







**DEATH, TAXES** and a bad experience with your credit rating: For millions of people in North America, these are the only certainties in life. As U.S. TV journalist Chris Wallace said during a 1991 feature on credit scores for ABC's *Primetime*, "You don't have to spend long preparing a broadcast about credit agencies before you learn one simple truth: Everyone, and I mean everyone, has a horror story."

Little has changed since then, save perhaps the sheer scale and variety of the horror stories. But while we're still at least a few decades away from technology being able to disrupt our relationships with death and taxes, the traditional credit rating bureaus and the scores they churn out may already be on borrowed time.

Evan Chrapko, the Edmonton-based tech entrepreneur and founder and CEO of Trust Science, has spent more than a decade building to this moment. The company has 42 patents across 13 countries, and another 40 pending, and has invested tens of millions of dollars into disrupting one of the most comfortably entrenched industries in the world.

"There's a reason there's only a handful of big bureaus in the world," says Chrapko, who's 56. "These are multibillion-dollar undertakings—big institutional aircraft carriers. I'm not yet an aircraft carrier, by customer critical mass, but I'm on the ocean. I'm in the same waters as these guys and I'm way, way more nimble."

This isn't Chrapko's first trip out onto the ocean, either. In March 2000—literally just a few days before the tech bubble burst—he sold his cloud storage company, DocSpace, for US\$568 million. He thinks Trust Science could be far bigger than that. "This is a much more global proposition than DocSpace was. It's pertinent to every single coun-



try, including—and maybe even especially—developing countries." In a world where maybe 40 countries employ some metric that could be considered a credit score, the ability to bypass the traditional approach and offer something new has obvious—and potentially enormous—value.

Chrapko's invention doesn't necessarily replace traditional giant credit bureaus like Equifax, TransUnion and Experian. Instead, he says, it augments what they do and gives them tools that help them do it better. "I'm not allergic to the old conventional credit bureau data," he says. "It's just that it's very polluted—there's a lot of noise, and not as much signal in there."

In response to questions about accuracy and complaints, Equifax and TransUnion both emailed brief answers. Equifax said it is "eager to help Canadian customers," and that its website outlines a set of consumer rights. TransUnion said "accuracy is fundamental to our business," and it offers individuals free access to all the information in their credit file. Customers can contact the bureau online or by phone.

Even so, Chrapko says "we know how to find the signal in the noise of the old stuff." Or, putting it a bit more tactfully, "we make the Equifaxes and TransUnions of the world appear smarter than they really are."

In short, he isn't trying to move fast and break things here, as is often the case with tech entrepreneurs. If anything, he's doing the opposite. Unlike the taxi industry and vacation rentals, which were largely consumer-oriented in nature, Trust Science's clients are banks and other major financial institutions. "When you want the G-SIBs as customers—the global systemically important banks—you have to be compliant. It is a prerequisite. They won't even wonder about what you're claiming to be doing, business-



wise, until you can clear the security audit over here and the regulatory compliance discussions. Then we can talk about your invention.”

They’re talking now, though. “I did it in a very Canadian fashion,” Chrapko says. “The American approach is to sell it and then build it. We’re doing the opposite: Build it and they will come. And that’s what’s happening.”

**WHEN THE AVERAGE CANADIAN** household owes more than \$1.70 for every \$1 of disposable income, a good credit score can mean the difference between life and debt. The score can determine how much you can borrow, how much the loan costs you and which financial institutions will be willing to lend to you. Yet for all the power of a score, most people would probably be hard-pressed to tell you what theirs is, much less explain how it was calculated.

So-called FICO scores range from 300 to 850. A score below 580 is poor, and you’ll likely have to plead with “alternative” lenders for a loan—even if it’s secured by a house, car or other asset—possibly at double-digit interest rates or higher. If you’re above 670, you’re considered good. Score more than 800 and banks and other A-list institutions will compete to do business with you, and offer attractive borrowing rates.

The idea of a credit score—and the FICO acronym—can be traced back to a U.S. operations research firm called Fair Isaac & Co., which was founded in 1956. Its scores have been at the heart of the consumer lending industry for decades. As co-founder William Fair wrote in his 1977 memoir, “a competent analysis of the large number of factors appearing on a credit application would permit the construction of an accurate odds quoter of the applicant’s future payment behavior.”

