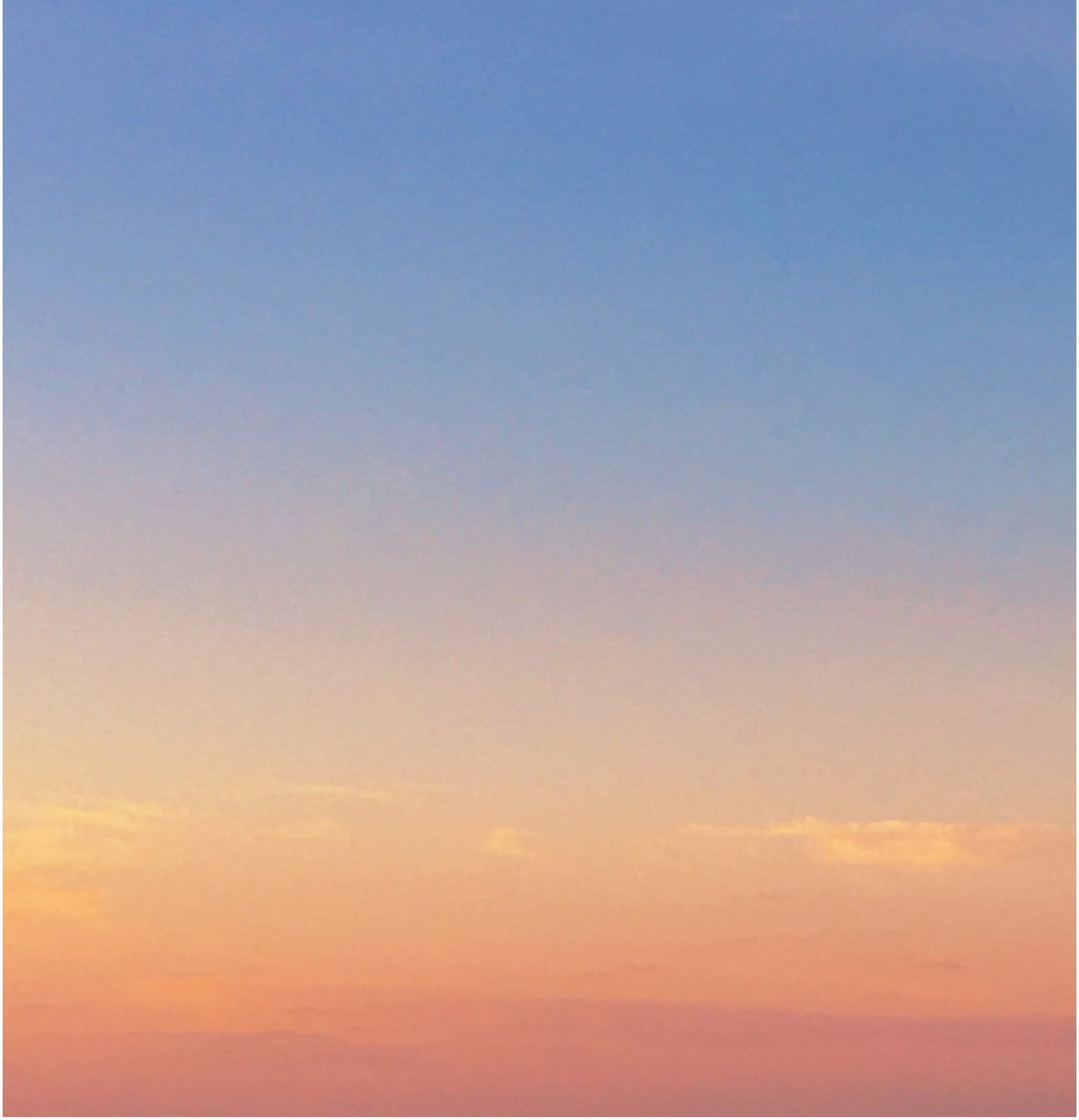
Queen's Business Review

Fall 2023 | **queensbusinessreview.com**

The first years of the new decade brought forth an atypical level of changing conditions that have begun an ever-evolving domino effect on any imaginable aspect of business and overall society. Revolutionary usage of artificial intelligence, availability of information, and the climate crisis are just some of the topics that QBR editors have meticulously explored this year. Within these issues, we see that majority of events are heavily interconnected on every level. Moreover, long-lasting effects of global events are becoming dinner-table topics in themselves. For example, unsustainable costs of living and the lingering threat of natural disaster.



ETHICS OF EVOLUTION

Evolution describes the process of development and adaptation over time. Ethics encompass the suffering of the consumers, the planet, and other stakeholders who disproportionally feel the effects of large-scale issues which cause mass disruption to quality of life. This is fitting for the collection of articles as the words describe how despite a firm's ability to change their operations, individuals scramble to keep up.

IN BUSINESS

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Note From Management Team

For the last ten years, Queen's Business Review (QBR) has been at the forefront of undergraduate business publication; QBR has seen tremendous growth from its beginnings as a small semester-only publication to one that has over 20,000 views on our articles and leads the country in undergraduate publication. As Editor-in-Chiefs, our mission was to build on the foundation set by our esteemed alumni and continue providing Queen's students with a platform to share ideas and explore pressing issues beyond the confines of our university. Reflecting on our term as Editor-in-Chiefs of QBR, we have been fortunate enough to read about the different articles our editors have compiled, which have helped us gain insights into the ever-changing landscape of business.

In our print edition, we present a carefully curated array of articles that encapsulate the dynamic and ever-evolving business landscape. Our journey begins with a deep dive into the transformative world of AI in "Don't Shoot The Messenger: The Faults and Fortune of ChatGPT" and takes us through the intriguing intersection of finance and cinema explored in "Does Life Really Imitate Art?". We further explore the rapidly changing venture capital scene in the Middle East and the revolutionary shifts in sports financing. Additionally, the crucial discourse on Canada's climate policy is brilliantly captured in our thought-provoking pieces.

Each article is meticulously crafted to offer not just information but also a platform for our readers to critically engage with the various facets of business and their societal implications. As we embrace a transition in our ever-changing landscape, we remain committed to our ethos of challenging, informing, and inspiring our audience. We are dedicated to maintaining Queen's Business Review's stature as a premier voice in undergraduate business publication, continually pushing the boundaries of discourse and expanding our collective understanding of the global business world.

As co-chairs we are grateful to the incredible team of editors at Queen's Business Review, whose tireless efforts throughout the year have been pivotal in upholding the high standards of our publication. Their dedication and hard work have been instrumental in the success of each issue, and for this, we are immensely appreciative. We also extend our heartfelt thanks to our outstanding creative team, encompassing talented designers, publication staff, podcasters, and those behind the Weekly SnapShot, Digital, Research, and Engagement sectors. Their contributions have been crucial in bringing to life the vision we set for our print edition and other initiatives this year. Our benefactors, including Chubb, OneTek Pest Solutions, and the Commerce Society, have played a significant role in making this edition a reality, and we are profoundly grateful for their support. Lastly, our appreciation goes to the previous QBR Co-Chairs—Cindy Xie, Noah Lee, and Jacoby Goodson. Their guidance and advice throughout the year have been invaluable, helping us navigate our roles and continually improve. We are deeply thankful for their mentorship and support.

Joshua Cristofoli, Alex Lian, & Philip Russ
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EXEC UTIVE

INSIDE

The Clean Network: The Tech War's Winning Hand

Written By Philip Russ, Editor-in-Chief | Illustrated by Katie Libitz

Following years of uncoordinated U.S. government attempts to curb data security risks from foreign actors, the Clean Network was formed in May 2020. The initiative's subsequent global campaign came in quick succession as U.S. Undersecretary of State to the Trump Administration, Keith Krach, was under pressure to stop Huawei—China's prized technology giant—and its seemingly inevitable market domination of fifth-generation (5G) cellular network infrastructure. But what is the Clean Network, and why is it one of the largest accomplishments of recent U.S. politics?

Background

A few months prior to the initiative's formation, Huawei had announced 91 commercial 5G contracts globally, with 47 being in Europe. The lack of an end-to-end competitive product and other competitive advantages led many telecommunication firms to overlook the well-known risks of Chinese Communist Party (CCP) access to Huawei data and proclaim, "business is business." These cyber espionage risks include disrupting critical networks and accessing customer data and communications. Chinese National Intelligence Law enables these practices as firms—namely Huawei and ZTE—must "support, assist, and cooperate with national intelligence efforts." How would you feel if a Western adversary had access to data ranging from your text logs to top-government communications? While cyber espionage is undoubtedly not limited to China, there are many reasons why they are not internationally trusted. These reasons include the nation's authoritarian structure, direct state-vendor links, discovered security vulnerabilities, and past allegations. Clearly, Chinese 5G products are a significant national security issue for all corners of the world.

The initial acceptance and lack of risk mitigation strategies towards Huawei and ZTE from much of the West resulted in a range of risks adverse to democratic-world interests. This was especially problematic for security partnerships like the North American Treaty Organization (NATO) military alliance. NATO claims that its communications could be compromised through backdoor access points if one member used Huawei 5G servers.

The initial acceptance and lack of risk mitigation strategies towards Huawei and ZTE from much of the West resulted in a range of risks adverse to democratic-world interests. This was especially problematic for security partnerships like the North American Treaty Organization (NATO) military alliance. NATO claims that its communications could be compromised through backdoor access points if one member used Huawei 5G servers.

Ultimately, the several digital espionage risks from China and coinciding desire for Western countries to dominate the roll-out of 5G technology led to the launch of the Clean Network—a targeted initiative aimed at ensuring the security and integrity of global communications networks.

Measuring Success

The success of the Clean Network initiative was contingent on the speed and effectiveness of getting partner countries to adopt the framework. Upon formation in May 2020, Keith Krach immediately embarked on a global campaign to recruit partner nations and their telcos. While the tangible action surrounding the Clean Network was the blanket ban of Huawei and ZTE 5G products, the initiative led through its digital trust standard framework. The trust principles outlined 10 items, such as accountability and transparency, that combined resulted in the achievement of 'trust', a value proposition shared across the democratic world. Krach first targeted nations that had openly echoed the trust principles and excluded Huawei and ZTE vendors. This strategy leveraged Metcalfe's Law, which states that the value of a network can grow exponentially and is represented by the nodes (partners) squared. Through the captured initial partners, the Clean Network campaign was then able to enter a 'phase two' of expansion. This led to the partnership of emerging markets, who despite sharing the values of the Clean Network, could not rationally pursue this strategy independently due to fear of Chinese retaliation. In August 2020, the Clean Network was expanded further and received this official name. Beyond creating clean telecommunication carriers, the initiative now worked towards shoring up adjacent technology threats. These further effort lines included Clean Stores, Apps, Cable, and Clouds—a direct challenge to Alibaba, Baidu, Tencent (WeChat), and Byte Dance (TikTok).

Finally, after months-long campaigning, Krach and the Clean Network made achievements toward their Clean Carrier goal by toppling Huawei's commercial pipeline. To date, a staggering 60 countries and 180 telcos have signed on, representing two-thirds of the world's GDP. Not many other democratic initiatives in history have achieved measurable results at this speed, not to mention the hard-found success of a current-day U.S. bipartisan effort. Despite its many successes, there are also notable concerns about whether the Clean Network was executed in a truly 'democratic' manner.

Political Implications

One of the U.S.'s key democratic values is individualism and, subsequently, laissez-faire economic policies. Through the development of the Clean Network initiative, this core value has been tested in an effort to capture freedom over authoritarianism. Also, the push to remove the competition of Huawei and ZTE 5G infrastructure from the home and global market goes against free-market capitalism. South Korea represents a democratic country that has maintained their integrity towards these principles. While two of its three biggest telcos are partners of the Clean Network, the country itself is not a member. Commenting on South Korea's decision to not pursue membership, a government official stated, "whether a private telecom company uses the equipment of a specific enterprise is up to that company to decide."

Further, Clean Network critics point out that for each of the initiatives five lines of effort, the U.S. has carried out their own cyber espionage programs, both at home and abroad. For example, the U.S. PRISM program, allowed security agencies to collect and analyze internet communications via the largest internet companies to identify individuals both domestic and abroad that could pose a threat to national security. The program resulted in public outcry, with U.S. citizens successfully calling on the government for increased transparency and warrants on domestic data collection. The program was also defended on many grounds, such as, targeted collection methods, minimization procedures, and of course, national security threats.

Similarly, many acknowledge that the actions of the Clean Network are democratically defensible as digital espionage risks fall under the national security banner. Regardless of the two schools of thought, plenty of adjacent actions led by the U.S. have been taken against China in recent years, with an overarching purpose of protecting the leading superpower from competition in future technologies as a whole.

The Greater Technology War

As a ban on 'untrusted' 5G vendors, the Clean Network's success tells us that China is likely to continue to encounter issues when introducing advanced technologies into the global market. In fact, the U.S. has targeted China for other competitive reasons surpassing data security risks. The overarching economic competition between the U.S. and China is towards who will win the fourth industrial revolution. This is the next boom of technology innovation surrounding industries such as artificial intelligence, robotics, and autonomous driving. The winner of this technology race would carry global influence and solidify themselves as the #1 superpower.

The application of 5G technology surpasses more than just the next fastest personal device speed. It provides connectivity that is foundational for an array of advanced technological products. This fact highlights the importance of the Clean Network. However, semiconductors remain the most important advanced technology enablement and make up the largest slice in the technology war. The first major development began during the U.S.-China trade wars of 2018-2019, where the U.S. and China placed a total of $550B and $185B in tariffs against each other's goods, respectively. The backbone of the trade war was U.S. pressure for China to remove its 'unfair trade practices', including forced technology transfers via joint ventures and, of course, intellectual property theft. While the trade war cooled down in 2020, the U.S. has since dealt more competitive blows to China—specifically targeting China's semiconductor access while strengthening their own position. This can be seen through four key moves over the past couple of years:

- The 2020 onshoring of TSMC—A Taiwanese company that is the largest supplier of advanced semiconductors globally—via a $12B investment in an Arizona plant that has since seen investments triple

- The Indo-Pacific Economic Framework—a direct response to a similar Chinese-led Asia-Pacific region trade agreement—comprising of 14 partner nations and leading with digital trade standards

- The U.S. CHIPS and Science Act, which will invest $52.7B into semiconductor research and development

- The October 2022 U.S. mandated license obtainment, placing heavy restrictions on domestic companies exporting semiconductors to China because of their use in military applications—a striking move for China's advanced military goals due to U.S. import dependance

While China is still in the game to win the fourth industrial revolution, the U.S. has significantly hindered its ability to source advanced semiconductors. Further, the Clean Network has established digital trust standards that much of the democratic world abides by. Frankly, it is more important to this overall story than discussed in the media. While the public focus is on semiconductor competition, the Clean Network's early success and future scalability demonstrate why it could be a secret ace up the sleeve for the U.S.'s winning hand in the technology war. Only time will tell how far-reaching the Clean Network and other efforts go. However, one thing is certain—the story is not over.

Red Bull's Recipe for Success: Innovation, Strategy, Endurance

Written By Joshua Cristofoli, Editor-in-Chief | Illustrated by Rachel Lee

Have you ever wondered how an energy drink could rival Coca-Cola and Pepsi to become one of the world's most famous brands? In only 36 years, Red Bull has become a dominant power in the beverage and sports industries. One of the brand's largest propellants has been their innovative marketing strategy, going beyond traditional sponsorship deals to promote products through the ownership of teams across three professional sports. Red Bull's marketing ingenuity has aided their 23.3 percent global market share with US$10.53 billion in sales and 11.6 billion cans sold in 2022. So, what was the secret to this phenomenal success? We can first look at Red Bull's founder Dietrich Mateschitz and his role in creating the recipe for business success. The brand's approach, which is notorious for its secrecy, explains how they are one of the most prominent players in an industry dominated by fast-paced lifestyles while also illustrating how passion and endurance lead to success.

Ingredient 1: Take Your Time and Make a Plan

When wntrepreneur Chaleo Yoovidhya established his own pharmaceutical company in Thailand, he developed the drink "Kratingdaeng," providing energy to blue-collar workers. However, this is not the same drink we enjoy today. Kratingdaeng had no carbonation and a whopping 40 percent more sugar. Despite being the first of its of its kind, this drink needed more aggressive branding and consumer appeal to gain international traction.

This would change during a 1984 business trip. Dietrich was jet-lagged upon landing in Thailand and needed energy before a meeting, so he tried Kratingdaeng. Dietrich's caffeine burst was so intense it prompted a sense of clarity–he must invest in this magical product.

Over the next few years, Dietrich pursued growing the joint venture by marketing the drink in its English name and working the formula to perfection by cutting sugar and increasing carbonation. Dietrich also determined how the product should be perceived. For example, the can should be a sleek, thin aluminum to stand out. Dietrich's strategy was contrary to the traditional approach of going to and scaling at the market as fast as possible. Instead, he ensured they waited until a drink was developed that gave consumers the same spark he felt, regardless of whether they were jetlagged.

Before releasing a product to the market, every business can benefit from formulating a strategy and ensuring it is flawless. Through research and planning, businesses can guarantee that their products and services are distinguishable from the competition, as consumers purchase solutions to issues rather than products or services themselves. Moreover, by focusing on the product's solution, perception, and how it is presented to the public, a firm can develop a brand identity that resonates with consumers, as every business competes with any perceived substitute. Waiting until a product is ready for sale, rather than rushing it to market, can increase the likelihood of success and minimize costly mistakes. By investing in R&D, a business can create a stand-out product, which can be crucial to its success.

Ingredient 2: Rip up the Rule Book and Make your own

Red Bull's expansion across Europe and the United States throughout the 1980s faced the tall challenge of taking market share from legacy brands, including Coca-Cola and Pepsi. Underneath the shadow of the existing giants, Dietrich knew he could not fund a competing marketing campaign, so they had to get creative. Rather than running constant commercials and pushing their products everywhere, Dietrich focused on a more personal, direct relationship with their clients through word of mouth—a strategy still employed today.

Photography | Jan Kopřiva

Red Bull is aimed at 18-to-mid 30's college males. But how does an overseas company break into local campuses and attract their market? They branded and promoted themselves as a party drink. Party promotions were conceptualized as giving overstudied college students energy to fuel them into the night. To achieve this, they sponsored college parties, provided free samples, and mixed them with alcoholic drinks, creating the infamous Jägerbomb. Garnering campus recognition provided the foundation to effectively expand and diversify into media, sports, and larger events.

Red Bull exemplifies that a company can build a large brand-loyal customer base by understanding and interacting with its target market on a personal level. In addition, a company should consider anchoring its brand strategy around a single question. Why? By questioning why their product, why this price, why this promotion, and why this market, a corporation can hone in on their appropriate target market and design a truly effective marketing campaign. Moreover, by experimenting with novel tactics, such as the promotion plan for party beverages, businesses can differentiate themselves from competitors and develop a distinct and exciting brand image.

Ingredient 3: Control What's Essential and Outsource the Rest

When Dietrich launched Red Bull, Western investors rejected the concept because it did not have an existing market. Dietrich responded, "If we do not create the market, it doesn't exist." Red Bull was unfazed in light of this rejection, as it meant further autonomy from the becoming masterminds Dietrich and Chaleo.

Dietrich gambled on the next business decision when he chose to outsource production and logistics, focusing on downstream activities in the value chain. In other words, Red Bull doesn't make the drink; production and filling are outsourced, while Red Bull spends all its resources on marketing and selling. The average production cost of a Red Bull can is $0.09, and they sell wholesale for a $1.87 unit price, ~20 times the cost.

Despite focusing on only one product, Red Bull has diversified into unique markets to promote its brand and create value chains beyond the can. A strong example is Red Bull's soccer teams, which allow them to develop talent using synergies. Players can start their careers with Red Bull Brazil, move to Europe to play for Red Bull Salzburg in the smaller Austrian league, move to Germany to play for RB Leipzig in the Champions League and end their career with the New York Bulls.

By identifying the important components of a business and outsourcing the rest, organizations can concentrate on what they do best, establishing a strong brand identity and increasing profitability. In addition, by diversifying into distinct markets and developing value chains that extend beyond the product, businesses can grow their reach and revenue sources. This is a crucial technique that Red Bull has employed to not only promote its brand but also cultivate talent via realized synergies.

Ingredient 4: Tell a Story

Due to Dietrich's desire for Red Bull to be synonymous with energy, he opted to align the company with the word "extreme." As part of its strategy, Red Bull actively participates in extreme sports worldwide, such as snowboarding, stunt planes, rally cars, skydivers, and more. These extreme sports share a common denominator: adrenaline, the energy felt when viewing or engaging in them. In addition to sponsoring sporting events, Red Bull also prominently displays its logo throughout the event.

Photography | Fonsi Fernández

Furthermore, by participating in these events, Red Bull has established itself as an important component of the extreme sports community and reinforced an additional corner of the sports industry. As a result of its commitment to the sports and its provision of platforms for athletes to share their stories, Red Bull has implicitly claimed ownership of the phrase "extreme."

Red Bull aligns itself not only with the term extreme but also with the idea of "liberalization." The tagline "Red Bull gives you wings" implies that you get energy from the drink to do anything you desire. Through its partnership with these niche sports, Red Bull will have the opportunity to promote this tagline further by sharing these athletes' stories, including their dreams, aspirations, challenges, and struggles. Throughout their social media channels, Red Bull shares unique success stories of athletes, which resonate with the public and inspire others to share their own. By sharing these stories on social media, Red Bull is further establishing itself as a market leader that believes everyone can be themselves and accomplish their goals.

To link themselves with a certain industry or lifestyle, businesses must find a method to tell tales that resonate with their target audience. This can be accomplished through forming partnerships with events and sharing the experiences of their athletes or participants. By doing so, businesses can foster a sense of community and belonging among their target audience and construct a strong brand identity.

