revenue from partners looking to capitalize on strategic partnerships.

Curtains Down

Although Cineplex is faced with both the rapid growth of streaming and a precarious financial situation post-COVID, the sudden drop in demand has created excess real estate capacity. By leasing out showrooms to movie production companies to create Immersion Rooms with content-specific experiences, Cineplex would add an additional revenue stream while generating a moviegoing experience truly differentiated from streaming. Ultimately, Cineplex can lead the transformation of theatres from simply "places to watch movies" into cinema hubs where consumers experience their favourite characters and storylines.

FOOD INSECURITY IN HAITI: **REIMAGINING AGRICULTURE**

Facing the grand challenges of climate change and food insecurity, Haiti must integrate agriculture into its resiliency plans to enable a prosperous economic future.

Caleigh Campbell & Rohan Noronha

Illustrations by:Sahil Asthana & Stanley Ho

Decay at the Root Level

The future may appear bright for Haiti, an island country with a relatively young population and one of the fastest urbanization rates in the Carribean. However, severe food insecurity and a lack of climate preparedness have hindered the country's development outlook; in the last decade, Haiti has been a beneficiary of over $13.5 billion in support from both governments and private donors but remains the poorest nation in the Western Hemisphere. In the decade ahead, Haiti will continue to see the escalating effects of food insecurity and extreme natural disasters unless concrete action is taken.

At any given time, one in three Haitians requires urgent food assistance. The greatest obstacles to development are a lack of access to capital, lack of farming education, and poor soil quality—a condition known as infertility. Soil infertility and erosion are particularly problematic as Haiti's steep elevations are exacerbated by widespread deforestation and overfarming. Another major contributor to food insecurity is Haiti's heavy reliance on imported food, which makes up over 50 percent of all food consumed in the country; this leaves Haiti exposed to inflation and extreme price fluctuations caused by international markets. As a result, Haitians pay 30 to 77 percent more for food than other people living in Latin America and the Caribbean region, and 49 percent of Haiti's population is undernourished. Chronic malnutrition, a condition that affects 22 percent of Haiti's children, occurs when the required amount of nutrients are not consumed during the first three years of life, causing irreversible detrimental effects on cognitive and physical development. With 60 percent of Haitians under the age of 30, these issues have profoundly negative effects on livelihoods, the country's future economic prospects, and an already floundering health care system.

In addition to food insecurity, Haiti also struggles with susceptibility to damage caused by climate change. Haiti currently ranks third among the countries most affected by extreme weather events on the 2020 Climate Risk Index and has continually experienced natural disasters, including severe storms, floods, droughts, and multiple devastating earthquakes. These disasters damage critical infrastructure that Haiti needs to develop economically and to engage in international trade. Inaction in mitigating these natural disasters has in turn led to deepening economic issues, increased food insecurity, and prolonged recovery when disaster strikes.

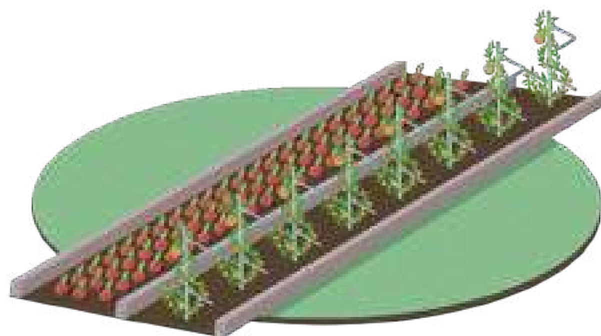
Haiti has taken a reactive approach to food insecurity and climate risk mitigation: The Haitian government has made few investments to increase local food production. Amidst the COVID-19 pandemic, 1.6 million Haitians have been thrust into poverty and the country has continued to rely heavily on international aid, foreign supply chains, and partnerships with organizations such as the World Food Programme (WFP) for basic food assistance. To reduce climate change risk, projects in Haiti have been focused on the creation of national flood plans and emergency systems. While these plans save lives and are important in the short term, they are ultimately band-aid solutions that do little to prevent or reduce the long-term impact of natural disasters.

Seeds for the Future

Any solution to Haiti's food insecurity must meet four key objectives: increase local food production and lower the cost of food, increase accessibility, reduce the country's reliance on other nations, and set the groundwork for a larger climate resiliency plan. Therefore, the government should focus on increasing education and farming cooperatives, intercropping (with a focus on beans), and undertaking tree planting initiatives. The Haitian government should build upon existing partnerships with the WFP to effectively enact these recommendations.

Cultivation in Cuba

Urban agriculture (UA) has proven to be an effective tool to combat food insecurity and reduce import dependency in other jurisdictions. One of the major success stories in this space has been Cuba, a country similar to Haiti in latitude, climate, and population. Facing starvation after the fall of the Soviet Union in 1991, Cuba ensured it had a self-reliant fresh food supply. This resulted in the creation of food gardens in metropolis regions such as Havana. Due to space constraints, governments developed a UA growing system called Organoponicos, in which farmers planted seeds into low-hanging and intertwined concrete walls filled with soil and organic matter. The Cuban government



supported these aspiring urban farmers by providing technical support, subsidizing agricultural stores, and creating a community composting program. In 2018, there were more than 300,000 urban farms and gardens in Cuba, producing approximately 50 percent of the island's fresh produce.

There are considerable differences between the countries' governance models, urbanization rates, and country sizes; however, the Organoponicos method and the bottom-up approach to tackling food insecurity are transferable from Cuba's UA strategy. Similarly, the Haitian government should work alongside local partners on the ground to create farming cooperatives where those interested in growing their own food will be supported in doing so. Technical support should also be provided by the local Ministry of Agriculture. To inspire the next generation of farmers and increase appreciation of locally grown food, Haiti should also include horticultural education in school curricula.

These strategies will help grow existing Haitian urban gardens like Jarden Tap Tap in Port-au-Prince, which is currently small and can only feed around 250 people. Additionally, it will reduce barriers preventing other Haitians from having sovereignty over their food.

Planting New Roots

Tree planting initiatives can provide countless benefits by providing food, reducing erosion, increasing soil fertility, and regulating water cycles. Research has also shown that trees planted in close proximity to buildings help redistribute seismic waves, providing additional stability to the ground during extreme weather events such as earthquakes. Trees should be selected based on their ability to provide food and nutrients, environmental suitability (elevation, climate, soil, etc.), ease of growth, and resiliency to weather conditions and infertile soil.

