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Crain's Chicago

Civic tech booster P33 adds big names to board

By: John Pletz

P33, the civic effort to boost Chicago's tech sector, has named its board of directors. The 21 members come from startups and Fortune 500 companies, as well as academic institutions and nonprofits, but it's not particularly heavy on tech founders or CEOs. The wide-ranging list reflects the broad reach of a group that started with [the goal of trying to raise the city's tech output and its profile by enlisting corporate Chicago](#).

Members from the tech community include: [Mike Gamson](#), a former senior executive at LinkedIn and active startup investor who is CEO of legal-software company Relativity; startup founder [Garry Cooper](#); [Helen Sun](#), a veteran corporate tech executive who now works for Facebook; Angel Mendez, former chief operating officer of mapping and location data company Here Technologies and a former executive at Cisco Systems; and [Brenda Darden Wilkerson](#), CEO of AnitaB.org

The most surprising name on the list is [Peter Barris](#), who ran Maryland-based New Enterprise Associates, one of the world's largest venture capital funds, for nearly two decades. The Chicago native and Northwestern University engineering alum has been an active supporter of his hometown, backing Groupon, Sprout Social, Tempus, Echo Global Logistics, InnerWorkings, BenchPrep and Catalytic.

"I have seen firsthand the real possibilities in Chicago, but also have a good sense of the limitations," Barris said. "My roots are Chicago, and I still consider it home and want to see it succeed and believe that it has a lot going for it in terms of continuing to build on its foundation in tech and life sciences."

Also on the board are Allstate CEO Tom Wilson; [Jennifer Scanlon](#), CEO of UL and former CEO of USG; and Richard Edelman, CEO of public relations and marketing firm Edelman. Other members from the Fortune 500 community are Margarita Chavez, managing director of AbbVie's venture capital unit; and Kate Gebo, senior vice president of human resources and labor relations at United Airlines.

Two names represent two key academic assets: Andreas Cangellaris, provost of the University of Illinois at Urbana-Champaign and former dean of its college of engineering; and Kate Timmerman, executive director of the Chicago Quantum Exchange.

Members from the nonprofit sector include Julia Stasch, former president of the MacArthur Foundation; and Maria Wynne, CEO of Leadership Greater Chicago. Other members are Philip Alphonse, co-founder of private-equity firm Vistria Group; Diane Primo, CEO of public relations and digital marketing firm Purpose Brand Agency; and Trabian Shorters, CEO of BMe.

The board also includes tech entrepreneur Chris Gladwin; former Commerce Secretary Penny Pritzker; and Kelly Welsh, president of the Civic Committee of the Commercial Club. The three have led P33 since its start in 2018.

February 25, 2021

Chicago Sun-Times

Tech program launches to support city's Black and Latino entrepreneurs

By: Mari Deveraux

Several national and Chicago-based organizations have joined together to support early stage Black and Latino tech entrepreneurs through ample funding and resources.

The program [TechRise](#) was created by the nonprofit P33 in partnership with Verizon and 1871, a private business incubator and technology hub, among others, with the goal of narrowing the wealth gap in Chicago, generating thousands of tech-related jobs and giving \$5 million in grant funding to Black and Latino entrepreneurs.

Desiree Vargas Wrigley, executive director of TechRise by P33, said in helping to establish the initiative, she thought of ways to give diverse tech founders what they need most — capital and resources for those who don't have family or personal wealth to tap into and the chance to build community and connection, particularly for those on the south and west sides of Chicago. "We're thinking about how can we bring together corporate philanthropy and institutional philanthropy, high net worth individuals, founders and investors, and collectively become the friends and family for diverse founders so that we can have more parity in our tech ecosystem," Vargas Wrigley said.

She said TechRise will host weekly pitching competitions, where five competitors propose their tech startup idea to a panel of judges for the chance to win \$10,000 to \$50,000.

Vargas Wrigley said the competition will serve as "the first fund of its kind" to finance tech startups in their early, idea stage.

Contestants who don't win can pitch again 90 days later, and every applicant is directed to resources or mentors for support.

"If you've been losing sleep at night because you've been thinking about this thing and you just don't have the dollars to get started ... or you just don't know where to get started, then we want you to apply," she said.

Nia C. Mathis, vice president of state and local government affairs at Verizon, said TechRise will have its official virtual launch even March 10, with speakers discussing challenges tech startups face.

Mathis said Verizon contributed seed money for the \$5 million fund, a platform for an online community of Black and Latino companies and sponsorship for 1871's 12-week [BLK•Tech](#) program which helps build Black-led tech startups and will be available to TechRise applicants.

She said Verizon will give entrepreneurs access to its 5G Labs to generate ideas about how their businesses can thrive.

Vargas Wrigley said typically only 1.9% of venture capital in Chicago goes to founders of color, and P33 is aiming for that percentage to increase to 50%. She added that 100% of the funds put toward TechRise will go to diverse founders, with no overhead.