Mixing the Ingredients Together

The history of Red Bull is a tribute to the power of vision, commitment, and tenacity. Dietrich Mateschitz's three-year plan to perfect the product's recipe, packaging, and marketing has positioned Red Bull as the global leader in energy drinks, with a 23.3 percent market share. Red Bull was able to generate a dedicated customer base that has catapulted the company to new heights by emphasizing building personal interaction with its customers. Red Bull's success is a reminder that everything is achievable with the appropriate strategy and ingredients, whether you're a college student searching for a party drink or a professional athlete pushing your limits. So, the next time you grab a can of Red Bull, remember that it is a metaphor for what may be accomplished with hard work and perseverance.

ECONOMICS & POLICY

INSIDE

Unravelling the Canadian Labour Market's Dance with Inflation, Monetary Policy, and Economic Trends

Written By Eric van Remmen, Editor | Illustrated by Annie Ye

Every month, Statistics Canada releases the Labour Force Survey, providing insights into the Canadian labour market. These figures are invaluable for understanding the economy, especially during Canada's ongoing economic turbulence since the end of the pandemic. Employers must understand the supply and demand for labour and its relation to wages so their businesses can be adequately staffed and operate profitably. Central banks and governments must make critical monetary and fiscal policy decisions to counter not-so-transitory inflation arising from direct stimulus during the pandemic. Finally, investors need to make informed decisions by understanding how the labour market and inflation figures affect the Bank of Canada's (BoC) monetary policy decisions, which influence the probability and timing of a potential hard landing in the economy, where interest rate hikes lead to a recession. So, how is the Canadian labour market linked to inflation and current economic trends, and how is it responding to tighter monetary policy?

The Canadian Labour Force Survey

Statistics Canada conducts its survey on a representative sample of the civilian, non-institutionalized Canadian population aged 15 and older and has data for each province and age group reported monthly. Based on these characteristics, the Labour Force Survey includes estimates for the total population, total labour force, total employment (broken down by full and part-time workers), and total unemployment. Furthermore, the survey calculates the monthly employment, unemployment, and labour force participation rates

In June 2023, total employment in Canada grew by 60,000 employees since May, with over 100,000 new full-time hires working more than 30 hours per week meanwhile, employment in part-time jobs fell. Within the past year, Canada has also been characterized by a persistently low unemployment rate and record immigration (see Figure I). These trends indicate that Canada's labour market is tight because the demand for labour exceeds the supply. To delve deeper, we must understand what has led to these phenomena in the labour market, and what it means in relation to inflation, wages, and monetary policy.

The Impact of Stimulus and Loose Monetary Policies on the Labour Market

The tight labour market reflects a robust rebound in economic activity from previous lows during the

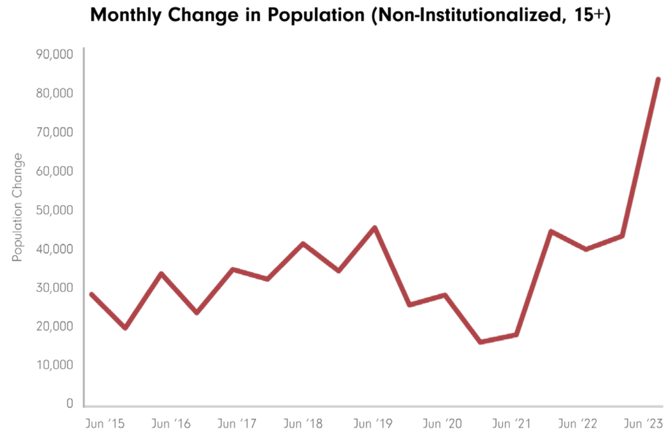


Figure I

pandemic driven by counter-cyclical fiscal policy in the form of sizeable and direct pandemic stimulus aimed at individuals, families, businesses, and provincial governments. Furthermore, interest rates have been persistently low since the 2008 financial crisis and hovered at 0.25% for almost two years between 2020 and 2022, which has helped households acquire cheap mortgages and businesses affordable loans.

The enacted policies have certainly helped spur demand. A TD Economics report estimated in 2021 that households alone accumulated roughly $300B in excess savings, of which $80B were new personal deposits. The bank's estimates attributed the changes to a $190B increase in savings and chequable deposits and a $110B decrease in fixed-term deposits, meaning households became more liquid during the pandemic.

As excess liquidity began dispersing during a period of high consumer confidence immediately preceding the pandemic, demand for goods and services increased, prompting businesses to raise prices causing inflation. Higher spending also caused companies to hire more workers to fulfill supply, leading to higher employment rates, incomes, and wages.

Fears of a wage-price spiral phenomenon initially mounted in Canada when 155,000 Public Service Alliance of Canada (PSAC) employees went on strike in April, protesting a decline in their real wages and trying to secure more beneficial work arrangements, including work-from-home. As reasonable as it is for workers to demand their purchasing power back, some are worried that the PSAC agreements might be the benchmark for other such negotiations. This could initiate a wage-price spiral if prices in the broader economy rise to match the wage increases.

At the end of April, 120,000 PSAC employees agreed to a 12.6% compounded wage increase effective retroactively between 2021 and 2024. The other 35,000 employees of the CRA represented by PSAC reached a tentative agreement on May 1.

Other strikes are also taking place across Canada and are overwhelmingly expensive and disruptive. On July 1, 7,500 port workers in British Columbia, represented by the International Longshore and Warehouse Union (ILWU), went on strike after rejecting a tentative four-year wage deal. The strike was estimated to be costing Canadians $500M daily as essential commodity exports are blocked from exiting the port. WestJet, a Calgary-based airline, deferred a strike at the eleventh hour on May 16th, 2023, ahead of the Victoria Day long weekend, after cancelling 200 flights. Metro grocery store workers in the GTA also went on s strike in late July.

The Role of Immigration in Labour Supply and Economic Recovery

That is partly why the Federal Government has been letting a record number of immigrants into Canada, roughly one million immigrants for the year ending December 2022. The annual figure is on par with the nearly one million immigrants who became U.S. citizens that same year, the third highest tally on record in their country, though a much larger proportion of the Canadian population to begin with.

Immigration, though sometimes inappropriately blamed for contributing to inflation, has been adding to the labour supply in Canada and is helping dilute excess savings across a more extensive system. While it is true that immigrants do bring their demand into the economy, the BoC Chief, Tim Macklem, has stated he believes their impact is "roughly neutral" after their supply and demand pressures are netted out. It is easing pressure in the labour market, though applying intense strain to infrastructure and public services, especially in Eastern Canada.

The Immigration Levels Plan from the Minister of Immigration is budgeting for 400,000 and 500,000 new permanent residents annually until 2025, alongside a revolving door of eligible visitors, students, and temporary workers, which make up total immigration. Canada's high immigration also addresses long-term challenges to the Canadian economy whereby, in the year 2050, two-and-a-half working-age Canadians will pay taxes for every retiree.

Canada's Persistantly High Inflation and Low Unemployment Rate

Currently, the BoC is inflicting higher rates on the economy to bring the inflation rate in Canada back down. A 2% inflation rate is desirable by making inflation low, stable, and predictable. The core consumer price index (CPI) measures inflation by taking the weighted average of what consumers pay for a fixed basket of goods; it peaked in June 2022 at 8.1%, though fueled in part by rising energy and food costs due to the war in Ukraine, since CPI without them was almost 3% lower at the same point in time.

In June 2023, many predictions for inflation were beaten when 2.8% CPI was reported. The figure was the lowest in the G7 and has been achieved by significant interest rate rises, now at 5%. However, an increase to 3.3% inflation in July is troublesome and reaffirms the bumpy road ahead.

Thankfully there is some easing in the labour market, though not enough to say inflation will be tamed yet. Current interest rates have only raised the unemployment rate for a second month in a row to 5.5% in July which is still comparably low to historical standards. Meanwhile, the unemployment-to-job vacancy ratio has come down from a 2020 high but reflects less new job vacancies rather than increasing unemployment, suggesting the Canadian economy will continue to observe high consumer spending in the short term, which is bad news for inflation.

Looking Forward

The BoC is trying to balance what's good for consumer spending, incomes, and growth while bringing inflation back to the target 2%. Interest rate changes take many months to come into full effect as all types of loans are refinanced at higher rates. If the BoC tightens monetary policy too aggressively to control prices the economy would slow down more than it needs to.

Labour market indicators are crucial to understand as the Canadian economy navigates the post-COVID environment as it plays directly into incomes, wages, and inflation. There are many external factors too, like immigration, which play into the figures. In July, the Canadian economy shed an unexpected 6,400 jobs and the unemployment rate has risen for the third consecutive month. Although the figures don't sufficiently indicate inflation is going to brought back under control, the BoC may prefer to draw out its timeline for reeling inflation back to 2%, or face even more severe consequences if the Canadian economy experiences a recession.

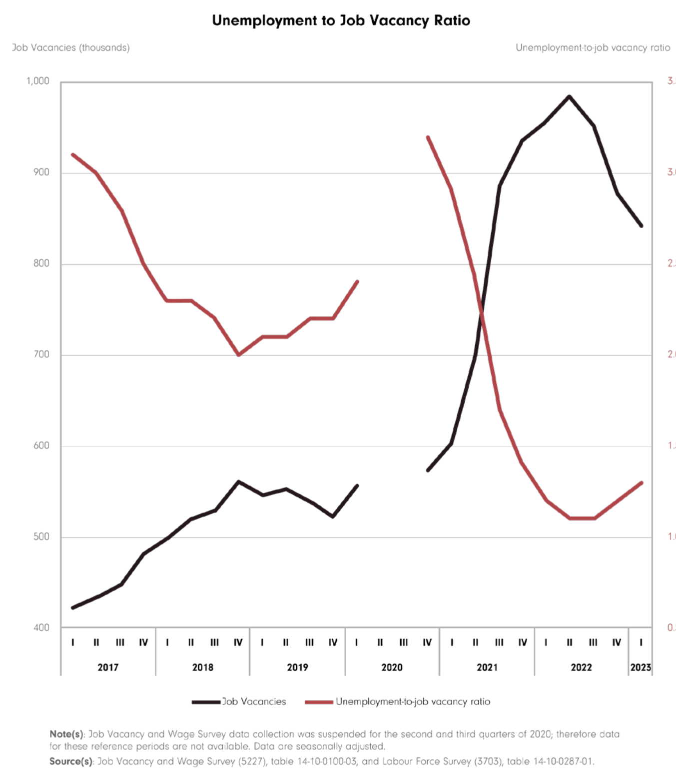


Figure II

Economics of Happiness

Written By Morgan Farley, Senior Editor | Illustrated by Tim Sun

As a young individual entering the senior year of my Bachelor's Degree, a poignant amount of my headspace has been occupied by solving the familiar question, "What do I want to do with my professional career?". Many individuals try to solve this question with the help of considerations such as family, location, personal interests, and skills; balancing these out to find the best fit considering one's personal profile. Although the most common and damning criterion I've run into comes down to two things: money and well-being.

Historically, for Canadian university graduates, choosing a career based on earnings potential has been a surefire way to secure comfort. A high paycheck enabled a stable lifestyle, where purchasing a home with a mortgage, paying weekly car payments, and checking out with a whole basket of groceries remained within reach – all while having disposable income to enjoy occasional dine-out meals and save for retirement.

In today's economic conditions, this same basket of goods is much pricier, and Canadians can no longer expect to receive the same with their salaries. This is reflected by a 17% increase in the Canadian Consumer Price Index (CPI) from 2018 to 2023, which measures the overall change in consumer prices based on a representative basket of goods.

Food costs in the nation continue to outpace inflation steadily, housing affordability has hit an all-time low, while woefully, interest rates have hit 20-year highs. It's no wonder young and newly-self reliant Canadians (aged 18-24) experience the highest stress related to personal finance in the country. Consequently, saving for retirement is forced onto the back burner. Many young workers prioritize the short- term with only 31.3% investing in an RRSP. Financial planner Shannon Simmon's commentary on recent saving trends is that young Canadians are "thinking about it, but the cost of living is so high, and I don't know that anyone feels like they can really ... put enough money towards it at this age".

For many young professionals, an over-arching gloom of financial uncertainty overshadows their hopes for future financial security.

As the economic backdrop is set, selecting a career based on the criteria of earnings potential and the subsequent promise of financial stability no longer holds the same weight, and it can be explained through the economic theory of utility maximization.

The traditional theory posits that individuals make decisions based on the rational pursuit of maximizing satisfaction. It assumes that humans are utility maximizers who make choices to optimize overall welfare. According to this view, individuals evaluate the potential benefits and costs of various options to select the one that provides the highest utility levels. Utility is often measured in terms of monetary value but can also encompass broader factors like emotional, psychological, and social well-being.

In the context of career choices, it suggests that individuals may prioritize enjoyment and well-being. When choosing a career path, one will assess the expected utility of different options, considering not only financial rewards but also intangible aspects that contribute to overall well-being. Factors such as job satisfaction, personal fulfillment, work-life balance, and opportunities for skill development are considered alongside potential income. Some individuals may opt for careers that align with their passions and interests, believing that the rewards and sense of purpose they derive from their work will lead to higher overall satisfaction. This phenomenon is heightened as our present-day economic landscape limits the sense of utility from increasing salary.

Results of a recent survey indicate that 66% of Canadians prioritize enjoying their work over a good salary – 8% higher than the global average. Demonstrating that as young Canadians ponder their professional paths, they increasingly look beyond the conventional pursuit of financial stability.

As financial expectations loom large, the pursuit of personal satisfaction has taken on greater significance. The conventional notion that a high paycheck guarantees comfort and security is being challenged, and young Canadians are embracing the idea that a fulfilling and purpose-driven career can lead to higher overall well-being. As the economics of happiness continue to shape career choices, this generation is redefining success, placing well-being at the forefront of their professional aspirations.

FINANCIAL MARKETS

INSIDE

Follow the Leader: Venture Capital Pandemonium

Written By Owen Milstone, Editor | Illustrated by Katie Libitz

Background

In every aspect of life, there are people who tend to offer up a perspective and others who like to listen and be engaged. When someone is a foodie, you often take their restaurant recommendations; when someone is a huge sports fan, you take their suggestions on who to draft in a fantasy pool. This theme is the same in financial markets, especially in private financial markets, and even more so in early-stage private financial markets. When extremely established and successful investors embrace an idea, it incentivizes other investors to follow suit in prevailing "up-rounds", providing a windfall for the initial investors even though quite often little or nothing has substantively changed in the company itself.

When Warren Buffett's Berkshire Hathaway reports its new holdings, as well as positions it has trimmed, it often sparks a residual effect on the stocks themselves.

If someone, often hailed as the greatest investor of all time, is buying a stock, many other investors will follow, in turn driving up the price. For instance, on follow, in turn driving up the price. For instance, on November 16 of 2022, , Buffett disclosed an increased stake in Paramount Global, and the stock promptly jumped more than 5 percent.

This same type of FOMO (Fear of Missing Out) investing is hailed as one of the causes of recent public market bubbles—both with meme stocks like GameStop and AMC, which are down ~50 percent and ~80 percent this past year respectively—and with "blue-chip" technology investments such as Canadian-based Shopify which has also seen its stock fall almost 75 percent in the past year after a meteoric rise. (As of Jan 1, 2023).

Venture Capital

This same principle of following the leader applies in that targets early-stage companies with long-term growth potential. Venture capital is generally sourced from established firms, angel investors, and other financial institutions. Leading venture capital firms include A16Z (Andreessen Horowitz), Bain Capital Ventures, Bessemer Venture Partners, Greylock and Sequoia Capital—to name a few. Each of these firms manage billions of dollars, primarily dedicated to early-stage companies.

These firms didn't just come out of nowhere; they built up their reputation—and in turn, their assets under management—over years of successful early-stage investing. For instance, some of Sequoia Capital's best investments include ByteDance (TikTok's parent company), Airbnb, DoorDash, Instacart, Stripe and Zoom. A16Z's track record is equally outstanding, having invested early on in companies such as Instagram, Lyft, Slack, Reddit and Github.

With track records like these, it makes sense why other investors want to invest alongside these savvy firms. Once established as industry leaders, when successful firms make investments, other firms often compete to participate in the following rounds. With typically higher valuations and shortened timespans between capital raises relative to companies in similar stages accompanying each new round, the earliest investors effectively start out with an implied premium before the race for success has really even begun.

Diving Deeper

In March 2021, livestream shopping platform WhatNot, a platform for collectors to buy and sell collectibles, raised a $20M Series A led by A16Z. Just two months later, in May 2021, it raised a $50M Series B led by Y Combinator (YC), and four months after that, it raised a staggering $150M Series C— cementing it at a $1.5 billion valuation. Since raising money from the likes of A16Z and YC, other investors piled in, allowing the company to raise more and more money leveraging the famed VC investors' "stamp of approval". Less than a year later, in July 2022, WhatNot raised $260M in Series D funding, bringing its total funding since the initial $20M Series A led by A16Z to over $460M, and its valuation up to $3.7B (a 2.5x increase from the Series C round in September 2021).

This is not to say that WhatNot isn't a great noteworthy how much money it raised, how quickly it raised it, and the exponential valuations it was able to achieve in the ensuing rounds after its Series A led by A16Z.

For these established investors, this pattern means they are able to consistently underwrite the growth of a given company at scale to result in future cash flows that will ultimately warrant a certain exit multiple deeming the ~2-3x return they are seeking for investing at such a late stage.

A scarier example of this pattern occurred with FTX, which raised ~$210M from Sequoia Capital in its Series B—at an $18 billion valuation. Only two months later, the company was valued almost 40% higher at $25 billion, and six months later, FTX raised a $400M Series C at a staggering $32 billion valuation as investors piled in after Sequoia. To be fair, as of this point in time, it is very unclear what happened with FTX, as some investors are saying that in their diligence process, the company looked like "a healthy, growing business that provided an easy-to-use platform for people to buy, sell and store crypto."

As of November 11, FTX filed for Chapter 11 Bankruptcy after it was not able to keep up with its liabilities and faced a liquidity crisis. Sequoia released a letter to shareholders in which they announced they were writing the investment down to $0. However, FTX raised over $2B in its lifetime, with only $210M coming from Sequoia. Moreover, the other 80 investors that lost roughly $1.8B, some of them with equally impressive track records as Sequoia, such as Tiger Global, along with individuals witnessing this pandemonium, may become warier investing at premium valuations without adequate due diligence, even if firms like Sequoia or A16Z invested before them.

Given that these firms primarily base their returns, other than on liquid exits (IPOs and private acquisitions), on subsequent funding rounds—are their *returns inflated? It poses the question that there may be a never-ending cycle of "Respected Firm Investment"—other investors follow at a higher valuation—Respected Firm Raises more money based on these returns—Respected firm invests in other companies. Are the returns really based on material changes in the company's operations and bottom-line growth, or are they simply based off the money following them?*

Funding Dynamics
It is also noteworthy to touch on the dynamics of raising funds in recent economic environments.

In 2021, founders had the "leverage" in a time where it seemed like every company was raising massive amounts of funding and VCs had huge pressures from their investors to deploy capital in a timely manner. This fear of missing out on the next Facebook or Google puts pressure on investment firms to cut corners in their due diligence. Moreover, founders were able to give VCs extremely tight deadlines, which also led to a substantial lack of diligence opportunities.

For instance, Instanbul-based delivery company Getir was able to raise a Series B, C, and D, cumulatively totalling $983 million, in just a six-month period – moving from an $850 million valuation in its Series B to a staggering $7.5 billion valuation in its Series D. Another example of extremely quick rounds occurred with electric vehicle company Rivian, who raised three rounds and over $17 billion in 2021 alone (two private rounds and one through an IPO). Again, this is not to say Getir and Rivian are not an outstanding companies worthy of such funding; it is simply noteworthy how fast they were able to do so. However, it is also relevant to mention that Rivian's stock is down over 85 percent since IPO.

In 2022/23, as "real diligence" returns – referring to longer periods and inherently more in-depth research, VCs and other investment firms now have the leverage given that founders simply cannot raise a round led by the fear of missing out anymore.

Moral of The Story
Overall, these aforementioned venture capital firms are industry leaders for a reason—they are some of the most sophisticated and successful investors in the world. Following their investments often makes sense, and to a certain extent, they deserve the "premium" that they warrant, but when the party stops, there can be serious consequences.

At the end of the day, it is vital that investors conduct their own due diligence to inform their investment decisions and not rely on others - no matter how established they are.

Even Warren Buffet is wrong from time-to-time.

Demystifying the Middle Eastern Venture Landscape

Written By Petar Mijacevic, Editor | Illustrated by Alex Lian

As North American powerhouses such as Wall Street, Silicon Valley, and Bay Street remain idle in a rate-driven lull within the venture environment, the Middle East has emerged as the bustling VC performer with activity expanding beyond the heights of its skyscrapers. Middle Eastern startups attracted a record $3.93B in funding in 2022 and the region experienced 57 percent IPO transaction value growth in 2022 YoY, becoming the only region globally to see venture growth. Despite centuries of Western allure and fantasizing over the Middle East, Western investors fail to put their dollars behind their dreams for wealth in the region's venture opportunities as the region remains underweight in asset allocation models relative to global competitors.

Underweight in Asset Allocation Models

For asset managers seeking global diversification, firms have the choice of applying various asset allocation frameworks when deciding how to allocate and deploy capital on an overall portfolio level across different regions and countries. Two of these main methods used in practice are GDP and share of market capitalization weighting, where asset managers will allocate capital proportionately to regions or countries based on their percentage of global GDP or market capitalization to capture its relative economic importance. Despite these percentage of global GDP or market capitalization to capture its relative economic importance. Despite these asset allocation models traditionally being proven to reduce portfolio risk and variance, like all other regions, the Middle East is afflicted by Western home country bias on external investment. When compared to other regions, the Middle East fares far worse in attracting Western foreign investment when looking at venture investment, FDI, and asset manager portfolio allocations.

If focusing on GDP-weighted asset allocation, in 2021, the Middle East & North Africa (MENA) region defined by the World Bank generated $3.68T of GDP in 2021, while global GDP was $96.53T, thereby representing 3.8 percent of global GDP.
On a market capitalization basis, MENA's listed domestic companies represented $4.67T of $93.69T in 2022, representing 4.9 percent of global market capitalization. However, when normalizing to factor out the $2.1T market capitalization of Saudi Aramco which went public in 2019, its proportion of global market capitalization was 2.74 percent.

