



More than 50 buses were eliminated from the fleet, and Boston saved more than €4 million in the algorithm's first year of operation | Photo source [Artem Sapegin on Unsplash](#)

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ALGORITHM REROUTES SCHOOL BUS TRAFFIC TO SAVE TIME AND MONEY

 MOBILITY & TRANSPORT

MIT's route-planning algorithm saved the city of Boston more than €4 million

Spotted: In the US, Boston provides weekday bus services to children attending more than 220 schools. Previously, teams of public school staff spent weeks putting together the routes serving the district's 25,000 students. Now, an algorithm developed by a Massachusetts Institute of Technology (MIT) research team creates a master plan in under 30 minutes.

The algorithm was created three years ago by an MIT Operations Research Center team led by Professor Dimitris Bertsimas. The team won Boston Public Schools' competition for a solution to its complex school bus route challenge. The winning entry increased efficiency while reducing costs. More than 50 buses were eliminated from the fleet, and the city saved more than €4 million in the algorithm's first year of operation.

Named Quantum, the bus route mapping algorithm uses information that includes Google's map and traffic data, school start times, the distance each child must walk to and from their stop, and the additional special needs of approximately 5,000 students. Despite reducing the number of buses, many students' journey times and distances walked also decreased. Development of the algorithm focuses on making mid-year changes within the system, rather than requiring human input.

Springwise has recently spotted [mapping technology](#) being used to reveal seafloor data lying deep underwater as well as [provide real-time visualisations](#) of air pollution levels.

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Takeaway:

The algorithm has not only saved the school district money but has also had a positive impact on the environment. Since the buses travel 1 million fewer miles per year, 20,000 pounds of carbon dioxide emissions are removed from the atmosphere per day. The district has been able to reinvest the €4 million it has saved back into education initiatives.