PIVOT

CPA CANADA

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JANUARY/FEBRUARY 2022

The Cryptokeepers

CPA Jerome Dwight and the custodians betting big on Canada's future as a global leader in cryptocurrency

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PHOTOGRAPH BY GETTY

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INTERNATIONAL RECOGNITION

With an International Sustainability Standards Board centre in Montreal, Canada's standard setting is ready for the future

BY CHARLES-ANTOINE ST-JEAN

PHOTOGRAPH BY LINDSEY GIBEAU, WESTBORO STUDIO

Bonjour à tous!

I think it's fair to say that the combination of standards and sustainability is creating quite the buzz both domestically and globally. The recent announcement of the International Sustainability Standards Board (ISSB) with a centre in Montreal is making waves internationally, while here at home, the Independent Review Committee on Standard Setting in Canada (IRCSS) has a consultation paper in the marketplace with its own sustainability recommendations.

The paper outlines the core details and decisions that need to be made to ensure Canadian standard setting is fit for the future while remaining focused on the public interest. The importance of this review – to the profession, markets and other stakeholders – is almost incalculable.

And let's be clear, the world is changing. The global market is fluctuating even more rapidly than most expect due to the events we've experienced in the past few years. Obviously, the pandemic comes to mind as the most immediate force, but geopolitical strife, climate change and upheavals in society and the world of finance might prove to be even more long-lasting and impactful.

The review committee is exploring the overall governance and oversight framework of the Canadian standard-setting system – including its legal structure and funding mechanisms; consideration of public interest and responsibilities to Indigenous peoples in the development of standards.

Key to the entire process is the fact that the IRCSS is seeking user feedback to the consultation paper. The review committee wants broad public comment and I'd like to encourage Canadian CPAs to join in the consultation to ensure the voices of our profession are heard. The consultation process closes in February, so take the time and provide input at IRCSSCanada.ca.

When it comes to ensuring the relevance and international recognition of the CPA profession, focusing on sustainability is of the utmost importance. As many of you know, in the summer of 2021, CPA Canada helped to facilitate a bid to host the ISSB in Canada, and in November, during the COP26 climate conference, the IFRS Foundation announced that the new board would have a global, multi-location presence with its key centres in Frankfurt and Montreal.

This is a huge win for Canada and signals the IFRS Foundation – and the global community writ large – trusts Canada to help the ISSB establish its global footprint. The choice of Montreal as a key centre cements Canada as an integral player in establishing a common and consistent sustainability reporting ecosystem. This could help in combating climate change and therefore intrinsically affects every person on Earth.

Consistency around environmental, social and governance disclosure is especially important as jurisdictions and organizations globally make net-zero emissions pledges. These international standards will provide better information to evaluate these pledges and the progress being made toward meeting them.

With that, I'm reminded of the feature in the November/December 2021 edition of Pivot on Mark Carney, UN special envoy on climate change and finance.

THIS IS A HUGE WIN FOR CANADA AND SIGNALS THE IFRS FOUNDATION TRUSTS CANADA TO HELP THE ISSB ESTABLISH ITS GLOBAL FOOTPRINT

"We cannot get to net-zero without proper climate reporting. Full stop. It's just too complex. It involves every company in every sector, every region of the world," Carney said in our exclusive interview, and I wholeheartedly agree. The importance of consistent and accurate reporting on these issues cannot be overstated and that, my friends, is the main goal of the ISSB.

It is genuinely heartening to see the international community and Canada itself taking this issue seriously. The establishment of the ISSB represents a sea change in the standards-setting community and will better position us as leaders in the international community. I am extremely proud of these actions and encourage CPAs across Canada take a moment to recognize what we have accomplished, but also recognize there is still more to do.

L'avenir nous appartient! ◆

SKIP

PIVOT

VOLUME 5 | ISSUE 1

WINNER 6 Gold and 2 Silver medals, including Best Magazine, at the National Magazine Awards: B2B 2021

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Editor's note: The following letter comes in response to our story on CPA Justin Marchand and the efforts to house Canada's Indigenous population. We forwarded it to Marchand and have included his reply below.

Re: Safe as houses

Just a short note to congratulate Justin Marchand and *Pivot* for publishing the article on the need for improved Indigenous housing in the latest issue of *Pivot* ("Safe as houses", July/Aug. 2021)

I am a retired CPA who moved out of the Greater Toronto Area (GTA) after retirement. My career was spent servicing mainly mid-sized private companies operating in the GTA, as well as working with numerous mineral exploration companies who were active in the Canadian North. As a non-Indigenous person, I have never been able to grasp the real meaning of the word "reconciliation." That word has been bandied about so much that I would guess the majority of Canadians don't know what it really means.

As a subscriber to several Canadian magazines, I look for articles that outline how Canada and the provinces can help the Indigenous communities be more self-sufficient and become more integrated into the Canadian economy. It is difficult for Canadians of my age to accept blame for the many challenges faced by the Indigenous communities, which trace back 200 years or more. But it is very easy for my generation to read articles like yours in *Pivot* and appreciate why Canadians should help Indigenous communities gain, for example, basic housing needs.

I encourage *Pivot* to publish regular articles on examples of winning strategies for helping the Indigenous communities succeed and be a part of our economy.

Best Regards,
—Jim Glover, CPA
Cobourg, Ont.

Good day Jim,

Thanks for taking the time to reach out.

There is a lot packed into how intertwined we all are.

Yes, many issues started 200, 500+ years ago but there are an enormous number of policies that are still in effect today (some have only recently been ended) that continue to perpetuate harms. The last residential school only closed in 1996; there is the "Sixties Scoop"; and today we are living right in the middle of the "Millennium Scoop" and a murdered and missing Indigenous women and girls epidemic that continues to devalue lives and tear apart communities and families. All of these examples are "living" examples—they are negatively impacting peoples' lives today (and not just Indigenous people). To me, reconciliation is about relationships. Understanding takes time and effort, and I thank you again for your openness and for reaching out.

Best,
—Justin Marchand, CPA

Sham, How

I was disappointed in the non-critical Explainer article "The 411 on NFTs" (July/Aug. 2021). A tweet is worth US$2.9M because somebody is willing to pay it. It only retains that value if somebody else is willing to buy it. How is this different than black tulip bulbs? I expect to see a reprise of this article in the Sham, Wow section in the not too distant future.

—Paul Makulski, CPA
Waterloo, Ont.

PURPOSE DRIVER

SUSTAINABLE EFFORT

As the first CPA to be appointed sustainable development commissioner at the Office of the Auditor General of Quebec, Janique Lambert oversees the management of public funds, in accordance with the Sustainable Development Act **BY MATHIEU DE LAJARTRE**

Last September, Janique Lambert, CPA, CA, was appointed sustainable development commissioner by the Auditor General of Quebec (AGQ), becoming the first CPA and the first woman to hold the position. She assumed the new role knowing what to expect: following the adoption of the Sustainable Development Act in 2006, she played a key role in developing the performance audit intervention strategy and building the team responsible for the sustainable development portfolio.

Fifteen years later, she is now leading that team, which ensures, primarily through audits, that government activities contribute positively to society and do not negatively impact ecosystems. "While this is ambitious, it is also one of the definitions of sustainable development," explains Lambert. "Talking about sound management in the long term means talking about sustainable development today." Another of her goals, she says, is "to promote the role and the work of the commissioner to have an even greater impact on the application of the law."

While the Office of the Auditor General of Canada has a commissioner of the environment and sustainable development, and the Office of the Auditor General of Ontario has a commissioner of the environment, Quebec joins Manitoba as the only provinces to have passed framework legislation on sustainable development and to have a sustainable development commissioner.

PHOTOGRAPH BY **GUILLAUME SIMONEAU**

You are well acquainted with the Office of the Auditor General of Quebec, to say the least.
Yes, I have been working there for nearly 27 years. After three years at Ernst & Young, I worked on contracts at the office before obtaining a permanent position there in 1996. Since then, I have held the positions of officer of the auditor general, audit director and senior audit director. I started by doing financial auditing before discovering a passion for performance auditing.

"TALKING ABOUT SUSTAINABLE DEVELOPMENT WAS LIKE SPEAKING A FOREIGN LANGUAGE"

What is a performance audit?
It's what used to be called a "value-for-money audit." It's about ensuring the sound management of public funds in all entities subject to the Auditor General Act.

In 2006, a new management framework was established within the administration to ensure that powers and responsibilities are exercised in the pursuit of sustainable development. The Sustainable Development Act requires the government to have a comprehensive sustainable development strategy. Each entity that is part of the administration must then develop its own sustainable development action plan.

The government's sustainable development strategy is reviewed every five years, although the government can defer a review by up to two years if necessary. So, the next strategy will begin in April 2022.

The audit work really covers a wide range of sectors. How do you go about it?
To carry out a performance audit, the teams in several departments first conduct a review of activities. Then we select audit topics, which are then prioritized by senior management.

The audits are conducted by multidisciplinary teams. Of course, they include CPAs who are audit specialists, but also experts such as biologists, engineers and economists. The aim of this collaboration is to generate many different ideas to produce the best possible report.

So, you draw up a report from your observations?
Yes, in fact, we do four reports a year that the auditor general tables in the National Assembly. These documents contain findings and recommendations on the application of the Sustainable Development Act. In the past year, the Electrification and Climate Change Fund has also been discussed. These reports are used by the Committee on Public Administration, which can summon the entities targeted by our work.

These entities must submit an action plan to the National Assembly and report publicly on the measures they put in place. We follow up on their file for three years, to make sure that our recommendations are not made in vain. The goal remains to improve the management of public funds.

21
Quebec towns were consulted during the creation of the province's Sustainable Development Act

Has the context changed much since the adoption of the Sustainable Development Act in 2006?
At the time, talking about sustainable development was like speaking a foreign language. Administrations saw it as a real puzzle, trying to figure out how to go about it. Now, environmental concerns are part of society. People understand, for example, that we can no longer exploit natural resources as we have done for decades.

The newer generations entering the job market, especially in the public service, have these values at heart. They are ready for change, as are companies, which have to meet the expectations of their customers as well as those of the state, which is a major client. If the government sets expectations, the private sector has no choice but to follow. That is where we are at as a society.

This is what has driven me for the past 20 years: to think that my work can make a difference, that it will have an impact on future generations, starting with my children and, who knows, maybe my grandchildren.

The current context must be motivating for you.
Yes, it's rewarding, especially considering that, since 2019, one of the AGQ's strategic objectives has been to further integrate sustainable development into its performance audit missions to increase its visibility in the National Assembly. So, in addition to their own audits, the sustainable development commissioner comments on 30 per cent of the office's performance audit reports.

In 2020-2021, for example, our work focused on the MV F.-A.-Gauthier ferry (environmental performance, cost-benefit analysis of various options, use of liquefied natural gas, etc.), as well as on the accessibility of educational childcare services (quality of services offered, essential link to healthy development, women's access to the labour market, etc.).

As civil servants, we do more than just monitor and control, we also serve as educators—a role that is especially important considering that concepts related to sustainable development can be quite complex. We believe that when information is accessible and widely shared, the easier it will be to understand and the easier it will be to address the situation.

What role has your background as a CPA played in your career path?

It has been invaluable, of course, especially because when I started out, training for professional accountants was mainly focused on economics and profitability. Then I gained experience in performance auditing with the AGQ and learned to navigate the public service and talk to parliamentarians, while developing expertise in sustainable development. The Sustainable Development Act has raised awareness of these issues, including internally.

We wondered how we could contribute to the implementation of the government's sustainable development strategy, so the AGQ, even though it was exempt, wanted to set an example by adopting its own action plan, through specific actions aimed, for example, at reducing its ecological footprint in terms of travel.

Because we want sustainable development to be well understood by other AGQ auditors, we also offer in-house training on the subject and invite specialists. This is an issue that concerns us all.

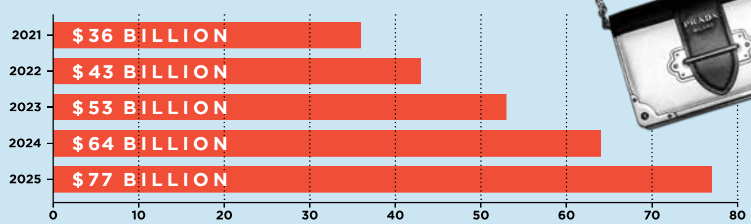
There's a real sense that this is your *mission*.

We can meet our needs today, but we have to think about the future, about those who will follow us. We need to ensure that they have the same opportunities we do. That's why it is important to account for our actions honestly, especially when it comes to sustainable development. ◆

FASHION'S SECOND ACT

This fall, New York City–based Rent the Runway, a website allowing users to rent or buy designer apparel and accessories, raised **US$357 million** on an initial public offering on Nasdaq. The e-commerce platform became the third firm specializing in secondhand fashion to go public in 2021. Affordability and uniqueness are driving consumer demand in the fashion and luxury resale market, but environmental concerns may be even more important. According to a 2020 survey by Boston Consulting Group and Vestiaire Collective, 70 per cent of buyers "like the sustainable aspect" of resale, compared with 62 per cent in 2018. —*Steve Brearton*

Global secondhand market projections



US$30-40 billion
Value of global secondhand apparel, footwear and accessories

15-20%
Estimated average annual growth in the sector over the next five years

Market cap valuations

FIGURES IN USD

PVH

PVH CORP.
$8.0 BILLION
Van Heusen, Tommy Hilfiger, Calvin Klein and IZOD

NORDSTROM
$5.1 BILLION

AMERICAN EAGLE OUTFITTERS
$4.5 BILLION

ABERCROMBIE & FITCH
$2.7 BILLION

THREDUP
$2.1 BILLION

POSHMARK
$1.9 BILLION

RENT THE RUNWAY
$1.0 BILLION

PHOTOGRAPHS: MAN BY **CHALO GARCIA**; BAG BY **LAURA-CHOUETTE**

PICTURE THIS

RIDING THE WAVE

Beachman is hoping its retro-style e-bikes—and the experienced CPA in its corner—will help it stand out in a fast-growing sector **BY LIZA AGRBA**

How do you build a product with the climate-consciousness of an e-bike and the cool factor of a vintage café racer? In the case of Beachman—a one-year-old company with three sold-out product lines in its repertoire—the spark was a chance encounter between neighbours. Ben Taylor, who had a background in branding and a penchant for all things retro, met Steve Payne, a sound engineer and mechanical whiz who builds motorcycles in his garage for fun. They put their skills together and launched Beachman Bikes—a brand of '60s-inspired two-wheelers with the bodies of vintage café racers and the guts of modern e-bikes.

The concept initially took root in 2016 when Taylor launched @thebeachmanlife, a popular Instagram page dedicated to the freewheeling aesthetic of the '60s and '70s.

Advances in lithium ion technology have made batteries lighter, cheaper and more efficient, which in turn has accelerated the development of electric vehicles and bikes. According to a Deloitte report, there will be 300 million e-bikes in circulation by 2023—up from 200 million in 2019. That year, *The Verge* published an article titled "Forget electric cars—e-bikes will be the top selling EV in the next decade," citing battery improvements, the shift toward low-emission vehicles generally and a growing number of bike commuters in urban centres.

When the pandemic arrived, public transit ridership plummeted across the country, and the demand for "micromobility" vehicles like e-bikes surged. And, if Beachman's recent Indiegogo campaign is any sign, the rush has yet to die down. The Beachman '64, with a 30 per cent longer range than its predecessor, off road-capable tires and upgraded battery housing, hit $353,000 in funding (its goal was $15,000). In March, the company's original model, dubbed the Founder's Edition, sold out within 48 hours.

One of the major selling points is that you don't need insurance or a driver's licence to ride an e-bike. Regulations vary slightly from province to province but, broadly, for a vehicle to qualify as an e-bike, it must have pedals, can't go faster than 32 km/h and riders must wear a helmet (Beachman's products—at least those it's released so far—fall under the e-bike category).

300
million e-bikes are estimated to be in circulation by 2023

The company has an edge in the form of CPA Adrian Joseph—former CFO of Steam Whistle Brewing, which was co-founded by Taylor's father—who is handling the business's finances and accounting. "I'm excited about the product and optimistic about this unique sector," says Joseph, "especially since everyone is looking for more movement and independence since COVID. It's been really fulfilling to see all the demand."

