Slipping Into the Future

New Technologies and Trends in the Parking Industry

By Richard A. Rich And Richard W. Kinnell

"For I dipp'd into the future, far as human eye could see,
Saw the Vision of the world, and all the wonder that would be"

Alfred, Lord Tennyson

In the sixty years since the parking industry really emerged, advances to parking design and planning have come slowly but steadily. From the introduction of self-park structures, to the creation of the first mega-structures, to the development of security tools like CCTV, new parking approaches and tools have generally appeared in fits and starts.

Today however, we are in the midst of a period of innovation. It seems that on a regular basis, new tools that can enhance security, improve parking management and revenue collection, or make parking more convenient are introduced to the marketplace. In fact, so many new technologies have been introduced that parking owners, operators, and designers suffer from an embarrassment of riches. The real challenge is figuring out which tools make sense for each individual parking structure or lot.

Some owners are turning to an old technology: mechanical, or elevator, garages. Mechanical garages can accommodate more cars on extremely tight sites, and today's version features more attractive facades that can fit seamlessly into any neighborhood.

Recent years have seen dramatic improvements to the design of pay-on-foot equipment. Today's equipment can be programmed to accept any type of cash or credit card payment, making it more user friendly than ever.

Improving Management

For many owners and operators, the most exciting advances have revolved around parking management and revenue collection. There are a host of new tools available to make managing parking both easier and less costly.

Wireless communication is one such innovation. Wireless technologies offer potential benefits in terms of both efficiency and cost savings. There are a host of new wireless tools available that permit owners to track how many parkers use their facility each day, when peak and low usage hours occur, and the length of the average parking stay, and then transmit that information to a central database for tabulation. This technology has been introduced to individual meters and pay-by-space meters, for example.

Other technologies simplify the communication process between the revenue collection machine and credit card companies. In addition to the obvious management benefits provided by these tools, they can also provide significant cost savings over the installation of traditional fiber optic or copper cable systems, which can be very expensive to install and maintain.

Another type of wireless tool—one that is particularly attractive to municipal parking authorities—is Mobile Payment Technology, or the "virtual meter." Virtual meters permit parkers to use their cell phones or Personal Digital Assistants to pay for parking, logging into the system with their phones when they are arriving and logging out again when they are leaving. Both patrons and owners benefit from them for a number of reasons. First, parkers enjoy greater convenience because they never have to hunt around for change to plug the meter. Also, they never have to pay for more parking than they need, nor do they have to guess how long they will need the space when they pay. Parkers only pay for the amount of time they actually use the space—and they never have to subsidize parking for the next person who uses that space if they end up leaving before the meter expires.

Municipalities benefit in two ways. First, there's no potential for the lost revenues that commonly occur when a vehicle continues to use a space even after the meter expires. These lost revenues build up over time and can cost municipalities thousands of dollars over the course of a year. Also, municipal parking managers can manage their on-street parking resources more effectively because these systems permit electronic monitoring of how each space is utilized.

There have also been important advances to more traditional tools, such as lighting. High Output Fluorescent Lighting promises to provide the advantages of fluorescent lighting, such as significantly lower operating costs, better color rendition, and reduced maintenance, without being susceptible to the adverse effects of cold temperatures. Operating costs, coloration, and maintenance have traditionally led many parking designers to turn to high pressure sodium and mercury vapor lighting, in spite of their clear shortcomings.

Space Identification Technology (SIT) can provide real-time information about how many spaces are open, and where those spaces can be found.

Finally, some owners and their parking designers are turning to an old technology: mechanical garages. Mechanical or elevator garages were more common at the beginning of the parking age but were soon phased out when self-parking became the norm. Today, however, some owners are taking a new look at mechanical garages to help maximize the number of cars they can fit on extremely tight sites.

Benefits To Parkers

Recent trends and breakthroughs don't just benefit parking owners. Parkers are also realizing advantages from the development of new technologies and design approaches.

Perhaps the most important trend from a customer service point of view is the continuing growth of cashierless parking. Pay-on-foot technologies have been around for more than a decade, but equipment improvements and the public's gradual acceptance of pay-on-foot have resulted in a greater push than ever for cashierless parking.

Last year was a break-out year for cashierless technologies. Perhaps the most important advance was the development of pay-in-lane equipment, which is much smaller than traditional pay-on-foot machinery and can be located in individual exit lanes, rather than in remote corners of a structure. As a result, exiting drivers don't have to seek out pay-on-foot equipment before returning to their vehicles. They can just hop into their cars, drive to exits, and pay for parking as they leave.

Overall, cashierless systems have advanced to the point where they can truly provide the most convenient parking payment experience imaginable. They can be programmed to accept any type of cash or credit card payment, and they minimize the risk of lengthy back-ups that are so common at staffed exit booths. They also reduce the errors from the "human factor" that plague parking systems.

Another technological advance that can make the parking experience much more convenient is the development of Space Identification Technology (SIT). The most common SIT tools, which operate on a similar principal to motion-detectors, utilize

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microwave boxes located above parking stalls to record whether that space is currently in use. The SIT boxes then communicate that information to LED signs located at the entrance to each floor. The signs can then provide parkers real-time information about how many spaces are open on that floor. This technology also provides for instant identification of which spaces are available with indicators placed above every space.

Finally, Web-based technologies promise to dramatically improve management and customer service for parking structures, and are already in use in Europe. The Web-based equipment performs many of the same functions that have already been discussed here, including providing real-time information about available parking spaces, storing information about parking resources in a parking database, and relaying that information to parking managers and planners. However, these Web-based tools can also provide a fourth service: permitting parkers to reserve spaces before visiting the parking structure.

Imagine as a parker being able to reserve and pay for a parking space over the Internet before you leave your house, or even from your vehicle using your cell phone. Not only would you know that there is a space waiting for you, but you would also know exactly where that space is.

Online reservation technologies can be equally beneficial to parking owners, particularly those in competitive marketplaces. By marketing these online services to prospective parking customers, parking owners can gain a competitive advantage over other local parking facilities.

Making The Right Choices

It would be easy to approach all of these new tools like a kid in a candy shop. It all looks so good, it can be tempting to buy them all. Obviously though, that's not possible for most owners. Like many new technologies, these new parking tools can be expensive. And in many cases, they may not be necessary.

It's important to fully evaluate any new technology before integrating it into the design of a new structure or adding it to an existing facility. As with any expense, owners and designers should conduct a full cost/benefit analysis to determine whether the advantages provided by each tool merit undertaking the expense.

The good news is that there is a huge range of new technologies and tools available. The wide variety of options virtually assures that owners and parking designers can find a tool to meet almost any need, and generally at a reasonable cost. P

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