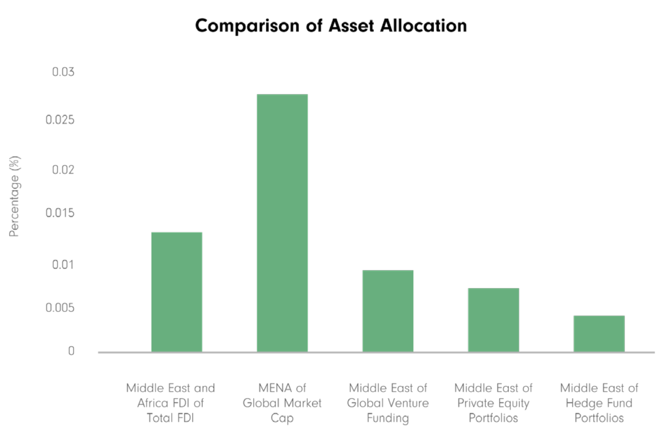


Figure I

When compared to Western investment, Middle Eastern startups only obtained 0.8 percent of the of the $445B of global venture funding, the Middle East and all of Africa has received only 1.9 percent of U.S. FDI (32.7 percent is directed to Israel; includes energy investments) and it comprises only 0.7 percent and 0.4 percent of U.S. hedge fund and private equity portfolios respectively. Additionally, while high income Middle East countries like Saudi Arabia, the United Arab Emirates (UAE), Egypt, Qatar, and Kuwait might be perceived as drivers of allocation, these signs of under allocation on a GDP and market capitalization basis remain on a country-by-country level.

Qualitative Risk Factors for Underweight Allocation

While the Middle East has quantitatively received underallocation of foreign investment, investors have historically justified this on the basis of political, legal, that and cultural non-alignment, regional instability, and oil dependency. These factors deter service sector investment by presenting risks to expected cash flows, thereby being reflected in discount rates and factor models. However, over the past decade, major transformations towards alignment with the West have been made in dropping legal barriers and promoting investment.

On a legal basis, a significant barrier deterring foreign investment in the Middle East was laws around foreign ownership, which traditionally limited it to over 49 percent and required local sponsors. However, in the past five years, the UAE, Saudi Arabia, Qatar, Oman, and other countries have relaxed these laws to allow 100 percent foreign ownership for most industries, serving as a catalyst for increased investment interest in the Middle East. Additionally, the favourable taxation of prospective service sector ex-pats and foreign firms plays a role in attracting capital, with many Middle Eastern countries having low / no income tax and tax-free business zones today. The UAE is a regional leader in this aspect, with over 40 “Multidisciplinary Free Zones” where foreign investors side-step business barriers in traditional markets through exemptions on corporate and income taxes, customs duties, ownership regulations, capital gains taxes, and allowances of 100 percent repatriation of capital and profits. Lastly, oil dependency has declined over the past 10 years across major producing Middle Eastern countries, with oil rents falling from 26 percent of GDP to 15 percent, a prelude to the infrastructure governments have created to boost investment in service sector diversification.

Strong Ecosystem for Venture Growth

In spite of current underallocation for the Middle East, it possesses a compelling ecosystem for Western investors to back venture growth through sovereign wealth fund investment, locally specialized asset managers, and underlying secular investment catalysts.

With North America's largest diversified wealth fund being the Canada Pension Plan Investment Board with C$570B in assets under management (AUM), this pales in comparison to the scale of Middle Eastern sovereign wealth funds ("SWFs"). The ten largest Middle Eastern SWFs account for ~$4T in AUM, about twice the size of Canada's GDP, and includes the Abu Dhabi Investment Authority, Kuwait Investment Authority, Saudi Arabia Public Investment Fund, Qatar Investment Authority, Investment Corporation of Dubai, and Abu Dhabi Mubadala Investment Company. Most of these SWFs have globally diversified portfolios across various asset classes have mandates for local investment, thereby wielding immense influence over the business and venture ecosystem of the Middle East. Ultimately, throughout the lifecycle of prospective and realized Middle Eastern unicorns, Middle Eastern SWFs have played a major role in attracting foreign investors as these mandates to diversify local economies virtually enable a higher probability of success.

Within the lifecycle of the Middle Eastern venture environment, SWFs will rely on local venture capital funds (VCs) for sourcing investment opportunities at venture and growth stages. While these VCs don't carry the AUM and name reputation of funds like Sequoia and Accel, major VCs like Wamda Capital, Middle East Venture Partners, RAED Ventures, and Shorooq Partners have been instrumental as incubators for SWFs and global investors to fund Middle Eastern startups. With tech unicorns like Careem, Fawry, Kitopi, and Swvl emerging from the Middle East, and pre-unicorns like Pure Harvest Smart Farms, STARZPLAY, Tamara, Sary, and Postpay, Middle Eastern VC funds have been instrumental in identifying promising ventures in Pre-Seed through Series funding, where major Middle Eastern SWFs and then international VCs have followed. With exits in previous years including Uber's purchase of Careem, Amazon's purchase of Souq.com, and Carriage's acquisition by Delivery Hero, Middle Eastern ventures have proven their ability to achieve successful exits for foreign investors.

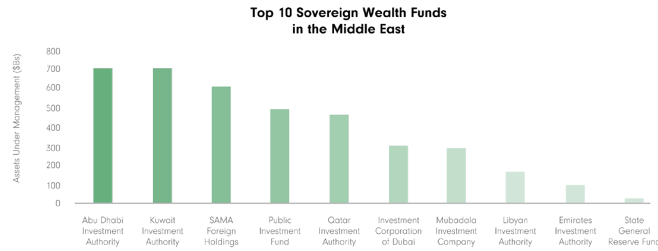


Figure I

Moving forward, there are major long term investment catalysts in tech that Western investors can point towards. The Middle East's median age is 22 years old, and the digital savvy generation has driven increased adoption of technology in the region, with 94% of the population owning a smartphone. But despite this, the digital economy remains untapped today, presenting a unique environment for tech-enabled growth where Western markets have tapped out. McKinsey has highlighted that e-Commerce penetration in the Middle East remains at 11 percent relative to 19 percent globally, only 8 percent of SMBs having an online presence, and the overall digital economy consists of only 4 percent of GDP. This is accelerated by local cultural differences that increase the difficulty percent of GDP. This is accelerated by local cultural differences that increase the difficulty foreign greenfield, enabling Middle Eastern companies that traditionally lag the U.S. in intellectual property can adopt IP to meet regional needs.

Sure, the Middle East is still presented with the struggles of regional conflicts, political differences from the West, and oil reliance. But 200 years ago, the same challenges also existed in its untapped deserts and did not limit its rise to becoming the preeminent global oil powerhouse. Today, with capital flows from Western investors and enabled by its SWFs, local VCs, and its underlying investment catalysts, the Middle East has the potential to transform its oils flows and desert valleys into another silicon valley competitor.

From Rags to Riches: The Story of China's Miracle Economic Growth

Written By Chanelle Cai, Editor | Illustrated by Annie Ye

In the 1960s, constrained by scarce resources, rationed provisions, and the omnipresent scrutiny of the CCP, the people of China led lives marked by simplicity and routine. However, in the coming years, China embarked on an extraordinary economic transformation, propelling itself from a state of impoverishment to unprecedented wealth and prosperity. Fast forward several years, the country now holds its status as the 2nd biggest economy, characterized by the World Bank as "one of the fastest sustained expansions by a major economy in history." Renowned for its low-cost manufacturing capabilities, China has positioned itself as a prominent player in the global market. Many overseas companies have recognized its potential, choosing to establish their supply chains within the country, furthering China's influential role within international markets. In this editorial piece, QBR Editor, Chanelle Cai, looks to explore China's formidable economic evolution by diving into the country's history of hardships and triumphs. By tracing its journey through time, a clearer understanding is obtained on the vital role that China holds both presently and in the foreseeable future, as it continues to shape and influence the global economic landscape.

The Past

Chairman Mao Zedong - In the years leading up to its economical transition, China held its reputation as one of the world's poorest nations. Under the leadership of Chairman Mao Zedong, the head of the Chinese Communist Party (CCP) who assumed power in 1949, the country operated under a centrally-controlled economy. Led by him, the country's economic output was largely controlled by the state—they determined production goals, controlled prices, and allocated resources throughout most of the economy. These economic policies contributed greatly to the creation of an inefficient and unproductive economy, as indicated by China's real per capita GDP, which was only one-fortieth of the U.S.' level.

The Leap Forward Years - At the time, the CCP government was also certain that economic growth could be achieved through an acceleration of its industrialization process. Consequently, the years between 1958 and 1962 witnessed the beginning of the Great Leap Forward, driven by the CCP's ambition to transform China from an agrarian-based economy into a communist society—one that would outproduce the industrial accomplishments of Great Britain, the founder of the Industrial Revolution. As a result, the CCP transitioned a substantial portion of its agricultural workforce into the industrial sector while prioritizing investments in heavy industries like steel and concrete. However, the growth seen during the years of the Great Leap Forward, primarily driven by capital accumulation, ultimately proved to be unsustainable and resulted in dire welfare consequences. Not only did it trigger a severe economic downturn, it also greatly damaged China's agricultural production, causing the Great Leap Famine that killed more than 30 million people.

The Cultural Revolution - Following the disastrous failure of the Great Leap Forward, Chairman Mao was blamed for the events and subsequently initiated the Cultural Revolution that lasted from 1966 to 1976. This was a sociopolitical movement aimed at reasserting Mao's control and purging the traditional ways of Chinese life. During this period, the Red Guards, students answering Mao's call for communist revolution, perpetrated mass killings against perceived rebels, closed schools, and destroyed historical sites and cultural relics. The resulting widespread political chaos, along with the loss of millions of lives, inflicted significant disruption on China's economy, limiting economic output and further deepening the country's prevailing economic crisis.

"Gaige Kaifang" - After the death of Chairman Mao in 1976, China was left grappling with the scars of his rule. It wasn't until 1978 that the Chinese government recognized the necessity of economic change for the nation. Under the leadership of Deng Xiaoping, they evaluated their strategy, seeking to stimulate economic growth and improve living standards. That year, they began their new strategic policy of Gaige Kaifang, meaning "reform and opening up." This marked the beginning of China's remarkable journey towards economic prosperity, propelled by a strategy involving large-scale capital investments, decentralization of the economy, and rapid growth in productivity acting as the driving force.

Aggregate productivity is the key - Although China's high-level investments, facilitated by their substantial domestic savings, played a significant role, the remarkable gains in efficiency and productivity are arguably the primary drivers of its economic growth. Between the years 1978-2008, the contribution of human capital accounted for 38.1% of China's economic growth. This was mainly due to two reasons: an increasingly larger labor force and heightened labor productivity. High fertility rates in the 1960s-1970s meant that China's working- age population surged from 62% in the early 1980s, to a growth of 75% in 2010 (Figure I). Consequently, this positive change in demographic raised per capita GDP since a majority of the nation's population were part of the labor force. In addition to experiencing a growth in its workforce, China witnessed a dramatic surge in labor productivity. As part of the Gaige Kaifang plan, China's government targeted its agricultural sector, which faced the greatest repercussions from the Leap Forward years. They implemented two changes: first, raising prices for agricultural goods and second, creating ownership incentives for farmers, allowing them to sell a portion of their grains at market prices. The increase in food alleviated China's food crisis and started a structural transformation of the labor force. Specifically, the government reallocated a large portion of agricultural workers to the more productive manufacturing and service sectors, causing agriculture's share of total employment to decline from 69% in 1978 to 26% in 2007. As a result, total factor productivity grew 4.01% on average per year between those years (Figure II). This enabled China's agricultural output to increase by 47% in this period. From these transformations, it is evident that a significant proportion of China's economic growth is linked to the advancement in aggregate total factor productivity. Without this growth, the economic progress achieved would not be possible.

The Share of Employment in the Private Sector (1978-2014)

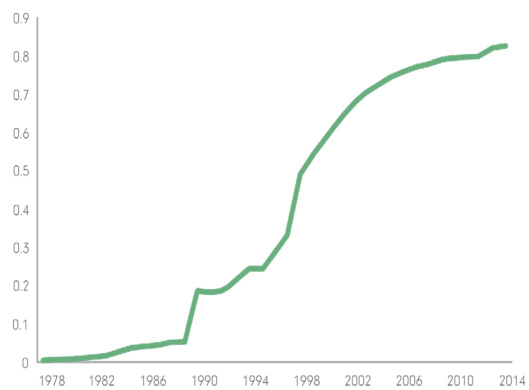


Figure I: Source Chinese Statistical Yearbook (various years)

Moreover, China's economic shift to free market principles, as part of the Gaige Kaifang plan, encouraged the rise of the non-state sector (i.e., private firms) which greatly benefited the economy. Along with boosting foreign direct investment (FDI) inflows, as open cities and development zones offered appealing tax and trade incentives, the removal of trade barriers brought about competitive forces and the growth of China's export market. With the increase in FDI, also came an introduction to new technology that enhanced efficiency in sectors such as manufacturing and services. Guided by the Gaige Kaifang plan from 1978-2018, China's economy rose from the ashes, achieving an annual real GDP growth of 9.5%. Thus, enabling the country to dramatically double the size of its economy every eight years—growing to an economy 40% the size of America's by 2010.

The Present

A Miracle - In just 40 years, not only did China's GDP grow to staggering levels, but more than 800 million people were lifted out of poverty as quality of life and access to health and education drastically improved. Acknowledged by renowned investor Howard Marks during the Forbes 2022 Wealth Summit as the "Chinese miracle," China has emerged as an economic powerhouse. Operating under a socialist-market economy, the country has established its place on the global landscape by leveraging the strengths of its manufacturing, services, and agriculture sectors. Nowadays, the country is most known as the "world's factory," its global manufacturing output reaching 28.7% and placing 1st out of 10 other countries, as reported by Statista (Figure III). With a population of ~1.41 billion, China offers an abundance of human capital, allowing companies to benefit from reduced input costs. Further, the country's vast reserves of raw resources and low environmental regulations make it a more appealing choice for manufacturing compared to countries like the U.S. and Canada.

Employment Share, GDP Share and Total Factor Productivity Growth by Sector

	Average annual total factor productivity growth (%)			
		Nonagricultural sector		
Period	**Agriculture**	**Nonstate**	**State**	**Aggregate**
1978-2007	**4.01**	**3.91**	**1.68**	**3.61**
1978-1988	2.79	5.87	-0.36	3.83
1988-1988	5.10	2.17	0.27	2.45
1998-2007	4.13	3.67	5.50	4.68
Year		Employment share (%)		
1978	69	15	16	100
2007	26	62	12	100
Year		GDP share (%)		
1978	28	27	45	100
2007	10	70	20	100

Figure II

Additionally, China has achieved significant strides in technological advancements with super-apps like WeChat. Serving as the predominant communication platform, a universal payment mechanism across businesses of all sizes, and a gateway to companies' membership accounts and menus via quick QR code scans, WeChat has become an indispensable part of daily life. To highlight the absolute dominance of mobile payment usage in China, in 2018, WeChat accomplished 1.2 billion transactions in a day, whereas Apple Pay only did one billion a month. China's innovative advancement, coupled with its quick adoption by citizens, allowed the country's total gross expenditure via mobile app (roughly $54 trillion) to reach a level 551 times greater than the total expenditure in the U.S ($98 billion).

Repercussions of COVID-19 - In the aftermath of the pandemic, China's economy suffered a substantial decline due to the government's zero-COVID policy, which involved a series of strict lockdowns and rigid measures aimed at eliminating the virus. The impact of the restrictive measures were clear across China's wholesale, retail, and tourism sectors, causing a detrimental drop in consumer spending. Additionally, the country's manufacturing sector faced a setback due to a slowdown in export demand, furthering the challenges arising from a real estate crisis and weak customer demand.

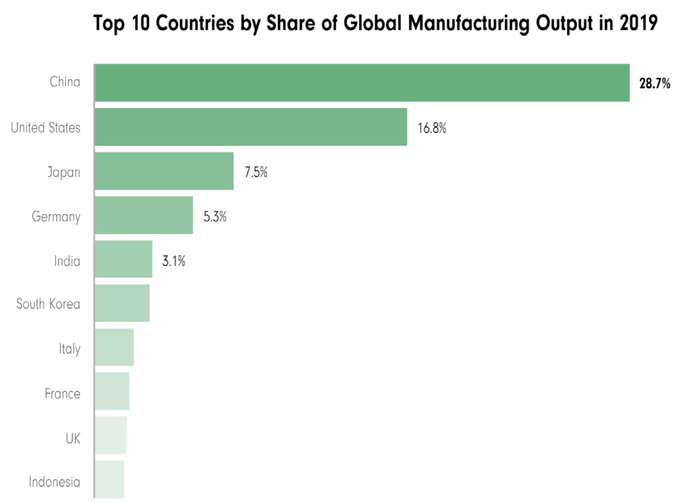


Figure III

Plans of economic revival - Since lifting pandemic restrictions, China's economy has been struggling with the challenge of rebounding and recovering from the last three years of decline. In an effort to stimulate the economy, China plans to implement a 12-year economic plan with consumption as its primary driver, rather than using effective investments. This policy highlights household spending decisions over the state directing and controlling companies. However, relying on consumption-led growth is not a simple fix for the economy, as many of China's existing policies and immediate economic priorities clash with the long-term plan. Specifically, the CCP's decision to strengthen its all-round leadership of private enterprises, focusing its attention on state-controlled sectors of the economy. More recently, China's central bank cut its main interest rate to encourage consumers to pull out cash and reinvest it into the economy through spending. The government is also considering whether or not to use the country's power as a major exporter for economic recovery, especially as its currency, the renminbi, has depreciated 7% against the US dollar, making China's goods much cheaper to buyers. While China's GDP grew 4.5% YoY during Q1 of 2023, there are still vast amounts of room for economic growth as the country deals with the lasting remains of the pandemic. Nonetheless, as China made its transition from the past to the present, it is clear that the country has undergone an unparalleled transformation, encompassing both its economic and societal dimensions.

The Future

The possibilities are endless

Although concerns about a potential economic downturn in China have sparked market anxieties surrounding Chinese companies, investors anticipate that the country's impressive track record of GDP growth will foster resilience and enable its ability to bounce back in the face of a possible recession. In May 2023, China also revealed their Jing-Jin-Ji industrial cluster plan, aimed at fostering growth for its developed industrial sector ecosystem in the Beijing-Tianjin-Hebei region. Achievements on this plan will improve economic growth and China's overall global competitiveness, illustrating a solid driver in its long-term economic recovery. Despite the adversities that both Chinese citizens and the nation as a whole have faced throughout history, China has undeniably made exceptional progress in its economic standing. As it continues its commitment to improving the well-being of its people, the country's resilience and capability for innovation will remain a driver in its economic growth and global economic position. These key factors, in addition to China's trajectory from rags to riches, have sparked investor and analyst assumptions that its gross GDP will soon surpass that of the United States, cementing its position as a powerful force in the world economy. In an ever-changing landscape where choices and decisions can alter the course of the world in an instant, the pressing question arises: How rapidly will China's economy outpace the growth rate of the U.S.? And in this era of uncertainty, will it reach a point where prediction converges with reality?

Does Life Really Imitate Art?

Written By Ben Kavanagh, Senior Editor | Illustrated by Rachel Lee

The world of finance has always, and will likely continue to be, a haven for compelling cinema. While many apathetic folks see to it that their personal viewing repertoire ends abruptly at Scorsese's The Wolf of Wall Street, therein below the surface lies a wide selection of films in which tasteful critique and satirical conjecture are foregrounded. Simply put—as far as Hollywood is concerned, Wall Street professionals bear an irrevocable stain in the field of public relations with no room for salvage. All the while, themes of compliance and corporate responsibility are undoubtedly a focal point in contemporary financial markets. The 'golden days' of corporate raiders and pump and dump strategies are well past us, as key verticals in the industry have evolved into a closely governed and sophisticated machine. In this editorial piece, QBR Senior Editor, Ben Kavanagh, looks to evaluate the veracity of both historical and recent films that are focalized around investment management, and uncover whether creative liberties have outpaced the true advancement of the industry over the last three decades.

1980s Corporate Hedonism

"Greed, for lack of a better word, is good. Greed is right. Greed works. Greed clarifies, cuts through, and captures the essence of the evolutionary spirit", exclaimed by Michael Douglas as the iconic Gordon Gekko of Wall Street (1987), a villain fighting the greater good in the name of excess. The plot follows Bud Fox, an aspiring stockbroker who convinces himself a role at a high-powered brokerage led by Gekko. Upon an unsuccessful interview pitch, Fox eventually shares insider knowledge on an investment opportunity in order to land the role, opening the floodgates to a long and twisted path of securities fraud and impending indictments. The prevailing rhetoric is quite clear—tactless greed will breed champions of the industry, and those willing to cross any number of lines to close the deal will surpass their peers. The popularity of the film rippled across public perception of real-world Wall Street, shedding light on widespread hedonism and materialistic tendency. The question remains; was this a historically accurate depiction of life as a 1980s stockbroker, or rather an extension of creative bias?

According to James Stewart, author of Den of Thieves, suggests the meaning of the 1980s lies in the true crime stories of Martin Siegel, Dennis Levine, Ivan Boesky, and Michael Milken, participants in what Stewart considers "the greatest criminal conspiracy the financial world has ever known." Siegel, in his mid-thirties, already memorialized himself as a premier dealmaker, was conspicuously caught dealing inside information in exchange for briefcases of cash at the Plaza Hotel, and it was far more than a one-time event. This, along with many other cases, such as the downfall of Drexel Burnham Lambert, and the junk bond fuelled-LBO era, were ultimately setting a precedent that the rich are not getting rich as a product of superior discipline and rigorous analytics, but rather via networks entirely inaccessible and detrimental to the average working American. Further, the sheer exuberance and braggadocious nature of wall streets' finest was plenty reason for the broader populations to look unfavourably on the industry. It truly was the decade of BMWs, billion-dollar deals, and executive salaries trading at three-digit multiples on employees. Of course, that is not to suggest the average broker at any American firm was violating securities law every morning before even having their morning coffee, but their bosses-bosses-boss was much more likely to be. The 1980s was truly a textbook lesson in the perils of unchecked intemperance.