Taylor says working with Joseph has been a serious boon for the business; with the CPA's help, the company incorporated in 2021. "He gave us a lot of great advice at the start, like helping us write our shareholder agreement," says Taylor.

Joseph is also helping the team navigate an application for Canada's Scientific Research and Experimental Development (SR&ED) tax credit program, which will help support its technological research.

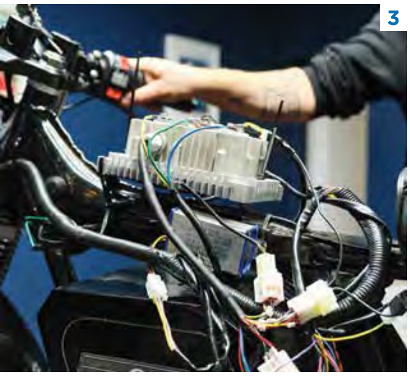
In line with Taylor's aesthetic-driven Instagram page, the ultimate goal for Beachman is to capitalize on its image and stretch its product line beyond electric bikes. "I want to create a space at Beachman where a team of industrial designers will make '60s-inspired, mid-century modern products that are new but have a quintessentially Beachman look to them," says Taylor. "Basically, to allow ourselves to produce whatever we want and bring style back from the utilitarian, IKEA age we live in right now." ◆

PHOTOGRAPHS BY JOHN CULLEN

1

2

3



4

5

1. Ben Taylor (left) and Steve Payne in front of **Beachman's downtown Toronto showroom.**

2. Beachman's 2021 line, the "Second Edition" e-bike, sold out.

3. The white box, known as a "Kelly controller," is one of several controllers the team is testing out. **It's the brain of the bicycle,** deciding how much power is sent to the motor, controlling lights and signals, and how smooth the ride is. "It's the most important piece of the puzzle," Taylor says.

4. Beachman's line of e-bikes are **inspired by a classic '60s aesthetic.**

5. A **2022 prototype** of Beachman's popular '64 model.

BURNING ISSUE

ELECTRIC AVENUE

As electric vehicles are poised to take over Canada's roads a major dilemma looms: What becomes of the gas tax? **BY PETER SHAWN TAYLOR**

Is there an EV in your garage? Probably not…yet.

In the first quarter of 2021, Canadian drivers registered 17,285 new electric vehicles (EVs)—either battery electrics or plug-in hybrids—accounting for a mere 4.6 per cent of all newly registered vehicles. If that seems small, just wait. It's a statistic with an upside.

The federal government has declared that by 2035 100 per cent of passenger cars and trucks sold in Canada must be zero-emission. With the transportation sector accounting for a quarter of this country's total greenhouse gas emissions, the sun is setting on the internal combustion engine. While this may be good news for the environment, it brings with it another policy dilemma. For, if the gas-powered car is on the way out, then so too is the gas tax.

The federal government collects nearly $6 billion per year in gas and diesel excise taxes, not including the GST or HST on those purchases. Add in provincial fuel taxes and over $16 billion in annual government revenue that will disappear once Canadian drivers are weaned off the gas pump. It's enough to rip a large hole in public finances. "Governments are going to have to figure out how the heck they are going to make up for all that money," observes Harry Kitchen, professor emeritus of economics at Trent University, in Peterborough, Ont. For a glimpse of what the future might hold, look south.

4.6
Percentage of newly registered vehicles that were electric in the first quarter of 2021

In Canada, some federal and provincial gas tax revenue is allocated to public transit or local infrastructure, but most goes into general revenue. In the U.S., however, federal and state gas taxes must be used exclusively for road construction and maintenance—with drivers essentially paying for the wear and tear they inflict on the road system whenever they fill up their tanks. This tight connection means the looming disappearance of gas taxes constitutes an existential crisis for American roads.

"Electric vehicles are not purchasing fuel, yet they are driving as many miles as other users," says Michelle Godfrey, public information officer with the Oregon Department of Transportation. "Their impact on the road system is much more than their contribution to road maintenance. And that's unfair." Oregon is the early leader among U.S. states in figuring out how to replace the gas tax it will lose once EVs take over.

Currently, all EV owners in Oregon must pay an extra US$184 annual vehicle registration fee to make up for the gas taxes they aren't paying. It's a simple system, but Godfrey acknowledges it's also unfair. Charging EV owners the same flat rate means those who drive a little are subsidizing those who drive a lot. "You should pay for what you use, the same as your electricity bill or other public utilities," she says. The solution is OReGO.

Introduced in 2015, OReGO is the first fully operational road-usage charge system in the U.S. Drivers who join are billed 1.8 cents (US) per mile (approximately 1.4 cents Cdn per km) wherever they drive. The program is entirely voluntary, and open to drivers of both gas-powered and electric vehicles; participants can opt out from paying either the state gas tax or the extra EV registration fee. Mileage data is gleaned from a GPS device inserted in the car or via regular odometer readings.

The prospect of paying directly for every mile (or kilometre) driven is a revolutionary concept for most car owners. And one that raises some obvious concerns—chief among them, the fact government now appears to be tracking your every move. "Privacy is one of our top issues," stresses Godfrey. To ease privacy concerns, OReGO participants can choose between a variety of private companies or the government to handle their mileage data and collect fees owing.

A GPS-enabled road-usage payment system such as OReGO is widely considered to be superior to flat EV fees. Besides being fairer, it's also much

ILLUSTRATION BY DAN PARSONS

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more robust. In addition to tracking miles driven, the technology can incorporate congestion fees or road tolls, pro-rated fee sharing between jurisdictions and differential rates for rural and urban driving. Utah unveiled its own voluntary road usage charge in 2021 and is planning to make it mandatory for all drivers by 2031. Then, Utah will eliminate its gas tax forever.

Things are less advanced in Canada, but there's good reason to believe the same factors at play in the U.S. will eventually make their way north. Saskatchewan, for example, recently became the first province to require that EV owners pay a new annual road-use fee of $150. Consider it the first step on a long journey toward universal road-usage charges. "If you want to generate taxes from the people who are using the roads, then you need an efficient mechanism," says economist Kitchen. "Charging people by the kilometre fits that purpose. And the technology is already here." ◆

GUEST COLUMN

THE YOUTH MOVEMENT

How the So We Are Generation Alpha project is providing insights on the next wave of entrepreneurs, professionals and dreamers

ADEOLA ADEGOKE

"It's 2021 . . . should the computer be called a different name and, if so, what would you call it?"

This is one of many questions that were posed to participants of a pioneering exploratory study called So We Are Generation Alpha (SWAGA). The study features individuals aged eight to 12 from across Canada, in a video log and mini-documentary series, responding to thought-provoking questions and scenarios posed by academic researchers from across the country. The survey is a project being led by the non-profit organization Sowcool.org and is poised to chronicle the sentiments of Generation Alpha—those born since 2010—at a time of immense change. The survey will gather insights into this emerging generation during their formative years.

18
Percentage of the world's population made up of eight- to 12-year-olds

Many researchers believe the occurrence of significant events during one's formative years—and the pace at which social change occurs from those events—is key to producing a consciousness that could influence the perspectives and attitudes of individuals for a lifetime.

So, what significant events do we believe will influence the attitudes of Gen Alpha?

For starters, the past decade saw hundreds of civic protests materialize around the globe. The decade also saw Canada legalize the medical and recreational use of cannabis and formally recognize the rights of Canadians to seek medical assistance in dying.

Then came the shift from 3G broadband to 5G, providing a platform for incredible digital transformation and the normalization of virtual interactions.

Most recently, the COVID-19 pandemic affected us all but will likely leave Gen Alpha with a healthy respect for pathogens, informing their attitudes and approach to travel, employment and other lifestyle choices.

This is the world Gen Alpha knows: a world sensitizing itself to the rights and responsibilities we share as global citizens. It's also a world where social media plays a critical role in mobilizing resources, creating economic value and validating brand credibility and loyalty.

But there is still much to learn about this emerging generation, which accounts for nearly 18 per cent of the world's population and is poised to enter the workforce in the 2030s.

SWAGA's focus on Gen Alpha preteens is based on research that suggests that, by age 13, most individuals develop critical-thinking abilities that are career-impacting, such as the motivation to succeed, autonomy, concern for the future and accountability.

ILLUSTRATION BY KAGAN MCLEOD; PHOTOGRAPH BY ISTOCK

Thus, SWAGA aims to demonstrate the value and importance of engaging individuals at a time when curiosity and critical thinking begin to flourish, a time when they begin to demonstrate aptitude for or interest in an area or field they have a natural penchant for.

Take, for example, Ella Larsen, who has registered to participate in the project. Ella is a 10-year-old Grade 6 student and self-taught digital graphic design artist from Victoria. She owns and operates a small digital graphic design business specializing in avatars used by gaming enthusiasts. Ella designs art on an app and then uploads the designs onto the popular online video game *Roblox*, where consumers use the in-game currency to purchase her work.

Sowcool's project involves the production of a documentary, slated for completion in 2022/23. The documentary will showcase interviews with Gen Alpha preteens on a variety of topics, such as their aspirations for the future and their thoughts on environmental stewardship.

At the heart of this project is a call to action, a nudge to businesses and industry professionals, including CPAs, to create and promote workplace experiential learning and vocational mentorship opportunities for preteens like Ella.

As accountants, we strive to paint a picture of events as they happened, like historians and storytellers do. While the stories we tell often leave little to speculation or imagination, we are nonetheless fuelled by curiosity. Our peek into Gen Alpha is no different; it is a snapshot of a current state, a report card of sorts, a point of reference for historians, and a call to engage and embrace future guardians of our collective legacy. ◆

Adeola Adegoke, CPA, serves on Sowcool's board of directors and is a member of and volunteer with CPABC. For more on the So We Are Generation Alpha project, please visit Sowcool.org. Participation in the So We Are Generation Alpha project is open to residents of Canada aged eight to 12.

SHAM, WOW

A catalogue of recent cons

BY DAVE ZARUM

"RED FLAGS"

In August, a couple purchased a town home in Ottawa's Barrhaven neighbourhood and listed the income property to rent through an MLS agent. A few weeks later, the agent contacted the couple to tell them their tenant was complaining about a supposed unexpected rent increase. The problem? The couple had yet to rent out their home. The so-called tenant, it turned out, had replied to a Kijiji listing for the property and negotiated rent prices and other arrangements via a series of text messages with a scammer. "Under normal circumstances, yes, this would have raised some red flags," said the 36-year-old renter, who e-transferred over $4,000 to the perpetrator, presuming the lack of a face-to-face meeting was common protocol during the era of COVID-19. How did the renter access the home? The victims believe the scammer acquired the lock box code by fraudulently posing as a realtor on a website that facilitates realty showings. Ontario police warn prospective renters to look for duplicate listings and exercise vigilance when searching for properties online.

$34,000

Amount an elderly woman in Kelowna, B.C., was conned out of due to an elaborate Bitcoin scam. Intrigued by the opportunity in cryptocurrency investment, the woman entered her contact information on a website promoting Bitcoin. The site appeared legitimate but was far from it. What followed was a barrage of phone calls and emails—up to two dozen a day—instructing her how to e-transfer money to a fraudulent account. The scam even featured a banking portal with a bogus two-factor authentication process that showed a fake account balance. What began as a $250 investment quickly "snowballed" until the woman's daughter intervened. The phone numbers have reportedly been deleted and an RCMP investigation is underway.

BY THE NUMBERS

The pandemic, it turns out, has been a boom time for scammers, who have found myriad ways to dupe Canadians out of their money since lockdowns began in March 2020. Here's a look at the extent of their damage:

28,290
Canadian reports of COVID-19 fraud

26,230
Canadian victims of COVID-19 fraud

$7.75M
Lost to COVID-19 fraud

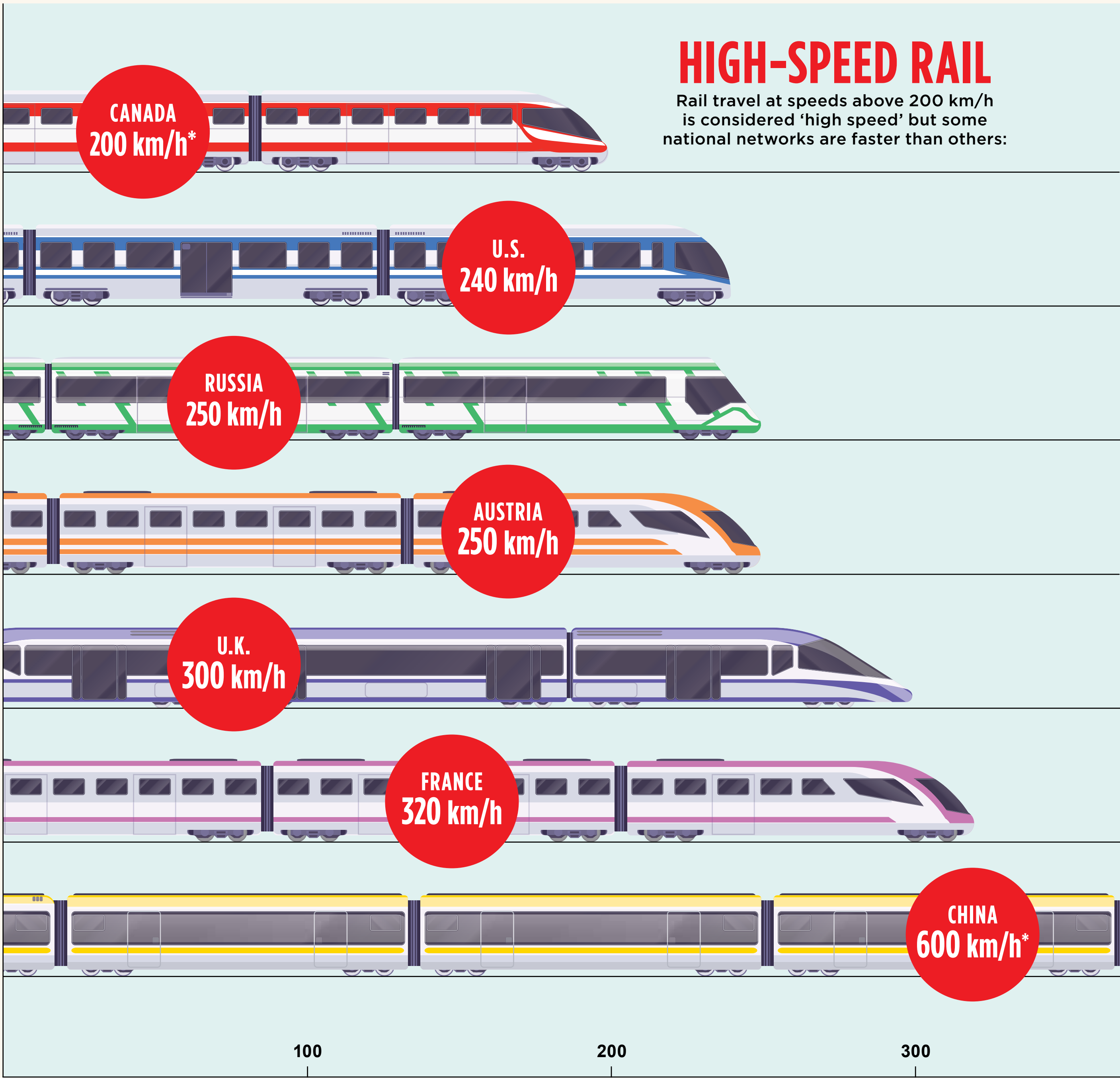
*AS OF SEPT. 31, 2021 (SOURCE: CANADIAN ANTI-FRAUD CENTRE)

PHOTOGRAPHS BY ISTOCK

BY THE NUMBERS

BUILT FOR SPEED

Last summer, Canada's federal government announced it's preparing to build a new dedicated passenger rail line in the Toronto to Quebec City corridor. Trains will travel at speeds of up to 200 kilometres per hour—25 per cent faster than VIA Rail's maximum speed for passenger trains. Currently, Canada is the only G7 nation without a high-speed rail line. —*Steve Brearton*



SOURCES: VIA RAIL, ENVIRONMENTAL AND ENERGY STUDY INSTITUTE, INTERNATIONAL UNION OF RAILWAYS, GLOBAL ECONOMIC POLICY LAB AT UNIVERSITY OF TORONTO, PWC

Turbo Train

Beginning in 1973, VIA Rail operated a regular high-speed passenger route between Toronto and Montreal using the Turbo II train. The Quebec-built locomotive was phased out of operation in 1982 because of ongoing operating problems and "excessive maintenance costs."