Steven E. Shaw, community engagement manager of state government affairs at Verizon, said Chicago has all the assets needed to form a thriving tech community, such as leading research universities and a diverse industry.

“We can create the type of ecosystem in Chicago to make [the city] a destination for ... Black and Latinx tech talent,” Shaw said.

CEO of 1871 Betsy Ziegler said, in addition to providing capital and community, TechRise will provide competitors with access to education, mentorship, and support from industry experts and peers, starting with 1871’s BLK•Tech program and Latino incubator.

For 1871’s Black entrepreneurs, Ziegler said she hopes taking advantage of TechRise’s starting capital will help them thrive.

She said most new jobs come from startup companies and small businesses that are able to create their own wealth and hire their own employees.

“There’s never been a more important time for entrepreneurship,” Ziegler said. “[It] is the fastest way to job creation, and we’ve never needed jobs more than we need them right now.”

December 19, 2020

The Economist

Wall Street's latest shiny new thing: quantum computing

By: Not listed

THE FINANCE industry has had a long and profitable relationship with computing. It was an early adopter of everything from mainframe computers to artificial intelligence (see timeline). For most of the past decade more trades have been done at high frequency by complex algorithms than by humans. Now big banks have their eyes on quantum computing, another cutting-edge technology.

This is the idea, developed by physicists in the 1980s, that the counter-intuitive properties of quantum mechanics might allow for the construction of computers that could perform mathematical feats that no non-quantum machine would ever be capable of. The promise is now starting to be realised. Computing giants like Google and IBM, as well as a flock of smaller competitors, are building and refining quantum hardware.

Quantum computers will not beat their classical counterparts at everything. But much of the maths at which they will excel is of interest to bankers. At a conference on December 10th William Zeng, head of quantum research at Goldman Sachs told the audience that quantum computing could have a “revolutionary” impact on the bank, and on finance more broadly.

Many financial calculations boil down to optimisation problems, a known strength of quantum computers, says Marco Pistoia, the head of a research unit at JPMorgan Chase, who spent many years at IBM before that. Quantum quants hope their machines will boost profits by speeding up asset pricing, digging up better-performing portfolios and making machinelearning algorithms more accurate. A study by BBVA, a Spanish bank, concluded in July that quantum computers could boost credit-scoring, spot arbitrage opportunities and accelerate so-called “Monte Carlo” simulations, which are commonly used in finance to try to model the likely behaviour of markets.

Finance is not the only industry looking for a way to profit from even the small, unstable quantum computers that mark the current state of the art; sectors from aerospace to pharmaceuticals are also hunting for a “quantum advantage”. But there are reasons to think finance may be among the first to find it. Mike Biercuk of Q-CTRL, a startup that makes control software for quantum computers, points out that a new financial algorithm can be deployed faster than a new industrial process. The size of financial markets means that even a small advance would be worth a lot of money.

Banks are also buying in expertise. Firms including BBVA, Citigroup, JPMorgan and Standard Chartered have set up research teams and signed deals with computing firms. The Boston Consulting Group reckons that, as of June, banks and insurers in America and Europe had hired more than 115 experts—a big number for what remains, even in academia, a small specialism.

“We have more physics and maths PhDs than some big universities,” jokes Alexei Kondratyev, head of data analytics at Standard Chartered.

Startups are exploring possibilities too. Enrique Lizaso of Multiverse Computing reckons his firm’s quantum-enhanced algorithms can spot fraud more effectively, and around a hundred times faster, than existing ones. The firm has also experimented with portfolio optimisation, in which analysts seek well-performing investment strategies. Multiverse re-ran decisions made by real traders at a bank. The job was to choose, over the course of a year, the most profitable mix from a group of 50 assets, subject to restrictions, such as how often trades could be made.

The result was a problem with around 10 possible solutions, a number that far outstrips the number of atoms in the visible universe. In reality, the bank’s traders, assisted by models running on classical computers, managed an annual return of 19%. Depending on the amount of volatility investors were prepared to put up with, Multiverse’s algorithm generated returns of 20-80%—though it stops short of claiming a definitive quantum advantage.

Not all potential uses are so glamorous. Monte Carlo simulations are often used in regulatory stress tests. Christopher Savoie of Zapata, a quantum-computing firm based in Boston, recalls one bank executive telling him: “Don’t bring me trading algorithms, bring me a solution to CCAR [an American stress-test regulation]. That stuff eats up half my computing budget.”

All this is promising. But quantum financiers acknowledge that, for now, hardware is a limitation. “We’re not yet able to perform these calculations at a scale where a quantum machine offers a real-world advantage over a classical one,” says Mr Biercuk. One rough way to measure a quantum computer’s capability is its number of “qubits”, the analogue of classical computing’s 1-or-0 bits. For many problems a quantum computer with thousands of stable qubits is provably far faster than any non-quantum machine that could ever be built— it just does not exist yet.