So, what is Wall Street trying to tell us? A first lessonto consider is that of efficient markets; whereby capital markets operated with semi-strong form efficiency at the absolute best, and those who informed their financial decisions based on privileged information could, in turn, be rewarded with illicit capital gains. Also, it sheds light on how the unprecedented wealth generated by these executives allowed them to inhabit a surreal world and remain out of touch with society. The historical accuracy in this film appears to hold up; until of course, black Monday arrived and stopped the overzealous pace of the 80s at a halt. Once investors panicked and exited their market positions, the point of re-entry that came to follow was far more pragmatic, forcing the remaining wall street hotshots who were not serving time to come by shareholder value honestly. As the 20th century rounded itself out, markets grew more efficient as further compliance and regulatory safeguards were instituted, and in many ways, Wall Street was cleaning up its act, regardless of whether public perception was catching up to that fact.

1990s: Negligible Risk Oversight.

The transcendence of the 1980s to the 90s on wall street can aptly be characterized by Sophocles' phrase, you can kill a man, not the idea. While of course it was not another decade plague with corporate raiders and hostile takeovers, the 1990s, and particularly the collapse of Barings Bank, shed light on a newfound way for financial giants to fashion their way into obscene returns, arbitrage. While arbitrage in itself is by no means illegal or prejudiced, the complex execution leaves significant room for risk that can upheave the livelihood of millions when not closely monitored. Enter exhibit A; 1999's beloved Rogue Trader which encapsulates one man's trading mishap that caused a 200+ year old merchant bank, praised for stability, to go insolvent. Queen Elizabeth II was even a client of Barings. The film follows Nick Leeson, the 28-year-old who headed the derivatives desk for Barings Singapore and was responsible for the catastrophe which cost the bank ~$1.4B and deteriorated Asian markets for a brief stint. While this film doesn't glamourize eccentricity and greed, it does maintain an agenda of exposing to the world what unchecked ambition and risk-taking can lead to.

In essence, Leeson was executing unauthorized arbitrage trades between two futures exchanges and failing to recognize losses in order of hundreds of millions that came when the strategy failed. Leeson was taking long positions (bought) in Nikkei futures, and short (sold) positions in JGB futures, as well as a short volatility in Nikkei ETFs. Instead of initiating simultaneous trades to exploit microscopic differences in pricing, Leeson held his contracts and held a 'short straddle'. This is a strategy whereby the investor believes an underlying asset will move significantly higher (or lower) than the lives of the options contracts, and if the markets in which you hold these positions eventually turn on you, the losses can have unlimited downside.

The film shows that Leeson's superiors convinced themselves his outsized trading success was a result of no more than putting meaningless management-speak into action and a culture that perpetuated that 'being good was not good enough'. A sheer lack of risk management measures allowed for trades like Leeson to have autonomous coverage of their accounting records and standard P&L checks and balances that existed between back office and front.

Ultimately, Rogue Trader does offer empirically verified insights to the shortcomings of financial service providers and their apathetic attitudes toward compliance in the 90s. In reality, a new leaf was turned shortly thereafter, as derivatives' clearinghouses were mandated, and thus, further record of trade delegated into the hands of third parties. This, along with extensive audits and compliance crack-downs, sent shockwaves through the industry.

2000s-Present: Rebuilding the Global Economy Post-Financial-Crisis

As most are familiar with, the global economy errantly tumbled into an unprecedented recession that spanned between 2007-2009, as markets sternly corrected itself amid a subprime mortgage crisis that had been growing its legs in the years building up to the crash. Although maybe a convoluted storyline for those outside the finance discipline, the negligence of ratings agencies and major financial service providers regarding mortgage credit led to disastrous outcomes for people from all walks of life.

Subsequently, Hollywood wasted no time in releasing a myriad of cinema to dramatize how it went down from the inside and connect people to the facts of the situation. Namely, The Big Short based on Michael Lewis' well-acclaimed book follows a small and unconnected group of savvy traders who caught on early to the speculative nature of the investment products that propped up the housing market. Alternatively, J.C Chandor's Margin Call also recounts the events that took place immediately before the crash. Researchers and economists alike point viewers toward this film for a more vivid depiction of the U.S. Federal Reserves' woeful ignorance to the issue, whereas The Big Short portrays a wider spectrum of sentiments before and after the bubble popped.

One can easily point to the vivid emotion of the protagonist in Lewis' story; FrontPoint Partners' Mark Baum (portrayed by Steve Carrell) as an individual who vehemently opposed the tactics in which banks and ratings agencies employed to market unattractive credit products, while still existing within the bounds of financial system and actually profiting from their demise. Therein also lies Michael Burry (portrayed by Christian Bale) who created the market for Credit Default Swaps based on a keen intuition that the underlying market was irrevocably unstable, and in order to do so, went against his investors wishes in order to enter the short position. What he faced was an insurmountable pile of backlash as it had been widely agreed at the time that mortgage bonds traded like treasury bonds and carried low default risk. Both characters felt absolutely gutted by the fact they were right, and notably do not gloat as the banks topple, but are outraged with the malpractice that has been harboured within financial markets for years. Many even tried to sue the ratings agencies for their lack of objectivity and pushed for policy redrafting to ensure the process was permanently more bureaucratic.

Whereas compared to other films written about high-level finance executives are desperate to make sure the people regard them as reptilian-like hoarders of money with flashy suits, the Big Short places a much higher emphasis on documenting historical events and illuminating a spectrum of emotions. Regardless, the film neglects the thorough layers of diligence that one undertakes in the contemporary landscape to make an informed investment decision, the deeply self-regulating nature of shareholder approval considerations, and layers of compliance that members of the global capital markets must adhere to in every single aspect of their work—offering a much more telling reflection of the current state of roles within the industry, albeit at the cost of entertainment value.

The path of development for capital markets regulatory reform has been subject to several tune-ups, as catastrophic events tend to reveal themselves every decade—much like clockwork—to remind us that there is no free lunch and risk-assessment needs to be dynamic and agile at all times. After all, hindsight has always been and will always be 20/20. On the contrary, as far as Hollywood is concerned finance professionals will always be the blind leading the blind, despite undeniable levels of progress in creating a more efficient, honest, and meritocratic workplace. While the creative liberties of mass media may have underestimated the scale of procedure to which a vast majority of members in the industry adhere to, they do an excellent job in offering insightful critiques and satirical wisdom on the outlier. Perhaps art really does imitate life…

Locked out: The Crisis of Unaffordable Housing for Young Canadians

Written By Evan Marriott, Editor | Illustrated by Annie Ye

We're Locked Out! As the dream of finding affordable housing increasingly slips out of reach for young people across Canada, a scathing crisis has unfolded, casting a dark shadow on their aspirations for stability and independence. Rising prices and limited availability are painting a grim picture as a generation finds itself locked out of the housing market. It is important to note that this crisis goes far beyond the realm of personal finances as it stifles the ability of young Canadians to plan for their future, invest in their careers, and contribute to their communities. The stark reality is that affordable housing, a symbol of stability and a cornerstone of financial security, has become an elusive dream for many who are in search of it. In this editorial piece, QBR Editor, Evan Marriott, looks to highlight the various factors fueling the housing crisis, its far-reaching consequences on the lives of young individuals, and explore potential avenues to weather the storm and pave the way toward a more accessible and equitable housing landscape for future generations of Canadians.

The Crisis

At the moment of writing this article, my peers and I are on the cusp of our final year undergraduate studies, poised to embark on the next phase of our life's journey. It is a juncture that demands our attention, as we become aware of a reality beyond lecture halls and the lively atmosphere of house parties. As we stand on the edge of this new chapter, we cannot help but acknowledge the wave of emotions that washes over us, including one significant concern that is at the core of our ambitions post-graduation; the daunting task of finding affordable housing. Fundamentally, this task is becoming an ever more formidable challenge for young Canadians as the combination of skyrocketing prices, limited supply, and the growing disparity between income and affordability increases the barriers to securing affordable and stable housing. Yet, numerous individuals—particularly students who have yet to embark on their quest for homeowner/rentership—often underestimate the gravity of this crisis along with the profound implications it will have on our lives post-graduation. Fundamentally, this is no fault of our own; we are products of a system that has failed to address this pressing issue. I myself am included in this circle and to be quite frank, I did not realize how valuable it would be to study this topic for myself and my peers until I took the time to delve into it.

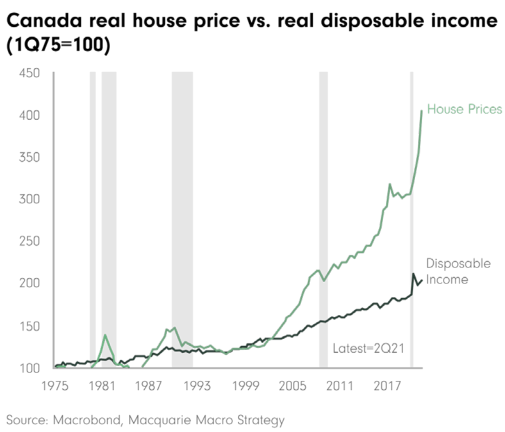


Figure I

After highlighting the importance of understanding this current crisis, it remains vital to look into the statistics in order to paint a picture of what life may look like post-graduation. According to the Canadian Mortgage and Housing Corporation (CMHC), the average price of a home in Canada has reached $716,000, while rental rates for one-bedroom apartments have soared past $2,000/month on average as of April 2023. These figures demonstrate a significant surge compared to the numbers from 2019, where the average home price stood at $495,000 and the average rental rate was $1,360/month, reflecting a 31% rise in home prices and a 32% increase in rental rates within just a few years. These substantial increases not only highlight the growing challenges faced by prospective homeowners but also emphasize the mounting pressure on renters, particularly recent graduates entering the job market. In contrast to the soaring housing costs, income growth has been much slower, with a mere 7% increase during the same period, as reported by Statistics Canada. This staggering disparity of 24% (Figures I & II) between rising home prices and stagnant incomes makes homeownership increasingly unattainable. This said, it remains crucial to realize that this scenario has not always been the case in Canada, as housing costs for older generations was much more in line with the incomes they earned. This said, it remains crucial to realize that this scenario has not always been the case in Canada, as housing costs for older generations was much more in line with the incomes they earned.

A couple of weeks ago, I sat down with my grandfather for lunch to catch up after my exchange semester earlier this year in France. As we delved into a lengthy conversation about my time abroad, I wanted to seize the opportunity to prepare for my upcoming article by asking him about housing prices when he was a first-time homebuyer in order to gain a first-hand perspective of the evolving landscape in Canada over that time period. His recollections painted a picture of a different era, where housing was much more affordable and accessible for young individuals who were in search of their first home. For perspective, he shared that he purchased his first home for approximately $21,700 in 1970 during the point in his career where his salary was roughly $11,000. Adjusted for inflation, the equivalent cost today would be $176,186, while his salary would have the purchasing power of $84,748. This would mean that his first home was only 1.97 times his annual salary, while today the average home price is 10.47 times higher than the national median salary in 2021 of ~$68,400. Renters face a comparable situation as according to the CMHC, the average price for a one-bedroom apartment in Toronto has surged to $2,425. This staggering figure implies that an individual

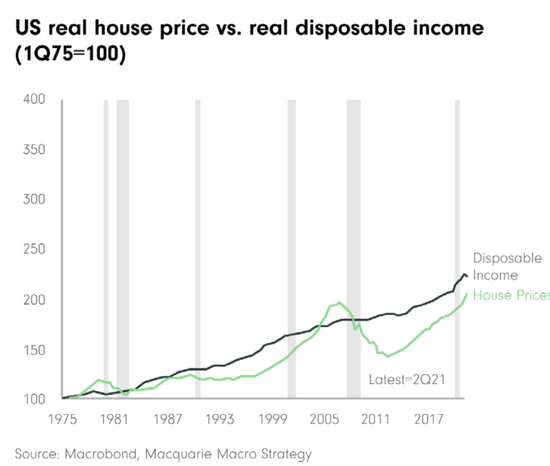


Figure II

earning the national average salary would need to allocate almost half of their annual income (49%) to rent expenses. This puts a significant strain on the financial well-being of young individuals who are in the midst of seeking out affordable accommodations, leaving them with limited resources for other essential expenses and hindering their ability to save, invest, and build financial security for their future.

The Social Impact

Beyond the financial burden that the current housing crisis has placed on young Canadians, it has also unleashed a cascade of social ramifications that experts predict will have lasting effects for years to come. These social consequences encompass a broad range of areas, including homelessness, mental health, employment prospects, and overall well-being. The topic of homelessness in particular is at the forefront of this current crisis as the lack of affordable housing options, skyrocketing rent prices, and insufficient social housing programs have left many individuals and families without a stable place to call home. Homelessness not only disrupts the lives of those directly affected, but also has far-reaching implications for communities and society as a whole. Homelessness leads to increased vulnerability, physical and mental health challenges, and limited access to basic necessities. It also perpetuates a cycle of poverty, as individuals struggling with homelessness, or in this case the ability to secure affordable housing, often face barriers to employment and educational opportunities. This is coupled with the strain it places on social systems, such as shelters, social security, and healthcare. For example, according to Health Canada, homeless individuals are more likely to suffer from respiratory illnesses, infections, mental health crises, and chronic diseases that require ongoing medical care. Treating these conditions is often complex and costly, as homeless individuals face challenges in adhering to treatment plans, accessing follow-up care, and obtaining necessary medications. Additionally, through no fault of their own, the influx of homeless people seeking treatment for preventable ailments inhibits the ability of others to access care, leading to a domino effect and the need for increased funding for public health care. The Canadian Government recently announced an additional $3 billion to combat homelessness across the country, yet one could argue that this additional funding would not be as large in magnitude if we chose to address one of the fundamental issues at hand, affordable housing.

In addition to the surge in homelessness across the country, the prevailing housing crisis has sparked a multitude of consequences that have impeded our generation's capacity to excel in academic studies and secure stable employment within our chosen fields. One significant component of this impediment is student debt. According to Statistics Canada, the average student owes approximately $28,000 in student loan debt upon graduation, excluding any debt accumulated from daily lifestyle expenses, such as food, housing, and textbooks. This ever-growing debt burden, coupled with the high costs of housing, leaves many young individuals with limited financial resources to invest in further education, such as pursuing advanced degrees or vocational training that could enhance their employability. This situation is particularly pronounced in major cities, which, based on primary research through my peers, are the preferred locations for beginning their careers upon graduation. A report published by RBC Economics at the end of 2022 highlighted that housing affordability for young Canadians in Vancouver stood at a staggering 98.1% of their pre-tax income, while in Toronto it sat at 85.9% (Figures IV & V). These statistics underscore the formidable financial challenges that myself and my peers are likely to encounter, which will extend beyond our educational and career ambitions to impact various other milestones in life. The implications of this crisis can significantly influence other key life events, such as the timing of marriage, starting a family, and the ability to save for our retirement. These daunting financial obstacles will most definitely create uncertainty and hinder our ability to plan for the future with confidence if not addressed with adequate solutions.

The Future

So, the question remains, are we locked out? Well, there is not really a simple answer to that question; however, it is evident that something needs to change.

Addressing Canada's housing crisis will require a comprehensive and multi-faceted approach that tackles the root cause of the problem and provides solutions that are not only attainable, but sustainable, and address the long-term issues. One fundamental aspect of resolving the crisis will be to increase the supply of affordable housing. This can

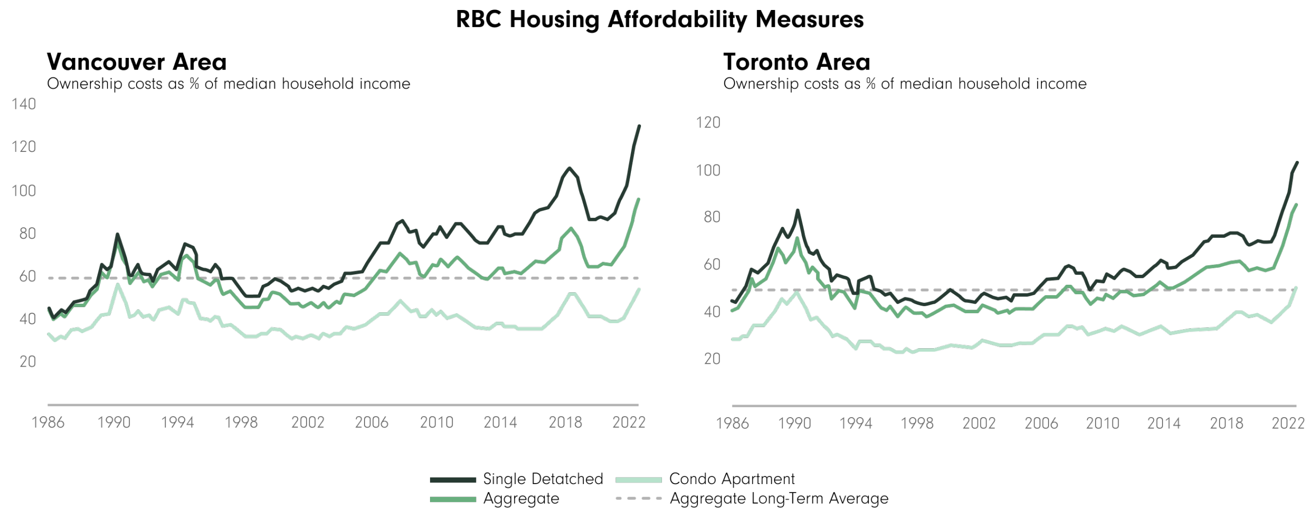


Figure III

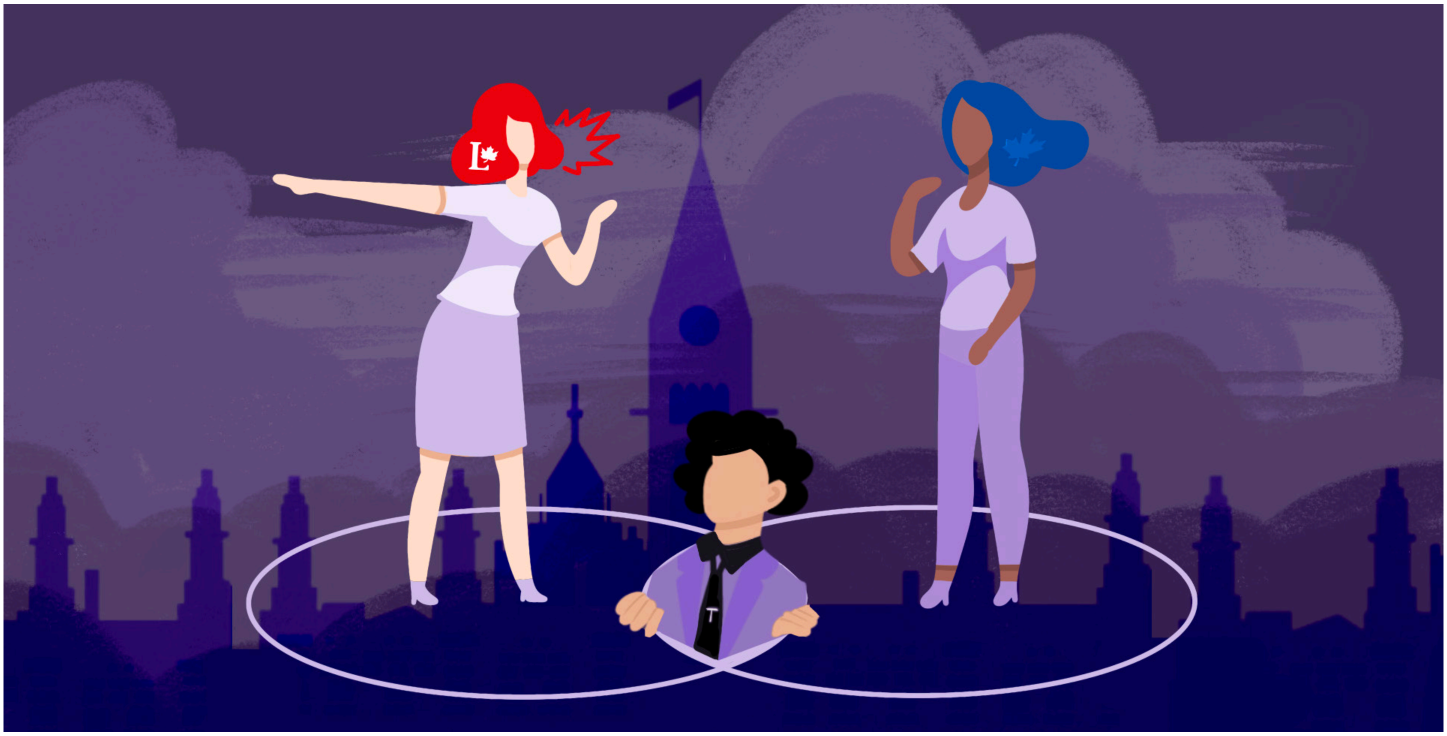
be accomplished through various means, such as government investment, providing financial incentives to developers to include affordable housing in their projects, and streamlining regulatory processes to facilitate development across the country through the elimination of red-tape. Both Federal and Provincial Governments have begun to roll out initiatives to act on these points, such as the Federal Government's $82 billion National Housing Strategy and the Ontario Government's commitment to build 1.5 million new homes over the next 10 years.

Similar effort will also need to be committed toward the rental market, given its particular importance to young Canadians. Stronger tenant protection laws can safeguard renters from unfair practices and excessive rent hikes. Rent control measures can help stabilize rent prices, allowing individuals and families to better plan their finances for the future. Additionally, providing targeted rent subsidies, expanding affordable rental housing programs, and incentivizing developers to include affordable rental units in their developments can support low-income and younger individuals in accessing suitable housing.