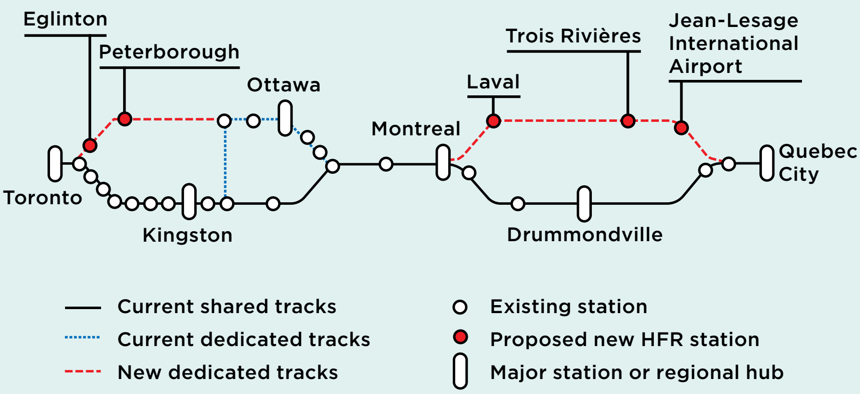
226 km/h

Top speed recorded by VIA Rail's TurboTrain during trials in 1976.

$24.00

Cost of a first class Montreal to Toronto ticket when service began.

Proposed high-frequency line map



$6-$12 BILLION

Estimated cost of the new Toronto to Quebec City "high-frequency" line to be built by 2030.

4.8 MILLION TO 17 MILLION

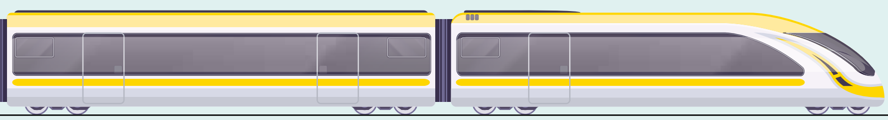
Projected increase in annual passenger trips in the Toronto to Quebec City corridor between 2019 and 2059.

US$55.6 MILLION

Average global cost of high-speed rail construction per kilometre, according to a 2016 report by PwC.

US$300 billion

Amount China has invested in a 25,000km high-speed rail (HSR) network. Today, China's HSR lines carry more than twice as many passengers as its domestic airlines.



*PROPOSED

400 500 600

Total length of global high-speed rail networks, 2000 to 2020:

2000 — 5,978 KM

2005 — 9,234 KM

2010 — 18,021 KM

2015 — 38,792 KM

2020 — 56,129 KM

PHOTOGRAPHS BY **ISTOCK**

HOW CPAS CAN RESPOND TO A DIGITAL FUTURE

In today's climate, digitization is perhaps the most important aspect of an organization's success.

But why is digitization vital? A recent report on the manufacturing sector from the Canadian Economic Strategy Table put it bluntly: "We will either digitize our operations or we will die."

Digitization allows established organizations to become more efficient, effective and competitive. "We're going digital" has become a catchphrase for Canadian business – a demonstration of efforts to embrace, some might say "submit" to, a technological evolution. To compete, and some may say survive, Canadian organizations are digitizing at least some aspects of their operations to better understand customer preferences, streamline processes or start a subscription-based service, to name a few possibilities.

For both private and public sector organizations, digital technologies such as artificial intelligence (AI) are being implemented to remain competitive. The private sector is sharing data to generate valuable insights to meet public policy objectives. Governments are digitizing historical paper-based records to create open sources of data to foster private sector innovation to trigger their economies.

Digitization and data go hand in hand. Embracing digitization has resulted in an influx of data that can be incredibly useful to an organization *if* used in the right way. However, organizations grapple with digitization. Many are becoming data rich yet remain information poor.

This is where CPAs come in. As digitization becomes more widespread, there's a level of uncertainty that requires careful planning of a company's digital transition. Owning data comes with a plethora of responsibility. Compliance with privacy regulations, upholding ethical business practices and instilling trust that data is stored and used sensibly is a growing concern amongst businesses and the public in a digital world. Although specialists such as data engineers, controllers and scientists are essential in performing day-to-day data operations, organizations also need to manage and oversee data and digitization policies and strategies. This requires foundational CPA proficiencies, such as business expertise, judgment, professional skepticism and oversight of systems and controls.

Building on current skills

In the process of digitizing, data projects and strategies need a sound business case and organizational buy-in as well as proper enabling policies, procedures, risk management metrics and oversight. CPAs are well positioned to play a leading role in developing and managing the required data governance frameworks, including corporate data policies to properly manage data governance issues, compliance to data privacy legislation, and managing risks associated with secondary data use. The accounting profession will expand along with technological evolution and CPAs can expect to take on a more holistic approach that builds on their traditional finance-focused skills and knowledge.

Want to learn more about the critical role CPAs can play in mastering data?

Read the Mastering Data Series:
cpacanada.ca/masteringdata

Foresight
REIMAGINING THE PROFESSION.

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The Cryptokeepers

CPA and 'business accelerator' Jerome Dwight helped Brane Inc. become one of Canada's first cryptocurrency custodians. Now he's one of many betting big on Canada's future in crypto

BY MATTHEW HALLIDAY

PHOTOGRAPHS BY DEREK SHAPTON

There's a story that Jerome Dwight likes to tell: one afternoon in fall 2008, then-finance minister Jim Flaherty called to pick his brain on a matter of more than a little urgency. How, he wondered, could Canada avoid the worst of the financial crisis unfolding to the south?

The call wasn't exactly out of the blue. At the time, Dwight had just become president and CEO of the Bank of New York Trust Company of Canada, a subsidiary of the Bank of New York (BNY) Mellon. The latter was as close to Wall Street bedrock as it got—a centuries-old institution and long a trustee of choice for governments, endowments and other fixtures of the U.S. economy. That October, BNY Mellon was chosen as master custodian for the U.S. Treasury Department's US$700-billion bailout fund, meaning it would hold, disburse and account for the trove of cash meant to prop up the U.S. economy.

When Flaherty connected with the bank's top man in Canada, the pair got to brainstorming. That turned into a joint delegation to Wall Street to discuss Canada's relatively more steadfast regulatory environment. Weeks later, Dwight was waiting for Flaherty outside BNY Mellon's One Wall Street skyscraper, on the lookout for whatever bulletproof limo or other conspicuous conveyance might signal the arrival of a G7 finance minister. As he waited, a yellow taxi pulled to the curb—and out popped Flaherty and an aide. "It was a truly Canadian moment," recalls Dwight. "No fanfare at all."

They then rode a private elevator to a 70th-storey boardroom, where Flaherty led a discussion animated by one central question: "How do we do things better in Canada?"

More than a decade later, that question is newly relevant to Dwight. Last March, he was hired on a consultant basis and given the title as president of fintech outfit Brane Inc. to help speed up its transition from startup to a new kind of financial institution: a made-in-Canada qualified custodian for cryptocurrency assets. In other words, a licensed trustee holding crypto in secure storage, subject to specific rules intended to protect investors' assets, compliant with industry-wide system and organizational controls (SOC) auditing standards.

> **"We're rebuilding what traditional custody looks like . . . but doing it in a very Canadian way"**

It's easy to see why the Flaherty story is so appealing to Dwight. Besides some forgivable name-dropping, it illustrates everything he says he's been trying to do over the past year as Brane has moved through the regulatory process, hoping to bring new stability to an asset class better known for its anarchic origins, extreme volatility and short but fraud-plagued history. And Dwight sees Canadian-ness, of the kind he and Flaherty espoused on Wall Street, as an intrinsic part of Brane's value proposition.

"We're rebuilding what traditional custody looks like for the crypto-asset class," he says, "but we're doing it in a very Canadian way: heavy on humility around risk, a conservative culture when it comes to financial regulation; all of the things that helped us be the gold standard post-financial crisis [are what] we're incorporating."

Ten months after his hiring, Dwight already announced plans to move on from Brane, declaring his mission there accomplished. In December, Brane received letters of incorporation from Alberta Treasury Board and Finance to become a licensed trust company—at press time its final registration as a trust appears imminent. (Initially, Brane had planned to be the first such custodian in Canada, but Alberta-based Tetra Trust snagged that title in July.) It's also aiming at an IPO for 2022.

"This seems like a calling for me, to come in as an accelerator for organizations that need it," Dwight says of his departure, "and answer that question: how can technology better transform financial services and make it more inclusive?"

Dwight is optimistic that Canada has an opportunity to hit the regulatory sweet spot around crypto that could make the country a magnet for international investment—a regime taking a pre-emptive, proactive approach to regulation, yet careful not to stamp out innovative ideas.

Take, for example, the Ontario Securities Commission's (OSC) approval in February 2021 of the world's first direct custody Bitcoin ETF, by Toronto-based Purpose Investments. Or consider the regulatory sandboxes developed by the OSC and Canadian Securities Administrators (CSA) that allow financial innovations to test the waters while exempt from the typical rules of full compliance with traditional regulation. (One well-known example is the CSA's approval of Wealthsimple's crypto-trading platform, allowed in 2020 to operate with an exemption on traditional prospectus and reporting requirements.)

And then there are the moves taken in the past 24 months by the CSA to define the contractual right to custodied crypto assets as a security. That makes Canada the first jurisdiction in the world to do so, putting Canadian crypto dealers and custodians on a path to regulation not seen elsewhere.

Dwight thinks that reputation can make Canada (and Brane) a magnet for crypto investors seeking refuge from uncertainty and volatility. The challenges are big: crypto is a fast-moving space, other jurisdictions are hard at work figuring out their approaches and Canada is still a small player in the big scheme of things.

"We're trying right now to find that trade-off between innovation and regulation, security and change," says Ryan Clements, a law professor and crypto-regulation expert at the University of Calgary. He agrees that Canada may have a chance to position itself as a safe haven for crypto investment—but how it all shakes out is far from certain. "To some degree," he says, "the country's reputation is at stake here."

If the importance of secure custodianship for crypto assets was in any doubt, it became crystal clear after December 2018, when 30-year-old Gerald Cotten—founder and CEO of QuadrigaCX, then Canada's largest crypto exchange—died suddenly while on honeymoon in India. Cotten's death left $250 million in both crypto and fiat currency (ostensibly owned by 115,000 people) in electronic limbo. Jennifer Robertson, Cotten's widow, alleged that neither she nor anyone else knew how to access the assets; the private keys used to access QuadrigaCX's cold wallets were solely held by Cotten.

That alone is a cautionary tale. But it turned out that Cotten had also been running a Ponzi scheme with client assets, siphoning them off to enrich himself. Not only were the assets unrecoverable in some cases, most were simply gone. When the crypto market slowed in 2018, a flood of clients cashed out their holdings and QuadrigaCX's assets started running low. Cotten began redirecting his personal wealth to QuadrigaCX to stave off the exchange's collapse. An OSC investigation later revealed that the majority of the exchange's losses were actually due to fraud.

If Cotten sounds like a crypto Bernie Madoff, well, he was. So, no wonder Dwight saw a direct connection between Brane's business and his work with BNY Mellon. "I feel this sense of urgency and mission to make sure we never have another Quadriga," he says.

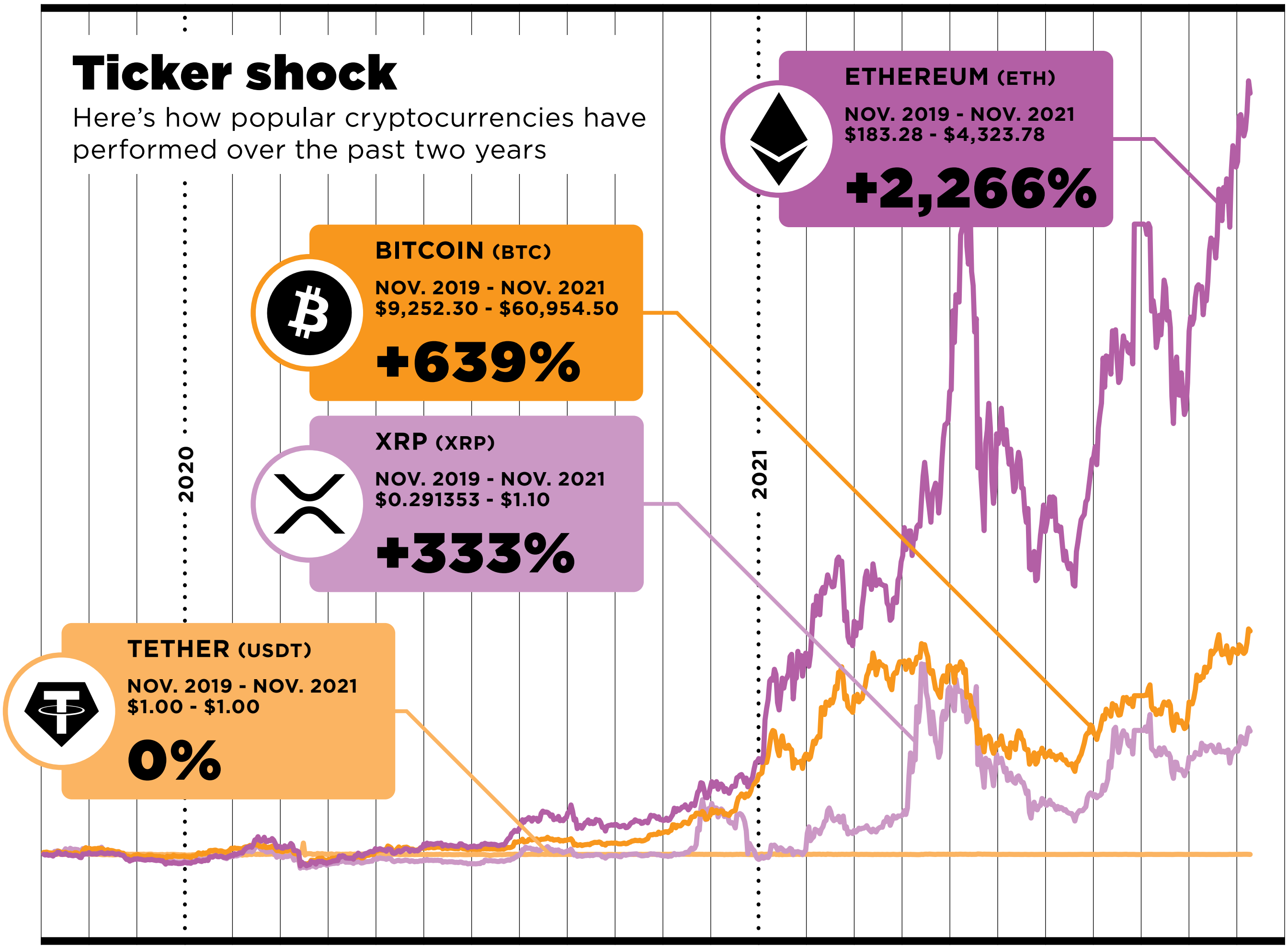
QuadrigaCX isn't the only high-profile Canadian crypto fraud: in 2020, the OSC found that another major exchange, Coinsquare—prior to applying to the Investment Industry Regulatory Organization of Canada (IIROC) for registration as an investment dealer—had knowingly been overstating trading volumes by as much as 90 per cent. Three top staff departed the company, two owing fines in the million-dollar range.

The aftermath of QuadrigaCX stoked newfound interest in regulating the sector. In 2019, IIROC and the CSA put forth a proposed regulatory framework for crypto-trading platforms, suggesting that, if crypto assets were deemed to be securities, they'd be subject to regulation. In 2020, CSA declared that in cases where a platform holds custody of a crypto asset on behalf of the buyer (rather than deliver it directly to the user's personal crypto wallet), that expectation of future delivery creates a security—a contractual right to later delivery of the asset. Ergo, crypto exchanges need to be registered.

"The Americans are wrestling with this," says Clements. "With [Securities and Exchange Commission chair] Gary Gensler coming in, there's a much greater desire to bring crypto-trading platforms

Ticker shock

Here's how popular cryptocurrencies have performed over the past two years



within the ambit of securities. But there are also all these proposals from the crypto industry, from venture capital firms, for bespoke regulatory regimes. It's up in the air in a way it isn't here."