The tree species with significant potential for food insecurity mitigation and increased nutrition in Haiti are the moringa (*Moringa oleifera*), desert date (*Balanites aegyptiacus*), jujube (*Ziziphus mauritiana*), and African fan palm (*Borassus aethiopum*). In urban settings, trees should be planted alongside existing roads, and buildings, and integrated into urban planning projects. Comprehensive research and a localized approach are critical to picking the most suitable trees for each location, and to achieve the goal of optimizing yields and soil health.

The WFP has a school feeding program delivering nearly 300,000 hot meals every day to children in Haiti and is working with the government towards a nationally-owned iteration of the program. Yields from the tree planting initiative should be incorporated into these services to help supplement meals. Providing tree seeds and agricultural education to students will bestow them with the resources and knowledge to feed their households. This plan aligns with the goal of the WFP in Haiti "to build sustainable systems to address the root causes of food insecurity and promote resilience."

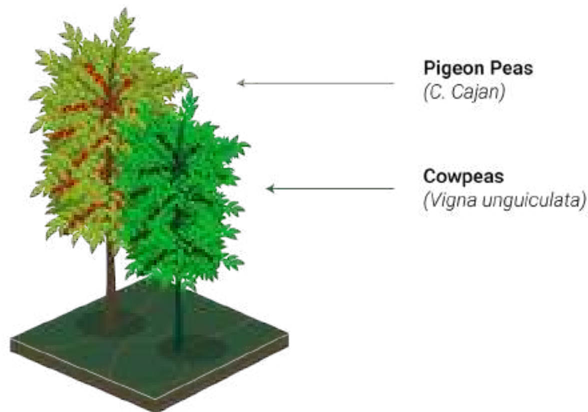
Navigating a Policy Maize

Only one-third of Haiti is composed of soil suitable for agriculture, with nitrogen levels restricting production potential. Maize, more commonly known as corn in Western countries, is grown on 350 percent more land area than the land used to grow legumes in Haiti. These monocultural practices are problematic given that maize drains the soil of nutrients. Conversely, crop residues of cultivated legumes actually restore nutrients that revitalize soil and help increase future yields. While maize is a Haitian staple, crop production needs to be done more effectively and other crops like legumes should be prioritized. Otherwise, yields will decrease while the national population increases.

Although the issue was previously identified by the Haitian Ministry of Agriculture, which tried to increase maize production between 2008 and 2011 by using a fertilizer subsidy policy, it was ultimately ineffective. The initiative was expected to increase production by over 70 percent; while this goal was achieved, yield per hectare only increased by four percent and is still 16 percent lower than what it was in 1961. Evidently, such maize-focused strategies are not sustainable and will continue to degrade the soil without solving structural population and climate concerns.

To prevent the effects of unsustainable agriculture, intercropping farming methods should be used. This involves planting two or more crops together in a mutually beneficial way. Intercropping increases soil nutrient levels, reduces yield fluctuations, and helps prevent pests and weeds. Planting more legumes by intercropping maize with pigeon peas (*C. Cajan*) and cowpeas (*Vigna unguiculata*), for instance, could help improve soil conditions. Pigeon pea grows well even in degraded soil and cowpea is incredibly drought tolerant, making these

ideal crops to grow in Haiti. The WFP and the government should jointly provide a training program showing farmers how to improve the health of their soil in a cost-effective way, drawing on simple solutions like intercropping. These training programs will help to increase overall yields, yield stability, and soil fertility, allowing the soil to be used sustainably for years to come.



Measuring the Growth

These agriculture recommendations should lead to lower rates of food insecurity and malnutrition, thereby increasing life expectancy in Haiti while increasing its climate resiliency. Key performance indicators to track include increased nutrient levels in the soil and crop yield. The efficacy of climate resiliency can be determined by looking at disaster impact and recovery when natural disasters strike. Success would be indicated by a reduction in external financial aid required for recovery and the secondary impacts of disasters, such as lost jobs.

Sowing the Seeds

In 2020, COVID-19 pushed an additional 1.6 million Haitians into food insecurity. While COVID-19 will subside, Haiti should not wait for another pandemic or natural disaster like the 2010 earthquake to begin internalizing production. Facing mounting challenges, the Haitian government must now sow new seeds to create a prosperous future.

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UBER EATS: THE NEW AGENT OF CHANGE

To better compete in the grocery delivery industry and mitigate food waste issues, Uber Eats should partner with Flashfood while creating a food redistribution program through its Cornershop app.

Alisa Nikitov

Illustrations by: Frank Huang & Madhumita Nathani

Driving Growth in the Food Delivery Industry

Within the last decade, the food delivery industry has undergone rapid evolution in its value proposition to the end consumer. With the onset of the COVID-19 pandemic, food delivery has entered the mainstream—becoming a "new normal" and even a necessity for some. This trend does not appear temporary as 49 percent of Canadian consumers plan to keep ordering online after the pandemic is over. As schedules get busier and technology becomes more widespread, consumers will continue to demand greater convenience and choice, forcing industry players to remain agile with their service offerings. Meanwhile, the global food delivery market is expected to grow tenfold to revenues of $365 billion by 2030, largely driven by the flexibility around online ordering and the rise of third-party delivery platforms.

Traditional brick-and-mortar businesses such as grocery stores are now capitalizing on online delivery by partnering with third-party platforms. Despite the superior level of service grocery delivery platforms are able to provide, premium pricing remains the primary barrier for adoption. Retailers typically mark up prices on these platforms, with one of Instacart's co-founders stating the company charges an average of 15 percent more when customers shop at a non-preferred partner. As pricing pressures within online food delivery continue to rise, providers must consider differentiating in other ways to avoid further harming their already razor-thin margins.

In contrast to the United States, the Canadian grocery delivery industry is less developed. With sizable business opportunities not yet recognized and competitors fighting for share in an immature market, the country serves as an especially attractive avenue for growth, with over C$50 billion in market opportunity within the next few years. Similarly, Canada has long served as a prime test market for the global launch of new initiatives or products, including those of grocery chains. Cumulatively, these factors make Canada a highly appealing market for the development of grocery delivery infrastructure.

Corporate Social Responsibili-eats

Social and environmental concerns have started to influence millennials' purchasing decisions, though the industry's economic outlook remains positive. Many companies are starting to focus on building their brand reputation to evade public scrutiny. Uber Eats specifically has been criticized by the public for its controversial commission fee structure charged to small businesses. This commission fee has contributed to the company's attempts to garner market share, as Uber Eats holds just 14 percent of Canada-wide revenues in food delivery. Pervasive corporate social responsibility (CSR) issues contributed to increased customer acquisition costs, a major driver of Uber's Q4 2020 adjusted EBITDA loss of $145 million. In light of this, Uber should pursue new opportunities to rectify its brand image, which could help drive revenue, shareholder value, and employee commitment. As intensifying competition within the space will continue to shrink margins, Uber must prioritize factors other than price to attract new customers. Fortunately, Uber is uniquely positioned to solve one of the industry's most persistent and visible problems: food waste.