In conclusion, Canada's housing crisis is exerting profound and far-reaching impacts on the younger generation, affecting their education, employment prospects, and overall well-being. The soaring housing prices, coupled with limited affordable housing options, have created financial barriers that hinder young individuals from pursuing higher education, obtaining stable employment, and achieving important milestones in their lives. The crisis has also contributed to increased homelessness and exacerbated social inequalities. Urgent action is needed to address this crisis comprehensively, including measures to increase affordable housing supply, improve rental market conditions, address homelessness, and facilitate homeownership. By working collectively with private companies and all levels of government on these solutions, we can create a more equitable and accessible housing system, providing young people with the opportunities they need to thrive, contribute to society, and secure a brighter future for themselves and the generations to come.

POLITICS & THE WORLD

INSIDE



The Liberel Party and The Fall of the Trudeau Legacy

Written By Dhruv Shah, Senior Editor | Illustrated by Annie Ye

The Leader...

Pierre Elliott Trudeau, widely regarded as Canada's most influential and significant Prime Minister, left behind a lasting legacy of improved public infrastructure and progressive social policies. His role in the patriation of the Canadian Constitution and the creation of the Canadian Charter of Rights and Freedoms in 1982 will be upholding Canadians for many generations to come. He was a leading figure for Canadians during his term as Prime Minister for multiculturalism, economic policies, foreign policies, and national unity. Throughout his term he addressed issues related to Québec nationalism and separatism, including the negotiation of the Victoria Charter and the Referendum Act. However, the perception of the name Trudeau and the Canadian Liberal Party being a symbol of progression, unity, and support in the 1980s, has vastly shifted to one of a symbol of separation, outcry, and dishonour in 2023.

The Prodigal Sign

Justin Trudeau, the 23rd Prime Minister of Canada, was considered to be the embodiment of the political legacy of his father when he ran for office in 2015. His campaign slogan, "Real Change," instilled hope among many Canadians for the restoration of liberal and socialistic regulations after nine years of Stephen Harper's Conservative government. He made several promises such as bringing a new style of government, deficit spending, middle-class tax cuts, climate change reforms, infrastructure investment, healthcare equity, and one of his leading promises of legalizing cannabis. He also promised First Nations better access to healthcare and education, strengthening the relationship between the Canadian government and Canadian First Nations. Over the course of the final three weeks of the campaign, there was a notable 50% increase in the proportion of Canadians who perceived him as a strong leader.

From 2011 to 2015, there was a 441% change in the Liberal Party's seats resulting in a landslide victory for Trudeau's Liberal Party. Canadians were not only

Political Parties	Seats in 2011	Seats in 2015	Percentage Change
Liberal Party	34	184	+441%
Conservative Party	166	99	-40%
New Democratic Party	103	44	-57%
Bloc Québécois	4	10	+150%
Green Party	1	1	No Change
Other	0	0	No Change

Table I: 2011 and 2015 Canadian Electorial Seat Wins

looking forward to the prospect of change but excited to see the promised growth in Canada under the Trudeau name. Since his first day in office, he has made many beneficial changes, such as the legalization of cannabis which reduced the influence of organized crime by 85%, gender equality, support for LGBTQ+ rights, and increased immigration levels to bring in skilled workers to help grow Canada's economy. His changes symbolized Canada as a global haven for democracy and equality.

Broken Hearts and Wallets

Unfortunately, the symbolism did not last too long. Trudeau's Canada is currently facing a cost of living, housing affordability and accessibility, healthcare accessibility, and a refugee displacement emergency. Once a haven for immigrants and individuals who want to pursue the Canadian dream of obtaining success and prosperity through hard work is now becoming an unreachable target. Canada is now seeing one of the highest amounts of immigrants leaving its borders in modern history due to high taxation, high cost of living, and the lack of proper healthcare accessibility. During his tenure, he went from a 65% rate approval rate in September 2016 to a 33% approval rate in September 2023.

A promise of providing Canada as a refuge for immigrants and refugees in 2015 has led to an overwhelming number of immigrants and refugees crunching the Canadian housing market which has now made Canada one of the worst countries to be able to afford a home among the G7 countries. The situation has gotten uncontrollable to the point where Ukrainian refugees who were accepted to stay in Canada, are now leaving for Ukraine, a country still at war, as they cannot afford to live in Canada anymore.

Amongst housing and cost-of-living problems, a promise of providing healthcare accessibility in 2015 has now led to approximately six and a half million Canadians, without a family doctor to provide care for them. This situation is assumed to get worse as Canada accepts 485,000 immigrants in 2024 and 500,000 immigrants in 2025.

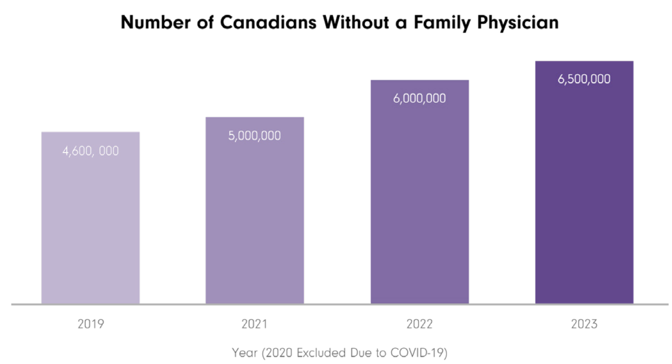


Figure I: Yearly Statistic of Canadians Without a Family Doctor (StatCan, Global News, CTV News, & The Globe and Mail

As Canada already struggles with the lack of family doctors, there has been a sharp decrease in the number of residency spots being filled for family medicine by new medical school graduates, as seen in Figure 2. Along with a lack of interest, many family doctors are closing their clinics or reducing their hours substantially to prevent burnout. With the increasing number of immigrants, the lack of interest in family medicine by medical school graduates, and family doctors closing their clinics, it can be assumed the number of Canadians without family doctors will increase substantially for years to come until changes are made. These changes can be reducing immigration, increasing incentives for current family doctors to keep their clinics open & medical school graduates to enter family medicine residency, or creating more programs where undergraduate pre-medical students can apply for family medicine

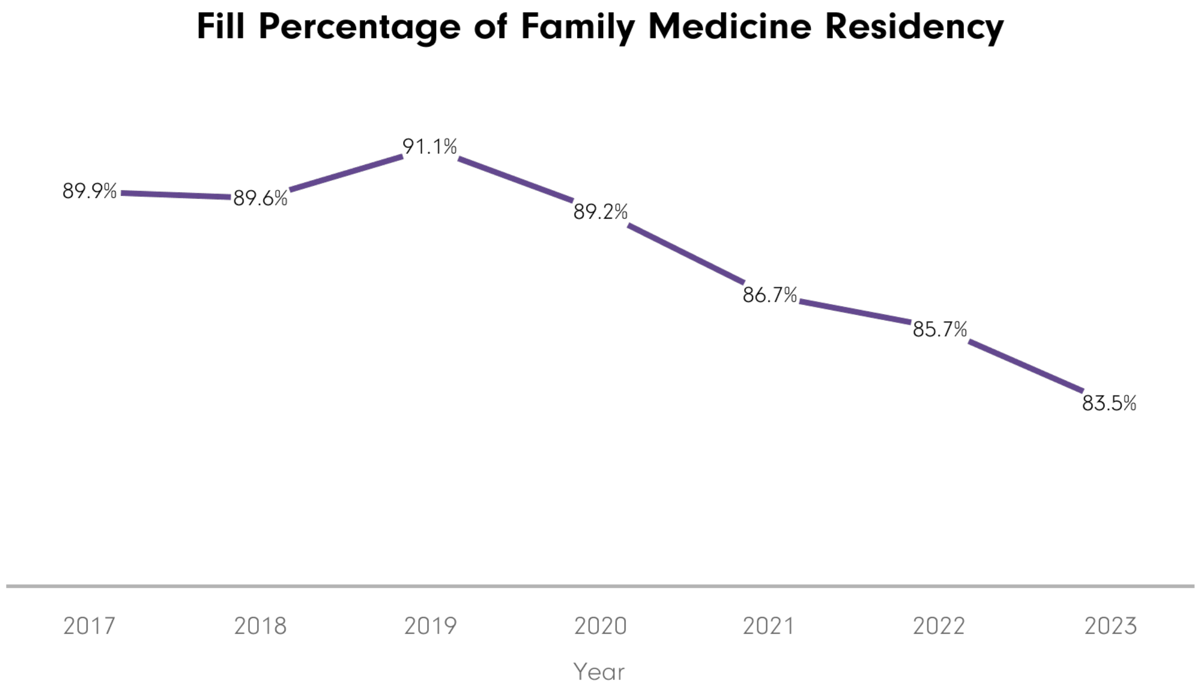


Figure II: Fill Percentage of Family Medicine Residency Spots (CFPC)

residency, or creating more programs where undergraduate pre-medical students can apply for family medicine MD programs at Canadian medical schools, like the Queen's University-Lakeridge Health MD Family Medicine program.

As Trudeau promised immigration, the mass immigration that Canada has undergone in the past two years and will undergo for the next two years will overwhelm all social and public services to the breaking point of collapse, until changes are made.

The Name Does Not Mean Tradition
Canadians have now started to realize that the Liberal Party and its leader, Justin Trudeau, have not only broken their promises made in 2015 but have made it harder for Canadians to survive in Canada today. A political party and historical political surname that once stood for equity for everyone and support for the middleman have created a new normal which goes against everything that Pierre Trudeau's Liberal Party stood for in the 1980s.

From numerous scandals committed by Justin Trudeau such as blackface, WE Charity controversy, SNC Lavalin election donation, etc. to failure of addressing serious human rights concerns beyond Canada's borders such as abuses by Canadian mining companies overseas, the Liberal Party of Canada and Justin Trudeau have hurt the image and broke the meaning of what the political party and the name stood for.

What Does the Future Hold?
With the lack of direction, what does this mean for the next two years till the next election for the Liberal Party and Justin Trudeau? Is all hope lost for them? Not exactly. As Canada and the whole world still recover from the financial and healthcare collapse from the COVID-19 pandemic, Justin Trudeau still has time to win over the hearts of Canadians. He can go back to the promises he made in 2015 and try to fulfill them to give back to Canadians the Canadian dream he pitched. But if he fails, the Conservative Party will be ready to take over his throne in 2025.

Protecting Journalism: Policy Ideation in an Evolving Media Environment

Written By Charvi Guduru, Editor | Illustrated by Annie Ye

As the "fourth estate of politics", journalism upholds citizen, corporate and state's information intake from our daily consumption of the morning news to advising international government decisions. The meaning of journalism and constituents of information sharing have evolved with the incorporation of media and accessible public opinion. However, while the core spirit of gathering, and disseminating news remains the same, traditional journalism has a key focus on objectivity and fairness, advising our general public media discourse - the fifth estate of politics.

News outlets challenge our beliefs and provide insight into current events, holding individuals in power accountable. Journalism is a tool to educate and inform citizen parties of a nation; a vital pillar of our democracy. This fact is theoretically undeniable. However, in our modern media environment, news and information sharing on online platforms participate in shaping harmful political phenomena. Our current media climate is shaped by not only large platforms but the way an individual interacts with this information. Our "fifth estate" is also often described as a threat to traditional journalism as there are additional nuances in this broader technological stage. Within this environment, it's clear now more than ever; we must protect our news content's producers and distributors. However, other important factors add layers of nuance to this conversation.

Fast Media and Mitigating Disinformation

Short-form content is the new revolutionary form of information consumption. It's not uncommon to hear individuals getting their daily news intake from a

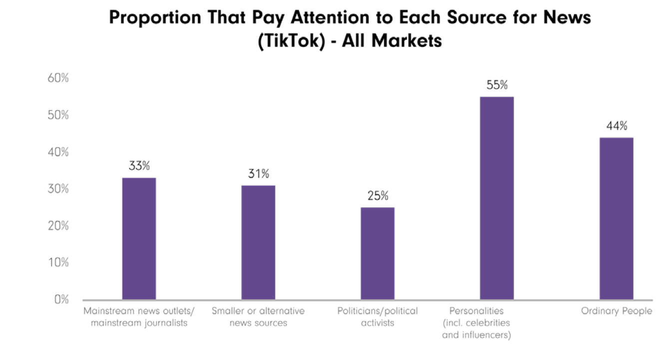
TikTok, and increasingly more platforms are following suit, incorporating their own short-form rendition. As mentioned in the 2023 Digital New Report published by the Reuters Institute for the Study of Journalism, around 20% of 18 to 20-year-olds utilize TikTok as a main news source, a 5% increase from the previous year, and their primary source of news consumption.

TikTok users dedicate increasingly less attention to mainstream news outlets as a primary news source. This short-form content enables an increased consumption of media which exacerbates misinformation, intentional and unintentional alike. Experts commented on the correlation between misinformation and short-form content, specifically platforms such as TikTok. Time and critical thinking are crucial in differentiating right and wrong to form educated political opinions. Increasing individual's access to diverse, and trustworthy news sources creates a more objectively knowledgeable society. This is found in the foundation of research and information gathering. It can filter bias from truth, differentiate fact from fiction, and define well-informed political citizenship.

Addressing Predatory Media Algorithms

To increase user retention media platforms often feed into similar content, showing individuals politicized propaganda that furthers particular agendas. This has been a common occurrence with recent media platforms; however, media algorithms can be harmful to one's consumption of the news. Firstly, there are important points to address regarding theories of increase in political polarization with social media echo chambers. This concept is further explored by The War on Tolerance, reiterating the harm modern social media algorithms have caused to our democracy.

Additionally, the favoring of certain sources and political agendas subconsciously drives audiences toward rejecting other opinions. This restricts the reach of different news sources to audiences, pushing individuals from accessing a diverse variety. Re-feeding information and bias hinders a full holistic understanding of political events. On a corporate level, re-platforming news sources equitably while emphasizing the necessity of diverse political views is important. Media algorithms have the power to change mass perspectives and access to a wide range of news sources is a crucial step.



Source: Reuters Institute Digital News Report 2023

Bill C-18 - A Step Backwards or Forwards

Understanding the importance of journalism in our modern age, governments have progressed towards ideating policies to support news outlets. Policies have been passed by France and Australia with their News Media Bargaining Code setting the precedent. Recently, Canada pushed the Online News Act with Germany and the UK also following suit, discussing the potential of similar bills. Bill C-18 was introduced by the Liberal Party of Canada in April 2022 and passed on July 22nd 2023. The bill installed a system of mediation between news outlets and companies with larger media corporations through revenue allocation. Media platforms would be required to pay earned revenue back to journalism sources registered with the government. This focus of the Canadian government has been one in consideration around the world; How can governments successfully bolster funding for journalism? Furthermore, does the strategy of bridging the gap between news outlets and online communication intermediaries successfully address other modern issues with news content? Let's deep dive into the main elements of the policy.

A New Middleman

The Canadian Radio-television and Telecommunications Committee (CRTC) is the party that will mediate between news outlets and communication intermediaries. The discussions will aim to introduce fair financial compensation for news outlets along with mediating issues regarding intellectual property rights. This mediation from a third governmental party will ensure that news outlets aren't being taken advantage of in conversations. Privatized efforts have been launched by media platforms to support news outlets and different perspectives of the media. One of these projects is the Google News Showcase program. Google reported around 250 million CAD worth of cost-free site linking and partnered with around 150 news outlets. However, reports have come out regarding short-sighted planning as many smaller news firms have been excluded from the private negotiations. Furthermore, media platforms have the ability to fund news outlets based on their agendas, giving priority to those that support corporate interest compared to the good of all. The CRTC's involvement, implemented equitably, would stand as an objective mediator, mitigating the potential of stakeholder bias. However, this extra step will take time and funding of around 5.6 million CAD over 5 years from the Canadian government, and with the wide amount of platforms and news outlets it is projected to take years before negotiations are set.

Reallocating Revenue for Whom?

A major aim of the Canadian government is to fund journalism in a market where revenue is disproportionately held by intermediary platforms. Spreading of information by social media influencers and companies renders the market for news sharing more saturated than ever, decreasing revenue from journalists. By increasing funding for our news sources, we can bolster their business functions. According to the Office of the Parliamentary Budget Officer, the overall increase in revenue for firms is 329 million CAD with around 81 million CAD dedicated to qualified Canadian journalism organizations (QCJOs) and 248 million CAD for broadcasters. This boost can be pivotal to improving the efforts of many journalism sources, however, the firm must be categorized as a QCJO in order to qualify under Bill C-18. Outlets that aren't registered with the government will become severely disadvantaged, and it also creates borders for new journalist organizations to incorporate successfully in the market as they have a lower hand in funding. Furthermore, funding would also be disproportionately allocated towards larger firms with the larger internet traffic within negotiations, leaving out smaller firms.

Retaliation from Large Media Platforms

Since the implementation of Bill C-18, Meta and Google released public statements expressing disapproval of the Canadian Government's measures and retaliated by pulling Canadian news from their platforms. While Canadian news is still available on Google, this has been extremely harmful for social media platforms, Instagram, and Facebook, as an accessible place for many to get day-to-day news. This calls into question whether this current removal of Canadian news on media platforms is worth the Bill, especially with the recent north-west Canadian wildfires. Civilian access to news can mean life or death under these circumstances.

The Larger Picture

As apparent with our modern consumption of media and news, it's important to hold corporations and individuals responsible for sharing unbiased and objective information. Disseminating information in our current environment is carried through the channels of media algorithms, resharing, and third-party influencers which dictate what is seen, distributed, and given importance to. Information sharing and news have the power to change public opinion, shape elections and educate the masses - both upholding and impairing our democracy in different ways. While providing a source of revenue and boosting the production of our information, the focus of Bill C-18, once again, participates in reducing competition in the news content market and potentially politicizes major journalist organizations. We've seen retaliation from media platform firms that all continue to disadvantage objective voices and access to news for individuals.

Bill C-18 inadvertently exacerbates the very issues that journalism in the media is facing, which calls into question the future of policy-making to protect our news sources. What are the government's next steps in this tricky playing ground, and how can we address and hold major stakeholders accountable to create an equitable and unbiased news playing ground?

The government, while focusing on the producers, overlooks significant issues faced by the consumers of information. Journalism keeps our nation informed to not only encourage political competition but studies have found that an increase in journalism and news coverage, increases the amount of voters in an election. Media users must also be cognizant about news sources, the information they consume and its political notions and online content producers aware of the impacts and connotations polarizing and incorrect political news can have. The benefits of our fourth and fifth estates of politics are clear. At the core, this issue is not only about protecting new's contents producers and distributors, but about protecting our democracy on all sides of the story.

Injecting Transformational Optimism into The Canadian Energy Debate

Written By Noah Lee, Editor | Illustrated by Tim Sun

In 2015, during the Paris Climate Agreement, 196 Parties at the UN Climate Change Conference – also known as COP21 – adopted an international treaty on climate change. As the gavel hit the sound block to signal adoption, cheers, and applause erupted as 5,000 people jumped out of their seats, a standing ovation for a monumental achievement.

How was this done? In the words of Christiana Figueres, the Costa Rican Diplomat who led negotiations at COP21, "by injecting transformational optimism that allowed us to go from confrontation to collaboration."

We have seen far more confrontation than collaboration within the current Canadian discussion around climate and energy.

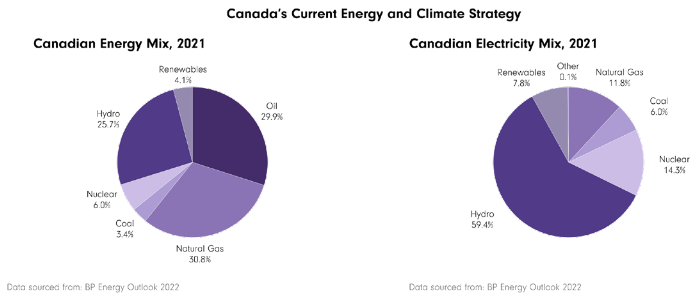
Climate policy has become central to the Canadian brand of politics brandished by the federal government, helmed by Justin Trudeau's Liberal Party. While the minority government has been able to pass several sweeping policies targeting emissions primarily from the energy sector, it has not come without pushback.

Climate protests occur across the nation, many of which call for the end of fossil fuels altogether. Meanwhile, in 2019, Canada's upstream oil and gas industry employed over 500,000 people. Indigenous peoples are now seeking opportunities to gain economic prosperity from Canada's natural resources through projects such as the Cedar LNG terminal in British Columbia and Project Reconciliation's bid to purchase the Trans-Mountain Pipeline.

It may seem that Canada has become far too polarized to come together to work out a solution to the conundrum we find ourselves in, but there is a case to be made that injecting transformational optimism into the Canadian energy debate is just the spark we need.

Canada's Current Energy and Climate Strategy

Canada's most recent energy and electricity data already paints an optimistic picture of what is fueling our country. However, understanding the current national energy mix only goes so far as to supply a picture of the present. The future is evident in policy, in particular, two carbon-focused policies passed by the Trudeau government: the Greenhouse Gas Pollution Pricing Act and the Clean Fuel Regulations. However, these policies present associated costs to both consumers and the government.



A Parliamentary Budget Officer (PBO) report released in 2022 highlighted that the federal carbon pricing would cause most households to see a net loss under the government's A Healthy Environment and A Healthy Economy plan. In other words, the levy cost would exceed the Climate Action Incentive Payments meant to remove the tax burden on consumers. The report also found that the carbon pricing measure would increase the fiscal deficit by $5.2 billion in 2030-31, as the most recent federal budget projects a federal deficit of $40.1 billion in 2023-24.

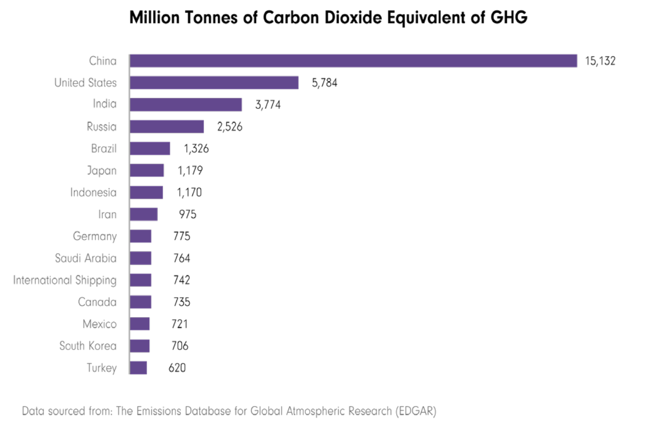
Another PBO report from May of 2023 highlighted that the Clean Fuel Regulations would have a greater impact on lower-income households since they typically spend a larger share of income on transportation. The report also found that among provinces, households in Saskatchewan, Alberta, and Newfoundland & Labrador would bear the highest costs of the bill due to the fossil fuel intensity of their economies.