Not everyone is willing to play ball in Canada, either. Earlier this year, the CSA reaffirmed that crypto-trading platforms in Canada would need to apply for registration and regulation. When the OSC began threatening enforcement action, one of the world's largest crypto exchanges, Binance, packed up and left the province of Ontario altogether.

"They could have hired counsel and gotten regulated in Canada," says Michael Arbus, CEO of Canadian crypto exchange Bitbuy. "But…they said, 'This rule system is overly onerous compared to what we're being forced to do around the world, we're not going to bother'…It showed, I think, the strength of what the [Canadian regulators] designed." It was, he says, a process that "offended" global actors, but in so doing paved the way for made-in-Canada solutions.

What does this all mean for custody? Simple: any crypto-trading platform in Canada now has to either become a qualified custodian or use an external one that meets certain requirements. There are three paths to that destination: become a bank, a trust company or an investment dealer and member of IIROC.

Brane has chosen the trust route, as has one of its most direct Canadian competitors, Tetra Trust, which received its trust licence in July. Both companies chose to go through the regulatory process in Alberta (which Dwight calls "one of the most fintech-friendly markets in the world," in part thanks to attempts to diversify its economy away from reliance on oil and gas).

That still means a regulatory gauntlet, parsing operational and business plans, ensuring adherence to auditing standards and guaranteeing acquiescence to regular examination. For crypto custodians, it also means ensuring secure cold-storage needs will be met.

"The Alberta regulators did not have experience when we first met them," says Tetra Trust CEO Eric Richmond. "But they did extensive diligence and research by speaking to other regulators internationally, walking through the platform, how transactions are verified [and] business-continuity plans." Still, he says, it took "a lot longer than we thought."

The process also involved examining the experience and character of the company's senior leadership and board. In Brane's case, the nine-person board is reasonably well-endowed with established figures from finance, law enforcement, accounting and public service, including former Ontario premier Dalton McGuinty, who joined when Brane CEO Adam Miron—formerly a cannabis entrepreneur and co-founder of political-reporting website iPolitics—reached out to him.

"One thing I came to understand in government is that we can struggle in the face of innovation," says McGuinty. "We didn't understand Uber until it fell in our laps. Same with Airbnb. And we're still struggling with the revolution in the film industry; how do we tax Netflix and other mega companies in the digital sector? So, I thought this was an exciting place for me to be."

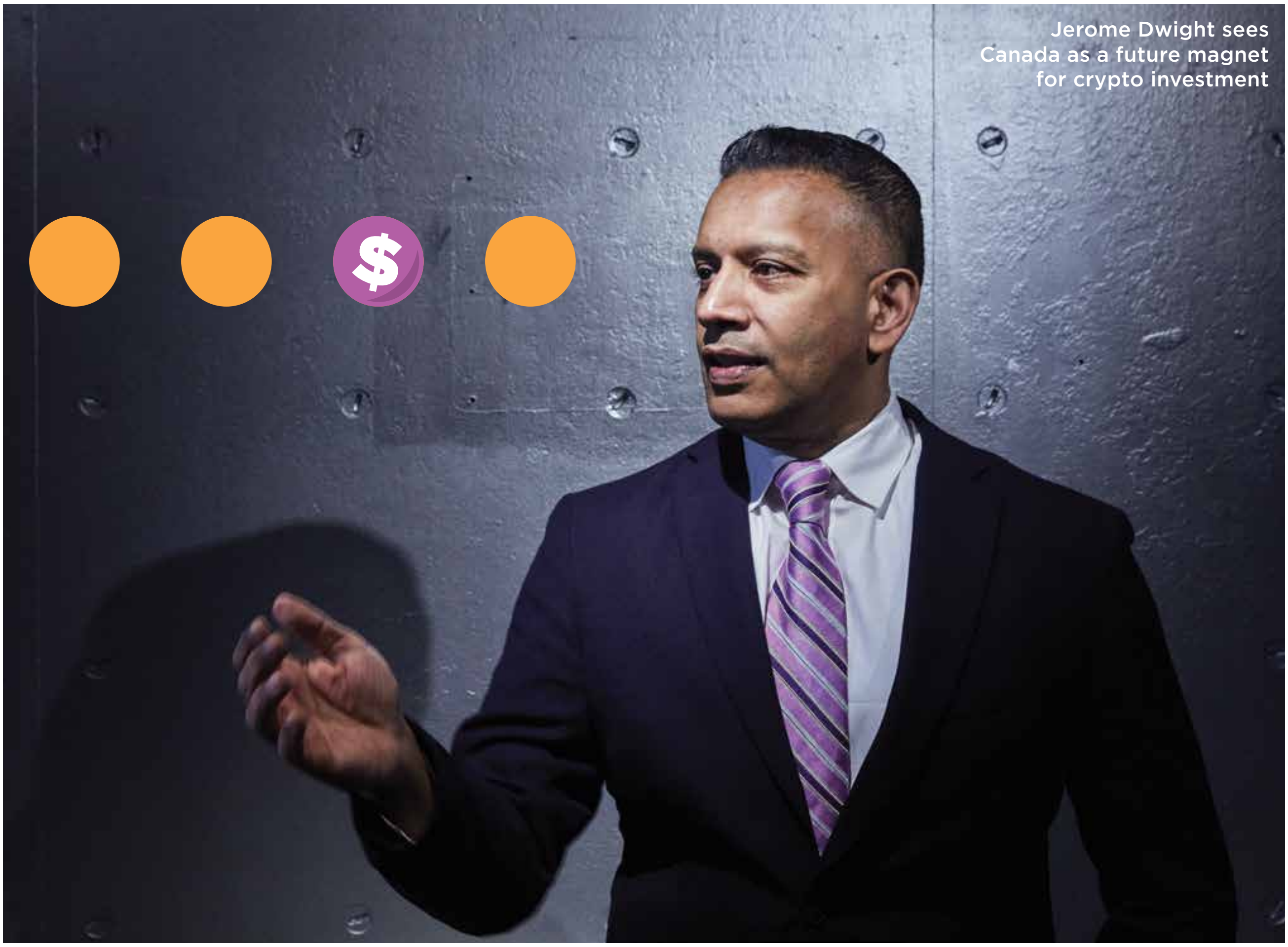
McGuinty echoes Dwight's sentiments: this revolution needs to be led by someone with a foot in both fintech and the financial establishment. Dwight's CV contains plenty of both. In his first role after earning his CPA designation, from 1999 to 2001, Dwight was CFO of a company called Bayshore Capital, a private equity firm that brought to market a slew of tech companies. That included iMoney, which allowed users to combine accounts and products from multiple institutions in one online portal, helping lay the groundwork for "virtual banks" like BMO's mBanx that follow suit. And it's when he gets going on the latter aspect of his career that he begins to sound like a crypto evangelist, extolling the world-changing potential of decentralized, non-fiat currency. "Once I saw the potential for that, the light bulb clicked on."

The child of Sri Lankan immigrants, Dwight grew up in Toronto's Rexdale neighbourhood among many newcomers and others with little knowledge of or access to the traditional financial system. "There are two billion people unbanked in the world," he says. "They have no access to financial services, but they have mobile phones. Cryptocurrencies allow these unbanked populations to enter the world of financial transactions on a digital basis."

"Cryptocurrencies allow unbanked populations to enter the world of financial transactions"

Of course, it's not the unbanked that will make up Brane's direct customer base. In fact, Dwight hopes it will partly be the banks themselves. Ultimately, he sees Brane as providing services to established financial services organizations that don't have the expertise to take custody of crypto assets themselves. He believes that, within a year or two, such offerings will be "table stakes" for banks that want to attract and retain younger clients.

Bitbuy's Arbus is uncertain whether custodians like Brane and Tetra Trust will be able to compete with the biggest players in the business. Tetra Trust hoped to have $1 billion under management by the end of 2021. Meanwhile, Gemini, a U.S.-based custodian whose licensure in New York state is recognized in Canada, has more than US$30 billion assets under management and holds by far the majority of Canadians' crypto assets (other major custodians include Coinbase and BitGo).



Jerome Dwight sees Canada as a future magnet for crypto investment

"Even one billion under management is not a lot of money in crypto," says Arbus. "And it doesn't demonstrate a lot of experience." (Bitbuy uses California-based custodian BitGo.)

But Dwight believes that Brane has more than one ace up its sleeve. For starters, unlike Gemini, Brane doesn't operate its own exchange. And, in contrast to Tetra Trust, which was incubated by and still shares senior leadership with Coinsquare (Tetra CEO Richmond is also Coinsquare's COO), Brane is completely independent.

"You want a mature market structure, that's what it looks like," says Dwight. "Investors have to believe custodians are acting in their interest first and that's impossible to do when you're owned by an exchange, because an exchange is inherently incentivized to trade and generate fees on trading... In terms of public trust there will always be a question mark."

But he also believes that Canada's reputation as a financial rock amid stormy seas will prove to be a competitive advantage that will ultimately help launch the company globally. Brane has already begun a state regulatory process in South Dakota and has its sights set on Europe later in 2022.

"I was in Illinois last week," Dwight told me in October, "and I think I had about half a dozen bank CEOs saying, 'We can't wait to work with Brane because you're Canadian. You have this conservative mindset, you don't run away from risk management or compliance, but you still manage to deliver innovative solutions.'"

Thinking of investing in crypto? Visit **CPACANADA.CA/CRYPTOINVESTING** for more.

Crypto-regulation expert Clements believes there's a good chance that by chasing off the smaller operators and enforcing a rigorous regulatory system, efforts to bring crypto exchanges under securities laws will likely yield a domestic crypto landscape not unlike Canada's traditional banking landscape: a smaller number of larger, more stable entities.

As he makes his exit, that's where Dwight sees Brane—bridging the world of fintech startups and traditional finance. "When I came in," he says, "Brane had interesting tech but didn't know how to operate in the financial-services world. The idea was to start putting in place all the elements you would need to operate as a legitimate financial institution. I think we've done that."

As for Dwight's next mission, he says he's been approached by fintechs and government agencies asking for advice, but can't make any announcements just yet.

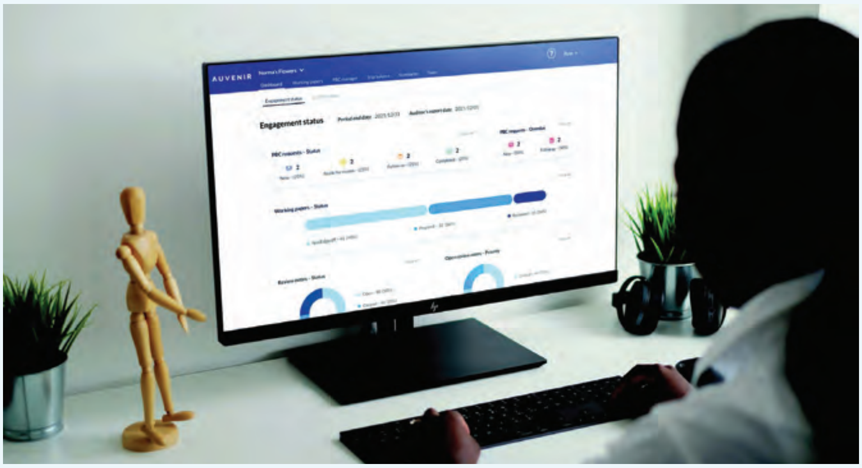
It's entirely possible that he may find himself on Wall Street once again, explaining how it's done north of the border. ◆

Meet the one-stop shop in the cloud revolutionizing auditing

How Auvenir is lifting small and medium-sized audit firms into the future and wowing clients every step of the way.

Every product or company seeks to solve a problem. And for many accounting firms that focus on audits—from financial statement audits to reviews and compilation engagements—there is no shortage of problems in need of solving.

Following a study of hundreds of North American audit firms, the same issues were cited across the board: client collaboration, staying up to date with audit standards, manual data entry and keeping up with technological advancements in the field. Many firms still use outdated desktop software—or even spreadsheets—that rely heavily on costly hours of labour and keep companies stuck in the mud.



Sound familiar? Then consider Auvenir, the versatile cloud-based auditing solution tailor-made for small and medium-sized accounting firms. Auvenir's agile platform improves client collaboration, keeps your firm up to date with the latest audit standards and improves security and efficiency at every step of the auditing process.

"Seeing the limited choice of secure cloud-based tools for this essential service led to the creation of Auvenir to lead change in audit and assurance technology," says Auvenir CEO and co-founder Pete Myers.

At the Big 4 firms there are entire R&D departments with massive budgets developing cloud-based auditing tools. You don't have the time or resources, so Auvenir has done it for you.

"When Auvenir was created, the impetus was looking at these small and mid-sized firms and getting a sense that they don't have that budget to develop a software tool that will solve these needs," says senior product manager Eric Barsky, a CPA who worked in auditing at Deloitte prior to lending his expertise to developing Auvenir. "There is a better way of centralizing and automating a lot of this workflow. Auvenir was mainly born out of that need."

Auvenir is a one-stop shop, a centralized platform that facilitates end-to-end auditing. Forget the multiple tools you currently juggle—with Auvenir, the entire audit engagement process is carried out seamlessly. From engagement acceptance with a client all the way to concluding and signing off on an audit engagement, Auvenir handles all audit-related tasks in one location in the cloud.

With features like data persistence, your staff aren't bogged down with manual pain points and double-and-triple checking that manual data references are correct.

"That data persistence piece becomes very important," says Barsky, "because the less time you'll have to spend on those manual exercises that the junior auditors don't like preparing and the senior auditors and managers don't like reviewing, you can deliver more value to your customers."

Auvenir's collaborative client software brings that file sharing between the auditor and the client into a secure, digitized portal. Now all your information can be uploaded to one location where both the engagement team and your client can access it all.

As technology continues to change, Auvenir's platform is designed to keep evolving. The open API platform allows Auvenir to keep adapting and evolving even while the market advances.

In combination—the ease of use, multi-functionality, security and optimal client collaboration—and it's no wonder Auvenir users have been singing its praises: "Your product is a breath of fresh air," one firm said.

"What you've built is BETTER than the functionality in email and PBC that's out there," said the client of a mid-sized firm audit firm.

AUVENIR

It's time to demonstrate to your clients that your firm is forward-thinking. To improve your auditing via Auvenir's cloud-based platform visit **auvenir.com/pivot**. You can also reach Auvenir's dedicated team at **info@auvenir.com** or **1-855-528-8364**.

THE BIG

Globalfoundries Inc. semiconductor facility in Singapore.

PHOTOGRAPH BY **BLOOMBERG**

The scramble for microchips is wreaking havoc on global industries and forcing Canada to rethink how it gets its technology

SHORT(AGE)

BY STEVE BREARTON

A global shortage of semiconductors has disrupted Canada's automotive industry and led to production delays in the manufacturing of toys, vehicles, electronics, refrigerators and almost any product with a computer chip. That's more than a handful of problems caused by a something that can be small enough to fit on your fingertip.

And those problems aren't going away any time soon. A survey of electronics-makers reported nearly 60 per cent of firms expect the microchip deficit to last into the second half of 2022 or beyond. Intel Corp. CEO Pat Gelsinger went one further: "I don't expect that the chip industry is back to a healthy supply-demand situation until '23," he said last summer. "For a variety of industries, I think it's still getting worse before it gets better."

How did we get here? The chip shortage is the result of pandemic shutdowns, geopolitics, increased demand for electronics and simple bad luck.

The story begins in 2019 when the United States placed restrictions on the export of American technology—including computer chips—to some Chinese firms. Chinese manufacturers responded to that blacklist by stockpiling semiconductors.

Then came the first COVID-19 lockdowns. The accompanying economic uncertainty led some industries to halt computer chip orders. In particular, the March 2020 temporary closure of North American auto plants meant automakers were buying fewer chips.

Chipmakers shifted those orders to other industries and as vehicle demand rebounded, semiconductors were no longer available. "The problem," noted Gaurav Gupta, semiconductor

TINY PART BIG PROBLEM

Semiconductor shortages have a mammoth impact. The everyday products we depend on to live, work and play use microchips to control their many functions. Here's a look at the big business of chips and our reliance on the tiny component:

Global semiconductor sales

2010	2015	2020
$298 BILLION	$335 BILLION	$439 BILLION

Chip demand by industry

- 34.5% Computing
- 27.3% Wireless
- 12.9% Consumer
- 9% Industrial
- 8.5% Automotive
- 7.8% Communications

"I don't expect the chip industry is back to a healthy supply-demand situation until '23. For a variety of industries, I think it's still getting worse before it gets better."