Wasted Opportunities

While consumers and corporations alike are aware of the magnitude of food waste, responsive measures have been dismal. Canada in particular is one of the largest food wasters on the planet, with 2.2 million tonnes of edible food wasted each year, costing Canadians more than $17 billion annually. Consumers bear the impact of this externality, paying an estimated markup on food products of 10 to 20 percent as a direct consequence of food waste. Consequently, food waste reduction is a ripe opportunity for innovation and could have material implications for reducing societal problems and generating economic savings.

There is currently industry talk about food delivery companies integrating themselves earlier in the food chain, signaling that collaboration could work with the proper incentives.

A New Shopportunity for Impact

Nonprofits such as Feed it Forward and Second Harvest have used technology in the past to redistribute food to vulnerable populations. Even Uber Eats has attempted similar initiatives, partnering with Second Harvest in 2015 to provide meals for Torontonians in need through its one-day #UberHungryTO campaign. Similarly, A&W Canada recently announced a partnership with Mealshare to donate 1.25 million meals per year to local youth in need within Canada. These partnerships highlight a trend towards the alignment of corporate goals with the mitigation of prominent social issues, which provides immediate benefits to those impacted by the cause and an improved public image for the acting companies involved. Despite these incremental strides, smaller businesses lack access to the technology and logistics necessary to carry out such initiatives. Properly addressing these social issues

on a larger scale will require key players to collaborate throughout the industry value chain—a dilemma that can be solved by Uber Eats and its new subsidiary, Cornershop.

A Convenient Partnership

Cornershop is an online grocery marketplace operating in Toronto and Montreal that was recently acquired by Uber and has since been integrated directly into the Uber Eats application. This acquisition has enabled Uber to enter the Canadian grocery delivery market through Cornershop's existing retailer partnerships, which include Costco, Metro and Walmart. Additionally, it also now allows Uber Eats to use its logistical capabilities and large network of drivers to redistribute excess food to local food banks. Various grocers listed on the Cornershop platform have existing relationships with the Food Bank of Canada and other charitable organizations, which can help reduce existing operational barriers within food redistribution.

An additional opportunity for Uber Eats to curb food waste in Canada is to work with its Cornershop retailers to implement a distribution model where Uber Eats drivers can deliver excess food to local food banks in the Toronto and Montreal area.

To further augment its capabilities, Uber Eats should partner with Flashfood, an app that lists discounted food products nearing best-before dates from grocery stores. This partnership serves to divert food away from landfills, drive incremental revenues for retailers, and improve the customer experience on the Cornershop marketplace. The Flashfood platform hopes to create a circular solution whereby consumers can purchase products at a discounted price while also improving profitability for grocers by reducing inventory waste costs. Since its inception in 2018, Flashfood has partnered with just three retailers: Loblaws, Farmboy and Longo's. However, Flashfood has sold more than 75 percent of products listed through its platform, saving consumers an average of 50 percent on their purchases. As Flashfood looks to grow its scale and expand operations, a partnership with Uber Eats and Cornershop could be beneficial for all involved parties.

By integrating Flashfood with Cornershop's marketplace on the Uber Eats platform, customers would have the unique ability to shop for both full-price and discounted food products in one app. Uber Eats' robust recommendation system would assist consumers and grocers alike by listing suggested products and tailoring discounts to customer order history. Flashfood's automatic notifications to consumers regarding availability could incentivize additional purchases. These complimentary marketing tactics would create a personalized experience for the consumer, and could deliver an increase in total sales for grocery companies. Flashfood's founder previously estimated that 70 percent of new customers who spend $10 on Flashfood will spend $15 on other full-price products as well. This partnership would introduce the discounted food product segment to the Uber Eats platform, which would drive market share and improve consumer loyalty by virtue of being an all-in-one marketplace app.

Adding More Cooks to the Kitchen

There are additional opportunities for Uber Eats to curb food waste in Canada by partnering with both retailers and the public sector. The Government of Canada has pledged C$100 million to help food banks sustain operations, highlighting an opportunity for private sector companies such as Uber Eats to work with government bodies to solve societal issues such as food waste. Given that third-party platforms like Uber have the necessary capabilities to streamline food redistribution, a cross-sector partnership would serve to capitalize on the respective strengths of the private sector, government, and nonprofit organizations to create meaningful impact.

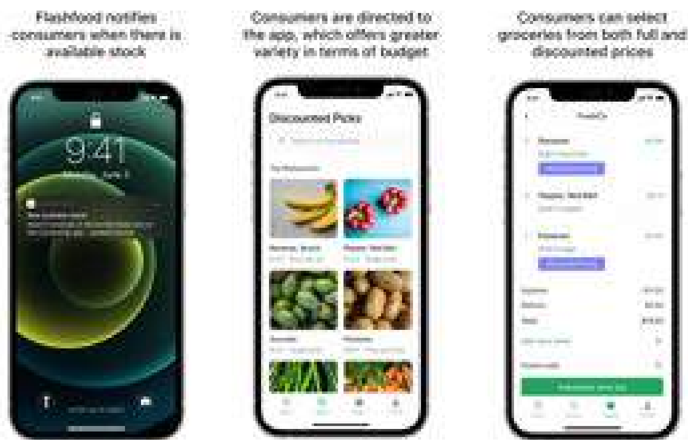
One example of a successful strategy is DoorDash's ProjectDASH initiative. Launched in 2018 in the U.S., drivers delivered excess food to various food banks, and later expanded to help with COVID relief efforts through partnerships with government agencies and restaurants. ProjectDASH consequently delivered a total of 650,000 meals across 46 states within the first eight weeks of operations. Since March of 2019, over 6.5 million meals have been delivered to those in need, demonstrating the immense impacts that cross-sector partnerships can create.

Uber Eats should look to emulate this model in Canada in partnership with the government by implementing a distribution model in which its drivers can deliver excess food to local food banks in the Toronto and Montreal area. There is a demonstrated history of retailer participation as well: Walmart is currently partnered with Food Banks Canada and Loblaws has delivered up to 13 million pounds of fresh, frozen, and non-perishable food annually in the past. These partnerships showcase retailer willingness and capability in pursuing food redistribution initiatives.

B-eating the Competition

As food delivery becomes more sophisticated and consumer demands evolve, existing players must seek new ways of delivering value to their customers.