Even a numerical score was an improvement for the credit bureaus. Equifax, the oldest of the three major bureaus in North America, was founded in 1899 as The Retail Credit Co. It quickly grew to 37 offices in the United States and Canada by 1920. The company’s “Merchant Report” on businesses was sold for US\$25 a copy, and it expanded to consumers. The reports were built around a rudimentary ranking system of borrowers as “prompt,” “slow” or “requiring more cash.”

But until recent decades, data was largely compiled and presented in physical forms, and the scoring calculations were done by people. So, the agencies had to restrict the number of inputs. As University of California PhD candidate Martha Poon wrote in her 2012 dissertation on the history of FICO scores, “the key consideration in design, therefore, was neither statistical nor technical sophistication... For the tool to work in the manual setting, statistical complexity had to yield along several dimensions to the material demands of the existing business environment.”

Despite the innovations in data science and technology since the FICO score was developed, the guts of it haven’t changed all that much. The scores credit agencies produce still rely heavily on

the information gathered on consumers by banks and credit card companies, which helps explain why someone with no credit cards can have a lower score than someone making regular payments on four of them at once. According to an explanation on Equifax’s website, its scores are based on a blend of payment history, credit inquiries, the ratio of used to available credit and any records of delinquency and bankruptcy.

In place of the traditional scorecard system, Trust Science’s proprietary algorithm uses artificial intelligence and machine learning to develop a more comprehensive individual credit profile. The algorithm can incorporate thousands (and theoretically millions) of different variables and see how they interact with each other, a level of horsepower conventional credit scoring methods simply can’t match. If you’re doing a traditional scorecard, “after approximately a dozen variables, another variable won’t materially affect the outcome,” Chrapko says. “The marginal value of a new variable is very low.”

It also means the algorithm can assess credit risks in a more three-dimensional way. “Your score and your behaviour on repayment will be different depending on why you took out the loan,” Chrapko says. “Someone’s a different risk if they’re borrowing to buy that canary yellow ’69 Camaro versus if they’re borrowing to buy a slightly beat-up used 2010 Ford F-150. They’ll be a better risk on the truck.”

Not all debt is created equal, in other words. But that’s a nuance conventional credit bureaus can’t really handle. “What the AI can teach you is that every person’s score is different in a different context,” Chrapko says. “That concept alone would make Credit Bureau 1.0 dinosaurs kind of short-circuit.”

The problem with those dinosaurs isn’t just that they occasionally misrepresent or misreport people’s histories. They also create a feedback loop in which people with credit get more of it, while those without it can’t get enough. “That works okay for prime and super-prime people,” Chrapko says. “But it doesn’t work at all if you’re young. It doesn’t work at all if you’re an immigrant. You’re what they call a ‘no-hit’—you’re credit invisible, and therefore unbanked or underbanked.”

According to 2015 data from the U.S. Consumer Financial Protection Bureau, about 15% of Black and Hispanic consumers were “credit invisible,” compared to just 9% of whites and Asians. That helps explain a massive gap in home ownership rates, which are more than 30% lower for Black Americans than for white ones.

The credit scoring system also doesn’t fit the new economy and the ways people work in it. Chrapko estimates there’s US\$1 trillion in “invisible primes”—people who would be good borrowers if given the money. “They’re prime or super-prime-quality borrowers, but they’re invisible to conventional methods.”

That’s not just a missed lending opportunity for big banks and other higher-quality lenders. It’s also a de facto referral to higher-cost ones like payday loan companies and other subprime lenders, with all of the attendant risks—and the inequities that only multiply because of them. “In North America alone,” Chrapko says, “that’s tens of millions of people who don’t have the on-ramp into the modern economy, because that credit score is used in a lot of ways and places.”

Those ways go well beyond someone’s ability to borrow money. They can also influence where people live and what kinds of jobs they have. Credit checks on prospective tenants and employees are now commonplace, and they’re making their way into many other areas of our lives. “It’s not just the financial stuff,” says Tammy Johnston, a Calgary financial planner. “It can affect their employment opportunities, it can affect where they can rent, and

it can affect where they can go to school.”

Why do we put up with this? In part, because we don't have any other choice. If you want to lease a car or buy a house, you can't do it without effectively opting in to the system that credit scoring helps create. So, Johnston says, we put up with a system that's often inaccurate and unjust because many of us don't even know what it's doing to our lives. “They get away with it because, unfortunately, Canadians have the lowest level of financial literacy in the Western world. On the subject of money, we're dumber than Americans—and that should terrify people.”

**WE MAY NOT HAVE TO** put up with it for much longer. No, Canadians aren't suddenly getting more financially literate, but the tyranny of the FICO score may be nearing an end. While it hasn't acted yet, U.S. President Joe Biden's administration has signalled its interest in creating a new reporting agency—one that would compete directly with Equifax, TransUnion and Experian.