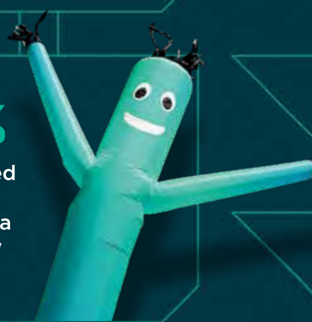
Intel Corp. chief executive officer Pat Gelsinger, June 2021

Consumer impact in automotive, smartphones and consumer electronics–the three most impacted sectors:

500,000

Number of fewer automobiles Nissan has said will roll off their global production lines in 2021 due to the microchip shortage

UP TO 25%

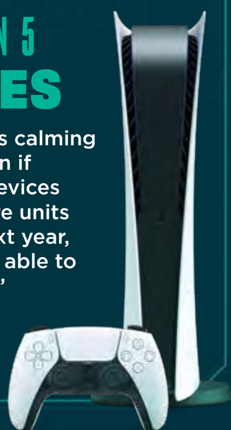


Increase in the cost of used cars in Canada in 2021, in part due to the impact of a lack of microchips on new vehicle production

10%

Rise in smartphone prices in 2021, with greater increases expected next year, according to Forrester Research

SONY PLAYSTATION 5 SHORTAGES

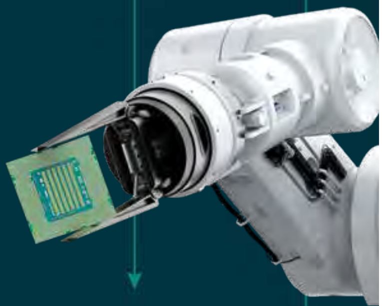


"I don't think demand is calming down this year and even if we secure a lot more devices and produce many more units of the PlayStation 5 next year, our supply wouldn't be able to catch up with demand."

Sony CFO Hiroki Totoki, May 2021

SOURCES: SEMICONDUCTOR INDUSTRY ASSOCIATION, IPC, INTERNATIONAL DATA CORPORATION, NASDAQ, FORRESTER RESEARCH

New chip production takes years and billions of dollars



$10-$20 BILLION

Cost of building a semiconductor manufacturing facility or foundry

3-5 YEARS

Time required to build to a semiconductor facility

700

Number of steps required to create the most advanced chips populating an iPhone or laptop computer

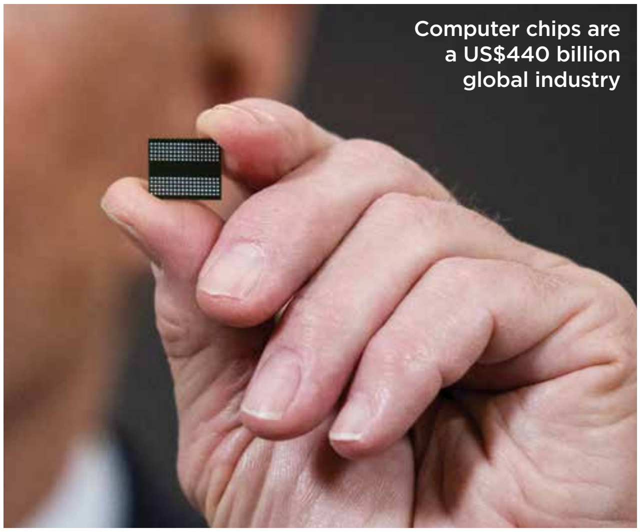
$150 MILLION

Cost of the most expensive machines in foundries

analyst at Gartner in a 2021 Accenture report, "is if that 10-cent chip is missing, you can't sell your $30,000 car."

The pandemic also drove up demand for electronics, including home office devices. And, as demand rose, supply chains slowed. Chinese companies control about 10 per cent of global semiconductor manufacturing capacity and a shortage of shipping containers further reduced availability.

And then there's the bad luck. In March 2021, nearly two dozen machines were destroyed in a fire at a semiconductor plant in Japan that makes about one in three microcontroller



Computer chips are a US$440 billion global industry

chips used in cars across the world. One month earlier, power shortages caused by an extreme cold snap in Texas forced Samsung, Infineon Technologies and NXP Semiconductors to temporarily halt chip manufacturing.

In the United States, the Biden administration launched a task force to address supply-chain bottlenecks and is working to create domestic incentives to expand manufacturing. In Canada, the private sector is taking the lead.

Canada's Semiconductor Council, established in May 2021, calls the crisis an opportunity for Canadians to think more strategically about where we are sourcing semiconductors and for Canada to establish itself as a leading developer and manufacturer.

A council spokesperson noted that one of the biggest hurdles to creating Canadian hardware and semiconductor companies is a lack of access to venture capital. Presently, Canada has very minimal capacity in a handful of niche areas. The council soon plans to release its "national semiconductor strategy and action plan."

"Canada has a choice to make: we either seize the incredible opportunity before us, or stick with a status quo that's no longer working," says Melissa Chee, president and CEO of Toronto's ventureLAB, as well as vice-chair of Canada's Semiconductor Council. "In the ultra-competitive and critical semiconductor sector, nobody is going to invite us to the table—we need to be bold and own the podium." ◆

INFLATABLE MAN AND ROBOT ARM BY ISTOCK

Fighting to walk again after a near-fatal accident and facing a lawsuit from a former colleague, John Ruffolo *remains determined to return to the pinnacle of Canada's venture capital world*

Road *to* Recovery

BY LUC RINALDI
PHOTOGRAPHS BY KATHERINE HOLLAND

On a wintry afternoon in December 2018, John Ruffolo met his old friend Mark Maybank for a drink in the heart of Toronto's Financial District. The men, both CPAs and Bay Street veterans, were in a festive mood—the holidays were approaching and Ruffolo was wrapping up a successful eight-year tenure at the helm of OMERS Ventures, the influential investment firm that helped fuel the growth of Shopify, Wattpad and dozens of other startups. But Ruffolo wasn't there to reminisce about his reign as the behind-the-scenes kingmaker of Canadian tech. He wanted to talk about what would come next.

When Ruffolo founded Ventures in 2011, homegrown entrepreneurs needed a Canadian investor to help them get off the ground. But, by 2018, the country was swimming in venture capital. New companies were sprouting everywhere but, in order to keep growing, they often needed to turn to U.S. investors, forfeiting equity to American institutions. What Canada needed now, the men agreed, was an investment firm that could propel already-budding businesses into the stratosphere—and keep the wealth at home. Over a bottle of white wine, Ruffolo and Maybank vowed to build that firm together.

Six days into the New Year, Ruffolo formalized the vision for Maverix Private Equity in a brief yet bold white paper. He envisioned investing a staggering US$500 million in as many as 10 Canadian companies that were using innovative technology to update archaic industries such as health care, financial services and transportation. Ruffolo would handle top-level strategy and fundraising, while Maybank—who spent five years as president and chief operating officer of Canaccord Genuity, an investment banking firm—would stickhandle the finer details. "It was a perfect pair of complementary skills, coupled with our deep sense of trust and friendship," says Maybank.

When Ruffolo circulated the white paper, investors practically lined up at his door. The Ontario Teachers' Pension Plan pledged US$250 million, and a number of smaller backers filled out the fund. "I raised half a billion dollars in 13 days," says Ruffolo. "It was insane. People didn't believe it."

Ruffolo could hardly believe it himself—it seemed too good to be true. In hindsight, it was. That April, Teachers dropped out (the pension plan opted to start its own technology investment program), forcing Ruffolo to rally a slew of new investors. A year later, the firm had retooled and was ready to launch. But then the pandemic hit, upending markets and putting deals everywhere on hold. The universe already seemed to be conspiring against Ruffolo—and the worst was still to come.

On September 2, 2020, Ruffolo, an avid cyclist, set out for a routine long-haul bike ride. From his home in east Toronto, he pedalled east to Rouge Park, then north toward Stouffville along a lightly trafficked rural road. As he racked up the kilometres, he thought through the calls he had to make to finally bring Maverix to fruition.

Just before 1 p.m., Ruffolo heard a truck approaching from behind him. He glanced back to see a hulking white tractor-trailer riding his back tire. The driver allegedly veered over the yellow divider to avoid Ruffolo. Then Ruffolo heard the hiss of the truck's air brake in his left ear. "Before I could think too much about it, I remember being hit," he says. The trailer had jack-knifed and slammed into the back of his bike. The impact knocked him unconscious and flung his body 20 feet down the asphalt, where he woke up a moment later. He didn't know it yet, but his lung had collapsed, several of his ribs were fractured and his pelvis was split open. He felt excruciating pain all over his body—except for his legs, which were frighteningly numb. He immediately realized he'd broken his back.

Crumpled on the road and waiting for an ambulance to arrive, Ruffolo wondered whether he'd survive. The faces of his wife, Carryn, and their two children, Caymus and Rome, flashed through his mind—what would happen to them if he died? He was only 54. To keep himself from spiralling, he pictured doctors examining him in a hospital. "Maybe they'll fix it," he told himself.

Finally, sirens sounded in the distance. Paramedics put Ruffolo on a stretcher and began the bumpy drive to Sunnybrook hospital. "I was swearing every two seconds because we were hitting potholes like crazy," he says. "I felt every single ounce of that pain." Nearly 30 minutes later, the EMTs wheeled Ruffolo into the hospital. An emergency sign appeared above his head, an oxygen mask descended onto his face and then everything went black.

It was a miracle that he was alive—*multiple experts concluded that he shouldn't have survived the impact*

Over the next 48 hours, as Ruffolo slipped in and out of consciousness, Sunnybrook doctors stabilized him and debated what to do about his mangled body. His broken bones and bloody organs were like a Jenga tower—there were so many injuries that fixing one thing could disrupt another. The wrong move could end his life.

On September 4, Ruffolo went under the knife. First, surgeons repaired his split pelvis by bolting it back together. Then, in the next operation, doctors turned their attention to his spinal cord. The accident had shattered his T12, the largest and strongest thoracic vertebra. They began by removing fragments of the pulverized bone, and then they installed rods and screws to stabilize his spinal cord.

When Ruffolo opened his eyes that evening, Carryn was seated at his bedside, overwhelmed with worry. She still didn't know whether her husband would survive or if he had permanent brain damage. Half-awake and with a tube running down his throat, he scribbled two letters on a piece of paper: C and R, the first initials of their children's names. Carryn assured her husband the family was fine. It was him they were worried about.

Not long after, when Ruffolo was more lucid, he looked down the length of his bed and couldn't see his legs. "They cut off my legs!" he thought to himself, making a faint cutting sound to the nurse. She pushed a button that raised the bottom half of his bed. His legs were still there, he just couldn't feel them.

Doctors later briefed Ruffolo and Carryn on his condition. It was a miracle that he was alive—multiple experts concluded that he shouldn't have survived the impact. "They don't understand why I didn't die," says Ruffolo. But they said he'd suffered a complete spinal cord injury, which meant that the neural pathways between his brain and his legs were severed. There was no way for his brain to tell his legs to move, nor any way for the nerves in his lower body to send signals up the spinal cord. In other words, he wouldn't be able to move or feel his legs. They told him he'd never walk again.

Ruffolo and his wife both began to cry, but he immediately refused the prognosis, barking back, "You're not telling me I'm not going to walk."


Ruffolo's new home is outfitted with an elevator and home gym

While Ruffolo was convalescing, his network sprang into action. Maybank hired a chef to cook for Carryn and the kids, and he handled Ruffolo's paperwork—both professional and medical—so she wouldn't have to. Friends and colleagues called Sunnybrook, asking for information and offering to help in any way they could. Meanwhile, Dr. Eric Hoskins, Ontario's former health minister and a partner at Maverix, began hunting for someone who could get Ruffolo back on his feet.

The search led Hoskins to Michael Fehlings, a neurosurgeon at Toronto Western Hospital who specializes in spinal cord injuries. He agreed to join Ruffolo's care team and soon examined his new patient, ordering a series of scans of his spinal cord. Compared to the other doctors, Fehlings was relatively optimistic about Ruffolo's recovery. He discovered residual neurological function in Ruffolo's legs—tiny flickers of movement and faint sensations—and imaging revealed that the initial spinal surgery hadn't removed all the bony debris around his vertebrae. In some ways, that was good news. If Fehlings could remove those fragments through a procedure called decompression, Ruffolo's neural pathways might have a better chance of rewiring through repetitive physiotherapy. "Many people can have improved

PHOTO BY THE GLOBE AND MAIL

outcomes following their injury by removing the pressure off the spinal cord," says Fehlings. Ruffolo told Fehlings he'd do it if it gave him a one per cent chance of walking again. "What if I offered you fifty-fifty odds?" Fehlings happily replied.

On October 16, Ruffolo underwent a six-hour surgery. Suspended face-down in a specialized operating table, his back was exposed and Fehlings went to work. First, he removed the rod and screws that were keeping Ruffolo's spinal column intact. Then he used a diamond drill to cut off pieces of vertebrae, allowing him access to the fragments. Once they were out, he delicately put the pieces back into place, followed by the rods and screws.

The effects of the surgery manifested a few weeks later, when Ruffolo moved into Lyndhurst, a rehabilitation centre in north Toronto. When he strapped into an automatic bike—its pedals pumped Ruffolo's legs, rather than the other way around—his quads, glutes and hamstrings suddenly sparked to life with a sharp, electric pain. "The muscles that turned on are the cycling muscles," he says. "It's like my brain remembered all of my cycling." He couldn't move them voluntarily yet, but that was beside the point—he was overjoyed that he could feel his upper legs again. It was proof that he might regain some of the ability that he lost.

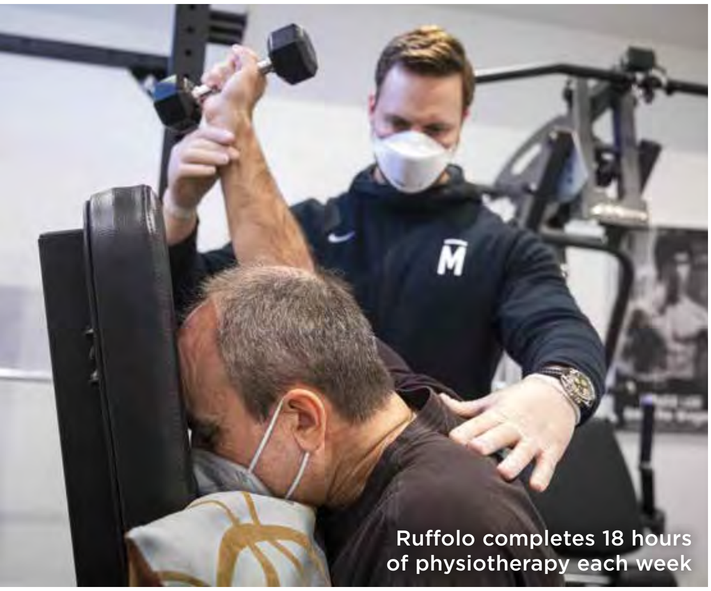
Fehlings predicts Ruffolo's recovery will plateau about 18 months after the accident. It's hard to say how far he'll progress by then, but Fehlings says his patient has a few things going for him: he was exceptionally strong before the accident and he's unflappably positive. "Never once have I heard him complain. Instead, he asks, 'What can I do?'" says Fehlings. "That's helped him in his business success and he's shown a similar tenacity in his determination to achieve the maximum recovery."

In early November 2020, as the second wave of COVID-19 began to wash over Ontario, Ruffolo was laying in his bed at Lyndhurst. "Everything was locking down and I was bored as hell," he says. "My mind was racing." He couldn't stop thinking about Maverix.

In Ruffolo's absence, Maybank held the fort, leading the team, managing the day-to-day details of the fund's imminent launch and fielding alarmed phone calls from investors who'd heard about Ruffolo's accident. "I was maxed out," says Maybank. "If you ask me why I'm doing Maverix, it's shifted since John's accident. I really wanted to make it happen for him. It was partly professional, but it was also deeply personal."

