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The tech company touting its MIT connection that stranded Kentucky school kids for a week did the same thing in Ohio last fall

The company behind a disastrous change to a Kentucky city's school bus routes that resulted in more than a week of canceled classes had similar problems in two cities in neighboring Ohio last year.

Touting its connections to the Massachusetts Institute of Technology, bus-routing vendor AlphaRoute pitched its mathematical models and machine-learning technology as a way of saving money and smoothing out complex bus routes in Louisville, Kentucky, and school districts across the U.S.

But real-world problems often got in the way.

Columbus began running new routes planned by AlphaRoute in fall 2022 after entering into a three-year, $1.6 million contract. But there were problems from the beginning. Most importantly, the district was not able to make adjustments quickly with the company's software. It decided to pivot mid-year to the software it was previously using from another company, Versatrans, said district spokesperson Jacqueline Bryant.

Cincinnati Public Schools told The Associated Press in an email that it was under contract with AlphaRoute for less than one year, beginning in April 2022 at a cost of $150,000.

"AlphaRoute provided route analysis and made efficiency recommendations. CPS was not satisfied with the results and had to reroute and physically evaluate each stop," according to the statement.

Several other districts listed as partners on the company's website said they either no longer worked with AlphaRoute or never were its customers. The school district in Providence, Rhode Island, a listed partner, said it considered the company's proposal in 2021 but "went in another direction."

AlphaRoute said in a Tuesday night written statement that it recognized the Kentucky school cancellations have been "terribly disruptive" and that it has had a team in Louisville helping to address them since Saturday.

"We at AlphaRoute have been working alongside the district to fix as many issues as possible as fast as possible, so that service is greatly improved when schools reopen on Friday," it said.

In Louisville, the transportation changes recommended by AlphaRoute for Jefferson County Public Schools proved disastrous on the first day of school. Some students were not picked up in the morning while others did not arrive home until nearly 10 p.m.

The fiasco resulted in hungry and tired children, angry parents and exasperated politicians. Schools had to be closed to reevaluate the transportation plan, and students will have missed more than a week of

school when they begin returning on Friday as part of a staggered reopening. The fallout has included a call from some state lawmakers to explore splitting up the state's largest school district.

Like other districts, Jefferson County turned to AlphaRoute for ways to increase efficiency and cut the number of bus routes after a nationwide driver shortage left them scrambling for solutions to transport students. The company, based in Waltham, Massachusetts, uses computer algorithms to map out bus routes and stops.

In a March 2021 letter to Jefferson County seeking to justify its use as a single contractor, company co-founder and CEO John Hanlon outlined how his firm could solve some of the "daunting challenges" of a busing system he described as inefficient and one of the most complex in the country, with 65,000 daily bus riders.

Hanlon touted AlphaRoute as the only company capable of both rerouting buses and planning staggered school start times. Superintendent Marty Pollio championed the idea, saying the combination would allow for more efficient use of buses and let teenagers sleep longer so they could be more alert in school.

A researcher who studies automation bias — in which people are prone to overly trusting the abilities of automated systems, from factory robots to ChatGPT — said what happened in Louisville fits into a broader problem with the use of artificial intelligence technology.

Students having to walk long distances to bus stops early in the morning might have been "algorithmically correct" because it satisfied the objectives and constraints of the algorithm under Kentucky law, "but in reality parents would not want their kids walking that far at 6 a.m.," said Aaron Schecter, a professor of information management systems at the University of Georgia.

Similarly, an algorithm might satisfy its goal of minimizing total routes, to lessen the number of drivers, at the expense of another criterion such as the time it takes to transport students. Schecter said machine-learning algorithms such as AlphaRoute's are typically trying to optimize an objective and can overlook "worst case" harms even if the average result is satisfactory.

"The underlying principle here is that people were wooed by something that seemed sophisticated, and they trusted that AI would be a magic fix," said Schecter, who hadn't evaluated the specific technology used.

AlphaRoute's Hanlon is the former chief operating officer of Boston Public Schools and has emphasized the company's origins as a partnership between MIT researchers and the school district.

In a 2019 scientific paper, a team lead by Dimitris Bertsimas, an MIT professor who is also a co-founder of AlphaRoute and its parent company, Dynamic Ideas LLC, said that using an algorithm for selecting the best school start times would empower Boston leaders "to make decisions based not on the political whims of special interest groups but on an objective standard agreed on by the community."

News articles at the time said the researchers helped Boston cut 50 buses for a savings of $5 million, although transportation officials did have to vet and tweak the routes before they were used.

However, Boston only ever used routing software in a limited capacity and has no relationship with AlphaRoute today, district spokesperson Max Baker said.

In a follow-up paper in 2020, Bertsimas and his team acknowledged that Boston didn't follow its recommendations for changed bell times and elaborated on a number of routing challenges, from the city's meandering topography to the equity-minded policies tracing back to racial desegregation efforts of the 1970s. But it said the experiment led it to develop a new software system that it was showing to nearly 30 school districts across 17 states.

Nearly 500,000 school buses nationwide transport 25 million students, said Molly McGee-Hewitt, executive director with the National Association for Pupil Transportation. The driver shortage is a real problem, she said, but one that can be solved by offering competitive pay and benefits and reducing bureaucratic barriers to entry.

"You can't have world-class schools without world-class infrastructure, and that includes transportation," she said.

Routing can be complicated, especially in districts that are transporting children across town to magnet schools, charter schools, special needs schools and even private schools, McGee-Hewitt said. Various software vendors have been successfully helping schools manage that challenge for years.

In a news conference Monday, Jefferson County Public School Superintendent Pollio said one significant deficiency was that the recommended routes weren't accounting for the latest information. He said AlphaRoute gave the district the new routes earlier in the summer, but since then thousands of stops had been added as new students enrolled ahead of opening day or parents requested a different bus stop.

"When stops are added to routes, we did not properly add the time that was needed for a bus driver to complete that," he said, explaining that those extra minutes were adding up.

"We had some room for error in our former schedule. We do not have room for error now," he said.

In assessing fault for the opening day fiasco, Pollio has said he's "not going to put it on the company. … I said it from the very beginning, I take responsibility for it myself."