For now, the field must make do with small, unstable devices, which can perform calculations for only tiny fractions of a second before their delicate quantum states break down. John Preskill of the California Institute of Technology has dubbed these “NISQs”—“Noisy, Intermediate-Scale Quantum computers”.

Bankers are working on ways to conduct computations on such machines. Mr Zeng of Goldman pointed out that the computational resources needed to run quantum algorithms have fallen as programmers have tweaked their methods. Mr Pistoia points to papers his team has written exploring ways to scale useful financial calculations into even small machines.

And at some point those programmers will meet hardware-makers coming the other way. In 2019 Google was the first to demonstrate “quantum supremacy”, using a 53-qubit NISQ machine to perform in minutes a calculation that would have taken the world’s fastest supercomputer more than 10,000 years. IBM, which has invested heavily in quantum

computing, reckons it can build a 1,000-qubit machine by 2023. Both it and Google have talked of a million qubits by the end of the decade.

When might the financial revolution come? Mr Savoie thinks simple algorithms could be in use within 18 months, with credit-scoring a plausible early application. Mr Kondratyev says three to five years is more realistic. But the crucial point, says one observer, is that no one wants to be late to the party. One common worry is that whoever makes a breakthrough first may choose to reap the rewards in obscurity, rather than broadcast the fact to the world. After all, says Mr Biercuk, “that is how high-frequency trading got started”

January 20, 2021

Forbes

Why Chicago Is Emerging As An AI-Life Sciences Leader

By: Pete Wilkins

Tempus, a leading provider of data-driven precision medicine solutions, became the most valuable startup in Chicago last month. Their \$8.1 billion valuation demonstrates the enormous value of using artificial intelligence (AI) to eradicate disease and help people live healthier lives. And just last week their quest to advance the full power of AI to the point-of-care took a giant step forward when they announced the beta release of Tempus ONE.

Tempus ONE is a smart, voice-enabled, portable device that offers physicians real-time access to clinical insights and data contained in Tempus' genomic reports. "For the past five years we have been on a journey to bring the promise and power of artificial intelligence to healthcare," said Eric Lefkofsky, Founder and CEO of Tempus. "Tempus ONE is a quantum leap forward, harnessing the almost 30 petabytes of data we have collected in the past few years, which we embedded into a device that puts the full breadth and scope of our technology platform in the hands of every doctor we serve, enhancing their ability to use data in making real-time treatment decisions."

The Tempus announcement highlights a powerful convergence of AI and life science taking place in Chicago. In fact, Chicago is the fifth largest life sciences metro by employment, and the city's top academic institutions and medical centers are in a race to attract a new type of innovator to the region, which has been the foundation for success at universities like Stanford and MIT and the healthcare ecosystems they anchor.

Further solidifying Chicago's emergence into this space, the **U.S. Department of Energy** and the **State of Illinois** announced [hundreds of millions in funding](#) to advance quantum infrastructure development in the state. Quantum computing is being used to accelerate drug discovery with greater precision in molecular modeling. This new tool is able to process data much more rapidly than current systems and will further improve drug discovery and patient outcomes in a range of diseases. The **University of Chicago**, **University of Illinois Urbana-Champaign** and other [partners](#) such as **P33** have taken this one step further to form and support the [Chicago Quantum Exchange](#) which is dedicated to advancing the science and engineering of quantum information.

All in all, tens of billions of dollars have flooded into the Midwest to accelerate life sciences innovation, and Illinois is ranked in the top 10 states in funding from the **National Institutes of Health**. There has been \$2.5 billion in academic research funding across 12 Chicago institutions and two national labs based in the Chicago metro region, and \$10 billion of research across the Big 10 universities. Furthermore, philanthropists like Michael Polsky and the Duchossois family have provided hundreds of millions of dollars to the University of Chicago to accelerate the

pace of turning academic biomedical research into companies that could deliver life saving technologies. **Deerfield Capital Management Company** recently signed multimillion dollar deals with **Northwestern University** and the **University of Illinois at Chicago** to get early access to novel life sciences technologies. All of these developments validate that valuable opportunities are emerging in the region.

Pandemic Accelerating Life Sciences Innovation

The pandemic cast a bright spotlight on the constant need for U.S. biopharma innovation and the speed at which science is advancing. Chicago-based **Abbott Labs** developed three molecular COVID diagnostic tests: ID NOW, Alinity m, and Realtime m2000 in just 30 days. The torrid pace of vaccine discovery, development and FDA approval by **Pfizer** and **Moderna** is unprecedented. It is a blueprint for what is possible when government, academia and industry collaborate. The government provides funding for academic research through grants that faculty use to study and develop new biomedical innovation. Startups license the technology patents from universities and get funding from venture capitalists to build new companies. These companies then carry on the development of the drug and often work with large pharma companies like Pfizer to commercialize the invention and deliver the drug to patients; others like Moderna commercialize on their own.