Still bedridden, Ruffolo came back into the fold. Whenever the nurse allowed, he Zoomed into Maverix meetings for 10 minutes at a time. He started calling investors, nonchalantly asking how they were doing and talking about the fund as if nothing had happened. "About halfway through the conversation, they'd say, 'Hold on, where are you right now?'" he says with a laugh. "I know they all thought I was nuts."

"I really do believe that it's mind over matter. *If I imagine it hard enough, it will happen.*"



Ruffolo completes 18 hours of physiotherapy each week

Crazy or not, Ruffolo was alive—and himself. "It was one thing for me to tell people that John was okay," says Maybank. "But for John to sound like John on the phone, that calmed a lot of anxiety."

In April 2021, Maverix officially launched the first segment of its fund, a US$300-million pot of gold with contributions from CIBC, BMO, two pension funds and an A-Team of business titans, including Canada Goose CEO Dani Reiss, *Dragons' Den* judge and entrepreneur Arlene Dickinson and a pair of high-profile CPAs, Mattamy Asset Management founder Peter Gilgan and former Research In Motion co-CEO Jim Balsillie. The following month, Ruffolo poached Canadian expat Michael Wasserman, a longtime executive at American investment firm H.I.G. Capital, and brought him back home as a Maverix managing partner. It's a prime example of what he hopes the firm can do—keep brilliant Canadian brains, and all the wealth and innovation they create, in Canada. Maverix has begun making investment offers but it has not yet publicly finalized any deals.

So far, the fund has made headlines for another reason. Last June, Dr. Chitra Anand, who allegedly worked for Maverix for 18 months, launched a $2.9-million lawsuit against Ruffolo, Wasserman and Maybank, alleging that the firm had never compensated her and fired her unfairly. Anand said she had been hired at a partner level and as part of the founding team with the understanding that she would be paid retroactively once the fund developed.

In a statement of defence, the defendants denied the allegations and claimed that, because Anand's position was meant to be a learning opportunity, she had signed a confidentiality agreement stating that no remuneration was owed to her. The statement alleged that Anand lacked business competence, displayed disrespect toward others, falsely took credit for others' work and breached ethical standards by secretly recording a conversation with a colleague. "In the end," the statement reads, "the defendants had no alternative but to confirm that the plaintiff could not and would not become engaged by Maverix." Ruffolo, who declined to speak on the record about the lawsuit, referred *Pivot* to the statement of defence.

Anand, who refutes the points contained in the statement, says that no one had brought up any concerns about her performance until after the launch of the fund. She maintains that Maverix is trying to "rewrite history." None of the allegations have been proven in court.

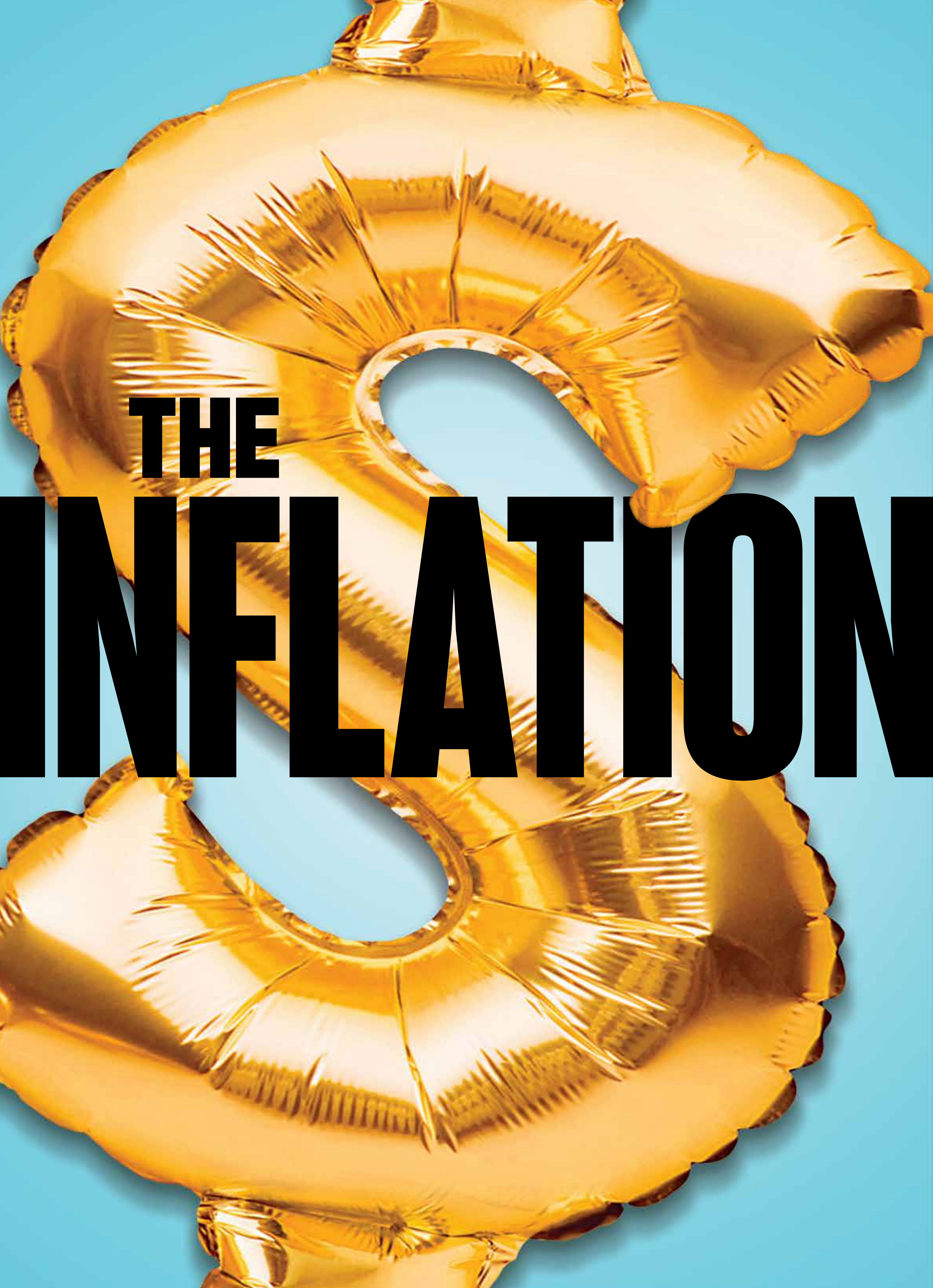
Just before the end of 2020, Ruffolo moved back home—his new home, that is. While he was at Lyndhurst, his network of friends and colleagues helped Carryn move the family into a new build down the street from his old place, outfitted with an elevator and a home gym. Ruffolo does three hours of physio a day, six days a week. At a local rehabilitation centre, he practises moving his legs with the help of a harness suspended from the ceiling. "The most painful stuff I do is unlocking my body," he says, "because it's used to being in a wheelchair all day long."

On Zoom calls and in meetings, Ruffolo admits, he puts on a brave face. His energy levels aren't what they used to be. He naps between appointments and sleeps longer than he used to. "Deep down, he's as tired as you'd expect," says Maybank. "He's pushing his body to the limit. He's mentally fatigued because he's dealing with an extensive amount of change."

Since the accident, Ruffolo has endured bedsores, seven-hour nosebleeds and life-threatening blood clots. For months he was in constant pain—eight or nine out of 10, although lately he says it's dropped closer to three. "It is really easy to go to a dark place. You can get there without even trying," he says. "But you look at your family and you say, 'It doesn't matter if you feel bad for yourself. What about them?'"

Ruffolo is determined to walk again, even if he needs braces and poles. He's seen other people do it, so, he figures, why can't he? He's already exceeded doctors' expectations. "I really do believe that it's mind over matter. If I imagine it hard enough, it will happen," he says. "It's just a question of how fast I can get there." ◆

THE INFLATION



Inflation continues to top the list of consumers' worries, but economists and government leaders know we've been here before. This time around, though, no one is quite sure what will happen next.

PROBLEM

Visit cpacanada.ca/shrinkflation to learn why "shrinkflation" is affecting your grocery bills.

BY JOHN LORINC

Earlier this fall, the supply chain gremlins came for the chickens.

After months of jarring disruptions in the shipment of a wide range of goods from lumber to semiconductors, Canadian restaurants found themselves scrambling to source ingredients as basic as chicken wings, which, as some foodies may know, were popularized by a Buffalo, N.Y., restaurateur who realized that deep-fried wings with sauce made excellent bar fare. According to the CBC, year-over-year wholesale chicken wing prices in August had jumped a staggering 14 per cent. "It's been a huge challenge getting chicken for some fast food restaurants," observes Simon Gaudreault, vice-president of national research for the Canadian Federation of Independent Business (CFIB).

Finding wings was only the tip of the problem facing small- and medium-sized firms as they tried to navigate around the shoals of the pandemic, he adds. Labour shortages have become chronic. Energy and food prices have risen, and demand has been all over the map, for reasons that are perfectly obvious—including rolling lockdowns and hesitant consumers.

PHOTOGRAPH BY DREAMSTIME

"Our business barometer has been tracking price plans and wage plans on a monthly basis since 2009," says Gaudreault. "I would say, mostly since the start of 2021, we've seen prices reach levels that we haven't seen before. In the winter and the beginning of the spring of 2021, we entered a territory where price increases and wage increases were really in new grounds."

Exactly 30 years after the Bank of Canada moved to stabilize inflation by orienting its policy rate-setting decisions to a target range of one to three per cent, the prices of a wide variety of goods have shot up in the past year, from homes and condos to renovations, grocery bills, gasoline and all sorts of manufactured goods that rely on components made in Asia, which is to say almost everything.

Early last fall, Statistics Canada reported that the September consumer price index (CPI) had hit 4.4 per cent compared to the same period a year earlier, levels not seen since the early 2000s. (There were, however, two months in 2020 that saw deflation, an equally unusual phenomenon.) The figures varied significantly by region, from 6.3 per cent in P.E.I. to just 2.9 per cent in Saskatchewan, with energy prices contributing significantly across the board. The national averages, moreover, represented a steady climb in the monthly CPI rates since the beginning of 2021. "The very things that are driving inflation now are responding to 2020's first and second waves of the pandemic," says economist and policy advisor Armine Yalnizyan. "This isn't normal inflation; this is supply shock inflation." By comparison, she adds, inflation in 2020 hovered between 0.5 per cent and one per cent, reflecting the widespread demand destruction and job loss, especially among women, that marked the first half year of the pandemic.

"This is pandemic economics. The regular rules may not apply."

Economists though are quick to point out that monthly CPI rates are calculated as a comparison to the same month in the previous year. In other words, the spikes we've seen this year reflect growth relative to an especially flat 2020. Still, most economists acknowledge that this year's inflation figures aren't just a mathematical quirk, but rather reflect, albeit incompletely, a chaotic global economy that continues to battle COVID-19 on a range of fronts. For example, commodity and energy prices have risen sharply since the beginning of the pandemic (while oil prices actually dropped when lockdowns were imposed). Many, in fact, wonder whether the recent inflation trends are cyclical and therefore transitory, or actually suggest a structural reordering that requires decision-makers to begin rethinking a library's worth of assumptions and policies, some of them dating back decades. "This is pandemic economics," says Yalnizyan. "The regular rules may not apply."

"For the past 40 or 50 years, we've tended to view the economy through a demand-side lens," adds Frances Donald, global chief economist for Manulife Investment Management. "What is so unique about this [period] is that it's the greatest supply side shock since the 1970s."

From the Great Depression to the early 1970s, Keynesian economics prevailed in most industrialized economies, as governments used spending, deficits and full-employment goals to stoke economic growth. The postwar baby boom drove consumption across the board, but the party began to break up in the late 1960s, when unemployment started to climb. Then came the OPEC oil embargo of 1973, which triggered shortages and quadrupled the cost of gasoline at the pump. By the mid-1970s, inflation had topped 10 per cent in Canada, and then-prime minister Pierre Trudeau imposed wage and price controls. Economists coined a term to describe the malaise of that period: "stagflation"—rising prices but slow growth. (Yalnizyan maintains that the current economic environment is not at all like the stagflation of the 1970s.)

Inflation continued to press upwards, eroding spending power and retirement savings. In 1979, the U.S. inflation rate had soared to 14 per cent, prompting an unprecedented move by Paul Volcker, the towering chairman of the U.S. Federal Reserve. As a history of that period published by the St. Louis Federal Reserve Bank recounts, "Volcker, in office only two months, took the radical step of switching Fed policy from targeting interest rates to targeting the money supply." The prime lending rate topped 20 per

PHOTOGRAPHS BY ISTOCK

cent, countless businesses collapsed and hundreds of thousands of people lost their jobs.

It was a huge gamble, but Volcker broke the back of stagflation and ushered in an era in which monetary policy à la Milton Friedman—focused on maintaining low inflation through control of the money supply—ruled the roost. A couple of per cent was needed to grease the wheels of the economy and provide some buffer against the risk of deflation, but a three per cent upside limit would keep wages and borrowing costs in check.

Then-Bank of Canada governor John Crow moved to eradicate inflation in 1990 on the heels of a crippling downturn, a collapse in the real estate market and the loss of tens of thousands of middle-management positions. His more extreme goal—zero per cent—yielded to the

Source: StatCan
*Sept. 2020 vs. Sept. 2021

more politically palatable one to three per cent range. Canada's inflation-rate policy has held steady ever since, through a range of crises, including the 2000 dot-com bust, the aftermath of 9/11, the 2007 collapse of Canada's $32-billion asset-backed commercial paper market, the 2008 global financial crisis and, finally, the 2009 recession, considered the worst downturn since the 1930s. It's also worth noting the bank's inflation policies ensured that periods of roaring growth—the late 1990s, the mid-2000s, the latter 2010s—didn't get too out of hand.

None of these episodes, however, can hold a light to the economic disruption caused by the pandemic. After two generations of trade globalization, global supply chains—built around low-cost manufacturing in Asia, just-in-time delivery and e-commerce—snapped when confronted by lockdowns that have closed major ports and factories and halted shipping. The billions in stimulus pumped into the economy, in the form of wage supports and subsidies for business, combined with elevated household savings rates, introduced an X factor in spending habits, marked by a dramatic shift from services (such as hair salons, home care) and activities (such as travel) to goods and investments. (Canada's level of stimulus, measured as a proportion of GDP, is third among advanced economies, according to National Bank Financial.) Finally, the Bank of Canada's ultra-low interest rates, as well as other monetary stimulus policies such as "quantitative easing" (the central bank's purchase of corporate and government bonds), yielded billions of dollars in cheap credit that fired up housing prices.

Many institutions are not well-versed in this type of inflation. Yalnizyan, who is also an Atkinson Fellow, notes that to contain inflation monetary policy usually employs tamping down excessive demand. Supply side shocks—defined by the upward pressure on costs such as labour and energy—are a different playing field. "We haven't done this before," she says. "We've kind of gone through the looking glass."

The relationship between labour and prices is complex at the moment. The pandemic depressed immigration levels in 2020 and then forced hundreds of thousands of women out of the workforce. "Labour shortages are acute," says Matthieu Arseneau, deputy chief economist at National Bank Financial, adding that an aging society and disincentives created by pandemic income-support programs have exacerbated the labour market squeezes. "That's what small and medium enterprises are telling us." And, he adds: "At this point in the [economic] cycle, it's surprising to see that kind of labour shortage with unemployment rates so high. The labour market does not seem to have recovered from the crisis."

While immigration picked up in 2021, some jobs, for example in the restaurant sector, still go begging, says CPA Canada chief economist David-Alexandre Brassard. "I agree with the business community, that [the labour shortage] is weighted a lot on low-wage workers and jobs that require a low level of experience."

So far, the labour squeeze hasn't resulted in rising wages, but economists are certainly watching closely for evidence of this development. As a September TD Economics report observed, the relatively strong economic recoveries taking place in B.C. and Quebec could trigger wage-related inflationary pressure. Both provinces, TD notes, "appear to face more upside risks to inflation due to their sturdier economic recovery and tighter labour markets."

The impact of energy prices on recent inflation figures is far more apparent and serious. "There's some parts of the country where energy prices are causing major cost restraints," says the CFIB's Gaudreault. In much of Atlantic Canada and Alberta, the energy component of the CPI accounts for a sizable chunk of price increases compared to last year, according to TD Economics. For Canada, overall inflation for August, excluding energy, would have come in at three per cent. But gas and home heating fuel price spikes pushed the high-level figure over four per cent.

