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Cramming Vehicles Into Less Space Garages Use New (Old) Technology

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Common across Europe and Asia, fully-automated parking garages are beginning to appear in U.S. cities. These garages require less space than conventional garages, and are proving alluring to developers who must balance high real-estate costs with dense parking needs.

At a fully-automated garage, drivers don't have to search for a spot. Instead, a driver deposits a car into a cabin, then a mechanical system similar to those used in the shipping and manufacturing industries lifts the vehicle and places it into a parking space. These systems stack vehicles in berths and remove the need for space-hogging ramps, driving lanes and access stairs and elevators for drivers. Motion-detection systems ensure there are no passengers in the car before it is parked.

Currently in the U.S., there are only three fully-automated garages: The first, built in Hoboken, N.J. in 2002; a residential garage in Washington, D.C.; and another in New York City's Chinatown which opened in February. The Chinatown garage, by AutoMotion Parking Systems, is attached to luxury condominiums, but is also open to the public.

A spate of multimillion dollar parking projects are also either in construction or about to break ground. Park Plus, Inc. is at work on a garage for luxury condos in New York's Tribeca neighborhood that will house 40 cars. A conventional garage using the same space would only hold ten. This summer, A.P.T. Parking Technologies is planning on building a 300-space, nine-level garage attached to a \$200 million mixed-use development on Boston's Lovejoy Wharf.

The spurt in interest follows a pause in building after the Hoboken garage, built by Robotic Systems Inc., suffered a series of high-profile software malfunctions that resulted in dropped or trapped cars. Representatives from various parking companies said that those glitches have since been ironed out (and other safety measures added) across the industry.

Technical glitches aren't the only reason this parking technology -- which has been used for decades in Germany and Japan -- has been slow to spread in the U.S.

In some cities, the techno-garages don't fit into existing city building codes, which were written with conventional garages in mind, according to Lee Lazarus, president of A.P.T. Parking Technologies. For now, this means that parking companies often must meet with urban planning officials for each municipality where a new project is proposed.

Then there's price. The upfront costs of the motion-sensing software and heavy-lifting equipment are more expensive than a traditional park-and-lock. Developers can expect spaces at a traditional garage in New York to run from \$18,000 to \$22,000; costs at automated garages are estimated between \$25,000 and \$30,000.

Still, some advocates point out that the upfront costs are more than balanced by increasing revenue-generating footage in a development site, whether as more retail, commercial or residential space.

An automated garage can save money in other ways. Perry Finkelman, AutoMotion's CEO, cited a project proposal in which a 36-foot conventional underground garage would only require a 20-foot excavation with automated technology. Not having to dig an additional 16 feet saved time and money, Mr. Finkelman argued.

Another reason for price fluctuation: every project is customized. "Each of the automated garages are very unique because they've been designed according to the plans of the building," said Ryan Astrup, associate architect at Park Plus. "It's very unlikely that two systems would be the same, although you do have very similar components."

Not all high-concept parking solutions rely upon automation. In the case of a New York City luxury high-rise, architect Annabelle Selldorf took a different approach: an elevator brings the car up to just outside a tenant's apartment for what brokers are calling "en suite parking."

Attempts to make parking more space-efficient are not new, explained David Smiley, assistant professor of architecture and urban studies at Barnard College.

"This is urban economics at work. It's still a basic question of: how much land are you allowed to build upon, and how can you squeeze more stuff out of it?"