Saskatchewan, Ontario, and Alberta challenged the federal government's "carbon tax" on the grounds that it was unconstitutional. The Supreme Court ultimately ruled that the "carbon tax" was constitutional in 2021, but that ruling did not stop Alberta Premier Danielle Smith from calling the newly proposed federal Clean Electricity Regulations "unconstitutional and irresponsible."

While carbon pricing theoretically discourages carbon emissions, Canada's emissions levels have remained relatively steady, while our economy has grown significantly over the past two decades. Economic policy instruments such as levies and taxes may be effective but not the most efficient means of reducing greenhouse emissions. The current decarbonization and energy transition conversation primarily focuses on the domestic domain. However, if we expand our horizons and consider the bigger global picture, the case for optimism is made ever more prominent.

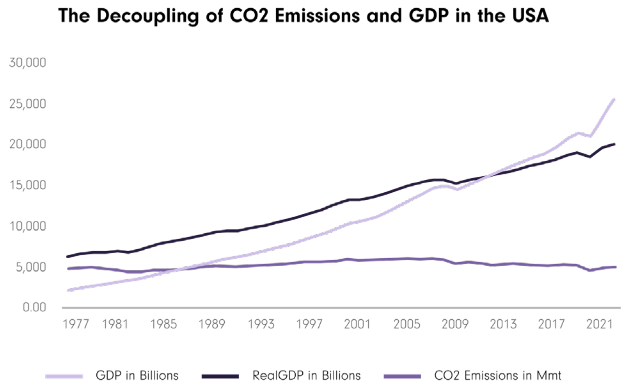
Global Energy Transition will Require Collboration

On the world stage, Canada is not a major contributor to the global emissions picture. While the nation ranks as the 11th highest global emitter of greenhouse gases according to EDGAR, the Emissions Database for Global Atmospheric Research, relative to the largest emitters, we are a blip on the radar.

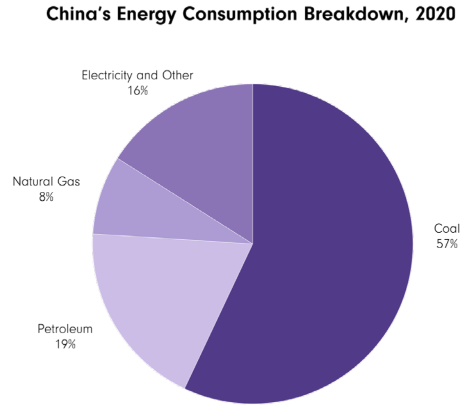


The energy-GDP ratio has been revisited in research literature around economic growth. The hypothesis presumes that as one's GDP increases, so too would one's energy demands. As more nations rise out of developing to developed status in the coming decades, global emissions would be doomed to continue to increase correlative to GDP due to an irreversible relationship between energy and emissions.

This reasoning has, however, been possible to disprove by the decoupling of GDP and emissions in recent years by nations such as the United States. The United States recently reduced its carbon emissions to levels seen in the 1970s while exhibiting an economy triple the size of that time. Similar decoupling themes are present in countries such as France, Germany, Sweden, Finland, Denmark, Italy, Czechia, Romania, and Canada.



Data sourced from: The U.S. Energy Information Administration and The Bureau of Economic Analysis



Data sourced from: The China Statistical Yearbook (2022)

China's emissions largely stem from its current reliance on coal, which emits 50% more carbon than natural gas. Similarly, nations such as South Korea, Japan, and other countries in Southeast Asia are still substantially reliant on coal to fulfill their energy needs. Rather than vilifying these countries, it would be in the best interest of the greater world that other nations begin to establish trade relations to assist in supplying cleaner fuels, such as natural gas. Usually, to export natural gas in an economically viable manner, one must liquefy the gas, making it 1/600th its original volume. It is in the spirit of assisting the energy needs of Europe due to geopolitical instability brought on by Russia's invasion of Ukraine and East Asia's growing hunger for energy that Mexico, the United States, and Canada have all begun building LNG projects set to export to either destination.

The Case for Transformational Optimism

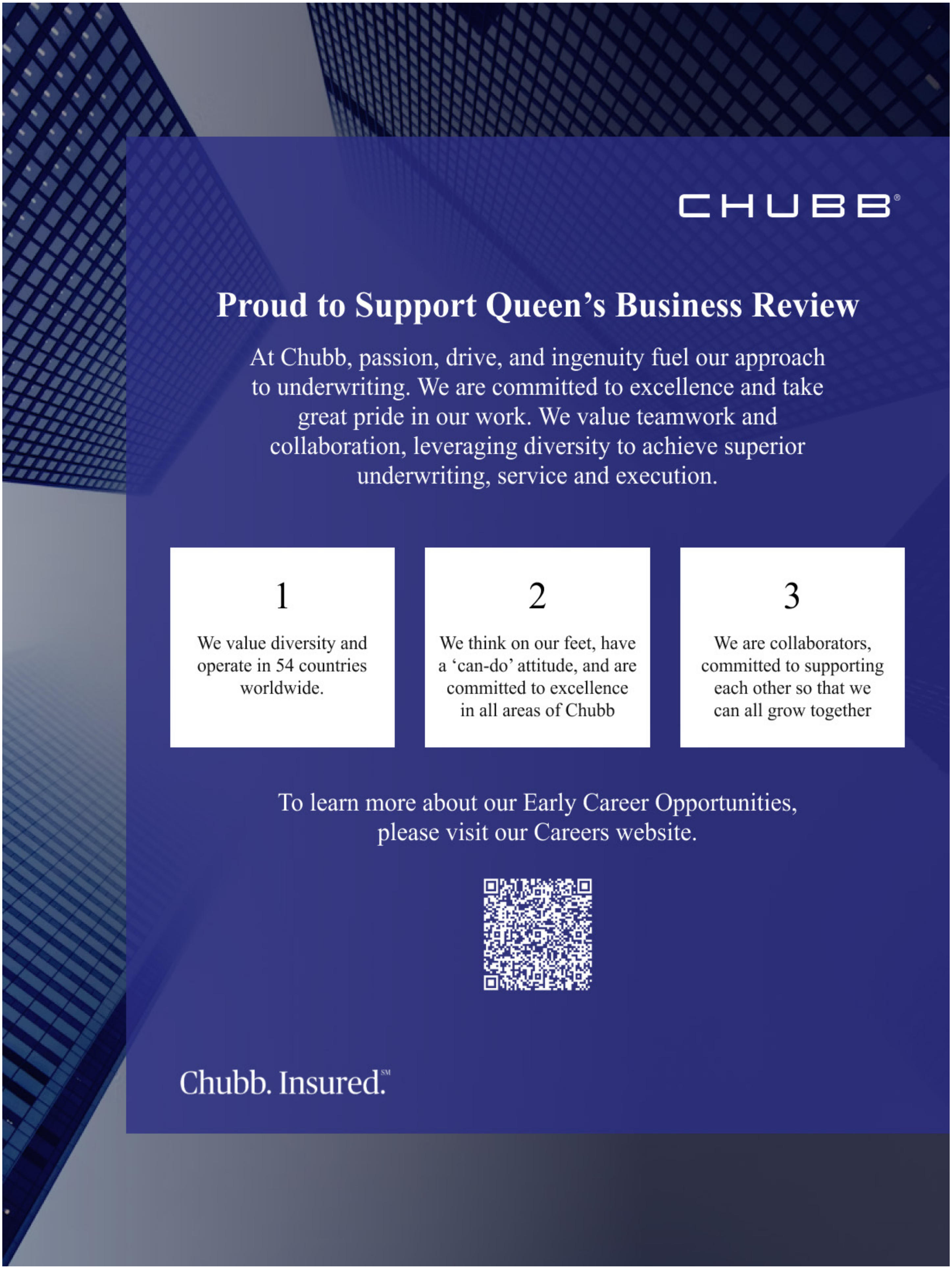
Going back to the beginning, the Paris Climate Agreement contains Article 6, which facilitates the grounds for voluntary carbon trading. Before recently, there was a concern about whether global carbon trading was reducing emissions due to the possibility of 'double counting,' which occurs when the same reduction gets counted towards achieving two different climate goals or Nationally Determined Contributions (NDCs).

This past year, Canada's Jonathan Wilkinson of our Natural Resources portfolio stated that Article 6 discussions were back in play, and that plans to operationalize the mechanism were at work while seeking potential LNG importers. All this comes as outlooks project Canada's first LNG export terminal shipments to begin by 2025.

We certainly have a long way to go in reaching our global climate goals. The case for increased natural gas production and export in Canada is firm for reducing emissions worldwide. There is a valid argument that natural gas has a role as a transition fuel; natural gas is nowhere near as carbon-intensive as coal, and established policy measures exist to reduce emissions associated with natural gas production significantly. With that said, natural gas should be as stated: a transition fuel to assist the world as it transitions from high-carbon intensive fuels to a net zero future.

All aspects of the great Canadian energy debate have valid points to bring to the table, but what ultimately brings the nation together from coast to coast is widespread support for energy transition to swap a carbon-heavy energy mix for a low-carbon one. Extensive research literature corroborates this phenomenon, which is cause for tremendous optimism.

In a time where "unprecedented polarization" has become everyday jargon and where carbon perceptions are tied not to climate change beliefs but to political ideology, we must seize any opportunities to establish common ground and establish fruitful collaboration. It will be of incredible importance to Canadians to weigh multiple sides and keep an open mind as they consider what Canada's energy strategy will look like in the coming years. The ability of our nation to come together and establish firm policies around files such as climate and energy will be one of several critical litmus tests on the functionality of our democracy.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STRATEGY

INSIDE

A Win-Win: Why Insurance Companies Rely on ESG Strategy

Written By Lauren MacDonald, Editor | Illustrated by Tim Sun

You turn on the news to another natural disaster striking; the reality of the climate crisis is becoming increasingly difficult to deny. While some companies/industries are notorious for greenwashing, others try to do their part to contribute to positive change. Regardless, companies far and wide have set ESG (Environmental, Social, and Governance) targets to decrease their negative environmental impact, often driven by shareholder and stakeholder pressure.

Specific industries have additional motivation to reduce negative environmental impact, as their bottom line depends on a balanced climate. Uniquely, the Insurance industry has no choice but to drive environmental sustainability, as profitably is dependent on tackling the global climate crisis.

Industry Overview

The P&C (Property & Casualty) insurance industry is based on the concept of risk management, where policyholders pay for the assurance that, in the case of an unprecedented event, they have coverage to rebuild what has been lost. As this business model is based on hypothetical future events, forecasting is key. To accurately predict the company's costs for the upcoming fiscal year, actuaries conduct statistical analysis to prepare for insurance claims, though the current frequency of natural disasters amplifies the uncertainty of this process. Historically, we have seen the catastrophic damage created by climate-related natural disasters, specifically the 2016 Fort McMurray fires, leading to $5.96 billion in insurance losses and unquantifiable losses for those personally affected. As mentioned, this model is all based on risk, indicating that a policy with greater risk for a claim would incur a higher premium. Individuals living in "high-risk" areas are left in a vulnerable position, as gaining access to an affordable insurance policy is a rarity. This reality is a growing concern as our environment continues to deteriorate and we see correlated financial outcomes. For example, nine of the ten most costly years for insurance payouts have been since 2011. To preserve the accessibility of P&C insurance policies, environmental risk must be effectively managed.

To calculate the cost of your insurance policy, statistical models leverage key metrics to determine your potential cost to the business—for example, the value of your asset, the location, and the likelihood of a claim. The average home insurance policy in Ontario is $1,250 per year, though this number varies drastically. Due to its high exposure to flooding, LaSalle, Ontario residents pay the highest property insurance rates. As climate-related disasters occur, the cost of insurance policies will inevitably increase to ensure the company can aid those affected. On average, home insurance policies in Ontario have increased a bold 10 percent since Fall 2021, an additional challenge to home ownership in our current economy.

Insurance acts as a backbone of developed economies, by using their float (net premium) to invest in bond markets, encouraging business development, providing job opportunities, and relieving disaster recovery. As insurance premiums become unmanageable for individuals to afford, the business model cannot be sustained, and the economic support from the insurance sector will weaken. Thus, an action-based climate strategy is needed to balance premiums, reduce the impact of natural disasters, and sustain the positive economic spillover effects of the industry.

ESG; The Reality of the Insurance Sector

After analyzing the laundry list of reasons insurance companies must create positive environmental action, are they doing enough? To be blunt, the answer is no, as there is always more that could be done to preserve our environment.

There are multiple ways that environmental sustainability could be considered through the P&C insurance business model, the first being through sustainable investing. As insurance companies accumulate large sums of money through monthly payments, this capital is invested as companies await claims. In both private and public markets, renewable energy is a key area to invest in to ensure progress is being achieved toward a sustainable future. Sustainable investing was a hot topic amongst European insurers as early as five years ago, though now, in the present time, we witness the challenges and opportunities for North American markets. To ensure the topic of sustainable investing is digestible for insurance companies, most use the United Nations Sustainable Development Goals as a guiding framework, with topics including climate action and affordable and clean energy. These focus areas help create a sustainable investment strategy alongside other popular methods such as investing in green bonds and green infrastructure.

With such streamlined frameworks and strong guiding principles for sustainable investing, one may wonder why wonder why there is still a lack of North American action? Here we find a very nuanced and complex answer, as insurance companies are highly regulated, often under a legal magnifying glass. As many sustainable assets are new to market, there is less historical data to rely on, creating a riskier investment opportunity for the company. As we know, insurance companies operate on the foundation of risk management. Thus, sustainable investing is less favourable in this context. Additionally, the risk of greenwashing is high, and insurance companies may need more experience to responsibly invest in sustainable initiatives. Ironically, one may believe that a lack of climate- related action is the biggest risk of all. While this may be true through a long-term lens, we cannot deny the significance of short/medium-term financial returns.

Aside from investment opportunities, companies could consider ESG goals in underwriting processes and new product development. EY states that only 60 percent of insurance companies are integrating ESG into underwriting and development, creating a key area for improvement. To tackle the targets of the United Nations, 43 percent of global insurance companies have committed to achieving net zero by 2050. However, this number is alarming for North America, as it would be accurate to assume the European insurance industry is leading this area, and 43 percent leaves vast room for improvement. While this statistic demonstrates an area of growth, it also sheds light on how insurance companies are progressing faster than other industries within financial services. The same study indicates that only 31 percent of global institutional investors have made this same net- zero commitment in the suggested timeframe.

As we see temperatures rise and natural disasters more frequent than ever before, it is evident that action is needed from all parties. As consumer preferences change, we must see action from companies in a proactive manner rather than a reactive approach. The P&C insurance industry must be a leader in adopting sustainable strategies to ensure the longevity of affordable and accessible policies as well as continually stimulate our economy, capital markets, and business development. If anything, our climate depends on it.

The Capitalist's Approach to a Greener World: Carbon Credits

Written By Sunghoon Kim, Editor | Illustrated by Annie Ye

While the topics of decarbonization, emission reduction, and sustainable business operations have circulated for decades in reflection of an increasingly hotter planet, the decades in reflection of an increasingly hotter planet, the root causes of sluggishness in meaningful action toward these initiatives lie in commercial feasibility. Transforming fundamentally pollution-generating core business processes for vast numbers of polluting entities is expensive, complex, and often unrealistic, especially considering the tight turnaround windows often associated with decelerating climate change. Consequently, the societal approach to economic decarbonization has instead formed around the widely-known concept of 'net-zero' or offsetting pollution, which quickly birthed the commodity markets of carbon credits and a market-based incentivization structure for green businesses. Carbon Exploring carbon credits uncovers its potential to become a commercially feasible, much-needed catalyst toward economic decarbonization, but also reveals the current system's complementary flaws and exploits that leave serious room for amelioration.

A Penny Saved is a Penny Earned

Carbon credits as commodities are byproducts of the 'cap and trade' system. The program's premise entails a government setting a 'cap', or an upper limit, of pollution in a given industry. This 'right to pollute' gradually decreases every year, and exceeding the limit would incur fines and regulatory sanctions. To stay under the imposed limit, polluters must either leverage innovation to reduce emissions across their value chains or buy 'allowances'. These allowances, known as carbon credits, are purchased from other businesses to reduce or remove pollution, legally allowing additional pollution within a purchased amount. This is where the term 'net zero' comes into play, as environmental damage is, in a sense, compensated for by others not polluting as much or making efforts to reverse it. Conventionally, one carbon credit equals one metric tonne of pollution, often carbon dioxide.

As businesses that often have allowances left over are those leveraging innovations in sustainability, such as clean technology, economic incentivization drives entities to pollute less for additional revenue on top of cost avoidance. For instance, Tesla's top line has often benefited from leftover credits as an EV enterprise; it made a staggering $1.78 billion USD in 2022 from carbon credit sales revenue.

The global premiere of a large-scale 'cap-and-trade' program began with the American government in the 1980s. As coal-fueled power plants fulfilled the demand for household electricity, the released toxic byproducts – sulphur dioxide clouds – returned as acid rain, damaging eastern Canadian and American wildlife, people, and landscapes. Through years of discussions and various trials of environmental taxes, the marketplace-based idea of emissions trading was born through the 1990 Clean Air Act Amendments. When it took effect in 1995, acid rain emissions were reduced by three million tons in the same year, which underpinned the gradual policy establishment of 'cap and trade' as a popular means for autonomous emission reduction from polluters without significant government costs. By 2007, it saw a 43% drop from 1990 emissions levels, despite the 26% increase in electricity from coal-fueled power plants. Following this American example, the UN's Kyoto Protocol in 1997 saw world leaders agreeing on the adoption of carbon credits in an attempt to reduce greenhouse gases, especially carbon dioxide, from the atmosphere with economic feasibility in consideration. Signed into international law in 2005, this mandate gave industrialized countries – 37 nations and the EU, with voluntary participation from others – maximum emission levels with the same foundation of gradually lowering the cap over time. Once the first commitment period ended, 196 parties signed the Paris Agreement at the end of 2015, which superseded the Kyoto Protocol and recalibrated global targets but kept the carbon trading mechanisms in place.

Money Trees

A corresponding global carbon market quickly emerged as more carbon credits began trading across industry verticals. On both national and international scales, two types of such markets exist: compliance and voluntary. Compliance markets form to meet regulatory requirements from any national, regional and global climate policies. In contrast, voluntary markets exist for entities looking for a profit in sales of such credits or derivative financial products based upon the market system. Voluntary markets are often driven by governments or private entities pushing projects involving emissions reductions or removal, which supplies the demand from corporate or individual entities wanting to offset their carbon footprints or other players in the market. These mechanics have shaped the aggregate global market to a $909 billion USD valuation in 2022, alongside projections of around 21% CAGR (compounded annual growth rate) within the next five years to reach approximately $3 trillion USD in 2028.

An example of a respected, active carbon trading market is the European Union's Emissions Trading System (ETS). Inaugurated in 2005 as the world's first international emissions trading system, it is now the largest, comprising 87% of the global market valuation. Its market mechanism replicated from the 'cap and trade' approach applied across pollutant-heavy verticals – namely energy, heavy industry (oil, steel, cement, paper, glass, etc.), logistics, and civil aviation – has driven emissions reduction by around 35 percent between 2005 and 2021 in the EU. The ETS went through several iterations to become the world's cornerstone marketplace for carbon trading, most notably when it introduced a unique mechanism called the Market Stability Reserve (MSR) a decade after crashes in carbon allowance prices during the 2008 global financial crisis where commercial pollution became more affordable. The MSR gave the EU more control over the market supply, which kept the price of polluting high and drove companies towards 'greener' processes.

On the domestic front, efforts made meaningful traction in 2022; in fact, Canada's first federal carbon credit market was launched in the year, although British Columbia, Quebec, and Alberta had smaller regional compliance credit systems.

Wanting Greener Pastures

While the market-based carbon credits have shown meaningful results and data points to indicate their efficacy in significant commercial steps towards decarbonization, the discussions about the foundational ethics are still ongoing. In particular, critics argue that the system is built on greed, where corporate entities will pollute and optimize for the least costly means to do so without inherent change of their value chain models – as long as the price of carbon is higher than the cost of credits.

Another notable concern revolves around the validity or authenticity of many carbon credits and their issuing agencies. As a recent example, a 2022 investigation into Verra, one of the world's leading carbon standard issuing organizations, suggested that more than 90% of their rainforest offset credits are not representative of genuine carbon reductions. Journalists reported that only a few of Verra's rainforest projects had evidence to support deforestation reduction. At the same time, analysts from a University of Cambridge study controversially claimed that Verra overstated threats for about 400% on average for its 'REDD+' forest projects.

A critical flaw in the system often discussed is carbon leakage, which describes the practice where a company decides to relocate their production or elements of its value chain to countries with lenient climate policies – often in developing nations – away from their home countries, effectively appearing to make commitments in the home front while polluting equal or more significant amounts than the before. Such offshoring of pollution means aggregate environmental damage is untouched, but rather hidden away in a mere redistribution scheme that removes it from domestic carbon tracking.

Insert Credit Here?

The bottom line may precede the planet and the people in the modern capitalistic system that optimizes operations towards fiscal profit. Without transparency into entities' intentions in climate-related commitments or correct forecasts into the business landscapes, it is impossible to determine the trajectory of modern sustainability efforts and their outcomes in the battle against climate change, even after world leaders have set tangible targets for 2030 or 2050. Work undoubtedly remains for completion in polishing and refining the architecture of the carbon credit system worldwide. Still, it has nonetheless proven effective in incentivizing polluting players to enter new trajectories. Perfecting the system could be the only option remaining, as time continues to tick in this game.

Does Pro Sport Want Private Equity?