Systematic issues like food waste will grow in severity if contributing parties such as third-party platforms do not hold themselves accountable. Uber Eats' partnership with Cornershop uniquely positions the company to implement a food redistribution program with grocery retailers and increase Uber's goodwill through demonstrating corporate social responsibility. By partnering with Flashfood, Cornershop will attract new customers with various budgets and effectively compete with Instacart and Amazon.



ONTARIO LONG-TERM CARE: **CARING FOR THE FUTURE**

To improve resident health outcomes in LTC homes, the Ontario Government should implement a value-based care system that incentivizes private operators to invest in improving care.

Rahina Damji & Shubham Bansal

Illustrations by: Tracy Wang & Stanley Ho

A Careless Model

With more than 70 percent of all COVID-19 deaths in Ontario occurring in long-term care (LTC) homes, the pandemic has exacerbated many of the issues that the sector has faced for years. Recent attention towards staff shortages, lack of adequate resources, and extensive waitlists are only the symptoms of a much larger ongoing challenge facing the LTC sector. For decades, Ontario's LTC residents have experienced subpar standards of care and poorer health outcomes compared to international standards, mainly as a result of numerous structural and funding challenges. Over 38,000 individuals in Ontario are currently waitlisted for an LTC bed, with wait times averaging 152 days. In addition, studies show 85 percent of LTC homes have routinely violated health care standards with nearly no repercussions. This data illustrates the limitations of Ontario's LTC sector and raises concerns regarding safety, access, and quality of care under the current funding model.

The Ontario government has publicly recognized that the LTC sector is facing a crisis and requires urgent change. However, COVID-19 has led to all-time high government debt levels, restricting its ability to sustainably fund improvements. Consequently, to ensure the long-term success of the LTC sector, governments will need the support of privately operated LTC homes. Currently, 58 percent of LTC homes operate under a private, for-profit ownership model, supported by public funding. Under this model, LTC homes receive funding from the Ministry Of Health And Long-Term Care (MOHLTC) for essential care services on a per-day basis, broken down into three categories: nursing and personal services (NPS), personal support services (PSS), and raw food. To supplement the additional costs of operating the property, such as building and equipment maintenance, insurance, and mortgage payments, private operators charge residents for a portion of their room and board in the form of a copay. After accounting for all funds spent on care services, LTC homes are required to return any unspent funds to the government.

When examining the current funding model, it is clear that the goals of private LTC operators and the Ontario government are fundamentally misaligned. Private operators have no incentive to invest in improving care services because any cost savings must be returned to the government; there may even be a direct disincentive to improve care. As a result, private operators invest in providing non-value-added healthcare services so they can charge residents a larger copay. Private operators achieve net operating income margins only of 10 to 20 percent, compared to industry benchmarks of 35 to 45 percent; this significantly restricts private operators' ability to invest in improved care. This lack of alignment between the government's goal of improved care and private operators' need for profits has been the driving force behind poor care in LTC homes.

Symptoms of Long-Term Problems

Insufficient Staffing

Canada had 33 percent lower levels of nurses and 57 percent lower levels of personal support workers per 100 LTC residents than the Organisation for Economic Co-operation and Development (OECD) average. This has undermined the quality of care, exemplified by the high incidence of preventable morbidities, such as falls and pressure ulcers, that are directly a result of inadequate staff services.

Aging Facilities

One of the key structural challenges perpetuating poor care standards in LTC homes is the poor quality of existing facilities. Built to standards established in 1972, these facilities are approximately 50 years old with poor infection prevention control infrastructure. For example, according to the Ontario LTC Act, LTC facilities are not required to have air conditioning, rather only a designated cooling area for every 40 residents. In addition to being a source of preventable mortality among LTC residents, communicable infections cause additional costs associated with caring for infected residents. The failures in the LTC sector during the pandemic demonstrate a clear need to modernize existing LTC facilities to make them safer and more resistant to communicable diseases. Currently, Ontario is home to ~78,000 LTC beds. According to the construction estimates from past renovation projects, replacing 30,000 existing LTC beds would amount to a total cost of C$2.1 billion.

Bed Supply Shortage

The poor quality of existing LTC facilities is not the only challenge; there is a huge deficit in the supply of LTC beds in Ontario. Delayed admission to LTC homes can

potentially result in health complications, and prolonged stays in acute-care settings cost the government upwards of C$900 on average per day. Demand is expected to grow rapidly due to a major demographic shift, with the 75-plus age segment growing approximately 3.5 percent annually for the next 20 years. Meeting demand would mean adding 2,651 LTC beds per year, equivalent to an estimated investment of C$477 million annually or approximately C$9.5 billion in the next 20 years.

The aforementioned challenges highlight that Ontario's LTC system is extremely underfunded. Although Canada's seniors' population as a proportion of the total population is in line with the OECD average, Canada spends 24 percent less on seniors care in proportion to GDP. Given governments' inability to increase funding, addressing LTC's significant challenges will require alternative funding. The government should therefore adopt a funding model which will incentivize private operators to invest capital.

A Long-Term Plan for Long-Term Care

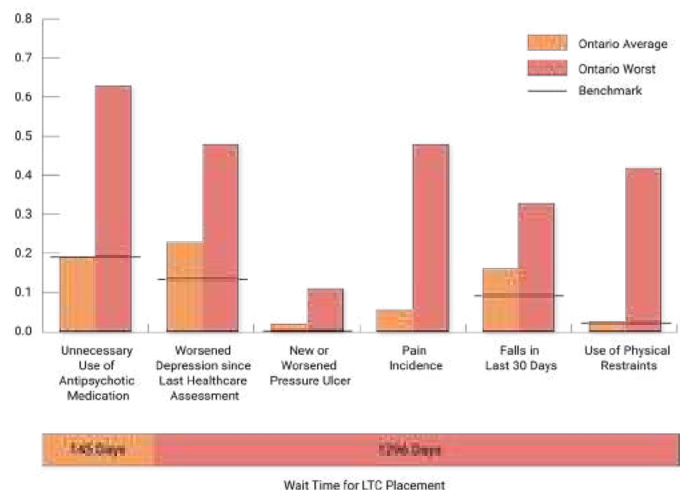
To align all the stakeholders within Ontario's LTC sector, a value-based incentive system should be implemented to offer monetary incentives to LTC homes based on resident health outcomes. This performance-based system would offer LTC homes higher potential for revenues, which would motivate private operators to invest in staffing, quality improvement projects, and technology to improve resident health. The short-term cost of developing and implementing the incentive system will be offset by the cost savings from reduced acute care usage, ultimately lowering the total funding required by the government for LTC in the long run. Through this new funding system, the government can effectively align its goals with those of the private operators. This revamped funding approach could improve the profit potential for private operators, which would attract more players into the LTC space and address the shortage of beds in Ontario.