Arseneau cautions that strong energy-related inflation this year does, to some extent, reflect pandemic slowdowns from last year, such as a dramatic drop in air travel, commuting and car sales, all of which led to declining demand that has since begun to bounce back. Yet, as he notes, energy price spikes elsewhere in the world offer a bracing reminder about the looming climate change restructuring of global energy markets and the potential impact on inflation.

The investment required to build clean energy generation, as well as the potential implications of fuel shortages, could drive inflation in the coming years. "That's what we are currently seeing in Europe," Arseneau says. "We want to keep the public's support for this transition [to clean energy]. And, if [there was] a shortage of energy because we wanted to move away from fossil fuels too quickly, that could be a problem."

The other major inflationary shift in the economy doesn't directly show up in the CPI: housing prices. While mortgage interest, household operating costs, rent and furnishings are included in the so-called basket of goods that make up the CPI, house (and condo) prices are excluded because they are considered to be capital assets. Yet red-hot real estate markets and bidding wars drove home prices to unprecedented levels during the pandemic, due in part to people moving away from denser core areas, shortages of listings and new supply, and exceptionally cheap mortgages. "I think that we're not done seeing the shelter component of inflation rise," says CPA Canada's Brassard. "There's a risk of shovelling that much money into the housing market. I don't think it's going to keep climbing like crazy. But even if it stabilizes, it's still an issue."

Debates about whether CPI reflects the actual cost of living, especially in large urban centres, long predate the pandemic and will likely continue after COVID-19 ebbs. But, the implacable nature of the inflation now present in the economy is raising, for some observers, tough questions about what will constitute price stability in coming years.

The Bank of Canada, like other central banks, hasn't yet offered any hints about whether it plans to revisit the core inflation targets that have driven its decision-making since the early 1990s. The bank's governor, Tiff Macklem, has warned that rates will go up eventually, but not until circumstances in the economy warrant. "For the policy interest rate, our forward guidance has been clear that we will not raise interest rates until economic slack is absorbed," he wrote in an op-ed in the *Financial Times* in mid-November. "We are not there yet, but we are getting closer."

"It's a whole new world," observes Yalnizyan. "People are thinking more about inflation than they have in a very long time." ◆

Does the CONSUMER PRICE INDEX truly reflect inflation and financial pressures on households?

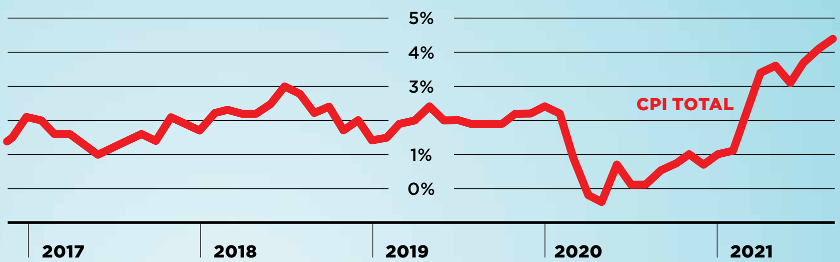
Like the long-running debate about whether GDP is an accurate and representative reflection of a country's economic activity, the argument over the adequacy of CPI is long-standing and has resurfaced in recent months. "Inflation math is not real life," observes Manulife Investments Management global chief economist Frances Donald. "Cost of living isn't always well represented in the CPI."

According to Statistics Canada, the CPI consists of a basket of goods and services in eight categories, with prices of thousands of items sampled, weighted and then translated into year-over-year percentage changes. StatCan updates the shares and the basket composition every two years to reflect changes in the economy. For example, the shelter category grew between 2017 and 2020 while the transportation segment declined. Food remained the same. StatCan no longer publishes data on some items, such as crackers and crisp breads, contact lenses and cookies because they no longer represent a significant percentage of household purchases. Cannabis was added in 2019.

A simple example illustrates potential complexities. Apples, for example, may be part of the basket. If apple prices jump, that change will be captured in the CPI calculation. What's absent, however, is the fact that some consumers may stop buying expensive apples and choose a more inexpensive fruit instead. This behaviour required StatCan to modify its calculations and weightings to allow for such shifts in consumer habits.

In another example, the CPI accounts for rising shelter-related expenses, but the sale/resale values of houses or condos aren't part of the index. Central banks are well aware of the critiques. "The treatment of owner-occupied housing in the consumer price index remains the object of intense debate, with no consensus emerging and different countries using different approaches," noted a 2015 study published by the *Bank of Canada Review*. "Yet there is no such debate for durable goods, which, like housing, also provide services well beyond their purchase date."

Central bank and private sector economists, of course, don't just look at CPI, but rely on a range of indicators to drive policy decisions. Donald points to the happiness indexes used in some Scandinavian countries as one example of how other jurisdictions are trying to take a more complete view of what's happening in the economy. "We would do better to take a more holistic approach," she says. —*John Lorinc*



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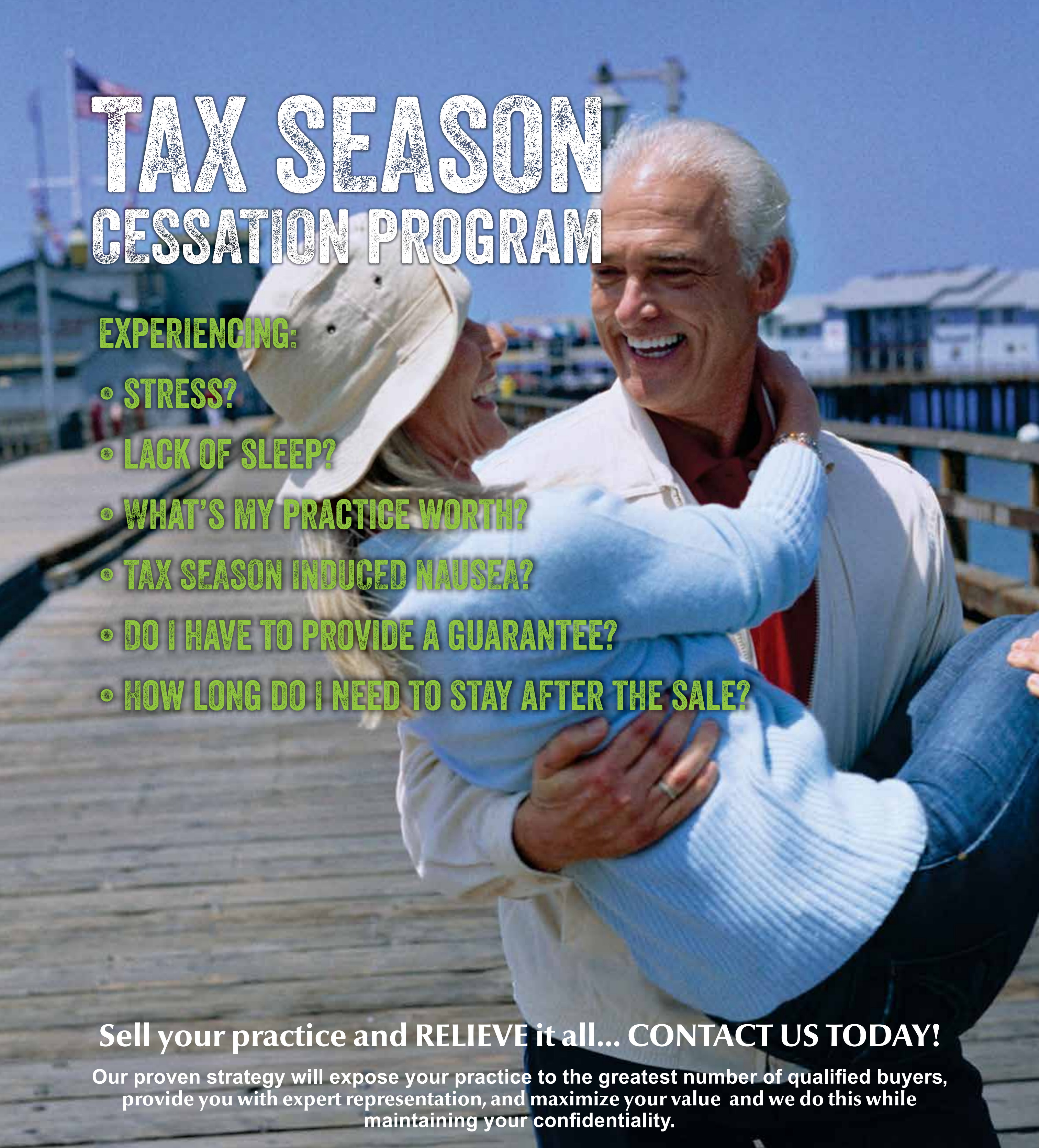
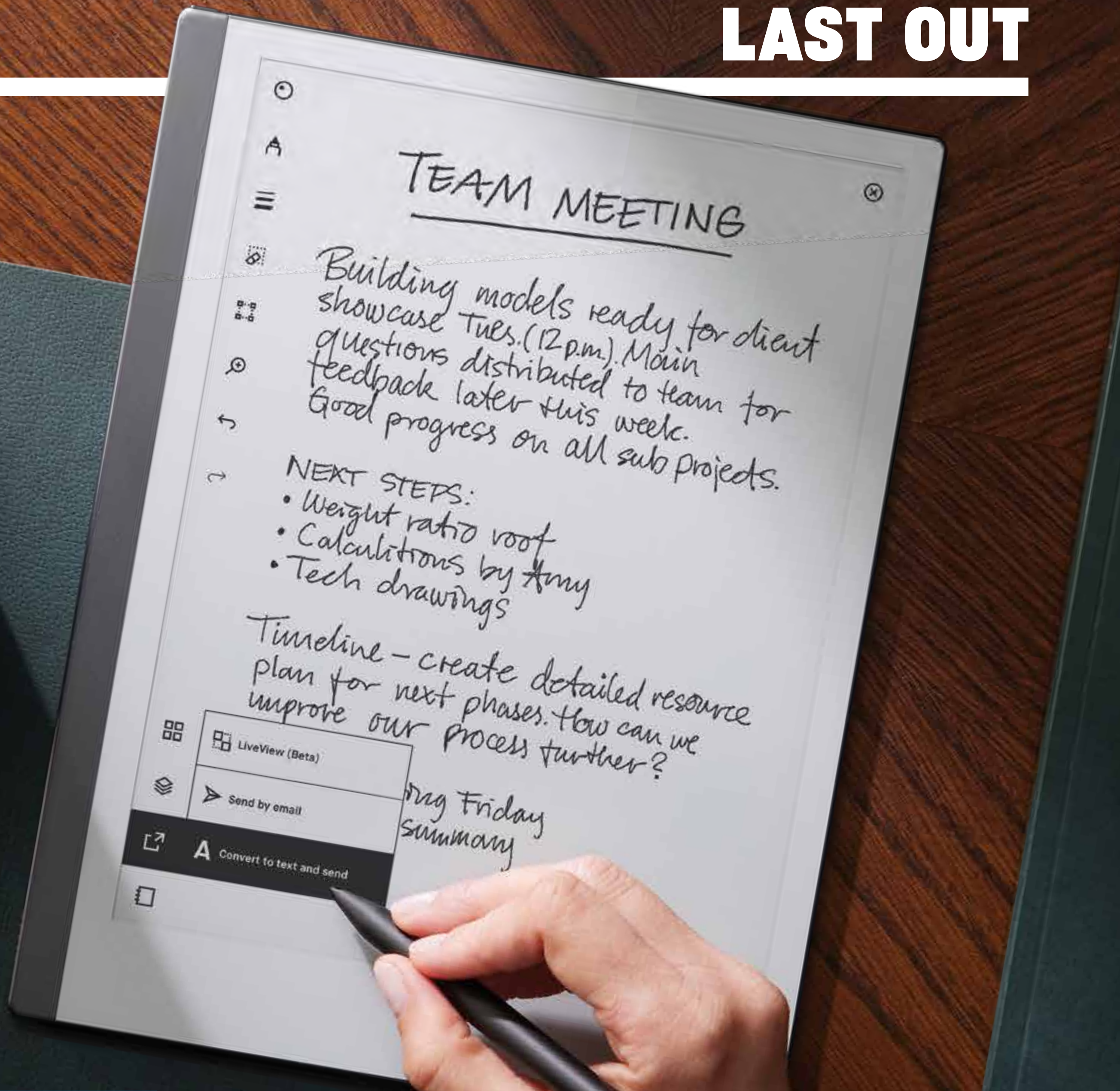




PHOTOGRAPH COURTESY OF REMARKABLE

EXTRAORDINARY ITEM

PAPER CHASE

In the tablet category, one company is setting itself apart by digitizing something one of a kind: handwriting **BY DANNY SINOPOLI**

Tradition has a pesky way of clinging onto progress. Consider email, which is still structured in the manner of historic letter-writing, with greetings, sign-offs and postscripts. Or cellphone ringtones that mimic old-time telephone rings.

Often, though, the familiar endures not out of habit, but because it works better than what's replacing it. At least that's what Magnus Wanberg believed when he launched reMarkable, an "e-ink tablet" that converts handwritten notes into digital form.

As a college student, Wanberg found it difficult to concentrate while working on laptops, with their constant pop-ups and notifications, so he set out to create an interruption-free device that would provide "all of the benefits of writing on paper, but with superior technology to share, search and save your work," as reMarkable's Henrik Faller, vice-president of communications for the Norway-based company, describes it.

"There is a lot of research that shows writing, rather than typing, positively impacts memory retention," Faller says, citing sensorimotor parts of the brain. "Writing activates a lot of sensors, from pressing the pen to paper to seeing the letters appear to hearing the act of writing."

In reMarkable's case, the "paper" is a unique, high-friction display surface and the "pen" is a next-gen digital marker. In 2020, the company released reMarkable 2, an upgraded version whose "realistic ink flow" simulates actual writing or sketching to an even greater degree, making it "as close to paper as it gets."

In its unambivalent embrace of the analog, reMarkable occupies a growing space of products, from the "distraction-free" Freewrite smart typewriter by Astrohaus to the Alphasmart Neo2 portable word processor, that proudly and even defiantly combines retro and high-tech. "We are not a notebook," Faller stresses, "and we are not an Android or iOS tablet." Instead, it's the ability to mimic pen to paper that is vital to reMarkable's long-term success.

"The overall tablet market has been declining for years in Canada and is forecasted to continue to do so," says Manish Nargas, a consumer tech researcher in the Toronto office of global market research firm IDC. The erosion of the category by challengers like multitasking, larger-screen smartphones may put a cap on the market opportunity for specific purpose-built products like reMarkable. Still, its marketplace uniqueness helped boost sales. In the run-up to its first shipment of devices in late 2017, the company registered US$13.6 million in pre-order sales. By the end of that year, "well over" 100,000 units were in the hands of those early adopters, generating revenue of US$74.3 million.

The 2020 release of reMarkable 2 followed a US$18.6-million cash infusion in the company by Boston-based Spark Capital, whose past investments have included Twitter and Slack. It also came on the heels of a reported renewed focus by Wanberg's team on business users, although Faller told *Pivot* that the target market remains "paper people" generally, including creatives, professionals and students.

"Paper is wonderful," Faller says, "but it has some drawbacks. It is wasteful. It is hard to search, share and save your work. We wanted to create a tablet that would allow you to do your best work while giving you the feel of writing on paper." ◆

TECH

SERVICE WITH A BEEP

The service robot sector is expanding and analysts expect it to continue growing as the cost of these little helpers comes down

BY STACY LEE KONG

At Hôtel Monville in Montreal, guests who request extra towels or place a room-service order for a meal or beverage are likely to meet one of the hotel's most popular employees: H2M2. At about three feet tall and 90 pounds, H2M2 is quite a bit smaller than your average hotel staffer, but speedy (towels and toiletries arrive within five minutes of a guest's call) and always smiling. Though, to be fair, the smile is painted on. After all, H2M2 is a robot.

Manufactured by the California robotics company Savioke, H2M2 is a service robot—a partially or fully autonomous machine that can undertake simple tasks, especially those that are repetitive or dangerous. Hôtel Monville is just one example of a Canadian company investing in such machines. At Edmonton's Buddy Wonton Seafood Restaurant, Kitty, a cheery robot with a feline face, brings diners' meals to their tables, while Tiny Mile's adorable pink delivery models offer Toronto restaurants contactless delivery options at a discount.