Written By Charlotte Alfred, Senior Editor | Illustrated by Tim Sun

Since 2019, some of the biggest players in professional sports have been investors. The rising trend of Private Equity (PE) ownership, may it be minority stake in a team or the whole entire league, totalled to $50 billion USD in deals in 2021. What this means is major PE firms such as Blackstone, KKR, and the NBA's very own fund, HomeCourt, created by Blue Owl, are financing stakes in professional sports franchises, a role traditionally occupied by billionaires. In the fairy-tale of HomeCourt and the Suns — the NBA's first ever PE exit case — the 2021 $1.55 billion USD valuation at buy-in proved itself when Mat Ishbia purchased the team at $4 billion USD earlier this year. The sale demonstrates a 158 per cent appreciation of their minority stake, after a short 18 months of ownership — sealing the deal on investor perception.

Economy of Opportunity

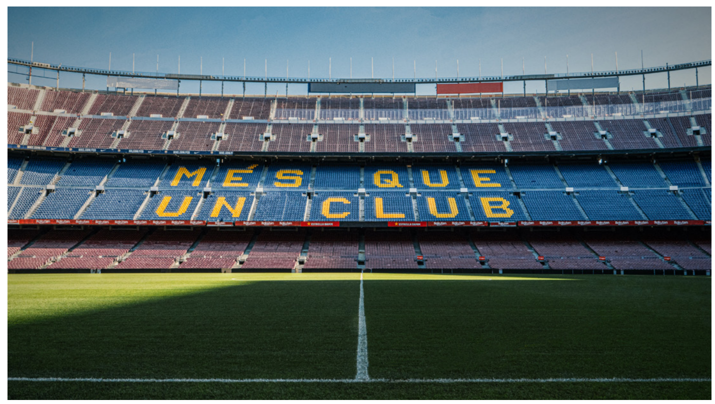
The attractiveness of this investment opportunity can be simplified to a few truths. Firstly scarcity — with a fixed number of teams across the major American sports networks and a 30% eligible for sale cap per team across the board, the opportunity exists in a small pocket, in a big way. Another is industry resilience. As PE firms look to manage risk in a post pandemic downturn, the professional sport market growth stands out above the rest. Where live-time viewing has undeniably declined across the NBA, NFL, and most notably the MLB, down 50% since 2016, the sports industry has found other ways to outperform pre pandemic levels and has even seen franchise valuations outperform the S&P 500. Driven by the legalization of sports gambling in most U.S States and Canada, popularization of sports advertisement opportunities, market growth of sports mobile streaming and media networks, among other factors, the North American sports industry market value has grown by 16 per cent in the last five years. Back to the big idea — what draws so many investors is the unique opportunity for diversification and what the ownership of this asset actually entails. In many cases, this includes perks such as media rights, stadium operations, and/or greater community impact revenue opportunities.

So is that the whole story? Not really. Over time we have seen not only hesitancy towards PE from leagues such as the NFL, who have disallowed it altogether, but push back from fans who cannot disassociate their beloved teams, rivalries, and traditions from ownership.

Public Perception
When it comes to PE ownership, there are rather common negative connotations. In this context, it is primarily a perceived lack of long-term commitment. Say an investor has a short-term exit plan, prioritizing financial gain over growth could be damaging to player development and the sustainability of team dynamics. There is additional stigma that firms will move to cut jobs and operational components to maximize profit, though it is of note that North American leagues do not allow PE investors to sit on the board of their respective teams nor can they vote on any operational matters. But after all is said and done, there is a looming fear that PE firms are not always transparent in their intentions or even in their interests.

Compassion Not Compensation
Looking at England's beloved football clubs, the entry of PE owners majorly displeased fans of a league where competition is high and willingness to pay is low. Exemplified by the 2005 purchase of Manchester United, a wealthy American family made an unwelcomed £270 million GBP investment in the team which was financed by an additional £520 million GBP of debt borrowed against the franchise, reflective of the leveraged buyout approach of PE investors. Right out of the gate the Glazers (owners) were met with vandalism, protest, and as recent as in 2021, signs reading "Love United. Hate Glazers." The financial burden to the team was eventually repaired, but their image was not. The Glazers were reported to attend few to no games and statistically the ownership over the last 5 years delivered poor performance on the field, all while delivering spectacular performance in commercial earnings — further enraging United followers. Plainly, fans aren't interested in the money, but respect for their team.

In 2021, this same perception brought together two historically rival teams, Real Madrid and Barcelona. The teams moved to sue Javier Tebas, the Spanish football league president and chief of CVC Capital Partners — the PE group behind the proposal which would deal 10% of the Spanish football league's television rights to the firm. As reported, the deal leveraged a period of economic insecurity to take advantage of the country's broadcast and sponsorship revenues for the next 50 years. Yes, 50. Tensions between the two groups led to the removal of both Real Madrid and Barcelona from all meetings concerning the league's broadcasting rights as well as their respective rights to vote. This here presents an instance of overtaking by PE investors and primarily their financial powers, which undermines the legitimacy of long-standing franchises. The lawsuit addresses the violation of their fundamental right of association. As of early August 2023, the complaint has been admitted and awaits deliberation.



Photography | Tim Roosjen

Facing the Fans
Revisiting HomeCourt and the Suns, this rather short-term ownership fuels an equally negative perception. With only four majority ownership changes made in the NBA in the last 10 years, it goes without saying these commitments are long withstanding as well as impressionable. Leading up to the 2023 sale of the Phoenix Suns, the (now) ex-majority owner Robert Sarver had undergone investigation for fostering a racist, misogynistic, and hostile working environment. The silence from HomeCourt, who worked closely with Sarver since the sale is quite frankly troubling. Short-term ownership in this case has triggered disruption to team and fan culture where unclear signals are being dealt from the top of the value chain.

The pride fans take in their team is expected to be reflected by owners. This is exemplified by those with entire documentaries dedicated to the teams they've invested in; namely Ryan Reynolds, or Birmingham FC minority stakeholder Tom Brady, who was seen enjoying a pre-match pint with fans at a local Birmingham City pub. This type of engagement cannot be replicated by suits with deep pockets, and fans are picking up on it.

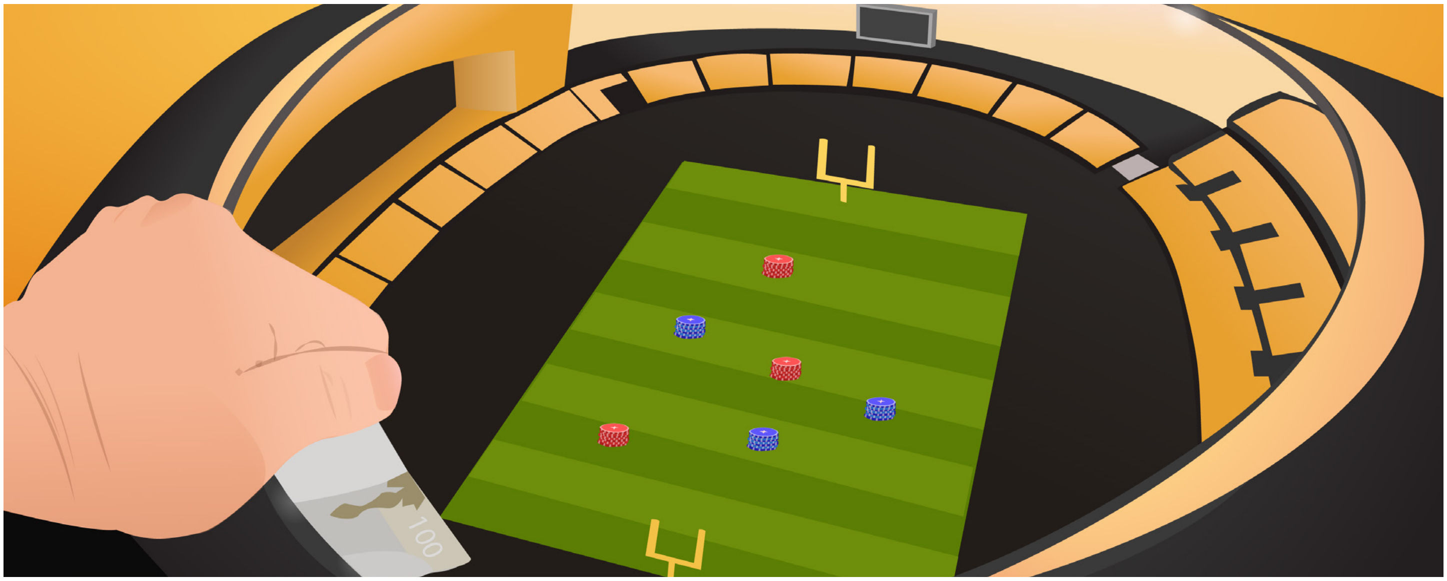
The Anti-PE (for now)

This may lead you to wonder where and when leagues might put a stop to entity ownership, and the NFL would tell you here and now. The NFL is currently the world's most valuable sports league with a 2022 revenue of $12 Billion USD, more than double FIFA's 2022 revenue — cue the football v football argument. Point being, the world's most valuable sports league has shut out PE investors, any ownership group exceeding 25 people, public companies, and the list goes on. This traditional, almost stubborn, ownership regulation is justified by the success of the franchises, notably the Dallas Cowboys, the world's most valuable sports team valued at $9.2 billion USD. But amid the continued growth in the NFL, their team owners themselves are pushing for PE investors to generate more cash flow. So, what will it be? Does the NFL know something we don't about institutional ownership, (or maybe something we already do) or is it on the horizon for the American sports league?

At The End of The Day

If nothing else, this industry summary makes it clear that PE investment is not right for every team, every time. Regulation varies from league to continent, and reputation sneaks up behind it. Being a relatively new investment strategy, the undisputed financial success of PE team and league ownership will surely lead to more investment. Industry experts predict existing high-profile sports investment groups such as Magic Johnson Enterprises and Kevin Durant's 35V to jump-in. As we sit back and watch, we can expect reactive trends to level out and reveal whether investors and their desires can co-exist with fans and theirs.

Photography | PA



All-in on Addiction: The Destructive Rise of America's Gambling Obsession

Written By Jeremiah Lim, Editor | Illustrated by Alex Lian

"A gambler has to be resilient if anything. They knock you down and you've got to get back up." – Jim McIngvale

Infamous for his lucrative gambling decisions, Jim McIngvale has built an established reputation by wagering absurd sums of money on major sporting events, namely on Super Bowl LVI. After losing an enormous 9.5 million USD betting on the Cincinnati Bengals, he delivered the quote above surprisingly nonchalantly, highlighting the tenacious attitude required for renowned gamblers such as himself. Unlike McIngvale, the average gambler is not equipped with the resources to brush themselves off after suffering a nearly 10-million-dollar loss. Nonetheless, his unyielding mindset — an indomitable resolve in the face of adversity — has become a touchstone for the gambling population. This steadfast perseverance is what often entices gamblers to enter the positive feedback loop known as problem gambling: a self-perpetuating cycle resulting in nothing but addiction, loss, and an unrelenting pursuit for dopamine.

Inside the Mind of a Gambler

Whether it be in the form of casino games, sports betting, lottery draws, or horse racing, gambling is broadly defined as the following: the act of risking something of value on an uncertain outcome. For many, the pursuit of such uncertainty is simply a recreational activity — an innocent yet periodic pastime that holds little to no consequence. For others, it is the principle on which their entire lifestyle is hinged. Regardless of where someone may fall on this spectrum of dependence, the neurobiology associated with gambling remains constant. Its addictive nature is built on the stimulation of neurotransmitters — a meticulous mixture of hormones and chemicals responsible for one's feelings of arousal, pleasure, and excitement. These emotions among others are the building blocks that construct our internal reward system.

Now, imagine that system being locked within the odds of a slot machine, a lottery ticket, or next Sunday's football game. Over time, one's brain develops a tolerance to such rewards and consequently, demands an even stronger stimulus to experience that same level of pleasure. To satisfy such cravings, many individuals must intensify their gambling habits by augmenting the stakes of each consecutive session. This cycle is further accelerated by the appeal of loss-chasing. Being one of the critical features of gambling disorder, loss-chasing is based on the idea that you can recuperate your losses by investing more into your wagers. In other words, you can be exempt from the laws of statistics as long as you sacrifice the remnants of your time, energy, and money to gambling.

The pursuit of reward, whether in the form of a dopamine rush or a jackpot, is the foundation on which gambling is built. It is promoted as an opportunity to win big, as an opportunity to realize your dreams. So, where better to gamble than the land of opportunity itself?

The Land of Opportunity

On May 14, 2018, the Supreme Court of the United States opened the floodgates to what many claim to be responsible for America's current gambling obsession. By striking down the Professional and Amateur Sports Protection Act (PASPA) of 1992, states were now free to legalize sports betting without requiring national approval. All across the country, state legislators were rushing to take advantage of the new legislation and within less than a month, Delaware became the first post-PASPA state to legalize sports betting. Many states followed suit, and as of early 2023, over 30 states have legalized sports betting in some way, shape, or form.

In today's digital age, sports betting is more accessible than ever – and the numbers show. In 2022, American sportsbooks handled a record 93.2 billion USD in wagers, generating 7.5 billion USD in revenue. Super Bowl LVII was projected to handle a record 16 billion USD in wagers, over two times the previous year's estimates. Moreover, American commercial gambling boasted a record 60.4 billion USD in 2022, a staggering 7.3 billion USD increase in revenue compared to the precedent year. With every year's records being far grander than its precedents, there is no denying the escalation of America's gambling problem, and like many of the country's most lucrative industries, the gambling business model is built off human exploitation.

The House Always Wins

While often advertised as havens for individuals to indulge in harmless fun, gambling establishments are, at their core, businesses, whose underlying objective is to generate profit. Rather than the typical approach of cutting operational expenses to increase profits, gambling businesses attain their objectives by minimizing the requisite amount paid out to customers. Historically, blackjack has paid out a 3:2 ratio to successful players, meaning for every $10 bet, a gambler would win $15. This past year, more than two-thirds of blackjack tables in Las Vegas casinos cut their payouts to a measly 6:5 ratio – meaning that same $10 bet would yield only $12 in winnings. At first glance, this change may appear insignificant. As the year progressed, however, blackjack players would struggle to stay afloat, with the collective player base losing a cumulative 1 billion USD on the Las Vegas Strip alone, the second-highest recorded loss since 2007. By leveraging the dopamine-fueled rush of anticipation and uncertainty, gambling businesses possess a predatory nature that empowers them to exert significant control over their profit margins. As long as gamblers rely on these establishments as sources of dopamine, they can manipulate the odds in their favour without fear of a substantial loss in their customer base. It is this exploitative model that ultimately allows gambling businesses to thrive in today's high-octane society.

Everyone's (not) a Winner

Gambling capitalizes on the human need to feel the excitement, joy, happiness, or any emotion that would distract individuals from the dull reality they would otherwise be facing. For problem gamblers, a life without a constant feeling of adrenaline is a life far too miserable to tolerate. Possessing the highest suicide rate of any other addictive disorder, nearly one in five problem gamblers will attempt suicide at least once in their life. Nevertheless, obsessive gambling is not only neglected amidst America's pantheon of problems but even propagated as a harmless and exciting mode of entertainment. This past year, *TNT*'s Charles Barkley, who has had a notoriously unhealthy past with gambling, partnered with and even promoted the sportsbook monolith known as FanDuel. But is that really a surprise? Advertising simply serves as a reflective mirror for consumer needs. Due to consumers becoming increasingly driven by dopamine-filled entertainment, the gambling industry has deftly engrained itself into the roots of modern-day consumerism. So long as there is a demand for entertainment, there will always be fuel for the destructive rise of America's gambling addiction.

TECHNOLOGY & INNOVATION

INSIDE

Passport Obsolescence? Canada's New Approach to Recruiting Tech Workers

Written By Issac Moore | Illustrated by Annie Ye

Over the last five years, Canada has undergone 'upgrades'. It has innovated and engineered new ideas to help enhance its success at combating constantly evolving obstacles such as the coronavirus, extensive climate change, and ever changing AI databases. This adaptation has been driven by talented technicians, and we are now seeing demand for these workers drastically increase. In Canada, technology talent employment grew by 15.7% from 2020 to 2022 while the United States grew by 11.4%.. These high employment rates are setting the stage for a competitive race between powerful nations who are hurrying to gather and recruit the best pool of tech workers from across the globe with the goal of pushing forward to new heights of ingenuity.

According to renowned technology entrepreneur and academic Vivek Wadhwa, "Recruiting talent is no different than any other challenge [...] It is all about selling." As such, this article will dissect state-of-the-art innovations Canada is fueling and the strategy the country is accordingly creating, with the key question remaining – what impacts will these changes have Canada, as it begins to sell itself as the ideal destination for technological development?

Canada's Strategic Positioning for Tech

On June 27th, 2023, Immigration Minister Sean Fraser announced that Canada would be releasing its new Tech Talent Strategy – the first step towards marketing itself as a nation of superior competitive advantage when it comes to talent acquisition in the technology sector. The policy seeks to develop a new tech stream, attract digital nomads, create a new work permit for H-1B specialty visa holders, and update existing technology programs that could be outdated. Each pillar of the overarching strategy is aimed towards a different ambition which will bolster Canada's image as an amicable destination for foreign tech workers.

These ambitions include that the new tech stream and digital nomad recruitment will help create additional jobs meanwhile updating tech programs and visa permits will facilitate a smooth transition to Canada for intrigued tech workers.

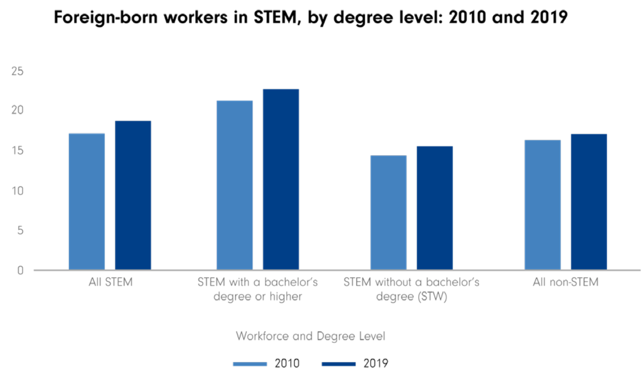


Figure I: U.S. foreign-born workers in STEM (Source: National Science Board)

A glance into the past of Canadian competitors speaks to how essential a strong tech recruitment strategy is for the country. The U.S. has long been recognized as a haven for global immigration and because of their enormous foreign population of 44.8 million, in 2019, 23.1% of the stem workforce was comprised of immigrants. Figure 1 shows the total foreign-born stem worker percentages in the U.S. as of 2019.

Canada's new strategy is the first step to reversing what is known as the historic U.S. brain drain, dating back to the 90's. Cheaper high-quality education drew talented workers to Canada, but post-graduation, these individuals were propelled to move to the United States for higher wages and increased job opportunities. Fortunately, improvements from past losses of immigrant workers are already on the horizon, demonstrated by Canada only having a net loss of only 3,339 employees to the United States in 2021 (a record low). Furthermore, studies showed that only 15% of Canadians believed they would be better off economically in the U.S. Continuing with successful competition and recruitment in the tech sector will require the effective implementation and use of Canada's strategy. With that said, what does this strategy entail and how is it relevant for Canadians?

Pressing Program Changes and Essential Innovations

According to the Government of Canada, consultations with experts in the tech industry concluded that there is a labour shortage and a dire need for additional talent. This is what led to Canada's first step of the tech talent strategy – implementing a new technology innovation stream under the International Mobility Program (IMP). The new stream would decrease restrictions put in place by the IMP for talented workers in careers that align with the priorities and needs of Canada's high-tech industry. The two primary options (labelled as 'not mutually exclusive') for the new stream are:

1. General Work Permits: Employer-specific work permits of up to five years for workers who are employed by technology companies in Canada that align with the country's industrial innovation goals.

2. Specialized Work Permits: Tailored work permits of up to five years for highly skilled workers in specified occupations with labour shortages or high demand.

These two options support international tech talent coming to Canada through the way they facilitate the transition process and take advantage of the high demand for tech workers. Canada's creation of a new work permit for H-1B specialty occupation visa holders in the U.S. will further encourage recruitment. An H-1B visa allows tech workers to move between two countries to conduct business for the same company – making it essential for the thousands of employees who work for companies that operate in both Canada and the USA. This new streamlining of the H-1B grants tech workers in the U.S. the opportunity to use their specialty visas to move themselves and their immediate family to Canada and receive a 3-year open work permit. The permit influences tech workers in the U.S. to situate themselves and their families in Canada therefore increasing domestic tech talent in the country. The streamlined work permit has a limitation of 10,000 applicants for transfers to Canada – this will boost demand for the permit due to short supply and will create a race among tech workers to obtain a spot. This permit is the key to commencing a shift of foreign tech workers from the U.S. to Canada. As shown in Figure 2, tech talent numbers in the U.S. exceeded Canada in 2021, but Canada is crawling forward with Toronto leading the way as the highest-growing tech talent destination from 2016 – 2021.

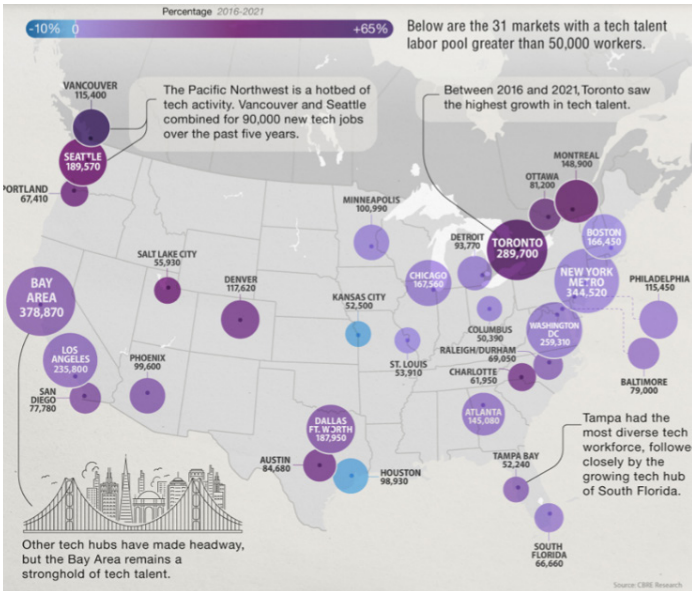


Figure 2: The Largest Tech Talent Hub in the U.S. and Canada (Source: Visual Capitalist)

This growth comes from essential changes the Canadian government has made including improving preset projects and initiatives that aid in the recruitment of tech workers globally. The government began by recovering the Global Skills Strategy program, which uses policies to help recruit highly skilled operators in the tech industry around the globe. The programs' processing times had spiked due to the pandemic but are now meeting their two-week standards. Another step Canada has taken towards tech recruitment is adding additional spots to Canada's SUV (Start Up Visa) program to reduce wait time and create open spaces for tech workers who wish to become permanent residents. But what if the definition of Canadian residency becomes challenged to meet these exponential changes in technology?