Old Practice, New Application

The first step to implementing a value-based incentive system requires the adoption of data collection and reporting processes that accurately represent quality of care. Data has already been collected for decades, with Health Quality Ontario (HQO) tracking resident outcomes and metrics such as access, safety, and quality of care in LTC homes. Currently, HQO utilizes eight metrics to evaluate the quality of LTC at the individual home level in Ontario:

1. Wait time for LTC placement: the median number of days people waiting for admission into an LTC home
2. Unnecessary use of antipsychotic medication: the percentage of LTC residents without psychosis given antipsychotic medication in the last seven days before a health care assessment
3. Worsened depression since last health care assessment: the percentage of LTC residents experienced worsening depression since last health care assessment;
4. Potentially avoidable emergency department visits: number of emergency visits for avoidable accidents, such as falls
5. New or worsened pressure ulcer: the percentage of LTC residents with new or worsened pressure ulcer since last health care assessment
6. Pain incidence: the percentage of LTC residents experiencing either daily moderate pain or any severe pain in the last seven days
7. Falls in last 30 days: the percentage of LTC residents who experienced a fall in the last 30 days before a health care assessment
8. Use of physical restraints: the percentage of LTC residents who were physically restrained in the last seven days before a health care assessment

HQO establishes benchmarks for these metrics by combining best observed and theoretical performance, expert opinions, and summaries of current performance. Not all metrics, however, have a benchmark, and HQO should develop benchmarks for those which currently do not have them.



The government should utilize HQO's pre-existing data collection infrastructure and benchmark development processes to measure LTC resident health outcomes. Using this data, the government can develop a model for

assessing and rewarding home operators who are meeting or exceeding provincial targets. When implementing this model, it is critical that these outcomes are risk-adjusted for a resident's age, existing health conditions, and additional health determinants for variability. Risk adjustment will mitigate the bias of LTC homes toward prioritizing healthier and younger residents to craft an image of strong health outcomes.

Relieving the Pressure: A Case Study on Pressure Ulcers

Pressure ulcers, caused by sustained pressure against the skin that limits blood flow, often result in recurrent hospitalizations, surgeries, and clinic visits. Although most pressure ulcers are preventable with frequent repositioning and adequate skincare, 2.6 percent of Ontario LTC residents develop one, or report that one has worsened, between health care assessments. When compared to the Health Quality Ontario (HQO) provincial benchmark of one percent, over 90 percent of LTC homes in Ontario are currently operating below the optimal standard of care. Beyond perpetuating poor outcomes, the high incidence of pressure ulcers is extremely costly for the Ontario government. Based on the average reactive care costs associated with pressure ulcer management, pressure ulcers result in C$27 million in avoidable annual costs to the Ontario health care system.

Under the proposed value-based system, the government would offer monetary incentives to LTC homes that are effectively able to reduce the incidence of pressure ulcers among their residents. If all LTC homes in Ontario decrease the incidence of pressure ulcers from their current average of 2.6 percent to ~1.0 percent, the current HQO provincial benchmark, they could achieve government savings upwards of C$17 million per year. In practice, this means that the government could offer an annual incentive payment of C$20,000 per home and still ultimately save over C$4 million—just from achieving one metric. Given the recent pressure of COVID-19 on government funds and the capital-intensive struggles of LTC homes, value-based incentives can lead to improved health for residents with limited government investment.

What is in it for Private Operators?

For profit-focused private operators, the additional revenue from incentive payments offers an opportunity to improve their net operating income margins, creating more room for capital investments into novel technologies, infrastructure, and staffing. To translate this revenue into profit, private operators would have to pursue innovative and cost-effective solutions that improve resident outcomes. This would offer private operators the autonomy to create solutions that are beneficial to patient outcomes, instead of limiting their options with stringent regulation.

Increased profitability will also draw new entrants into the LTC segment, increasing the supply of beds and infusing capital to renovate obsolete homes. Furthermore, having incentives tied to resident outcomes will ensure private operators are cognizant of resident health when developing future LTC homes. This will reduce structural problems for future LTC infrastructure.

Out with the Old, in with the New

By adopting a value-based incentive system, the Ontario government has an opportunity to improve subpar health outcomes and lower the funding required for LTC homes. By aligning the goals of the private and public sector, the value-based model will ensure that governments and private operators are both working in the best interest of Ontario's elderly population.

EPIC GAMES: AN UNREAL HEALTHCARE OPPORTUNITY

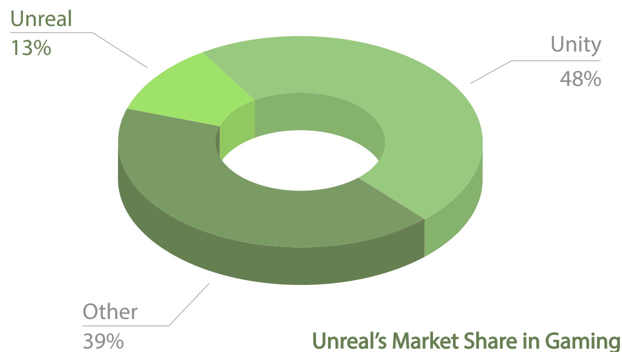
To further diversify the Unreal Engine beyond gaming, Epic Games should design a new VR incubation program for healthcare start-ups.

Lindy Lin & Raya Kondori

Illustrations by: Jessica Zhu & Sahil Asthana

An Epic Entrance

Epic Games (Epic), founded and led by CEO Tim Sweeney, is a titan in the video game industry. It is best known for its hit game *Fortnite* and cutting-edge game engine Unreal Engine (Unreal), which offers a development environment enabling people to create video games. Despite the volatility that the gaming industry faces due to its dependency on hit titles and evolving consumer preferences, Epic has found success by making its products accessible and easy to use. This accessibility is evident with Unreal: not only is the engine's source code available for anyone to view online, but also it uses a revenue-sharing model that has lower barriers to entry for new developers. The combination of these two characteristics gives developers open access to a comprehensive set of tools to make high-quality games with tight budgets. However, it is not the only acclaimed game engine on the market, and in recent years it has faced increasing pressure from its largest long-standing rival: Unity.