This cycle repeats itself every day leading to new diagnostics and treatments for patients in many different diseases. Beyond new technologies that were used to develop the COVID vaccines, biopharma companies are developing revolutionary drugs to treat cancer, autoimmune disorders and rare diseases such as spinal muscular atrophy. Faster computers and the tools and information that arose from deciphering the human genome in the early 2000s are increasing the precision with which we can treat diseases.

Scientific Breakthroughs Leading to Record Investment

The same AI and data analytics tools used to crack the genetic code are now being used to design better drugs tailored to the patient's genetic profile. As a result of these tools and new biological scientific breakthroughs, new kinds of treatments such as cell and gene therapy, RNAi, immunoengineering and nanotechnology are helping more patients achieve remarkably better outcomes. The success rates from discovery to FDA approval are increasing and the path to approval is getting shorter in many cases.

Better patient outcomes, improving discovery hit rates and faster pathways to market is attracting more investors. Venture capitalists and public investors are betting this pace will continue and, as a result, innovation will continue to accelerate. There have been record investments by LPs in life sciences VCs and shorter path to exits, in many cases less than three years. This trend is pushing more capital beyond the typical ecosystems in Boston and the Bay Area and into emerging life sciences markets like Chicago.

Trickle Down Effect Sets Stage for Sustainable Ecosystem

Inspired by Tempus' rapid growth and the availability of data science and computational biology talent emerging from local universities and national labs, more high-potential life

science startups are emerging in Chicago. In addition to talent, intellectual property and high-speed computing capacity, AI-enabled life sciences companies need access to specialized wet and dry lab space along with seed stage capital.

[Portal Innovations](#) led by seasoned entrepreneur and investor John Flavin launched as a venture development engine in early 2020 to address this market need. Building a portfolio of early-stage life sciences companies like other venture firms in Boston and the Bay Area, Portal is applying its unique model of offering entrepreneurs and inventors equipped lab space, management support and seed capital. These three ingredients delivered simultaneously are critical to creating the next generation of AI-enabled life sciences companies. Bringing Portal's global network of capital and corporate partners together with early stage innovators, the platform is at the center of Chicago's emerging life sciences ecosystem connecting university research to the market in a scalable fashion.

Portal is partnered with Trammell Crow Company (TCC), one of the largest commercial real estate developers in the U.S., to bring state-of-the-art lab space to startups in Fulton Market—close to the talent pool that fuels other data-driven companies in the neighborhood such as Google. Lab space has been a constraint on Chicago's life sciences ecosystem but TCC is opening 750,000 square feet in Fulton Market, and Sterling Bay has announced a 300,000 square foot building in Lincoln Yards expected by 2024. By way of comparison, Chicago has 5 million square feet of space whereas Boston has close to 30 million square feet. To fuel more investments into life sciences infrastructure in the state, Governor J.B. Pritzker recently announced the Rebuild Illinois Wet Lab Program, which will invest \$9 million to support grants to lab incubators.

Critical Mass Developing in AI-Enabled Life Sciences

In addition to large pharma and [health tech companies](#) such as **Livongo**, **Horizon Pharma** and **AbbVie** using AI to fuel drug discovery and patient-centered care, there is a burgeoning set of new Chicago ventures leveraging AI. Portal is supporting the following AI-enabled life science companies:

- **ClostraBio** uses bioinformatics applied to the microbiome to discover new drugs to treat allergies and digestive diseases.
- **Access.io** is “the Zillow of clinical trial recruiting” and uses novel algorithms and machine learning to automate clinical trial enrollment.
- **Digital Diagnostics** designed the first two FDA-approved AI-enabled diagnostics for diabetic retinopathy and skin cancer.
- **Grove Biopharma** uses AI-driven modeling to develop new peptide drugs for neurodegenerative diseases using biomaterial engineering.
- **Endotronix** designed a remote software platform connected to pulmonary implant measuring and transmitting pulmonary artery pressure in real time to cardiologists managing heart failure patients.

Portal is also partnering with entrepreneur and investor Jeff Aronin's **Paragon Biosciences** to support their early-stage portfolio companies including **Evozyne**, which uses AI-enabled

molecular engineering for new protein based drugs that can't be made using conventional technology, and **Qlarity Imaging**, which developed the first FDA-cleared, AI-enabled breast cancer diagnosis software for radiology.

All things considered, the Windy City is quickly emerging as a world leader in a new frontier of AI-driven medicine. And with continued forward momentum from Chicago-based academic research, tech startups and established enterprises—and the proper funding that momentum requires—we can expect this sector to continue to expand in the years to come.