Dire Needs for Digital Nomads

Perhaps Canada's biggest move towards successful international recruitment of workers in the global tech pool has been their recognition of the importance of digital nomads (remote workers) for tech industry success. Canada's ability to recruit tech talent will increase exponentially if they can provide tech workers the benefit of working from their home countries, without the need to settle in Canada permanently. Canada's new efforts around digital nomads starts with a visitor's status which allows workers to relocate to Canada for up to six months. wish to become permanent residents.

The positive effects digital nomads can have on a country and its industries can be seen through Estonia's creation of a digital nomad visa in 2020. The visa granted digital nomads the permission to live and work in the country with legal permissions. This action aided in expanding the financial sector in Estonia by drawing in thousands of skilled foreign workers. In the coming months, by introducing a similar visa or additional digital nomad benefits, Canada could produce similar results for their tech industry.

Tech Talent: An Asset?

Looking at the extensive work and steps necessary to attain tech talent could make one question its importance; is recruiting tech talent internationally worth the hard work? Let's examine the pros:

1. Increased innovations and opportunities: Bringing in international minds from other countries with different expertise, skills, and experiences increases Canada's ability to formulate innovative solutions to problems and challenges.

2. Efficiency: With the use of streamlined recruitment, Canada is hiring and immigrating efficiently and effectively. Through digital nomads, workers will no longer have a lengthy adjustment process and integration into society; they can work from anywhere!

3. Global networking: Canada's ability to recruit internationally helps it expand networks and connections globally. Canada will be connecting with nations on a large scale as was perhaps previously not possible.

Examining other countries' international recruitment results shows further reasons to chase after the competitive pool of workers in the tech industry on a global scale. For example, Poland is now ranked as one of the highest destinations for IT talent globally, due to its years of successful recruitment and ability to keep its operating costs in the tech industry lower than its competitors.

Tech Talent: A Risk?

It is evident tech talent recruitment is an important part of Canada's ability to be innovative and successful, but the following are underlying risks and negatives to be considered before the nation jumps headfirst into the international recruitment race.

1. Local Losses: Searching for tech talent internationally can take away job positions previously given to local workers in Canada. Furthermore, streamlining immigration can stir discomfort amongst Canadians who are concerned about job security.

2. Steep competition: Canada entering the race for international tech talent would involve significant competition with other world powers. Though this increases productivity, it also increases costs, as the government will have to combat other countries' salaries for foreign tech workers (especially the U.S.).

3. Costly process: The new strategy Canada has developed would certainly be expensive. Costs would accumulate from program changes, immigration, and overall recruitment methods.

While raking in competitive advantage in the tech industry globally may not be an easy feat – it is a vital one. For Canada to remain competitive on a global scale, and continue to evolve alongside other world powers, it needs tech talent. It demands the workers of tomorrow who are innovative, different, and experienced. Whether it be changing policies and programs, designing new tech streams, or attracting digital nomads – Canada needs to sell itself as a desirable country for talented workers in the tech industry across the globe.

Photography | Alex Lian

Fires of the Future: Embracing Innovation in Firefighting

Written By Erin Sun | Illustrated by Alex Lian

It's a sight that the world has come to know all too well—the smoky haze that fills the air, as wildfires continue to spread with alarming frequency. The past few months have seen a surge in wildfire incidents, leaving individuals grappling with questions about the underlying causes and consequential impact.

As wildfires grow in intensity and frequency, the traditional approaches to firefighting face new challenges. Emerging technologies are reshaping the landscape of wildfire management, equipping firefighters with powerful tools to combat the flames. From drones soaring in the sky, to artificial intelligence algorithms, these advancements are revolutionizing the frontline response.

Pioneering a New Approach

Throughout history, the battle against the destructive force of fires has driven the evolution of firefighting methods. From ancient civilizations utilizing rudimentary tools such as water buckets and hand-held implements to control the flames—like the ingenious use of firebreaks by Native American tribes—to organized fire brigades in the medieval times, each era contributed to the development of fire control strategies. These innovative strategies played an instrumental role in reshaping the approach to confronting wildfires, ultimately fostering a resilient coexistence with nature's elemental forces.

The recent increase in Canadian wildfires is closely tied to climate change-induced factors, leading to prolonged droughts and drier forest conditions. This has resulted in a higher frequency of intense wildfires, highlighting the need for collaborative efforts to develop innovative and adaptive strategies. As shown in Figure 1, wildfires have consumed 25 million acres of land in Canada as of July 2023. This number surpasses the country's previous annual record set in 1989, when more than 19 million acres were devastated by the fires.

Saving Lives, Seconds at a Time

The role of robotics and automation in firefighting has transformed the approach to combating wildfires and managing fire-related emergencies. Drones equipped with advanced sensors provide real-time

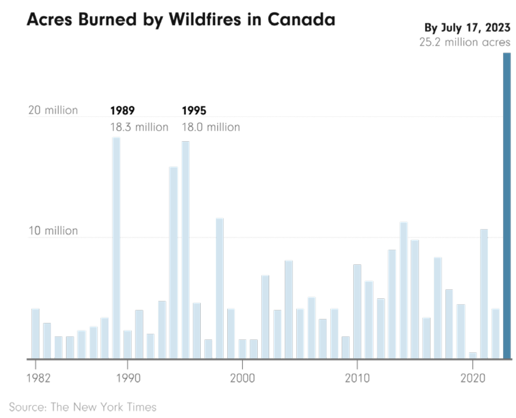


Figure I

aerial surveillance, detecting wildfires and monitoring their behavior. Firefighting robots may be utilized to navigate hazardous environments, particularly in areas that yield higher risk for human entry. Moreover, artificial intelligence powered data analysis may be an integral tool to predict fire behavior and allocate resources efficiently.

For instance, the Colossus Robot, developed by Shark Robotics in 2017, is designed to enter hazardous zones to extinguish fires and assist in search and rescue operations. The firefighting robot has the capability to carry heavy loads and deploy powerful water cannons, making it a valuable asset in critical situations. During the Notre-Dame de Paris fire in April 2019, Colossus played a crucial role in supporting the Paris Fire Brigade. As temperatures exceeded 800 degrees Celsius and the cathedral's roof was at the risk of collapse, Colossus detected hot spots and extinguished the fire, relieving firefighters from hazardous conditions.

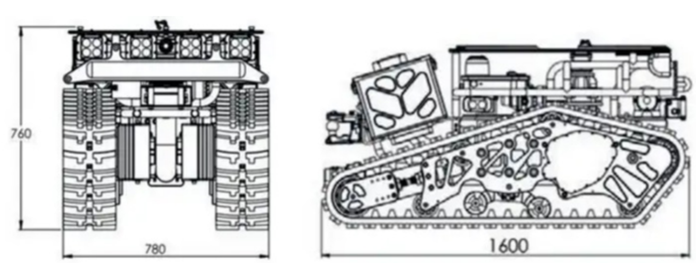


Figure 2: A Closer Look (Source: Jalopnik)

The diagram above illustrates the robot's key components and features — showcasing its sensors, water cannons, and mobility mechanisms. The visual representation highlights the robot's multifunctional capabilities and its potential to operate in high-risk environments.

Ablazing Challenges

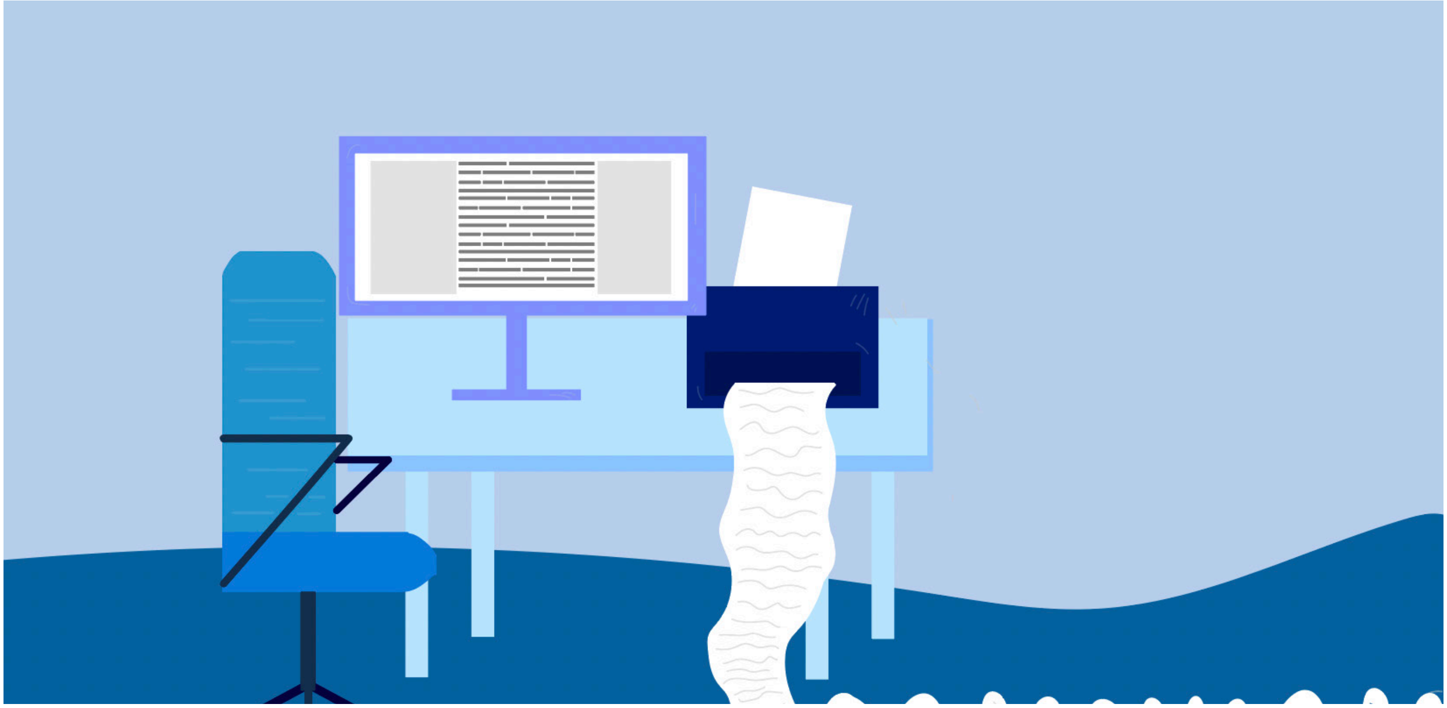
While the potential of automation to revolutionize firefighting is undeniable, successful implementation hinges on a comprehensive recognition of the challenges that may be presented. Firefighting's dynamic nature — shaped by factors such as weather and urban landscapes — may strain automation's adaptability, ultimately requiring continuous updates within the systems. Moreover, financial constraints may hinder equitable adoption; potentially deepening disparities in emergency response capabilities. Developing, implementing, and maintaining advanced automation systems may be cost-intensive, particularly for smaller fire departments or regions within limited resources.

While the Colossus Robot is a powerful tool that would be advantageous in many critical situations, it is priced between $150,000 to $2,225,000. These financial challenges underscore the need for strategic planning to ensure the benefits of automation are accessible to all communities, regardless of size or resource availability. Striking the perfect equilibrium between leveraging technology's potential and preserving the irreplaceable judgment of human firefighters will be pivotal in realizing the transformative promise of automation in firefighting.

Toward a Safer Tomorrow

While there have been some exciting technological advancements made in the world of firefighting, the future holds even more potential for transformation. Embracing innovative developments could revolutionize firefighting by improving safety and response effectiveness, ultimately mitigating the impact of fires on lives, property, and the environment.

It is evident that automation presents a transformative opportunity to revolutionize firefighting operations, yielding substantial improvements in response efficiency and risk reduction. As George Bernard Shaw once said, "progress is impossible without change, and those who cannot change their minds cannot change anything." By harnessing advanced technologies within critical situations, the firefighting community stands poised to not only adapt, but thrive in the face of evolving challenges.



Don’t Shoot The Messenger: The Faults and Fortune of ChatGPT

Written By Amina Alievski, Senior Editor | Illustrated by Katie Libitz

Arthur C. Clarke, English science-fiction author, rightly described the public’s perception on technological breakthroughs as “indistinguishable from magic,” and OpenAI can be held directly accountable for one of the most memorable online fascinations this year.

No longer is integrating artificial intelligence (AI) in our daily routine in the peripheral vision of tech giants. It is evident from your Spotify Wrapped listening activity to the random spawning of essayists responding to your tweets. Today, each and every one of us already demonstrate a propensity to consume AI without bearing a second thought.

If that is not compelling enough on its own, the social acceptance and interest in AI is best encapsulated by the rate at which it took each major tech giant to gain traction and reach one million users.

Netflix, situated on the more conservative end of the spectrum, took three and a half years to reach one million users, whereas Facebook did so in ten months. Conversely, Spotify took half the time that Facebook did, and Instagram took even less time — at two and a half months.

It took five days for OpenAI’s ChatGPT service to reach one million users.

ChatGPT’s performance shook every industry to the core and signalled alarms to rethink current strategies and what constitutes a fundamental competitive edge.

AI developments will make it redundant to evaluate someone’s intelligence and competency based solely on what they can recall in the workplace or in a classroom. Rather, the practice of judging a person’s abilities by their questions will gain prominence in our society.

While times have changed since Voltaire first proposed a similar line of reasoning, the genesis of chatbots scouring the web for us promises a new and unanticipated future for many industries. It begs the question of how ChatGPT will be used by current employees and most importantly, the upcoming labour force — students.

As new algorithms emerge that condense the research process by serving information to us rather than us actively sifting through sources — the way in which we are evaluated will shift as well.

The Nuts and Bolts of ChatGPT

ChatGPT's servers generate an average of four and a half billion words a day.

To interpret inputs of this caliber, ChatGPT leverages a transformer model for deciphering text.

Integrating a transformer model for AI was first introduced five years ago by a team working at Google Brain. Now, their use is exponentially growing given their superior abilities for natural language processing.

Unlike standard networks, referred to as recurrent neural networks, a transformer model is embedded with a self-attention mechanism. It is designed to imitate cognitive attention and allows for the AI to give certain sections of a text more significance relative to others.

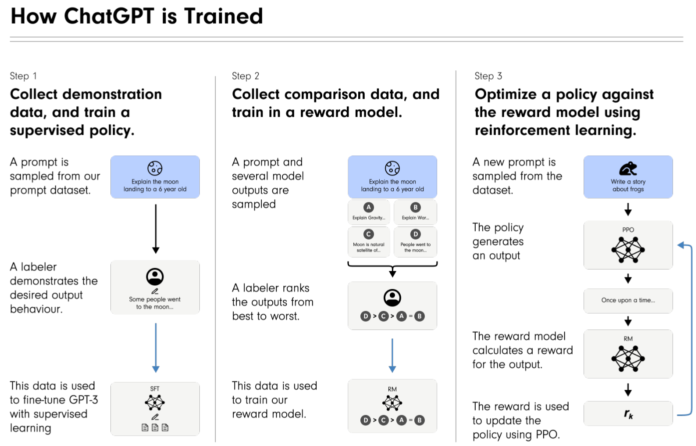
A key point of difference is that self-attention allows a transformer model to interpret text instantaneously and in its entirety at once — a concept referred to as parallelization. Alternatively, recurrent neural networks have to interpret one word at a time and are less effective in exploiting contextual clues.

ChatGPT thus has the advantage of accurately predicting what the next word in a text will be by tracking the relationships in sequential data and improving accordingly — part of a process known as generative training.

This is what GPT ultimately stands for — Generative Pre-Trained Transformer.

OpenAI's Lore

Technocrat Elon Musk epitomized the organizational culture of OpenAI as following through actions that "are most likely to improve the positive future" of AI and minimize existential threat. OpenAI has an aim in ensuring that AI remains beneficial rather than a worldwide consequence. A San Francisco-based AI research laboratory, OpenAI was co-founded by Musk and other venture capitalists in Silicon Valley such as Sam Altman.



A more intimate look into the training of ChatGPT

Musk has since resigned from OpenAI's board in light of potential agency problems as Tesla begins building AI into product lines. He also expressed concern over OpenAI's capital structuring shift from non-profit to capped-profit — wherein the returns of investments have a designated cut-off point — and how monetary gain can compromise OpenAI's original mission.

OpenAI's chatbot service available to the public is the final evolution of multiple revisions, with previous launches including GPT-1 in 2018 and GPT-2 in 2019. While it has not graduated from the R&D phase just yet, users can sign up and test the functions for free.

This prompts the following thought: what happens when work generated by AI becomes indecipherable from that of a human? What are some strategies companies currently leverage to differentiate between the two?

The Uncanny Valley of AI-Generated Text

Users, undeniably, can benefit from the use of ChatGPT — whether it is ChatGPT's strict answer formatting by containing an introduction, body paragraph, and conclusion to the display of clear grammar and syntax.

However, an implication that arises with using ChatGPT is that the optimal answer it provides can be a mirage. Despite that the words employed may be correctly spelled and in the right order — the AI ultimately does not know what any of it means.

As a result, the answers are often cut-and-dry, regurgitating the talking points most commonly found online. Unless there is a human component in the interaction to tailor the responses and edit the output accordingly, text-generating algorithms tend to provide encyclopedic descriptions when answering user prompts. ChatGPT seemingly does not take a particular angle on an issue and lacks nuance.

Text that is written by AI lacks unique perspectives on issues because it is not a sentient being with its own personal experiences, biases, and thought processes. Instead, artificial intelligence relies on algorithms and data inputs to generate text, which means that it is limited to presenting information and ideas that are based on the information it has been trained on. This can lead to a lack of diversity in the perspectives and viewpoints presented in the text, as the AI may not be able to consider alternative viewpoints or challenge its own assumptions.

Another concern resides in the potential misuses of the technology in the name of self-interest. Take as an example a student who is not as developed in their writing and literacy skills and pursues the use of an AI to achieve a better grade. When OpenAI researchers first presented their paper introducing GPT-3 two years ago — they called for more research regarding AI detection software.

Current strategies to determine whether a text was written by AI is by analyzing the frequency of irregularities in the text. Each person's writing contains its own idiosyncrasies: they might employ less common phrases, write with highly varied sentence structure, or have other quirks to the syntax or punctuation they use that contribute to a distinct voice.

Alternatively, perfect grammar, consistent sentence formats, repetitive word usage, an uncanny formal voice, unclear subjects, and describing content in an ambiguous way can serve as signs suggesting that the text was written by AI.

Given that transformer models work by predicting the next word in a sentence, transition words such as 'the,' 'it,' and 'is' are frequently used and if provided enough text can indicate that it was written by AI.

Ironically, an AI may fail because of how well-crafted a sentence is.

This is the basis of how detector systems determine the integrity of a text, as discovered by a team of researchers at Google Brain three years ago. But the key word is that enough text needs to be available and is based on the assumption that humans can easily identify the uncanniness of a text.

Consider the fourth paragraph in this section of the article — I told ChatGPT-3 to write about how text that is written by artificial intelligence lacks unique perspectives on issues. Did you have a feeling that the text seemed out of place? Did it frequently use transition words? Or, was there a suspension of disbelief and you immediately accepted it as part of the article? We need to develop a sense of intuition for text integrity; otherwise, detector systems are useless.

This is exactly what current research aims to reveal — our general rate of success in identifying AI generations given the constraint of our own subjective probability. Researchers at Cornell University discovered that people deemed fake articles written by GPT-2 to be 66% credible. In another study, people with little education in spotting text generated by GPT-3 were able to identify AI-written text at a probability equal with random chance.

Does this mean that we must halt all progress? Perhaps, we just have to consider that in a reality where the world is complex and consists of many variables: picking one of two extremes does not make for an optimal decision.

The Co-Existence of AI and Human Work

Thomas Kuhn, American physicist and philosopher, once said that "the successive transition from one paradigm to another via revolution is the usual development pattern of mature science," and it follows that we must appropriately adapt to current innovations for survival in the new world.

As humans, we have an inherent flair in our writing that is influenced by our own upbringing and the uniquely limited information we are each exposed to — a flair which ultimately cannot be imitated. Without our original data, ChatGPT would not be capable of performing its functions; it is entirely dependent on analyzing our inputs. However, although ChatGPT's outputs may be uninspired, it can produce them in fraction of the time than if completed manually.

Rather than pitting the two against each other and assuming their differences negates the existence of the other — work generated by humans and ChatGPT can form a relationship of commensalism: wherein one party benefits (humans) while the other neither benefits nor is harmed (AI).

This will take different forms within each industry. Lawyers will not in fact be replaced in the legal profession because new precedents for law will always emerge and AI is limited to interpreting historical data. ChatGPT's functionality, on the other hand, may allow stored cases to be more easily uncovered by feeding it a prompt.

This may translate similarly in the education system, in which students may begin to compete on the basis of who can leverage digital tools the most effectively to come up with the right answers. It will likely require dealing with more challenging subject matter rather than rudimentary topics.

We will witness a decline in the norms of being expected to regurgitate information and receive rewards for doing so. On the other hand, the spotlight will be on individuals who can ask questions of the highest relevance and quality, possessing the right set of skills and digital tools to meet the objectives of tomorrow. Now, what question does this leave you with?

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