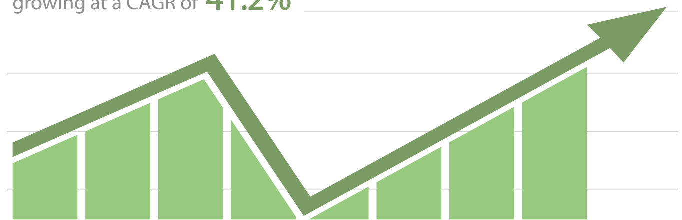
Unreal's Market Share in Gaming

Ready Player Two

Unity's eponymous game development platform is a notable competitor to Epic's Unreal engine. Unity specifically focuses development support on mobile gaming, the largest and fastest growing segment of the video game market. Unity has also shown interest in expanding beyond gaming with products such as Unity Reflect and Unity for Humanity which support architects and social impact projects, respectively. Healthcare is another industry where Unity has proven useful, particularly in the Virtual Reality (VR) landscape. Specifically, companies like AppliedVR and KarunaLabs currently use Unity for the development of their VR platforms. This aggressive expansion outside of traditional gaming makes Unity a serious threat to Unreal's position as the leading game engine.

Virtual Reality with Real-World Results

While Unreal was designed originally for video game development, its photorealistic renders and ease of use have found their way into adjacent industries such as film production. For example, many visual effects for Disney's *The Mandalorian* television series were filmed entirely using Unreal, without the use of real sets. There is, however, an even bigger opportunity for Unreal outside of gaming: healthcare VR, a space growing by 41.2 percent annually. Unreal is already being used in healthcare in the form of Precision OS: a medical VR education program that provides realistic simulations for surgeons in training. Given its successful track record so far in healthcare, Unreal is well-positioned to serve as an engine for initiatives like pain management VR, where Unreal's high fidelity makes it an ideal tool.



Within the healthcare industry, medical experts have begun exploring alternatives such as VR therapy in place of traditional treatments like opioid painkillers. This medical technique is based on The Gate Control Theory of Pain, which postulates that humans have a limited capacity in terms of brain activity in processing sensations. Hence, VR can be used as a source of external stimuli to reduce a user's perception of pain by directing attention away from physical discomfort and towards an immersive VR experience.

Studies conducted to assess the effectiveness of VR on pain levels have shown strong evidence of pain reduction and elimination both during and directly after the use of VR therapy, with nearly all participants reporting at least some pain relief. VR has been especially helpful in the reduction of acute pain, such as experiences of pain during medical procedures and abrasions. However, in one study, only 33 percent of participants experienced complete pain relief, highlighting an opportunity for additional technological advancement. Beyond acute pain, VR also has short-term benefits for relieving chronic pain, a condition affecting over 100 million American adults. Above all, to improve the complete pain relief capabilities of VR, technology with the potential for enhanced immersion is necessary.

The pain management segment of the healthcare VR industry is the second largest sub-category by market share, with a value estimated to reach $33.7 billion by 2027. Given the scale of the pain management opportunity, many start-ups such as AppliedVR and KarunaLabs have emerged to address this issue. However, current iterations of VR therapy are limited in their ability to

provide the level of immersion needed for medical-grade pain relief. One reason for their lower immersion levels is a mismatch in the types of engines used to create VR therapy experiences and the kind needed for high fidelity experiences. Specifically, several VR therapy startups use the Unity engine, whose competitive prioritization of the mobile gaming market limits its ability to create complex and high-fidelity images. Since VR therapy's effectiveness is based on the patient's ability to become immersed within the VR system, lower fidelity visuals could limit the effectiveness of pain management treatments. This represents an opportunity for Unreal to improve the immersion of experiences in a medical setting.

Despite VR's demonstrable benefits and external support from dedicated research trials, its application in pain therapy has seen significant regulatory challenges and faces a lengthy go-to-market process. These issues have driven developer support and resources away from the space. This shortage in both resources and talent is exacerbated by major technology companies luring proficient candidates away with competitive compensation packages. To address these problems, active support from various stakeholders outside of the startups developing VR pain management apps is needed.

An Unreal Healthcare Solution

To encourage a greater number of diverse, non-gaming start-ups to embrace Unreal, Epic should design a new startup incubation program for app developers. Specifically, the incubation program should target healthcare VR companies. Not only is healthcare among the top three industries that will be leading VR adoption through 2025, but healthcare applications of VR demand high-fidelity, immersive graphics which Unreal can provide. Through an incubation program, Epic can offer talent from its experienced game development division to assist VR startups in scaling up their content catalogues. This would address some of the major barriers to the adoption of VR therapy, providing companies with the people and resources they need to develop applications. In the long term, not only will growth in participant companies translate to growth for Unreal, but the engine can diversify its revenue beyond gaming and remain a leader among competitors with this strategy.

Given that healthcare VR is a relatively untapped industry, Epic can catch up to Unity by leveraging its talent, fidelity, ease of use, and customization options offered by Unreal. Epic has an advantage with this opportunity given its expertise in first-party game development, which major competitors like Unity do not possess apart from small educational projects. Unreal also offers inherent advantages in render quality and developer tools. These advantages allow it to create incremental value for developers and better address healthcare VR's core requirement of increased immersion. Moreover, while coding is a major component of development, Unreal's visual scripting feature BluePrint can enable new developers to create immersive experiences with minimal coding experience. This advantage will allow employees with limited coding experience to still work effectively with the engine, greatly reducing the difficulty of hiring developers. Furthermore, the accessible nature of Unreal allows developers to view the base code, which allows for customization towards various patient needs. These competencies, supported by its large base of talented developers, can help Unreal gain ground outside of traditional game development while advancing healthcare VR as a whole.

A New Profit Engine

Currently, Unreal licensees pay five percent royalties once the product generates a lifetime revenue exceeding $1 million. While this is sufficient for traditional game development, the significant development costs and difficulty of distribution associated with healthcare VR make this model unsustainable. These barriers, along with the considerable support offered by Epic in the incubator program, would justify charging a 15 percent royalty on revenue greater than $1 million for companies in the incubator. To enable sustainable growth, the royalty should be lowered to 7.5 percent when revenues surpass $50 million. This royalty allows Epic to mitigate the risk of third parties developing their own VR platforms while participating in the upside created from its program. If Epic can capture 10 percent of the $33.7 billion pain management VR industry by 2027, that would present an increase of its revenue by between $0.63 billion and $1.26 billion. To put that into perspective, the Epic Games Store generated just $700 million in revenue in 2020 despite favourable tailwinds resulting from the pandemic. If done right, this expansion into healthcare would be an extremely lucrative opportunity for Epic.