Washington's interest is apparently inspired by a 2019 proposal from the progressive think tank Demos, which made the case for a publicly run credit registry. “A public credit registry will develop algorithms that diminish the impact of past discrimination, deliver transparent credit scoring, provide greater data security and offer a publicly accountable way to resolve disputes,” the Demos report said. “The use of credit information for non-lending purposes, such as employment, housing and insurance, will be curtailed.”

The American finance industry isn't waiting around for this to happen, either. Lenders like JP Morgan Chase & Co. and Bank of America are already moving away from using FICO scores in some underwriting decisions, while others, like Capital One Financial Corp., don't use them at all for most consumer lending decisions.

More importantly, Fannie Mae and Freddie Mac, the two government-founded enterprises that securitize U.S. mortgages—and that are the beating heart of the American housing market—have been mandated to assess and allow other scoring regimes besides FICO. “It will no longer be the case, after some point in the not-so-distant future, that FICO is the only credit score that works for two of the major federal financial institutions,” Chrapko says. “That's a game changer.”

So too is our rapidly evolving relationship with modern technology. “The ownership and portability of one's own data, in whatever form, should be sacrosanct,” Chrapko says. “That should be a human right.”

That may sound aspirational—or revolutionary—in a country like Canada, where even making mobile data affordable is a monumental struggle. Responding to the Biden administration's proposals, Equifax noted that the provinces regulate credit bureaus in Canada, and it supports current laws, which hold the agencies to “a high standard.”

But Europe is moving more aggressively, and unveiled a new data governance strategy in

February 2020 that's now on the verge of becoming a reality. Rather than focusing exclusively on protecting people's privacy, the strategy promotes the sharing and monetization of data using a pan-European market and the creation of a “data trust”: a steward that will manage people's data on their behalf and have a fiduciary duty toward them.

“Global technology companies will not be allowed to store or move Europeans' data,” Anna Artyushina, a York University public policy scholar who specializes in data governance and smart cities, wrote last August. “Instead, they will be required to access it via the trusts.”

Chrapko sees a future in which you call the shots from your smartphone. “Each of us will essentially be our own personal credit bureau,” he says. “You will only dole out your information—your education credentials, bank account information and so on—when and as you see fit, not when some nameless massive multibillion-dollar company decides they're going to get paid for it by a financial institution you're trying to deal with.”

Storing that information on the blockchain, and sharing it only as circumstances require, seems like a massive improvement over the status quo. After all, in 2017, online hackers broke into Equifax and captured the personal information of 147 million people, many of whom—indeed, most—didn't realize they were customers in the first place.

While Equifax agreed to pay out as much as US\$700 million in fines and compensation, just 4.4% of that was allocated to compensate the people who had their names, dates of birth and social security or social insurance numbers stolen. Worse, perhaps, rather than simply sending those funds to the 147 million victims, Equifax required people to opt in to the settlement and choose between free credit monitoring or US\$125 in cash—which was later taken off the table when a surge of people opted for it.

Chrapko is far from the only person who thinks mobile technology will have a transformative impact on how we access credit. Shivani Siroya founded a California-based smartphone micro-lending platform called Tala in 2011 that targets clients in developing countries. She laid out the case for a mobile-first approach to credit creation. “There are 2.5 billion people around the world that don't have a credit score,” she said during a 2016 TED Talk. “That's a third of the world's population. They don't have a score because there are no formal public records on them—no bank account, no credit history and no social security number. And because they don't have a score, they don't have access to the credit or financial products that can improve their lives.”

Siroya's company aims to change that through data that's already in borrowers' phones, from GPS information to merchant transactions. By measuring the stability in a user's key relationships, the diversity of their social networks, and the consistency of their movements and travel, Tala can assess a potential borrower and approve a loan within minutes. It's already lent out more than US\$1 billion to more than four million customers in Kenya, the Philippines and Mexico, and says more than 90% of them repay within a month.

It's not hard to see how this could disrupt the big credit bureaus here in North America. Just as mobile phones bypassed the need for landlines in the developing world, they could also allow people to do an end run around the credit-industrial complex. If that happens, companies like Equifax and TransUnion could one day join the Kodaks and Blockbuster Videos of the world in the antiquities museum of business history. “Kids being born today will not even know what a credit bureau is,” Chrapko says. “That concept will be pretty obsolete by the time they grow up.” ■