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BUILD FOR IMPACT

Kathairos Solutions Inc. not only developed simple technology to slash methane emissions at drill sites—it also forged a business capable of striking it big



KATHAIROS SOLUTIONS INC.

RANK: **NO. 1** | THREE-YEAR GROWTH: **16,379%**

As wildfires burn and rivers dry up, there's an unassuming form of climate action taking hold in oilfields across North America, as thousands of wells begin to burp a lot cleaner.

This is the work of six-year-old Calgary upstart Kathairos Solutions, which has found a beautifully uncomplicated solution to a big problem and is riding an astonishing growth curve—as in, revenue up 16,379% in three years—on its ability to implement that solution at scale.

Kathairos is in the decarbonization business (its name means “clean air” in Greek), using cryogenics to activate pneumatic devices at oil well sites as a means of methane abatement.

Quick background: A century and a half ago, when the oil and gas industry took hold in North America, drilled wells had a tendency to gush out of control. To manage the situation, engineers began routing oil into separator tanks, with flow dictated by valves. Those valves opened using natural gas, which then vented into the air. That pneumatic system stuck around, resulting in a modern situation in which hundreds of thousands of wells belch methane—an extremely potent anthropogenic greenhouse gas—into an atmosphere that, increasingly, doesn't need it.

Kathairos co-founder and CEO Dick Brown has known about the problem for some time. An energy veteran with experience in pretty much every corner of the industry, from working on drilling rigs in the 1970s to, more recently, founding and scaling a cryogenics supplier for energy

services called Ferus. So when Jason Clarke, an engineer and one-time Ferus employee, came to him with an idea to replace methane in pneumatic venting, his interest was piqued. “We recognized that there was a way to use liquid nitrogen—basically air—to do the work methane had been doing for the past 150 years,” Brown says. The pair joined up with fellow Calgarian Amanda Hehr (Kathairos's president), an entrepreneurial go-getter with a shrewd eye for strategy, and decided to test whether this technical solution could be a viable company. “The big question, for me, was how to make it work across thousands of locations,” Brown says. “It's only a business if you can make it work at scale.”

After some hands-on R&D in Nisku, Alta., that had Brown brushing off his old pipefitting skills, and a successful pilot at a small oil company whose owner was keen to try it, the team landed on an effective—and scalable—system to take to market. It's simple by design: Installation usually involves little more than replacing the centralized natural gas repository at a well site with a biogenic tank. Operators generally don't notice any change at all. But the difference is immediate: What's emitted from valves is no

The decarbonizers:
Kathairos CEO Dick
Brown and president
Amanda Hehr



longer the greenhouse gas responsible for 30% of modern global warming, but rather an inert vapour. “When we first introduced it, the most common comment we’d hear was, ‘Why did no one think of this before?’” Brown says. “That usually tells you you’ve got the start of something that’s going to grow.”

The team wasted no time in building the scaffolding for expansion. They locked in manufacturing capacity via a partnership with Georgia-headquartered Chart Industries. They booked meeting after meeting with executives, industry association leaders and government representatives. They secured a capital stack that would allow them to move quickly (including, in time, equity partnerships with the economic arms of Doig River First Nation and Halfway River First Nation). They applied for, and won, a Clean Resource Innovation Network award, which opened doors with Cenovus and Ovintiv. The U.S. Environmental Protection Agency made an introduction to ExxonMobil, whose chief environmental scientist told them, “I think you guys have found what everybody’s been looking for.”

As a result, in less time than it takes for some heavy-industry outfits to land on a minimum

viable product, Kathairos has deployed more than 3,000 units for 70-odd oil and gas producers on sites in Canada and the U.S.

There’s nothing flukish about any of it, in Hehr’s view. “Scaling innovation requires more than just proving the technology works,” she says. “It requires building trust in customers that you can deliver a repeatable and trustworthy product, that your operating model works and scales, and that you can also demonstrate a positive return for them. You have to be able to deliver on all those value propositions.” So the team concentrated its energies against those three imperatives. To prove the system worked, they adopted what Hehr describes as an “obsessive focus on delivering excellence at any cost,” stress-testing every element in the product to leave no detail overlooked. To demonstrate operational capacity, they set up bases in every major basin in North America and hired the most experienced technical experts they could find. And to show dollars-and-cents value, they developed a robust data and software arm that gives customers a transparent window into exactly what’s happening at installations and exactly how it’s affecting their businesses.

It all made for an expensive runway, but it supported a sharp takeoff. “I attribute a lot of the success to very good early planning about what exponential or hyperscale growth would look like,” Hehr says. “It was like our hair was on fire for two years, and because we had those success scenarios planned, we were able to not only survive, but I would say thrive.” Brown is quick to credit his business partner for this approach: “It takes a different mind to get the technology up and running than it does to drive it to scale.”

As Hehr and Brown look ahead—Clarke left Kathairos in 2024—they see plenty of upside: There’s interest in adapting the company’s system to other oilfield applications, and there’s huge potential in pairing AI against its dataset to, for instance, predict well behaviour. Kathairos is also exploring licensing opportunities for its system, as well as expansion into both Latin America and Australia.

For Brown, a guy who built a career in oil patches, it all feels vital. “I see things a little bit differently now,” he reflects. “Climate change is real. We’re seeing it and experiencing it in real time.” Kathairos’s efficacy in addressing a significant contributor to the problem—in June, the company passed one million metric tonnes of CO₂ equivalent eliminated as a result of its installations—has him leaning in. “We have been entrusted with a technology that has proven to make a global difference,” he says. “I feel we have an obligation to move this company forward as fast as we can. This is something we can do to make an actual impact. And I believe there is nothing more urgent.”

**HOW TO
SCALE WITH
PERSPICACITY**

“Our biggest lesson has been to rebuild a problem around what new tech makes possible, and then pair that ambition with discipline about accuracy and accountability. When we started, the reflex was to layer AI onto existing workflows. We did the opposite: We rebuilt the work around what AI does best and kept licensed lawyers on the judgment and sign-off only they can provide.”



SALLY DAUB
CO-CEO, BORDERPASS

No.



RING RESCUE INC.

GREAT IDEA
The Dolphin Ring Cutter created by Ring Rescue Inc. now frees fingers in 30% of real North American emergency rooms (and one fake one, via a cameo on *The Pitt*).



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