An Epic (Virtual) Reality

The proposal for Epic's incubation program provides a holistic solution that addresses concerns of both the company and the VR healthcare industry. Using Unreal would improve fidelity and ease-of-use within the industry, while the incubator would address the talent shortage. The patient experience would also benefit from more immersive, non-invasive experiences for pain management. Ultimately, the incubator program will make VR therapy a more attractive form of pain management to healthcare providers and assist in the phasing-out of opioids as the primary source of pain management,

SEEING GREEN WITH PSYCHEDELICS

With the emergence of psychedelics as a treatment option for mental health-related illnesses, Big Pharma should partner with pureplay biotech firms to reap the benefits of these breakthrough therapies.

Mark Fortino & Rachel Rothstein

Illustrations by: Harrison Angellotti

Content warning: this article includes discussion of serious mental health issues and suicide, which may be triggering or traumatizing to some readers.

A Trip to the Psychedelic Market

Despite being a relatively new establishment, the antidepressant market has experienced many innovations and controversies. The earliest treatments for mental illness relied on institutionalization, which was criticized for its unregulated and underfunded quality of care. By the mid-20th century, however, the introduction of antipsychotic drugs had brought significant changes. By 1977, a class of psychoactive drugs called benzodiazepines became the most widely-consumed medication worldwide for mental disorders. However, benzodiazepines presented harmful side effects, most notably addiction and withdrawal. This led to the development of selective serotonin reuptake inhibitors (SSRIs), a new class of antidepressants, which had a reduced risk of addiction. Since the shift to SSRIs, the antidepressant drug market has grown 400 percent from the early 1990s to the late 2000s.

Today, despite the widespread usage of SSRIs and similar counterparts, the effectiveness of these mental health treatments remains a point of controversy. SSRIs have been criticized for their detrimental side effects during the initial stages of treatment, which can include panic attacks and suicidal tendencies, among other symptoms. Although they are marketed as non-addictive, patients can exhibit withdrawal symptoms. Experts have yet to find a clear answer to the efficacy of SSRIs as a treatment for mental illness, and this is further highlighted when examining relapse rates—the deterioration in mental health after treatment is completed. Relapse rates start at 40 percent for a patient's first prescribed medication and increase by approximately 10 percent each time the patient switches antidepressants.

Big Pharma has Mush Room for Growth

Minimal innovation has occurred in the antidepressant drug market since the introduction of SSRIs. While Prozac and Xanax were extremely profitable for Eli Lilly and Pfizer in the 1990s when they were under patent protection, excess profits have since been eroded by generic drugs. With the influx of competitor products, antidepressants now comprise only a small portion of the largest pharmaceutical companies' revenue. For example, Xanax and Zoloft made up only one percent of Pfizer's total revenue in 2019, and Trintellix made up only 2.1 percent of Takeda's total revenue in 2020.

The pharmaceutical business model partially depends on "product-hopping:" making minor tweaks to existing drugs before their patent expires as a method of maintaining protection. In the case of psychiatric drugs, companies have exhausted potential improvements significant enough to warrant FDA approval. While antidepressants are still profitable, companies have been reluctant to invest in completely new forms of treatment over more profitable areas such as oncology or diabetes. This represents a case of the Innovator's Dilemma, where the incumbent pharmaceutical company avoids the risk of an invention that is a radical departure from what is currently considered adequate. As such, the number of psychopharmacological drug research programmes in larger drug firms has shrunk by 70 percent in the past decade.

Sporing Big through Innovation

The pervasiveness of mental illness and the lack of adequate treatments present a significant business and public health opportunity. The global markets for anxiety, addiction, and antidepressant medication sit at $4.5 billion, $42 billion, and $4 billion, respectively, with the antidepressant market expected to grow at a CAGR of 7.4 percent through 2023. Prozac's success while it was under patent protection also served as an indicator of the market's potential. In 1990, Prozac generated nearly $1 billion in sales, close to 22 percent of Eli Lilly's total revenue. Despite a recent lack of innovation, these markets offer significant potential for both profitability and improvement of public health.

Getting Psyched for Psychedelics

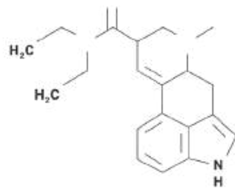
Psychedelics refers to a class of psychoactive drugs that can put users under a state of altered perception, such as dream-like states or states with heightened senses. The most well-studied psychedelic drug compounds include MDMA, LSD, ketamine, and psilocybin—the key active ingredient in psychedelic mushrooms. Psychedelic usage became a symbol for the counterculture movement in the 1960s, eventually leading the FDA to ban the manufacturing and sale of all types of psychedelic drugs due to their limited "accepted medical use," and high "potential for abuse." Stringent regulation stalled development in the psychedelics market in the latter half of the 20th century.

Clinical research studies of psychedelics resurfaced in the 2000s as specialists continued to investigate their use as a mental health treatment. This new wave also led to increasing support from the FDA, which began to designate "Breakthrough Status" to MDMA and psilocybin, denoting their high potential for treatment and enabling acceleration of research trials. 2019 represented a pivotal year for clinical applications of psychedelics in which research on psychedelic drugs was reignited by the establishment of the Johns Hopkins Psychedelic Research Center. In March of that year, the FDA approved the usage

of a psychedelic drug for the first time—esketamine, an intranasal antidepressant, was approved to address treatment-resistant depression.

LSD May be a Safer Alternative

Benzodiazpines are 2x more harmful than LSD



Emergency room visits involving illicit drugs, 2011

Substance	ER Visits
Cocaine	505,224
Heroin	258,482
Cannabinoids	479,560
Amphetamines	159,840
LSD	4,819
% of Total ER Visits	0.34% of ER visits

A Non-Fungible Treatment

The major difference between psychedelics and SSRIs lies in their impact on brain chemistry and their treatment application. Psychedelics function generally by targeting areas of the brain to create a temporary chemical imbalance. By impacting connectivity within the brain, users can experience shifts of consciousness. Unlike antidepressants, psychedelics function instantly, and studies suggest that the effects of psychedelics could last for long periods after the drug leaves the patient's system.

Compared to the traditional "pill-a-day" consumption method used for antidepressants, psychedelic-assisted therapy treatment may only be required monthly or annually, pending results from future clinical trials. Industry analysts estimate the drugs will be priced based on the current standard of care, incorporating differences in usage frequencies between traditional drugs and psychedelics. For example, LSD for anti-anxiety purposes will be priced assuming monthly or annual treatment based on daily prices for Cymbalta.