Savioke alone leases out about 100 of its robots to 80 hotels around the world; one bot named SeTwin works at Germany's Mercure Hotel Bochum City while, at Hotel Trio in Healdsburg, California, Rosé the robot handles wine deliveries. The company also supplies wheeled helpers to hospitals and high-rise apartments, which make up the remainder of Savioke's client base. In fact, according to a recent report by the research firm MarketsandMarkets, the global service robotics sector is expected to grow from US$36.2 to US$103.3 billion in the next five years.

The market includes both domestic robots that can handle lawn mowing, pool maintenance and floor cleaning, as well as commercial models

PHOTOGRAPH COURTESY OF **TINY MILE**

that perform surgeries or, most commonly, offer delivery services. That's where Tiny Mile founder and chief executive officer Ignacio Tartavull saw a business opportunity.

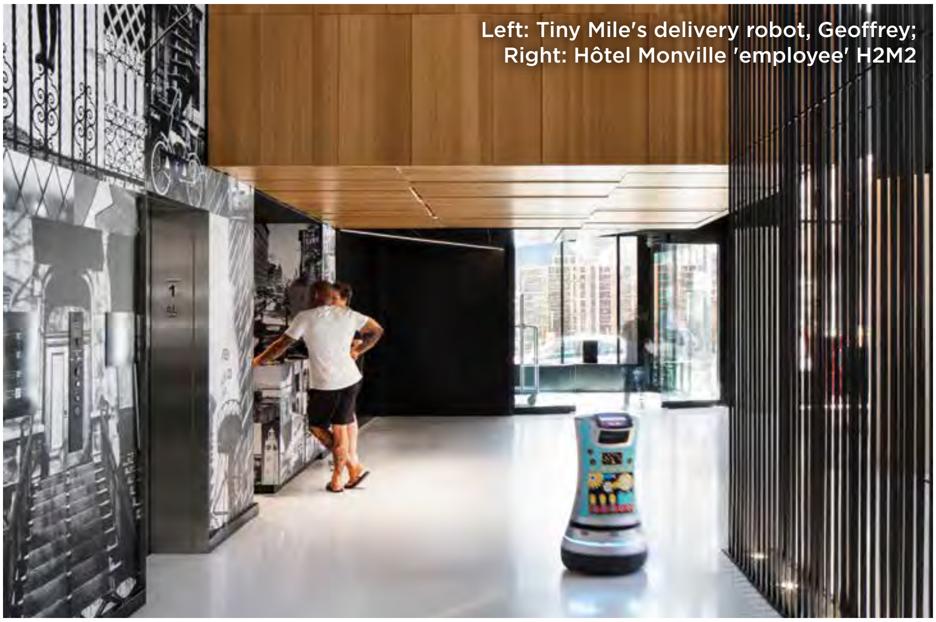
"There is a great book called *Where Good Ideas Come From* that argues ideas are developed in the background over a long period of time. I think Tiny Mile was one of those," says Tartavull. "The opportunity of building a delivery robot that was so lightweight it would be inherently safe and helping restaurants struggling to pay a 30 per cent commission [to delivery apps] was too important to ignore."

The result was a fleet of tiny pink robots named Geoffrey (after Geoffrey Hinton, who's widely known as "the godfather of AI," according to the company's founder) that can pick up orders from participating restaurants and deliver them with the help of remote pilots who control the robots from their homes using a gaming console, Geoffrey's built-in cameras and GPS systems.

Although there are critics—one Toronto committee is asking local councillors to ban the bots from occupying sidewalks altogether—a major benefit of service robots is the cost savings. According to Tartavull, robot delivery lowers a restaurant's commission to just three per cent—a tenth of the price of the alternative.

At Hôtel Monville, leasing H2M2 works out to a cost of $3.71 to $6.18 per hour, compared to $13.50 per hour for a minimum-wage employee. And it's impossible to discount the importance of contactless delivery, which both Hôtel Monville and Tiny Mile have leaned into during the pandemic.

"H2M2 delivered non-food and beverage items during the pandemic, such as toothbrushes, razors, face masks, towels, etc. and enabled us to provide a personalized service to our guests in a very difficult period," says director of sales and marketing Jean-Cédric Callies. "In Montreal, we [became known as] the 'COVID-friendly' hotel thanks to the technology implemented, giving our visitors the option to choose a contactless and safe environment."



Left: Tiny Mile's delivery robot, Geoffrey; Right: Hôtel Monville 'employee' H2M2

PHOTOGRAPH COURTESY OF SAVIOKE

"SOMETIMES IT'S NOT EVEN ABOUT THE FOOD. [CUSTOMERS] JUST WANT TO ORDER AND SAY HI TO GEOFFREY."

But H2M2 and the Geoffreys are also social media bait, and those real-life robot sightings have a value of their own. Earlier this year, Tanya Spasic, chef and founder of Toronto's Animal Liberation Kitchen, told *NOW Magazine* about the promotional benefits of partnering with Tiny Mile, saying, "People get so excited when they see the robot is delivering their order. Sometimes it's not even about the food. They just want to order and say hi to Geoffrey."

That has also been Hôtel Monville's experience. Since the company implemented room-service deliveries using H2M2 in March 2018, the robot has made well over 10,000 deliveries and is currently averaging 400 per month, which has yielded a "high volume of social media videos, posts, blogs and [news] stories," according to Callies, who adds that there has also been a surge in occupancy and new clients.

Automation is prevalent in customer service—though not necessarily in adorable, Instagram-ready robotic form. "If you start looking at just online shopping experiences, data is being collected about what you were searching, [which is then] handed off to retailers to establish personas about who you are, what your interests are, what your income might be based on where you live. They use that to manage the best client experience for you, and a lot of that contextual information is [collected] by chat bots or virtual assistants in the contact centre that are helping you navigate your service experience and get to the right person who can help you," says John Munro, technology consulting partner at EY Canada.

But while you might expect the physical service robots to spark anxieties around automation replacing human workers, that hasn't been the case. Callies says the hotel has seen "improved staff efficiency and satisfaction" since H2M2 arrived. That makes sense to Munro. "[Automation is] really freeing them to work on something that's more fulfilling either personally or in the context of the business," he says.

There are health benefits, too. Munro cites robots that can prevent repetitive strain injuries among health care workers by helping to lift patients or, as in Japan, handle toxic waste cleanup so humans don't have to.

"I think the most important factor for adoption is price," Tartavull says. "And given our incredibly low prices, widespread adoption feels inevitable. And besides, why make something ugly if it can be cute?" ◆

PIVOT RECOMMENDS

Off the clock

BY DAVE ZARUM

Watch

In the spirit of today's entertainment landscape—where ideas are recycled, reused and rebooted—***Law & Order*** is set to make its return to the small screen. After going off the air in 2010, NBC is reviving the police procedural that has earned more than 50 Emmy nominations. It remains to be seen who from the original cast will appear, but the show is poised to make history upon its return.

Listen

From the creators behind the popular YouTube channel *AsapSCIENCE* comes the podcast ***Sidenote***. Science educators and hosts Greg Brown and Mitch Moffit, who launched their YouTube channel in 2012 and grew their platform to nearly 10 million subscribers today, take complex topics and present them in engaging, funny and highly consumable ways. Each week, Greg and Mitch take a deep dive into everything from the science behind dreams and space exploration to what happens to your brain during a midlife crisis.

Read

In ***1000 Years of Joys and Sorrows***, world-renowned artist and activist Ai Weiwei eloquently unpacks his storied life and career while also tracing the life of his father, celebrated poet Ai Qing. Both have been detained by the Chinese government for their art, activism and cries to upend the status quo. Ai Weiwei also tells the history of China over the past century, while bringing the reader into the creative process behind his iconic sculpture work and elaborate art installations.

HEALTH

DIAL-A-DOCTOR

Tiny, tech-driven clinics that can be installed in condos, pharmacies and office buildings are offering tele-access to doctors—for a fee—and aiming to capitalize on the rise of virtual health care **BY VANESSA MILNE**

It isn't every interview that you get to see the inside of your source's throat. But here I am, doing a video call with Andrew Patzke, director of strategic growth at Cleveland Clinic Canada, and he's holding a fist-sized camera toward his mouth while placing a black tongue depressor inside. A few seconds later, I find myself murmuring approvingly at a close-up of his uvula.

A live image like that could help a doctor investigate issues such as a sore throat over the phone. The technology is called TytoCare and it's part of Cleveland Clinic Canada's new Virtual Clinic service, which offers telehealth visits augmented by a set of medical devices. A small TytoCare device combines a computer, thermometer and high-res camera; clip-on additions include an otoscope to look in the ears, a stethoscope to hear the heart and lungs, and a tongue depressor to examine your throat. It's currently offered in Cleveland Clinic's 10 Virtual Clinics across Canada, a sort of virtual doctor's office where people can walk in and talk to a nurse practitioner right away via video conferencing.

The company is positioning this service as the walk-in clinic of the future—no wait time, no commute and open 12 hours a day, 365 days a year. It's selling the concept to pharmacies, corporations and even condo buildings, like the Waverley, a 166-suite Toronto rental building that added a TytoClinic station in its mezzanine in October.

In addition to accessibility, the technology is a key part of what's being offered. "What's unique is that these tools are seamless and Health Canada–approved, which lets us use them to diagnose," explains Jennifer Osborn,

ILLUSTRATION BY **MATTHEW BILLINGTON**; *LAW & ORDER* COURTESY OF **NBC**

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director of business development at Cleveland Clinic Canada. Because it's a live feed, the nurse practitioner can direct patients to use the tools properly, while built-in artificial intelligence also helps capture the right shot.

Construction delays resulting from the pandemic slowed the rollout of TytoClinics; the initial plan was to have double the amount of stations available in buildings across the country. But COVID-19 also significantly grew the market for telehealth across Canada.

"Canada has lagged in [digital health care] adoption," says Kai Lakhdar, a partner at PwC's Strategy& consultancy. "Then, in the age of COVID, all of a sudden people weren't willing or able to access a broad range of in-person services."

As a result, the provinces changed the way they paid doctors so they could bill for virtual care, and doctors became incentivized—and allowed—to provide e-care. The result: according to a recent ICES report, over the first four months of the pandemic, virtual care increased 56-fold, making up 71 per cent of primary care visits.

The public, says Lakhdar, was ready for this shift. "They're digitally savvy. It's often more convenient and well-established that [e-medicine] can solve many [patients'] problems." According to a 2018 survey for the Canadian Medical Association, only eight per cent of respondents had used virtual care but 69 per cent said they would use it if it were available. "At the peak of COVID-19," Lakhdar adds, "60 per cent of health care visits were conducted virtually."

The market for virtual care, which PwC estimates is worth nearly $1.5 billion in Canada, is only a few years old. But Lakhdar believes it's poised to hit mass-market adoption within the next five years. Emerging names such as Maple, Dialogue, Akira, WELL, Teladoc and Cleveland Clinic are vying for dominance during this growth period in the same way companies fought over the electronic medical records market over the past decade. "It's a market share grab right now," he says. "Only a few of these companies will survive."

Of course, the provincial governments may be competitors as well. The Ontario Telemedicine Network facilitates virtual care across many settings; in British Columbia, Alberta, Saskatchewan and Ontario, TELUS Health MyCare offers virtual doctor visits that are free to consumers. Its goal is to be used after hours, when doctors aren't available, and by the 14.5 per cent of Canadians who don't have a family doctor.

Unlike regular walk-ins, Cleveland Clinics' TytoClinics aren't available to any Canadian with a health card. Instead, the idea is that pharmacies, employers or building owners pay an annual fee for members of their group to access Cleveland Clinic's doctors virtually (the average individual cost per year is $299 per person, and less for group rates). The company positions Virtual Clinics in the same category as dental care or physiotherapy—medical services that would regularly be paid for by employers or individuals. But not everyone agrees.

A recently released position statement from the group BC Family Doctors calls on the government to "regulate and control the expansion of private, commercial interests in for-profit telemedicine in B.C." It points to potential issues such as the rise of telemedicine increasing "episodic care" (care that is outside of an ongoing patient-provider relationship) based on the premise that continuity (being able to see the same doctor from visit to visit) is a key aspect of high-quality medical care. The group also suggests conflict-of-interest rules should be used to prevent the establishment of virtual care clinics in pharmacies, who would likely profit from the prescriptions they generate.

The future of virtual health is arriving, though it's not yet clear what it will look like. In the meantime, don't be surprised if one of Cleveland's Virtual Clinics pops up in the lobby of a condo in your town soon. ♦

What to know before you invest in crypto for your business

Through strong Treasury management, you can safely and knowledgably invest in cryptocurrencies.

When AMC announced in November that the movie theatre chain would begin accepting Bitcoin (BTC), Ethereum (ETH) and other cryptocurrencies, it was yet another sign that crypto has gone mainstream.

Companies like Twitter, Tesla, Square and MicroStrategy have already begun to integrate crypto onto their platforms—whether as a means of payment or on their balance sheets and investment portfolio—further signalling its widespread institutional adoption.

It's helped more and more investors see the appeal in cryptocurrency's utility, built on peer-to-peer trading that allows for swift transactions without the need for traditional go-betweens. But the future has far more in store.

"Cryptocurrencies have the potential to go well beyond Bitcoin's initial premise as a way to send money without financial intermediaries," says Calvin Jiang, Director of Institutional Sales for trading platform NDAX. "They can be programmed to simulate various contracts, and stable coins, whose value are pegged to fiat currencies, could allow for faster transactions for some kinds of financial services."

But before you prepare to join leading institutions incorporating Bitcoin and other cryptocurrencies into your portfolio, it's essential to understand the ins and outs of investing in crypto for your business.

"You should never invest in anything that you don't understand," says CPA Amanallah Abbas, a Controller with NDAX, Canada's top trading platform for buying Bitcoin, Ethereum and other mainstream cryptocurrencies. "Rather than having a blanket understanding of all cryptocurrencies," Abbas says, "it's important to recognize that every specific currency has its own risks involved."

Investors must be knowledgeable when it comes to the various currencies on the market and the risks involved—not only volatility but also matters of utility, usage and liquidity. Is Bitcoin best for your business? Could Ethereum best meet your enterprises investment goals? It's even more important to choose your trading desk wisely, based on factors such as security, cost, speed and transparency.

Treasury management can help answer those questions and allow you to make safe, informed investment in the crypto market. NDAX's Over The Counter (OTC) trading desk is the best way for Canadians to safely and securely buy crypto. Only coins that have been approved by the Security Commission and gone through stringent internal review by legal counsel are listed.

The NDAX Wealth platform has been designed with large-scale investors, both individuals and businesses, ($200,000+) in mind, providing access to a deep liquidity pool and a large selection of digital assets, all while providing a personalized service that allows you to trade at high volumes with no price slippage.

"Institutions are beginning to understand the power of cryptocurrencies," explains NDAX COO Tanim Rasul. "Many are investing in Bitcoin as a hedge against currency debasement and inflation. Others are understanding the opportunity of [decentralized finance] products for incredible returns in yield farming and lending protocols. The entire digital asset space has become an investment opportunity and has begun to reward first movers."

NDAX

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BEHIND THE LENS

Since 2018, CPA Zurry Donevan has been documenting some of the happiest and most intimate moments of people's lives through her photography business **BY ZIYA JONES**

A high school teacher got me interested in accounting. She was a CPA, but she also taught and eventually became a school principal. I thought it was really interesting that she chose a career that would open doors to others.

I started to get serious about photography in 2014, when I was on maternity leave with my first child and had to adjust to being a full-time mom. **I needed to do something that wasn't mom-related.**

I started doing a challenge where **I took a photo every day for a year** and posted them online. Soon friends asked me to take photos of their families and it just grew from there by word of mouth.

Portrait photography appeals to me because **I just love working with other people and getting to know them.** Even though I work on my own, meeting with and talking with people I'm photographing means the job doesn't get lonely.

My dad was an artist. He felt he never did "well" as an artist so he kind of pushed me toward a more standard career. But **I always had a creative side I wanted to nurture.**

Capturing moments is more important to me than making a pretty picture. My daughter was my first major subject because I wanted to remember those fleeting little moments from when she was a baby.

As a business owner I always have to take care of everything and be able to balance the books. My accounting background really keeps me organized. Plus, **I can do my own taxes!**

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