Studies on the effectiveness of psychedelics have shown favourable results. A 2014 John Hopkins study reports that the abstinence rate for previous smoking addicts was a remarkable 80 percent after six months of treatment with psilocybin. In a following 2015 study, participants with cancer-related depression or anxiety also reported increased mental well-being six months after a similar dose of the drug. Similarly, the use of MDMA therapeutics on patients with severe PTSD who were considered "treatment-resistant" obtained spectacular results, with approximately 70 percent of patients no longer qualifying for the diagnosis after 12 months, and the remainder having less intense symptoms.

Navigating Legal Truffles

Psychedelics are monitored by Health Canada under the Controlled Drugs and Substances Act, which limits its sale, import, and production. However, in the U.S., decriminalization and legalization laws vary drastically from state to state. Oregon became the first state to legalize psilocybin in 2020, and the Oregon Health Authority stated that this could provide a framework for assisted psilocybin therapy to be administered as early as 2023.

State legislation, however, is different from FDA approval, which would be required for medical use. Currently, psychedelic drugs are in the process of FDA approval for specific medical purposes across the entirety of the United States. Once clinical trials prove a psychedelic substance is effective for medical conditions, the FDA's Controlled Substance team will make a new recommendation to the Drug Enforcement Agency (DEA) on how to regulate the substance.

Mycelling the Product

A positive psychedelic experience requires a safe and undisturbed setting, a calm mindset, and a supervisor. In practice, this would involve licensed therapists accompanying the patient throughout four to six hours of treatment with psilocybin, and even longer with LSD. In the subsequent hours to days following the psychedelic experience, therapists would guide patients through an integration period to incorporate insights into the individual's life. Dr. Will Siu, a psychiatrist at MAPS (Multidisciplinary Association for Psychedelic Studies), suggests that up to 90 percent of the long-term benefits of psychedelics can occur during this integration phase. A study from MAPS claims that cost savings per patient to healthcare providers over a 30-year treatment horizon would be $103,200.

Seeing Green in Psychedelics

Psychedelic-assisted therapy represents an opportunity to relieve a growing mental health crisis while also tapping into lucrative profit opportunities. Pharmaceutical players looking to enter the space should consider forming partnerships with leading pure-play psychedelic companies and assist them in R&D to proceed through

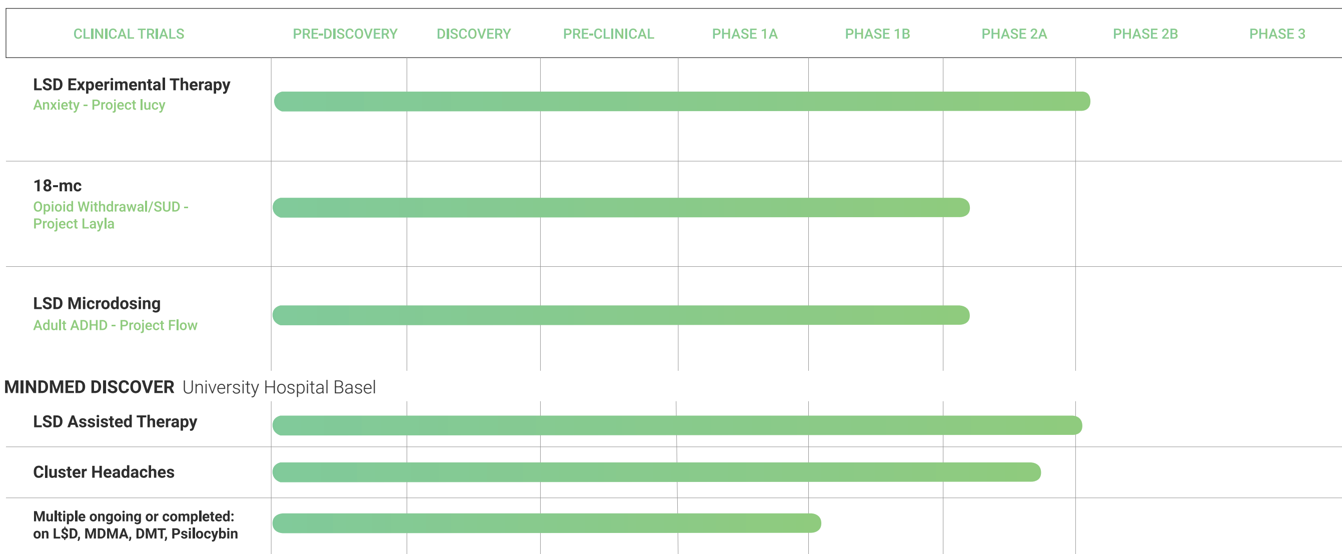
FDA approval. Such partnerships may act as a springboard, as pharmaceutical companies can acquire the right to the proprietary compounds and continue to develop them in-house. A similar strategy of using M&A to de-risk the process of in-house R&D was common at Allergan under the leadership of Brett Saunders. These partnerships could take one of several forms: development collaboration, an R&D reimbursement agreement, a full drug sale, or a licensing deal.

While many of the leading psychedelic companies such as Compass Pathways, Champignon Brands, and Field Trip Health would be valuable acquisition targets, MindMed is an optimal target for a major pharmaceutical company. MindMed is a leading psychedelic biotech firm, with a pipeline of three active psychedelic clinical programs in the development stage. As of Q3 2020, MindMed had $18 million in cash, which is expected to last until between Q1 and Q2 2021. At that point, it will need to raise additional equity capital, or receive funding from a strategic partner.

MindMed's LSD anxiety treatment, Project Lucy, is currently in late phase two of FDA approval. The optimal time to partner for a large pharma player would be at the end of phase two and the beginning of phase three. At this point, human proof of concept data will have been recorded, which indicates low risk. Phase three is also the most expensive stage, with over 70 percent of total R&D costs taking place after this point. A partnership would give MindMed access to R&D expertise and an established commercial infrastructure for distribution and manufacturing purposes.

The Mushroom Moat

As academic support for psychedelics as a mental health treatment option grows, large pharma players have a timely opportunity to enter this emerging market. Through M&A activity and strategic partnerships, pharmaceutical companies can help smaller startups bring these products to life while reaping significant financial rewards. Among its peers, MindMed stands out as a particularly attractive potential partner given its anxiety treatment drug Project Lucy. A strategic partnership with Big Pharma could act as a foundation for future business for one of MindMed's other drugs, such as 18-MC for opioid addiction treatment (with a $2.0 to $3.8 billion annual global market size), or LSD microdosing for ADHD (with a $9.1 billion annual global market size). Above all, the psychedelic space is surrounded by an economic moat, and with capital and expertise, Big Pharma could reap the benefits.



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